LEGISLATIVE RESEARCH REPORT

DECEMBER 18, 2008

REPORT NUMBER 09.053

PETROLEUM REFINERIES AND GASOLINE PRICES IN ALASKA

PREPARED FOR REPRESENTATIVE LES GARA

BY CHUCK BURNHAM, LEGISLATIVE ANALYST

907-465-3991
907-465-3908 (fax)

Alaska Legislature
Legislative Research Services
w3.legis.state.ak.us/laa/research/research.php

State Capitol
Juneau, AK 99801

You asked for information on issues that impact gasoline prices in Alaska. Specifically, you wanted the following information:

- Recent operating costs and profits for gasoline sales by Alaska refineries compared to those of refineries elsewhere in the nation;
- States that regulate prices charged by refineries and how such regulation might be applied in Alaska;
- A review of efforts by the State of Hawaii to implement wholesale price controls on gasoline.
- Whether any of Alaska's refineries are for sale; and
- Current gasoline prices in Alaska and the Municipality of Anchorage compared to the national average.

SUMMARY

We were largely unable to precisely determine costs and profits for Alaska refinery operations. It is clear, however, that the proportion of gasoline prices attributable to refineries in the state has increased dramatically in recent months. Since March, the "refinery component" of regular gasoline, also known as the "refinery margin" (wholesale price minus the cost of crude oil), in Alaska increased over 230 percent, with over half of that increase coming since crude oil prices began dropping rapidly from all-time highs in July. By comparison, since March, the refinery component in the state of Washington increased about 63 percent and the average component for all U.S. refineries increased 120 percent.

In recent months, refinery margins have increased across the U.S. However, we are unable to explain why cost increases for Alaska refineries have outstripped those of other states. It is possible that Alaska refiners took advantage of easing oil prices to recoup profits lost through months of historically high crude oil costs, during which refiners were under pressure to keep their margins low. Whatever the reasons, it is clear that local refinery margins contribute to Alaska currently having the highest gasoline prices in the nation.

We located no states that currently regulate wholesale prices charged by refineries. Absent violations of antitrust laws through "price-fixing," in which two or more companies collude to set their prices at artificial levels, or the application of price gouging laws during a natural disaster or another emergency, it appears that refineries may generally set their prices as they see fit. That said, we located no obvious legal impediment to Alaska regulating gasoline prices through price caps or through mechanisms similar to those used by the Regulatory Commission of Alaska (RCA) to regulate utility prices.

Hawaii enacted a gas cap law in September 2005, but repealed the law eight months later when evidence suggested that it may have been counter-effective (gasoline prices rose after its enactment). The state continues to closely monitor the various components of gasoline costs in efforts to improve transparency in pricing; however, whether that effort will succeed in regulating prices is not yet clear.

On December 10, Governor Palin announced a joint effort between the state and Flint Hills Resources to evaluate the North Pole refinery's future. The owners of the refinery have been suggesting for some time that they may sell or close the refinery due to poor financial performance. The Governor did not, however, indicate that the state would be taking a stake in

the refinery. The joint analysis of the refinery's future is expected to take between three and six months.

REFINERIES IN ALASKA

According to the Department of Natural Resources, Division of Oil and Gas (DOG), there are six refineries in Alaska with a combined crude oil distillation capacity of about 373,500 barrels per day (136.4 million barrels per year). The DOG notes that five of the six facilities are "topping" plants that remove the lighter, higher valued transportation fuels—most commonly gasoline and aviation fuel—from the crude oil stream and inject the degraded fuels back into the crude oil pipeline. Combined, these six refineries meet most of the need for gasoline and aviation fuel used by residential, commercial, industrial, and transportation customers across the state.[1]

Of the six in-state refineries, only two—Flint Hills Resources, near North Pole, and Tesoro, in Nikiski on the Kenai Peninsula—produce significant amounts of gasoline for the retail market. Therefore, as we discuss Alaska refineries with regard to gasoline, keep in mind we are primarily referring to these two facilities. The two refineries with the least capacity, located on the North Slope and owned by the crude oil producers, primarily provide products such as diesel fuel to support the drilling and production operations of the producers. The other two refineries, respectively located in North Pole and Valdez near the Trans Alaska Pipeline System (TAPS) marine terminal, are owned by Petro Star, Inc, a subsidiary of the Arctic Slope Regional Corporation. Table 1, shows the location and maximum daily distillation capacity of each of Alaska's refineries.[2]

It is important to keep in mind that Alaska refineries do not generally operate at full capacity. In early 2008, for instance, the three refiners that produce products for the commercial market—Flint Hills, Tesoro, and Petro Star—took in an average of about 127,000 barrels of crude oil per day; about 37 percent of their collective capacity.[3]

[1] The major exception occurs in Southeast Alaska, where fuel retailers are able to patronize either in-state refiners or take advantage of the region's proximity to West Coast markets, as prices and shipping costs dictate. In addition, certain retailers—Safeway and Costco stores, in particular—sell high enough volumes of gasoline to make importing gasoline from refineries outside the state economical.

[2] We include, as Attachment A, *2007 Oil and Gas Report*, Alaska Department of Natural Resources, Division of Oil and Gas, Sec. Five, "Alaska Refining Sales and Consumption," *http://www.dog.dnr.state.ak.us/oil/products/publications/*.

[3] As a point of reference, according to a report by the Institute of Social and Economic Research (ISER), a standard 42 gallon barrel of oil produces between 44.6 and 48.4 gallons of refined product with the inclusion of various fuel additives. This output includes between 19 and 20 gallons of gasoline and about four gallons of jet fuel. The remaining output is divided among diesel fuel, heating oil, and "heavy oil" products such as industrial fuel and asphalt base. We include, as Attachment B, "Components of Delivered Fuel Prices in Alaska," *Institute of Social and Economic Research, University of Alaska Anchorage*, June 2008, pp 12-14; *http://www.iser.uaa.alaska.edu/Publications/*. .

Table 1: Petroleum Refinery Capacity in Alaska

Refinery	Location	Distillation Capacity (Barrels Per Day)	Products
Flint Hills Resources, LLC	North Pole	210,000	Gasoline, jet fuel, heating oil, diesel, gasoil, asphalt
Tesoro Petroleum Corp.	Nikiski (Kenai)	72,000	Gasoline, jet fuel, diesel fuel, heating oil, heavy fuel oils, marine diesel fuels, propane, asphalt
Petro Star Inc.	Valdez	48,000	Commercial jet fuel, military jet fuel, marine diesel, heating oil, turbine fuel
Petro Star Inc.	North Pole	17,000	Kerosene, diesel fuel, jet fuels
ConocoPhillips AK, Inc.	Kuparuk	14,000	Diesel fuel
BP Exploration Inc.	Prudhoe Bay	12,500	Diesel fuel
Total Distillation Capacity		**373,500**	

Notes: "Distillation Capacity" represents the maximum capacity of each facility; these figures do not represent the actual amount of crude oil input each day.
Sources: *2007 Oil and Gas Report*, Alaska Department of Natural Resources, Division of Oil and Gas, ; *http://www.dog.dnr.state.ak.us/oil/products/publications/annual/report.htm*.;
Flint Hills Resources, LLC: *http://www.fhr.com/refining/alaska.aspx;*
Tesoro Petroleum Corp.:
http://www.tsocorp.com/TSOCORP/ProductsandServices/Refining/KenaiAlaskaRefinery/KenaiAlaskaRefinery
Petro Star Inc.: *http://www.petrostar.com/divisions/divisions.asp?page=refining*.

EXPLORING THE IMPACT OF REFINERIES ON GASOLINE PRICES IN ALASKA

Information on profits for individual petroleum refineries in Alaska and elsewhere is considered proprietary.[4] Using the data available to us, we attempted a number of approaches to estimate the operating costs and profits of refineries, particularly those related to gasoline production and sales. Unfortunately, those efforts were largely unsuccessful. Key points of crucial information unavailable to us include crude oil acquisition costs disaggregated by refinery, operating costs, and precise gasoline output figures.

[4] The only refiner to publicly announce Alaska-specific earnings was Petro Star, Inc. (PSI). The 2007 annual report of PSI's parent company, Arctic Slope Regional Corporation, announces the "earnings before interest and taxes" for PSI last year were $50.9 million. However, as we mentioned, PSI does not produce gasoline. As a result, its financial information has little bearing on your question.

A number of investigations into the components of gasoline costs have been undertaken in reaction to price spikes in Alaska.[5] As you likely know, both the state's Department of Law and the House Judiciary Committee have been separately investigating why gasoline prices in Alaska have decreased much slower than those in other states while the price of oil fell dramatically in recent months. Media coverage indicates that reports from both organizations will be published in January. These reports may shed considerable light on the topic, as the refiners have agreed to share certain proprietary information, pursuant to the terms of confidentiality agreements, with both investigations.[6]

Of the published reports we located on gasoline prices in Alaska, we found a report by ISER (Attachment B) to be particularly useful. Below we summarize the findings of this report with regards to refineries in the state.

ISER FINDINGS RELATED TO ALASKA REFINERIES, 1988-2007

In 2008, ISER published a report prepared for the Alaska Energy Authority on the components of fuel prices in Alaska (Attachment B). As part of its extensive research the Institute analyzed the difference between crude oil acquisition costs and wholesale fuel prices and concluded that the "primary source of variance in the prices at which U.S. refineries sell their products is the cost of their crude oil feedstock." The same statistical analysis, when applied specifically to Alaska refineries, returned similar results, showing a "strong correlation" between crude oil prices and refined product prices throughout the twenty-year time period covered by the study.[7] Additional findings from the ISER study that shed light on the impact refineries have on gasoline prices in Alaska are as follows:

- World and Alaska crude oil prices are set in the global market and reflect both crude oil supply and demand and international global events that influence the real and perceived stability of oil supplies.

- Alaska can do little (or nothing) to influence world crude oil prices. Therefore, these are a relative fixed component of overall fuel costs. In late 2007, costs of crude oil made up approximately $1.78 per gallon of final fuel prices. [In mid-December, 2007, retail price for regular gasoline in Alaska averaged about $3.25 per gallon]

[5] Notably, the office of Attorney General (AG) Bruce Botelho conducted a three-year investigation ending in late 2002 into possible gasoline price-fixing. During the investigation, refiners in Alaska were compelled by court order to turn over year's worth of internal documents after the companies sued in attempt to avoid disclosing what they characterized as proprietary information. Ultimately, the AG felt he lacked sufficient evidence to bring charges against the companies. He did, however, indicate that the lack of market diversification and competition in the state may have allowed the companies to set parallel prices without actually colluding to fix prices. We include, as Attachment C, two articles from the *Anchorage Daily News* that discuss the investigation.

[6] It is unclear to what extent these disclosures will be shared with the public. It is possible that the refiners have agreed to allow publication of information that aggregates data from all of the in-state refineries. We reviewed the minutes of the Judiciary Committee meetings in which representatives of the refineries testified. Refinery representative told the committee that gasoline costs were based primarily on oil prices and attributed their own cost increases largely to environmental regulations and the high costs of doing business in Alaska's small market. Committee meeting minutes are available through the Legislature's online database (BASIS) at *http://www.legis.state.ak.us/basis/minutes_form.asp?session=25*.

[7] ISER, pp. 17-21.

- While the costs of fuel from Alaska refineries might be somewhat higher than from West Coast refineries, the additional transportation costs from West Coast refineries to Alaska appear to balance out the costs of in-state feedstock. As a result, the combined crude oil and refinery components tend to total the same amount, regardless of fuel refinery source.

- Refinery wholesale prices tend to closely track crude oil prices. The difference tends to be constant rather than a percentage, which suggests it is based on actual costs.

We do not dispute ISER's findings; however, it does appear that certain circumstances have changed substantially since the study was completed.

INCREASED REFINERY COSTS IN ALASKA

Using data from the U.S. Energy Information Administration (EIA) and the Alaska Department of Revenue's Tax Division (DOR) we attempted to replicate, in a fashion, ISER's examination of the component of gasoline prices generated by the refining process. In Table 2 (following page) we calculated the difference between "spot" prices for Alaska North Slope (ANS) crude oil and the composite wholesale price for regular gasoline charged by refineries, beginning with the last month covered by the ISER study, September 2007.[8]

As you can see, in the period from September 2007 to May 2008 the Alaska refinery component of retail gasoline prices—calculated by subtracting ANS spot prices from refiner wholesale prices—fluctuated between 38 cents and 51 cents; a range of about 34 percent from low to high.[9] Over the same period, per-gallon ANS spot prices rose from approximately $1.90 to about $2.99—an increase of just over 57 percent. Despite these fluctuations, the refinery component, as a percent of retail gasoline prices, maintained a fairly tight range from 12.5 percent to 18.2 percent. However, as Figure 1 illustrates, although the ANS spot price reached its peak in June, the refiner component continued to increase through September. In fact, ANS spot prices fell nearly 24 percent from June to September while, over the same period, the refinery component of prices at the pump doubled. September retail gasoline prices were actually below those for March, yet the proportion of those prices incurred by refiners increased nearly 230 percent, from $0.38 to $1.25.

[8] September 2008 is the most recent month for which EIA data are available. Among the numerous variables tracked and published by the EIA are the collective average wholesale product prices for Alaska refineries. For most other states, the EIA also publishes average crude oil acquisition costs for refiners; however, because there are relatively few refiners in the state, the EIA withholds those figures for Alaska to avoid revealing proprietary information. All refiner sales figures in this report are "sales for resale" data—defined by the EIA as "sales of refined petroleum products to purchasers who are other-than-ultimate customers; wholesale." The EIA's data sets are available online at *http://www.eia.doe.gov/*. Unlike acquisition costs, "spot prices" do not include the costs of transporting crude oil to a refinery. A twenty-year history of ANS spot prices is available from DOG at *http://www.tax.state.ak.us/programs/oil/index.aspx*. We calculated the per-gallon spot price for ANS by dividing the DOG's per-barrel figures by 42—the number of gallons in a standard barrel of crude oil.

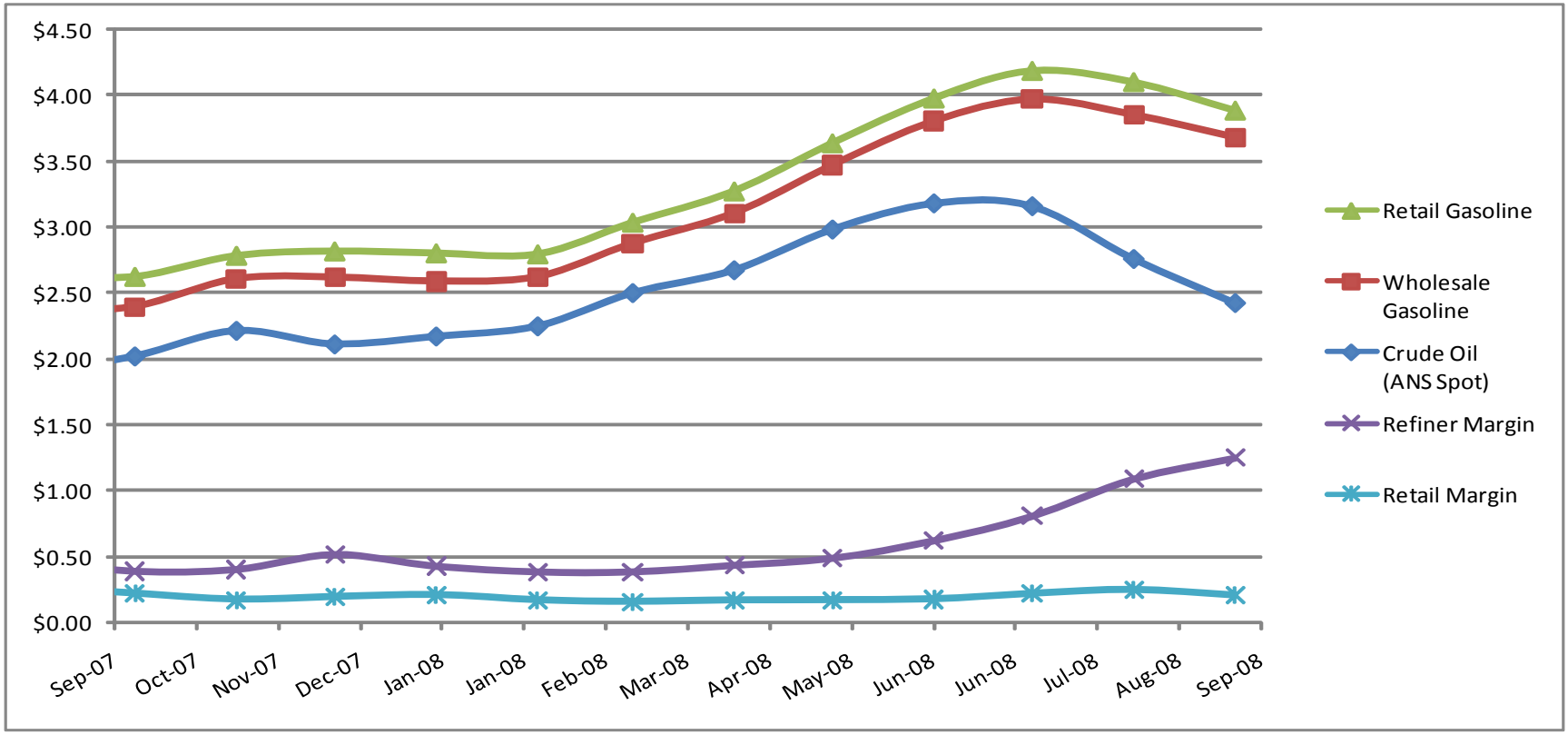
[9] Due to differences in survey methodology, retail gasoline prices published by the EIA may differ from those published by the American Automobile Association (AAA), which are widely cited in news media. Our calculations of the refinery component of retail prices in Alaska are based on crude oil spot prices and refinery wholesale prices. Differences in retail price estimates do not, therefore, impact the accuracy of refinery components as expressed in dollars and cents. Variations in retail price estimate do, however, impact calculations of the refiner component as percentage of retail prices. Please view these calculations as rough estimates.

Table 2: Prices and Margins for Regular Gasoline in Alaska, September 2007 to September 2008

Prices and Margins	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
Crude Oil (ANS Spot)[1]	$1.90	$2.02	$2.21	$2.11	$2.17	$2.25	$2.50	$2.68	$2.99	$3.19	$3.16	$2.76	$2.43
Wholesale Gasoline[2]	$2.36	$2.40	$2.61	$2.62	$2.59	$2.63	$2.88	$3.11	$3.47	$3.80	$3.97	$3.85	$3.68
Retail Gasoline[3]	$2.63	$2.63	$2.79	$2.82	$2.80	$2.80	$3.04	$3.27	$3.64	$3.98	$4.19	$4.10	$3.89
Refiner Margin[4]	$0.46	$0.38	$0.40	$0.51	$0.42	$0.38	$0.38	$0.43	$0.48	$0.62	$0.80	$1.09	$1.25
Retail Margin[5]	$0.27	$0.22	$0.17	$0.20	$0.21	$0.17	$0.16	$0.17	$0.17	$0.18	$0.22	$0.25	$0.21
Refiner Margin as % of Retail Price[6]	17.6%	14.6%	14.3%	18.2%	15.1%	13.6%	12.5%	13.1%	13.3%	15.5%	19.2%	26.6%	32.2%

Notes: All dollar amounts are per gallon. We use the word "margin" to mean the proportion of gasoline costs attributable to a certain step in the process of bringing a gallon of gasoline to the retail market. In this context, only a percentage of the total margin is taken as profit.
1) "ANS Spot" is the cost of Alaska North Slope crude oil on the commodity market. We calculated this cost by dividing the price per barrel by 42 (the number of gallons in a standard barrel);
2) "Wholesale Gasoline" is the average price of gasoline charged by Alaska refinters to resellers;
3) "Retail Gasoline" is the average price of gasoline "at the pump" to end-users and include taxes;
4) "Refiner Margin" is refiner wholesale price minus ANS Spot prices;
5) "Retail Margin" is retail price minus wholesale price.
Sources: U.S. Department of Energy, Energy Information Administration, *http://www.eia.doe.gov/.* ; ANS Spot prices are from the Alaska Department of Revenue, Tax Division, *http://www.tax.state.ak.us/.*

Figure 1: Selected Components of Alaska Gasoline Prices, September 2007 to September 2008



Notes: All dollar amounts are per gallon. We use the word "margin" to mean the proportion of gasoline costs attributable to a certain step in the process of bringing a gallon of gasoline to the retail market. In this context, only a percentage of the total margin is taken as profit.
1) "Retail Gasoline" is the average price of gasoline "at the pump" to end-users and include taxes;
2) "Wholesale Gasoline" is the average price of gasoline charged by Alaska refinters to resellers;
3) "ANS Spot" is the cost of Alaska North Slope crude oil on the commodity market. We calculated this cost by dividing the price per barrel by 42 (the number of gallons in a standard barrel);
4) "Refiner Margin" is refiner wholesale price minus ANS Spot prices;
5) "Retail Margin" is retail price minus wholesale price.
Sources: U.S. Department of Energy, Energy Information Administration, *http://www.eia.doe.gov/.* ; ANS Spot prices are from the Alaska Department of Revenue, Tax Division, *http://www.tax.state.ak.us/.*

Although the increases in Alaska refiners' component of gasoline prices were dramatic over the summer, with the information available to us we cannot draw firm conclusions as to whether those increases represent increased costs of doing business, higher profits, or both. It is, nonetheless, instructive to examine the experiences of other states over the same time period.

COMPARING REFINERY COSTS AND PRICES

We compared the crude oil costs and average wholesale prices for refineries in Alaska, Washington, and the U.S. to determine whether substantial increases in the refinery component of gasoline costs over the summer of 2008 were unique to Alaska.[10] We found that the refinery component increased elsewhere, but not nearly to the levels seen in Alaska.

According to the EIA, average refiner "margins"—that is, the difference between crude oil acquisition cost and the price to resellers—has increased substantially in recent years; from per-gallon components of about 25 cents in 2001 to over 56 cents in 2007.[11] This is due, at least in part, to higher costs associated with environmental requirements (changes in additives, lowered sulfur content, increased use of ethanol mixtures, etc.) and higher operating costs for transportation and other factors.

According to our calculations, in September of 2007, the respective refinery components in Alaska, Washington, and the U.S. were below nationwide averages for recent years. Through the spring of 2008, each of these jurisdictions saw refinery components varying within relatively narrow ranges. A slight drop in the price of oil in July concurred with decreases in the refinery components in Washington and the U.S., but an increase in Alaska. Despite continued drops in oil prices, refineries costs in each of the jurisdictions increased substantially in both August and September. As Table 3 shows, however, overall increases in the average refinery components of Washington and the U.S. were substantially lower than those in Alaska.

[10] It is important to note that our comparison is based on ANS spot prices for Alaska and refiners' acquisition costs for crude oil in Washington and the U.S. While we believe these measures to be sufficiently similar to facilitate a rough comparison of the increases in refiner costs as a portion of gasoline prices, they are not identical measures. "Spot prices" are used to identify the value of a commodity at the point of production, and unlike "refiner acquisition costs," do not include the costs of transporting crude oil to refineries. However, transportation costs for crude oil to the state's largest refinery, Flint Hills, by virtue of its direct pipeline link to the TAPS, are unique. The refinery purchases "royalty-in-kind" oil, which the state receives as part of its lease agreements with oil producers, through a contract using the following formula:

(ANS Spot Price) – ($1.55) – (Tariff Allowance) + (Quality Bank Adjustment) – (Line Loss) = cost per barrel.

The precise costs to Flint Hills under this contract during the time-period we studied are unclear, particularly in light of a June 2008 ruling on TAPS tariffs by the Federal Energy Regulatory Commission (FERC). The FERC found that pipeline owners had overcharged recipients of oil sent through TAPS. The owners of Flint Hills hold a four percent stake in the TAPS and, under the FERC ruling, owes the state a large retroactive payment. An article on the FERC ruling is available at *http://www.newsminer.com/news/2008/jun/19/trans-alaska-pipeline-owners-overcharged-shippers-/*. Flint Hills contract with the state is available online at *http://www.dog.dnr.state.ak.us/oil/programs/royalty/rik_sale/flint_appx_a.pdf*. More information on royalty oil received under AS 39.05 is available from the Department of Natural Resources at *http://www.dog.dnr.state.ak.us/oil/programs/royalty/rik.htm*.

[11] "Annual Energy Review 2007," U.*S. Department of Energy, Energy Information Administration*; *http://www.eia.doe.gov/emeu/aer/contents.html*, Table 5.22, p 173.

Table 3: Average Prices and Margins for Petroleum Refiners in Alaska, Washington and the U.S., September 2007 to September 2008

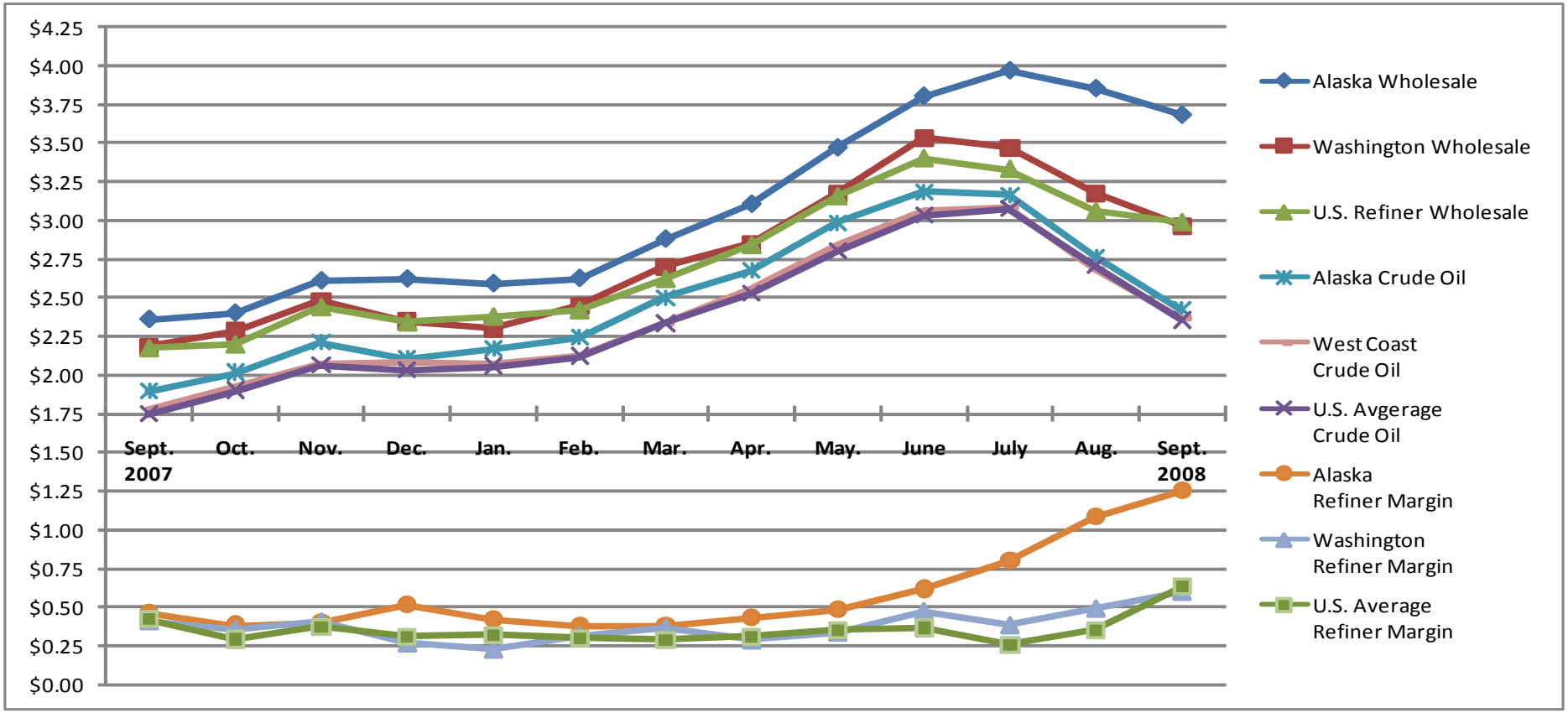
Prices and Margins	Sept. 2007	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sept. 2008
Crude Oil Costs													
Alaska[1]	$1.90	$2.02	$2.21	$2.11	$2.17	$2.25	$2.50	$2.68	$2.99	$3.19	$3.16	$2.76	$2.43
West Coast[2]	$1.78	$1.93	$2.07	$2.08	$2.07	$2.13	$2.33	$2.56	$2.84	$3.06	$3.08	$2.69	$2.37
U.S. Average	$1.75	$1.90	$2.07	$2.03	$2.06	$2.12	$2.33	$2.53	$2.80	$3.03	$3.07	$2.71	$2.35
Wholesale Gasoline[3]													
Alaska	$2.36	$2.40	$2.61	$2.62	$2.59	$2.63	$2.88	$3.11	$3.47	$3.80	$3.97	$3.85	$3.68
Washington	$2.19	$2.28	$2.48	$2.35	$2.30	$2.45	$2.70	$2.85	$3.18	$3.53	$3.47	$3.18	$2.96
U.S. Refiner Average	$2.17	$2.20	$2.44	$2.34	$2.38	$2.42	$2.62	$2.84	$3.15	$3.40	$3.33	$3.06	$2.99
Refinery Margins[4]													
Alaska	$0.46	$0.38	$0.40	$0.51	$0.42	$0.38	$0.38	$0.43	$0.48	$0.62	$0.80	$1.09	$1.25
Washington	$0.41	$0.36	$0.41	$0.27	$0.23	$0.32	$0.37	$0.29	$0.34	$0.47	$0.38	$0.49	$0.60
U.S. Average	$0.42	$0.30	$0.37	$0.31	$0.32	$0.30	$0.29	$0.31	$0.35	$0.37	$0.26	$0.35	$0.63

Notes: All dollar amounts are per gallon.
1) Alaska crude oil costs reflect the "ANS Spot price ," or the cost of Alaska North Slope crude oil on the commodity markets. We calculated this cost by dividing the price per barrel by 42 (the number of gallons in a standard barrel). Spot prices do not include the costs of transporting crude oil to refineries.
2) The "West Coast" and "U.S. Average" crude oil costs are "acquisition" costs--the prices refiners pay for crude oil delivered to their facilities.
3) Wholesale Gasoline" is the average price charged by refiners to resellers.
4) We use the word "margin" to mean the proportion of gasoline costs attributable to a certain step in the process of bringing a gallon of gasoline the retail market. In this context, only a percentage of the total margin is taken as profit.
Sources: U.S. Department of Energy, Energy Information Administration, *http://www.eia.doe.gov/.* ; ANS Spot prices are from the Alaska Department of Revenue, Tax Division, *http://www.tax.state.ak.us/.*

It appears clear from these data that cost increases in the second half of 2008 were common to refineries across the country. It is less clear what generated those costs. We reviewed a number of news media reports discussing the pressure refiners were under to keep their costs low during the spring and summer of 2008.[12] Refineries may have operated at fairly slim margins while oil prices were exceptionally high then, to compensate, sought to increase their profits as oil prices eased later in the year. In any case, we are unable to explain why the refiner component of gasoline prices in Alaska was about twice that of Washington and the U.S. in September. Further, we found no credible justification as to why the increase to the refinery component in Alaska between March and September of this year was nearly twice that of the increase in the average U.S. refinery, and over 3.5 times that of Washington refineries, over the same time period. Figure 2 graphically summarizes the crude oil costs and average wholesale refinery prices to resellers for Alaska, Washington, and the U.S. The lower lines show the rapid divergence between the refinery component, or margin (wholesale price minus crude oil costs), for Alaska compared to those for the other jurisdictions.

[12] For instance, we include as Attachment D, Jad Mouawad, "Oil Refiners Hardly Gushing," *San Diego Union-Tribune*, May 14, 2008; *http://www.signonsandiego.com/uniontrib/20080514/news_1b14oil.html*.

Figure 2: Average Prices and Margins for Petroleum Refiners in Alaska, Washington and the U.S., September 2007 to September 2008



Notes: All dollar amounts are per gallon.
1) Wholesale Gasoline" is the average price charged by refiners to resellers.
2) "Alaska Crude Oil" is the "ANS Spot price," or the cost of Alaska North Slope crude oil on the commodity markets. We calculated this cost by dividing the price per barrel by 42 (the number of gallons in a standard barrel). Spot prices do not include the costs of transporting crude oil to refineries.
3) The "West Coast" and "U.S. Average" crude oil costs are "acquisition" costs–the prices refiners pay for crude oil delivered to their facilities.
4) We use the word "margin" to mean the proportion of gasoline costs attributable to a certain step in the process of bringing a gallon of gasoline the retail market. In this context, only a percentage of the total margin is taken as profit
5) "Refiner Margin" is refiner wholesale price minus ANS Spot price or acquisition costs, as applicable.
Sources: U.S. Department of Energy, Energy Information Administration, *http://www.eia.doe.gov/.* ; ANS Spot prices are from the Alaska Department of Revenue, Tax Division, *http://www.tax.state.ak.us/.*

REGULATION OF REFINERY PRICES

We are aware of no state that currently regulates wholesale gasoline prices charged by refineries. States typically provide consumer protections against "price-fixing" and other unfair trade practices that apply to all businesses, including refineries. These laws apply to the act of two or more businesses colluding to set prices at an artificial level to either increase profits or to undercut the prices of competitors. Generally speaking, individual refineries can set their prices at whatever level they choose, so long as they do not agree on those prices with another refiner.

An exception to the lack of price regulation for refineries exists when "price gouging" laws are in effect. In simple terms, price gouging is the act of charging an unreasonably high price for goods or services, particularly when few alternative sources for those goods or services are available during natural disasters or other emergencies. At least thirty states have some form of price gouging law. Although most states direct their laws broadly at prices for all goods and services, public outcry over fuel costs has led a number of states to specifically forbid price gouging in regard to gasoline and other petroleum products. Among these states are Connecticut, Idaho, Indiana, Massachusetts, and Vermont.

The vast majority of states require an official disaster declaration by either the governor or the president for price gouging laws to take effect A few states—including Massachusetts, Maine, Vermont, and Wisconsin—have price gouging laws that are applicable under "abnormal market disruptions" or "market emergencies" attributable to any of a variety of extraordinary circumstances. Therefore, in these states it may be possible to declare a market disruption or emergency due to events occurring in another area. The most obvious example of this would be a market emergency declared in reaction to dramatic increases in the price of gasoline due to hurricanes or other disasters in oil producing states. (Please note that some instances of price gouging in a variety of market conditions may fall under the auspices of more general consumer protection laws.)

Despite the lack of direct gasoline price regulation in other states, we found no constitutional or statutory provision at the state or federal level that would prohibit Alaska from doing so. This may be accomplished through price caps, an oversight body with the authority to control prices (such as Regulatory Commission of Alaska, which monitors utility prices), or another regulatory regime.

GASOLINE PRICE REGULATION IN HAWAII

In September of 2005, the State of Hawaii implemented the Gas Cap Law (GCL) that controlled wholesale gasoline prices charged to retailers.[13] Under the law, an upper limit on gasoline prices was set weekly by the Hawaii Public Utilities Commission based on average prices for regular unleaded gasoline in three U.S. markets—New York, Los Angeles, and the Gulf Coast. The GCL did not directly address lower prices at the pump, but ensured that Hawaii wholesale prices would be tied to the prices in the three aforementioned markets.

[13] Information on Hawaii's Gas Cap Law is available at *http://hawaii.gov/dcca/areas/dca/gascap.*

The Gas Cap Law was repealed in May 2006—eight months after its implementation—when Governor Lingle signed into law a suspension of the measure.[14] The primary reason for the suspension appears to be the perception that it was not working.[15] In fact, gasoline prices actually rose during the time that this cap was in effect, though a definite link between the cap and higher prices has not been established.

Kate Marks, Energy Program Director for the National Conference of State Legislators (NCSL), believes the law, while well intentioned, may have been ill conceived from the outset.[16] She directed us to three reports from 2003—when the GCL was being actively debated in Hawaii—by NCSL's energy program, the Federal Trade Commission, and Stillwater Associates. These reports unanimously recommended against passage of the gas cap plan.[17] Concerns raised by these agencies included the additional monitoring costs the state would incur, evidence (from Canada and elsewhere) that price controls did not help consumers, and, in particular, that the complexity of market forces at work are beyond that which caps can address.

Proponents of the GCL argue that rising oil costs (as a result of hurricanes on the mainland), as well as effective petroleum industry lobbying, were among the primary reasons that the GCL fell from public favor. According to Hawaii State Senator Ron Menor, a chief advocate of the gas cap,

> . . . I think the oil companies did a good job of blaming the pricing regulations for the high prices.

Fellow State Senator Paul Whalen, another advocate of the GCL, acknowledged,

> In a lot of people's minds, they thought the gas cap wasn't working. It was hard to generate lots of support for it because . . . we're paying more than we ever were.[18]

Wendy Takanishi, petroleum analyst with Hawaii's public utilities commission, advised that because the GCL was in effect for such a short time, it is difficult to assess whether or not it benefited consumers.[19] She related that in the summer of 2007, Hawaii implemented legislation that requires the state to closely monitor petroleum prices statewide in an attempt to provide

[14] The mostly Democratic Hawaii Legislature supported suspending the cap and gave Republican Governor Lingle—who had consistently opposed the gas cap law—the power to reinstate it if she decides fuel becomes too expensive. At the same time, new legislation was passed to provide for the computation of a hypothetical gas cap to let customers know what gasoline would cost if there were price controls. Additionally, the law requires oil companies to make their wholesale price information public so that customers can compare prices with actual costs.

[15] According to the sources we spoke with, and our internet resources.

[16] Kate Marks can be reached at (303) 364-7700.

[17] We include these three reports as Attachment E. Stillwater Associates LLC, an Irvine, California based company, advises clients on energy policy, energy technology development, mergers and acquisitions and litigation support. For additional information on Stillwater's research and recommendations concerning Hawaii's gas cap law please go to *http://www.stillwaterassociates.com/gascaps.html.*

[18] Quotes from both Hawaii lawmakers were taken from a May 6th, 2006, Associated Press article, "Hawaii Gas Cap Running on Fumes," by Mark Niesse. The article, which we provide as Attachment F, examines the final days of the Gas Cap Law and notes that because the oil refiners keep profit margins and costs private, it is difficult for even experts to determine whether residents were paying more or less than they would without the gas cap.

[19] Wendy Takanishi can be reached at (808) 586-2020.

transparency in the process. Ms. Takanishi informs us that it is premature to judge this measure's effectiveness.

FOR SALE: ALASKA REFINERIES?

The owners of Flint Hill Resources have on a number of occasions publicly suggested that they may sell or close the refinery due to poor financial results. Recent tariff decisions by the Regulatory Commission of Alaska (RCA) and the FERC, both of which increased costs to the refinery, have apparently made that possibility more likely.

As you likely know, Governor Palin recently announced a joint effort between the state and Flint Hills to conduct an evaluation of the future of the business "aimed at positioning the North Pole Refinery for long-term success" Although few concrete details of the agreement were released, the Governor outlined plans for the effort as follows:

> The State and Flint Hills will evaluate options aimed at improving the plant's ability to respond to volatile energy costs, varying product demands and volatile refinery margins as well as facilitating plant upgrades needed to position the plant to succeed long-term. Flint Hills is providing data to the Department of Natural Resources, which has assured confidentiality. This data allows DNR the opportunity to analyze refinery economics; this analysis is expected to take from 3 to 6 months.[20]

There was no indication in the press release that the state was considering either purchasing or establishing an ongoing business partnership with the refinery. There are currently no states that own or operate refineries. There have been reports, however, that North Dakota, which has only one refinery (owned by Tesoro), is considering options to increase in-state refinery capacity, possibly by building a state-run facility.[21]

GASOLINE PRICES

According to the American Automobile Association (AAA), at $2.67 Alaska had the highest average retail price of any state for a gallon of regular unleaded gasoline on December 16. On the same date, the national average was $1.66 per gallon. The next-highest prices on that day were found in Hawaii and Connecticut, with statewide averages of about $2.42 per gallon and $1.81 per gallon, respectively.

As Table 4 shows, average per-gallon retail prices in Alaska are down from the all-time high of approximately $4.70 on July 24, and have dropped about 16 percent from the price one month ago. Nationally, by comparison, the record high of $4.11 per gallon was reached on July 11 and in the past month prices have come down approximately 21 percent.

[20] The Governor's press release is available online at *http://www.gov.state.ak.us/news.php?id=1579*.

[21] An article on the potential North Dakota refinery is available online at *http://www.reuters.com/article/oilRpt/idUSN2364316120080123*.

December 16 average prices in Anchorage were about $2.45 per gallon—down about 16.4 percent from November 16 prices. Meanwhile, Seattle motorists paid $1.81, down just over 21 percent from one month ago.

Table 4: Regular Gasoline Prices in Selected Areas

Location	December 16, 2008	November 16, 2008	Difference Month-to-Month	December 16, 2007	Difference Year-to-Year	All-Time Highs
Alaska	$2.67	$3.18	19.1%	$3.24	-17.6%	$4.70
Nationwide	$1.81	$2.11	16.6%	$3.00	-39.7%	$4.11
Difference AK v. U.S.	**47.5%**	**50.7%**	N/A	**8.0%**	N/A	**14.4%**
Anchorage	$2.45	$2.94	20.0%	$3.06	-19.9%	$4.45
Seattle	$1.82	$2.30	26.4%	$3.14	-42.0%	$4.30
Difference ANC v SEA	**34.6%**	**27.8%**	N/A	**-2.5%**	N/A	**3.5%**

Source: American Automobile Association (AAA); *http://www.fuelgaugereport.com/index.asp*.

I hope you find this information to be useful. Please do not hesitate to contact us if you have questions or need additional information.

Attachment A

2007 Oil and Gas Report, Alaska Department of Natural Resources, Division of Oil and Gas, Sec. Five, “Alaska Refining Sales and Consumption,” *http://www.dog.dnr.state.ak.us/oil/products/publications/.*

Section Five

Alaska Refining
Sales and Consumption

Page left intentionally blank

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]

[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

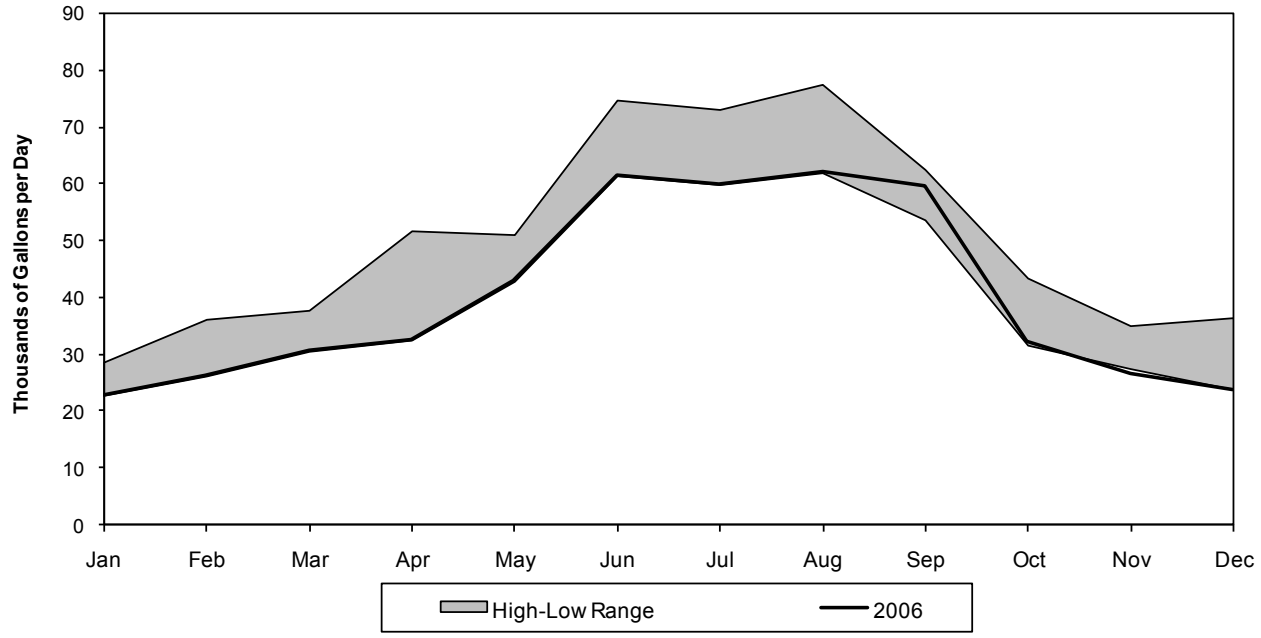
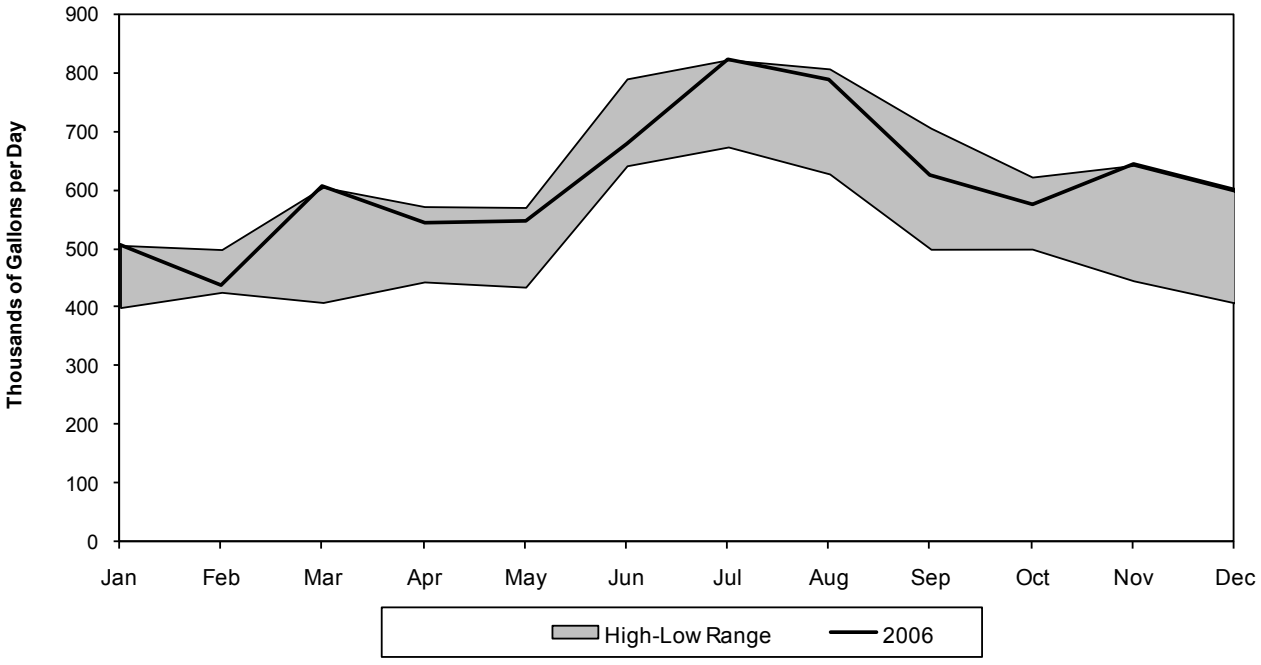


Figure V.4 Seasonal Jet Fuel Sales 2006

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

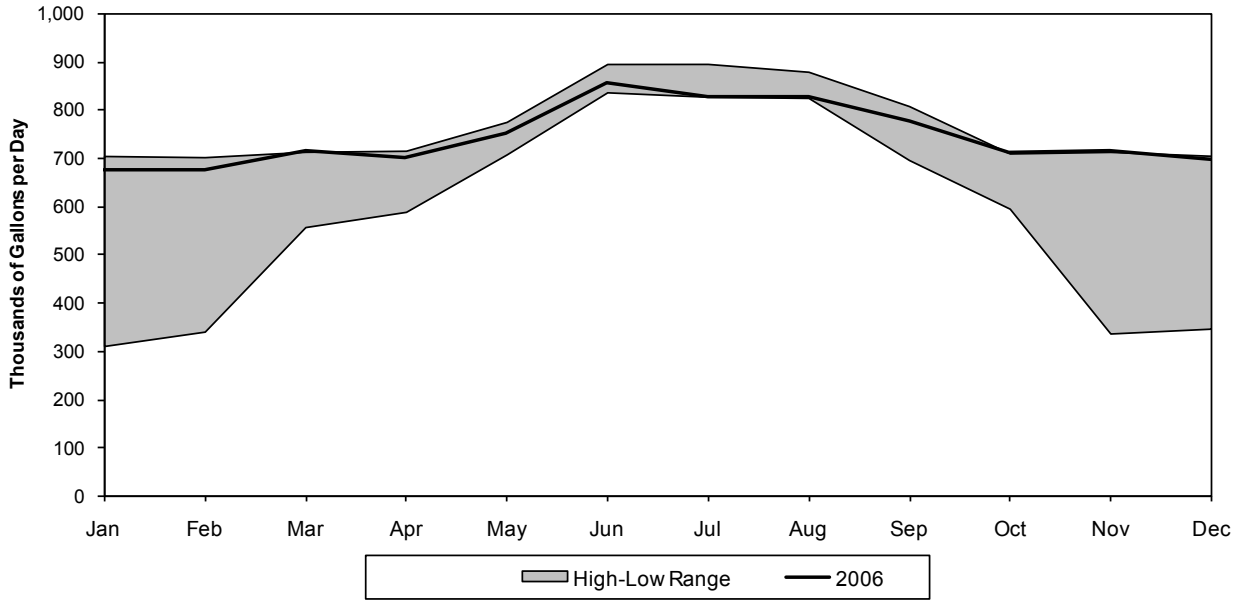
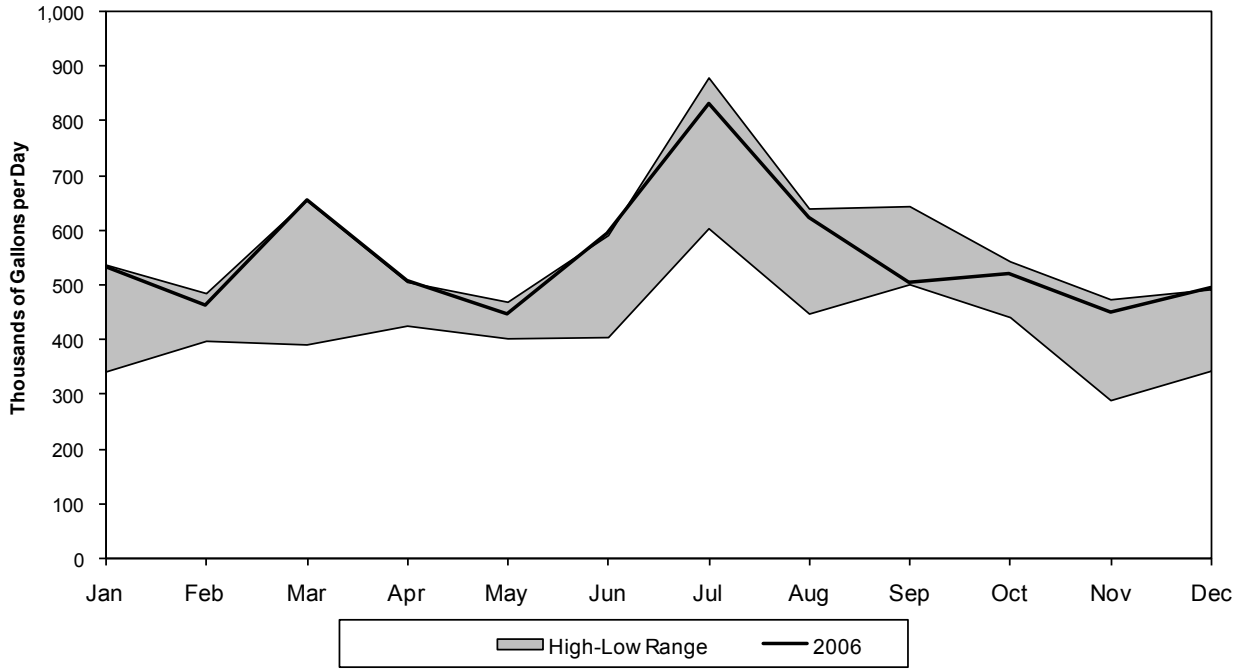


Figure V.6 Seasonal Diesel Sales 2006

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, blended 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

Attachment B

"Components of Delivered Fuel Prices in Alaska," *Institute of Social and Economic Research, University of Alaska Anchorage*, June 2008, pp 12-14; http://www.iser.uaa.alaska.edu/Publications.

Components of Delivered Fuel Prices in Alaska

prepared for
Alaska Energy Authority

prepared by
Institute of Social and Economic Research
University of Alaska Anchorage
Meghan Wilson
Ben Saylor
Nick Szymoniak
Steve Colt
and
Ginny Fay (EcoSystems)

Contact:

Steve Colt
907-786-1753
afsgc@uaa.alaska.edu

Meghan Wilson
907-786-5408
anmlw@uaa.alska.edu

Final Report June 2008

Abstract

This is a systematic analysis of components of delivered fuel prices in Alaska. Data for the analysis include limited publicly available Alaska fuel prices (fall 2007 prices), as well as information the authors gathered from extensive interviews with fuel retailers and transporters, communities, and agencies. We identify the individual components of delivered fuel costs—including world price of crude oil, refining costs, transportation costs, storage and distribution costs, taxes and financing costs—and investigate how these factors influence the final retail prices of home heating fuel and gasoline. Transportation, storage, and distribution costs appear to be the most variable factors driving the large retail fuel price differentials among Alaska communities. Therefore, we investigate how factors such as seasonal icing, the number of fuel transfers enroute to specific communities, local storage and delivery infrastructure, marine and river characteristics, and distance from refineries or fuel hubs influence fuel prices. We did an in-depth analysis of how those factors influence prices in ten case study communities around the state—Allakaket/Alatna, Angoon, Bethel, Chitina, False Pass, Fort Yukon, Lime Village, Mountain Village, Unalakleet, and Yakutat. Together, the quantitative data and information on Alaska fuel logistics provide a comprehensive analysis of Alaska's fuel prices.

Suggested Citation

Wilson, Meghan, Ben Saylor, Nick Szymoniak, Steve Colt and Ginny Fay, 2008. *Components of Delivered Fuel Prices in Alaska.* Prepared for the Alaska Energy Authority, Anchorage: University of Alaska Anchorage Institute of Social and Economic Research.

Acknowledgments

We thank the fuel companies, communities, non-profit village and tribal organizations, utilities, and agencies that provided information and took the time to meet with us.

Alaska Aerofuel, Inc.

Alaska Department of Commerce, Community and Economic Development

Alaska Energy Authority

Alaska Village Electric Cooperative

Angoon Oil and Gas

Azachorok Village Corporation in Mountain Village, Alaska

Brooks Fuel, Inc.

Chitina Native Corporation

Crowley Maritime Corporation

Everts Air Alaska

Fisher's Fuel Incorporated

City of Allakaket and Alatna

City of Mountain Village

Delta Western, Inc.

Denali Commission

Gwitchyaa Zhee Utility in Fort Yukon, Alaska

Henry Hill Services

Lime Village Traditional Council

Mark A. Foster and Associates

Norton Sound Economic Development Corporation

Osprey Lodge near Lime Village, Alaska

Peter Pan Seafoods in False Pass, Alaska

Petro Marine Services

Ruby Marine

Rural Alaska Fuel Services

Small Municipality Energy Assistance Program

Unalakleet Native Corporation

Contents

Tables and Figures

I. Introduction

Purpose

This study is a systematic analysis and comparison of the components of delivered fuel prices in Alaska. The Alaska Energy Authority asked the Institute of Social and Economic Research (ISER), at the University of Alaska Anchorage, to do the study. The more Alaskans know about what drives fuel prices in various communities, the more it may be possible to identify opportunities for reducing or mitigating the high fuel prices many Alaskans face.

The framework underlying the analysis is that the delivered *price* of fuel in Alaska communities equals the sum of the following components:

- World price of crude oil
- Refining cost (Alaska, West Coast, other)
- Transportation cost (truck, railroad, barge, air)
- Storage and distribution costs
- Taxes (federal, state and local)
- Other (including subsidies and abnormal profits)

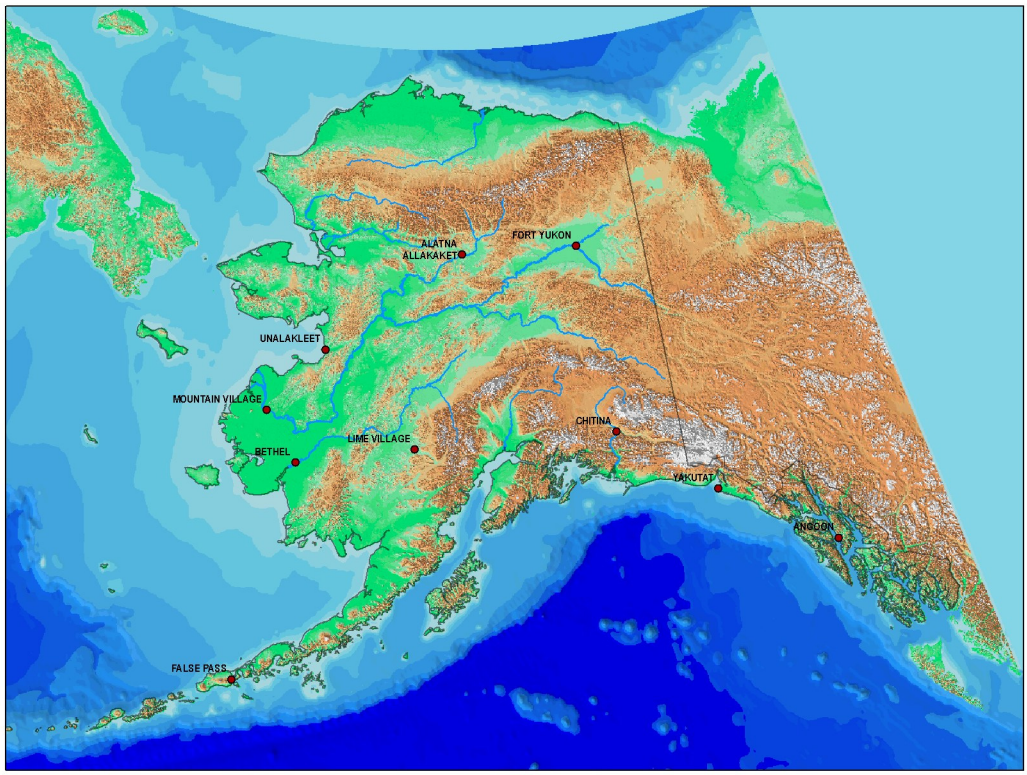
This framework holds true if the final component, "other," is calculated as the residual between total price and everything else. But the framework also serves as a research hypothesis: that the "other" component is generally small and/or readily identifiable as a bona fide cost. In other words, *delivered prices* ought to reflect *identifiable costs*.

Methods and report organization

We initially gathered information—mostly from existing sources—for 100 communities in Alaska. But we found that information was neither reliable enough nor consistent enough to use for statistical analysis. We therefore focused on comparative case studies of ten communities, reflecting as much as possible all the forces driving fuel prices around Alaska. Figure 1 shows locations of the study communities:

- Angoon
- Allakaket/Alatna
- Bethel
- Chitina
- False Pass
- Fort Yukon
- Lime Village
- Mountain Village
- Unalakleet
- Yakutat

Figure 1. Map of ten case study communities



Source: Meghan Wilson, ISER, 2007

In the rest of this section we provide some background discussion of fuel pricing and consumption in a national context. Section II covers world oil markets. In Section III we describe the refining process and refinery sources for Alaska fuel; we also present a statistical analysis of the relationship between crude oil prices and refined fuel prices. Section IV addresses product transportation and distribution—how fuel is transported and who stores, owns, and distributes the final products. Section V covers taxes, including federal excise taxes and state and local taxes. Subsidies and assistance programs are discussed in Section VI. Section VII reports the findings from the ten case studies. Section VIII concludes with a summary and discussion of some policy implications.

Background

"Petroleum" refers to crude oil or the refined products obtained by processing crude oil. Those include gasoline, diesel fuel, and heating oil.[1] Petroleum products are used in virtually every aspect of modern human life—heating our homes and offices, generating electricity, providing fuel so we can drive to the grocery store. Petroleum products are also used in plastics, foods, and medicines; they are part of things as diverse as tires, deodorant and ink.

[1] For more information on the physical characteristics of petroleum products, see: U.S. Energy Information Administration, Energy Basics 101, Petroleum Basics 101.
http://www.eia.doe.gov/basics/petroleum_basics.html

Fuel oil (also often called diesel) is one of several products distilled from crude oil and used for heating fuel or engine fuel. Alaskans use a number of petroleum products, including motor gasoline, diesel fuel #1, diesel fuel #2, aviation gasoline, and jet fuel. Motor gasolines are used in automobiles, small boats, and snowmachines; there are typically three grades of gasoline available (mostly in larger communities in Alaska). Diesel fuel #1 is a kerosene product used for heating fuel. Diesel fuel #2 is a light gas-oil used for home and commercial heating and as a motor fuel. Aviation gasoline and jet fuel are used to fuel aircraft, but a type of jet fuel is also often used for home heating. According to Crowley Marine, one of Alaska's largest fuel distributors, most of the diesel fuel in more populated areas like Southcentral Alaska and Fairbanks is ultra low sulfur diesel. Most villages in Western Alaska still use low sulfur diesel, because they are exempt from the ultra low sulfur diesel requirement until 2011.[2]

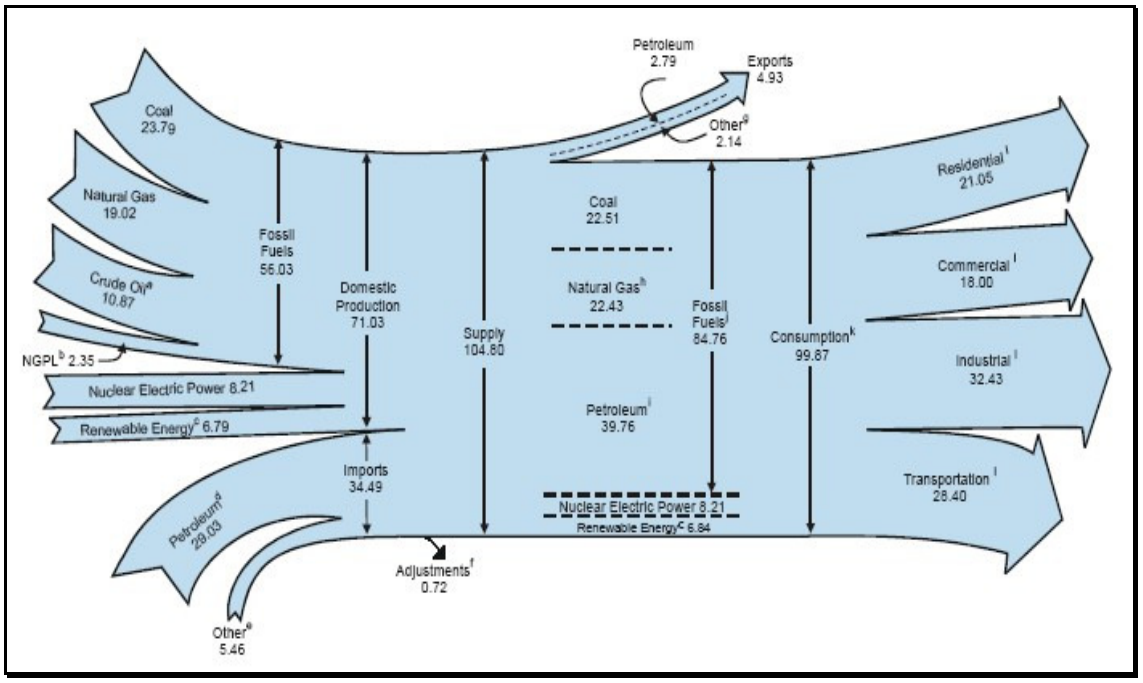
Alaska has the nation's highest per capita energy consumption, at 1,186 million Btu—almost four times the U.S. average of 342 million Btu—largely because so much jet fuel is consumed at the Anchorage and Fairbanks international airports.[3] Alaska produces more crude oil than any other state except Texas, but the prices of petroleum products in Alaska are among the highest in the country. According to state surveys, the average annual energy expenditure per household in rural Alaska is more than three times the U.S. average, while per capita income is less than 75% of the U.S. average. The burden of high energy prices falls particularly hard on remote communities, many of which also struggle with high unemployment, limited local economic bases, and local governments that are struggling to provide basic local services to residents and businesses.[4]

Fuel prices and components in the national context

Figure 2 illustrates the flow of energy (both domestic production and imports) through the U.S. economy, including final consumption by sector. Petroleum accounts for about 40% of total energy consumption.

[2] Phone Interview with Craig Tornga, Crowley Marine. October 24, 2007.
[3] Energy Information Administration, Annual Energy Review 2006. State-Level Energy Consumption, Expenditures and Prices, 2004.
[4] State of Alaska, Division of Community Advocacy – Report to the Commissioner. December 2005. Current Community Conditions: Fuel Prices across Alaska.

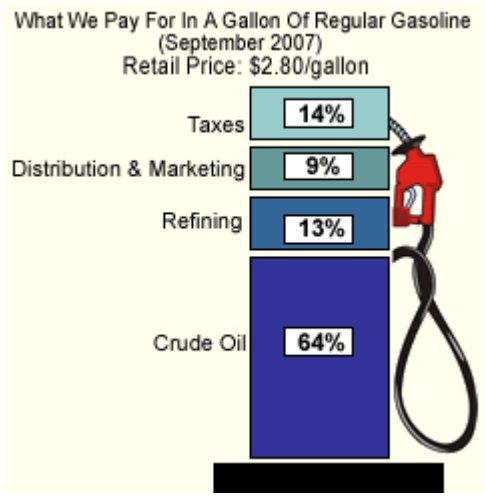
Figure 2. Energy flow through the U.S. in 2006 (Quadrillion Btu)

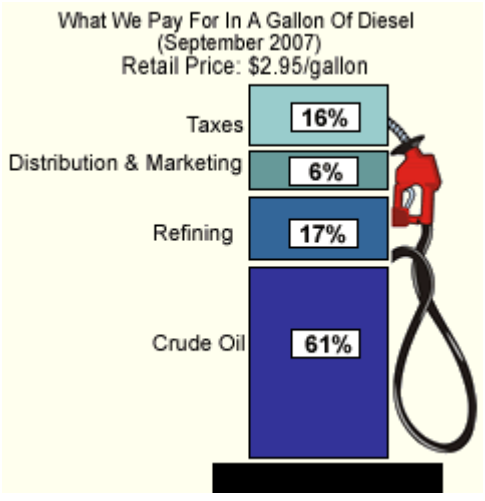


Source: Energy Information Administration, Annual Energy Review 2006

The Energy Information Administration has conducted research to determine the components of retail fuel prices. It believes the cost to produce and deliver fuel to consumers includes crude oil, refining, distribution and marketing, and taxes.[5] Figure 3 shows these components for gasoline and diesel prices as of September 2007.

Figure 3. Components of U.S. gasoline and diesel fuel prices, September 2007





Source: Energy Information Administration, Gasoline and Diesel Fuel Update.

[5] Energy Information Administration. Gasoline and Diesel Components. Gasoline Components History. 2006.

Crude oil prices are determined by worldwide supply and demand and are influenced by natural and political events that affect or potentially affect supplies. Consumption of and demand for crude oil products have increased, putting intense pressure on world crude oil supplies.

Refineries in the U.S. have operated at over 90% capacity during the last 10 years. The refining cost component is calculated by EIA as the difference between the monthly average of the spot price of gasoline or diesel fuel at the refinery and the average price of crude oil purchased by refiners.

Distribution and marketing costs include bulk storage, tanker truck transport, and retail sales operations (such as gas stations). In addition to seasonal shifts in demand caused by the winter heating season, retail fuel prices tend to rise with increasing distance between retail locations and distribution terminals and refineries. Areas farthest from the Gulf Coast, which is the source of nearly half the diesel fuel produced in the U.S., tend to have higher prices. Finally, the cost of doing business depends on location—including sources of supply, other competitors, and number of employees.[6] This component is calculated as the difference between the average retail price of gasoline or diesel fuel and the sum of the other three components (taxes, crude oil and refining).

Federal excise taxes were 18.4 cents per gallon on gasoline and 24.4 cents per gallon on diesel for motor fuel as of 2007, while state excise taxes averaged about 21.8 cents per gallon. Some states, counties, and cities levy additional taxes. Fuel oil used for home heating—which is also often called diesel and is virtually identical to diesel used for motor fuel—is exempt from federal and state taxes but is subject to local sales taxes.

The components of the cost of both gasoline and diesel have increased rapidly over the past few years. EIA statistics show that the prices of both diesel and gasoline doubled between 2002 and 2006. The broad pattern of component costs is similar for both fuels and both time periods. But the component breakdowns for these prices (Table 1 and Table 2) reveal some interesting possible trends. Costs of crude oil and refining made up larger percentages of the retail price in 2006 and taxes a smaller percentage. Distribution costs made up less of the retail price of gasoline but more of the price of diesel in 2006.

[6] EIA, 2006.

Table 1. Components of U.S. retail gasoline prices, 2002 and 2006

Month/Year	Retail Price (per gallon)	Refining (percentage)	Distribution and Marketing (percentage)	Taxes (percentage)	Crude Oil (percentage)
September 2002	$1.40	10.8%	12.6 %	30.0%	46.7%
September 2006	$2.80	12.8%	8.6%	14.2%	64.3%

Source: Energy Information Administration, Gasoline Components History.

Table 2. Components of U.S. retail diesel fuel prices, 2002 and 2006

Month/Year	Retail Price (per gallon)	Refining (percentage)	Distribution and Marketing (percentage)	Taxes (percentage)	Crude Oil (percentage)
September 2002	$1.41	12.0%	7.5 %	34.2%	46.3%
September 2006	$2.78	13.8%	15.2%	19.1%	51.9%

Source: Energy Information Administration, Diesel Components History.

II. Crude oil prices

World crude oil prices

- Crude oil is a global commodity and crude oil prices are determined by global supply and demand. Apart from an allowance for tanker transportation costs and quality differentials, it makes economic sense to speak of the world price of oil.
- The price of crude oil is one of the most significant factors determining the price of petroleum products. The prices of gasoline and diesel—and especially the *changes* in those prices—are largely determined by the worldwide demand for and supply of crude oil.
- World crude oil prices reflect the interactions of thousands of buyers and sellers, each with their own knowledge and expectations about the demand for and supply of crude oil and petroleum products. These interactions occur in both the physical and the futures markets, with the resulting prices reflecting both current and future expected supply and demand conditions.[7]
- Regional and local markets for refined products are also influenced by the level of competitiveness in these markets and the costs of distribution to end-users.

Petroleum products represent a critical source of fuel for the world's economy, with oil being the largest source of energy for the world economy. The value of crude oil is driven by demand for petroleum products, particularly for use in transportation. Petroleum products power most motor vehicles, aircraft, marine vessels, and trains worldwide. In total, products derived from oil, such as motor gasoline, jet fuel, diesel fuel, and heating oil, supply nearly 40 percent of the energy consumed by households, businesses, and manufacturers. Natural gas and coal, by comparison, each supply less than 25 percent of the world's energy needs.[8]

According to the American Petroleum Institute (API), current high world oil prices result from sustained, strong economic growth, notably including that in China. This economic growth resulted in stronger-than-anticipated global demand for these fuels, which reduced excess production capacity as well as the quality of the crude oil available in the marketplace. These changes in global supply and demand were compounded by unexpected losses in both crude oil production and refining capacity in the United States as a result of damage from hurricanes Katrina and Rita in 2005. Oil prices have risen sharply, particularly for better-quality crude oils. In summary, API attributes changes in world oil prices and subsequent prices of refined products to be driven largely by the forces of supply and demand.[9]

The Energy Information Administration (EIA) also attributes current oil prices and volatility to overall shifts in supply and demand, but to a number of specific international events as well. In 2000, real oil prices fluctuated between $20 and $30 per barrel (year 2006 dollars) and had been relatively stable since 1986 (Figure 4). The recession in the

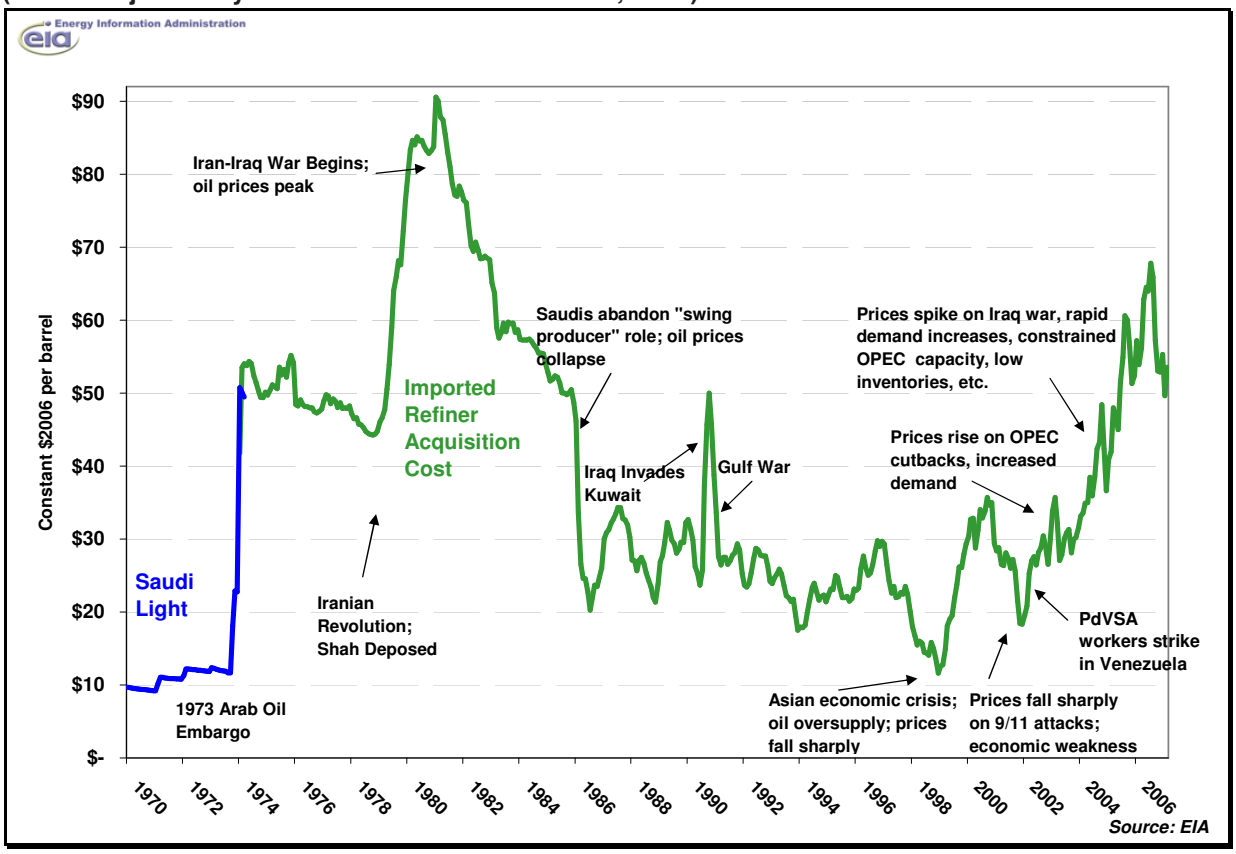
[7] Grant, Kenneth, 2006, et al., p. 2.
[8] U.S. Energy Information Administration, International Energy Outlook 2005, Table A2.
[9] Grant, 2006.

U.S. following the September 11, 2001 attacks reduced demand and caused oil prices to drop below $20 a barrel. In the following two years, however, the U.S. economy began to rebound, increasing energy demand and causing an upward trend in oil prices. The current upward trend of oil prices largely began in late 2003.

After the U.S. invaded Iraq, world oil prices began to escalate sharply. The war in Iraq proved to be more complicated than originally predicted, and energy market uncertainty was further exasperated in August 2003 when Iraqi insurgents began attacking an oil pipeline in northern Iraq.

In 2004, the price of oil reached $50 a barrel. In addition to the deteriorating security situation in Iraq and the regular attacks on pipelines, workers in oil-rich Nigeria launched a general strike to protest rising domestic fuel prices.

Figure 4. Major events and real world oil prices, 1970-2006
(Prices adjusted by CPI for all Urban Consumers, 2006)



By the end of 2005, oil prices hit $70 a barrel and then stabilized between $60 and $70. EIA blamed instability in Iraq, mounting ethnic unrest in Nigeria, concerns about Iran's nuclear program, and growing energy demand in China for the dramatic price increase. Contributing to rising oil prices was also Hurricane Katrina, which devastated the eastern coast of the Gulf of Mexico, damaging offshore oil rigs, disrupting supply, and affecting U.S. refining capacity.

These events were followed in 2006 by a number of other events—growing unrest in Iraq; Russia's temporary reduction of gas supplies to Europe; the threat of sanctions against Iran; an escalating ethnic insurgency in Nigeria's oil-producing region; a low-

scale war between Israel and Lebanon; an attack on Saudi Arabia's Abqaiq oil facilities; and a temporary shutdown of a section of the trans-Alaska oil pipeline. EIA cites all these events as contributing to 2006 oil prices of over $80 a barrel. During October 2007, oil prices reached record highs—tied to growing fears that Turkey would invade northern Iraq, the weak U.S. dollar, and impending increased winter demand for energy. Prices have continued up throughout the first half of 2008, rising above $130 a barrel.

OPEC (the Organization of Petroleum Exporting Countries) blames the spike on geopolitical developments and speculation and maintains there is no supply shortage and no reason to boost production—but as of fall 2007 it held out the possibility of meeting to discuss additional supply boosts.[10] Table 3 shows the volatility in world oil prices and markets during fall 2007. Monthly Alaska North Slope oil prices from 1988 to 2007 are shown in Table 4.

Despite these higher prices, the world economy grew in 2004 and 2005. A worldwide recession in response to high oil prices would have dampened price increases, but sustained economic growth fueled continued demand. With the current geopolitical outlook, world oil prices are likely to continue to rise.[11]

[10] Power and Interest News Report, 29 October 2007, "Record Oil Prices and Washington's Desire for Energy Independence".
[11] Power and Interest News Report, 09 August 2006, "Economic Brief: Alaska Pipeline Shutdown and the Rise of Oil Prices".

Table 3. World crude oil prices by location and type

(US dollars per barrel)

Crude Type	9/28/2007	10/5/2007	10/12/2007	10/19/2007	10/26/2007	11/2/2007
Total World	75.91	75.57	75.66	80.12	81.27	86.02
United States	73.50	73.65	73.39	77.84	79.47	83.69
OPEC* Average	76.52	76.18	76.22	80.58	81.62	86.47
Abu Dhabi, Murban 39º	79.40	78.53	78.88	82.17	83.52	87.98
Algeria, Saharan Blend 44º	80.09	79.80	79.65	84.67	85.49	91.12
Angola, Cabinda 32º	76.40	75.69	74.75	79.48	80.44	85.72
Dubai, Fateh 32º	75.61	74.00	73.92	77.23	78.90	83.22
Gabon, Mandji 30º	NA	NA	NA	NA	NA	NA
Indonesia, Minas 34º	79.08	80.95	80.83	84.74	86.98	92.34
Iran, Heavy 30º	75.37	74.68	74.41	78.43	79.40	84.89
Iran, Light 34º	76.91	76.23	76.03	80.13	81.10	86.59
Iraq, Kirkuk 36º	73.94	74.28	74.67	79.25	79.63	85.45
Kuwait, Kuwait 31º	73.97	72.88	72.85	76.19	77.72	82.40
Libya, Es Sider 37º	77.00	77.19	77.56	82.45	83.37	89.13
Neutral Zone, Khafji 28º	75.77	75.56	75.58	80.16	81.43	85.81
Nigeria, Bonny Light 37º	80.96	80.44	80.19	85.15	86.12	91.42
Nigeria, Forcados 31º	80.56	80.04	79.84	84.81	85.76	91.02
Qatar, Dukhan 40º	78.22	78.55	78.98	80.71	81.17	85.72
Saudi Arabia, Arabian Heavy 27º	73.12	72.46	72.48	77.06	78.33	82.41
Saudi Arabia, Arabian Light 34º	75.77	75.56	75.58	80.16	81.43	85.81
Saudi Arabia, Arabian Medium 31º	74.37	73.91	73.93	78.51	79.78	83.86
Venezeula, Bachaquero 17º	NA	NA	NA	NA	NA	NA
Venezeula, Bachaquero 24º	NA	NA	NA	NA	NA	NA
Venezuela, Tia Juana Light 31º	74.77	74.57	75.17	80.29	80.43	84.66
Non-OPEC* Average	75.18	74.85	74.99	79.59	80.85	85.48
Australia, Gippsland 42º	81.50	80.08	79.26	83.35	84.68	90.04
Cameroon, Kole 34º	76.16	76.58	76.55	81.78	81.59	87.30
Canada, Canadian Par 40º	80.89	80.61	77.71	81.99	85.48	88.30
Canada, Heavy Hardisty 22º	60.99	60.13	60.02	61.87	67.94	69.52
China, Daqing 33º	76.47	77.46	77.07	80.93	83.04	88.32
Colombia, Cano Limon 30º	77.51	76.64	77.10	82.38	83.53	87.78
Ecuador, Oriente 30º	67.56	67.18	67.53	72.79	74.02	77.98
Egypt, Suez Blend 33º	72.43	72.82	73.16	77.59	78.17	84.08
Gabon, Mandji 30º	NA	NA	NA	NA	NA	NA
Malaysia, Tapis Blend 44º	84.40	84.04	83.49	87.26	88.81	94.33
Mexico, Isthmus 33º	74.66	74.46	75.06	80.18	80.32	84.55
Mexico, Maya 22º	66.60	66.41	66.98	71.72	72.04	76.43
Norway, Ekofisk Blend 42º	79.20	79.26	79.23	84.32	84.92	90.44
Oman, Oman Blend 34º	75.63	74.45	74.47	77.84	79.23	83.28
Russia, Urals 32º	75.43	74.96	75.88	81.00	81.47	86.72
United Kingdom, Brent Blend 38º	77.96	78.07	78.66	83.61	84.14	89.40

Source: Energy Information Administration, November 2007.

See http://tonto.eia.doe.gov/dnav/pet/pet_pri_wco_k_w.htm for detailed information on price sources and definitions.

Last Updated 11/07/2007 - = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data. Degrees refer to specific weight and quality of crude.

Alaska crude oil prices

There is no price for Alaska crude oil on the New York Mercantile Exchange (NYMEX) or other commodity exchanges. The spot price of Alaska North Slope (ANS) crude oil is calculated by subtracting a market differential from the price of West Texas Intermediate (WTI) quoted on the NYMEX. Four different assessment services estimate that market differential and report a daily spot price for ANS.[12]

As can be seen in Table 4, month-to-month crude oil prices are volatile—monthly ANS West Coast prices ranged from $17.52 per barrel to $73.10 per barrel between 2002 and 2007 alone. But the trend has been up dramatically since 2002. As recently as December 1998, ANS prices dipped as low as $9.39.The 60-month moving average for the period from 1988 to 2007 was $42.62 per barrel.

Table 4. Alaska monthly crude oil prices, 1988 to 2007

($$ per barrel, nominal dollars)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1988	14.23	14.03	13.79	15.29	14.86	14.14	13.70	13.63	12.58	11.34	11.36	13.23
1989	15.11	15.99	17.25	19.37	17.64	17.00	16.78	16.04	16.62	17.27	17.49	19.07
1990	20.00	19.30	17.91	14.82	14.38	13.20	15.55	25.99	32.16	31.53	28.79	24.02
1991	20.57	15.74	17.02	17.56	16.67	16.36	17.25	17.18	17.37	18.47	17.57	14.83
1992	14.92	15.30	15.50	16.96	18.03	20.20	19.40	17.97	18.46	18.71	17.46	16.33
1993	15.62	16.78	17.35	18.17	17.47	16.02	14.84	15.42	14.98	15.39	13.07	10.29
1994	11.66	12.59	12.91	14.96	16.47	16.43	16.52	16.66	16.11	16.02	16.71	15.38
1995	16.16	17.14	17.31	18.36	18.43	17.43	16.23	16.72	16.65	15.96	15.88	16.94
1996	17.23	17.78	20.40	22.04	19.65	18.98	19.79	19.90	21.69	22.60	21.50	23.66
1997	23.57	21.03	20.07	18.54	19.41	17.30	17.48	17.98	18.09	19.59	18.33	16.39
1998	14.79	13.39	12.25	12.41	12.31	11.62	12.92	12.49	14.13	13.38	11.47	9.39
1999	10.69	10.43	13.07	15.64	15.86	15.82	18.16	20.08	22.96	21.83	23.65	24.54
2000	25.74	27.65	28.01	23.83	27.15	29.62	27.63	29.40	32.25	31.56	32.74	23.72
2001	24.37	26.02	24.70	25.55	26.70	25.82	24.60	24.12	23.21	19.45	17.23	16.69
2002	17.52	19.14	22.76	24.99	25.87	24.16	25.82	27.39	28.76	27.53	24.69	28.03
2003	31.91	35.20	32.59	25.59	26.19	29.35	29.17	30.22	27.09	28.55	29.11	30.67
2004	33.10	33.66	35.50	35.43	39.07	36.73	39.44	43.12	42.71	48.56	42.15	36.66
2005	41.12	43.59	50.63	49.75	46.77	53.67	56.67	62.40	63.47	60.37	56.11	57.17
2006	62.85	59.26	60.61	67.74	69.32	69.50	73.10	71.74	62.33	54.27	54.26	58.13
2007	51.52	57.00	59.01	63.92	64.76	69.11	75.93	73.83	79.72			

Source: Alaska Department of Revenue, Tax Division, November 2007,
http://www.tax.state.ak.us/programs/oil/prices/index.asp
Spot prices are unaudited and do not reflect Production Tax Settlement Values
Effective December 2003, the ANS west coast published price is the Department of Revenue's calculated ANS West Coast average spot price.

All of Alaska's oil production is delivered to refineries on the U.S. West Coast, including Alaska and Hawaii. Consequently, Alaska's royalty and production tax revenue depends in large part on the average market price of ANS crude oil at U.S. West Coast refining centers.

[12]Alaska Department of Revenue, Tax Division, Revenue Sources Book, 2007, p. 10.

III. Refining

Crude oil has to be refined to extract useful products. This section describes the refining process and the types of petroleum products produced; provides a list of the refineries that supply Alaska markets; examines the relationship between crude oil prices and refined product prices, including a comparison of refined product prices from different refineries; and describes some of the sources of refined petroleum product prices.

Refining process

Crude oil is a mixture of hydrocarbons that exists in liquid form in underground reservoirs. It may also include small amounts of gaseous hydrocarbons that are liquefied upon extraction, and some non-hydrocarbons such as sulfur and various metals.

Refining is the process of converting crude oil into various marketable petroleum products by separating component hydrocarbons. It can also involve chemical reactions and the blending of components and additives. The separation of hydrocarbons is most commonly achieved by fractional distillation. Fractional distillation is the process of heating a mixture to separate it into its component parts (fractions), each of which has a different boiling point. The mixture is boiled, transforming its components into vapor. Beyond the chamber in which the mixture is boiled is a distillation column with outlets at different heights, corresponding to where each fraction condenses after it rises and cools. The heavier fractions (those with higher boiling points) condense lower in the column, while the lighter fractions (those with lower boiling points) condense higher in the column. After condensation, the fractions exit the column in liquid form, each through a different outlet.

Types of refined petroleum products

After isolation, the various hydrocarbons may be mixed to produce a number of petroleum products, including motor gasoline, aviation gasoline, jet fuels, #1 distillate, #2 distillate, and asphalt, among many other potential products. Motor and aviation gasoline are difficult to produce and require complex refining equipment. Common petroleum products include:

- **Motor gasoline** is the type of fuel used in most vehicles with internal combustion engines. The production of the various grades of gasoline is complex, compared with other types of fuel, and requires expensive and sophisticated equipment. One 42-gallon barrel of crude oil produces about 20 gallons of gasoline.[13]
- **Aviation gasoline** is used in aircraft with reciprocating engines. It is subject to especially stringent specifications.[14]
- **Jet fuel** is a kerosene-based fuel used in aircraft with turbine engines. The two main types are Jet A and Jet B, which have the corresponding military designations JP-5 and JP-4. Jet-A is often sold in Alaska as fuel oil/heating oil at

[13] U.S. Energy Information Administration

[14] Keiser, Gretchen and Teal, David, House Research Agency, Alaska State Legislature. Fuel Consumption and Pricing in Alaska: A Regional Analysis. January 1984.

the price of #2 fuel oil. One reason why it is sometimes sold for heating fuel is that it has a low pour point—meaning that it won't gel until it reaches a very low temperature.[15]

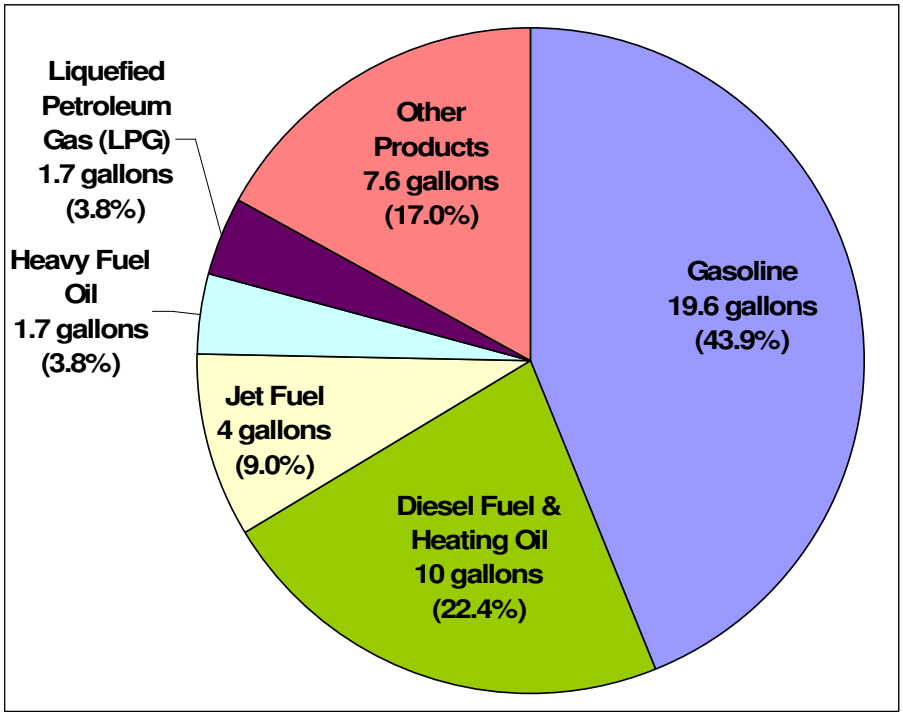
- **#1 distillate** can be used as fuel oil/heating oil or as a diesel fuel for high-speed diesel engines that operate at frequently changing speeds, such as city buses.[16] It is available at various sulfur levels: high sulfur, low sulfur, and ultra low sulfur.
- **#2 distillate** can be used as fuel oil/heating oil or as a diesel fuel for high-speed diesel engines operating at relatively constant speeds and loads—like locomotives. It must meet different specifications, depending on how it's used. It's available in various sulfur levels: high sulfur, low sulfur, and ultra low sulfur.

Figure 5 shows, in broad categories, how much of each type of product is extracted from a barrel of crude oil. You may note that while a barrel contains 42 gallons of crude oil, the total output volume of refined product according to this figure is 44.6 gallons. This chart is based on data from the Energy Information Administration. Another source, the California Energy Commission, gives 48.43 gallons as the total output volume, on average, from a barrel of crude. This increase is called *processing gain*, and is due to the addition of various additives, such as alkylates. Also worth noting is that the latter source gives 51.4% as the percentage of output that is gasoline, rather than the 43.9% indicated by the EIA numbers. This is due partly to the addition of ethanol to gasoline at a level of 5.7% by volume, as required in California, which brings the total output volume up to 49.59 gallons for California refineries.

[15] Communications with Craig Torgen at Crowley Maritime Corporation, October 2007. Also, Alaska Department of Environmental Conservation, Division of Air Quality. http://www.dec.state.ak.us/AIR/anpms/as/ulsd/ulsd-bkgrd.htm

[16] EIA, 2007.

Figure 5. Quantity of refined products yielded from one barrel of crude oil



Source: U.S. Energy Information Administration

Diesel fuel sulfur content regulations

Diesel fuels are subject to new regulations regarding sulfur content. The U.S. Environmental Protection Agency (EPA) finalized the Highway Diesel Rule in January 2001, and the Non-road Diesel Rule in June 2004, mandating the use of cleaner-burning ultra-low-sulfur diesel (ULSD)—diesel with no higher than 15 ppm sulfur content), for road and non-road uses, respectively. This cleaner-burning fuel, along with new equipment on tailpipes and exhaust stacks that require it, will "dramatically reduce particulate matter and nitrogen oxides in diesel exhaust."[17] The Highway Diesel Rule took effect in 2006, and the Non-road Diesel Rule in 2007. However, because of the unique characteristics of rural Alaska, including its geography, economy, air quality, and distribution challenges, the effective dates were extended for rural areas of the state. They will be allowed to use diesel with uncontrolled sulfur content for all uses until 2010 beginning the transition to ultra-low-sulfur diesel on January , and finishing by December 1, 2010. Urban areas of Alaska (those served by the Federal Aid Highway System) were required to adhere to the same implementation schedule as the other states.[18]

The ULSD regulations do not apply directly to fuel used for home heating or jet fuel.[19] However, there will be indirect effects on heating fuel prices, because most fuel used for heating will probably be ULSD. That's because for many communities, it would be impractical to separately store both a less expensive type of fuel to use for heating (higher

[17] Alaska Department of Environmental Conservation (DEC), Division of Air Quality. http://www.dec.state.ak.us/AIR/anpms/as/ulsd/ulsd-bkgrd.htm
[18] EPA. http://www.epa.gov/otaq/regs/fuels/diesel/420f06040.htm
[19] DEC. http://www.dec.state.ak.us/AIR/anpms/as/ulsd/ulsd-bkgrd.htm

sulfur Jet A, #1 fuel oil, #2 fuel oil) as well as ULSD for other purposes—so they will have to use only ULSD. According to the Alaska Department of Environmental Conservation (DEC), "The fuel storage and distribution infrastructure in rural Alaska is designed to handle a single grade of diesel fuel." In some communities, especially hub communities, there will be enough demand for Jet A for turboprop and turbojet aircraft that it may be purchased in large enough quantities to use for home heating as well.

The transition to ULSD will mean higher diesel and heating fuel prices for Alaska communities. It will also increase the cost of diesel-generated electricity, both because of the more expensive fuel and the more expensive equipment that will also be required by the regulations.

Sources of refined petroleum products sold in Alaska

Petroleum products consumed in Alaska come from refineries in Alaska and, to a smaller extent, out-of-state refineries. Table 5 lists Alaska's six refineries, along with their capacity, measured in barrels of crude oil input per day.

Table 5. Alaska petroleum refineries

	Total input capacity as of Jan. 1, 2007 (barrels/day)
Flint Hills Resources Alaska LLC (North Pole)	210,000
Tesoro Petroleum Corp. (Nikiski/Kenai)	72,000
Petro Star Inc. (Valdez)	48,000
Petro Star Inc. (North Pole)	17,500
ConocoPhillips Alaska Inc. (Kuparuk)	15,000
BP Exploration Alaska Inc. (Prudhoe Bay)	12,500
Total	375,000

Source: U.S. Energy Information Administration

Alaska crude oil production in 2006 was 741,000 barrels per day,[20] about twice the total input capacity of Alaska refineries. Also, Alaska refineries aren't currently producing at full capacity. Estimated total production from the Flint Hills, Tesoro, and Petro Star refineries in early 2008 was roughly 127,000 barrels per day.

The Flint Hills refinery in North Pole was originally built by Mapco in 1977 to coincide with the completion of the trans-Alaska oil pipeline and taps directly into the pipeline.[21] The refinery is the largest in Alaska with a current capacity of 210,000 barrels per day—more than half Alaska's total refinery capacity and more than three times the capacity of Tesoro's refinery in Nikiski. Flint Hills acquired the refinery in 2004. It produces gasoline, jet fuel, heating oil, diesel, gasoil, and asphalt. About 60 percent of its output is sold in the aviation market. It has terminals in Anchorage, to which fuel is transported by rail, and Fairbanks, to which fuel is transported by truck.[22]

[20] EIA. http://tonto.eia.doe.gov/dnav/pet/hist/mcrfpak1A.htm
[21] Keiser & Teal, 1984.
[22] EIA and Flint Hills Resources website, http://www.fhr.com/alaska/

A second refinery in North Pole along the oil pipeline was built by Petro Star in 1983. This refinery has a capacity of 17,500 barrels per day and produces commercial and military jet fuel, kerosene, diesel, and heating oil. Petro Star is owned by Arctic Slope Regional Corporation. It distributes its products to communities, military bases, and commercial customers in the Interior and the North Slope.[23]

Petro Star built another, larger refinery in Valdez that began operation in 1993. That refinery has a capacity of 48,000 barrels per day and produces commercial jet fuel, military JP-8 and JP-5 jet fuel, marine diesel, heating oil, and turbine fuel. Its primary market is in fuel for military and commercial aviation.

The Tesoro refinery in Nikiski was built in 1969 and was the second refinery built in Alaska, after Chevron's Nikiski refinery was built in 1963.[24] Chevron closed its refinery in 1991 due to "eroding profit margins and increasing liability risks."[25] These refineries were built to process crude oil discovered in Cook Inlet in 1957. The Tesoro refinery currently has a capacity of 72,000 barrels per day, making it the second largest refinery in Alaska.[26] With the completion of a diesel de-sulfurizer unit in May 2007, Tesoro became the first producer of ultra-low-sulfur diesel in Alaska. The unit has a capacity of 10,000 barrels per day.[27]

The ConocoPhillips refinery in Kuparuk and the BP refinery in Prudhoe Bay are topping plants that supply fuel to meet the North Slope oil producers' own needs and do not sell to the general public. ConocoPhillips recently cancelled a $300 million upgrade to its refinery that would enable the production of ultra-low-sulfur diesel, citing a lack of tax breaks under the new Alaska oil tax rules.[28]

Most of the fuel distributed to rural Alaska communities is produced by Alaska refineries, the exception being communities in Southeast Alaska, which receive a significant share of their fuel from refineries in Washington. Fuel distributed to Alaska customers in general also occasionally comes from refineries in Anacortes, Washington, and even places as distant as Korea and Russia. However, the cost of transporting the fuel over such long distances is usually greater than any savings from purchasing it from out-of-state refineries. For example, since 1983, adjusting for inflation, the average Alaska wholesale price for #2 distillate was only 4.4% higher than the average Washington price. Since 2000, the Alaska average was only 0.5% higher.[29] Table 6 ranks average wholesale prices for #2 distillate by region from 2000 to 2007.

[23] EIA and Petro Star, Inc. website, http://www.petrostar.com/
[24] Keiser & Teal, 1984.
[25] Richardson, Jeffrey. Alaska Business Monthly. *Refining rivalry.* June 1, 1991. http://www.allbusiness.com/north-america/united-states-alaska/165637-1.html
[26] EIA, 2007.
[27] Tesoro Corporation website. http://www.tsocorp.com
[28] Loy, Wesley. Anchorage Daily News. *Conoco cancels refinery upgrade on North Slope*. November 27, 2007.
[29] EIA, 2007.

Table 6. Average wholesale #2 price from refiners by region, 2000-2007 (in 2007 dollars)

Region	#2 price	% U.S.
Rocky Mountain (PADD 4)	$ 1.454	108.3%
West Coast (PADD 5)	$ 1.425	106.1%
Alaska	$ 1.418	105.6%
Washington	$ 1.412	105.1%
Midwest (PADD 2)	$ 1.361	101.4%
U.S.	$ 1.343	100.0%
East Coast (PADD 1)	$ 1.316	98.0%
Gulf Coast (PADD 3)	$ 1.298	96.7%

Source: U.S. Energy Information Administration

There are two refineries in Anacortes: Shell Oil Products U.S., with a capacity of 145,000 barrels per day of crude oil input, and Tesoro West Coast, with a capacity of 120,000 barrels per day, for a total of 265,000 barrels per day (bpd).[30] South Korea, while it produces no crude oil, has a total refinery capacity of 2,577,000 barrels per day, ranking it fifth in the world. North Korea has a capacity of 71,000 bpd. Russia has a total refinery capacity of 5,339,000 bpd, ranking it second in the world. The U.S. ranks first, with a total capacity of 17,397,000 bpd.[31]

Relationship between crude oil prices and refined product prices

In addition to the Energy Information Administration (EIA), the Oil Price Information Service (OPIS) provides petroleum product price information for various locations around the world. OPIS prices are often used as a benchmark price for fuel suppliers when making price quotes. When a fuel supplier quotes a price to a community, this price is typically based on an OPIS price for the day of the quote, plus an additional amount to cover the service of handling and transporting the fuel, although often only a single quoted amount (the sum) is provided.[32]

The price data from EIA used in the analysis below comes from Form EIA-782A, *Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report.* These data differ from the OPIS price data in several ways. The purpose of the EIA-782 survey, according to EIA, is to collect data "to fulfill legislative mandates from Congress and to provide comprehensive information for evaluating market behavior." OPIS is privately owned and is a paid subscription service, with historical data available for a fee, while EIA current and historical data is freely available to the public.

While EIA has broader coverage (the information is collected from a census of refiners, while OPIS data is collected from a sample), OPIS has much more detail and is a "real-time" service that serves a different purpose. OPIS updates prices daily, while EIA updates its data on a monthly basis. OPIS provides data by city, while EIA provides data by region (Petroleum Administration for Defense District, or PADD) and in some cases

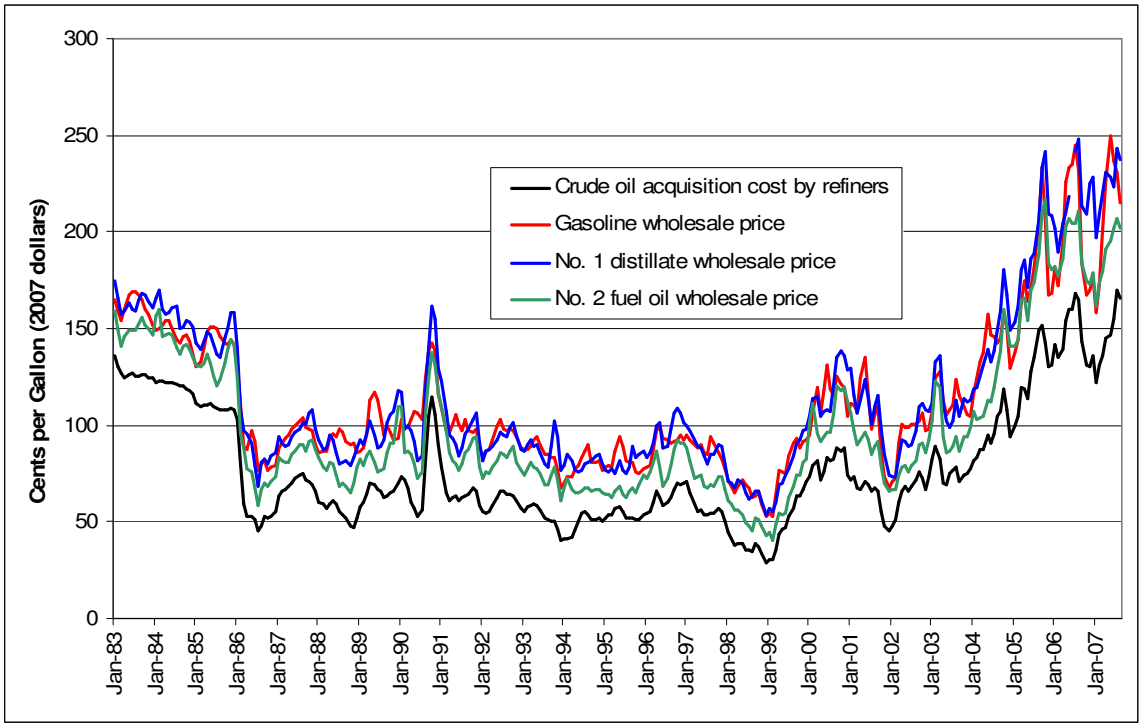
[30] EIA, 2007.
[31] EIA. Country Energy Profiles. http://tonto.eia.doe.gov/country/index.cfm
[32] Personal communications with Crowley and Matt Sweetsir at Ruby Marine, October 2007

by state. OPIS also takes into account many variables that define specific types of fuel, to break fuel out into more subcategories.

There are a number of other differences between OPIS and the EIA-782 methodologies and purposes, but the prices they report track each other closely.[33] EIA price data are used in this analysis because of the free availability of historical prices, accessible and comprehensive documentation, and less complex categorization of fuel types.

Figure 6 and Figure 7 show the relationship of refiner acquisition cost of crude oil[34] and refinery wholesale prices. Numbers are adjusted for inflation to 2007 dollars. The rapid increase in prices in the past few years is clearly visible, as is the close relationship of crude oil prices to the prices of refined petroleum products. The difference between the cost of crude oil and the wholesale price of the product is mostly constant, rather than a percentage.

Figure 6. U.S. crude oil acquisition cost and wholesale fuel prices

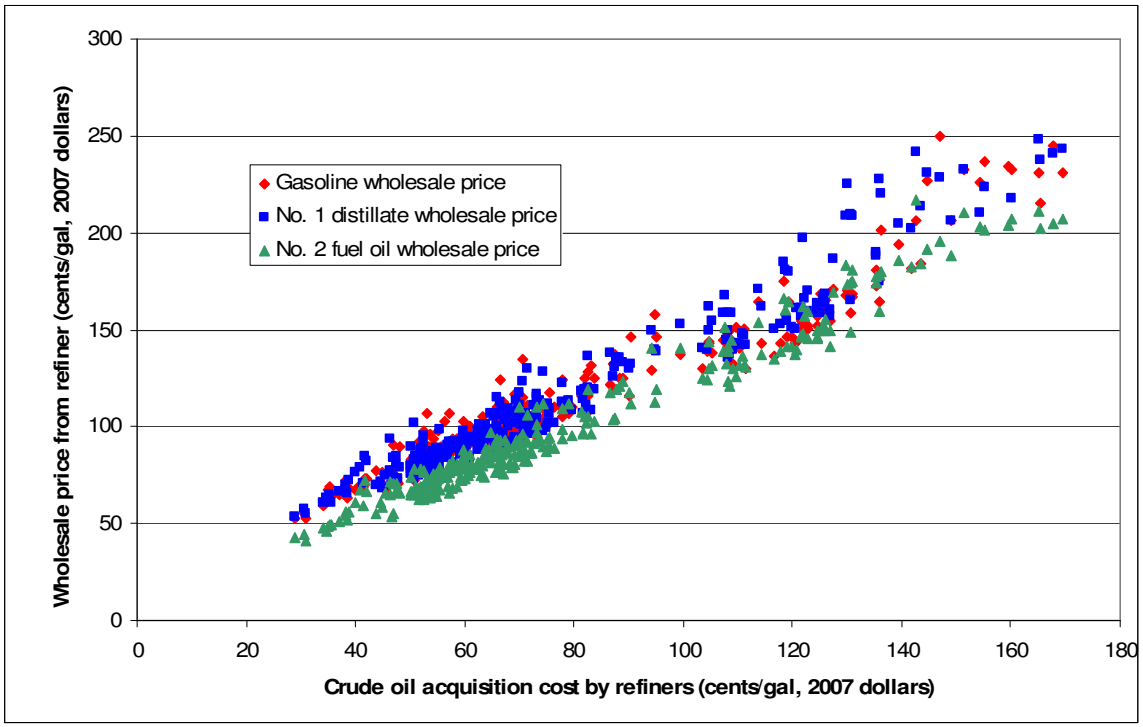


Source: U.S. Energy Information Administration

[33] Bournazian, Jacob. EIA. Comparison *of Selected EIA-782 Data with other Data Sources.* June 23, 2004. http://www.eia.doe.gov/pub/oil_gas/petroleum/feature_articles/2004/comparison782/comparison782.htm

[34] The EIA's definition of "refiner acquisition cost of crude oil" is "The cost of crude oil, including transportation and other fees paid by the refiner. The refiner acquisition cost does not include the cost of crude oil purchased for the Strategic Petroleum Reserve (SPR)." The EIA provides costs for domestic and imported oil, as well as a composite cost. The composite cost is shown here.

Figure 7. U.S. crude oil acquisition cost vs. wholesale fuel prices



Source: U.S. Energy Information Administration

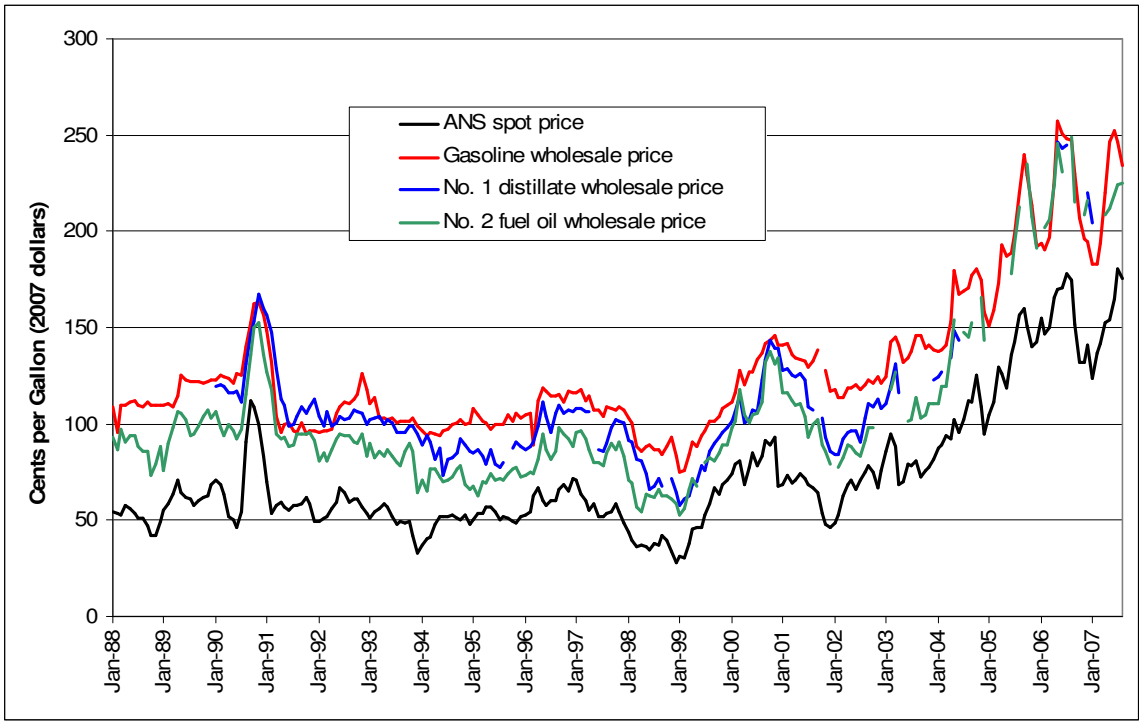
From these figures, it appears that the primary source of variance in the prices at which refineries sell their products is the cost of their crude oil feedstock. Linear regression results over the monthly data points for gasoline, #1 distillate and #2 fuel oil, shown in Table 7, seem to confirm this tight relationship. The regression uses refiner acquisition cost, in cents per gallon, as the independent variable.

Table 7. Results of regression of wholesale fuel prices on crude oil acquisition cost (U.S. refiners)

Fuel type	Slope	p-value	Intercept	p-value	R-squared
Gasoline	1.190	0.000	20.229	0.000	0.938
No. 1	1.317	0.000	12.855	0.000	0.943
No. 2	1.224	0.000	4.984	0.000	0.965

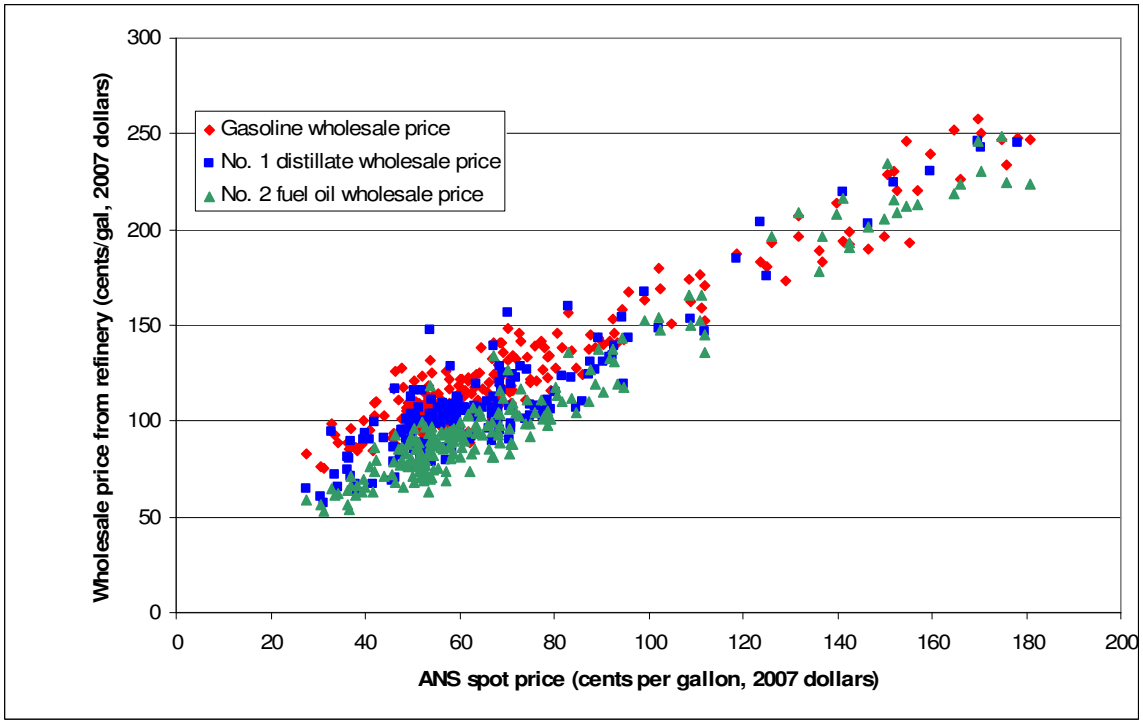
Figure 8 and Figure 9 show a similar relationship between Alaska North Slope (ANS) crude oil prices and wholesale prices from Alaska refineries. Here, the ANS spot price was used instead of the refiner acquisition cost of crude oil, which was unavailable from EIA for Alaska refineries before 2004.

Figure 8. Alaska North Slope crude oil spot price and Alaska wholesale fuel prices



Sources: Alaska Tax Division (ANS spot price), U.S. Energy Information Administration

Figure 9. Alaska North Slope crude oil spot price vs. Alaska wholesale fuel price



Sources: Alaska Tax Division (ANS spot price), U.S. Energy Information Administration

Table 8 shows the regression results (ANS spot price per gallon is the independent variable). Again, the results show a strong correlation between crude oil prices and refined product prices.

Table 8. Results of regression of wholesale fuel prices on Alaska North Slope spot price (Alaska refiners)

Fuel type	Slope	p-value	Intercept	p-value	R-squared
Gasoline	1.107	0.000	47.143	0.000	0.929
No. 1	1.193	0.000	30.401	0.000	0.849
No. 2	1.269	0.000	14.841	0.000	0.940

IV. Fuel Product Transportation

Fuel products in Alaska are transported in various ways, both from refineries to fuel terminals and from terminals to communities. Fuel is usually stored in communities before distribution to residents and businesses. This chapter describes fuel transportation (truck, barge, airplane), as well as storage and distribution methods, including how characteristics of each method influence fuel prices.

Refineries in Nikiski, Valdez, and North Pole make petroleum products that supply most of the Alaska market. (As discussed earlier, some products for Alaska also come from out-of-state refineries). Communities that are road accessible or connected via pipelines or railroad to these in-state refineries have lower costs of transportation than more remote locations. Anchorage is connected by pipeline and road to the refineries in Nikiski; Fairbanks is only a short truck trip from the North Pole refineries. In contrast, other Alaska communities are in remote locations, many without highway access and some even lacking navigable waterways. Transporting fuel to such communities is more complex and risky, and thus, more expensive. The widely differing circumstances of Alaska communities create widely varying fuel prices.

Refinery to terminals

The Tesoro refinery in Nikiski is able to ship refined product directly from its fuel terminal in Nikiski. It also transports refined product in a 72-mile long pipeline to Ted Stevens Anchorage International Airport and to its fuel terminal at the Port of Anchorage. From the Anchorage fuel terminal, heating fuel can be trucked to homes or regional fuel hubs. Gasoline is also trucked from the fuel terminal to gas stations.

Fuel from the Flint Hills refinery in North Pole is either trucked to the fuel terminal in Nenana, to be barged to communities on the Yukon River; trucked to Fairbanks and other neighboring communities; or carried on the Alaska Railroad to the fuel terminal at the Port of Anchorage. Most of the refined fuel that comes by rail to Anchorage from North Pole is jet fuel used at Ted Stevens International Airport.

The Valdez Petro Star refinery ships its fuel directly out of the Port of Valdez. Most of the refined fuel produced at the Petro Star refinery in North Pole is directly transported to Eielson Air Force base or nearby communities.

Table 9 summarizes the imports and outputs of refined petroleum products for the region's fuel terminals and fuel hubs. Fuel refined in Tesoro's Nikiski plant is shipped directly from the Nikiski Port, as well as piped to Anchorage where it is shipped from the Port of Anchorage.

Table 9. Shipments received and shipped from major fuel hubs and refineries (in gallons [1])

Community		Received[3]	Shipped[3]
Anchorage	Gasoline	**165,901,639**	**134,426,230**
	Distillate[4]	**2,816,901**	**45,633,803**
Valdez	Gasoline	**327,869**	**82,950,820**
	Distillate[4]	**-**	**14,366,197**
Ketchikan	Gasoline	**18,032,787**	**12,459,016**
	Distillate[4]	**8,450,704**	**15,492,958**
Nikiski[2]	Gasoline	**-**	**213,442,623**
	Distillate[4]	**-**	**289,295,775**
Dutch Harbor	Gasoline	**21,967,213**	**5,245,902**
	Distillate[4]	**44,788,732**	**9,014,085**
Juneau	Gasoline	**18,360,656**	**655,738**
	Distillate[4]	**11,549,296**	**845,070**

(1) Corps of Engineer data is reported in short tons. Gallon conversions assume gasoline weight of 6.1 pounds per gallon and distillate weight of 7.1 pounds per gallon.
(2) Assumes all fuel is shipped out of Nikiski and none is imported.
(3) ISER calculations to summarize in and outbound shipments.
(4) Distillates are primarily diesel #1 and #2.
Sources: U.S. Army Corps of Engineers, Waterborne Commerce Statistics, Pacific Coast, Alaska and Hawaii; ISER calculations. Bethel is also a major western Alaska fuel depot, but it is not shown here because shipments in and out are not segregated in Corps of Engineer data.

Refinery and terminals to communities

Truck

Of the most common methods of transporting fuel in Alaska, trucking is the least expensive and complex. All Alaska communities on the road system have fuel delivered by truck. Gasoline is generally delivered directly to gas stations. Heating fuel is delivered from the refinery to regional fuel hubs for distribution or by distributors directly to homes from refineries.

The transportation cost per gallon of fuel trucked is determined by the distance and the quantity of fuel delivered. Delivery prices vary with the quantity of fuel shipped because most of the delivery costs are fixed, regardless of the amount of fuel carried. So larger communities can order more fuel at a time, reducing delivery charges per gallon.

Having road access also lowers fuel costs, because communities have year-round access to fuel. Even the smallest road communities generally receive at least weekly fuel shipments. This reduces fuel storage and inventory costs.

Barge

Barging fuel to Alaska communities is an expensive, complex, and risky endeavor. Fuel transporters face a different set of delivery challenges and costs for each community. Thee are few fuel transport companies with the experience and capital needed to successfully deliver fuel to remote areas in Alaska. In addition to overcoming the physical challenges of barging fuel to Alaska communities, fuel transporters must correctly price their fuel transportation charges to fully recover the cost of delivery.

Barge Transportation Regions

For this analysis we divided Alaska into five regions: ice-free southern coast, Kuskokwim River, Yukon River, Northwest and Kobuk River, and Arctic. All these regions have some common factors that influence the cost of fuel delivery.

Ice-Free Southern Coast

This region extends from Southeast Alaska, along the Gulf of Alaska and out the Aleutian Island chain. The defining characteristic of this region is that it is ice-free year round and the communities are coastal. These characteristics allow year-round delivery of fuel. Crowley, Delta Western, and Petro Marine Services deliver fuel in this region.

Fuel for this region may be shipped from refineries in Valdez or Nikiski; from the fuel terminal at the Port of Anchorage; or from refineries in Washington or California. It is either shipped directly to communities or to larger hub communities, where it is reloaded onto smaller barges. Sometimes fuel will be lightered directly off the barge into a smaller barge for delivery to a community, thus bypassing the fuel hub.

Kuskokwim River

The Kuskokwim River Region includes all the communities on the Kuskokwim River and its tributaries, as well as coastal communities near the mouth of the river. Bethel serves as the regional hub, and almost all fuel delivered to the region is at least temporarily stored in Bethel. Fuel from Bethel storage tanks must be loaded into smaller barges to navigate the Kuskokwim River upstream of Bethel. Approximately four million gallons of fuel are shipped out of Bethel each year.

Fuel for this region is transported from Anchorage on large barges and must be lightered before being unloaded at the Bethel fuel depot. Once at the Bethel depot, the fuel is loaded onto barges for delivery upstream or to surrounding coastal communities. Both Crowley and Delta Western have tank farms in Bethel and deliver fuel to the surrounding areas.

Seasonal icing and the need to deliver all fuel into storage tanks in Bethel increases transportation costs for the Kuskokwim River and surrounding area—because the fuel has to be loaded and unloaded more times. Many of the communities that receive fuel from Bethel are located in remote locations on the Bering Sea coast or on tributaries of the Kuskokwim River. Barging fuel to these locations takes longer and includes additional risks. Bethel's distance from its primary fuel supply terminals in Cook Inlet also increases the cost of delivered fuel.

Yukon River

Nenana serves as the fuel hub for the Yukon River. Fuel arrives at the Nenana hub from refineries in North Pole, or is carried from Anchorage on the Alaska Railroad or by truck. From Nenana, fuel is barged both upstream as far as Fort Yukon and downstream to the mouth of the Yukon River. Crowley is the dominant fuel transporter in the region. Recently, Ruby Marine started competing on a small scale with Crowley.

Occasionally fuel is shipped from the mouth of the Yukon from the Bethel or Nome fuel hubs. Generally the more direct route from the Nenana fuel terminal is less costly, even for communities near the mouth of the Yukon.

Many communities served by the fuel terminal in Nenana are on smaller tributaries of the Yukon River that are remote and present navigational hazards. The difficulty of accessing many of these communities, the varying conditions of marine headers and moorage, and seasonal icing all affect the price of delivered fuel to the Yukon River region.

Northwest and Kobuk River

This region is defined as the area served by fuel hubs in Kotzebue and Nome and consists of Norton Sound, Kotzebue Sound and the Kobuk River. Nome's port can accommodate large barges and does not require lighterage, while Kotzebue's port is shallow and does require fuel lightering.

Kotzebue is the fuel hub for communities on the Kobuk River. The cost of barging fuel on the Kobuk is high because of difficult navigation and hazards. Most other communities in the Northwest region are coastal and present less navigational difficulty but have shallow ports. The long distance of this region from its primary fuel terminals in Cook Inlet further increases fuel costs.

Arctic

Fuel delivery in the Arctic region is subsidized by the North Slope Borough and is not investigated in this report.

Factors Contributing to Fuel Barging Costs

Distance from the refinery to the fuel hub. The further the hub is from refineries, the greater the cost. Also, proximity to multiple refineries allows for purchases at the cheapest rack price. For example, transporters delivering to Southeastern hubs such as Ketchikan and Juneau can buy fuel from refineries in Cook Inlet, Valdez, British Columbia, and Washington in order take advantage of the lowest prices.

Storage at fuel hub. A community that does not have its fuel delivered directly from the refinery typically gets fuel through a fuel hub community. When fuel is unloaded at the fuel hub and then later re-loaded, the costs increase. The wharfage fees charged by the hub port and additional transportation from the hub to the community also add to costs.

Small and shallow ports require lighterage. Fuel transported from a refinery or fuel hub in an ocean-going vessel to communities without deep draft ports require lighterage. Lighterage causes a significant increase in costs, because the fuel is handled an extra time and because smaller barges cost more to operate on a per gallon basis.

Quantity of fuel purchased. Communities that purchase more fuel receive a bulk discount, because the fixed costs of delivering fuel are spread over more gallons.

Regulations on fuel and transportation. Under the Oil Pollution Act of 1990 (OPA 90), all single-hulled fuel barges must be replaced with double hulled barges. The act also

made the fuel transporter and storage facility owners liable for any pollution resulting from spills. These regulations are reflected in growing transportation costs. Single-hulled barges are still allowed in Alaska waters west of 155 degrees west latitude (approximately the west side of Kodiak Island).[35]

Shallow drafts are required for river transportation. To transport fuel on Alaska's western rivers, barges cannot draft more than 3.5 feet of water. The barges must be custom built for these rivers, also increasing fuel costs.

Ice can prevent winter deliveries. For communities in northern and northwestern Alaska, fuel cannot be delivered during the winter ice-over months. Barges typically travel to these communities twice a year—in the spring when the ice melts and in the fall before the river freezes. The rivers in northern Alaska are typically frozen from November to April. The barges needed to deliver fuel sit idle through the winter, and the fuel transporters must recover their capital costs during the short shipping season. Icing also creates incentives to invest in more storage and disincentives to upgrade moorage and marine header conditions.

Deficient or missing moorage. Many communities lack proper moorage. To compensate, fuel barges are often forced to execute risky maneuvers to offload fuel. Either the barge is nosed into the bank and propelled forward against the current, or it is held in place in by the fuel hose that is unloading the fuel.

Deficient or missing marine header. A marine header is a series of piping, valves, and pumps that receives fuel from a barge and pumps it into a storage tank. The slower a marine header pumps, the longer the barge takes to unload, increasing costs and risks of spills. If a community is missing a marine header, the fuel must be trucked off the barge.

Tides delay barge movement. Some communities are only barge accessible at high tide. If a barge is forced to sit idle waiting for a tide change, the cost of fuel increases.

Navigational hazards. Many stretches of river are difficult and risky to navigate. Prices increase with the extra risk—because of longer running time per mile, higher insurance costs, and higher crew costs. Stretches difficult to navigate also require extensive local knowledge, making it difficult for new firms to compete.

Air delivery

Flying fuel is the most expensive method for transporting fuel to rural Alaska villages. Communities will generally only fly in fuel if they do not have access to navigable water, or in emergencies when the river is frozen and the barges are unable to deliver. This can happen if a community did not have the cash or credit available to purchase a full winter season of fuel before freeze-up, or when a community sells all its fuel before spring break-up when the barges are able to return.

When fuel is flown in larger planes, the delivery cost is approximately $1.00 per gallon. Smaller planes flying only a few hundred gallons at a time charge closer to $2.00 per gallon. The size of the plane flying fuel largely depends on local runway length and

[35] Crowley Maritime Corp – CWLM Amended Annual Report
http://sec.edgar-online.com/2006/04/14/0000950123-06-004668/Section2.asp

community population. One advantage of flying in fuel is that communities do not need to invest in large storage facilities, because fuel deliveries can usually be made year-round.

There are multiple commercial air services that fly fuel in Alaska. Everts Air Fuel is the largest. It operates four DC-6s and two C-46s equipped to carry 2,000 to 5,000 gallons of fuel per trip.[36]

Fuel delivery contracts

We examined publicly available fuel delivery contracts as one source of information about fuel transportation prices. A fuel delivery contract is an agreement between a fuel purchaser and a fuel supplier. Most fuel purchases involve a fuel contract. Fuel contracts are generally updated on a yearly or multi-yearly basis, in a competitive bidding process, with the contract being awarded to the lowest bidder. As a result of the competitive bid process, these contracts should provide a reasonable proxy for the costs of delivering fuel to specific ports with a reasonable return on investment and profits. The bids are generally broken into two components—the delivery cost and refinery price. The refinery cost component is the price paid at the refinery gate on the day the fuel is purchased at the refinery.

Table 10 shows the delivery cost component of 2003 and 2006 State of Alaska fuel contracts—that is, contracts for fuel for state-owned facilities. We combined the two fuel contract years and averaged costs for communities that received contracts in both years. For most communities with contracts in both years the delivery charge was similar.

It is clear the method of delivery is an important factor in determining transportation costs. Anchorage's delivery costs are negative, because the bidding transporter was expecting to be able to buy fuel at a lower cost than the indexed price.

Table 10. State of Alaska fuel contract delivery charges per gallon

Community	Delivery Charge	Transport Type
Anchorage	$ (0.01)	Truck
Delta Junction	$ 0.01	Truck
Chitina	$ 0.04	Truck
Nenana	$ 0.04	Truck
Circle	$ 0.09	Truck
Ketchikan	$ 0.13	Ice Free Barge
Kodiak	$ 0.16	Ice Free Barge
Homer	$ 0.18	Ice Free Barge
Klawock	$ 0.20	Ice Free Barge
Dutch Harbor/Unalaska	$ 0.31	Ice Free Barge
Tanana	$ 0.40	Seasonal Barge
Nome	$ 0.63	Seasonal Barge
Ruby	$ 0.70	Seasonal Barge
Koyukuk	$ 0.91	Seasonal Barge
Naknek	$ 0.93	Seasonal Barge

Sources: State of Alaska, Department of Administration State Fuel Contracts for 2003 and 2006 and ISER calculations.

[36] Everts Air Fuel, available from: http://www.evertsair.com/airfuel/default.htm

Setting Delivery Prices

Fuel transporters face significant risk when determining their delivery price. If they place their price lower than their costs turn out to be, they will lose money when delivering fuel. If they set their price too high, they might be accused of price gouging, or competitors might undercut them and win the delivery bid. The ability to accurately assess the delivery costs to individual communities can be as important and require as much experience as delivering the fuel.

The structure of the fuel delivery prices is the same for most transporters. It includes a delivery charge, in addition to a refined fuel cost that is tied to a fuel price index—such as the OPIS Anacortes price. The refined fuel cost is set at the level of the fuel index on the day the fuel is purchased from the refineries.

Crowley personnel told us that the bid prices are reviewed in relation to cost experience every spring and fall by a team of employees, including those who deliver fuel. Prices are determined for each community based on the time and risks Crowley faces when delivering fuel. Fixed costs are estimated on a per gallon basis and require an estimate of how much fuel will be delivered to a particular community.

The amount of experience and expertise needed to accurately price fuel delivery costs presents two potential problems. The first is that new firms entering the market may lack the knowledge necessary to accurately reflect costs in the delivery charges they bid. It also makes it difficult to evaluate whether the delivery charge component (the price) is reasonable and reflects actual delivery costs.

Storage and distribution

In communities across Alaska, fuels must be stored in holding facilities for distribution to customers. Fuel storage requires a substantial capital infrastructure investment. The cost of the storage facility is sometimes paid for by communities (either city governments or village corporations) or by private companies that either have significant investment in specific communities as major storage or distribution points (e.g., Crowley or Delta Western) or are significant users of fuel, such as Peter Pan Seafoods in False Pass.

The storage capacity of tanks in various communities depends on many factors. These include the location of a community, and whether ports are ice-free in the winter, allowing fuel to be delivered anytime—as compared with communities that can only get fuel deliveries once or twice a year. Also, communities with harsher weather need to have storage facilities that are able to withstand that weather. All storage facilities must meet state and federal environmental regulations pertaining to leak or spill prevention and mitigation—such as having adequate liners.

For publicly owned facilities, communities can obtain assistance from the bulk fuel storage program administered by the Denali Commission. A report prepared for the Denali Commission in 2002 reported the following unit costs per gallon of storage capacity for bulk fuel projects in Alaska (Table 11).

Table 11. Bulk fuel project costs

Capacity	Benchmark Unit Costs
0 – 50,000 gallons	$18.00 to $14.00 per gallon
50,001 – 100,000 gallons	$14.00 to $12.00 per gallon
100,001 – 200,000 gallons	$12.00 to $9.50 per gallon
200,001 – 300,000 gallons	$9.50 to $8.50 per gallon
300,001 – 400,000 gallons	$8.50 to $7.50 per gallon
400,001 to 500,000 gallons	$7.50 to $6.50 per gallon
Greater than 500,000 gallons	$6.50 to $2.50 per gallon.

Source: Denali Commission. Final Denali Commission Project Cost Containment Assessment Projects in Various Alaska Villages, April 2002.

To determine these values, unit costs were calculated as the total project budget, divided by the total design storage capacity. In essence, a larger capacity project should relate to the lower end of the cost range for each capacity level.

Delivery or the distribution of the product in a community is another important component of total cost. Some communities charge a "delivery fee" if the product is delivered to the home. Some provide discounts if households order fuel to be delivered in bulk. In some communities, customers can pick up their fuel on an as needed basis. In other cases, the fuel is always delivered to the home and the "delivery charge" is included in the final fuel price. In these cases, the distribution charge is unknown.

V. Alaska Oil Taxes and Royalties

All oil and gas production in Alaska, except the federal and state royalty share and a small amount used for production, is subject to the state's production taxes and hazardous release surcharges that are levied only on crude oil. Alaska receives revenue from oil and gas production from the state's royalty share, production tax, corporate income tax, and property tax. This section provides a brief overview of these taxes.

Crude oil taxes

Petroleum Profits Tax

The Petroleum Profits Tax (PPT) is the production tax that was signed into law in 2006 and was reconsidered by the Alaska legislature during fall 2007. The PPT is a net value tax with tax credits designed to encourage investment in Alaska's petroleum sector, increase production, and increase long-term revenues.[37] The PPT replaced the Economic Limit Factor (ELF) severance tax.

Petroleum Property Tax

An annual tax is levied on the full and true value of property taxable under AS 43.56. The tax on oil and gas property is the only statewide property tax. The valuation procedure is for three distinct classes of property—exploration, production, and pipeline transportation. The pipeline transportation property tax is shared with local communities. The state tax rate is 20 mills, minus the local mill rate.

Petroleum Corporate Income Tax

Alaska levies two types of corporate income tax—one on oil and gas corporations and the other on all other corporations. An oil and gas corporation's Alaska income tax depends on the relative size of its Alaska and worldwide activities and the corporation's total worldwide net earnings. The corporation's taxable Alaska income is derived by apportioning its worldwide taxable income to Alaska, based on the average of three factors as they pertain to the corporation's Alaska operations: (1) tariffs and sales, (2) oil and gas production, and (3) oil and gas property.

Historically, oil and gas corporate income tax revenue has varied with oil prices and oil industry profits. In FY 1982, revenue from this tax was $668.9 million. As recently as FY 1994, the oil and gas corporate income tax generated only $17.8 million. For the past three years, revenues from the oil and gas corporate income tax have risen along with oil prices and oil industry profits, generating $661.1 million in FY 2006. This is the highest level for collections since the early 1980s.[38]

[37] Alaska Department of Revenue, Tax Division, *Revenue Sources Book, Spring 2007*, p.2.
[38] Ibid, p. 38.

Oil royalties

Almost all Alaska oil and gas production occurs on state lands leased for exploration and development. As the land owner, the state earns revenue from leasing as: (1) upfront bonuses, (2) annual rent charges and (3) a retained royalty interest in oil and gas production.[39]

The State of Alaska receives a royalty of approximately 12.5 percent of the oil and gas produced from leases on state lands. The state may take its share of oil production "in-kind" or "in-value." When the state takes its royalty share in-kind (RIK), it assumes possession of the oil or gas. The commissioner of the Department of Natural Resources may sell the RIK oil or gas in a competitive auction or through a noncompetitive sale negotiated with a single buyer. When the state takes its royalty in-value (RIV), the producers market the state's share along with their own share of production. The lessees remit cash payments on a monthly basis for the state's RIV share.[40]

Over the last 30 years the state has taken about one-half its royalty oil as RIK. The state has sold nearly 800 million barrels of RIK oil during this time, most of it in-state. These in-state sales provide long-term supplies of oil to each of the state's four refineries.

Cook Inlet

In 1969 the commissioner of the Department of Natural Resources negotiated a sale of 100 percent of the state's royalty share from Cook Inlet to the Alaska Oil and Refining Company. Within months after that, Alaska Oil and Refining Company merged with the Tesoro Petroleum Company. Tesoro subsequently built a new refinery in Nikiski on the Kenai Peninsula, next to Chevron's refinery, built in 1964. Between 1969 and 1985 the state sold all its Cook Inlet royalty oil to the Tesoro refinery. By 1980, the production decline in Cook Inlet prompted Tesoro to negotiate the first of several sales contracts with the state for supplies of RIK oil from the North Slope. By the end of 1985 Tesoro had replaced its Cook Inlet RIK volumes with supplies of RIK from the North Slope.

In 1987 the state began to export Cook Inlet RIK oil to the Chinese Petroleum Company. These volumes were produced from fields on the west side of Cook Inlet, after the federal government exempted Cook Inlet production from export administration regulations. The state sold 97 percent of the royalty production from the McArthur River, Trading Bay, North Trading Bay, and Granite Point fields in a series of one-year competitive auctions. In 1991 deliveries under the last Chinese Petroleum contract were halted following the December 1989 eruption of the Mount Redoubt volcano. There have been no Cook Inlet RIK sales since that time.

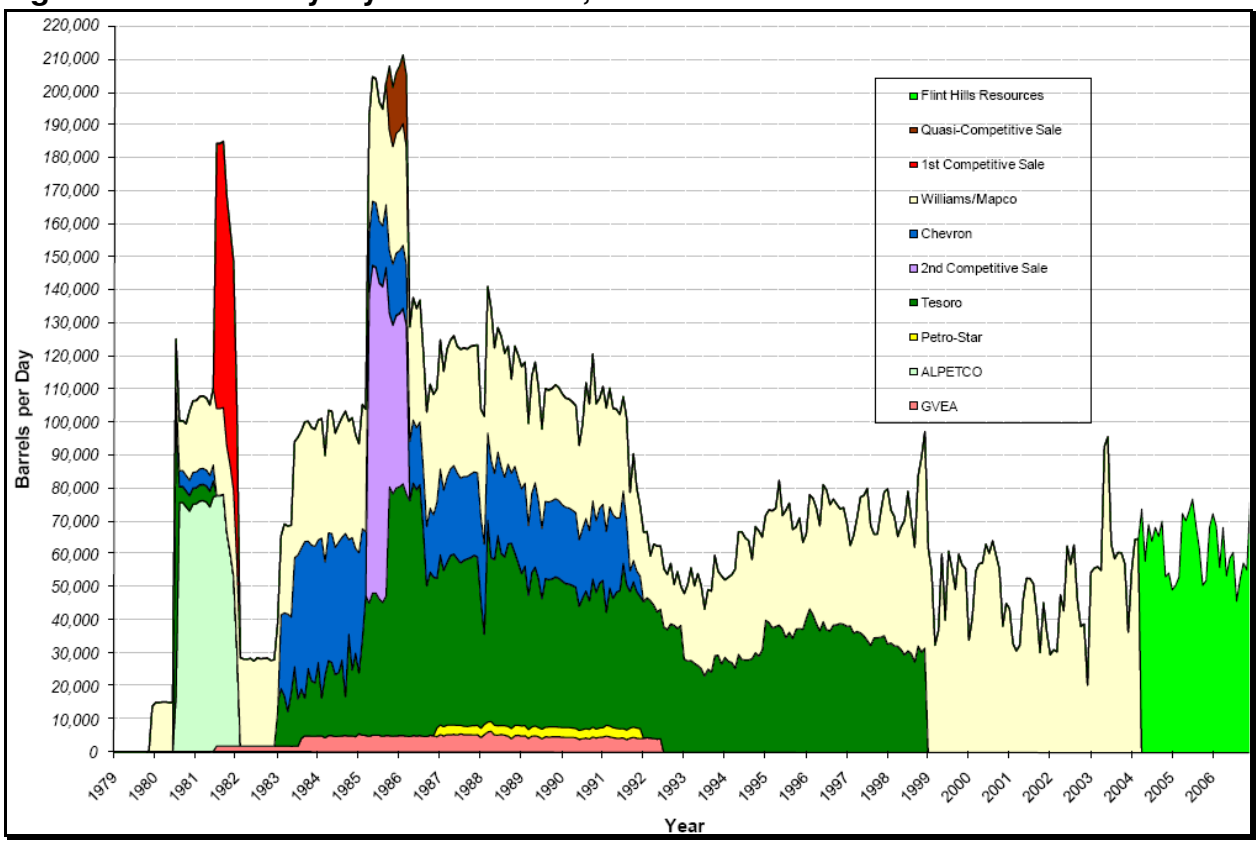
North Slope

Over the past 25 years, the state has held nine RIK sales involving portions of its Alaska North Slope (ANS) royalty oil production. These sales are summarized in Figure 10. For detailed information on royalty oil sales, see the Division of Oil and Gas Annual Report.

[39] Ibid, p. 29.
[40] Alaska Department of Natural Resources, Division of Oil and Gas, *2007 Annual Report*, p. 4-1.

What is significant for this study is that the State of Alaska has negotiated various terms into its royalty in-kind contract sales to Alaska refineries, including use of the Alaska Railroad to transport fuels and requirements to upgrade tank farms.

Figure 10. Alaska royalty In-kind sales, 1979 to 2006



Source: Alaska Department of Revenue, Tax Division, 2007, Revenue Sources Book, Spring 2007.

In addition to taxes collected to compensate the state for development of its publicly-owned oil resources, the state government also collects other oil-related taxes to offset the costs of specific programs. These include the Hazardous Release Surcharge assessed on crude oil production and motor fuel taxes assessed on refined products.

Hazardous release surcharge

The Oil and Hazardous Substance Release Prevention and Response Fund was created by the legislature in 1986 to provide a "readily available funding source to investigate, contain, and clean up oil and hazardous releases." An amendment in 1994 divided the fund into two separate accounts comprised of: (1) the Response Account, which is a surcharge on all oil production, except federal and state royalty barrels, that may be used to finance the state's response to an oil or hazardous substance release declared a disaster by the governor; (2) the Prevention Account, which is an additional surcharge on all oil production, except federal and state royalty barrels, that may be used for cleaning up oil and hazardous substance releases not declared a disaster by the governor; it can also be used to fund oil and hazardous substance release prevention programs in Alaska.

When the PPT was passed, the Response surcharge (AS 43.55.201) was changed from $.02 to $.01 and the Prevention surcharge (AS 43.55.300) was increased from $.03 to $.04. Both of these changes took effect April 1, 2006. The Response surcharge is suspended when the balance of the Response account is equal to or exceeds $50 million. As of February 28, 2007, the cumulative balance of the account was $42.4 million. The Response Surcharge was re-imposed effective April 1, 2007, by the Department of Revenue.[41]

Motor fuel taxes

For many years, fuel taxes and other revenues from highway users levied by the federal government and states have been a primary source of funds for federal and state highway programs. Nationally, a relatively small number of counties and municipalities also levy fuel taxes to finance road improvements, but these local governments rely primarily on general funds, property taxes, sales taxes, and other revenues unrelated to highway users to finance local road and street construction, maintenance, and operation.[42]

Federal fuel taxes, for the most part, are deposited in the Highway Trust Fund (HTF), which is used to fund highway construction projects. Alaska receives funds annually, and in excess of what Alaskans contribute to the fund, for road projects (Table 12). The Alaska fuel tax primarily pays for road operation and maintenance costs.

Historically, states and the federal government have viewed fuel taxes as an attractive revenue source for highway construction and maintenance programs for several reasons. First, the revenues from fuel taxes are linked, although imperfectly, with road use. In addition, fuel tax revenues historically have been relatively stable and predictable. Legislators or the electorate, in states other than Alaska, have been willing to increase the fuel tax rates when necessary to meet highway improvement needs. Fuel taxes are attractive revenue sources also because costs of administering the programs to collect fuel taxes are relatively low.

The Alaska motor fuel tax dates back to 1945, when the legislature imposed a tax of 1cent per gallon on all motor fuel. Over time, the legislature enacted separate tax rates for each of the fuel categories as they exist today.

Alaska levies the motor fuel tax on motor fuel sold, transferred, or used within Alaska. The Alaska Department of Revenue's Tax Division collects motor fuel taxes primarily from wholesalers and distributors who hold "qualified dealer" licenses. Current per gallon rates are 8 cents for highway use, 5 cents for marine fuel, 4.7 cents for aviation gasoline, 3.2 cents for jet fuel, and a rate of 8 cents or 2 cents for gasohol, depending on the season, location, and EPA mandate.

---

[41] Ibid, p. 29.

[42] March, Jim, *The Future of Highway Financing*, Innovative Financing Series: Article 3, Federal Highway Administration, Turner-Fairbank Highway Research Center, Public Roads Magazine, November/December 2005.

In addition to sales between qualified dealers, the following sales and uses are exempt from motor fuel tax:

- Heating
- Federal, state, and local government agencies
- Foreign flights (jet fuel)
- Exports
- Power plants/utilities
- Charitable institutions
- Gasohol (only fuel containing at least 10% alcohol, derived from wood or seafood waste)
- Bunker fuel (residual fuel oil or #6 fuel oil)

Consumers may claim refunds for the full Alaska tax rate if they used the fuel for exempt purposes; or for the difference between the tax rate and 2 cents per gallon, if they used the fuel off-highway. Resellers, usually retailers, may claim refunds for the full tax if they paid the tax and then sold the fuel for exempt use and did not collect the tax.

Most of the excise taxes credited to the HTF are not collected directly from the consumer by the federal government. They are, instead, paid to the Internal Revenue Service by the producer or importer of the taxable product (except for the tax on trucks and trailers, which is paid by the retailer, and the heavy-vehicle use tax, which is paid by the heavy-vehicle owner). As a result, most of the federal fuel taxes come from a handful of states—those where major oil companies are headquartered—and most tire taxes are paid from Ohio, the home of the U.S. tire industry. These taxes become part of the price of the product and are ultimately paid by the highway user.[43]

Table 12. Federal highway user taxes

Fuel Type	Effective Date	Tax Rate (cents per gallon)	Distribution of Tax		
			Highway Trust Fund		Leaking Underground Storage Tank Trust Fund
			Highway Account	Mass Transit Account	
Gasoline	10/1/1997	18.4	15.44	2.86	0.1
Diesel	10/1/1997	24.4	21.44	2.86	0.1
Gasohol	1/1/2005	18.4	15.44	2.86	0.1

Source: Federal Highway Administration, 2007.

In some cases, the federal motor-fuel tax has already been paid by the producer/ distributor or retailer on motor fuel that will ultimately be used by an exempt user or for an exempt purpose. In such cases, the end user may purchases fuel at a price that includes

[43] Federal Highway Administration, Financing Federal-Aid Highways, The Highway Trust Fund, www.fhwa.dot.gov/reports/fifahiwy/fifahi05.htm

the tax and must apply for a refund of the tax. For sales of diesel fuel to state and local governments, and for tax exempt purposes such as heating, the wholesaler or retailer (the ultimate vendor) sells the fuel to the end user at a price excluding the tax and applies for the refund. The federal fuel tax refund is primarily done through the federal income tax process.[44]

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.

Local Taxes

In addition to state and federal fuel taxes, some Alaska communities charge local sales taxes, and fuel taxes on a percentage or cents per gallon basis. Communities with these types of taxes are shown in Table 13 below. Specific sales tax revenues attributable to fuel sales are not reported or broken out.[45] According to Steve Van Sant, Alaska's state assessor, when a city or borough has a general sales tax, it is typically applied to all sales, including fuel, unless specifically exempted. He is not aware of any communities that have exempted fuel from their general sales tax.

Specific fuel taxes (note for example Bettles, Cold Bay, and Sitka in Table 13) are usually a fuel transfer tax that occurs when the fuel is transferred into or out of a city. The fuel transfer tax is not linked to final sales to households. Any new community fuel taxes would most likely be on bulk sales and are unlikely to be added in communities that already have a general sales tax on the books.[46] The places with specific fuel taxes appear to primarily be those that have large commercial users of fuel such as fishing boats or cruise ships . In addition to local sales taxes and fuel taxes, some communities may charge wharfage fees for port deliveries, including fuel deliveries. These charges most likely are included in the final retail prices charged to consumers and are not a tax per se. Fuel transfer taxes would be included in the final sales price charged to consumers by the retailer who paid the fuel transfer tax.

---

[44] Generally, diesel fuel and kerosene are taxed in the same manner as gasoline. However, special rules (discussed later) apply to dyed diesel fuel and dyed kerosene, and to undyed diesel fuel and undyed kerosene sold or used in Alaska for certain nontaxable uses and undyed kerosene used for a feedstock purpose.
Internal Revenue Service, Publication 510. http://www.irs.gov/publications/p510/ch01.html#d0e1299

[45] Van Sant, Steve, 2007, Alaska Department of Commerce, Community and Economic Development, Division of Community Advocacy, Alaska Taxable 2006, Table 2.

[46] Van Sant, Steve, State Assessor, personal communication, November 19, 2007.

Table 13. Local sales and special taxes and tax revenues

Municipality	Sales Tax	Revenues	Special Tax	Revenues
Alakanuk	4%	$92,532	No	
Aleknagik	5%	$80,358	5% Bed Tax	$3,390
Anderson	No		8% Utility Tax	$43,141
Aniak	2%	$47,465	No	
Bettles	No		$.02/gal. Fuel Transfer Tax	$3,416
Brevig Mission	3%	$29,000	No	
Buckland	6%	$71,469	No	
Chefornak	2%	52,788	2% Raw Fish Tax	
Cold Bay	No		10% Bed Tax/$.04/gal. Fuel Tax	$20,150/$46,735
Cordova	6%	$2,469,977	6% Bed Tax/6% Vehicle Rental Tax	$84,091/$17,080
Craig	5%	$1,394,532	6% Liquor Tax	$96,067
Deering	3%	$13,396	No	
Denali Borough	No		Sev.Tax $.05/yd grvl-$.05 ton-coal; Bed Tax 7%	$87,958/$2082882
Dillingham	6%	$2,206,634	10% Bed & Liquor Tax/6% Gaming Tax	$249,839/$111,160
Diomede	3%	$9,015	No	
Eek	2%	$24,000	No	
Elim	2%	$28,738	No	
Emmonak	3%	$148,000	NR	
False Pass	3%	$22,382	6% Bed Tax	
Fort Yukon	3%		No	
Gambell	3%	$68,810	No	
Gustavus	2%	$188,537	4% Bed Tax	$52,091
Haines Borough	5.5%	$1,973,088	4% Bed Tax	$56,650
Homer	4.50%	$5,809,399	No	
Hooper Bay	4%	$200,679	No	
Houston	2%	$172,484	No	
Hydaburg	4%	$25,856	No	
Juneau, City & Borough of	5%	$34,587,598	7% Bed Tax/ 3% Liquor Tax/ $.30/pack Tobacco	$955,000/$715,000/$473,922
Kake	5%	$167,354	No	$5,686
Kenai	3%	$4,404,148	No	
Kenai Peninsula Borough	2%	$16,701,322	No	
Ketchikan	3.5%	$9,101,177	7% Bed Tax	$395,074
Ketchikan Gateway Borough	2.5%	$6,412,198	4% Bed Tax	$42,834
King Cove	4%	$1,636,507	2% Fisheries Tax/Business impact tax-flat rate	Fisheries tax incld in sales tax
Klawock	5.5%	$555,074	6% Bed Tax	$7,690
Kodiak	6%	$7,814,820	5% Bed Tax	$105,992
Kodiak Island Borough	No		10.25 mill Severance Tax/5% Bed Tax	$1,186,908/$47,645
Kotlik	3%	$78,313	No	
Kotzebue	6%	$2,727,047	6% Bed Tax/ 6% Alcohol Tax	$37,514/$43,574
Koyuk	2%	$25,776	NR	
Kwethluk	5%	$111,456	No	
Lake & Peninsula Borough	No		2% Raw Fish Tax/Guide Fees/6% Bed Tax	$943,747/$22,473/$165,883
Larsen Bay	3%	$6,163	No	
Manokotak	2%	$6,938	No	
Marshall	4%	$54,006	No	

Table 13. Local sales and special taxes and tax revenues, continued

Municipality	Sales Tax	Revenues	Special Tax	Revenues
Mekoryuk	2%	$170,502	No	
Mountain Village	3%	$120,172	No	
Napakiak	3%	$42,147	No	
Nenana	4%	$129,687	Motor Vehicle Tax	$7,225
Newhalen	2%		The City does not collect any sales tax	
Nome	5%	$3,669,606	4% Bed Tax	$83,310
North Pole	4%	$218,282	No	
Nunam Iqua (Sheldon Point)	4%	$1,364	No	
Nunapitchuk	3%	$100,384	No	
Old Harbor	3%	$19,904	5 %Bed Tax	$729
Ouzinkie	3%	$10,108	No	
Palmer	3%	$3,829,234	No	
Pelican	4%	$58,501	10% Bed Tax	$4,537
Petersburg	6%	$2,431,614	4% Bed Tax	$40,489
Pilot Station	4%	$60,420	No	
Point Hope	3%	$104,421	No	
Port Alexander	4%	$24,683	6% Bed Tax	No revenue reported
Quinhagak	3%	$79,618	No	
St. Mary's	3%	$100,997	NR	
Saint Paul	3%	$366,581	Fish Tax 3%	$562,490
Sand Point	3%	$633,862	7% Bed Tax/2% Raw Fish Tax	$17,003/$605,291
Savoonga	3%	$40,925	No	
Saxman	3.50%	$50,914	No	
Scammon Bay	2%	$30,034	No	
Selawik	5%	$114,833	No	
Seldovia	2%/4.5%	$122,090	No	
Seward	4%	$3,413,087	4% Bed Tax	$284,656
Shungnak	2%	$11,522	No	
Sitka, City & Borough of	5%/6%	$9,277,571	6% Bed Tax/ $.02/gal Fuel Tax	$355,870/$5,121
Skagway	4%	$4,866,950	8% Bed Tax	$157,691
Soldotna	3%	$6,348,529	No	
Stebbins	3%	$47,190	No	
Tanana	2%	$21,461	No	
Teller	3%	$15,211	No	
Tenakee Springs	2%	$13,092	Bed Tax 6%	$521
Thorne Bay	5%	$226,917	No	
Togiak	2%	$98,069	2% Raw Fish Tax	$35,396
Toksook Bay	2%	$37,566	No	
Unalakleet	3%	$143,988	5% Bed Tax/5% Alcohol Tax/Baler 2%	$5,106/$5,381/$95,200
Unalaska	3%	$6,049,831	2% Raw Fish Tax/1% Capitol Sales Tax/ 5% Bed	$4,193,082/$3,004,035/$162,072
Wasilla	2.5%	$10,433,805	Alcohol tax, Aviation fuel tax	$100,725/$17,500
White Mountain	1%	$14,176	No	
Whittier	3%	$248,256	3% Passenger Trans. Tax/3% Fuel Tax	$126,181/$17,147
Wrangell	7%	$2,104,741	$4 per night Bed Tax	$24,380
Yakutat, City & Borough of	4%	$748,490	1% Raw Fish Tax/8% Bed & Car Rental Tx	$20,540/$165,477

Source: Van Sant, Steve, 2007, Alaska Department of Commerce, Community and Economic Development, Division of Community Advocacy, *Alaska Taxable 2006*.

VI. Subsidies and Assistance Programs

The cost of living is higher in Alaska, according to conventional wisdom. In fact, a report in the October 2007 issue of *Alaska Economic Trends* found that energy costs in Alaska posted one of the sharpest increases in 2006, at 13.9 percent. From 2002 to 2006, energy prices rose 51 percent.[47] In response to the increased cost of energy (including fuel prices), the State of Alaska created or increased funding for a number of energy financial assistance programs. These programs were developed to help communities and individuals pay for mounting fuel and energy costs. This includes the following energy assistance programs:

- Municipal Energy Assistance Program
- Bulk Fuel Revolving Loan Fund
- Power Cost Equalization (PCE)
- Low Income Energy Assistance Program
- Bulk Fuel Upgrades
- Rural Alaska Fuel Services (RAFS) program
- Citgo Program

These programs are discussed below.

Municipal Energy Assistance Program

Funding for the Small Municipality Energy Assistance Program[48] is a result of a special appropriation request by then-Governor Murkowski to address historically high fuel costs that created significant financial hardship for small municipalities and their residents. During the fiscal years 2006, 2007, and 2008, the program administered funds to numerous communities across Alaska. Funds are distributed to small villages, municipalities of various sizes, boroughs, and village and tribal councils. The grant funds must be used in the following order:

1. To repay any indebtedness of the city or borough to the Bulk Fuel Revolving Loan Fund, administered by the Alaska Energy Authority
2. To repay any indebtedness of the city or borough to a fuel company or fuel vendor
3. For the purchase of fuel by the city or borough.

Over $6.5 million was distributed among communities in fiscal year 2006, $48 million in 2007, and $48.7 million in 2008. Energy Assistance distributions to the ten case study communities are shown in Table 14.

[47] Fried, Neal and Dan Robinson, "The Cost of Living in Alaska," *Alaska Economic Trends*, October 2007.
[48] For more information about the Small Municipality Energy Assistance Program please see website: http://www.commerce.state.ak.us/dca/energy_assist.htm

Table 14. Small Municipality Energy Assistance Program Payments, FY 06 to FY08

Community Name	FY 06 Funds	FY 07 Funds	FY 08 Funds
Allakaket/Alatna	$44,791	$36,944	$79,416
Angoon	$44,791	$43,326	$97,644
Bethel	$0	$223,971	$348,039
Chitina	$0	$0	$31,152
False Pass	$22,395	$40,000	$77,537
Fort Yukon	$44,791	$25,309	$102,999
Lime Village	$0	$0	$26,326
Mountain Village	$67,187	$66,053	$112,395
Unalakleet	$67,187	$50,253	$109,153
Yakuat	$67,187	$17,496	$279,784

Source: Bill Rolfzen, Program Administrator, Small Municipality Energy Assistance Program.

Bulk Fuel Revolving Loan Fund

The Bulk Fuel Revolving Loan Program is administered by the Alaska Energy Authority. The fund was created to "assist communities, utilities or fuel retailers in small rural communities in Alaska in purchasing emergency, semi-annual or annual bulk fuel supplies." Loans are for the purchase of new fuel and are not provided for fuel already purchased, in the process of being used, or already consumed. An organized municipality or unincorporated village with a population under 2,000, or private individuals, corporations, or cooperatives, are eligible to apply as long as the applicant does not have any outstanding AEA bulk fuel loans. The bulk fuel loan may be used for:

- Municipal electrical power generators; municipal heavy equipment
- Heating fuel for the municipality, residents, and businesses
- Municipal, business and residential motor vehicles and for subsistence purposes

The fund does not cover the purchase of aviation fuel or other non-fuel related supplies. The loan is expected to be repaid within one year, and the terms of the loan are generally nine equal monthly installments. No interest is charged on the first bulk fuel loan and 5% interest is charged on the second loan. The third or subsequent loans are charged an interest rate equal to the average weekly yield of municipal bonds for the proceeding year.

Bulk fuel loans funded from 2006 to 2007 covered the purchase of diesel #1, diesel #2, and gasoline in various communities. Mountain Village was the only one of the ten case study communities to receive a bulk fuel revolving loan during fiscal year 2006 or 2007.

Power Cost Equalization (PCE)

The Power Cost Equalization program (PCE) was created to provide economic assistance to customers in rural areas of Alaska where the kilowatt-hour charge for electricity can be three to five times higher than the charge in more urban areas of the state. The program attemptss to equalize the power cost per kilowatt-hour statewide.

The PCE program is administered by the Alaska Energy Authority. Participating utilities must register with the Regulatory Commission of Alaska (RCA). The RCA sets the PCE level for each utility, based on cost of electric generation. An eligible residential customer may receive PCE credit on the first 500 kWh consumed each month. The community also receives credit toward electricity used in community facilities, based on the population of the community.

Low Income Energy Assistance Program

The Low Income Energy Assistance Program was created with funds from the State of Alaska to help low-income households offset the high price of home heating. The grant program is administered by the Division of Public Assistance in the Department of Health and Social Services, and it's known as the Heating Assistance Program (HAP). The funds are available to any residents or households with incomes below the poverty level. The funds may be used to:

- Conduct outreach activities and provide assistance to low income households in meeting their home energy costs—"heating assistance"
- Intervene in energy crises—"crisis assistance"
- Provide low-cost residential weatherization and other cost-effective, energy-related home repair—"weatherization assistance"

The program provides funds on a household basis rather than on a community basis. Households in all ten case study communities received assistance in fiscal year 2007.

Bulk Fuel Upgrades

The Denali Commission and the Alaska Energy Authority (AEA) are working together to reduce the cost of energy by funding bulk fuel upgrades across Alaska. The Denali Commission funds the Bulk Fuel Upgrade while AEA does the planning and construction of the storage facilities. This benefits communities, because they then have more storage capacity and can order more fuel in bulk. And because the facilities are made compliant with environmental standards, they are more reliable and less prone to spills or leaks—which helps reduce the cost of fuel in rural villages.

The bulk fuel program does not provide funds to communities which are part of the Alaska Village Electric Cooperative (AVEC), are within the North Slope Borough, or are connected by roads. Among the ten case study communities, five are currently receiving or have received funds in the past for bulk fuel upgrades. The communities of Yakutat, Chitina, Bethel, Mountain Village, and Fort Yukon did not receive funds for bulk fuel upgrades. Mountain Village is an AVEC community; Chitina is on the road system; and Yakutat, Bethel, and Fort Yukon have bulk fuel facilities provided by large distribution companies such as Crowley or Delta Western. The communities of Allakaket/Alatna,

Lime Village, False Pass, and Angoon have completed bulk fuel upgrades through this program. Unalakleet is currently in the final construction phase of its bulk fuel facility.

Rural Alaska Fuel Services Program

Rural Alaska Fuel Services (RAFS) was created in 2004 as a non-profit corporation, organized to contract for operating and maintaining rural Alaska bulk fuel storage facilities construct by the Denali Commission and the Alaska Energy Authority. All bulk fuel facilities in Alaska must be maintained and operated in accordance with all applicable state and federal regulations. RAFS also offers the following services to rural communities in Alaska:

- Business planning
- Operations and management services
- Testing and inspections
- Operational training for employees
- Facility oversight
- Record-keeping and reporting
- Sustainability

One of the most important roles RAFS plays is advising communities on developing fuel pricing structures. RAFS helps communities determine the correct price, so they can recover their costs and avoid financial crises. RAFS has found that meeting with community residents to explain the components of fuel costs makes them more understanding about why they need to pay higher prices.

In the three years since RAFS was established, it has helped 30 Alaska communities. Of the ten case study communities, none of them have so far worked with RAFS.

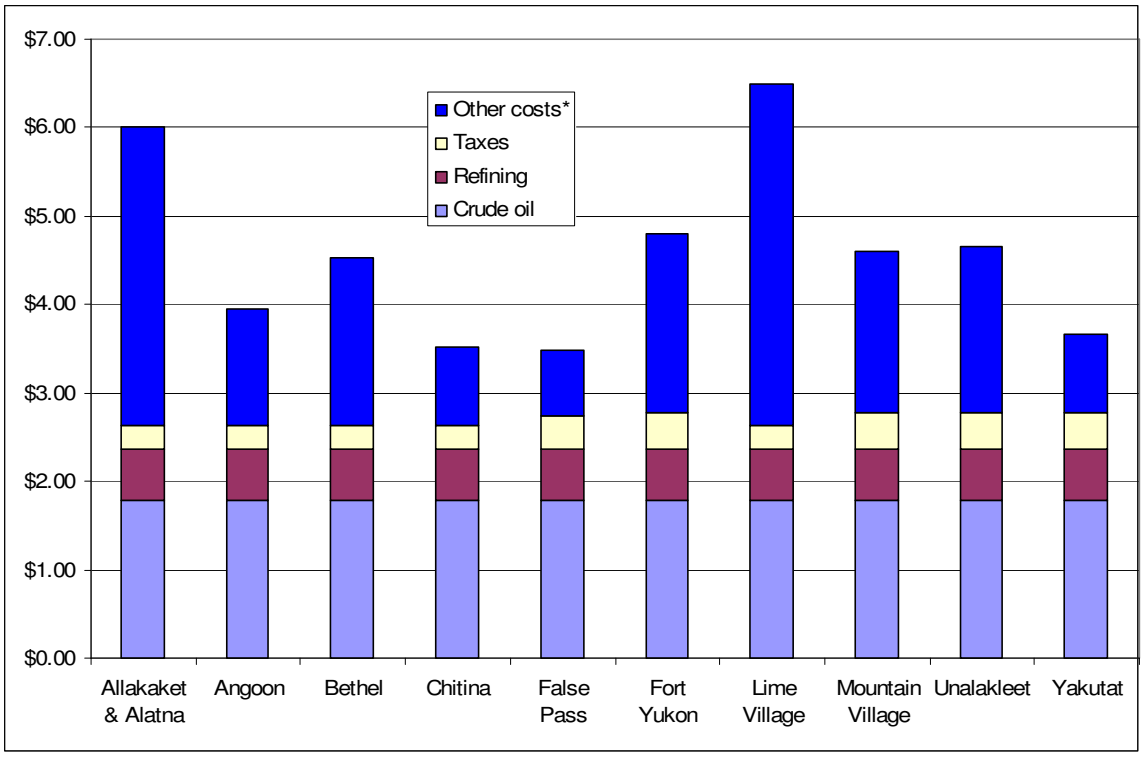
Citgo

A Venezuelan owned oil company, Citgo, donated fuel to many rural Alaska villages during the winters of 2006 and 2007. The company paid for 100 gallons of fuel for every household in 151 villages in Alaska. This fuel was worth roughly $5 million—equating to a savings of more than $700 in fuel costs for each recipient household during the 2006 and 2007 winters.

VII. Comparative Case Study Results

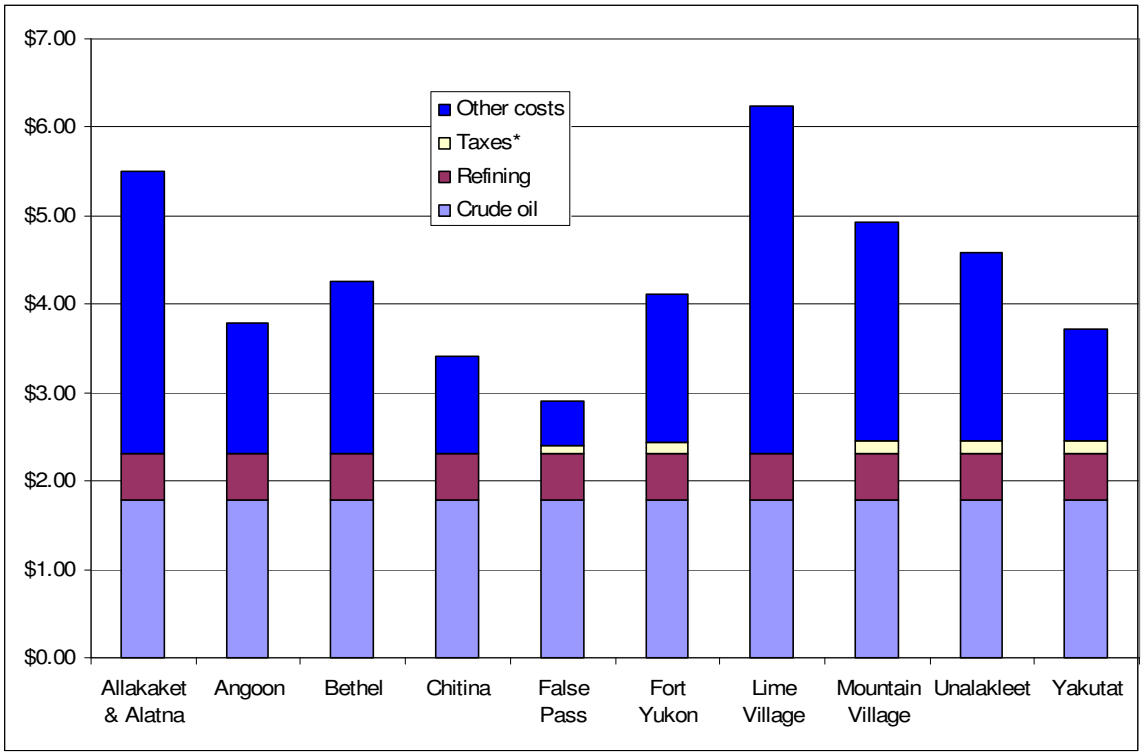
Figures 11 and 12 summarize the components of gasoline and heating fuel prices in our ten case study communities. After that we look at the communities individually.

Figure 11. Components of gasoline prices in case study communities



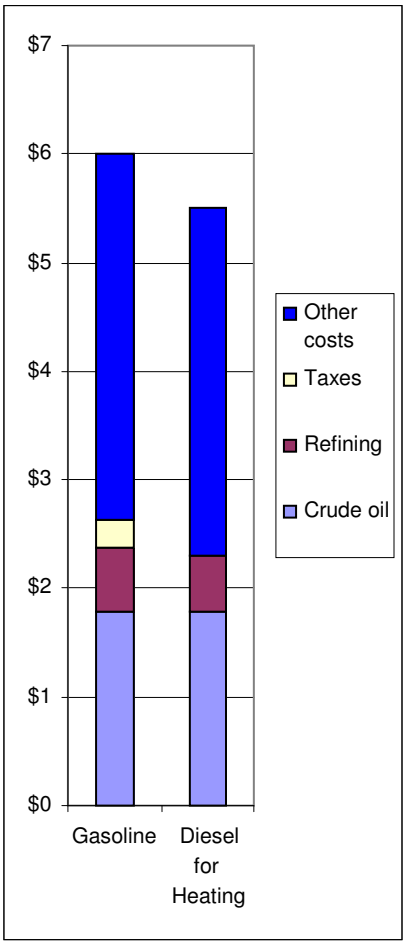
* Other costs include transportation, storage, and retailer markup
Crude oil: EIA's Refiner Acquisition Cost of Crude Oil, PADD 5 (West Coast), Sept. 2007, composite (domestic & international)
Not available for Alaska alone, http://tonto.eia.doe.gov/dnav/pet/pet_pri_rac2_dcu_r50_m.htm
Refined price: EIA's Refiner Petroleum Product Prices by Sales Type, Alaska, Sales for Resale, Sept. 2007
http://tonto.eia.doe.gov/dnav/pet/pet_pri_refoth_dcu_SAK_m.htm

Figure 12. Components of diesel for heating prices in case study communities**



* Taxes include only local sales tax.
** Communities identified their heating fuel as #1, but Alaska refinery prices from EIA were only available for #2.

Allakaket/Alatna



Together, the neighbor communities of Allakaket and Alatna (across the Koyukuk River from each other) have a total population of about 125. They are in northern Alaska, above the Arctic Circle. They receive their fuel by airplane, because fuel barges can't navigate the upper Koyukuk River.

In November 2007 gasoline retailed for $6.00 per gallon and diesel for heating was $5.50 per gallon in Allakaket/Alatna. There is no local sales tax in either community. The "other" costs" for fuel in Allakaket/Alatna amounted to roughly $3.37 per gallon for gasoline and $2.95 for fuel oil in late 2007. Several factors tend to increase or ameliorate the "other" fuel prices in these places:

⇧ Only method of transportation is by air.

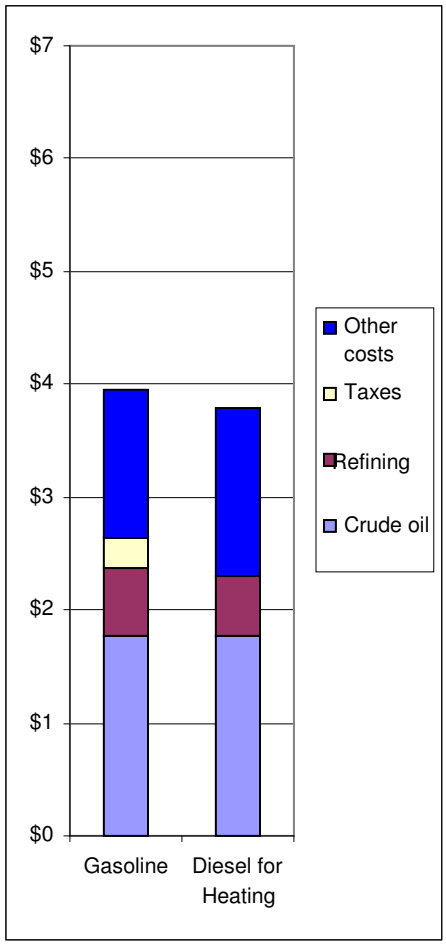
⇩ Long runway that could support larger airplanes carrying more fuel.

⇧ However, because of small population, delivered quantities are small and so delivery charge is higher per gallon.

⇔ Storage capacity is only 16,000 gallons, but this does not seem to be a constraint on deliveries, because quantity delivered in 2007 was only 7,500 gallons.

⇩ There are at least two suppliers to the community, and barriers to entry in air transportation are low compared with those in barging—so there is potential for competition.

Angoon



Angoon is located on Admiralty Island in Southeast Alaska; south of the capital city of Juneau. Angoon has a current population of 497; the population has decreased over the past few years. All fuel is barged to Angoon by Petro Marine.

In November 2007, gasoline retailed for $3.96 per gallon and fuel oil for $3.79 per gallon. There is no local sales tax in the community. The "other" components of fuel prices in Angoon were roughly $1.33 for gasoline and $1.24 for fuel oil. Factors tending to increase or ameliorate these "other" costs include:

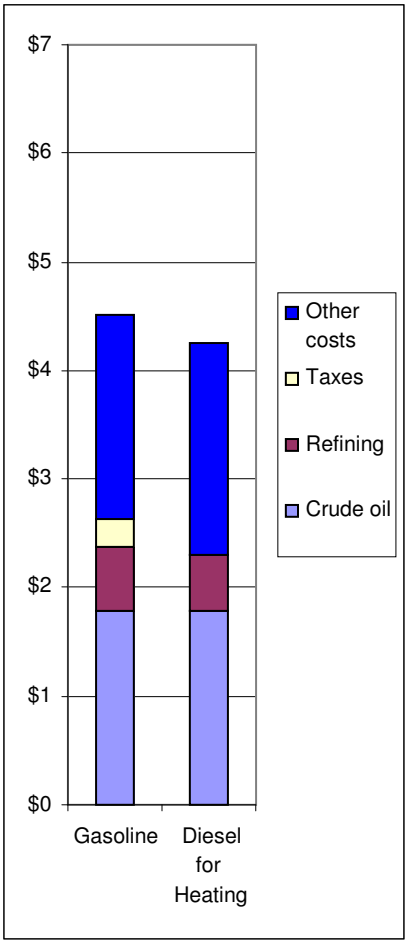
⇧ Only fuel delivery method is by barge.

⇩ Ice-free port in Southeast Alaska, roughly 900 miles from both Anacortes and Anchorage.

⇧ Fuel has to be lightered to community, typically from Ketchikan.

⇩ Fuel can be delivered any time; typically there are eight deliveries per year.

Bethel



Bethel is located at the mouth of the Kuskokwim River and has a population of 5,812. All fuel for Bethel is barged on the Kuskokwim River. It is a regional fuel distribution hub and has a storage capacity of 14 million gallons.

In November 2007 gasoline retailed for $4.52 per gallon and diesel for heating for $4.25 per gallon. There is no local tax on fuel in the community. The "other" costs for fuel in Bethel in late 2007 were roughly $1.89 for gasoline and $1.70 for fuel for heating. Factors affecting those extra costs include:

⇧ Only method of transportation is barge.

⇩ Large fuel hub community.

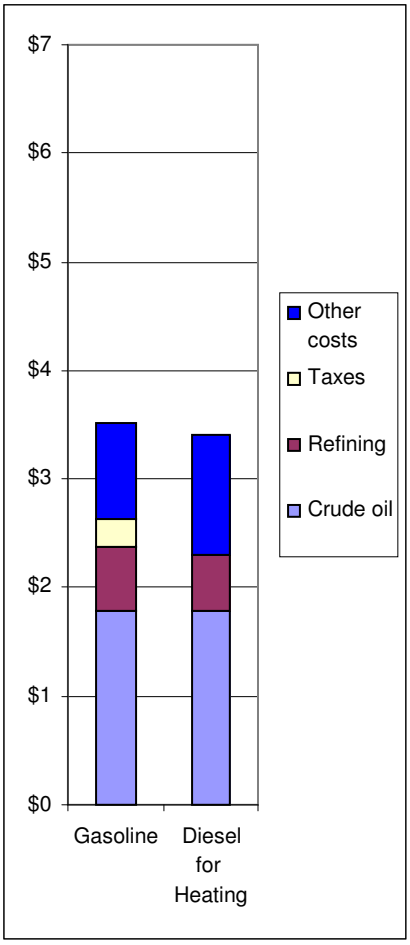
⇧ Port and river both freeze up in winter.

⇧ Fuel has to be lightered into community.

⇩ Can receive multiple shipments (10+) per year when river is not frozen.

⇧ Large storage facility owned by Crowley Marine. We don't know how much fuel stored in the community is distributed to other regional communities and how much goes to Bethel residents.

Chitina



Chitina is on the road system in southcentral Alaska. Chitina and has a population of 110. All fuel in Chitina is transported by road from Anchorage.

Gasoline retailed for $3.52 per gallon and diesel for heating is $3.41 per gallon in November 2007. There is no local tax on fuel in the community. The "other" costs contributing to fuel prices in Chitina in late 2007 were roughly $0.89 for gasoline and $0.86 for fuel for heating. Various factors tend to increase or decrease those other costs:

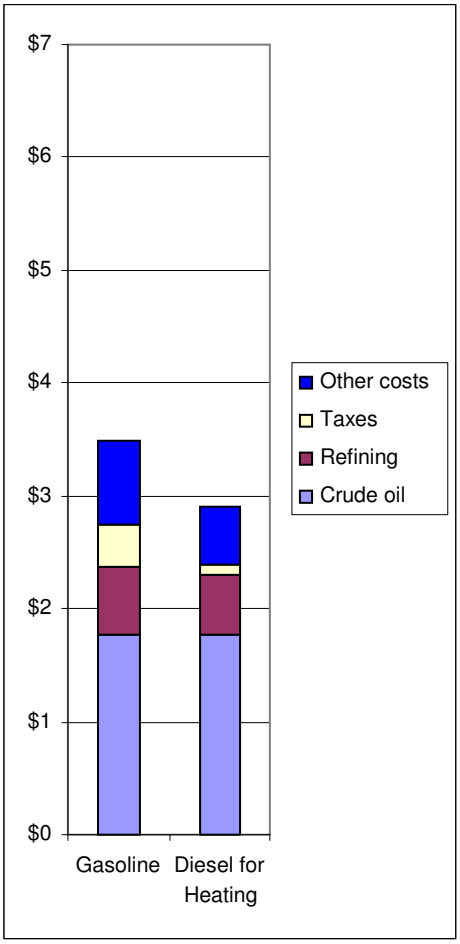
⇩ On the road system only 247 miles from Anchorage.

⇩ Can receive fuel any time; not weather dependent.

⇩ Fuel usually comes by truck.

⇩ Storage facility is publically owned; There are many companies that could potentially deliver fuel, with relatively low cost of capital, skill and experience.

False Pass



False Pass is on Unimak Island in the Aleutian Chain. It has a year-round population of about 54, the population increases when fishermen and fish processors arrive for the fishing season. All fuel for False Pass is barged in.

In November 2007 gasoline retailed for $3.49 per gallon and fuel oil for $2.90 per gallon. The community has a 3% sales tax that applies to fuel sales. The "other" fuel costs in late 2007 were roughly $0.75 for gasoline and $0.26 for fuel oil. Several factors tend to increase or hold down those other costs:

⇧ Can only receive fuel by barge.

⇩ Relatively close to large ports (Dutch Harbor and Anchorage).

⇧ Ice-free port.

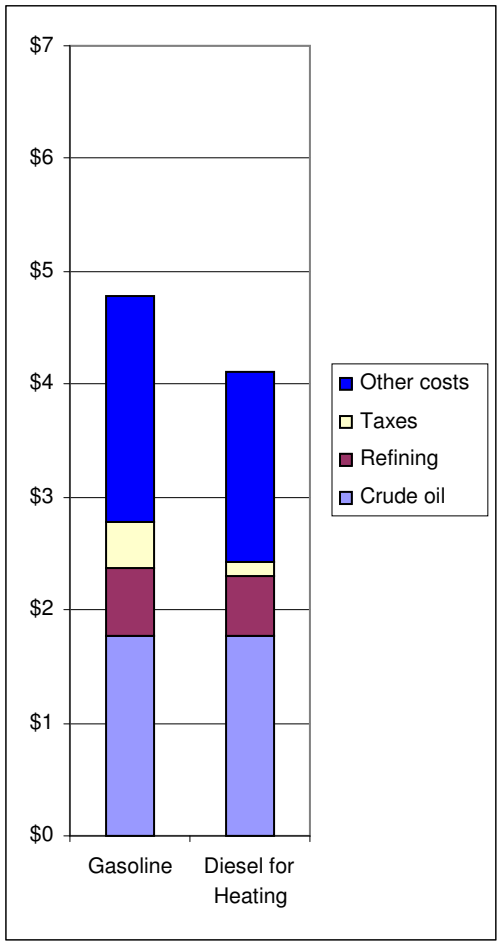
⇧ Fuel has to be lightered to community.

⇩ Small marine distance from larger facilities.

⇩ Only receives one delivery per year but has a large storage capacity to serve many commercial fisherman and fish processors in the area.

⇩ Storage Facility is owned by Peter Pan Seafood, a private company. Large throughput due to fishing fleet and location near multiple fishing grounds.

Fort Yukon



Fort Yukon is on the upper Yukon River northeast of Fairbanks and has a population of about 570. All fuel for Fort Yukon is barged upriver from Nenana by Crowley Marine.

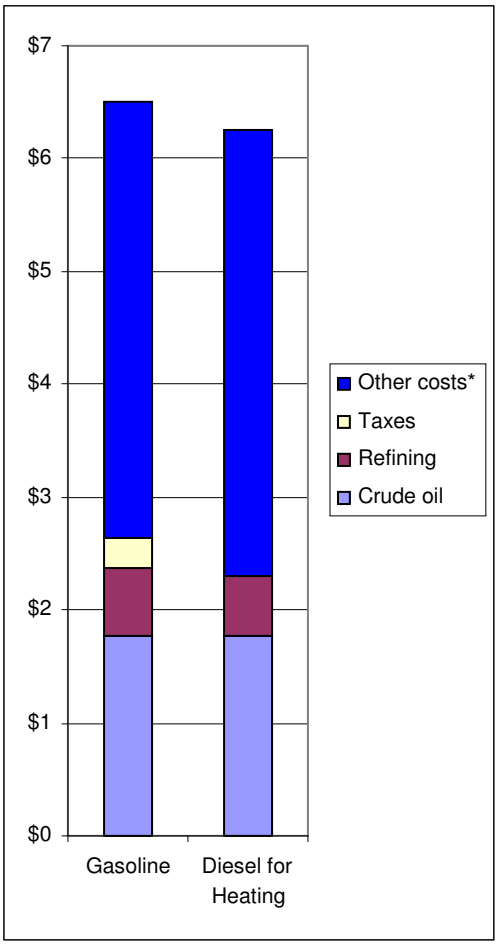
Gasoline retailed for $4.79 per gallon and fuel oil for $4.12 per gallon in November 2007. Ft. Yukon has a 3% local sales tax that applies to fuel sales. Other costs adding to fuel prices, in addition to costs of crude oil and refining, were roughly $2.01 for gasoline and $1.44 for fuel oil in late 2007. Those other costs can largely be attributed to several factors:

⇧ Fuel barged 400 river miles upriver from Nenana.

⇧ River and port freeze up during winter.

⇧ Fuel has to be lightered to community.

Lime Village



Lime Village is on the Stony River in the Kuskokwim Delta of western Alaska. It has a total population of just about 25; the population has declined over the past few years due to lack of jobs and the school closing. All fuel for Lime Village is shipped by air.

In November 2007 gasoline retailed for $6.50 per gallon and fuel oil for $6.25 per gallon. There is no local tax on fuel in the community. The "other" costs adding to the price of fuel in Lime Village in late 2007 were roughly $3.87 per gallon for gasoline and $3.70 for fuel oil. Several things make those other costs high:

⇧ All fuel has to come by air, because barges can't navigate the Stony River to Lime Village

⇧ Very short runway for airplanes; can only handle small shipments per trip.

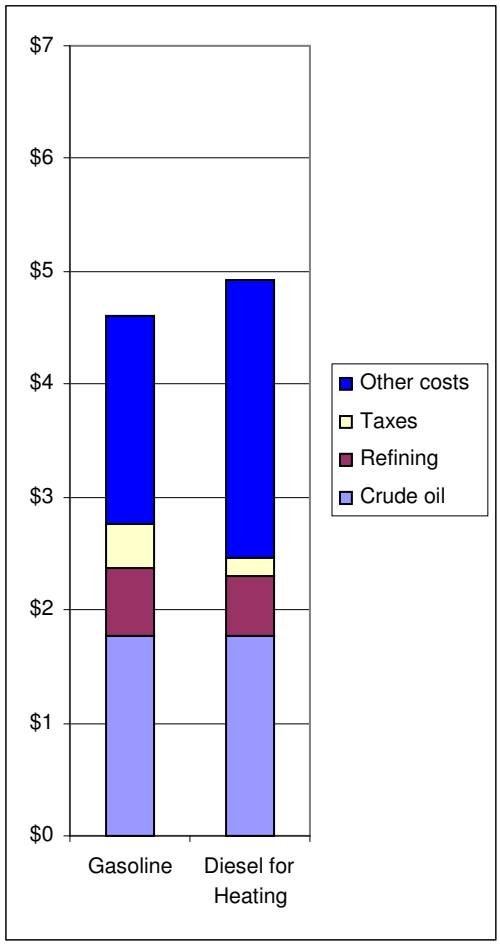
⇧ Fuel is barged from Bethel to Sleetmute and then transferred to planes for delivery to Lime Village.

⇧ Can receive fuel shipments any time of the year but is very expensive.

⇧ Storage facility is publicly owned, but is very small (only 1,800 gallon capacity for the community).

⇧ Small population means delivery charges are spread over fewer gallons.

Mountain Village



Mountain Village is on the Yukon River in Northwest Alaska, close to Norton Sound and the Bering Sea. About 786 people live there. Most fuel for Mountain Village is barged down the Yukon River from Nenana, but occasionally deliveries are lightered from ocean-going vessels at the mouth of the Yukon and shipped upstream.

In November 2007 gasoline retailed for $4.60 per gallon and fule oil for $4.92 per gallon. The community has a 3% sales tax. The "other" costs of fuel in Mountain Village in late 2007 were roughly $1.83 for gasoline and $2.22 for fuel oil. Several things tend to increase or hold down those other costs:

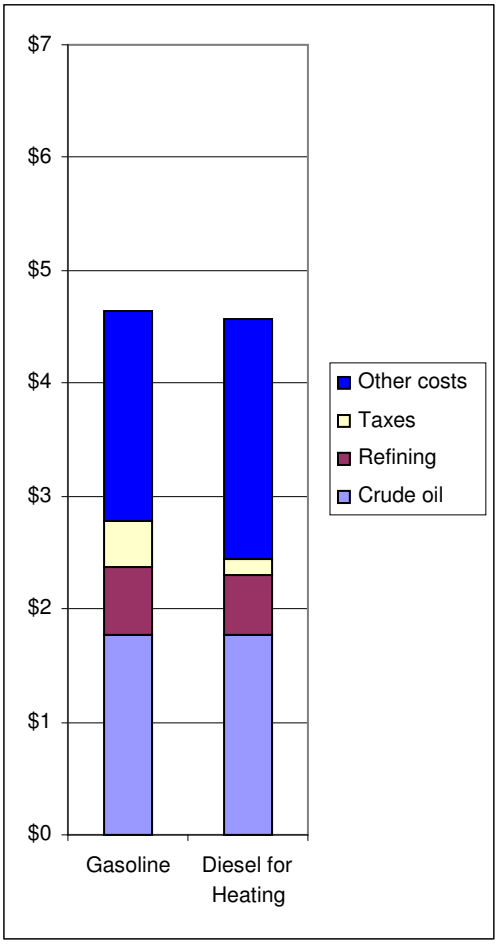
⇧ Barging on the lower Yukon River is the only method of transportation.

⇧ Can only deliver during times of the year when river is not frozen.

Fuel has to be transported in a shallow draft barge; Nenana is main hub port, roughly 1,200 miles upriver.

⇩ Publicly owned storage facility, with a capacity of 200,000 gallons.

Unalakleet



Unalakleet is in northwestern Alaska, on Norton Sound. Unalakleet has about 710 residents. All fuel is first barged to Nome in a line-haul vessel and then transported to Unalakleet in a shallow draft lighterage vessel.

Gasoline retailed for $4.65 per gallon and fuel oil for $4.58 per gallon in November 2007. There is a 3% local sales tax that applies to fuel. The "other" costs, beyond crude oil and refining costs, for fuel in Unalakleet in late 2007 were roughly $1.88 for gasoline and $1.89 for diesel fuel. Several things tend to add to or hold down those other costs:

⇧ Barge is the only method of fuel delivery.

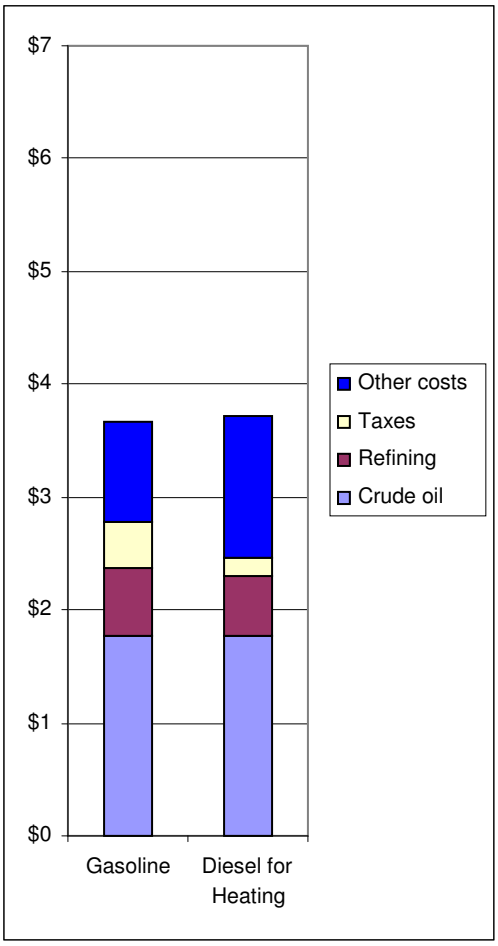
⇧ Norton Sound freezes in winter; deliveries only during certain months.

⇧ Fuel is transported from Nome in a lighterage vessel and pumped directly to a storage facility.

⇩ Community receives three or more shipments per year during ice-free months.

⇩ Publicly owned storage facility with a capacity of 420,000 gallons.

Yakutat



Yakutat is in Southeast Alaska, on the Gulf of Alaska north of the capital city of Juneau. Yakutat has about 619 residents. All fuel is barged to Yakutat by Delta Western, which also owns a 6.5 million gallon storage facility in the community.

In November 2007 gasoline retailed for $3.67 per gallon and fuel oil for $3.72 per gallon. There is a 4% local sales tax on fuel. The "other" costs in Yakutat are roughly $0.89 for gasoline and $1.02 for fuel oil. Fuel is less expensive in Yakutat than in many other places in Alaska because:

⇩ Fuel transportation method is by barge, but no river barging is required and Yakutat can receive shipments from Anchorage and Seattle.

⇩ Ice-free port and fuel deliveries can be made year round.

⇩ Deeper harbor accessible by larger shipments.

⇧ Work on the dock limited shipments to only four in 2007. As a result, fuel in late 2007 was priced higher than it would have been otherwise.

⇩ Large storage facility maintained by one transportation company. Large volume of fuel throughput due to Alaska Airlines' twice daily service to the community.

VIII. Summary and Policy Implications

Table 15 provides a summary matrix of the factors affecting fuel prices in the ten case study communities. The table makes it clear that many factors contribute to widely varying fuel prices.

Table 15. Summary matrix of community case study results

	Community									
	Allakakat & Alatna	Angoon	Bethel	Chitina	False Pass	Fort Yukon	Lime Village	Mountain Village	Unalakleet	Yakutat
Population	87	497	5812	110	54	570	25	786	710	619
Retail Price										
gasoline	6.00	3.96	4.52	3.52	3.49	4.79	6.50	4.60	4.65	3.67
diesel # 1	5.50	3.79	4.25	3.41	2.90	4.12	6.25	4.92	4.58	3.72
Crude price	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
Refinery										
gasoline	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
#2 diesel	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Taxes										
Federal/gal.										
gasoline	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184	0.184
#2 diesel										
State/gal.										
gasoline	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
#2 diesel										
Local (%)	0%	0%	0%	0%	3%	3%	0%	3%	3%	4%
All transportation										
State contract delivery price	0.57	**0.21**		0.04		**0.40**			**0.63**	0.53
Transfer points	4	4	4	2.5	4	4	8	4	5	2.5
Deliveries per year	2	8	10+	52	1	2		2	3	4
Quantity per year	7500	88,000		132,600	300,000		1,800	200,000	270,205	
Number of suppliers	2+	1	2	2	1	1	2	2	2+	1
Market contestability	*y*	*y*	*y*	*y*	*y*	*n*	*y*	*y*	*y*	*y*
Storage										
Capacity	16000	34,000	14,830,000	100,000	330,000	660,000	5,000	200,000	421,200	6,468,000
Owner	public	public	private	public	private	private	public	public	public	private
Financing	y	n	n	n	n	n	y	y	y	n
Annual O&M + R&R costs	*4,150*	*8,820*	*3,846,902*	*25,940*	*85,602*	*171,204*	*1,297*	*51,880*	*109,259*	*1,677,799*
per gallon throughput	*0.55*	*0.10*		*0.20*	*0.29*		*0.72*	*0.26*	*0.40*	
Construction cost	*$326,583*	*$693,989*	*$42,041,925*	*$1,360,764*	*$3,180,785*	*$4,864,730*	*$102,057*	*$2,154,542*	*$3,582,210*	*$18,336,289*
Transportation Method	Air	Barge	Barge	Road	Barge	Barge	Barge/Air	Barge	Barge	Barge
Air										
Runway	Long						Short			
Flight time (hours)	2						2			
Price/gal	1.5						1			
Barge										
Ice-free	n/a	y	n	n/a	y	n	n	n	n	y
Moorage/header	n/a	y	y	n/a	y	y	n/a	y	y	y
Tides	n	n	n	n	n	n	n	n	n	n
Lighterage	n/a	y	y	n/a	y	y	y	n	y	n
Navigational risk	n	n	n	n	n	n	n	n	n	n
Wharfage fee	n	y	y	n	y	n	y	n	y	y
Barge distance		990	1,800		850	440		750	1,880	680
Road distance				247		415		415		
Road+Barge distance		990	1,800	247	850	855		1,165	1,880	680
Reported markup				0.05			0	1.06	0.85	0
Notes: Italic = estimate										
Bold = proxy from similar communities with state fuel contracts										

Businesses consider a number of the costs that contribute to the final retail price of fuel proprietary, making it difficult to accurately quantify the components of fuel costs. In addition, there is limited competition is some markets; more competition tends to push prices down. And the number of businesses getting into the market may be limited due to the costs involved and skills required, or because the market size can only support a limited number of suppliers. Despite these limits, our analysis tells us a number of useful things about fuel prices.

- World and Alaska crude oil prices are set in the global market and reflect both crude oil supply and demand and international global events that influence the real and perceived stability of oil supplies.
- Alaska can do little (or nothing) to influence world crude oil prices. Therefore, these are a relative fixed component of overall fuel costs. In late 2007, costs of crude oil made up approximately $1.78 per gallon of final fuel prices.
- A significant portion of fuels used in Alaska are refined by in-state refineries. The balance is refined mostly in Washington.
- While the costs of fuel from Alaska refineries might be somewhat higher than from West Coast refineries, the additional transportation costs from West Coast refineries to Alaska appear to balance out the costs of in-state feedstock. As a result, the combined crude oil and refinery components tend to total the same amount, regardless of fuel refinery source.
- Refinery wholesale prices tend to closely track crude oil prices. The difference tends to be constant rather than a percentage, which suggests it is based on actual costs.
- The average refinery component for gasoline in September 2007 was about $0.59 and for #2 diesel was $0.53.
- State and federal taxes are a relatively constant component of fuel prices. Some communities charge local sales taxes, which increase final consumer prices.
- The mechanisms for charging federal fuel taxes are complex and obtaining refunds for federal taxes on exempt fuels is cumbersome for consumers.
- The “other costs” component of Alaska fuel prices is the most variable and reflects the wide variations among Alaska communities in distance from refineries, delivery methods, and many other factors.
- Communities closer to refineries and with road, pipeline, or railroad access enjoy the lowest fuel prices. Variations in prices in those locations tend to reflect market competition.
- Communities that rely on air delivery of fuel face the highest prices, with fuel delivery charges of $1.00 to $2.00 per gallon of fuel, depending on the community’s population and runway length—which determines the gallons flown in per delivery.
- In general, distance and population are major factors in final fuel prices, because a number of the costs of delivering fuel are relatively fixed. Larger deliveries mean that fixed costs can be spread across more gallons.

- Communities that effectively enlarge their populations or increase their market size through fishing fleets or airline traffic offset the higher prices caused by

small market sizes. Case study communities that strongly illustrate that point are False Pass and Yakutat.

- Barge fuel delivery tends to cause the most variability in fuel prices and reflects in part the complexities of delivery, with seasonal ice being a major component.
- Seasonal ice that limits deliveries also increases the need for storage capacity and the costs of maintaining inventories.
- In addition to seasonal ice that limits the number and timing of deliveries, the depth and characteristics of ports dictate the type of barge that can deliver to communities. The need for custom-built barges for deliveries to communities on shallow stretches of river that freeze up in the winter also increases delivery costs. The short season during which transporters need to recover the capital costs of these barges also increases fuel costs.
- It is unclear whether the lack of competition in fuel delivery shows that markets are too limited to support addition suppliers or that the cost of entry—in capital and skills—is too high. The information we would need to distinguish costs from profits is proprietary.
- The wide variation in final prices to communities suggests that prices at least in part reflect the differing costs of delivering and storing fuel.

Policy implications

Policy can't influence many of the components that go into final fuel prices. Butthere are a number of actions that may be able to influence prices. These include:

- The State of Alaska could provide crude oil feedstock to Alaska refineries through royalty oil sales at reduced prices, to lower the crude oil component of fuel prices. But without continued control of "downstream" cost components, it is not clear whether the lower crude oil feedstock prices would be passed on to final consumers or be taken in higher profits by all the "handlers" between the refinery and the end user. It is also unclear whether direct assistance to the communities and households with the highest fuel costs would be a more efficient and fairer practice, since state revenues to fund such programs also increase with the price of crude oil.
- Fuel prices tend to reflect market size, so cooperative buying to increase deliveries should reduce prices. It is unclear the extent to which communities coordinate deliveries, or whether entities within communities—such as electric utilities, schools, and others—coordinate their fuel purchases.
- The availability of cash to purchase fuels tends to be a limiting factor. The ability of a non-profit broker to coordinate and fund collective fuel purchases could further reduce prices.
- The equipment and infrastructure for fuel delivery—such as docks, moorages, and marine headers—influence the costs of delivery. Ownership of these facilities links a responsible party to fuel spills. Facilities tend to be lacking in some communities, in order to limit liability—but that results in higher delivery costs and inceased risks of spills. Addressing this issue could lower both prices and environmental risks.

References

Adrangi, Bahram, Arjun Chatratha, Kambiz Raffieeb and Ronald D. Ripplec, "North Slope crude oil price and the behavior of diesel prices in California," *Energy Economics*, Volume 23, Issue 1, January 2001, Pages 29-42.

Alaska Department of Environmental Conservation, Division of Air Quality. *Alaska 's Diesel Strategy.* Retrieved December, 2007. http://www.dec.state.ak.us/AIR/anpms/as/ulsd/ulsd-bkgrd.htm

Alaska Department of Natural Resources, Division of Oil and Gas, *2007 Annual Report*.

Alaska Department of Revenue, Tax Division, 2007, *Revenue Sources Book, Spring 2007*.

Bournazian, Jacob. Energy Information Administration. Comparison *of Selected EIA-782 Data with other Data Sources.* June 23, 2004. http://www.eia.doe.gov/pub/oil_gas/petroleum/feature_articles/2004/comparison782/comparison782.htm

Bradner, T. Alaska Journal of Commerce. *Alaska Utilities Question Merger Plans.* 2005. http://www.highbeam.com/doc/1G1-119546085.html

Crowley Maritime Corp – CWLM Amended Annual Report http://sec.edgar-online.com/2006/04/14/0000950123-06-004668/Section2.asp

Denali Commission. Final Denali Commission Project Cost Containment Assessment Projects in Various Alaska Villages, April 2002.

Energy Information Administration, *Annual Energy Review 2006*. June 2007, http://www.eia.doe.gov/aer/

Energy Information Administration. *Country Energy Profiles.* Retrieved December 2007. http://tonto.eia.doe.gov/country/index.cfm

Energy Information Administration, State-*Level Energy Consumption, Expenditures and Prices, 2004.* June 2007. http://www.eia.doe.gov/emeu/aer/txt/ptb0106.html

Energy Information Administration, *Energy Basics 101, Petroleum Basics 101*. November 2007, http://www.eia.doe.gov/basics/petroleum_basics.html

Energy Information Administration. *Energy Kids Page*. April 2007, http://www.eia.doe.gov/kids/energyfacts/sources/non-renewable/oil.html

Energy Information Administration. Gasoline and Diesel Components. Gasoline Components History. 2006.
http://tonto.eia.doe.gov/oog/info/gdu/pump_methodology.html

Energy Information Administration, *Oil Markets Basics*, November 2007, www.eia.doe.gov/pub/oil_gas/petroleum/analysis_publications/oil_market_basics/default.htm

Energy Information Administration, *International Energy Outlook 2005*, Table A2.

Energy Information Administration. Petroleum Navigator. Alaska Crude Oil Production. November 2007. http://tonto.eia.doe.gov/dnav/pet/hist/mcrfpak1A.htm

Energy Information Administration. Refiner Acquisition Cost of Crude Oil. September 2007. http://tonto.eia.doe.gov/dnav/pet/pet_pri_rac2_dcu_r50_m.htm

Energy Information Administration. Refiner Petroleum Product Prices by Sales Type. September 2007. http://tonto.eia.doe.gov/dnav/pet/pet_pri_refoth_dcu_SAK_m.htm

Everts Air Fuel, http://www.evertsair.com/airfuel/default.htm

Federal Highway Administration, Financing Federal-Aid Highways, The Highway Trust Fund, www.fhwa.dot.gov/reports/fifahiwy/fifahi05.htm

Flint Hills Resources. Alaska information. Retrieved November 2007.
http://www.fhr.com/alaska/

Fried, Neal & Robinson, Dan. Alaska Economic Trends. *The Cost of Living in Alaska.* October 2007.

Grant, Kenneth, David Ownby, Steven R. Peterson, 2006, *Understanding today's crude oil and products markets*, prepared for the American Petroleum Institute.

Internal Revenue Service. Publication 510, Excise Taxes. Chapter 1: Fuel Taxes. Retrieved November 2007. http://www.irs.gov/publications/p510/ch01.html#d0e1299

Keiser, Gretchen and David Teal. January 1984, *Fuel Consumption and Pricing in Alaska: A Regional Analysis.* House Research Agency Report 83-C. Prepared by the House Research Agency, Alaska State Legislature.

Loy, Wesley. Anchorage Daily News. *Conoco cancels refinery upgrade on North Slope*. November 27, 2007.

March, Jim, *The Future of Highway Financing*, Innovative Financing Series: Article 3, Federal Highway Administration, Turner-Fairbank Highway Research Center, Public Roads Magazine, November/December 2005.

Northern Air Cargo, http://www.nacargo.com/index.php

Petro Star, Inc. Retrieved November 2007. http://www.petrostar.com/

Power and Interest News Report, 29 October 2007, "Record Oil Prices and Washington's Desire for Energy Independence".

Power and Interest News Report, 09 August 2006, "Economic Brief: Alaska Pipeline Shutdown and the Rise of Oil Prices".

Richardson, Jeffrey. Alaska Business Monthly. *Refining rivalry.* June 1, 1991. http://www.allbusiness.com/north-america/united-states-alaska/165637-1.html

State of Alaska, Division of Community Advocacy – Report to the Commissioner. *Current Community Conditions: Fuel Prices Across Alaska.* December 2005.

State of Alaska, Department of Administration. Contract Award Manual. Land Based Diesel Fuel and Heating Oil. 2007

Tesoro Corporation. *About Tesoro: Company History*. Retrieved December 2007. http://www.tsocorp.com/TSOCORP/AboutUs/CompanyHistory/061236

United States Census Factfinder. *Population of Alaska*. December 2006, http://factfinder.census.gov/

USDA Rural Development. *News Release: Grant to help Remote Alaskan Communities secure adequate fuel supplies.* September 2001. http://www.rurdev.usda.gov/rd/newsroom/2001/ak_energy.html

U.S. Army Corps of Engineers, Waterborne Commerce Statistics, Pacific Coast, Alaska and Hawaii. http://www.iwr.usace.army.mil/ndc/wcsc/pdf/wcuspac05.pdf

U.S. Environmental Protection Agency. *Regulatory Announcement: EPA Finalizes Alternative Low-Sulfur Diesel Fuel Transition Program for Alaska.* May 2006. http://www.epa.gov/otaq/regs/fuels/diesel/420f06040.htm

Van Sant, Steve, 2007, Alaska Department of Commerce, Community and Economic Development, Division of Community Advocacy, *Alaska Taxable 2006*.

Appendix. Community Case Study Summaries

Allakaket/Alatna

Alatna and Allakaket are located directly across from each other on the Koyukuk River. The two have a combined population of about 125. A state-owned 3,500 foot runway is accessible year-round in Allakaket. There is no barge service due to shallow water. The Koyukuk River is ice-free from June through October.

Fuel is delivered only by air to Allakaket. Both communities have fuel storage capabilities. Fuel is pumped directly from the plane into the communities' fuel tanks. Fuel is flown to the communities as needed year-round. Brooks Air is capable of flying 3,000 gallons of heating fuel, or 3,300 gallons of gasoline, at a rate of $2,400 per hour. Both Brooks Fuel and Everts Air compete to deliver fuel to these communities.

Brooks Fuel purchases its fuel from Alaska Aero Fuel in Fairbanks. As of November 2007, the company paid $3.01 per gallon for #1 heating fuel. On November 13, 2007 Brooks Fuel delivered 3,000 gallons of heating fuel at a landed price of $4.51 per gallon. The retail price for this fuel was $5.50, with a reported $40 per barrel, or $0.95 per gallon, charge for fuel delivery. Everts Air delivered 4,462 gallons of gasoline on November 6 at a landed price of $4.52 per gallon. This gasoline retailed at $6.00 per gallon. The price at which Everts Air purchased its gasoline is not known, but Brooks Fuel reports purchasing its gasoline from Alaska Aero fuel at $2.99 per gallon.

Angoon

Petro Marine Fuel Services delivers fuel to Angoon by barge. Angoon receives deliveries about every one and a half months. Angoon is in Southeast Alaska, and its port is ice-free year round. This allows year-round fuel delivery—which can be in smaller quantities, so Angoon requires fuel storage capacity.

Fuel is delivered to Angoon from two sources. Some fuel is loaded on a barge in Vancouver, British Columbia or Anacortes, Washington and transported to Petro Marine's storage tanks in Ketchikan. It is stored there until it is unloaded into smaller barges that take the fuel to Angoon. Petro Marine also purchases and transports fuel out of the Nikiski Tesoro refinery on the Kenai Peninsula. This fuel is generally carried directly to the Ketchikan fuel tanks. Occasionally it is unloaded from the barge out of Nikiski into smaller barges and delivered directly to Angoon. The path of fuel depends on refinery rack prices and the location of barges with the cheapest and easiest supply route being used.

In November 2007, heating fuel retailed for $3.40 per gallon in Ketchikan and $3.79 per gallon in Angoon. The $0.39 difference in price consisted primarily of the cost of transporting fuel from the tank farms in Ketchikan in small barges to Angoon. Lesser but significant costs are attributable to an increased proportion of overhead costs associated with selling smaller amounts of fuel.

Angoon Oil and Gas is the primary distributor of fuel in Angoon. It has capacity to store approximately 15,000 to 20,000 gallons of #1 heating fuel and 12,000 to 14,000 gallons

of unleaded gasoline. The fuel tanks are owned by Angoon Oil and Gas. The Denali Commission had planned to finance a bulk fuel upgrade in Angoon, but during the initial phases of the project Angoon Oil and Gas decided to independently upgrade.

Gasoline is available for purchase directly at the Angoon Oil and Gas facility, and #1 heating fuel can be delivered by fuel trucks directly to the end users' tanks. Fuel delivery costs $0.10 per gallon. Angoon does not use a significant amount of diesel #2 for heating, because the Tlingit and Haida Central Council upgraded most households to high-efficiency furnaces that burn only #1 fuel oil.

Angoon faces higher delivered fuel prices than neighboring communities because of its small size, which prevents it from purchasing large amounts of fuel at a time. The lack of a "bulk discount" is increasing because Angoon's population has declined in recent years.

Angoon was selected to participate in the Citgo heating fuel program. Each household was given 100 gallons of heating fuel by the state-owned Venezuelan oil company. The fuel was purchased by the household and rebates were distributed by the Tlingit and Haida Central Council.

Bethel

Bethel is at the mouth of the Kuskokwim River, 40 miles inland from the Bering Sea. It has a population of 5,812 and is the regional fuel hub for communities along the Kuskokwim River and coastal communities near the outlet of the Kuskokwim River.

Crowley is the primary fuel supplier in Bethel. Crowley's Bethel tank farm holds a combined 14,830,000 gallons of petroleum products. Bethel serves as Crowley's fuel terminal for the Kuskokwim River region. In 2005 Crowley purchased Yukon Fuel, its major competitor in Bethel. This purchase doubled Crowley's presence in the region and allowed it to take advantage of increased economies of scale, but also raising concerns about potential monopoly market power.[49]

Fuel for the entire region usually goes into Bethel's tanks before being delivered to individual communities. It must be lightered off larger ocean-going barges in order to travel up the Kuskokwim River. Fuel is pumped directly from lighter barges into Bethel's two tank farms. The Port of Bethel levies a $0.04 wharfage fee per gallon on all fuel that enters its port. This wharfage fee increases the cost of fuel in Bethel and surrounding communities.

In November 2007 Crowley sold gasoline from its tanks at $4.52 per gallon and #1 heating fuel at $4.25. There are also multiple fuel truck companies in Bethel that transport fuel from Crowley's tanks for $0.25 to $0.35 per gallon. Crowley both transports the fuel and sells it in the community. It is not possible to break out the transportation and distribution component of fuel to Bethel, because the fuel does not change hands after transportation.

[49] Alaska Journal of Commerce, Alaska Utilities Question Merger Plans. December 7, 2003. http://www.highbeam.com/doc/1G1-119546085.html

Chitina

Chitina is at the confluence of the Copper and Chitina rivers. Most important for fuel transportation costs, Chitina is located on the Edgerton Highway. Its 2006 population was 106. Chitina is the only one of our ten case study communities that is on the road system. Transporting fuel to Chitina on the highway via fuel truck is inexpensive, when compared with fuel transportation costs to the more remote case study communities.

Chitina 1 Stop is the primary seller of gasoline in Chitina. In the past it purchased fuel from Service Oil and Gas in Glennallen. Service Oil and Gas has since been purchased by Crowley. Most services have remained the same since the purchase. Chitina 1 Stop receives one delivery of gasoline per week and purchases as much as 2,500 gallons a week during the peak of the summer season. As of November 2007, Chitina 1 Stop was selling unleaded gasoline for $3.52 per gallon and reports a $0.05 mark up per gallon of gasoline that remains the same regardless of time of year.

Heating fuel is delivered to Chitina by Crowley and Fisher Fuel. Heating fuel #1 is delivered directly to homes in Chitina from fuel trucks. There is no heating fuel company in Chitina. Fisher Fuel operates out of Big Lake and Crowley out of Glennallen. Both companies deliver fuel to communities throughout the region. As of November 2007 Fisher fuel reported selling #1 heating fuel for $3.41 a gallon. This price includes a $0.25 to $0.30 a gallon delivery charge from the fuel's source in Anchorage. Communication with Crowley indicates it charges similar amounts.

Both companies primarily purchase fuel in Anchorage and truck it throughout the region. Chitina tends to face higher delivered fuel costs than other road-connected communities in the region, because its small size means fuel deliveries are also small, raising the fixed overhead costs per unit of fuel.

False Pass

False Pass is in the Aleutians, on the eastern shore of Unimak Island on the straight connecting the Pacific Ocean to the Bering Sea. It has a population of 54. It gets its name from the shallow waters on the Bering Sea side of the straight that prohibit large ships from passing.

This shallow water means large fuel barges can't deliver directly to False Pass. Instead fuel must be lightered onto smaller barges for delivery. Peter Pan Seafoods has a fish processing plant in False Pass that purchases and distributes fuel directly to local residents. Peter Pan generally sells 20,000 gallons of gasoline, 30,000 gallons of #1 heating fuel, and 200,000 gallons of #2 diesel annually. The #2 diesel is sold primarily to the commercial fishing fleet.

Fuel is pumped directly from the fuel barge into Peter Pan's fuel tanks via marine header. Fuel is delivered once a year, in September. Community residents purchase their fuel directly from the pump at the fuel tanks. There is no fuel delivery service within the community. Our contact with Peter Pan Seafoods was not able to reveal the retail markup on the delivered fuel price, other than to say it was determined by the home office in

Seattle. In November 2007 gasoline was selling for $3.49 in False Pass and #1 heating fuel for $2.90.

Fuel is delivered by Crowley barges once a year to Peter Pan. Crowley also delivers about 30,000 gallons of #2 diesel to the City of False Pass for use in its electric generation plant. The Denali Commission built 60,000 gallons of bulk fuel storage for the electric generation plant. A stipulation of the Denali Commission's project is that the bulk fuel farm cannot be a retailer of fuel as long as private competition exists in the market. This prevents the city from entering the market as a seller of heating fuel or gasoline.

Fort Yukon

Fort Yukon is at the confluence of the Yukon and Porcupine rivers, about 145 air miles northeast of Fairbanks. It has a population of 596, and is accessible by barge during the summer months. There is a barge off-loading area, but no dock. Fort Yukon serves as a fuel terminal for Crowley.

Crowley delivers fuel during the summer months. It is barged from Crowley's fuel terminal in Nenana. Crowley owns 660,000 gallons of fuel storage capacity in Fort Yukon that is used to supply the community of Fort Yukon as well as other upper Yukon communities.

Number 1 heating fuel is delivered via truck to households. During November 2007, heating fuel sold for $4.12 per gallon, including the cost of delivery. Diesel #2 sold to the Gwitchyaa Zhee Utility for $3.65 per gallon. Gasoline is only sold by the barrel; the price was $4.79 per gallon in late 2007. The Gwitchyaa Zhee Utility also sells gasoline, with the November 2007 price at $5.10 per gallon. A local tax of 3% is also added to the price of fuel.

Breaking the cost of fuel into components is difficult for Fort Yukon, because Crowley is the transporter and seller of fuel and does not sell the fuel to itself at a "landed price". This lack of a landed price leaves us with only the retail price.

Lime Village

Lime Village is on the Stony River, 50 miles from its junction with the Kuskokwim River. Lime Village's estimated 2006 population was 25, but local residents indicate the number spending the winter in Lime Village was about 6. The population decline is attributed to the closing of the local school and the increasing cost of living—due primarily to rising energy costs.

Lime Village faces the highest fuel costs of the ten case study communities. As a result, wood has become the primary energy source for home heating. Lime Village has the highest fuel prices because it is not accessible by barge, its airstrip is too short to allow large planes to land, and its small population means it makes small fuel purchases.

Fuel is flown into Lime Village in two ways. In the past, almost all fuel was flown in by Henry Hill, a private fuel transporter in Sleetmute. That community gets fuel by barge

from Bethel. Henry Hill would then fly fuel from Sleetmute into Lime Village, in a Cessna 206 with the capacity to carry four barrels of fuel (200 gallons) at a time. Henry Hill charges $425 an hour for flying fuel—so there is a $425 charge to transport 200 gallons of fuel, at a cost of $2.125 per gallon.

Last year Henry Hill was unable to deliver fuel to Lime Village because he was out of compliance with environmental fuel transport regulations. Lime Village's alternative was to contract Everts Air to fly fuel in from the Tesoro refinery in Kenai to the nearby Osprey Lodge. The Osprey Lodge airstrip is able to accommodate larger fuel planes. After the fuel was unloaded at the hunting lodge, the lodge owner, Gary Pogany, flew the fuel 200 gallons at a time the 15 miles into Lime Village. Pogany charged $1.00 a gallon and delivered his fuel for $5.90 per gallon during fall 2007.

Lime Village recently received a bulk fuel storage upgrade from the Denali Commission. It received two new fuel tanks and had old fuel tanks refurbished. These tanks had been used by the school, but were moved to the powerhouse after the school closed. Fuel is unloaded at the airfield and pumped into a holding tank. From there it is pumped to the powerhouse.

In November 2007, Lime Village reported gasoline priced at $6.50 per gallon and #1 heating fuel at $6.25 per gallon.

Mountain Village

Mountain Village is on the Yukon River and has a population of 796. In the summer it is connected to St. Mary's, Andreafsky, and Pitka's Point by a road.

Crowley transports fuel in a shallow draft barge down the Yukon River into Mountain Village, from Crowley's tank farm in Nenana. Rarely will fuel be transported up the Yukon River to Mountain Village, despite the fact that Mountain Village is located much nearer the mouth of the Yukon than it is to Nenana. Nenana serves as Crowley's Yukon River hub, because it is close to North Pole refineries.

Mountain Village generally receives a spring and fall fuel shipment. Azachorak Village Corporation owns the fuel tanks and sells fuel to the community. The corporation reports purchasing 80,000 to 100,000 gallons of both #1 heating fuel and gasoline. Mountain Village's electric utility is operated by AVEC and purchases over 180,000 gallons of #1 diesel to power its generators. The #1 diesel used for electric generation is the same product as #1 heating fuel, but is referred to as #1 diesel by electric utilities.

The community has a 90,000 gallon capacity for #1 heating fuel and 100,000 gallon capacity for gasoline. Azachorak holds a moose-hunt fuel sale every August. This sale serves two purposes. It gives discounts for up to 110 gallons of heating fuel and 165 gallons of gasoline to subsidize fall moose hunts, and it frees up storage capacity before the final barge of the season delivers fuel. For the 2007 moose hunt sale, #1 heating fuel prices were dropped by $0.50 per gallon and gasoline prices were dropped by $0.60 per gallon.

Residents of Mountain Village can pay $0.25 per gallon to have fuel trucked to their homes. If they purchase over 100 gallons they receive a $0.05 discount on the delivery

price. In November 2007 Mountain Village reported a #1 heating fuel price of $4.92 and a gasoline price of $4.60. This includes a 30% mark-up on the delivered price.

Unalakleet

Unalakleet is a community of 727 on Norton Sound in Western Alaska. Its waters are generally ice free from May to October.

Unalakleet's fuel is usually delivered from Nome. Nome's deep-water port allows line haul barges to unload directly into the tank farms without lightering. The City of Nome charges $0.04 per gallon for fuel that passes through the Port of Nome. The fuel is pumped from Nome tank farms into lightering barges for delivery to Unalakleet. The fuel on the barge is pumped directly from the marine header into Unalakleet Native Corporation's tank farm.

Unalakleet Native Corporation is the primary fuel seller for the community. Two fuel deliveries were made to Unalakleet in 2007, totaling 155,696 gallons of #1 heating fuel and 104,509 gallons of gasoline. The landed price of #1 heating fuel was $2.83 per gallon and $3.08 for gasoline in November 2007, while the retail price for #1 heating fuel was $4.58 per gallon and $4.65 per gallon for gasoline. Fuel is not available for purchase at the tank farm. Instead it is trucked to households. The delivery charge is included in the retail price.

Fuel was delivered in 2007 by Delta Western and was financed through the Norton Sound Economic Development Corporation (NSEDC) as part of a project to supply fuel for communities in the area. NSEDC acts as an agent on behalf of the participants, to coordinate the order, issue a Request for Proposal (RFP) to fuel suppliers, evaluate the proposals, award a contract, and act as a single point of contact for the supplier and communities. No interest or fees are charged to the participants for administration of the program.

Yakutat

Yakutat is a community of 634 people on the Gulf of Alaska, 225 miles northwest of Juneau and 220 miles southeast of Cordova. It is at the mouth of Yakutat Bay, one of the few refuges for vessels along this stretch of coast. Yakutat is ice-free year round. It gets fuel from Delta Western. Fuel comes either from Tesoro's Nikiski refinery, through the hub community of Anchorage, or from refineries in Anacortes, Washington. Delta Western has 6,480,000 gallons of fuel storage capacity in the community; much of that is used for fueling Yakutat's twice daily jet service. Delta Western delivers fuel four times per year and owns a fuel delivery dock that is currently being rebuilt.

As of November 2007, the price before tax for a gallon of unleaded gasoline was $3.678, #1 heating fuel was $3.729, and #2 diesel was $3.599. If 50 gallons or more are purchased there is a $0.10 per gallon discount. Heating fuel is delivered to homes in trucks and is not available directly from the fuel tank. The delivery charge is included in the price of fuel.

Attachment C

Wesley Loy, “Tesoro loses bid to limit state query—GAS PRICES: Supreme Court deals Alaska investigation a victory; price-fixing probe continues,” *Anchorage Daily News*, April 25, 2002; accessed through the *Newsbank* database.

Mike Chambers, “State closes petroleum industry investigation—REPORT: Attorney general says probe returned insufficient evidence of price fixing,” *Anchorage Daily News* November 22, 2002; accessed through the *Newsbank* database.

==========
Tesoro loses bid to limit state query - GAS PRICES: Supreme Court deals Alaska investigation a victory; price-fixing probe continues.
==========
Anchorage Daily News (AK)-April 25, 2002
Author: Wesley Loy

Anchorage Daily News

The Alaska Supreme Court has ruled against Tesoro Petroleum Corp.'s attempt to limit the scope of the state attorney general's investigation into pricing for gasoline and other fuels.

Tesoro had appealed a lower court ruling requiring the company to turn over scores of internal documents, and that state officials had the right to show the documents to a San Francisco law firm hired to help with the probe.

The high court, with the justices split 3-1, affirmed Superior Court Judge Peter Michalski's ruling that the state wasn't seeking an "unreasonable and oppressive" stack of records. The majority also found that the law firm of Hosie, Frost & Large qualified as an "authorized employee" of the state and therefore may see the documents from the investigation into what Attorney General Bruce Botelho calls the "Alaska paradox."

The paradox is that, despite having the largest oil fields in North America plus enough refining capacity to supply local gas needs, Alaska still has some of the highest gasoline prices in the nation. As part of the investigation into possible price fixing by fuel companies, Botelho's office in summer 1999 sent "civil investigative demands" to numerous oil refining, marketing and retailing companies seeking records about pricing, profits, marketing and strategy.

Tesoro led a group of companies in resisting the demands. Tesoro, which has both a refinery and dozens of gas stations in Anchorage and elsewhere in the state, said it was being forced to spend hundreds of thousands of dollars to compile hundreds of boxes of possibly irrelevant records dating back 10 years or more to satisfy the state. The company also objected to the state sharing the records with Hosie, Frost & Large.

The second point is well-founded, wrote Justice Warren Matthews, who noted in a dissent that the law firm also had represented Hawaii in an antitrust lawsuit against Tesoro and other companies. Lawyers for Tesoro said the firm possibly could gain records from the Alaska inquiry that it was denied in Hawaii.

Ron Noel, general counsel for Tesoro in Alaska, said Wednesday the Supreme Court ruling was mainly moot, as the company already had turned over all requested records to the state by the middle of last year.

The company firmly denies it has conspired with other companies to limit competition and keep fuel prices high in Alaska, Noel said.

"We're just waiting to hear from the state," he said, summing up the current status of the inquiry.

Jack Griffin, supervisor of the Alaska attorney general's oil, gas and mining section, said the investigation continues. He said the focus is on wholesale fuel pricing rather than retail prices consumers pay. He also said the state still has the San Francisco law firm on contract, as well as a California petroleum economist and another law firm in Washington, D.C.

Griffin said there's no set date for finishing the probe, which could result either in the matter being dropped or, as in the case of Hawaii, the state suing the oil companies. Hawaii recently settled its $2 billion claim, though for only a small fraction of that amount. Now legislators there, upset at what some regard as

evidence of exorbitant oil company profits, are considering bills to make Hawaii the first state to regulate gasoline prices, according to Honolulu press reports.

Griffin stressed that Alaska officials are not accusing fuel suppliers of illegal conduct.

"People have complained about the price of gasoline," he said. "We're trying to find out if the price of gasoline is the result of companies breaking the law, or the result of normal market forces."

Alaska has relatively few competitors, Griffin added. That is not in itself wrong, but companies agreeing to divide the market would be, he said.

Jim Wachter of Wasilla, pumping gas into his Geo Prizm at the Costco in East Anchorage, said he thinks the state has grounds to investigate. He said Tesoro's court resistance proves it.

Most pumps stayed busy Wednesday afternoon at Costco, whose members-only $1.39 price for regular unleaded had most neighboring stations beat by a dime a gallon.

At the nearby Williams station on Bragaw Street, folks seems pretty blase about gas prices on sunny April day.

"I think the price is about right," Ruby Pehrson said. "It's been higher."

Gas prices seem to go up in Alaska but not come back down like in the Lower 48, said Jody Kuhns, driving a hotrod '69 Plymouth Road Runner bearing a HOTBRD license tag. But few really care in an affluent country like ours, he said.

"Nobody is going to stop driving because of the price of gas. Nobody I know."

Reporter Wesley Loy can be reached at wloy@adn.com or 907 257-4590.

==========
State closes petroleum industry investigation - REPORT: Attorney general says probe returned insufficient evidence of price fixing.
==========
Anchorage Daily News (AK)-November 22, 2002
Author: Mike Chambers

The Associated Press

Attorney General Bruce Botelho closed a three-year investigation of Alaska's petroleum industry, finding insufficient evidence of price fixing.

A two-page report into gasoline price spikes between 1995 and 1998 was sent to the governor's office Thursday announcing that the investigation would end but that the state Department of Law should continue to monitor gasoline prices in Alaska.

Thousands of pages of internal company documents were examined, and an analysis of pricing data, interviews of witnesses and depositions of current and former employees and executives were conducted during the investigation.

The investigation found that Alaska's gasoline industry is highly concentrated primarily among four companies, making it easier for companies to set parallel prices, the report said.

Botelho stressed that the investigation could not find enough evidence to support a claim of price fixing.

"I am not prepared to say there was no evidence," Botelho said. "There was insufficient evidence to pursue antitrust claims against those that market petroleum products at the wholesale level."

He would not elaborate on what the investigation found, and much of the records are confidential.

The investigation began in 1999 after consumer complaints about the unusually high price of gasoline in Alaska.

Gasoline prices here are among the highest in the nation despite the fact that Alaska is home to the largest oil fields in North America and has enough local refining capacity to meet demand.

The price of gasoline on the West Coast averages 11 cents per gallon higher than the national average. Alaska gas, which is refined mostly in state, typically averages 9 cents higher than West Coast prices.

But from 1995 to 1998, gasoline prices in Alaska were as much as 17 cents higher than West Coast prices.

After the investigation began in 1999, the price of gas in Alaska immediately dropped to a level more closely tracking Alaska's historical averages, the report said.

The form of "parallel pricing" that gasoline companies engage in is not illegal as long as the companies set their prices independently, the report noted.

Botelho acknowledged the price Alaskans pay for gasoline cannot be fully explained by the market forces.

"I don't think they should be as high as they are, and they certainly should not have been as high as they were when we initiated our investigation," he said.

A spokeswoman for Tesoro Petroleum Corp., which owns a refinery and gas stations in Alaska, could not immediately be reached for comment Thursday.

But a spokesman for Williams Alaska Petroleum said the company cooperated with the investigation and is pleased by the decision.

"Obviously, we expected that decision," Williams spokesman Jeff Cook told KTUU-TV in Anchorage. "We knew that was the situation with ourselves and the other companies in the state."

Tesoro lost an attempt to limit the scope of the investigation in a ruling before the Alaska Supreme Court earlier this year.

Tesoro had appealed a lower court ruling requiring the company to turn over scores of internal documents.

As part of the investigation, the attorney general's office requested documents from numerous oil refining, marketing and retailing companies seeking records about pricing, profits, marketing and strategy.

Tesoro led a group of companies in resisting the demands, arguing that it was being forced to spend hundreds of thousands of dollars to compile possibly irrelevant records dating back 10 years or more to satisfy the state.

Dateline: Juneau
Record Number: 269389

Attachment D

Jad Mouawad, “Oil Refiners Hardly Gushing,” *San Diego Union-Tribune*, May 14, 2008; *http://www.signonsandiego.com/uniontrib/20080514/news_1b14oil.html.*

Oil refiners hardly gushing

Companies are getting squeezed as U.S. demand softens, prices keep rising

By Jad Mouawad
NEW YORK TIMES NEWS SERVICE

May 14, 2008

While drivers are facing sticker shock at the pump these days, here is a bigger shock: High prices are putting a strain on oil refiners.

After last year's stellar profits, U.S. refiners are going through a traumatic period. In a time of record gasoline prices, some of them actually lost money in the first quarter, and for virtually all refiners, profits are down sharply.

Getty Images
Steam pours out of a smokestack at the Conoco Phillips refinery in Rodeo. Domestic oil consumption fell by 3.3 percent in March.

Experts say the refiners are caught in a double bind. The price of their raw material, oil, is rising because of strong global demand. At the same time, consumption of gasoline in the United States is falling as a result of slower economic growth and consumer efforts to conserve.

However much the companies would like to raise gasoline prices enough to pass along the full increases in oil, analysts say they have been unable to do it. Oil prices doubled in the past year, while wholesale gasoline prices rose a mere 39 percent.

“Refiners are having a terrible time,” said Lawrence Goldstein, an economist at the Energy Policy Research Foundation.

For decades, global oil prices were tightly coupled to the ups and downs of the U.S. economy. But in recent years, world oil prices have been pulled upward by heavy demand for diesel fuel from developing countries such as China. U.S. economic growth weakened in the past few months, but that has mattered little in the upward march of oil prices.

“What we see at the gasoline pump is increasingly driven by what is happening elsewhere in the global economy,” said Daniel Yergin, the chairman of Cambridge Energy Research Associates, a consulting firm.

Gasoline prices rose yesterday to a nationwide average of $3.73 a gallon, according to AAA, the automobile club. That is yet another record. Diesel prices also set a record $4.39 a gallon. Crude oil futures closed at $125.80 a barrel, up $1.57, or 1.3 percent, on the New York Mercantile Exchange.

In San Diego County, the average price for regular was $3.94 a gallon, according the Utility Consumers' Action Network. Diesel was $4.62 a gallon.

In its latest monthly report, the International Energy Agency, an adviser to industrialized countries, reduced its forecast for global oil demand for this year, as consumption drops by a bigger-than-forecast

300,000 barrels a day in the developed world.

But that decline will be more than offset by growth from developing countries. Consequently, global consumption is expected to rise this year by 1 million barrels a day, to 86.8 million barrels a day. Nearly all that growth will come from China, the Middle East and Russia.

In the United States, there is no longer much doubt that consumers are responding to higher fuel costs by driving less. Oil consumption fell by 3.3 percent in March, compared with the same period last year.

But even as gasoline demand softens, the price keeps rising, driven by higher oil prices. The cost of oil represents about 75 percent of the price of gasoline at the pump, according to the Energy Department; state and federal taxes account for 12 percent, and refining and distribution make up the rest.

The rising oil prices have led to a sharp drop in refining profit margins, or the difference between the cost of oil and the cost of gasoline. These margins, at $12.45 a barrel on average, are 60 percent below their year-ago level, and in the lower half of their five-year range, according to a report by UBS.

In response to falling gasoline demand and rising costs, refiners have cut their production rates. Refining utilization rates, for example, slumped to a low of 81.4 percent in the second week of April, compared with 90.4 percent at the same time last year. Earlier this month, refineries were running at 85 percent of their capacity.

All this has translated into a tough quarter for some refiners. While large integrated companies, such as Exxon Mobil, reported big profits in the first quarter thanks to their oil sales, smaller independent refiners that buy their oil, instead of producing it themselves, have been losing money.

Tesoro, Sunoco, and United Refining all posted losses in the first quarter.

The hardest hit have been small refineries that tend to process the most expensive types of crude oil into gasoline. Sunoco, for example, lost $123 million in the first quarter, while Tesoro posted a $82 million loss for that period, compared with a profit of $116 million last year.

“We're just not able to pass along the increased cost of crude oil on the gasoline side,” said Lynn Westfall, the chief economist at Tesoro.

Valero, the nation's largest independent refiner, saw its first-quarter profit melt by 76 percent. Its refining capacity allows it to process heavier grades of crude oil that typically trade at a discount. Still, its profit dropped to $261 million in the first quarter compared with $1.1 billion last year.

»Next Story»

Attachment E

Matthew H. Brown, Christie Rewey, and Troy Gagliano, “Findings on Hawaii Gasoline Prices and Policies,” *National Conference of State Legislatures*, April 2003.

“Competition and the Effects of Price Controls in Hawaii’s Gasoline Market,” Testimony of Jerry Ellig, Deputy Director, Office of Policy Planning, *Federal Trade Commission* Before a Joint Hearing of the Hawaii Legislature, January 2003.

Stillwater Associates, “Hawaii Fuels Study,” Power Point slides from a public information briefing, September 2003.

Findings on Hawaii Gasoline Prices and Policies

Presented to the

Hawaii Department of Business, Economic Development and Tourism

By the
NCSL Energy Program

Matthew H. Brown, Program Director
Christie Rewey, Energy Policy Associate
Troy Gagliano, Energy Policy Specialist

NATIONAL CONFERENCE *of* STATE LEGISLATURES

The Forum for America's Ideas

William T. Pound, Executive Director

7700 East First Place
Denver, Colorado 80230
(303) 364-7700

444 North Capitol Street, N.W., Suite 515
Washington, D.C. 20001
(202) 624-5400

April 2003

The National Conference of State Legislatures is the bipartisan organization that serves the legislators and staffs of the states, commonwealths and territories.

NCSL provides research, technical assistance and opportunities for policymakers to exchange ideas on the most pressing state issues and is an effective and respected advocate for the interests of the states in the American federal system.

NCSL has three objectives:

- To improve the quality and effectiveness of state legislatures.
- To promote policy innovation and communication among state legislatures.
- To ensure state legislatures a strong, cohesive voice in the federal system.

The Conference operates from offices in Denver, Colorado, and Washington, D.C.

Printed on recycled paper

CONTENTS

Executive Summary and Recommendations

The National Conference of State Legislatures presents this report at the request of the Hawaii Department of Business, Economic Development and Tourism (DBEDT) pursuant to requirements laid out in Act 77, Session Laws of Hawaii 2002. This report analyzes policies that Hawaii could pursue to reduce gasoline prices and the resources that the state would need to expend to carry out those policies. The list of policies available to the state is broad; this report focuses on a small number of policies.

In preparing this report, NCSL coordinated with Stillwater Associates, which is another consulting firm hired under separate contract by DBEDT. The two reports and their conclusions rest as separate documents.

This report concludes the following;

- Gasoline and petroleum products are critical to Hawaii—and probably more so than in many other states.

- Because gasoline and petroleum products are so important to Hawaii, the state is well-justified in expending effort on policies and regulations that will keep prices at reasonable levels and alert policymakers to situations when they exceed reasonable levels.

- Based on experience in other jurisdictions, if the State elects to pursue a strategy of monitoring and evaluating the market, it is likely that DBEDT will require three new staff with expertise in oil markets. The annual budget for such an effort amounts to approximately $250,000. Without the financial resources to devote to this effort, it is unlikely that DBEDT will be able to carry out the market monitoring and evaluation tasks.

- If the state pursues a strategy that requires periodic audits in addition to monitoring and evaluation, the costs increase substantially. Depending on the type of audits required, the budget will likely be either $400,000 or $570,000.

- The addition of an independent audit function is incompatible with the duties of DBEDT, which acts primarily as an economic development organization. Independence is key to the audit function; however, economic development agencies such as DBEDT typically work closely and in collaboration with businesses in the state.

- As detailed in the accompanying report by Stillwater Associates, the current price cap formula may lead to higher prices in some situations. The state may consider a range of other possibilities detailed in this report.

- Other states and jurisdictions have adopted policies to monitor or analyze gasoline prices, but no other state regulates gasoline prices. Two Canadian provinces and a number of Pacific island nations do regulate gasoline prices.

Based on the analysis prepared for this report, NCSL recommends that the state consider the following actions:

1a. If the state chooses to leave the gasoline price cap in place, Hawaii should revise the structure of the cap.

1b. If the state chooses to remove the gasoline price cap, consider the following measure.

- Remove permanent price caps but give the governor authority to apply price caps in certain situations.

1c. Whether the state chooses to remove the price cap or to leave the price cap in place, consider the following seven measures.

- Make market transparency a goal, giving industry and government the authority and duty to collect and disseminate data to identify specific trends and potential abuses of market power.
- Remove or revise the requirement that the DBEDT perform periodic audits.
- Provide a specific mechanism for funding state market monitoring, analysis, reporting and auditing.
- Remove lease rent cap.
- Remove divorcement requirements.
- Conduct a concentrated outreach program, in coordination with industry, to reduce unnecessary use of high-octane gasoline.
- Develop a single, integrated state energy plan.

2. The state should fund the appropriate agencies to perform analysis and audit functions.

Given the
1) Costs of implementing and enforcing a price cap;
2) Administrative challenges to implementing and enforcing a price cap;
3) Challenges associated with substituting a government-administered price regime for a market-based regime, and;
4) The conclusion of Stillwater Associates that the Hawaii gasoline market is competitive, with certain bottlenecks,

NCSL suggests that the state place greatest weight on consideration of 1b and 1c.

1. BACKGROUND AND INTRODUCTION

Hawaii's energy situation is unique among the 50 states for several reasons, not the least of which is the state's almost complete dependence on petroleum not only for its transportation energy sector but also for its electricity sector. Hawaii depends on imports to meet almost all its energy needs. This dependency, combined with other factors—such as inter-island transportation, high land prices and a number of regulations specific to Hawaii—has meant that gasoline prices in the state have tended to be among the most expensive in the nation. Although accusations of collusion and market control have remained unproven in the courts, many in the state remain suspicious that the market is, at the very least, not as price-efficient as it could be.

Hawaii's almost total dependence on imported oil for so much of its energy sector is unique within the United States. This dependence demonstrates, more than in any other state, the interdependence among energy markets. Circumstances that raise or reduce world oil prices affect gasoline pump prices in Hawaii just as they affect pump prices in the other 49 states. In Hawaii, however, they also affect electricity prices, since the electric company relies on oil to power its generators[1]. Other linkages between gasoline markets and the broader economy exist as well; refineries that produce gasoline for cars and fuel oil for power plants also produce jet fuel and asphalt for roads.

Hawaii's energy markets illustrate one integrated system. Policies that affect gasoline, or one variety of gasoline, affect other products as well; it is quite possible that, because the products are so closely linked, a gasoline price cap could have an inadvertent effect on fuel oil prices and the economics of the refineries that process crude oil into its many refined products.

It is for this reason that the policies surrounding oil markets—and gasoline prices in particular—are so important; policies that govern one energy product affect most other energy products in the state. This study, with that of Stillwater Associates, relies on this assumption of integration.

The report is divided in three sections: 1) a review of policy options that other jurisdictions employ, 2) policy options available to Hawaii, and 3) resources required to carry out the market oversight, monitoring, analysis and audit functions described in Act 77.

1. The other 49 states, by contrast, have gradually phased out almost all reliance on fuel oil for their power plants, and instead have diversified into a mix of coal, nuclear power, hydro electric power and, to an increasing extent, renewable energy and natural gas.

2. Policy Options

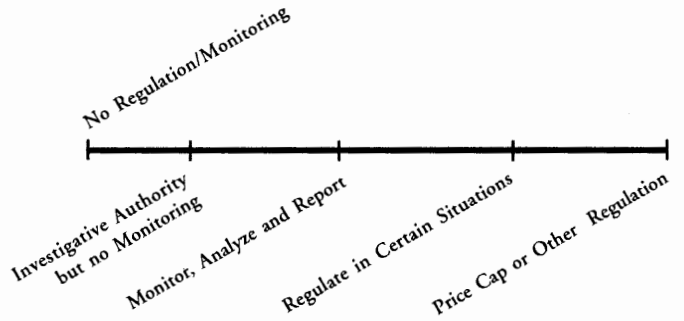
Hawaii has many policy options at its disposal that could influence gasoline prices. For the most part, these policies are not new; other states have tried them or currently have them in place.

It is possible to view the policies on a continuum that ranges from little or no government intervention in gasoline markets to one that exhibits a great deal of market intervention. Different policies are appropriate for each jurisdiction. What works best depends on the policymakers' assessment of the characteristics of the energy markets in that jurisdiction.

Petroleum and gasoline markets that demonstrate unexpected prices or prices that significantly differ from those in similar markets, given world oil market conditions, may require government intervention. Such government action would be justified by a demonstrated and proven assertion that the markets were not competitive and were unlikely to become competitive. Two provinces in Canada and a number of small Pacific island nations have decided that competition will not work in their markets and that price regulation is necessary. None of the other 49 states have made such a decision, although some have adopted other less intrusive policies to oversee gasoline and oil markets.

Figure 1 shows the continuum of policies described above.

Figure 1. Continuum of Policies



Source: NCSL, 2002.

Policies in Other States and Jurisdictions

This section reviews the policies that other jurisdictions employ. It uses the continuum as an organizational tool, showing first the policies that involve relatively limited government

intervention and then those that involve much greater government intervention in gasoline and energy markets.

No Regulation or Monitoring

The majority of states do not regulate gasoline prices in any way, nor do they have any formal monitoring system. As described earlier in this report, each state develops policies that are appropriate to its own situation. Hawaii cannot ignore the fact that it depends on oil more than any other state. As a result, it is legitimate that Hawaii take a more active role in oil markets.

Investigatory Authority but no Monitoring

Several states have policies that specifically empower the state attorney general to investigate anti-competitive gasoline pricing practices. These states do not offer quantitative standards that dictate when the attorney general may initiate such an investigation, or do they have ongoing studies or analysis of the oil industry in their states.

For example, Indiana enacted legislation in 2002 (IC 4-6-9.1) to prevent fuel price gouging during a state of emergency. If a retailer sells gasoline at a price that "grossly" exceeds the average price from the seven days prior to the state of emergency, the attorney general can investigate complaints and seek to levy or collect a civil penalty of up to $1,000 for each violation.

Monitor, Analyze and Report

One state—California—has an extensive program of monitoring, analysis and reporting on the petroleum industry. Another organization—the Pacific Island Forum—performs market analysis on behalf of a consortium of Pacific island nations. Michigan has recently begun price monitoring.

California

California maintains an active price and supply monitoring capability. This capability involves a greater level of effort than Hawaii would likely require. Still, it offers a model for Hawaii to consider on a smaller scale. No other state maintains an active market monitoring activity. Another organization—the Pacific Island Forum—also monitors oil markets and performs some analysis.

California's market monitoring function encompasses a broad array of activities, ranging from direct monitoring of prices to detailed analytical reports. The stated purpose of this activity is to ensure the state has a " ... thorough understanding of the operations of the petroleum industry ... to enable it to respond to shortages, oversupplies and to assess whether all consumers, including emergency service agencies, [government] and agricultural and business consumers ... have adequate and economic supplies of fuel" (CA SB 1962, 2000). The audience for the California Energy Commission's work is threefold, consisting of the CEC itself, the governor and Legislature, and the general public.

The CEC has the power to allocate fuel to areas of the state that experience scarcity in times of emergency. (The state of Hawaii has similar authority, but without an equivalent monitoring and analysis capability [Chapter 125C. HRS]). One purpose of the analysis func-

tion is to be able to determine when such an emergency might occur. The CEC also uses its analysis capability to assist the governor and Legislature on major policy issues; it developed recommendations on the implications of and methods to phase out MTBE as a fuel additive, for instance. The CEC also attempts to reach the public through posting of fuel prices in order to promote transparency of markets.

The Transportation Fuel Supply and Demand Office monitors a variety of regional retail, wholesale, and spot prices of finished and unfinished petroleum products. Volume production and intrastate shipments also are tracked, with varying degrees of reporting timeline requirements. Generally speaking, gasoline and diesel retail prices and wholesale prices are tracked daily throughout various regions within the state. Spot gasoline and diesel prices are tracked in the two major trading markets of San Francisco and Los Angeles.

Crude oil, MTBE, ethanol and natural gas prices are followed on a weekly or daily basis from available subscription-based sources. Imports and exports of petroleum products also are tracked, along with refining capacities.

Refinery production and inventories are tracked on a weekly and monthly basis by refinery location. Pipeline shipments within the state are tracked weekly for each product type delivered.

Information Sources. The CEC gathers its data through a combination of three sources, involving data that are available from information that the CEC collects by law from industry, from subscriptions and from public sources.

1. By Law—Mandatory reporting of operations enables the California Energy Commission to collect a variety of proprietary information. Information submitted to federal agencies also is copied in care of the Energy Commission to satisfy reporting requirements.

2. By Subscription—Legislation requiring the Energy Commission to monitor retail and wholesale price changes is satisfied through mandatory reporting as indicated above and by purchasing subscription—based data services. The Energy Commission follows the Oil Price Information Service very closely.

3. From Public Sources—Other data collection falls under this category. Data is continually downloaded from Web sites that offer timely and accurate information. For example, the New York Mercantile Exchange offers daily historical close-of-business-day trading information, the *Wall Street Journal* covers Alaska North Slope crude oil prices, and the International Petroleum Exchange offers daily closing prices for its North Sea Brent crude oil forward contracts. Other Internet resources such as the federal Energy Information Administration offer historical and current data that is used by the Energy Commission.

Information Dissemination. To disseminate its information, the Energy Commission regularly updates a variety of Web site pages to display the latest data received from industry. For example, weekly refinery and production data is published on the Internet in such a way as to protect the individual refinery's data but to still present data for the state as a whole. Price data is disseminated in a similar way, sometimes through the use of graphs to protect the source.

Much of the information the CEC collects also is disseminated through other state agencies under confidential data-sharing agreements. All information shared in this way is first approved by the original respondent to ensure confidentiality.

Confidential information also is published in public reports, where aggregated summary data is presented. Such data also is made available on the Energy Commission's Web site or through the Energy Commission's publication.

Lessons from California. The California Energy Commission staff offered several lessons from their experience in monitoring, analyzing and reporting on the oil industry.

1. It is important to obtain a stable, long-term funding source to support staffing and program continuity. Fluctuations in state budgets can make it difficult to carry out roles and responsibilities when budget shortfalls occur. California's lack of stable funding has hindered the agency's efforts.

2. In addition to the contractors, any state agency that performs this analysis requires several staff with oil industry experience to provide a solid understanding of how the industry works. Such expertise may be very helpful in designing public policy strategies that are effective in responding to issues and for developing legislative proposals.

3. Securing contract dollars to obtain expert petroleum industry analysis also is critical for providing industry perspective and insight that may not be available in-house. California currently has a number of former oil industry personnel under contract who provide invaluable assistance on refinery operations, trading, marketing and product pricing. This expertise has been crucial in addressing the logistical issues facing California during the replacement of MTBE with ethanol.

Pacific Island Forum

The Pacific Island Forum was established to coordinate the work of 16 Pacific Island nations[1] and to carry out tasks that they could not do individually. One task that the forum performs is to monitor fuel prices for its members. The goals of the Pacific Island Forum's monitoring activity are to understand how regional fuel prices are changing, to increase awareness of prices in neighboring islands, and to highlight potential price discrepancies due to oil company abuse or other actions that may affect industries such as tourism or fishing. The forum monitors anomalies between gasoline prices among its members. If it notes anomalies, it notifies the member nation and may help it to craft a regulatory response. Fourteen of the forum's members regulate gasoline prices.

Michigan

In February 2003, Michigan Governor Jennifer Granholm ordered state officials to schedule statewide surveys of gasoline prices in an effort to prevent price gouging. Under the executive order, the state will give consumers pricing information, and any possibly unfair prices will be reported to the attorney general. The executive order discussed political situations in Venezuela and Iraq as factors, but focused on concerns about national security after Sept. 11, 2001.

1. The Pacific Island Forum consists of the following nations: Australia, the Cook Islands, the Federated States of Micronesia, Fiji, Kiribati, Nauru, New Zealand, Niue, Palau, Papua New Guinea, the Republic of the Marshall Islands, Samoa, the Solomon Islands, Tonga, Tuvalu and Vanuatu.

Senate Bill No. 560 (2001), which died in committee, would have required the state to establish a real-time database for gasoline terminal operators and retailers to report changes in the price of gasoline and diesel. The database would include a monthly report of prices charged by oil companies in Michigan. It also would compare fluctuations in wholesale and retail prices for the current month and the two months preceding. The database also would help the state surmise which oil companies might be setting 'the price to beat' in certain geographic areas. The responsible agency would submit an annual analysis of the data, along with recommendations about possible future trends in the pricing of gasoline and diesel.

Regulate in Certain Situations

Many states regulate their gasoline and petroleum markets: 1) in certain situations, or 2) to prevent limited types of abuse. States also regulate certain components of the business. Some of these policies are designed to support small business gasoline retailers, rather than to regulate prices. In some cases, these policies actually may have the effect of raising prices somewhat.

Refiner-retailer agreements

Some states have sought to regulate the relationship between refiner and retailer by setting standards for the agreements that govern this relationship.

- In Oregon, the franchiser cannot require a service station to operate more than 16 hours per day. Similar time-related statutes have been enacted in Georgia, Maryland, and the District of Columbia.

- Statutes in Georgia and Maryland prohibit refiners from requiring gas station operators to charge a certain price or to participate in promotional offers.

- In Connecticut and Georgia, refiners must sell gasoline at wholesale prices in reasonable quantities to retail distributors, whether they are independent companies or are wholly owned and operated by the refiner.

- Puerto Rico requires oil companies to treat all gas stations they supply equally. Each petroleum producer or refiner that supplies gasoline to service stations must provide any discounts, deductions or other price reductions uniformly and evenly to every service station. Similarly, suppliers must apply uniform rental fees for equipment and signs to every retailer they supply. During periods of supply shortage, producers and refiners must distribute proportionally, uniformly and equitably, and not discriminate among the service stations.

Advantages	Disadvantages
May help limit oil companies' control over retail prices. Prevents vertical integration of the industry.	It may be more efficient and economical for oil companies to also operate gas stations.

Selling gasoline below cost (predatory pricing)

Predatory pricing refers to the practice of selling gasoline below wholesale cost with the intent of forcing small, thinly capitalized businesses out of the market. Small-volume

dealers fear that they will be forced out of business while the large-volume stations and oil company-owned stations survive a period of lower prices because of their larger reserves of cash and capital.

- Several states have laws to prevent oil companies from selling at below cost to drive out competition. These states include Colorado, Florida, Georgia, Maine, Maryland, Massachusetts, Minnesota, Missouri, New Jersey, Pennsylvania, Tennessee, Utah and Wisconsin.

Sample Legislative Language from Massachusetts and Maryland

Massachusetts

Chapter 94: Section 295P.

Section 295P. No retail dealer shall, with intent to injure competitors or destroy substantially or lessen competition, advertise, offer to sell, or sell at retail motor fuel at less than cost to such retail dealer.

Maryland

Business Regulation § 10-304.1.

a) Except as provided in subsection b) of this section, a retail service station dealer may not sell motor fuel below cost.
b) A retail service station dealer may sell motor fuel below cost if the sale is:
    1) made in good faith to meet competition;
    2) made as part of a final liquidation or closing of the business of the retail service station dealer;
    3) made as part of a bona fide charitable promotion lasting no longer than two days; or
    4) made under the direction or order of a court or government entity.
c) If the Comptroller receives a complaint in writing that a retail service station dealer is selling motor fuel below cost, the Comptroller shall investigate and determine within three business days of the receipt of the complaint whether the allegations contained in the complaint are true.
d) The Comptroller shall issue a stop sale notice and may suspend or revoke the certificate of registration of a retail service station dealer if the Comptroller determines that the retail service station dealer is in violation of this section.

Advantages	Disadvantages
Encourages competition, especially by smaller retailers.	Sets a price barrier that does not allow consumers to benefit from very low prices.

Price gouging

A number of states have enacted laws to prohibit the opportunistic raising of prices during an emergency or supply shortage. These laws may apply only to gasoline or may apply to other products as well.

- Arkansas, California, Connecticut, Florida, Hawaii, Indiana, Louisiana, Texas and the District of Columbia have prohibited the raising of commodity prices during declared emergencies. Hawaii has similar authority.

Sample Legislative Language
Louisiana
§732. Price gouging; prohibited
A. During a state of emergency as declared by the governor or as declared by the parish president, the value received for goods and services sold within the designated emergency area may not exceed the prices ordinarily charged for comparable goods and services in the same market area at, or immediately before, the time of the state of emergency. However, the value received may include reasonable expenses and a charge for any attendant business risk, in addition to the cost of the goods and services which necessarily are incurred in procuring the goods and services during the state of emergency.
B. Each sale or offer for sale in violation of this Section constitutes a separate offense.
C. The penalties provided in R.S. 29:734 are in addition to civil remedies provided by law, including attorney's fees.
D. Local governing authorities may adopt appropriate ordinances to implement the provisions of this Section.
Acts 1993, No. 800, §1, eff. June 22, 1993.

Advantages	Disadvantages
Prevents oil companies from taking advantage of panic and fear that may accompany emergencies.	Some emergencies could lead to wholesale supply shortages, and retailers might not be able to recover their own higher costs.

Zone pricing
Oil companies often engage in a practice known as zone pricing, a practice that sets prices according to the geographic area and the nature of competitive forces in that area. These zones explain the varied gasoline prices throughout different neighborhoods in the same city. Some policymakers believe this practice is anticompetitive and discriminatory.

Several state legislatures have considered zone pricing restrictions, but it is important to note that none has passed. Most investigations into zone pricing have failed to prove illegal practice.

- Connecticut and New York have recently attempted to regulate or outlaw the practice of zone pricing for gasoline. In 1998, 1999, 2001 and 2002, Connecticut legislators proposed bills to monitor and/or regulate zone pricing. Each of the bills failed.

- Bills to prohibit zone pricing were filed in 1999, 2001 and 2003 in New York. The latest, SB 55, would fine gasoline retailers $5,000 for zone pricing violations.

- New York Senate Bill 963, which failed in the 2001 session, would have regulated marketing practices of motor fuel, refiners and distributors. The bill would have prohibited the imposition of inequitable prices to consumers by prohibiting refiners or distributors from selling motor fuel to any dealer at a price that exceeded 94 percent of the consumer retail price for the same fuel sold from a company-owned service station in the same area.

- In Maryland, an executive order mandated that a task force study the issue and provide a report with recommendations. The report found no illegal practices occurring in connection with zone pricing, but did recommend closer market monitoring.

Advantages	Disadvantages
May stop oil companies from targeting potential competitors by reducing gasoline prices in specific areas without lowering price throughout a broader marketing area. Also restricts refiners' ability to exercise market power.	The major oil companies have claimed that this differential pricing mechanism simply helps them meet the competitive situation in each zone.

In California, the Utility Consumers' Action Network (UCAN) requested that the federal trade commission conduct a study of zone pricing. Although UCAN found the uncompetitive practice of "price undercutting" in California, the three-year FTC report—which addressed the states of Arizona, California, Nevada, Oregon and Washington—found no evidence of conduct that violated antitrust laws.

Divorcement

In order to prevent oil companies from exercising too much control over retail gasoline prices, some states have enacted legislation to prevent the companies from owning or directly operating gas stations. In some cases, refiners may own stations but must maintain a minimum distance from other stations they own or from stations franchised by the company.

- Hawaii prohibited gasoline manufacturers from converting franchise-owned stations into refiner-owned stations after 1997. Hawaii also established lease-rent restrictions and established a minimum distance of one-eighth of a mile between new company operated retail service stations and dealer-operated retail service stations in an urban area. The prescribed distance is one-quarter mile in other areas.

- Connecticut, Maryland, the District of Columbia and Puerto Rico have laws prohibiting gasoline companies or refiners from owning or directly operating gasoline stations.

- Puerto Rico established a fine of between $5,000 and $25,000 for violation of the divorcement law.

- Nevada places a restriction on the number of service stations that can be directly operated by a refiner.

- Virginia establishes a minimum distance of 1.5 miles between a refiner-operated service station and one operated by a franchised dealer.

- Maryland statute specifies that, along the John F. Kennedy Memorial Highway, a sufficient number of stations operated by at least two different companies may be established in each service area along the highway. According to the statute, one person may not be awarded a lease for or have the use of more than one-half of the total number of stations on the entire highway. In addition, one supplier may not have the right to market fuel identified by its brand at more than one-half of the stations on the highway. The Maryland Transportation Authority is required to regulate the prices of fuel

products sold on the highway to the extent necessary to ensure reasonable costs to patrons.

Price Cap or Other Regulation

No state regulates gasoline prices to the extent Hawaii does, except in the limited ways described above. Only two provinces in North America regulate gasoline prices.

Newfoundland and Labrador, Canada

In 2001, the legislature established the Petroleum Products Pricing Commission (PPPC) to ensure fairness in the marketing and supply of petroleum products within the province. The commission establishes monthly maximum prices for all types of gasoline, home heating fuel, diesel and propane. Companies are allowed to sell below, but not above, the established prices. The monthly price is based on the average daily world prices for refined petroleum products during the previous month. A marketing margin is added that includes transportation and distribution costs, capital investment and infrastructure, sales volumes throughout the province, seasonal adjustments, and special circumstances such as isolated communities. The PPPC disseminates monthly price information to the public, the media, oil companies and townships via its Web site and fax. The commission provides some unofficial forecasting by monitoring industry data, watching petroleum inventories and staying abreast of current events. The commission also is responsible for monitoring compliance, and staff have the authority to issue tickets for violations.

Prince Edward Island, Canada

The Petroleum Products Act regulates the distribution and sale of petroleum products and ensures a "just and reasonable price" for heating and motor fuel within the province. The Island Regulatory and Appeals Commission (IRAC) uses a formula based on the New York harbor price of gasoline to set monthly prices for heating and motor fuels on the island. In addition, the commission also considers regional prices in nearby Nova Scotia and New Brunswick and uses its judgment, based on a detailed understanding of the industry and its costs, to determine the monthly price. IRAC is responsible for monitoring compliance and levying fines on any company that sells above the set price. The commission does not engage in any type or forecasting activity.

Maryland

Maryland regulates gasoline prices on one highway, through contract specifications. The Maryland Transportation Authority (MTA) has four service stations on the John F. Kennedy Memorial Highway. They are operated under contracts that include requirements for pricing of fuels. MTA contract language states that " ... maximum retail prices for fuels shall be determined by the Baltimore Wholesale Price Average as determined by the publication Lundberg Letter plus State and federal taxes plus twenty-five (25) cents per gallon markup for full service. Self-service fuel shall be priced at a maximum as follows: Regular gasoline—five and one-half (5 ½) cents, Mid-grade gasoline—ten and one-half (10 ½) cents, Super gasoline—fifteen and one-half (15 ½) cents."

3. Policy Options for Hawaii

Hawaii has many policies at its disposal that could influence gasoline prices. Some of those policies derive from those in place in other states or countries. Others are variations on existing Hawaii law. The difficult task facing Hawaii state policymakers is to identify policies that will balance the oversight role of government with the implementation role of industry. Hawaii policymakers have the additional institutional challenge of assigning oversight roles to the appropriate state government agency or agencies based on the statutory charter policymakers have assigned. When industry appears to be operating in an economically inefficient manner, such policies may attempt to balance the need to encourage industry to make new and efficient investments with the government role. Inefficiency in this case may be measured by anomalous or unexplained market prices. Such prices could indicate that there is a lack of competition or that one company is exercising undue control over prices. Hawaii Act 77 sets out a policy of highly activist government control over prices, indicating a conclusion that the Hawaii gasoline market is not operating efficiently.

This report does not present an analysis of the Hawaii gasoline market. Instead, it seeks to set out a series of policies that are available to Hawaii that could influence gasoline prices. It builds on the conclusions of an accompanying report from Stillwater Associates, which presents an analysis of the Hawaii gasoline market. Stillwater Associates' report concludes that competition exists in Hawaii for the most part, with Maui and the Kona side of Big Island having infrastructure "bottlenecks." These bottlenecks interfere with competition. Stillwater's analysis has led to the conclusion that price caps are not needed. In addition, the Federal Trade Commission concluded in testimony to the legislature that "...(i)f the price controls in Act 77 become effective and succeed in reducing retail gasoline prices, they likely will impose significant non-price costs on customers." (Testimony of Jerry Ellig, Deputy Director, Office of Policy Planning, FTC, Before the State of Hawaii Joint Hearing, January 28, 2003.) Although a wide array of policies are available to Hawaii (listed in an appendix to this report) the following section focuses on those policies that, given Hawaii's unique situation, warrant particular attention.

This section is divided into two parts.

- Policy that is appropriate should the Legislature determine that the gasoline market is not competitive.

- Policies that assume the market works at least some of the time, or has potential to work efficiently.

Policy Appropriate to Non-Competitive Markets

This section highlights a policy that may be appropriate, should the Legislature deem the gasoline market to be non-competitive. This is one among a number of policies available, and is the policy that builds on existing Hawaii law.

1. Leave price cap in place but revise the formula to reflect market realities.

This option assumes, based on the accompanying report from Stillwater Associates, that a price cap based on using U.S. West Coast prices as a benchmark will produce prices in Hawaii that have little to do with current Hawaii supplies. For example, a refinery outage in California would raise prices in Hawaii, even though it had no physical effect on the Hawaii market, which secures its petroleum from Pacific Rim nations.

Adoption of this option assumes that Hawaii policymakers have concluded that competition is not feasible in the Hawaii context and that small numbers of those in the market that currently—and will in the future—exert undue influence over gasoline prices and supplies. This option would revise the price cap to reflect a benchmark that is not the U.S. West Coast, since Hawaii's gasoline market exhibits vastly different characteristics from the U.S. West Coast market. In essence, use of a West Coast benchmark forces Hawaii to import all of California's gasoline price characteristics and problems. It also would reexamine the pricing structure for neighbor islands. It might consider alternative pricing and price regulation models as well, such as those adopted in Prince Edward Island or in other Pacific islands. The following table summarizes the advantages and disadvantages of a price cap approach.

Advantages	Disadvantages
	Price caps rely heavily on a formula. That formula will inevitably affect the market and prices not only for gasoline, but also for other crude oil-based products in the state. A price cap may have unintended consequences.
A price cap is appropriate for a situation in which the market is consistently subject to manipulation.	Price caps rely on a benchmark that is not reflective of the Hawaii market, even if that benchmark is more appropriate than the West Coast price benchmark.
Addresses concerns about market power by placing pricing authority with government instead of with the market.	Price caps place the government, instead of industry, in charge of prices, partially removing market forces from the picture. Government may or may not do a better job of setting prices in a way that both encourages continuing investment in the industry while holding prices to a fair level.
	Price caps will discourage new suppliers from entering the Hawaii market or may push refiners out of the Hawaii market.
	Price caps may, in some situations, lead to shortages.

Policies Appropriate to Competitive or Non-Competitive Markets

This section reviews eight policies that Hawaii may consider whether or not the Legislature deems the gasoline market competitive. These policies may either enable or encourage competition, while building the state government capacity to monitor and evaluate gasoline markets.

1. Remove permanent price caps but give the governor authority to apply price caps in certain situations.

Price caps may be valuable as a threat or as a backup measure that the governor may impose under certain conditions. Legislation could give the governor authority to impose price caps under certain circumstances, including:

- Proven price manipulation;
- Proven supply manipulation; or
- Specific emergency situations that could result in either price or supply manipulation.

The price cap would be put in place upon specific recommendation from the attorney general. The attorney general would have responsibility for monitoring the gasoline market for abuse.

Such legislation would further clarify that any concerns about price manipulation or other illegal activity could be forwarded, with appropriate background material, to the Hawaii Attorney General's office.

2. Make market transparency a goal, giving industry and government the authority and duty to collect and disseminate data in order to identify specific trends and potential abuses of market power.

Act 77 set out a number of requirements to guide DBEDT in collecting industry data. DBEDT would use this data to monitor and analyze oil price and supply trends. Given the specific data requirements and needs for a gasoline market monitoring effort, it is likely that the specific requirements within Hawaii statute may need to be altered. The accompanying report by Stillwater Associates details specific data requirements that the Legislature may wish to consider adding to the statute.

3. Remove or revise the requirement that DBEDT perform periodic audits.

Act 77 required DBEDT to perform periodic audits of oil companies. This role is inconsistent with DBEDT's role as Hawaii's economic development agency, although it may be consistent with the role of a regulator operating in a price cap regime. An audit function may also be inconsistent with the needs of the State, should the state choose to eliminate the price cap. The audit requirement could be removed or revised in one of the following ways.

a. Remove the audit requirement entirely from statute.

   Removing the audit requirement from statute would mean that the state would be left with only with the subpoena authority granted through the courts, or the

power of police searches in cases of criminal misconduct. Such authority is useful only if the state suspects criminal activity.

b. Remove existing Act 77 audit requirement. Instead require the state to hire inspectors to enforce the price cap.

Hawaii law lays out two objectives for state audits of oil companies: whether the oil companies are 1) violating applicable policies, laws or rules; or 2) withholding supplies from the market.

The first objective represents a compliance function that asks DBEDT to ensure that companies are complying with the letter of the price cap law. If the price cap stays in place, this element of the audit function is also important, based on experience in other jurisdictions. This compliance function may best be situated in a regulatory agency such as the public utilities commission.

The second objective requires detailed investigation involving an understanding of world oil markets and oil refining and technology. Proof of withholding supply is difficult to ascertain and requires far greater analytical ability than currently exists in Hawaii—or any other—state government. As detailed later in this report, it will be expensive for the state to hire the staff to perform this function well. Hawaii should reconsider the need for this element of the audit function.

c. Place the audit requirement with a regulatory agency such as the utility commission or attorney general's office.

DBEDT was established to perform several functions, including policy analysis, planning and advising government and the private sector on energy policy issues. Hawaii has placed its energy function in the Economic Development Office—the office that works closely with industry to find ways to improve the business climate for industry in the state.

The law states that DBEDT now will be responsible for auditing oil businesses to determine if they are violating applicable laws (including the price cap law) as well as whether they are withholding fuel supplies from the market in order to drive up the price of fuel. This role was previously filled by the utility commission. Although the commission was not required to perform the audit function, it was given the option to audit oil companies.

In general, audit functions rely to a large degree on more distant relationships and independence. Auditors function best if they have minimal relationships with the firm under audit. Yet, as an economic development agency, DBEDT's role is to collaborate with business.

It will be difficult—and a contradictory role—for DBEDT to serve both as an independent auditor of business and as the business-friendly, collaborative agency. Because of this conflict, the Legislature should place the audit function with a different agency such as the utility commission because it operates more independently and at a greater distance from business.

To the extent that the state also hires inspectors to check for compliance with the cap, it also may be appropriate for those inspectors to be located within the regulatory agency.

d. Give authority to the state to perform audits, but make such authority optional and at the discretion of the state agency.

Rather than simply abandon the authority for a state agency to perform audits of oil companies, Hawaii could grant the authority to perform audits to an agency, but give the agency discretion as to whether to perform an audit. This leaves open the option for an audit in cases where state government deems it useful and appropriate.

4. Provide a specific mechanism for funding state market monitoring, analysis, reporting and auditing.

Provide specific funding commensurate with work required for a state agency to perform study, analysis, and investigatory or audit duties (as specified by law).

The state should establish a mechanism to fund the various agencies that perform audit, investigative and analysis functions. Similar to the fees assessed on utilities to fund state regulatory commissions and also modeled on a funding mechanism for a similar role used in Newfoundland and Labrador, industry could be charged a small throughput-based fee that would raise the funds necessary to perform the analysis and market oversight. This fee would support the efforts of DBEDT or another state entity charged with gasoline market oversight, analysis and/or regulation. The level of fee in Newfoundland is $0.0007 per liter.

5. Remove lease rent cap

Some states protect individual gas station operators by placing caps on the amount that station owners can charge tenants for rent. The amount often is based on a certain percentage of a station's total sales. Opponents of this policy argue that the property in Hawaii is much more valuable than the rent cap allows them to collect. Opponents also claim that lease rent caps decrease competition and create a disincentive for new suppliers to enter the market.

6. Remove divorcement requirements

Divorcement laws separate the wholesale and retail sectors of the gasoline industry by preventing refiners from operating the retail gasoline stations they own. Although this policy protects small, independent business owners who run the stations, some argue that it also inflates the price of gasoline and limits competition. A Federal Trade Commission Report from July 1999 concluded that divorcement laws raised the average price of regular, self-service gasoline by 2.7 cents per gallon in the states where such laws were in effect. This study included Hawaii, Connecticut, Delaware, Maryland, Nevada, Virginia and the District of Columbia.

7. Conduct a concentrated outreach program, in coordination with industry, to reduce unnecessary use of high-octane gasoline.

The octane rating of gasoline is the measure of a fuel's ability to burn under pressure. Many consumers wrongly assume that using a high-octane gasoline increases an engine's

power or gas mileage. In fact, most passenger vehicles require only low—octane gasoline and only a small percentage of high—performance engines benefit from the more expensive high-octane fuel. The price of premium gasoline typically is 25 cents to 35 cents higher than the price of regular grade gasoline. Education about the differences between regular and premium gasoline is important to helping customers save at the pump. A joint effort between the state and industry could help people determine whether they are unnecessarily paying for more expensive fuels that their vehicles do not require. State government could promote this information via public service announcements and websites, while the gasoline retailers could post signs at pumps.

8. Develop a single, integrated state energy plan

Hawaii, in particular, exhibits an integrated energy system in which the electricity sector is closely intertwined with gasoline and other petroleum products. A price cap that affects only gasoline will have unexpected effects on the remainder of the Hawaii energy market. Yet, the relatively high price of gasoline in Hawaii may be symptomatic of a broader need to reexamine a coordinated energy strategy in the state. Such a coordinated, integrated, long-term energy strategy is a long-term policy that should be viewed as distinct and supplemental to the other policies laid out in this document.

Stillwater Associates, in the accompanying report, describes several issues related to such a plan.

A long-term energy strategy would take into account the following.

- Feasibility of using liquefied natural gas to power electric generation facilities in parts of the state.
- Price volatility of natural gas and contractual mechanisms to hedge against higher prices.
- Policy issues surrounding reliance on imported natural gas compared to imported petroleum products.
- Energy security issues surrounding liquefied natural gas (LNG) terminals compared to security of existing energy infrastructure.
- Feasibility and cost of upgrading refineries in the state to be able to supply the supply-constrained California market.
- Air emissions benefits of converting power plants to natural gas.
- Role of energy efficiency in meeting energy needs of the state.
- Role of small-scale, distributed resources in meeting the energy needs of the state.
- Role of renewable energy resources in meeting the energy needs of the state.
- Role of government in making such a large-scale transition in the energy system.

4. Resources Needed to Carry Out Act 77 Requirements

Act 77[1] set up a mechanism to oversee, monitor, analyze and audit the Hawaii petroleum industry. The requirements delegated several of functions to the Hawaii Department of Business, Economic Development and Tourism, as described below, and some to the utilities commission. Many of these functions are similar to those that other jurisdictions employ. This section evaluates the personnel and financial resources that would be required if DBEDT were to carry out the requirements of Act 77.

This section makes the assumption that, as in the other jurisdictions that perform these duties, the state will earmark some limited but critical financial resources to carry out the policies that it adopts for overseeing gasoline markets. Funding for such financial resources could come either from the state general fund or from a fee-based revenue source based on a small cent-per-gallon charge for gasoline. Such a fee would likely be between $0.0007 and $0.0015 per gallon.

Requirements Currently in Hawaii Law

Act 77 places a number of specific requirements on the Hawaii Department of Business, Economic Development and Tourism. Broadly, these requirements fall into two categories: 1) data collection and analysis, and 2) periodic audits of oil companies. Hawaii law clearly specifies the types of information that it requires DBEDT to collect and analyze, and also clearly specifies to the kinds of activities that DBEDT should pursue in its audit function. Hawaii law now requires that DBEDT examine and analyze the following information.

Data Collection and Analysis Functions

- Nature, cause and extent of petroleum product shortages.
- Economic and environmental impacts of shortages.
- Industry forecasting methodology of petroleum product demand and supply.
- Prices and changes in prices at wholesale and retail.
- Income, expenses and profits before and after taxes of oil industry and firms within Hawaii. Compare data with other major industry groups.
- Emerging trends in supply, demand and conservation of petroleum.
- Nature and extent of efforts to expand refinery capacity and acquire more supply.

1. Session Laws of Hawaii (2002).

The law also requires DBEDT to disseminate the results of its analysis through a petroleum and petroleum products information system that it would develop.

In addition to the data collection and analysis function, the law requires that DBEDT assume a regulatory and enforcement role through the following tasks.

Regulatory and Enforcement Functions

- Conduct random audits and inspections to determine if companies are:
  - Withholding supplies from market.
  - Violating applicable policies, laws or rules.

Finally, the law requires that DBEDT submit an annual report detailing:

- Study conclusions,
- Civil penalties imposed, and
- Referral of violations to the attorney general.

This section is divided into two parts: 1) a brief review of resources in other jurisdictions, and 2) an analysis of resource requirements for Hawaii.

Resources in Other Jurisdictions

Two other organizations perform a market monitoring function: the California Energy Commission and the Pacific Island Forum. Their activities are not perfect analogies for what is proposed in Hawaii, but California, especially, is close. Newfoundland and Labrador, Canada, and Prince Edward Island, Canada, maintain a regulatory staff with some monitoring and enforcement functions. This section describes the resources that California, the Pacific Island Forum, Newfoundland and Labrador, Canada, and Prince Edward Island, Canada, devote to their respective activities.

California

The California Energy Commission's Transportation Fuel Supply and Demand Office has 19 people whose backgrounds range from three to 25 or more years with the commission. The staff are highly educated; several hold Ph.D. degrees in engineering, economics, geography or computer science.

The annual budget for the office is:

- Personnel: approximately $1,000,000 + benefits
- Contractual: $100,415
- Discretionary Operating: $31,665
- Student Assistant: $25,000

Pacific Island Forum

The Pacific Island Forum employs two full-time people to perform its monitoring function. A total budget of approximately $200,000 includes travel, staff, and other expenses such as data subscriptions. This monitoring function is somewhat more limited than the combination of monitoring and analysis functions laid out in Hawaii law.

Newfoundland and Prince Edward Island

Each of these two Canadian provinces supports commissions that monitor the prices of various petroleum products. The Petroleum Products Planning Commission monitors the price of motor fuels, heating oil and propane for the Newfoundland and Labrador province. Six full—time employees and one part-time consultant perform a variety of analytical duties. The positions in this office are as follows: Commissioner, Research Director, Research Officer, Financial Officer, Communications Officer, Information Officer and an Executive Assistant. These employees have a diverse range of analytical skills, including degrees in economics, business, computer science, public administration, journalism and education. The commission also is considering hiring another employee to perform audits and investigate allegations of abuse. The annual budget for this office, approximately $500,000 Canadian (approximately U.S. $340,000), is funded through a fuel tax of $0.0007 per liter.

The Island Regulatory and Appeals Commission (IRAC) regulates the price of petroleum products and distillates in the Canadian province of Prince Edward Island. This group has three full-time and six part-time commissioners who also work with public utility and land use issues. IRAC has a total of 18 staff members, three of whom specifically monitor petroleum prices. These three employees include an Assistant Director, a Research Analyst and a Field Inspector whose skills include research and technical analysis and experience working in the petroleum industry. Their salaries range from just above $30,000 to nearly $60,000, and the annual operating budget for IRAC is $450,000 (approximately U.S. $307,000).

	Prince Edward Island	Newfoundland
Population	135,294	512,930
Area (square miles)	2,038	133,380
Funding	General budget	.07 cent per liter fuel tax
Staffing	3 FTEs for fuel pricing	6 FTEs, half-time consultant
Budget	Approx. U.S. $307,000	Approx. U.S. $ 340,000

Source: Stillwater Associates, 2003

Hawaii Resources Required

DBEDT will require dedicated staff and resources to fulfill the functions set out in the law. Several states and jurisdictions now maintain similar functions, and each is supported by dedicated funding. The activities currently contemplated by the law could not be achieved with existing staff and would require additional staff, with some budget for consultants and some for data and informational services (such as Platt's online oil price information).

DBEDT will require three types of resources to fulfill the functions of the law:

- Full-time technical, administrative and supervisory staff;
- Consultant resources; and
- Funding for expenses such as oil price data services.

Full-time staff will perform most functions and identify major issues or concerns. They will call in consultants as needed.

The following section describes in more detail the resources that the state would require to accomplish two tasks: a monitoring and analysis function or a combination of monitoring, analysis and auditing. These two options are highlighted in order to present a small selection of options for the state to pursue and also to better reflect the examples of activities taking place in other states (that focus primarily on either market monitoring or analysis and regulation, but not on an audit function).

Option 1. Monitors and report prices and market activity (like California or the Pacific Island Forum). This staffing level falls short of the Act 77 requirements.

Option 2. Monitor, report and also audit. This staffing level will meet requirements of Act 77.

Budget Implications for Hawaii

This section lays out scenarios through which Hawaii could accomplish the goals laid out in Act 77, or the goals of alternative policy measures. It is divided into three sections, as follows:

Option 1 reflects resources and staffing that Hawaii would require to accomplish a goal of market monitoring and analysis only. This task is based on an assessment of specific needs in Hawaii and on an adaptation of resources that California and the Pacific Island Forum have devoted to this task.

Option 2a reflects the resources described in *Option 1,* plus one additional staff (located within PUC) to set a price cap and inspectors (located within the PUC) to enforce the price cap.

Option 2b reflects the resources for both *Option 1* and *Option 2a,* plus resources to perform detailed audits of oil companies, as described in Act 77.

Option 1: Monitoring, Analysis and Reporting Only

If Hawaii pursues *Option 1*, to monitor and report on market activity only, it would require the following distinct activities:

Information gathering from:	Information analysis by:	Information dissemination through:
Paid subscription sources	Hawaii DBEDT staff with oil industry expertise	Electronic means
Information submitted per Hawaii law	Consultant resources as needed	Reports to the governor and Legislature
Public sources		

These tasks require expertise and understanding of the oil industry. It requires that DBEDT have on staff individuals with a background in data analysis, petroleum industry economics and research. These staff would rely to some extent on outside sources of information, such as Platt's, the Energy Information Administration and so on. They also would have the background and ability to analyze and process the large volumes of information submitted

to them under Hawaii law. Without this expertise on staff, DBEDT will be unlikely to take advantage of the information that it collects.

NCSL estimates that three full-time staff will be required to perform these functions: two substantive staff plus administrative support:

- Economist,
- Research analyst, and
- Administrative assistant.

Based on NCSL's review of experience in California and the Pacific Island Forum and with the Federal Energy Regulatory Commission, and based on an analysis of current pay scales in Hawaii state government, the resources required in Hawaii for *Option 1* would be approximately $250,000 for three dedicated full-time staff, plus a consulting budget for occasional expert analysis of $75,000, and other expenses.

Option 1					
Expenses	**Item**	**# of FTE**	**Salary & Benefits**	**Category Total**	
Salary & Fringe Benefits					
	Economist	1	$ 67,845	$ 67,845	
	Research Analyst	1	$ 49,535	$ 49,535	
	Secretary	1	$ 35,245	$ 35,245	
Salary & Fringe Benefits Total				$152,625	
Consultant				75,000	
Other Expenses*				26,769	
Grand Total					**$ 254,394**

*Other expenses include estimates for office furniture, computer and related equipment, and subscription-based data services.

Option 2a and Option 2b: A function that monitors, reports and also audits and enforces price caps.

Act 77 requires that, in addition to monitoring the market and performing market analysis, DBEDT will:

- Conduct random audits and inspections to determine if [the oil companies] are:
  - Withholding supplies from market, and
  - Violating applicable policies, laws or rules.

No other state or jurisdiction maintains such a combination of data analysis, market monitoring and extensive audit functions. Newfoundland has an inspection and enforcement function, but has no extensive audit function. The Federal Energy Regulatory Commission (FERC) is the only other agency of government that appears to have established a comparable audit function. However, the differences between electricity and gasoline markets and the differences between national and single-state markets are such that the analogies are limited. The skill sets required for the FERC activity offer some guidance. However, few comparable situations exist from which to judge resources that would be required for the fairly extensive audit function described in Act 77.

The two audit functions described in Act 77 require two very different levels of expertise and personnel. Option 2a describes an audit function focused on compliance with the price cap. It relies on inspectors to enforce the cap.

Option 2a. Collect data, monitor, analyze, report and enforce compliance with the price cap.

An audit function that simply monitors for compliance with a price cap can rely on three inspectors to ensure that the retail gasoline stations, in particular, are complying with the price cap. Given the regulatory function of the PUC, it makes sense for these inspectors to be employed by the PUC. Experience from Newfoundland demonstrates that gasoline retailers tend to self-enforce the cap, often informing the province when competitors violate the cap. The province has hired or is in the process of hiring two inspectors to enforce the price regulation.

In addition, *Option 2a* requires an economist to set the price caps and to respond to industry questions about the price caps or, in some cases, to address technical issues that arise in setting the caps; this individual would likely be housed at the utilities commission.

This option also requires an economist to lead the market monitoring and analysis function at DBEDT. This function was described in Option 1 above.

The budget for *Option 2a* would be approximately $400,000, based on Hawaii state government pay scales, office equipment needs and a consulting budget of $75,000. As with *Option 1* above, this budget would be required for consulting expertise to assist in analysis of oil markets.

Option 2a					
Expenses	**Item**	**# of FTE**	**Salary & Benefits**	**Category total**	
Salary & Fringe Benefits					
	Economist	2	$ 67,845	$135,690	
	Research Analyst	1	$ 49,535	$ 49,535	
	Audit/Inspector Staff	3	$ 22,702	$ 68,106	
	Secretary	1	$ 35,245	$ 35,245	
Salary & Fringe Benefits Total				$288,576	
Consultant				$ 75,000	
Other Expenses*				$ 42,000	
Grand Total					**$ 405,576**

*Other expenses include estimates for office furniture, computer and related equipment, and subscription-based data services.

Option 2b: Collect data, monitor, analyze, report and audit not only for compliance but also for supply manipulation.

An audit function that both inspects retail locations to ensure that they comply with the cap and also performs detailed analysis and audits to determine if companies are withholding supplies from the market involves much more expertise, background and understanding of the economics of the international petroleum market, including the following.

- Petroleum economics and finance for an understanding of the economics of oil markets, including such issues as the interactions among different products (gasoline, fuel oil, diesel, jet fuel and so on), the interaction between in-state refineries and imported refined products, and so on.

- Chemical engineering, for an understanding of the products that certain types of refineries can produce, and investments and physical plant changes necessary to produce certain products, and the feasibility of selling certain products.

- Law, especially antitrust law.

- Auditing and data analysis to be able to systematically analyze the operations and economics of the companies under audit.

- Support staff and Web support.

The skill sets required to perform both audit functions and the price cap function will entail the following full—time and dedicated staff:

- Two economists, with background in petroleum economics and finance to perform analysis function (within DBEDT) and to set price caps (within the utility commission);

- Three inspectors at the PUC;

- Chemical engineer;

- Attorney; and

- Administrative support.

The budget for *Option 2b* would be approximately $570,000, based on Hawaii state government pay scales, office equipment needs and a consulting budget of $100,000. The consulting budget of $100,000 would be required for consulting expertise in case the full-time staff discover significant anomalies that require further expertise.

Option 2b					
Expenses	**Item**	**# of FTE**	**Salary & Benefits**	**Category total**	
Salary & Fringe Benefits					
	Economist	2	$ 67,845	$135,690	
	Research Analyst	1	$ 49,535	$ 49,535	
	Chemical Engineer	1	$ 67,845	$ 67,845	
	Attorney	1	$ 67,845	$ 67,845	
	Audit/Inspector Staff	3	$ 22,702	$ 68,106	
	Secretary	1	$ 35,245	$ 35,245	
Salary & Fringe Benefits Total				$ 424,266	
Consultant				$ 100,000	
Other Expenses*				$ 45,460	
Grand Total					$ 569,726

*Other expenses include estimates of office furniture, computer and related equipment, and subscription-based data services.

Paying for Options 1, 2a and 2b

Although the state may use general funds for the above activities, it may also adopt a variant on the Newfoundland model, which assesses a fee on oil companies based on fuel throughput. For each of the above options, the per-gallon fee would amount to the following, based on Hawaii's annual consumption of slightly less than 400 million gallons of gasoline:

Option 1: $0.0007 per gallon
Option 2a: $0.00105 per gallon
Option 2b: $0.0015 per gallon

5. List of Policy Options and Conclusions

1. **Leave price cap in place but revise benchmark to reflect market realities.**
   This option would revise the price cap to reflect a benchmark that is not a U.S. West Coast benchmark, since Hawaii does not import significant amounts of crude or refined products from California.

2. **Remove permanent price caps, but give the governor authority to apply price caps in certain situations.**

3. **Revise the requirements of 486J as follows:**

   - Revise the data gathering requirements for DBEDT

   - Remove the requirement that DBEDT perform periodic audits in one of the following ways:

     - Remove the audit requirement entirely from statute.

     - Place the audit requirement with a regulatory agency such as the utility commission or attorney general's office.

     - Revise the audit requirement to include compliance only with the requirements of the price cap statute; remove requirement that DBEDT or other state agency investigate for unnecessary creation of supply shortages.

     - Give authority to the state to perform audits, but make such authority optional and at the discretion of the state agency.

     - Provide specific funding commensurate with work required for a state agency to perform study, analysis, investigatory or audit duties (as specified through law).

     - Provide a specific mechanism for funding agency work.

     A mechanism could be developed that would charge industry a small throughput-based fee. This fee would support the efforts of DBEDT or another state entity charged with gasoline market oversight, analysis and/or regulation.

4. **Make market transparency a goal, giving industry and government the authority and duty of collecting and disseminating data in order to identify specific trends and potential abuses of market power.**

5. **Remove lease rent cap.**

6. **Remove divorcement requirements.**

7. **Conduct a concentrated outreach program, in coordination with industry, to reduce unnecessary use of high-octane gasoline.**

8. **Develop a single, integrated state energy plan.**

NCSL suggests that Hawaii place the greatest weight on policies 2 through 8.

NOTES

1. Background and Introduction

1. The other 49 states, by contrast, have gradually phased out almost all reliance on fuel oil for their power plants, and instead have diversified into a mix of coal, nuclear power, hydro electric power and, to an increasing extent, renewable energy and natural gas.

2. Policy Options

1. The Pacific Island forum consists of the following nations: Australia, the Cook Islands, the Federated States of Micronesia, Fiji, Kiribati, Nauru, New Zealand, Niue, Palau, Papua New Guinea, the Republic of the Marshall Islands, Samoa, the Solomon Islands, Tonga, Tuvalu and Vanuatu.

5. List of Policy Options and Conclusions

1. NCSL focused on the policy options listed here as most feasible in the near- to medium-term. It is understood that other long-term approaches exist. These approaches include:

- Leave price cap in place but revise to better reflect neighbor island markets
- Expand price cap regulation of gasoline beyond regular grade gasoline to all grades.
- Continue to regulate gasoline prices but do so under a different mechanism.
- Place the state government in the gasoline wholesale business as a refined product importer.
- Place the state government in the gasoline wholesale business as an owner and operator of a refinery.

Competition and the Effects of Price Controls in Hawaii's Gasoline Market

Testimony of Jerry Ellig

Deputy Director, Office of Policy Planning

Federal Trade Commission

Before the

State of Hawaii

Joint Hearing
House Committee on Energy and Environmental Protection
Senate Committee on Energy and Environment
House Committee on Consumer Protection and Commerce
Senate Committee on Commerce, Consumer Protection, and Housing
House Committee on Transportation
Senate Committee on Transportation, Military Affairs, and Government Operations

January 28, 2003

Thank you for the opportunity to share the Federal Trade Commission staff's views on the likely effects of price controls and other policies in Hawaii's gasoline market.[1]

The Federal Trade Commission is charged by statute with preventing unfair methods of competition and unfair or deceptive acts or practices in or affecting commerce.[2] Commission staff have had considerable experience assessing the competitive impact of regulations and business practices in the petroleum industry, including the petroleum industry in Hawaii.[3] On numerous occasions, the Commission staff have offered comments on proposed state laws covering a variety of areas, including laws that would regulate gasoline prices, ban sales of motor fuels below cost, or limit competition between refiner-owned and independent gas stations.[4]

In May 2002, Hawaii enacted Act 77, imposing wholesale and retail price controls on regular unleaded gasoline beginning on July 1, 2004. The legislation also directed Hawaii's Department of Business, Economic Development and Tourism (DBEDT) to assess the likely impact of price controls and other alternative policies to reduce gasoline prices in Hawaii. We believe that the Legislature showed great foresight when it included this provision.

During the past several months, the staff of the FTC's Office of Policy Planning, Bureau of Economics, and the Western Region (San Francisco) have engaged in extensive conversations with staff of the Hawaii Attorney General's Office and DBEDT. We have reviewed documents from the State's price-fixing lawsuit against the oil companies,[5] materials from the FTC's own investigations of oil company mergers affecting Hawaii's gasoline market, and price data collected as part of an ongoing FTC gasoline price monitoring project. Based on the evidence we have seen, we offer the following observations that may be of use to Hawaii's policymakers as you consider alternative policies affecting competition and pricing in the gasoline market:

1. Hawaii's gasoline market has two refineries and six principal retail chains. Import prices for gasoline have a significant influence on its wholesale price. Several features of Hawaii's market tend to reduce retail supply and increase retail prices, including rent caps for stations operated by lessee-dealers and a retail "anti-encroachment" law restricting marketers' ability to open new company-operated stations near existing dealer-operated stations.

2. Price controls usually create shortages, reduce quality, and generate inconvenience for consumers when they are imposed in markets that could be competitive. If the price controls in Act 77 become effective and succeed in reducing retail gasoline prices, they likely will impose significant non-price costs on consumers.

3. The more consumer-friendly way to reduce gasoline prices in Hawaii would be through policies that reduce costs and/or promote competition. Policies that may deserve further consideration include repealing Hawaii's retail anti-encroachment law, repealing the rent cap on gas stations (which may discourage refiners and marketers from establishing new dealer-operated stations), and ensuring that the Hawaii Attorney General's office has adequate resources to review mergers that may impact competition

in Hawaii's gasoline market. If DBEDT's ongoing study and other evidence indicate that wholesale gas prices are not competitive, policymakers may want to consider initiatives to improve access to existing import terminals.

I will elaborate briefly on each of these points.

1. Market Structure and Costs

Hawaii's gasoline market has two refineries, owned by ChevronTexaco and Tesoro. The State's five principal marketers – ChevronTexaco, Tesoro, Shell, ConocoPhillips, and Aloha – obtain gasoline from refineries or import terminals and distribute it to retail stations. A sixth marketer, BC Oil, operated the former Texaco properties owned by United States Restaurant Properties but is now bankrupt. Retail stations can be owned and operated by marketers,[6] operated by lessee-dealers under contract with the marketer that owns the station, or owned and operated by independent retailers.

Hawaii's refiners import crude oil, and gasoline marketers can also import gasoline. Since Hawaii has only two refineries, both on Oahu, the ease or difficulty of importing gasoline can play a key role in determining the price a marketer pays for gasoline. The refineries in Hawaii normally have the capability to produce approximately enough gasoline to satisfy demand in Hawaii. These two refineries appear to be the lowest-cost source of supply.[7] Various firms occasionally have imported gasoline in the past.[8] Even if gasoline imports are rare, however, we would expect the cost of imports to influence the price that marketers pay for gasoline in Hawaii. A marketer with the ability to import gasoline likely will have a better chance of negotiating a favorable supply agreement with one of the local refineries, since the refinery likely would have to bear the cost of exporting gasoline if a competitor increased gasoline imports significantly.[9]

Act 77 was enacted shortly after settlement of the State's antitrust price-fixing suit against gasoline marketers. Antitrust laws prohibit competitors from agreeing on prices or reaching other agreements that would cause a reduction in competition. However, antitrust law does not prohibit a company from speculating about how its competitors will react to its prices and taking those expectations into account when making its own, independent pricing decisions. Parallel independent behavior, without any direct or circumstantial evidence of explicit agreement on prices or practices that may facilitate collusion, does not violate the antitrust laws.[10]

Several significant non-antitrust aspects of Hawaii's gasoline market tend to increase retailers' costs and discourage entry.[11] First, due to Hawaii's unusual land ownership regime, it is difficult to obtain fee-simple ownership to land, which may reduce the incentive to invest in station facilities sited on the land.

Second, Hawaii also has sought to enact rent cap legislation limiting the rent wholesalers could charge retail dealers who lease their stations from the wholesalers.[12] Wholesalers could respond to rent controls in two different ways, both of which likely would reduce the number and quality of dealer-operated gasoline stations. If rent controls have the effect of reducing the total

revenues that a wholesaler receives from dealers, then the wholesaler is likely to have fewer dealer-operated stations than it would in the absence of the rent control and to spend less money maintaining the stations. Alternatively, the wholesaler might try to make up for the lost lease revenues by increasing the price it charges the dealer for gasoline (assuming the wholesale price cap on gasoline is not binding). In that case, the wholesaler effectively bears more risk, because more of its revenues would come from the sale of a commodity whose price fluctuates, rather than from rents. This increased risk increases the wholesaler's cost of selling gasoline through stations operated by lessee-dealers. The wholesaler likely would respond to this cost increase by using fewer dealer-operated stations or investing less money in maintaining the stations. In short, the rent controls likely would reduce the number and quality of gasoline stations, increase gasoline prices, and cause inconvenience for consumers, who would have to travel farther to find gas stations.

Third, and perhaps most important, Hawaii's law prohibiting "encroachment" (and its predecessor "divorcement" law[13]) constrain the ability of both incumbents and new entrants to establish new stations. In 1991, Hawaii passed a divorcement law that imposed a temporary moratorium on the building of any new company-operated stations, which was extended in 1993 for two more years.[14] In 1995, Hawaii continued the moratorium but revised it slightly.[15] In 1997, Hawaii replaced divorcement with an anti-encroachment law barring oil companies as well as jobbers from opening company-operated stations within a radius of one-eighth of a mile around every dealer-operated station in an urban area and one-quarter of a mile in other areas.[16]

Published economic research demonstrates that anti-encroachment and divorcement laws tend to increase retail gasoline prices. A National Bureau of Economic Research study found that company-operated stations can be the most efficient form of management for high-volume, low-service gasoline stations.[17] Laws that limit marketers' ability to establish new company-operated stations thus force them to adopt higher-cost organizational forms, and these increased costs likely are passed through to consumers in the form of higher gasoline prices. The most comprehensive of the published economic studies, conducted by a senior FTC economist, found that state divorcement and anti-encroachment laws tend to increase retail prices by an average of 2.6 cents per gallon.[18] Another study found Maryland's divorcement law, the first in the nation, raised self-service gasoline prices by 1.4 to 1.7 cents and full-service prices by 5 to 7 cents per gallon at stations that were formerly company-operated.[19] We are aware of no study specifically estimating the effect of Hawaii's divorcement and anti-encroachment laws, but we know of no reason that these laws would not have effects in Hawaii similar to their effects in other states. Indeed, the FTC warned in 1985 that the divorcement law already under discussion in Hawaii "would unquestionably increase the costs of gasoline distribution, eliminate legitimate price competition, and raise prices for motor fuel to consumers."[20]

Legal restrictions on a marketer's ability to establish company-operated stations also may discourage new entry. There is evidence from the record of *Anzai v. Chevron,* Hawaii's now-settled lawsuit against many of the gasoline marketers, showing that Hawaii's anti-encroachment law served to stifle the efforts of BHP, former owner of the Tesoro refinery, to embark on what it hoped would be a low-priced volume retail business.[21] This constraint may especially discourage retail entry by jobbers (who purchase unbranded gasoline from refiners) or smaller oil

companies, which tend to rely more heavily on company-operated stations instead of franchised dealers.[22]

2. Likely Effects of Price Controls

Most economists and antitrust experts doubt that price controls are a viable mechanism to increase consumer welfare in markets where competition is possible, and we see no reason that competition is not possible in Hawaii's gasoline market. Historical experience demonstrates that price controls tend to create shortages, reduce quality, and generate other inefficiencies.[23]

The U.S. experience with gasoline price controls in the 1970s confirms the predictions of economic reasoning. In 1971, gasoline prices were regulated as part of the Nixon Administration's two-year adoption of economy-wide wage and price controls. In 1973, the federal government prohibited refiners and marketers from charging prices that exceeded their average prices on May 15, 1973, plus adjustments for changes in costs. Though not identical to the price controls in Act 77, the federal controls were similar in two key ways: (1) they applied both to wholesale and to retail prices, and (2) prices were adjusted based on costs.[24] A report by the Federal Trade Commission's Bureau of Economics concluded that the federal price controls led to the adoption of higher-cost production methods and sporadic shortages manifested in gasoline lines.[25]

Customers queued up at gasoline stations are perhaps the most visible example of the inefficiencies resulting from the shortages created by gasoline price controls, but myriad other examples actually occurred during this period: limited station hours, Sunday station closures, "odd-even" purchasing restrictions based on license plate numbers, and restrictions on the number of gallons the customer could purchase in a single trip to the gasoline station. Also noteworthy are the secondary effects of such inconveniences, which included efforts to hoard gasoline and, in some instances, an increased hazard of car fires because people began storing additional gasoline in containers in their trunks.[26] Some research even shows that the inconvenience and other inefficiencies associated with gasoline station lines cost consumers more than they saved as a result of regulated gas prices.[27]

The price controls in Act 77 likely would create shortages. Act 77 ties maximum retail prices in Hawaii to wholesale prices on the West Coast. Tying regulated prices in Hawaii to West Coast prices might not always create shortages. For example, when other sources of imported gasoline are cheaper than the West Coast, the price cap is less binding. The price controls could, however, create shortages when low West Coast prices coincide with a refinery outage in Hawaii. In that case, the price cap would discourage imports precisely when they are most needed.

Even in the absence of refinery problems in Hawaii, the specific formula in Act 77 has the potential to create shortages. For example, the transportation margin needs to reflect not just the out-of-pocket cost of transporting gasoline, but also the time value of money while the product is in transport, the risk that prices might change while the product is in transport, and the likelihood that prices will fall when an entire tanker-load of product enters the market. The assumed transportation margin of four cents per gallon may be below the efficient level. FTC

staff have seen no evidence that transportation costs are this low, and evidence from Hawaii's lawsuit against certain of the incumbent gasoline marketers suggests that transportation costs may be substantially higher.[28]

Firms may also reduce customer convenience or quality in response to the price controls. For example, the price caps apply only to self-service regular gasoline. A retail station operator could potentially evade the price cap by offering only mid-grade, premium, or full-service. The U.S. experience with gasoline price controls reveals other ways that firms increased customer convenience or decreased quality in response to price controls. Some stations demanded "tips," while others gave customers "free" gasoline if they bought items such as rabbit's-foot keychains, will forms, or bars of soap at inflated prices. Regular customers received preferential access to gasoline. Refiners sometimes reduced octane ratings.[29]

In short, FTC staff believe that the costs of price controls to consumers would almost certainly outweigh any consumer benefits.

3. Alternative Policies to Reduce Costs and Prices

Policymakers concerned about gasoline prices in Hawaii might find it productive to assess the likely impact of several alternative policies that have the potential to reduce gasoline prices by reducing costs and/or enhancing competition. Possible options include:

- Repeal Hawaii's anti-encroachment law, so that incumbent refiners and jobbers could build additional company-operated stations in advantageous locations and new entrants would have the option of operating their own stations instead of using franchised dealers.

- Eliminate Hawaii's legislation mandating rent caps for lessee-operated gasoline stations.

- Under merger law, antitrust officials can challenge mergers or acquisitions likely to foster tacit or explicit collusion.[30] Hawaii's Attorney General should have resources sufficient to assess whether future mergers or acquisitions are likely to substantially lessen competition.[31]

The relationship between terminal access, import prices, and retail prices is another topic that may merit further consideration. Record evidence from Hawaii's lawsuit against the gasoline marketers, as well as economic logic, confirm that the greatest constraint on the pricing of the two local refiners is a marketer's credible threat to purchase gasoline from outside Hawaii.[32] If DBEDT's ongoing study and other evidence show that wholesale prices are not competitive, then policymakers may want to consider options that would improve access to existing terminals for new entrants. Hawaii has no public or private terminal that guarantees third parties nondiscriminatory access to its docks, tanks and pipelines; the State could explore innovative ideas to ensure third party access, on a nondiscriminatory basis.

4. Concluding Comments

FTC staff recognize that gasoline prices have been a highly contentious issue in Hawaii, and that legislators often face strong pressure from citizens to take action against prices that are perceived as "too high." We urge you to consider, however, that a decision to impose price controls is also, in most cases, a decision to supplant competitive forces with direct administrative intervention. A significant body of research and experience suggests that price controls have a poor record of improving consumer welfare in markets where competition is possible, and may in fact cause more harm than good in the long term.

For this reason, we believe the Hawaii Legislature acted with great foresight when it included in Act 77 the provisions delaying the implementation of price controls, so that DBEDT could study their potential impact and assess alternative policies to reduce gasoline prices in Hawaii. Substantial evidence suggests that the alternatives to price controls would best promote consumer welfare, and we urge legislators to consider this evidence when evaluating policies intended to affect gasoline prices.

Endnotes

[1] This testimony represents the views of the staffs of the Office of Policy Planning, the Bureau of Economics, the Bureau of Competition, and Western Region (San Francisco) Office of the Federal Trade Commission and does not necessarily represent the views of the Commission or any individual Commissioner. The Commission has, however, voted to authorize staff to submit this testimony. My oral responses to your questions represent my own views.

[2] Federal Trade Commission Act, 15 U.S.C. § 45.

[3] *Shell Oil Co., et al.*, 125 F.T.C. 769 (1998) (consent order requiring Shell and Texaco to divest certain assets on the island of Oahu as a condition of entering into a joint venture to combine certain gasoline marketing assets); *Pacific Resources, Inc.*, 111 F.T.C. 322 (1988) (consent order issued following U.S. district court's issuance of preliminary injunction to block Pacific Resources' acquisition from Shell Oil Company of certain petroleum terminaling and distribution assets and operations in the State of Hawaii).

In recent years, the Commission has investigated, among others, the mergers of Chevron and Texaco, Exxon and Mobil, and BP and Amoco. In 2001, the Commission investigated the proposed merger of petroleum refiners Valero Energy and Ultramar Diamond Shamrock. *See Valero Energy Corp.*, C-4031 (Feb. 19, 2002) (consent order); *Chevron Corp.*, C-4023 (Jan. 2, 2002) (consent order); *Exxon Corp.*, C-3907 (Jan. 30, 2001) (consent order); *British Petroleum Company p.l.c.*, 127 F.T.C. 515 (1999) (consent order). Moreover, the *Shell Oil Co.* consent order referenced in the preceding paragraph stemmed from the planned combination of the nationwide refining and marketing businesses of Shell and Texaco.

The Commission also has conducted nonmerger investigations and workshops involving gasoline markets, and submits public comments in regulatory proceedings. In March 2001, the Commission, using the competition analysis principles in the Merger Guidelines, completed an investigation of a spike in reformulated gasoline (RFG) prices in several Midwest states in the spring and summer of 2000. Midwest Gasoline Price Investigation, Final Report of the Federal Trade Commission (Mar. 29, 2001). Also in 2001, the Commission concluded its investigation of gasoline price increases in West Coast markets. *FTC Closes Western States Gasoline Investigation,* FTC Press Release (May 7, 2001). In addition, in August 2001, the Commission held an initial public conference to examine factors that affect prices of refined petroleum products in the United States. *FTC to Hold Public Conference/Opportunity for Comment on U.S. Gasoline Industry,* FTC Press Release (July 12, 2001). A second public conference was held in May 2002. *FTC to Hold Second Public Conference on the U.S. Oil and Gasoline Industry in May 2002*, FTC Press Release (Dec. 21, 2001). Commission staff also recently filed public comments with the Environmental Protection Agency concerning "boutique fuel" regulations. Comments of the Staff of the General Counsel, Bureaus of Competition and Economics, and the Midwest Region of the Federal Trade Commission, *Study of Unique Gasoline Fuel Blends ("Boutique Fuels"), Effects on Fuel Supply and Distribution and Potential Improvements,* EPA 420-P-01-004, Public Docket No. A-2001-20 (Jan. 30, 2002).

4 *See, e.g.*, Letter from Joseph J. Simons, Director, FTC Bureau of Competition, and R. Ted Cruz, Director, FTC Office of Policy Planning, to Gov. George E. Pataki of New York (Aug. 8, 2002) available at http://www.ftc.gov/be/v020019.pdf; Letter from Joseph J. Simons, Director, FTC Bureau of Competition, and R. Ted Cruz, Director, FTC Office of Policy Planning, to Hon. Robert F. McDonnell, Commonwealth of Virginia House of Delegates (Feb. 15, 2002) available at http://www.ftc.gov/be/V020011.htm; Letter from Ronald B. Rowe, Director for Litigation, FTC Bureau of Competition, to Hon. David Knowles, California State Assembly (May 5, 1992); Prepared Statement of Claude C. Wild III, Director, FTC Denver Regional Office, before the State, Veterans, and Military Affairs Committee of the Colorado State Senate (Apr. 22, 1992); Letter from Claude C. Wild III, Director, FTC Denver Regional Office, to Hon. Bill Morris, Kansas State Senate (Feb. 26, 1992); Letter from Claude C. Wild III, Director, FTC Denver Regional Office, to David Buhler, Executive Director, Utah Department of Commerce (Jan. 29, 1992); Letter from Thomas B. Carter, Director, FTC Dallas Regional Office, to Hon. W.D. Moore, Jr., Arkansas State Senate (Mar. 22, 1991); Letter from Jeffrey I. Zuckerman, Director, FTC Bureau of Competition, to Hon. Jennings G. McAbee, Chairman, Ways and Means Committee, Other Taxes and Revenues Subcommittee, South Carolina House of Representatives (May 12, 1989).

5 *Anzai v. Chevron Corp.*, Civ. No. 98-00792 (SPK) (D. Haw., filed Oct. 1998).

6 Marketers face significant restrictions on opening new company-operated stations; *see* pp. 5-7 *infra.*

7 *See, e.g.*, TOS 15961 (document filed in the *Anzai* litigation; estimating refinery capacity for various years); Expert Report of Dr. Jeffrey J. Leitzinger at 57 (June 23, 2000) (document filed in the *Anzai* litigation; estimating total volume of gasoline sales for residential consumers in Hawaii).

8 *See, e.g.*, Expert Report of Leitzinger, *supra* note 7, at 37.

9 *See, e.g.*, TXCC 0017473-77 (document filed in the *Anzai* litigation) ("Perhaps [Texaco's] biggest threat to [the two local refiners] is importing product."); SHB 015051-52 (document filed in the *Anzai* litigation) (Shell looking at importing as way to negotiate lower price from local refiner); HI 1093382-83 (document filed in the *Anzai* litigation) (Chevron, one of the local refinery owners, expresses concern internally about Texaco's ability to import "product and drive the market down").

10 *Theatre Enterprises v. Paramount Film Distributing Corp.*, 346 U.S. 537, 541 (1954) ("Circumstantial evidence of consciously parallel behavior may have made heavy inroads into the traditional judicial attitude toward conspiracy; but 'conscious parallelism' has not read conspiracy out of the Sherman Act entirely.").

11 This testimony focuses on factors that affect prices by affecting costs and competition. We are also aware that gasoline taxes directly affect retail gasoline prices, and that Hawaii's state and local gasoline taxes exceed the national average. (In 2002, combined state and local gasoline

taxes in Hawaii averaged 35.1 cents per gallon, as compared with a national average of 23.6 cents.) *See* American Petroleum Institute, *Nationwide and State-by-State Motor Fuel Taxes* (July 2002). FTC staff have independently verified tax rate information reported in this publication.

12 The 1997 legislation circumscribing company-operated stations also imposed commercial rent control on rents that oil companies (refiner, marketer, or wholesaler/jobber) can charge lessee-dealers for the use of company-owned stations and prevents them from converting lessee-dealer stations to company-operated stations. The rent control aspects of this law have not been put into effect, pending litigation. Last year a federal court ruled that this aspect of the law is an unconstitutional regulatory taking, on the ground that the rent cap would not necessarily decrease retail gasoline prices and likely would increase them. *Chevron v. Cayetano*, 198 F. Supp. 2d 1182 (D. Haw. 2002). Act 77, enacted the following month, combines the rent cap with wholesale and retail price controls. The district court's decision is currently on appeal before the Ninth Circuit.

13 Anti-encroachment and divorcement laws both limit competition between refiners/marketers and lessee-dealers. Laws banning encroachment limit a refiner's and/or marketer's ability to establish new company-operated stations within a certain distance of existing dealer-operated stations. Divorcement laws either prohibit refiners and/or marketers from operating their own stations or prohibit them from opening and operating new stations.

14 Act 295 (S.B. No. 1757); Act 329 (S.B. No. 124).

15 Companies could open two new company-operated stations for every new dealer-operated station, and company-operated stations that were closed could be replaced by a new company-operated station within a one-mile radius of the closed station. Act 238 (S.B. No. 487).

16 Act 257 (H.B. No. 1451).

17 Asher A. Blass and Dennis W. Carlton, "The Choice of Organizational Form in Gasoline Retailing and the Cost of Laws that Limit that Choice," 44 *J.L. & Econ.* 511 (2001).

18 Michael G. Vita, "Regulatory Restrictions on Vertical Integration and Control: The Competitive Impact of Gasoline Divorcement Policies," 18 J. Reg. Econ. 217 (2000).

19 Furthermore, these stations reduced their operations by nine hours per week. Other stations in the locale of the divested stations also raised prices. John M. Barron and John R. Umbeck, "The Effect of Different Contractual Arrangements: The Case of Retail Gasoline Markets," 27 *J.L. & Econ.* 313 (1984).

20 Letter from Terry Calvani, Acting Chairman, Federal Trade Commission, to the Honorable Peter K. Apo (Dec. 23, 1985). The bill was Hawaii House Bill 1376.

21 *See, e.g.*, Parry (BHP's Vice President of Marketing in Hawaii) Dep. Tr. in the *Anzai* litigation, at 19-27.

22 For example, BHP sought to use company-operated stations in the early 1990s so that it would have more control over their image, operations, and pricing policies. *See* Dr. Sumner La Croix Dep. Tr. in the *Anzai* litigation, at 888, 897-99 and Dep. Ex. 3 at v and 63. In general, a refiner or marketer has an interest in preventing its retail stations from exploiting locational monopoly power that would enable the station operator to increase prices.

23 *See, e.g.*, N. Gregory Mankiw, *Principles of Microeconomics* 128 (2d ed. 2001) ("Economists usually oppose price ceilings and floors."); Fiona M. Scott Morton, "The Problems of Price Controls," *Regulation* at 53 (Spring 2001) ("Competition is a better tool than price controls for protecting consumers."); John E. Calfee, "Why Pharmaceutical Price Controls are Bad for Patients," *AEI on the Issues* at 1 (March 1999) ("Almost all economists hate almost all price controls.").

24 Federal regulations allowed individual firms to raise prices by an amount equal to increases in their own production costs; Act 77 adjusts prices based on changes in estimated industry-wide average costs of product and transportation for Hawaii's gasoline marketers and retailers.

25 Scott Harvey and Calvin T. Roush, Jr., *Petroleum Product Price Regulations: Output, Efficiency, and Competitive Effects*, Staff Report of the Bureau of Economics to the Federal Trade Commission (Feb. 1981). The regulations permitted refiners and marketers to pass through increases in their own costs of production with a one-month lag. Thus, when world oil prices increased because of events like OPEC price increases or the Iranian revolution, temporary shortages would occur because companies could not immediately increase prices to reflect the higher cost of crude oil. Gasoline lines and other forms of nonprice rationing were the result. In the absence of the price controls, gasoline prices would have reflected increases in crude oil prices relatively rapidly, and most nonprice rationing would have been avoided because consumers would have reduced consumption in response to the price increase.

26 Robert L. Bradley, Jr., *Oil, Gas & Government: The U.S. Experience* 1631-34 (1996

27 Scott Morton, *supra* note 23, at 51.

28 *See, e.g.*, THC 55 003377-79 (document filed in the *Anzai* litigation); TXU 0013405 at 0013440 (document filed in the *Anzai* litigation).

29 Bradley, *supra* note 26, at 1634-36.

30 *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 716 (D.C. Cir. 2001) (merger law rests upon the theory that, where rivals are few, firms will be able to coordinate their behavior, either by overt collusion or by implicit understanding, in order to restrict output and achieve profits above competitive levels) (quoting, in part, *FTC v. PPG Indus.*, 798 F.2d 1500, 1503 (D.C. Cir. 1986)).

31 The FTC and the Hawaii Attorney General's office have twice investigated proposed mergers of incumbent gasoline marketers in Hawaii. *See Pacific Resources, Inc.* and *Shell Oil Co., et al., supra* note 3.

32 *See supra* note 9.

Hawaii Fuels Study

Public Information Briefing
September 8, 2003

Hawaii Fuel Study – Background

- Initiative for Act 77 followed after settlement of anti-trust lawsuit brought by the State of Hawaii against several refiners and marketers
- Key feature of Act 77 was the creation of price cap regulation for regular gasoline
- Price caps to become effective July 1st, 2004
- Bill required a study to be conducted in the intervening period to evaluate the potential impact of price caps
- Stillwater Associates was retained by DBEDT to conduct study after competitive bidding process

Hawaii Fuel Study – Methodology

- Study required comprehensive analysis of Hawaii's petroleum industry
  - Gasoline market can not be studied in isolation
  - In Hawaii, gasoline is only small fraction of refinery output
  - Evaluation of market, infrastructure, prices, volumes, refineries, supply and demand
- Information required from all segments of industry and relevant entities
  - Stillwater conducted over 30 meetings with stakeholders
  - Stakeholders included legislators, administration officials, academics, refiners, marketers, dealers, logistic service providers
- Unsealed court documents from State of Hawaii anti-trust lawsuit (*Anzai v. Chevron, et al.*) were extensively used
  - Analysis of documents was required by Act 77
  - Summary brief redacted documents
  - Expert Witness reports – Industry and State experts' analysis

Hawaii Fuel Study – Methodology (Continued)

- Comprehensive Policy Impact Analysis
  - Evaluate Impact of Price Caps
  - Develop Alternative Solutions
  - Cost/Benefit Analysis of Feasible Alternatives
  - Presentation of options to legislation
- Multi-disciplinary 5 Member Team
  - Previous experience in advising government on energy policy issues
  - All members 25+ years industry experience
  - Several were familiar with Hawaii fuel markets
  - Extensive West Coast and Pacific Rim experience

Conclusions – Gasoline Prices

High gasoline prices in Hawaii are caused by

- Intrinsic high cost of manufacture, distribution and marketing
  - Refining cost: + 5 cpg vs. US average
  - Distribution and marketing: + 12 cpg
  - Dealer cost: + 3 cpg
- High taxes
  - 12 cpg higher than average US

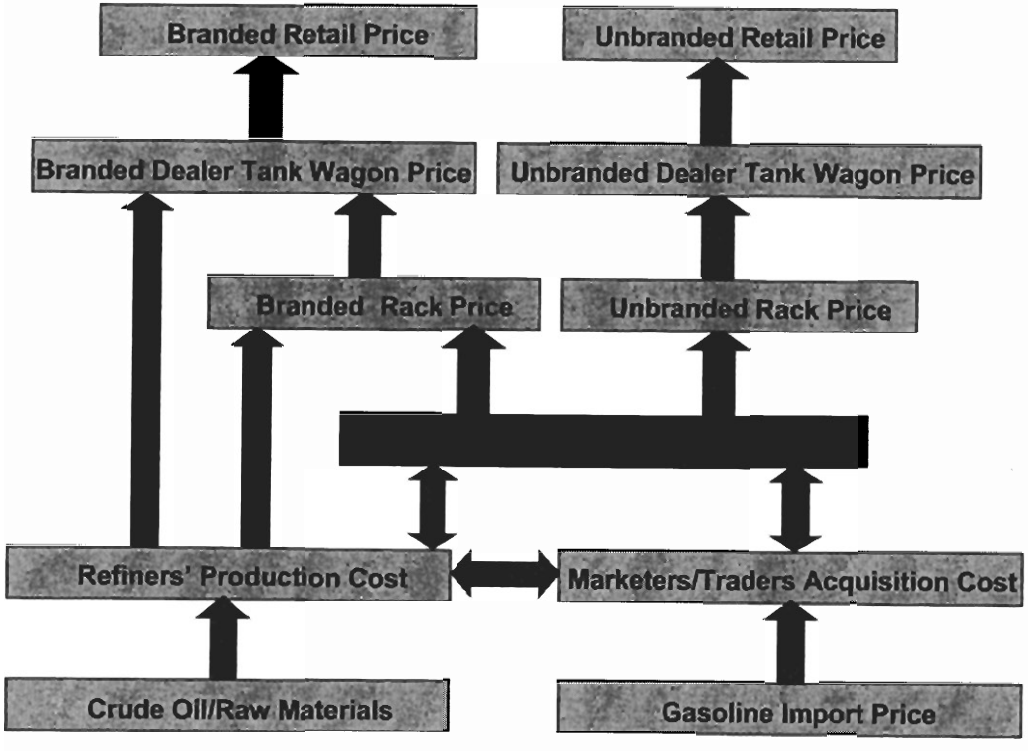
} 30 – 35 cpg over US average

- Exercise of market power in concentrated markets
  - 2 refiners, 5 total marketers
  - Import parity at wholesale level is not passed through in branded retail
  - Prices show prolonged disconnects from crude oil, international markets
- Consumer preferences
  - Some consumers prefer small volume retailers for location and service, regardless of price
  - Purchase of premium and midgrade when not required

Conclusions – Hawaii Gasoline Market

- Hawaii's wholesale gasoline market is competitive
  - Since Aloha/Texaco opened an import terminal in 1998, Hawaii's non-refining marketers have had access to gasoline at import parity pricing
  - Supply contracts for the large marketers have since shifted from mainland related exchange deals to PacRim based formula pricing
  - Some large volume offtake agreements also incorporate other pricing elements, i.e., US Gulf Coast
- Hawaii's retail gasoline market is competitive
  - Dealers struggle to survive, compete with service, convenience stores
  - High Volume Retailers (Costco) have made significant inroads
  - Other low cost market channels exist where members use cardlocks, PX
- Wholesale to Retail is where market breaks down
  - High cost, notably land lease not recovered in dealer leases
  - Sluggish, complacent pricing behavior

Conclusions – Market Structure



- Hawaii's gasoline market structure is limited by its size
  - 25,000 BPD
  - Size of a single pipeline deal in other markets
  - Cannot support actively traded wholesale and rack markets
- Lack of transparency
  - Absence of traded markets does not allow for monitoring
  - Market analysis only after subpoena of company records
- Diseconomies of scale
  - More competitors may result in higher costs per gallon
  - New entrants have not been successful

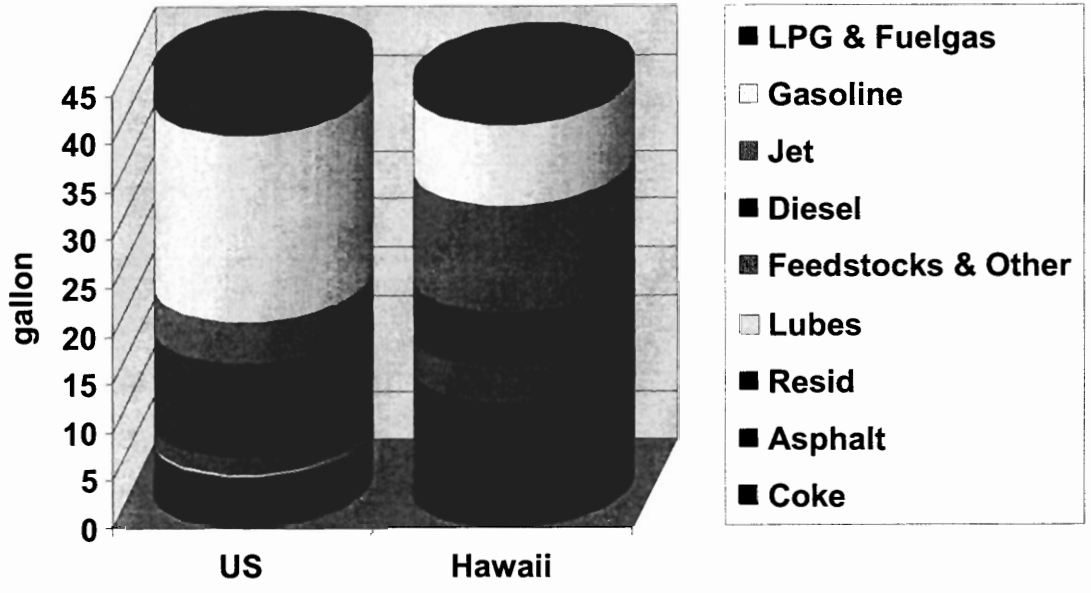
Conclusions – Neighbor Island Markets

- Maui gasoline prices on average higher than can be justified by logistic cost
  - Only 4 marketers active on Maui vs. 5 on Oahu
  - Lack of tankage in Kahului prevents entry of 5th marketer
  - 5th marketer is supplier of Costco
  - Cardlocks provide cheaper gasoline for knowledgeable local consumers
- Big Island West Coast situation somewhat similar to Maui
  - Lack of terminals & tankage restricts access
  - Market concentration plus logistic costs for trans-island trucking create high prices in isolated markets
  - Costco does have a store in Kona
- Kauai, Lanai small markets with intrinsic high costs

Conclusions – Industry Profitability

- Overall profitability of refiners is not excessive
  - 20 to 25% Return on Capital Employed in good years for the most profitable companies
  - 0 to 10% for less profitable companies in bad years
  - The famous quote "Chevron made 20% of profits in Hawaii, which is only 3% of sales" actually referred to lessee dealer sales only – lessee dealers at the time represented 74% of ChevronTexaco dealers in Hawaii vs. 7% in the rest of the US
- Refinery profitability is a complex issue
  - In Hawaii, gasoline is less than 20% of product slate vs. 60% in rest of US
  - Margins in main products of Hawaii's refineries, fuel oil and jet fuel, are slim
  - Refineries require expensive sweet, light crude oil – which is getting scarce
  - Operating cost in Hawaii are higher than in mainland US
- Long term, Hawaii's refineries unlikely to remain economically viable
  - Similar refineries in mainland US were upgraded or shut down long ago
  - Upgrade to full conversion capability is costly

Product Yields from a Barrel of Crude – Mainland vs. Hawaii



- Residual Fuel Oil is only 4% of total US refinery output, vs. 40% in Hawaii
- Historically residual fuel oil sells for less than the cost of crude oil (recent problems in Japans nuclear industry have caused prices to go up)
- Jet Fuel is a competitive global market, with import logistics controlled by buyers

Conclusions – Price Caps

- Price Caps are not effective
  - Federal price controls did not work, created shortages
  - In-depth review of Canadian initiatives failed to identify clear benefits
  - Transparency initiatives (Australia, Canada, Pacific Islands) are more effective with less unintended side effects
- Current price formula unlikely to bring lower prices
  - Link to West Coast prices brings exposure to volatility, seasonal swings
  - Formula allows for current intrinsic high costs to continue
- Unwanted side effects
  - Time lag provides opportunity for manipulation of market
  - Caps perceived by marketers and dealers as a license to price at the cap
  - Price controls project an anti-business image for Hawaii

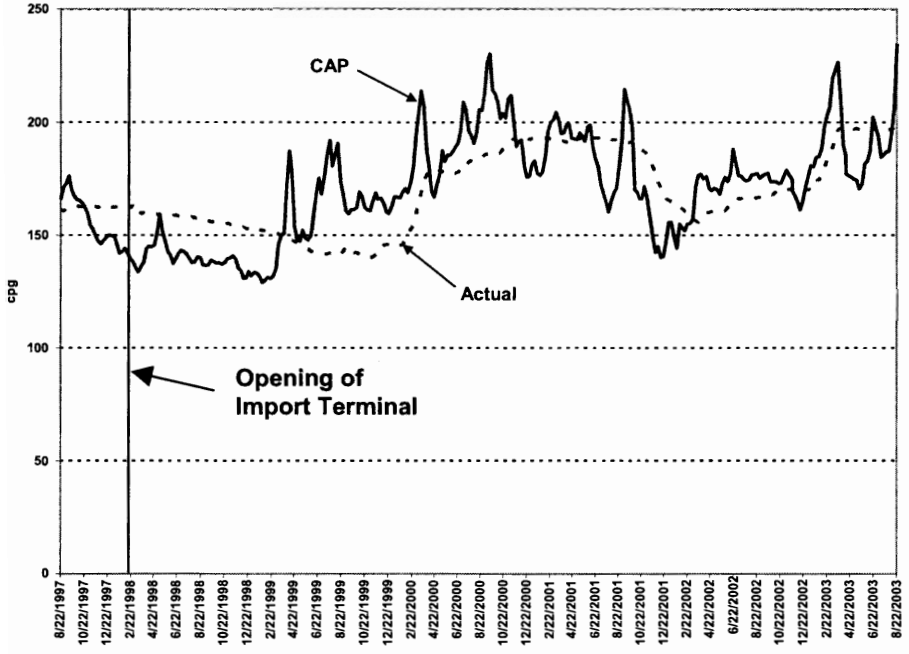
Act 77 – Structure of Current Caps

Maximum Pre-Tax Wholesale Price = Baseline Price + Applicable Adjustment* Factors

Island	Baseline Price	Location Adjustment Factor*	Marketing Adjustment Factor*	Adjustment Factors* for Neighbor Islands *Hawaii Island, Kauai, Lanai, Maui, Molokai* (Oahu Maximum Price + Adjustment Factors)	
				Location Adjustment Factor*	Marketing Adjustment Factor*
Oahu (***Honolulu***)	Calculated as previous week's 5 business-day average of OPIS Spot Pipeline Price in Los Angeles, San Francisco, and Pacific Northwest.	**4¢/Gallon**	**18¢/Gallon**	4¢/Gallon	**4¢/Gallon**
Other		**Oahu Maximum Wholesale Price Margin = 22¢/Gallon**		**Neighbor Islands Maximum Wholesale Price Margin = 30¢/Gallon**	

Maximum Pre-Tax Retail Price Margin (All Islands) = 16¢/Gallon**

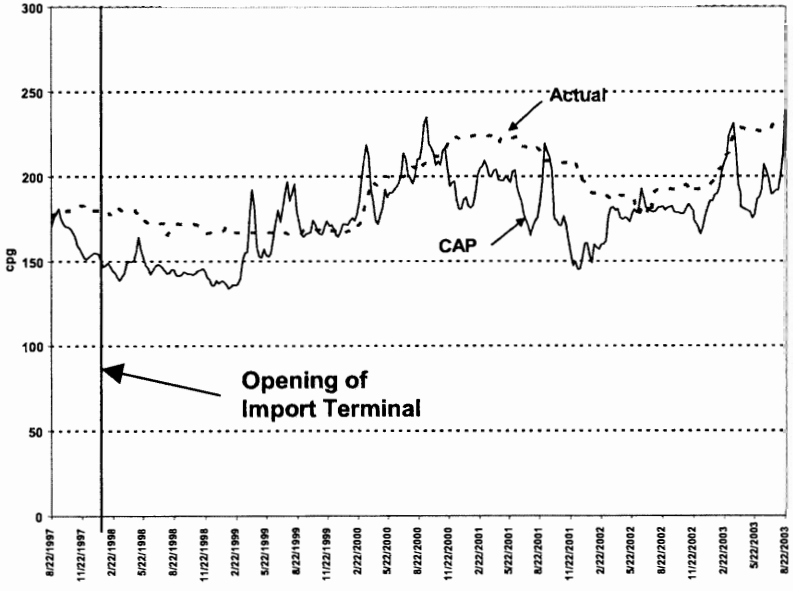
Price Caps – Impact of West Coast Volatility



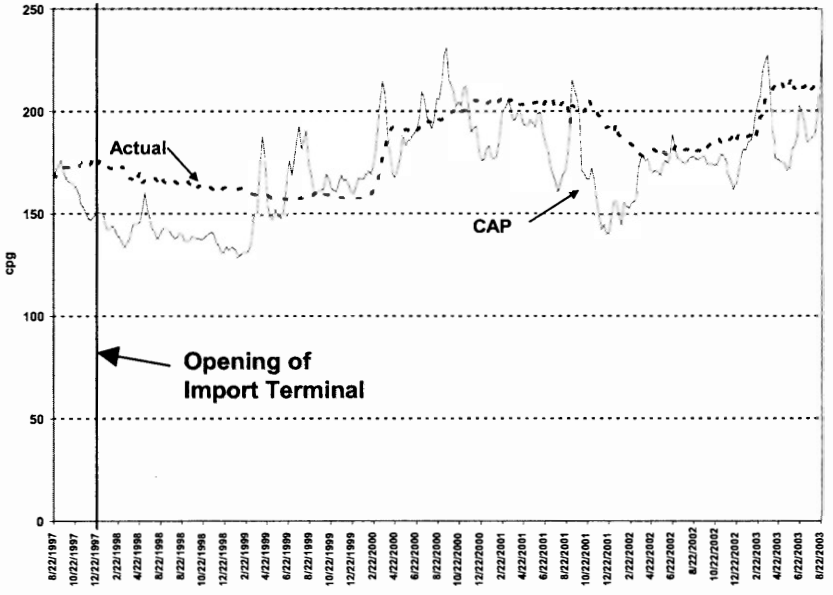
- 2003 phase out of MTBE and introduction of ethanol has made California even more vulnerable to supply disruptions
- Combinations of minor outages now lead to major price spikes in California
  - Significant price spikes in March/April, June and August
  - Extreme volatility likely to get worse next year when all CA refiners will switch to ethanol and East Coast states also ban MTBE
- California supply/demand affects Pacific Northwest as well
- These external factors would have impacted Hawaii price caps

Actual vs. Cap – Neighbor Islands

Maui Retail Regular Gasoline Prices
Caps and Actuals



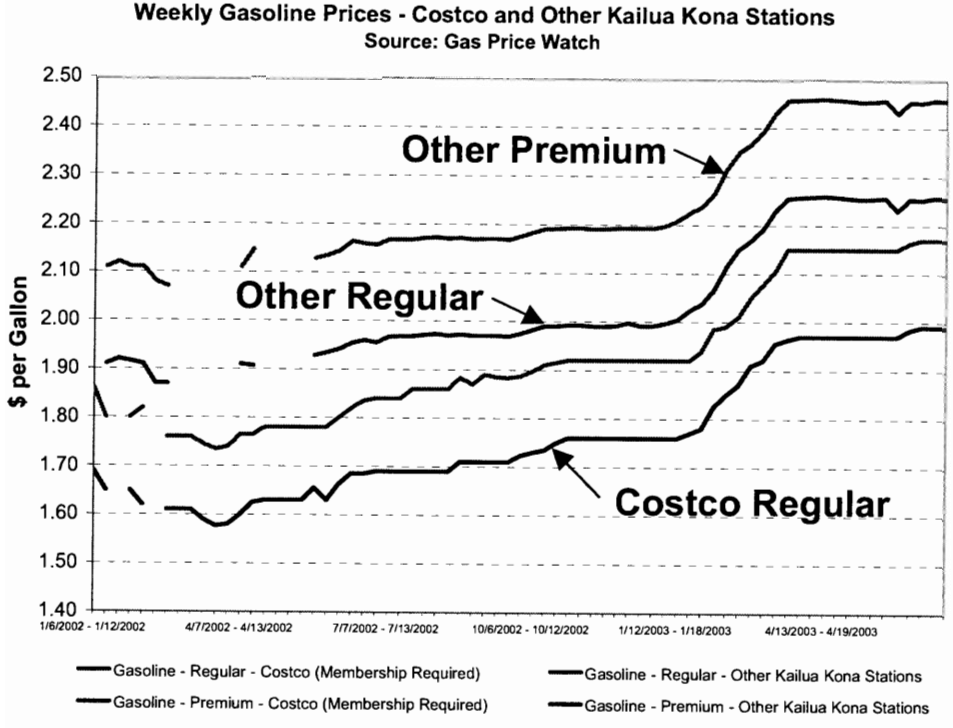
Hilo Retail Regular Gasoline Prices
Caps and Actuals



- Neighbor Island caps would be governing more often than Oahu cap
- Caps however may threaten existence of remote, low volume stations
- Retail price history does not reflect the impact of High Volume Retailers or cardlocks

Impact of High Volume Retailers - Hawaii

Stillwater Associates



Average price difference for regular is 27 cpg

- High Volume Retailers are rapidly gaining market share in mainland US
- Best suited for high demand areas
- In Hawaii PX and cardlocks have similar cost-to-volume ratios
- Small volume traditional dealers can compete with convenience (location) and service
- Consumer who buys premium at high cost station when not necessary for engine overpays 45 to 50 cpg vs. regular at HVR

Estimated Economic Impact Table

Estimated Economic Impacts
State Motor Fuels Business Achieves Full Import Parity Gasoline Prices

Direct costs to state:

- $40 Million in capital
- $3 Million/year operating
- $150 Million/year loss of refinery revenue

Assuming closure of both refineries:

- Loss of ≈ 1,400 jobs – 0.2% of Hawaii's total workforce
  (950 direct x 1.5 multiplier).
- Loss of ≈ $405 Million/year economic contribution
  ($150 Million/year direct x 2.7 multiplier).

- Consumer benefits ≈ $67 Million/year savings on motor fuel purchases

- Full Import Parity means more than just import parity at wholesale level (already achieved)
- Scenario implies cost efficiencies in marketing, distribution and retail equivalent to those in main US gasoline markets
- Requires closure of high cost low volume outlets
- Requires withdrawal of three marketers with two remaining brands in active competition

Recommendations – Price Caps

- Do not implement price caps
  - Not likely to accomplish their objectives of lowering prices
  - Will be ineffective
  - Costly to administer
  - Open to manipulation
  - Creates an anti-business climate
- Eliminate position of Petroleum Commissioner
  - The regulatory function is redundant with enforcement agencies' responsibilities
  - Maintain DBEDT's role as a business development agency

Recommendation - Transparency

- Create Transparency
  - Extend volume reporting requirements to cover volume and prices for all petroleum products and all classes of trade
  - Analyze profitability by sector on an ongoing basis
  - Maintain a continuous dialogue between industry and oversight agencies, with quick resolution of observed issues
  - DBEDT to be provided with adequate tools and means for data collection and analysis
  - Implement in consultation with industry
  - Harmonize data reporting requirements between various agencies
  - Minimize burden on small businesses

Recommendations – Cost of Transparency

Table 4 NCSL's *Option 1 -- Monitoring, Analysis and Reporting Only* (pp. 21 &				
Expenses	**Personnel Class**	**# of FTE**	**Salary & Benefits**	**Category Total**
Salary & Fringes				
	Economist	1	$67,845	$67,845
	Research Analyst	1	$49,535	$49,535
	Secretary	1	$35,245	$35,245
Salary & Fringes Total				$152,625
Consultant & Specialized Data				$75,000
Other Expenses*				$26,769
Grand Total				$254,394
*Other expenses include estimates for office furniture, computer and related equipment, and subscription-based				

- Experts from the National Conference of State Legislators (NCSL) evaluated feasibility and cost of several options
- Implementation
  - Concerted effort with industry
  - Avoid duplicate reporting, burden on small businesses

Cost of Price Cap Program

Table 2. NCSL's -- *Option 2a. Collect data, monitor, analyze, report and enforce compliance with the price caps.* *(p. 22)*

Expenses	Personnel Class	# of FTE	Salary & Benefits	Category Total
Salary & Fringes				
	Economist	2	$67,845	$135,690
	Research Analyst	1	$49,535	$49,535
	Audit/Inspector Staff	3	$45,790	$137,371
	Secretary	1	$35,245	$35,245
Salary & Fringes Total				$357,841
Consultant & Specialized Data				$75,000
Other Expenses*				$42,000
Grand Total				$474,841

*Other expenses include estimates for office furniture, computer and related equipment, and subscription-based

- Price Cap implementation and program management is more than twice the cost of transparency only
- Current structure would create overlaps in responsibilities and tasks of

Cost of Price Caps (Continued)

Table 2. NCSL's *Option 2b -- Collect data, monitor, analyze, report and audit not only for compliance but also for supply manipulation.* *(pp. 22-23)*

Expenses	Personnel Class	# of FTE	Salary & Benefits	Category Total
Salary & Fringes				
	Economist	2	$67,845	$135,690
	Research Analyst	1	$49,535	$49,535
	Chemical Engineer	1	$67,845	$67,845
	Attorney	1	$67,845	$67,845
	Audit/Inspector Staff	3	$45,790	$137,371
	Secretary	1	$35,245	$35,245
Salary & Fringes Total				$493,531
Consultant & Specialized Data				$100,000
Other Expenses*				$45,460
Grand Total				$638,991

*Other expenses include estimates for office furniture, computer and related equipment, and subscription

- Full implementation of intended tasks* would be even more expensive

***Price caps, and Petroleum Commissioner regulatory functions of industry audits and inspections.**

Below Import Parity Indicator Before and After Deregulation

	Period Before Deregulation January-June 1998 % Days below IPI	Period After Deregulation January-June 2001 % Days below IPI
Sydney	37%	82%
Melbourne	88%	76%
Brisbane	55%	90%
Adelaide	50%	82%
Perth	24%	90%

Recommendations – Broader Outlook

- Future Hawaii Energy Infrastructure
  - Opportunities exist to fundamentally lower Hawaii's energy cost, electrical power as well as gasoline
  - Need for integrated approach
  - Potential to reduce petroleum dependency by 35% (LNG replacing fuel oil)
  - Integrated approach required to create opportunities for ethanol, renewables, hydrogen, and other emerging energy technologies
- Elements of an Integrated Energy Strategy
  - Assess LNG to replace residual fuel oil and SNG in Oahu
  - Analyze relevant factors (market, infrastructure, cost-effectiveness, legal, policy, etc.) for potential refinery upgrades and to produce and export high value gasoline blendstocks to California
  - Production of ethanol from sugarcane with integrated power production from biomass
- Requires private industry initiatives as well as coherent State energy policies, to create climate conducive to investment

Recommendations – Broader Outlook (Continued)

Potential Benefits of an Integrated State Energy Strategy

- Preliminary findings
  - Workable economics for LNG as fuel for Oahu power generation
  - Workable economics for integrated, export capable refinery system
- Estimated Potential Benefits to the State of Hawaii
  - ≈ 30% decreased petroleum dependency
  - ≈ $300 Million/year energy cost savings
  - Systematic planning for cleaner fossil fuels, LNG as transition fuel to H_2, renewables, energy efficiency, energy emergency planning
  - Maintains existing jobs through retention and growth of Hawaii's refinery industry facing future competitive challenges
  - Creates significant number of new, high quality jobs associated with $0.5 to 1 billion dollar in potential investments

Recommendations – Broader Outlook (Continued)

Role for the State in creating an Integrated Energy Strategy

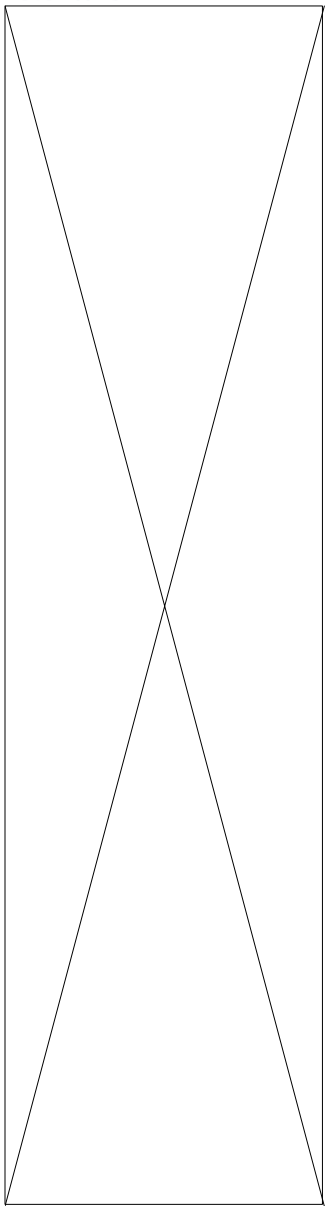
- State has responsibility, authority, and need to coordinate overall energy needs to support energy policy objectives for a productive, sustainable and efficient State economy
- Strategic energy planning
  - Analyze feasibility of LNG and export-capable, integrated refinery, and full range of sustainable energy options -- renewables, hydrogen, ethanol, and other indigenous energy resources
  - As State Energy Resources Coordinator, DBEDT Director's leadership role in this area is established and recognized, and can facilitate strategic partnerships to develop effective Integrated State Energy Strategy

Attachment F

Mark Niesse, “Hawaii Gas Cap Running on Fumes,” *Associated Press,* May 6th, 2006.

washingtonpost.com

Hawaii Gas Cap Running on Fumes



By MARK NIESSE
The Associated Press
Saturday, May 6, 2006; 1:52 AM

HONOLULU -- Gas prices keep going up everywhere, and Hawaii's unique attempt to control them is running on fumes.

The isolated island state whose drivers consistently pay the highest pump prices in the nation has given up on its government-regulated price controls after an eight-month experiment.

With the average price for regular in Hawaii rising above $3.38 per gallon Friday, Gov. Linda Lingle signed into law a suspension of the cap that sought to keep the oil companies in check and give a fair price to customers.

Bad timing with rising oil prices, outrage among island motorists, industry lobbying and public pressure in an election year combined to scuttle the nation's only state attempt to cap the cost of fuel.

"In a lot of people's minds, they thought the gas cap wasn't working," said Sen. Paul Whalen, a strong supporter of the law. "It was hard to generate lots of support for it because ... we're paying more than we ever were before."

Hawaii first imposed weekly limits on wholesale gas prices Sept. 1 based on the average of prices in Los Angeles, New York and the Gulf Coast. Then allowances were added for what it costs wholesalers to ship to Hawaii and distribute gas to more remote islands.

Price caps differed for each island. There was no cap on the markup added by gas stations.

Some opponents argued that the state's limit on gas prices actually helped the oil companies boost profits because they knew they could charge up to the maximum allowed.

Another problem was that it was hard to tell whether the law did any good.

"It's ridiculous. Prices jumped up 20 cents in the last couple of days," said Calvin Reddick, who paid $15 for just over four gallons of gas for his Volkswagon Beetle. "Usually when you have a cap, it's supposed to freeze prices off. Obviously, their idea of a cap is different from mine."

Because the oil refiners keep their profit margins and costs private, it was difficult for even experts to determine whether residents were paying more or less than they would without the gas cap.

One study by an economics professor showed the gas cap cost consumers 5 cents more per gallon.

An analysis by the state Department of Business, Economic Development and Tourism estimated that island motorists paid $54.9 million more than they otherwise would have in the first five months under the cap.

But research by cap supporter Rep. Marcus Oshiro indicated the limits saved drivers $33 million.

"It was a failure, and other experts that have looked at it have said the same thing," said Anita Mangels, a spokeswoman for the Western States Petroleum Association, which represents ChevronTexaco and Shell Oil. "It was well-intended, but apparently according to the state's own agency has not served consumers well."

With customer unrest mounting and aggressive oil company lobbying, lawmakers felt they had to do something before the November election and before prices went up further.

Rather than forcing down gas prices with a lower price ceiling, the state's mostly Democratic Legislature suspended the cap and gave Republican Gov. Linda Lingle, who had opposed any regulation of gas prices, the power to bring it back if she decides fuel has gotten too expensive.

That way, legislators passed on responsibility for any price control to the governor.

"Going into an election year, they weren't willing to support gas pricing regulations, given the concerns of many people in the public, and I think the oil companies did a good job of blaming the pricing regulations for the high prices," said Sen. Ron Menor, chief advocate of the gas cap.

At the same time, the law provides for computation of a hypothetical gas cap using a new formula expected to be about 16 cents a gallon lower than the current one. The revised calculation will include prices from low-cost Singapore, and it will disqualify the highest-priced market from the average of the four regions.

"It will remain as a flashing sign that will remind Hawaii's consumers what the price would have been under the gas cap," said Scott Foster, a spokesman for Hawaii Advocates for Consumer Rights. "The more information we get, the more we can understand about how the industry has been gouging us."

Other parts of the law lifting the controls require the oil companies to make their wholesale pricing information public so that customers could compare pump prices with actual costs. Currently, that information is kept confidential by the companies.

"We understand that people desire to know what the situation is," said Albert Chee, a spokesman for Chevron. "No one can claim exactly what the effect has been. I don't know if following of mainland prices has better served our customers."

Even though the gas cap has been suspended, it isn't going away.

Lawmakers said it has inspired interest from other states that want to try to hold down soaring gas prices.

"We're going to be talking about gas prices for a long time. The president is looking into it, Congress is looking into it," said Sen. Will Espero, a steady backer of regulating the oil industry. "This issue is a complicated and complex matter that doesn't have an easy, simple solution."