2007 Gas Price Study

Phase I: Fact-finding

CONDUCTED BY:

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EXECUTIVE SUMMARY

Washington state, along with the rest of the nation, saw gasoline prices climb dramatically in spring 2007. Responding to strong public and private concern about those prices, the Attorney General's Office, Governor's Office and the Department of Community, Trade and Economic Development announced in April they would investigate factors that influence regional prices throughout the state.

The last comprehensive study on Washington gas prices was published by the state Energy Office (now CTED's Energy Policy Division) in July 1991. State leaders decided that new research would provide them with information needed to help the public, legislators, county and city executives and other constituents better understand factors affecting current gasoline prices.

Study Focus

The primary purpose of this investigation is to inform consumers and policy-makers about Washington's gasoline market and factors that influence prices. In particular, the investigation aims to determine whether regional price differences can be identified and explained analytically.

The investigation is conducted in two phases. The first is a fact-finding phase primarily focused on gathering information about historic and current gasoline prices in Washington. This Phase I report focuses on that research and describes how gas prices have increased over the years and the different components contributing to the price of gas. The report compares our state's gas prices to those in other states and compares

prices across Washington. It also includes information about where our gas comes from, Washington refinery capacity and consumer demand.

The second phase will be more explanatory in nature and will help further explain the significance of the information gathered during Phase I.

- **Data Analysis**

During the first phase, the Attorney General's Office purchased retail and wholesale price data from the Oil Price Information Service (OPIS). The standard set of communities that OPIS collects data for includes Seattle-Everett-Bellevue, Tacoma, Spokane, Bellingham, Bremerton, Olympia, Vancouver, Yakima and the Tri-Cities. Aberdeen, Clarkston, Ellensburg and Port Angeles were also included in the first phase analysis.

To assist with the research, state agencies retained an economist with expertise on the state's petroleum industry. Dr. Keith Leffler, of the University of Washington, and his assistant, Makayle Rich, are conducting the analysis of historic and current pricing information.

- **Stakeholder Discussions**

In addition to supervising the gas price data analysis, staff at CTED and the Attorney General's Office met with representatives of refineries, wholesalers and retailers to gather perspective and insight about gas prices.

- **Public Comments**

The Attorney General's Office also asked the public to provide information that might suggest price-fixing or other violations of Washington's consumer protection or antitrust laws. While many comments were received, none included facts that would implicate illegal activity.

Key Findings

The first phase of this investigation focused on gathering facts and obtaining additional information from industry representatives. This research helps begin to explain factors affecting gas prices.

- **Crude Oil Prices:** Crude oil prices help explain a significant amount of both the movements in gas prices and the general increase in prices since 2000. Crude oil costs increased by more than 76.5 cents per gallon from December 2003 to May 2007. Prices reached an all-time high on July 31, 2007, of more than $78 per barrel. The cost of crude accounted for about 50 percent of the price of a gallon of gas in July 2007, compared to 38 percent in December 2003.

- **Refinery Margins:** Refinery margins have risen substantially. The difference between the refinery price of gasoline and the cost of crude oil, referred to as the "refining margin," increased by 93.6 cents per gallon from December 2003 to May 2007. This was a 413 percent increase, compared to a 229 percent increase in crude prices over the same period. A gallon of gas cost an average of $1.54 in Washington in December 2003, and the refining margin accounted for 29.9 cents of this amount – or 19 percent of the total. In May 2007, a gallon of gas cost an

average of $3.46, and the refining margin accounted for $1.235 of this amount – or 36 percent. The refining margin has shrunk a bit since then and accounted for 22 percent of the total price of gas in July 2007.

The capacity of the Washington refineries is currently at its historical peak, with capacity in 2007 almost 4 percent greater than in 2000. Refineries say a number of changes have affected production costs. These include fluctuations in the price of crude, increased electricity costs, environmental regulations, equipment and cost of chemicals needed to process crude oil. Some industry representatives report that refinery operating costs have about doubled in the last five years, but that does not include the cost of crude oil. Some report that capital improvement costs have tripled.

Phase 2 will examine the economic factors explaining the substantial increases in refinery margins during a period of growing refinery capacity and stable gasoline consumption.

- **Wholesale-Retail Margins:** The wholesale-retail margin is the difference between the wholesale price of gasoline and the retail price, less the estimated costs of transporting gasoline from the terminal to the retail stations. The average wholesale-retail margin has more than doubled since 2003 from 11.7 cents per gallon in 2003 to 26.4 cents per gallon in July 2007. However, because prices have increased, the wholesale-retail margin accounts for the same 8 percent of the total price of a gallon of gas now as in 2003.

- **Taxes:** Washington's combined state and federal fuel tax is 54.4 cents per gallon, the highest in the nation. Federal tax is 18.4 cents and state tax is 36 cents. The gas tax has increased by 13 cents per gallon since 2003---this represents 3 percent of the total increase between 2003 and 2007. When taxes are considered as part of the total cost of gas, current Washington prices are the 16th highest in the nation. When local, state and federal taxes are omitted, Washington ranks 29th. Washington, unlike most states, depends almost exclusively on the gas tax, as opposed to general tax revenue, to fund state highway maintenance and construction.
- **Stable Consumption Rates:** The amount of gas consumed by Pacific Northwest drivers has largely remained the same since 2000. Consumption in Washington and Oregon peaked in 2006 at more than 288,000 barrels of gasoline per day. Between January and May 2007, drivers used more than 274,000 barrels per day.
- **Prices and Geography:** CTED's 1991 study found that retail gasoline prices tended to be lower in Seattle than in Eastern Washington. That is no longer the case. The highest prices are now found in Western Washington, with Bellevue and Bellingham reporting the highest average price in recent years.

  Prices in Bellingham were relatively low when the Olympic pipeline was closed after the 1999 explosion, as much as 23 cents per gallon less than in Seattle. But since the pipeline reopened, prices in Bellingham have steadily increased reaching a high of more than 21 cents above the price in Seattle in August of last year.

  Spokane data also shows an unusual increase in prices during late summer 2006, reaching a peak of 18.1 cents above Seattle. The situation then reversed and by

January 2007, Spokane prices were nearly 30 cents below those in Seattle. Similar up-and-down patterns were seen in other Eastern Washington cities, as well.

Among counties, the highest prices are seen in San Juan, Pacific, and Clallam Counties, with San Juan County prices being nearly 50 cents per gallon above the state average. These areas are further from supply terminals, suggesting higher transportation costs.

The lowest gasoline prices are now found in Eastern Washington, particularly in the counties that border Idaho.

On the west side of the state, Pierce County has the lowest prices, averaging just more than 5 cents per gallon below the state average.

- **Rack (Wholesale) Prices:** Reported wholesale prices need further study, as a number of anomalies are evident in the data.

  Eastern Washington wholesale prices are strikingly lower than those in Western Washington. Statewide, the difference between the lowest and highest wholesale gas prices is significantly lower than the spread between the lowest and highest retail gas prices. In addition, counties with the highest retail prices don't have the highest annual average rack prices, nor do those with the lowest retail prices have the lowest rack prices.

  Garfield County likely receives gasoline from terminals in the Tri-Cities and/or Spokane but reported rack prices are substantially higher than in those communities. These anomalies will be further examined during Phase 2.

- **Pricing Strategy:** Comments from representatives of oil companies indicate that the price at which gas is sold at wholesale or retail is market-driven and varies by region. They say gasoline is not sold at a “cost plus” price (an amount based on what it costs to refine, transport and market the product plus a percentage for profit).

  When gas sells for around $3 a gallon, retailers might pay up to 12 cents per gallon in credit card processing fees. This can affect how retailers who accept credit payments are able to compete with cash-only sellers. Some stations that accept credit may charge a higher price in the hope that consumers will choose their brand, resulting in a wider spread between these stations and those that accept only cash. Other retailers that accept credit may opt to make a smaller profit.

- **Supply:** Washington refineries serve the state, as well as Oregon. They also supply some gasoline to California. Comments from representatives within the petroleum industry indicate that only two to five days worth of gasoline is available to bridge short-term supply interruptions.

OVERVIEW OF WASHINGTON GASOLINE PRICES

The report first summarizes Washington state gasoline prices and then compares them to prices in other states. This is followed by an analysis of the various components of gasoline prices, including crude oil costs, refining margin, costs for transportation and storage, and retailing. This report also examines how changes in those components relate to the increased Washington state gasoline prices.

Chart 1 shows the weekly average retail price of unleaded regular gasoline in Washington state based on data from the Energy Information Administration (EIA) for the period May 26, 2003, through July 30, 2007.[1] The gasoline prices peaked in the state during the week of May 21, 2007, at more than $3.46 per gallon. This was more than double the price (in nominal dollars) from four years earlier.

Chart 1 also shows the average Seattle prices back to April 2, 2000, and through July 30, 2007.[2] The Seattle price closely tracks the state average, though the Seattle price averages about 1.45 cents per gallon below the statewide average price. [3] For the period April 2000 - current, the Seattle gasoline price was at its low of $1.22 during the week of February 17, 2002.

[1] EIA began collecting gasoline prices for Washington State in May 2003. The EIA, created by Congress in 1977, is a statistical agency of the U.S. Department of Energy.

[2] This chart combines data from OPIS and EIA. The prices are from OPIS for the period 4/2/00 through 5/19/03 when the EIA began collecting the data. The OPIS data is discussed further below. The difference between the average prices reported by OPIS and by EIA are less than five hundredths of one cent over the period where the data overlaps (5/26/03 – 4/29/07, the average EIA reported prices are $.00038 higher than the average OPIS reported prices.)

[3] This average difference is for the period of overlapping data 5/26/03 – 7/23/07. In June and July of this year, the Seattle prices fell below the statewide average by about 6.6¢ per gallon.

CHART 1
Washington and Seattle Weekly Average Retail Price

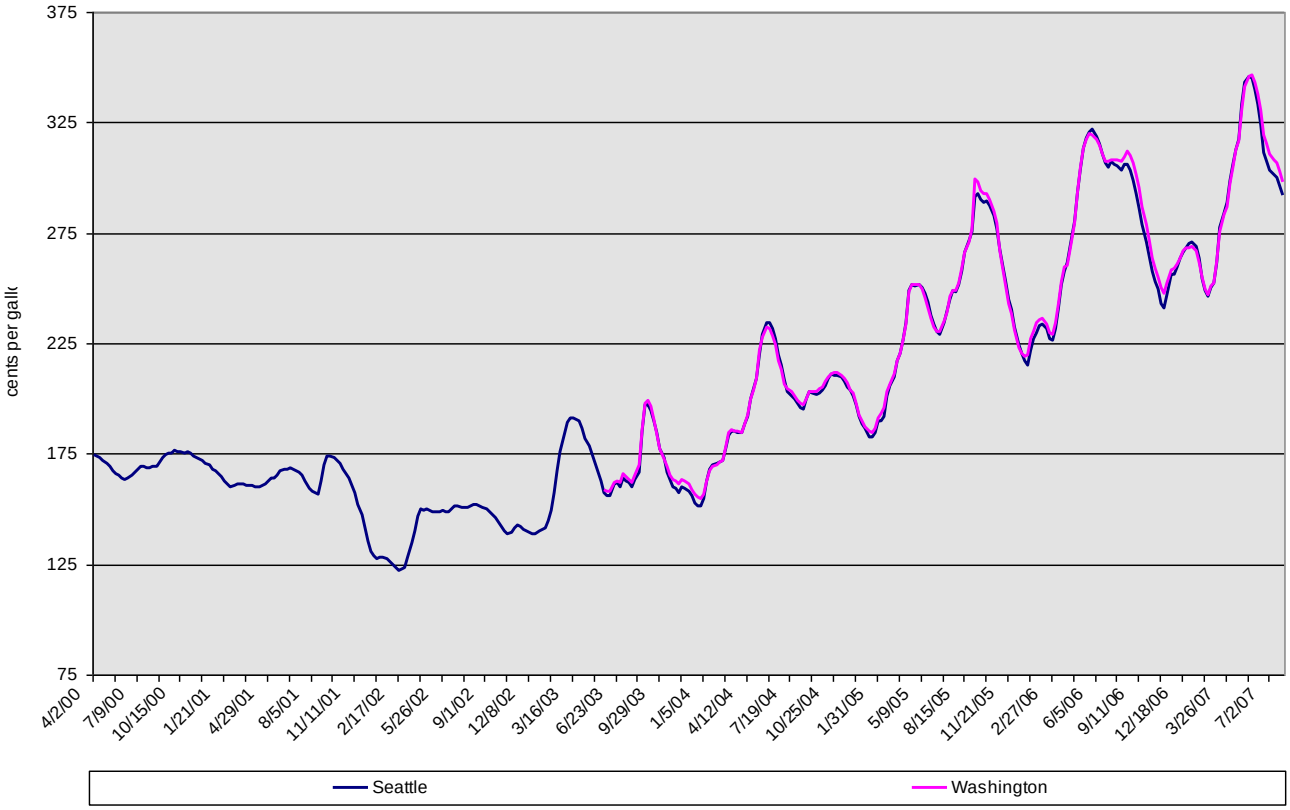


Table 1 shows the average state regular grade retail prices for each of the 50 states for July 31, 2007.[4] Washington prices are on average the 16th highest of any of the 50 states.

The prices reported in the first column include state and federal taxes. The third column shows each state's current total dedicated fuel tax. In Washington state, the current fuel tax is 54.4-cents-per-gallon, which is the highest in the nation. Federal fuel tax and additional applicable state taxes are shown in the fifth and sixth columns, respectively. The seventh column shows the prices net of federal, state, and applicable sales tax.[5] Washington fares even better under this measure, ranking 29th among the 50 states.

[4] http://www.fuelgaugereport.com/sbsavg.asp. These are prices as reported by OPIS.
[5] Federal tax is 18.4¢ per gallon. In addition, California has a 6% sales tax, Colorado has 3%, Connecticut has 5%, Georgia has 4%, Hawaii has 4% (excluding federal and state tax), Indiana has 5% (excluding federal and state tax), Michigan has 6%, and New York has 4%.

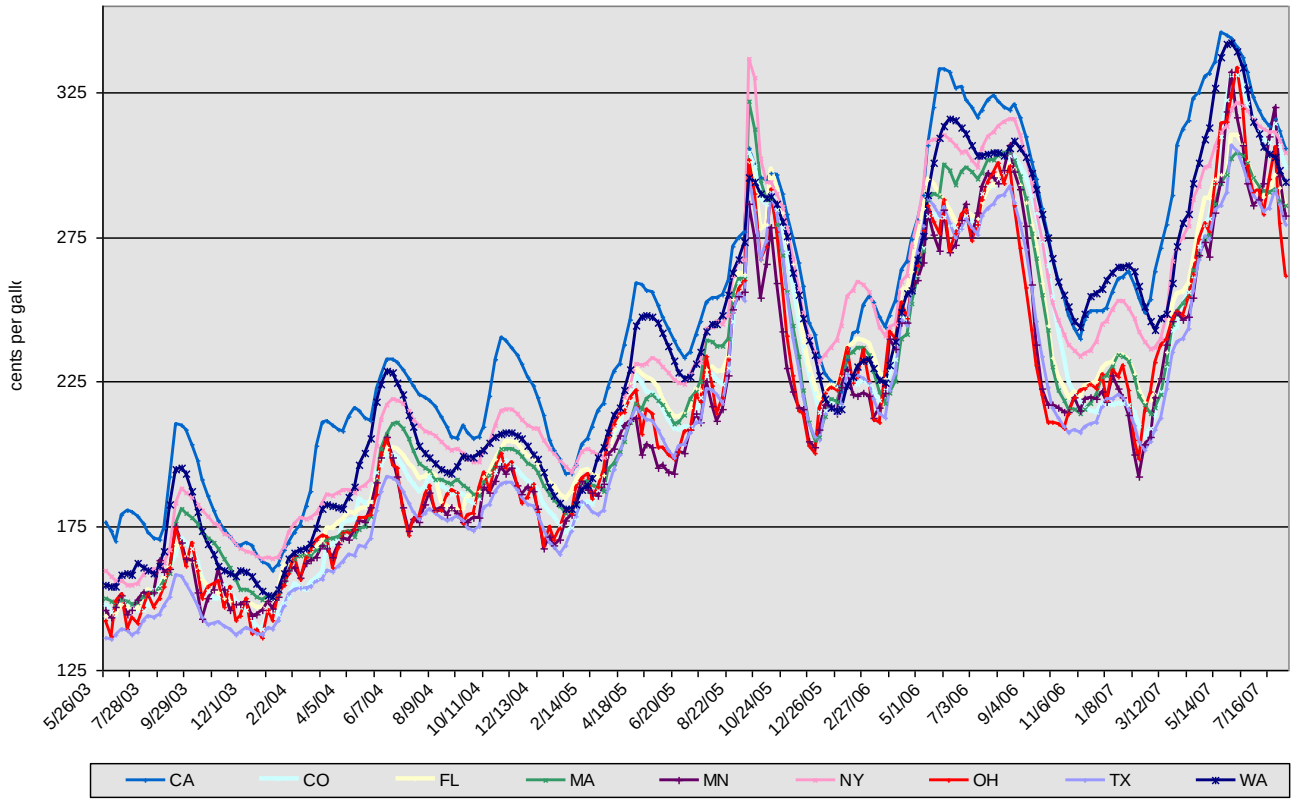
TABLE 1
State Average Retail Prices, Fuel Taxes, and Retail Prices Net of Tax - July 31, 2007

STATE	Retail Price per Gallon	Retail Price Ranking	State Fuel Tax per Gallon	State Tax Ranking	Federal Fuel Tax per Gallon	Add'l State Sales Tax per Gallon	Fuel Price Net of Federal State and Add'l Tax	Fuel Price Ranking Net of Tax
Alabama	$2.765	44	0.18000	37	0.1840		$2.401	38
Alaska	$3.104	3	0.08000	50	0.1840		$2.840	1
Arizona	$2.780	40	0.18000	37	0.1840		$2.416	32
Arkansas	$2.807	36	0.21500	23	0.1840		$2.408	35
California	$3.068	5	0.18000	37	0.1840	6 %	$2.520	19
Colorado	$3.030	10	0.22000	21	0.1840	3 %	$2.535	15
Connecticut	$3.123	2	0.25000	11	0.1840	5 %	$2.533	17
Delaware	$2.782	39	0.23000	19	0.1840		$2.368	41
Florida	$2.871	26	0.15300	46	0.1840		$2.534	16
Georgia	$2.822	35	0.15200	47	0.1840	4 %	$2.373	40
Hawaii	$3.277	1	0.16000	44	0.1840	4 %*	$2.816	2
Idaho	$3.004	13	0.25000	11	0.1840		$2.570	9
Illinois	$3.058	6	0.20100	27	0.1840		$2.673	3
Indiana	$2.768	42	0.18000	37	0.1840	5 %*	$2.284	49
Iowa	$2.946	19	0.21000	25	0.1840		$2.552	11
Kansas	$2.901	23	0.24000	16	0.1840		$2.477	22
Kentucky	$2.746	47	0.19700	32	0.1840		$2.365	42
Louisiana	$2.788	38	0.20000	28	0.1840		$2.404	37
Maine	$2.939	20	0.26800	10	0.1840		$2.487	21
Maryland	$2.868	28	0.23500	18	0.1840		$2.449	28
Massachusetts	$2.869	27	0.21000	25	0.1840		$2.475	23
Michigan	$2.892	25	0.19000	34	0.1840	6 %	$2.344	46
Minnesota	$2.852	31	0.20000	28	0.1840		$2.468	26
Mississippi	$2.747	45	0.18400	36	0.1840		$2.379	39
Missouri	$2.769	41	0.17550	41	0.1840		$2.410	34
Montana	$3.048	8	0.27000	9	0.1840		$2.594	8
Nebraska	$3.017	11	0.28000	7	0.1840		$2.553	10
Nevada	$2.956	18	0.24805	13	0.1840		$2.524	18
New Hampshire	$2.849	32	0.19625	33	0.1840		$2.469	25
New Jersey	$2.746	47	0.14500	48	0.1840		$2.417	31
New Mexico	$3.043	9	0.18875	35	0.1840		$2.670	4
New York	$3.099	4	0.24650	14	0.1840	4 %	$2.545	14
North Carolina	$2.827	34	0.30150	6	0.1840		$2.342	47
North Dakota	$3.050	7	0.23000	19	0.1840		$2.636	6
Ohio	$2.645	50	0.28000	7	0.1840		$2.181	50
Oklahoma	$2.847	33	0.17000	43	0.1840		$2.493	20
Oregon	$2.894	24	0.24000	16	0.1840		$2.470	24
Pennsylvania	$2.859	29	0.31200	4	0.1840		$2.363	43
Rhode Island	$2.905	22	0.31000	5	0.1840		$2.411	33
South Carolina	$2.682	49	0.16000	44	0.1840		$2.338	48
South Dakota	$3.005	12	0.22000	21	0.1840		$2.601	7
Tennessee	$2.747	45	0.21400	24	0.1840		$2.349	45
Texas	$2.802	37	0.20000	28	0.1840		$2.418	30
Utah	$2.978	15	0.24500	15	0.1840		$2.549	12
Vermont	$2.933	21	0.20000	28	0.1840		$2.549	12
Virginia	$2.766	43	0.17500	42	0.1840		$2.407	36
Washington	**$2.967**	16	**0.36000**	**1**	**0.1840**		**$2.423**	29
West Virginia	$2.855	30	0.31500	3	0.1840		$2.356	44
Wisconsin	$2.964	17	0.32900	2	0.1840		$2.451	27
Wyoming	$2.981	14	0.14000	49	0.1840		$2.657	5

*Excludes Federal and State Tax

Chart 2 shows the weekly average retail price for the period May 26, 2003, through July 31, 2007, for nine states for which EIA reports weekly prices -- California, Colorado, Florida, Massachusetts, Minnesota, New York, Ohio, Texas and Washington.[6] As the chart shows there is a very similar pattern to the prices in all the states.[7] Peak prices are typically seen in the late spring and early summer. While Washington and California generally track those of the other states, they show a greater volatility, particularly at the

CHART 2
Weekly Average Retail Prices by State - Regular Grade All Formulations



[6] The EIA does not explain why it provides data for these specific states. The EIA also provides average weekly retail price data for the US, PADDS I-V, and 10 cities (Boston, Chicago, Cleveland, Denver, Houston, Los Angeles, Miami, New York, San Francisco and Seattle).

[7] The correlations for the period 5/26/03-7/30/07 between Washington and the other 8 states are nearly perfect. The correlation coefficients are as follows: CA .986; CO .974; FL .972; MA .971; MN .956; NY .974; OH .956; TX .969

peaks.[8] The sharp price peak towards the end of 2005 is when hurricanes Katrina and Rita damaged many of the refining facilities on the Gulf coast.

Chart 3 shows the average prices in each of the nine states for each year from 2003 to 2007. As shown, of these states, Washington generally had the third highest prices until this year. Historically, California had the highest prices, followed by New York and by Washington in 2007.

CHART 3
Average Annual Retail Prices by State - Regular Grade All Formulations

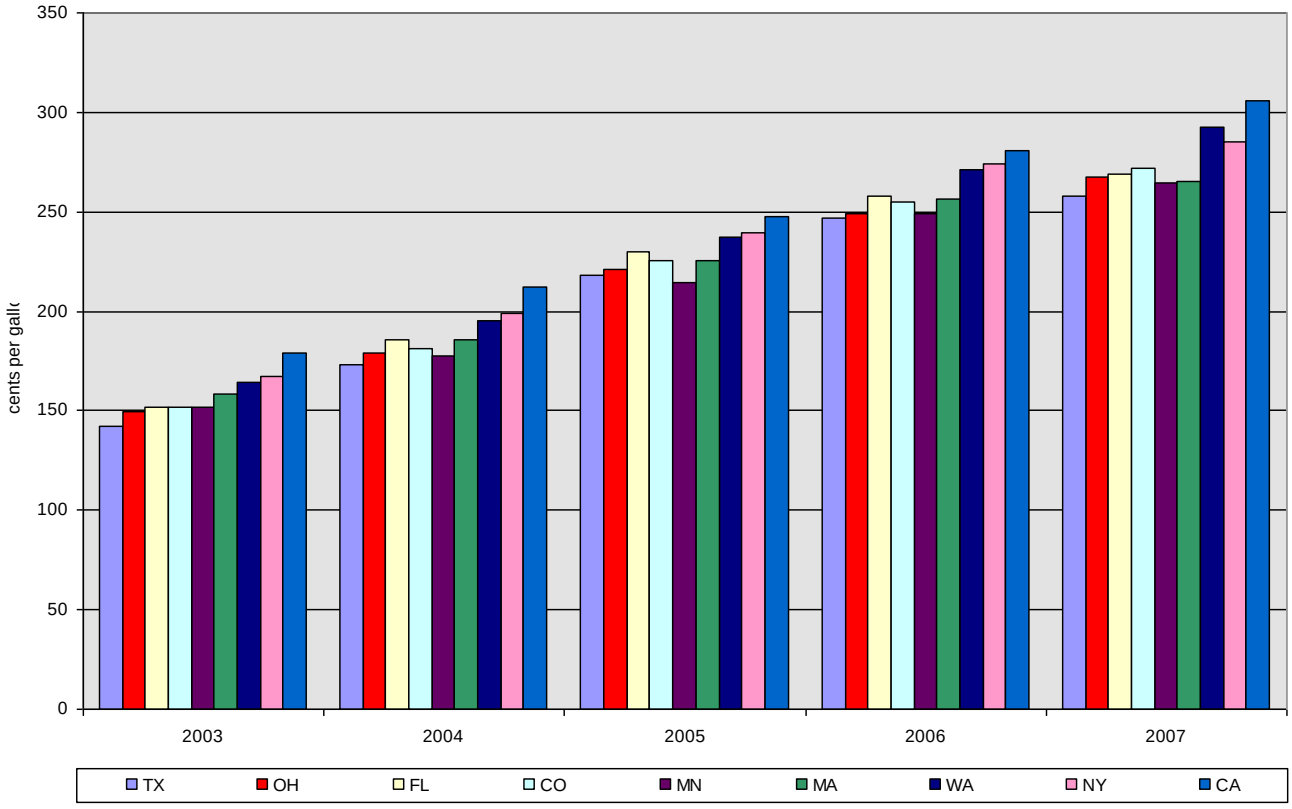
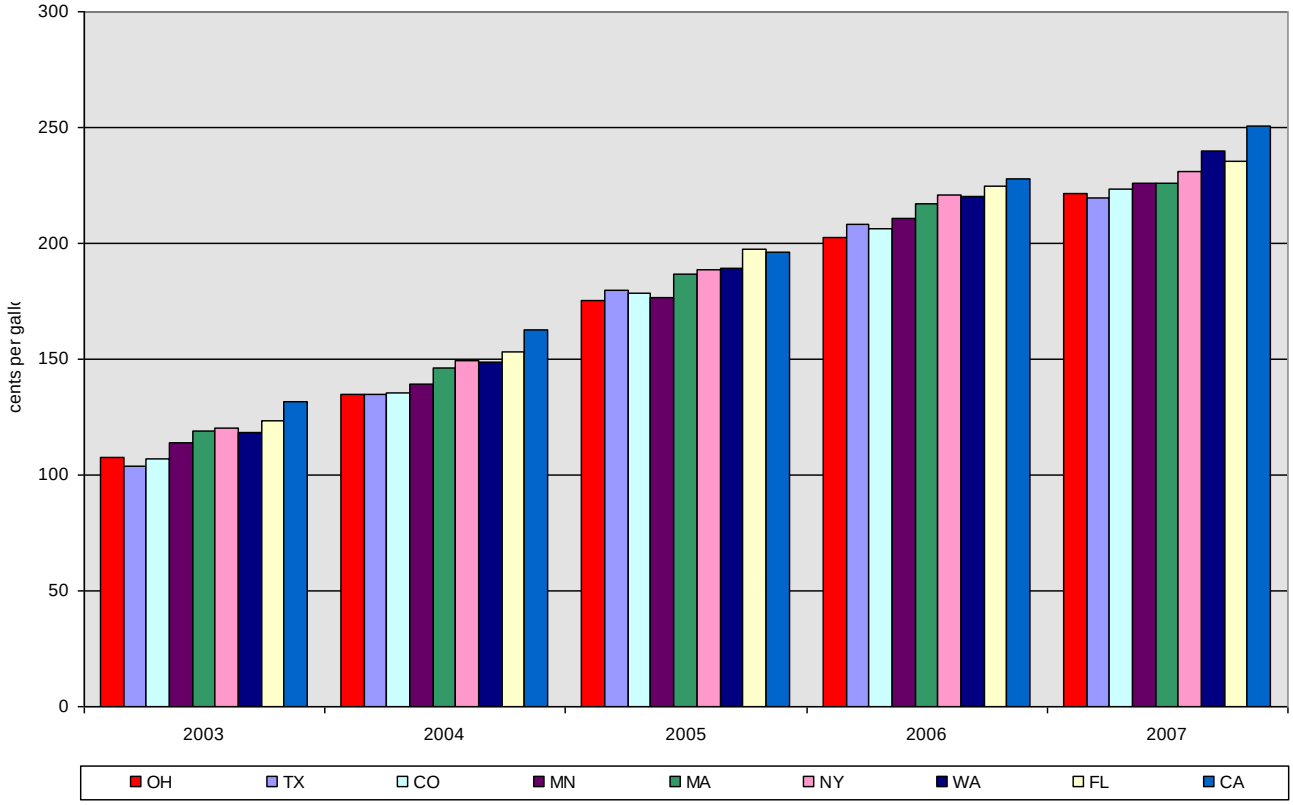


Chart 4 adjusts these prices for taxes. As mentioned above, Washington's relatively high prices are due in part to its high state fuel tax. Since 2003, Washington's gasoline tax has increased by 13 cents per gallon, higher than any of the other eight states.

[8] Chart 2 is from a different source than Table 1 (EIA and OPIS respectively.) There are differences in the reported state average prices. For the week of July 30, 2007, the prices are (EIA, OPIS) CA $3.06, $3.07; CO $2.99, $3.03; FL $2.86, $2.87; MN $2.82, $2.85; NY $3.04, $3.10; OH $2.61, $2.65; TX $2.79, $2.8; WA $2.94, $2.97. With either data source, Washington had the fourth highest prices for the week.

Washington's relative prices, net of taxes, compared to the EIA surveyed states have continually increased since 2003. Of the nine EIA surveyed states, net of taxes Washington had the fifth highest prices in 2003, fourth highest in 2004, third in 2005 and 2006, and second highest this year to date.

CHART 4
Annual Average Retail Prices Net of Taxes by State - Regular Grade All Formulations

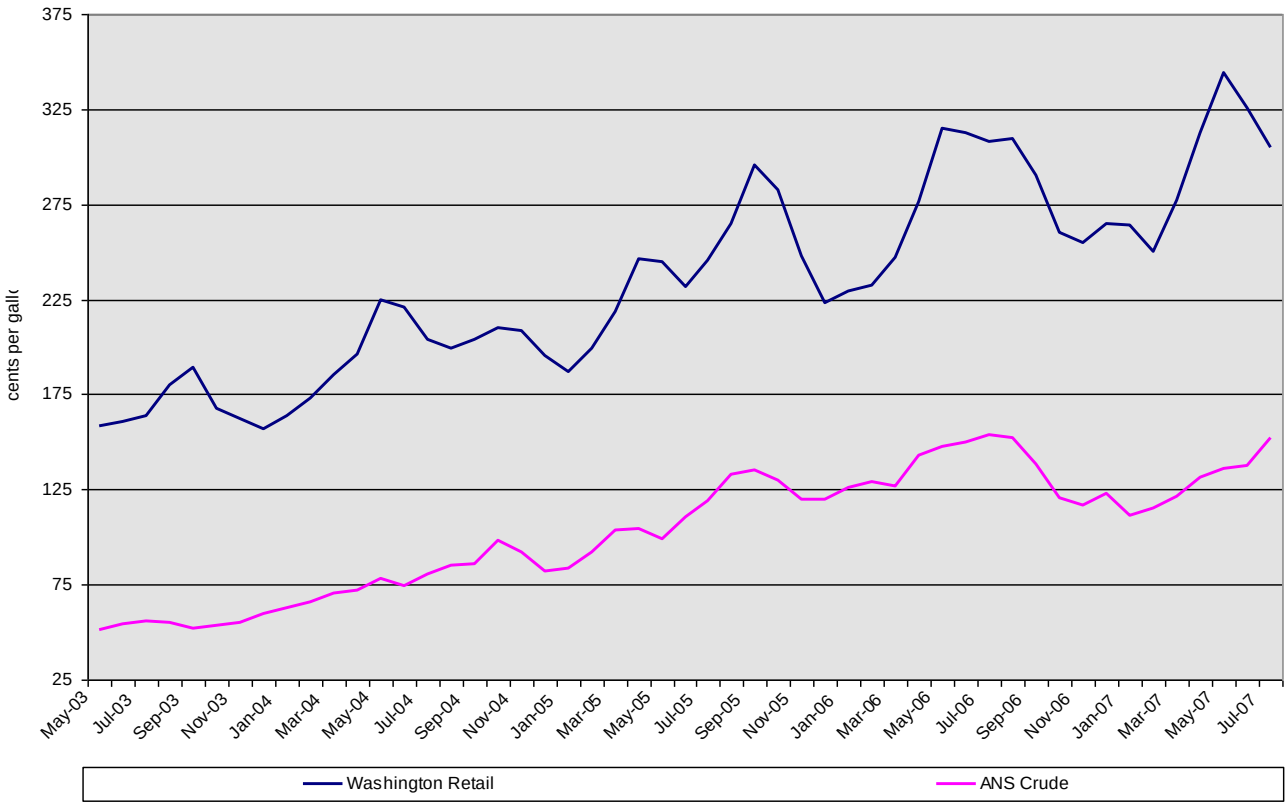


The report next breaks down the price of gasoline into its parts. This component breakdown is not intended to imply that the price of gasoline is set by costs, but rather to inform the further analysis of what market constraints might be behind price increases. For example, constraints in crude oil supply will be reflected in the price of crude, while constraints in refining will be reflected in the refining margin.

Gasoline begins as crude oil, which is then refined into gasoline. (The supply system is discussed in detail in the next section.) Chart 5 shows the average retail gasoline price per gallon for Washington state and the costs per gallon of crude oil.[9]

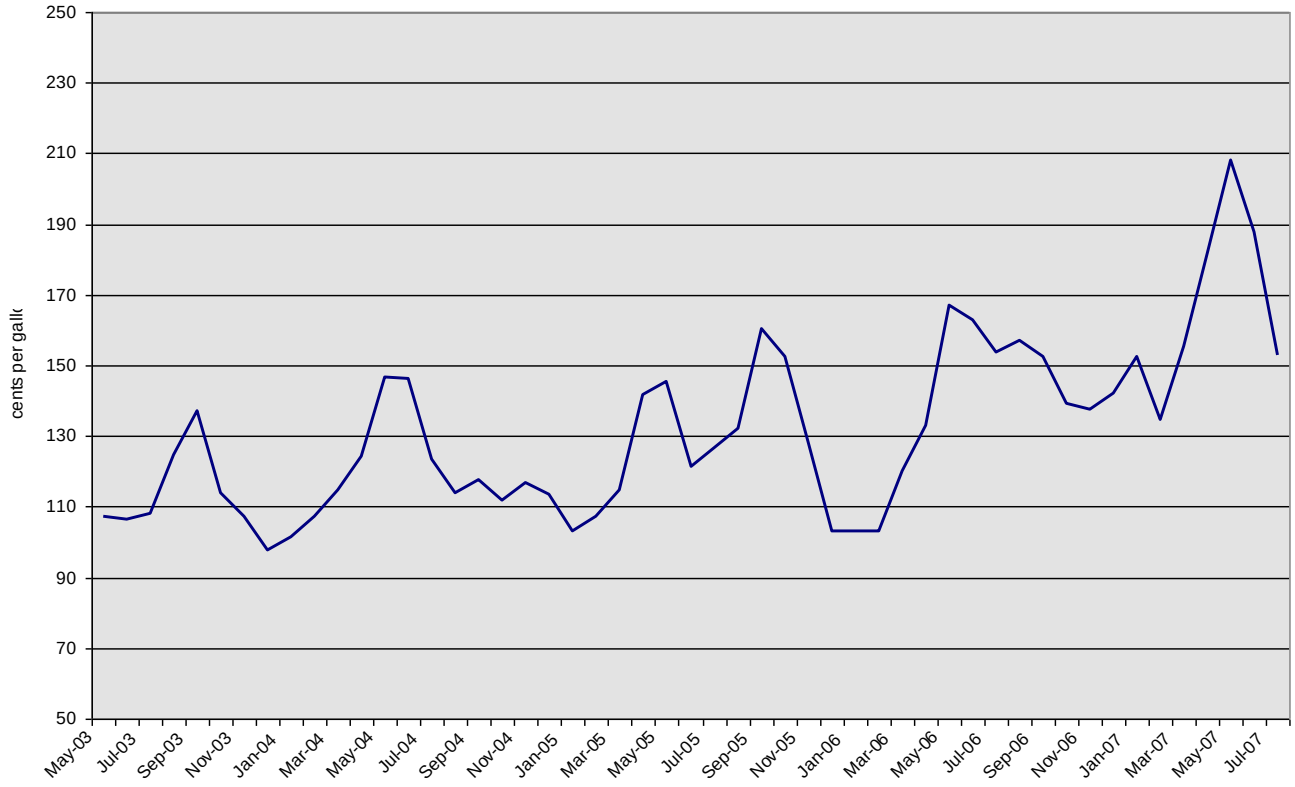
CHART 5

Washington Average Retail Price (All Grades All Formulations) and Alaska North Slope Crude Oil Price



[9] The major crude oil used on the West Coast is Alaskan North Slope (ANS) crude. With the production from the Alaskan North Slope in decline, Canadian and imported crude oil have played an increasing role in the supply of gasoline on the West Coast. The prices of alternative crude oils are highly correlated such that the ANS price provides a reasonable estimate of the crude oil costs. The figure used is simply the estimated ANS price per barrel for the month of July 2007 ($63.96) divided by 42 gallons per barrel (to get a per gallon cost). Note that although there are 42 gallons of crude oil in a barrel, each barrel of crude oil does not produce 42 gallons of motor gasoline. Instead, approximately half of the production is motor gasoline. The rest of the output is various grades of diesel, jet fuel, fuel oil and asphalt.

CHART 6
Difference Between Washington State Average Retail Price and Alaska North Slope Crude Oil

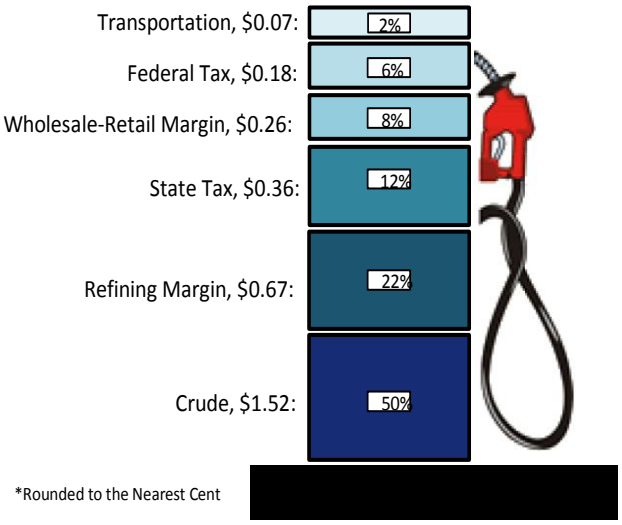


As is clear, crude “explains” a substantial amount of both the movements in gasoline prices and also the general increase in gasoline prices since 2000. However, as shown in Chart 6, which presents the difference between the retail prices and the crude costs, there have been significant changes in gasoline prices in the last seven years that have nothing to do with crude oil costs.

After gasoline has been refined from crude oil, it must then be transported from refineries to storage facilities, called terminals, for loading into trucks for delivery to the retail gasoline stations. State and federal taxes are then applied, and finally, the retailers sell the gasoline to the consumers.

Figure 1 breaks the $3.07 per gallon average price in the state[10] for the week of July 16, 2007, into the components of crude oil, refining margin (the difference between the crude oil costs and the price of a gallon of gasoline at the refinery gate), [11] transportation,[12] taxes, and wholesale-retailing margin.[13] [14]

FIGURE 1
Price Components of Washington Average Retail Price
Week of July 16, 2007 - $3.07 Per Gallon*



[10] Source is EIA – average retail price for all grades.
[11] This refining margin is estimated as the difference between the state average wholesale price of gasoline (the OPIS rack price discussed in Section 4) less the estimated cost of transporting and storing the product, and then less the estimated crude oil costs. As used here and also with respect to wholesale-retail margins, the term "margin" is not a sales profit margin because we do not have access to other refining and operating costs.
[12] This is an estimate of the state wide average costs of shipping gasoline from refineries to terminals plus shipping from the terminals to the stations.
[13] This is the difference between the average state wholesale price and the average state retail price less the estimated costs of transporting gasoline from the terminal to the retail stations.
[14] The week of July 16th is the latest date for which we have the state average wholesale price data.

The largest single component of the gasoline price is the cost of crude oil. During the week of July 16th, a "gallon" of crude oil cost $1.52, which was 50 percent of the state average retail price during that week.[15] The second-largest component is the refining margin.

The refining margin accounts for 66.6 cents of the July 16th gasoline price, or 22 percent. The next largest component is the state tax of 36 cents per gallon, which was 12 percent of the price of gasoline.[16]

The margin at the wholesale-retail level is the fourth-largest component of the final gasoline price in the state, accounting for 26.4 cents or 8 percent of the $3.067 street price.

Finally, federal tax adds another 18.4 cents, and transportation and storage add about 7 cents.[17]

[15] The major crude oil used on the West Coast is Alaskan North Slope (ANS) crude. The figure used is simply the estimated ANS price per barrel for the month of July 2007 ($63.96 – extrapolated using WTI) divided by 42 gallons per barrel (to get cents per gallon cost).
[16] State taxes increased from 34¢ to 36¢ per gallon effective July 1st of this year.
[17] The transportation and storage costs are estimates since we do not have data at this time breaking down transportation to specific regions in the state. This issue will be addressed further in Phase 2.

Chart 7 breaks down the lowest price during the period into its components. During the week of December 29, 2003, the state retail price was at a low average of $1.544 per gallon.

CHART 7
Price Components of Washington State Average Retail Price
Week of December 29, 2003 - $1.54 per gallon

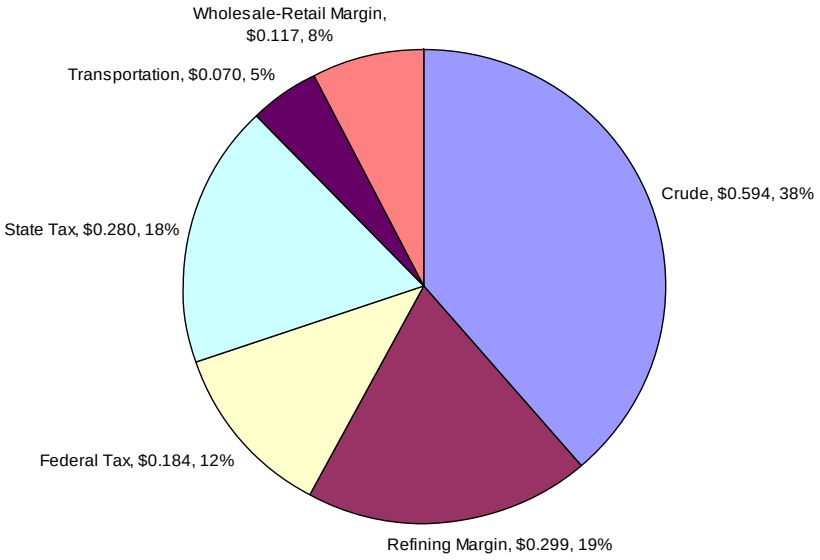


Chart 8 likewise breaks down the highest state average ($3.464) retail price for the week of May 21, 2007, into its components.

CHART 8
Price Components of Washington State Average Retail Price
Week of May 21, 2007 - $3.46 per gallon

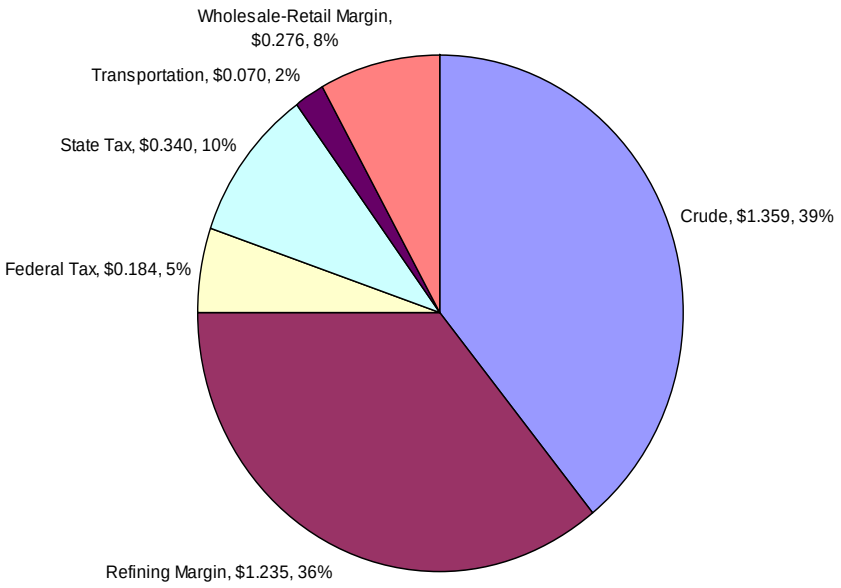
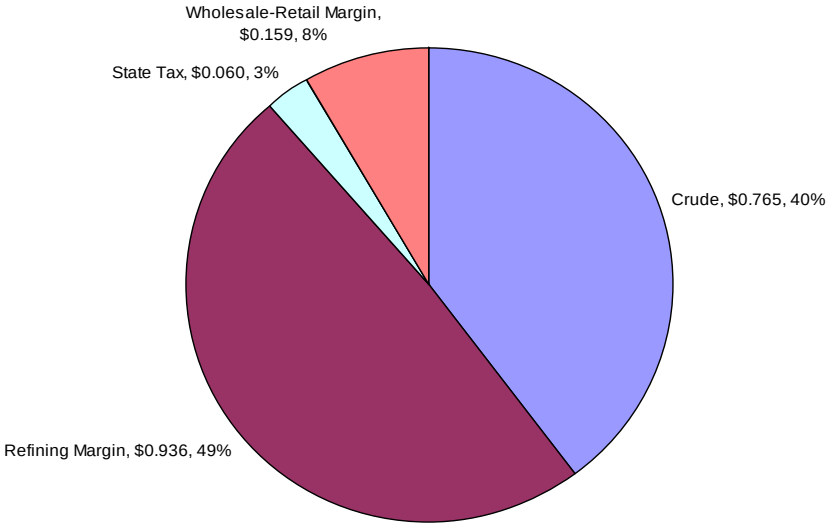


Chart 9 summarizes the change in components from the lowest price in December 2003 to the highest price in May 2007. This chart illustrates how the changes in the components "explain" the price difference of $1.920 per gallon between the two dates.[18]

[18] The price of gasoline is not determined by its costs or the components of its costs but rather by the availability of gasoline (supply) and the demand for gasoline. As mentioned, the breakdown of the gasoline prices into its components is, nonetheless, useful to understand where there can be issues regarding supply or demand.

CHART 9
Price Components of the Difference Between the Washington State HIGH (May07) and LOW (Dec03)
Average Retail Prices - Difference of $1.92 per gallon



As shown, the higher cost of crude oil certainly played a significant role, increasing by more than 76.5 cents per gallon from December 2003 to May 2007.[19] However, the difference between the refinery price of gasoline and the cost of crude oil, referred to here as the "refining margin," increased even more during this period -- 93.6 cents per gallon. In December 2003, the refining margin averaged 29.9 cents per gallon. By May 2007, that margin increased to more than $1.235 per gallon. This was a 413 percent increase/Meanwhile, crude oil prices rose by 229 percent. Increases in state taxes accounted for about 6 cents of the price change, and the retailing margin rose by 15.9 cents per gallon.

[19] Crude oil prices have continued to rise, reaching an all time high on 7/31/2007 of more than $78 per barrel for WTI. Yet as seen in Chart 1 above, Washington gasoline prices have been falling since the high of May.

In the second phase of this study, we will analyze in more detail the extent to which cost increases and supply constraints explain these substantially increased refinery margins. We do note, however, that the major petroleum companies supplying Washington have announced very substantial refining profits in recent quarters.[20]

[20] See, for example, http://www.bp.com/extendedgenericarticle.do?categoryId=2012968&contentId=7034603; http://www.conocophillips.com/newsroom/news_releases/2007+News+Releases/072507.htm; http://www.shell.com/home/content/investor-en/news_and_library/press_releases/2007/q2_2007_results_newsitem_26072007.html; http://phx.corporate-ir.net/phoenix.zhtml?c=79122&p=irol-reports; http://phx.corporate-ir.net/phoenix.zhtml?c=79122&p=irol-irhome.

THE SUPPLY OF GASOLINE IN WASHINGTON

In this section, we provide an overview of the supply of gasoline to Washington state. Four major refineries operate in the state of Washington. These refineries include a BP refinery near Ferndale (Cherry Point), a ConocoPhillips refinery also in Ferndale, a Shell refinery in Anacortes, and a Tesoro refinery also in Anacortes.[21]

These four refineries produce about 265,000 barrels per day of gasoline.[22] Of this production, about 60,000 barrels per day can be made into California Air Resources Board (CARB) grade gasoline that can be shipped to California depending on seasonal demand.[23] In addition to the production of these refineries, US Oil and Refining has a small refinery in Tacoma that produces about 20,000 barrels per day of gasoline. Another 28,000 barrels per day of gasoline are brought into the Portland area by ship, mostly from the San Francisco area.

The Washington refineries are all connected to the Olympic Pipeline which runs from the refineries in northern Washington to Portland. Terminals with storage tanks and truck-loading facilities are located on the pipeline in Seattle (via a pipeline spur), Renton, Tacoma, Tumwater, Vancouver (via a pipeline spur), and Portland. The pipeline continues from Portland onto Eugene, Oregon where there is also a terminal facility.

Barges can also be used to supply Seattle, Tacoma or Portland from the Washington refineries or from other domestic or international refineries.[24] Typically, some gasoline is

[21] With the significant mergers in the oil industry over the last ten years, the ownerships of the refineries have changed. The BP refinery was formerly an ARCO refinery; the Conoco/Phillips refinery was originally owned by Mobil oil, then BP then Tosco; the Shell refinery was originally owned by Texaco and then the Texaco-Shell joint venture Equilon; the Tesoro refinery was originally owned by Shell.
[22] Washington Research Council, *The Economic Contribution of Washington State's Petroleum Refining Industry in 2005,* 1/12/2007, p. 6. A barrel of gasoline is 42 gallons.
[23] Gasoline meeting the California Air Resources Board environmental constraints (CARB gas) is significantly more expensive to make than conventional gasoline typically supplied in Washington.
[24] The US Oil refinery can also load product onto barges for shipping out of Tacoma.

supplied to Portland by barge from the Washington refineries because of capacity limitations on the Olympic Pipeline. It would be unusual to supply Seattle or Tacoma with gasoline by barge, though this was the supply mechanism when the Olympic Pipeline was disrupted by the explosion in Bellingham.

A portion of the gasoline from the Washington refineries and gasoline shipped into Portland is transported via barge on the Columbia River to Pasco. There it can be placed in terminals for delivery to Eastern Washington and Oregon communities or delivered via pipeline to Spokane for supply to the northeast part of the state.[25]

Two refined product pipelines can bring gasoline into Eastern Washington. The Chevron pipeline connects Salt Lake City refineries to Pasco. This pipeline continues onto Spokane. About 2,000-3,000 barrels per day of gasoline reach Pasco on the Chevron pipeline.[26] The Yellowstone pipeline brings gasoline from refineries near Billings, Mont., to Spokane. This pipeline continues to Moses Lake.

[25] There is also a terminal in Clarkston that can receive small barge shipments.
[26] www.astswmo.org/files/publications/tanks/2002StateSymposium/Meryl-Hough.pdf

The supply of gasoline for Washington and Oregon is an integrated and connected system. Figure 2 illustrates the gasoline supply system for Washington and Oregon.

FIGURE 2
Gasoline Supply System for Washington and Oregon

About 178,000 barrels per day of gasoline are currently consumed in Washington state.[27] In addition, another 96,000 barrels are consumed daily in Oregon. Of the approximately 274,000 barrels consumed, 225,000 are from the four Washington refineries, another 28,000 shipped up from California, up to 3,000 shipped from the Salt Lake City refineries, and the remainder of about 20,000 barrels from the Montana refineries.

[27] Source is EIA.

Consumption in Washington and Oregon peaked in 2006 at slightly more than 288,000 barrels of gasoline per day. Table 2 shows daily motor fuel consumption averages for each year.

TABLE 2
Annual Average Gasoline Consumption and Total Refining Capacity in Washington and Oregon

	Consumption - Barrels per Day				Refining Capacity - Barrels per Day	
YEAR	**Washington**	**Oregon**	**NW**	**Change**	**Washington**	**Change**
2000	175,659	100,169	275,828		600,720	
2001	184,213	101,223	285,437	3.5 %	609,080	1.4 %
2002	185,362	102,229	287,590	0.8 %	618,350	1.5 %
2003	170,700	99,878	270,578	-5.9 %	621,350	0.5 %
2004	170,960	97,821	268,781	-0.7 %	621,350	0.0 %
2005	184,569	98,968	283,537	5.5 %	616,150	-0.8 %
2006	185,841	102,346	288,187	1.6 %	623,850	1.2 %
2007*	178,324	95,705	274,029	-4.9 %	623,850	0.0 %

*Jan-May

Table 2 also shows the percentage annual changes in consumption and the total petroleum refining capacity of the Washington refineries. The capacity of the Washington refineries is currently at its historical peak, with capacity in 2007 almost 4 percent greater than in 2000. Over the same period of time, consumption of gasoline in the Pacific NW has fallen and risen but overall is essentially unchanged.

In Phase 2 of this study, we will investigate the economic factors "explaining" the substantial increases in the refinery margins during a period of growing refining capacity and a stable gasoline consumption pattern.[28]

[28] Due to regular maintenance requirements, it is unrealistic for refineries to operate at 100% of capacity for any length of time. Traditionally about 90% capacity utilization can be sustained, barring any major and unplanned disruptions or outages. In PADD V, the capacity utilization has been as follows: 2000 - 87.5%; 2001 - 89.1%; 2002 - 90.0%; 2003 - 91.3%; 2004 - 90.4%; 2005 - 91.7%; 2006 - 90.5%; Jan-May 2007 - 84.8%. We hope to obtain utilization rates for Washington specific refineries and examine the patterns over time in Phase 2 of this report.

In this section, we investigate gasoline prices in specific locations throughout the state. Retail gasoline prices were obtained from OPIS, a widely used data source for information in the oil industry, for each of the 39 counties in the state and for 15 city areas in the state. Table 3 lists the cities examined.

TABLE 3
Cities Examined via OPIS Data

ABERDEEN
BELLEVUE
BELLINGHAM
BREMERTON
CLARKSTON
ELLENSBURG
EVERETT
OLYMPIA
PORT ANGELES
SEATTLE
SPOKANE
TACOMA
TRI-CITIES
VANCOUVER
YAKIMA

Retail data was obtained for the period April 2, 2000, through July 15, 2007, from the Oil Price Information Service (OPIS).[29]

[29] See, http://opisnet.com/aboutus.asp. Oil Price Information Service (OPIS) is a comprehensive commercial source for petroleum pricing and news information. OPIS pricing experts track more than 70,000 rack prices for heating oil, gasoline, diesel and kerosene, and thousands of contract prices for jet fuel, LP-gas, residual fuel, ethanol, bio-diesel and MTBE. More than 125,000 retail gasoline prices are also tracked daily.

In addition, wholesale or terminal level pricing data (rack prices) were also obtained from OPIS for the supply points for each county and each of the locations in Table 3. Table 4 summarizes the average retail prices by county by year.

The county with the highest average prices (excluding San Juan County) for each year is highlighted in red and is also surrounded by a solid line.

The lowest average price for each year is highlighted in blue and is surrounded by a dotted line.[30] The average retail price for the state is shown, as is the spread between the highest and the lowest average prices.[31]

[30] For Tables 4-9, each year's HIGH price will be highlighted red and enclosed with solid lines. Each year's LOW price will be highlighted blue and enclosed with dotted lines.

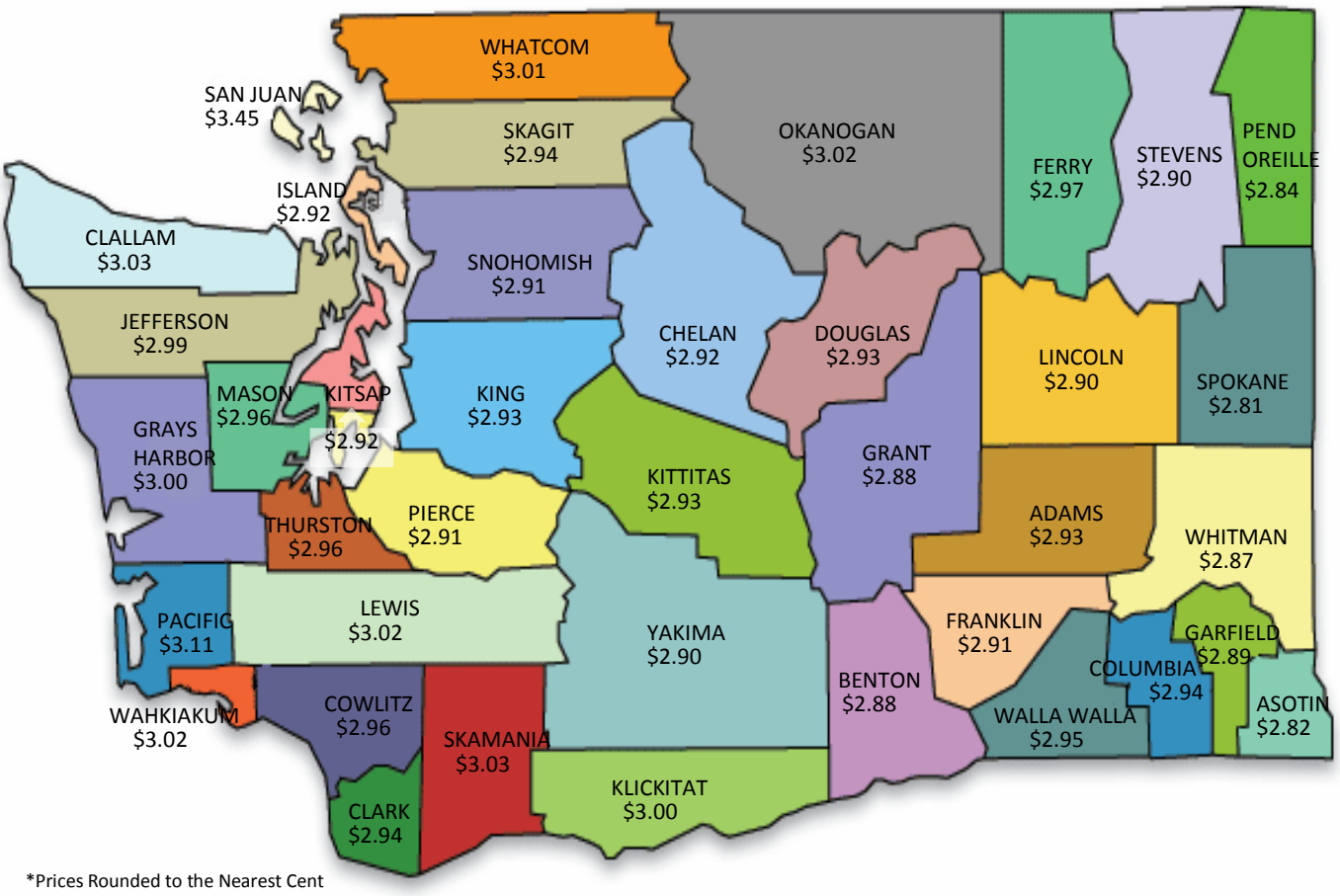
[31] For the state average in Tables 4, 5, 7 and 8 the source is EIA. In Tables 4 and 7 the 2003 data is for the months May through December and the 2007 data is a simple average of the data for the months which are presently available - January through July. In Tables 5 and 8 the 2007 data is a simple average for the months presently available - January through May.

TABLE 4: Average Retail Prices by County by Year

COUNTY	2000	2001	2002	2003	2004	2005	2006	2007
ADAMS	165.93	155.87	146.24	169.01	198.56	243.37	277.38	293.02
ASOTIN	159.69	141.52	133.48	161.92	192.24	235.84	266.96	281.53
BENTON	160.39	150.25	136.80	165.01	193.55	238.21	271.40	287.78
CHELAN	167.98	149.61	137.11	163.95	195.26	241.69	274.70	291.90
CLALLAM	171.47	158.49	147.45	170.39	199.73	245.40	283.94	303.31
CLARK	163.66	147.49	129.82	160.47	189.76	229.47	264.78	293.53
COLUMBIA	163.10	154.11	144.84	167.87	199.73	243.90	275.12	294.00
COWLITZ	165.74	151.58	143.48	167.43	197.44	240.22	273.26	296.42
DOUGLAS	166.58	148.57	134.26	162.99	195.33	240.69	275.36	292.54
FERRY				176.89	203.98	243.03	283.78	296.57
FRANKILN	158.37	149.64	137.08	165.39	193.96	238.77	273.41	290.93
GARFIELD	164.73	152.69	143.12	167.71		242.09	274.09	288.59
GRANT	165.33	153.96	140.65	165.45	195.39	238.72	272.85	287.76
GRAYS HARBOR	166.49	150.42	128.59	164.24	197.60	240.38	278.00	299.80
ISLAND	162.89	152.40	142.21	168.08	198.12	241.94	276.29	291.80
JEFFERSON	167.78	151.96	138.13	169.25	199.91	244.10	283.40	299.36
KING	167.93	156.58	140.42	167.23	196.74	238.70	270.98	293.20
KITSAP	160.89	145.59	130.38	162.39	191.19	231.66	266.44	292.26
KITTITAS	171.01	158.66	148.89	171.11	198.33	241.57	277.31	293.04
KLICKITAT	169.82	157.16	147.98	170.29	200.75	242.97	278.29	299.51
LEWIS	168.51	153.46	141.60	166.64	199.00	241.57	278.35	301.85
LINCOLN	167.13	157.68	146.77	168.74	200.36	244.34	277.43	289.75
MASON	167.14	153.77	140.28	165.46	198.69	239.61	275.00	295.69
OKANOGAN	173.85	162.61	152.28	173.83	204.94	248.82	284.56	301.58
PACIFIC	174.89	161.24	150.62	174.86	204.86	250.74	285.03	311.17
PEND OREILLE				165.50	195.65	238.32	272.45	284.47
PIERCE	164.26	149.79	134.11	161.07	191.47	230.25	263.92	290.72
SAN JUAN	195.93					283.15	324.10	345.06
SKAGIT	161.91	147.27	132.79	166.41	197.38	238.78	274.65	293.53
SKAMANIA	170.83	157.59	149.68	173.98	202.18	243.25	278.31	302.60
SNOHOMISH	163.93	152.27	135.44	163.84	193.96	236.33	268.48	291.19
SPOKANE	159.76	146.48	133.13	162.67	193.62	237.22	269.16	280.92
STEVENS	161.95	149.68	139.36	165.73	195.53	242.58	277.53	290.23
THURSTON	163.21	145.39	130.31	161.14	193.42	233.34	269.91	295.80
WAHKIAKUM	168.11	153.13	146.38	170.25	199.34	242.71	277.46	302.12
WALLA WALLA	165.24	153.85	146.63	169.79	199.81	243.31	274.96	294.93
WHATCOM	166.29	146.95	132.82	165.09	197.85	244.09	283.06	300.81
WHITMAN	165.07	154.38	142.86	168.31	198.41	242.00	273.19	286.68
YAKIMA	162.88	149.34	135.10	165.45	194.85	238.79	273.47	289.98
STATE AVERAGE				**168.40**	**199.10**	**241.10**	**275.10**	**296.89**
SPREAD	**16.52**	**21.09**	**23.69**	**16.42**	**15.18**	**21.27**	**21.12**	**30.25**

This same information, for 2007 only, is presented in geographic form in Figure 3.

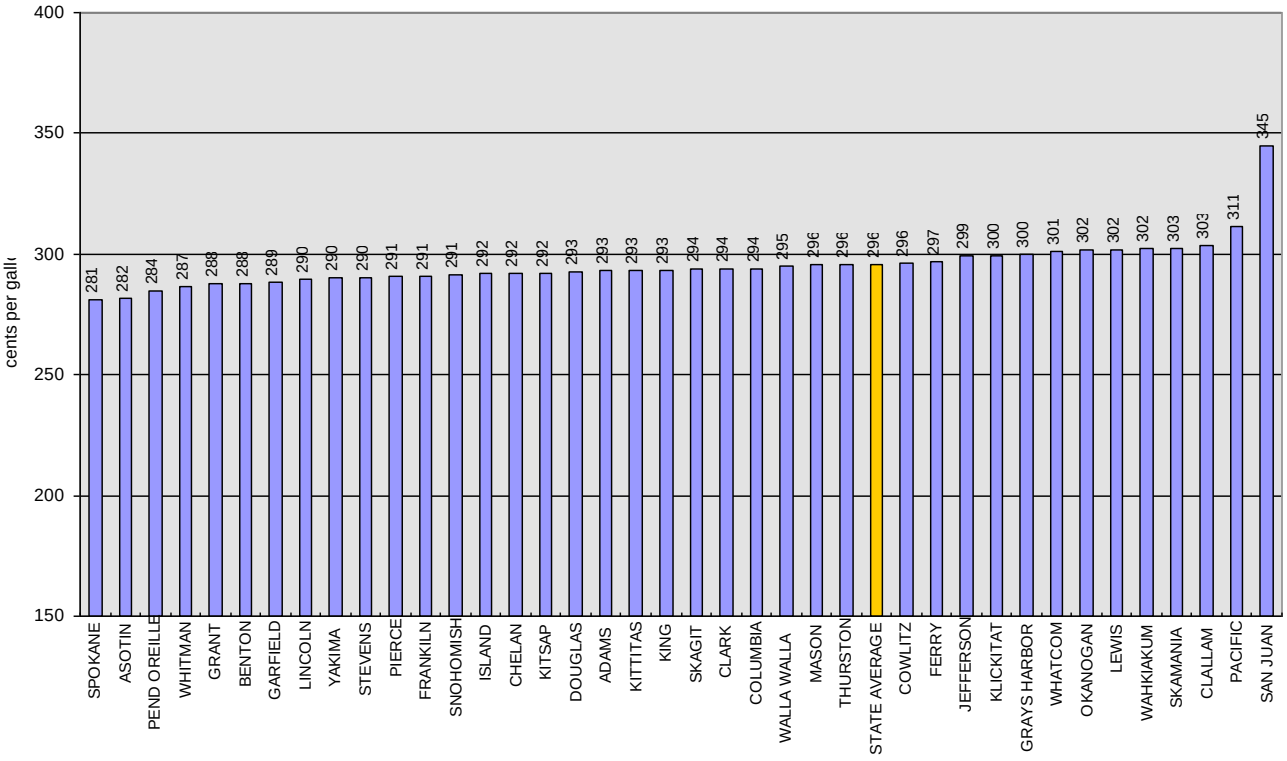
FIGURE 3
AVERAGE RETAIL GAS PRICES BY COUNTY FOR 2007*



*Prices Rounded to the Nearest Cent

Chart 10 focuses on 2007 prices and helps to illustrate the retail price difference between counties. The average for the state is included in each chart. The counties are ordered from lowest to highest average 2007 prices.

CHART 10
Average 2007 Retail Price by County



The 10 counties with the lowest average retail prices in 2007 are all in Eastern Washington. Of these, the lowest prices were found in the counties bordering Idaho (Asotin, Whitman, Spokane and Pend Oreille).

Spokane County has the lowest average retail prices, more than 14 cents per gallon below the state average.

On the west side of the state, Pierce County has the lowest prices, averaging a little more than 5 cents per gallon below the state average.

Counties more distant from the terminals, including San Juan, Pacific, and Clallam Counties have the highest prices, with San Juan County prices being nearly 50 cents per gallon above the state average.

Table 5 summarizes the average rack prices by county by year.

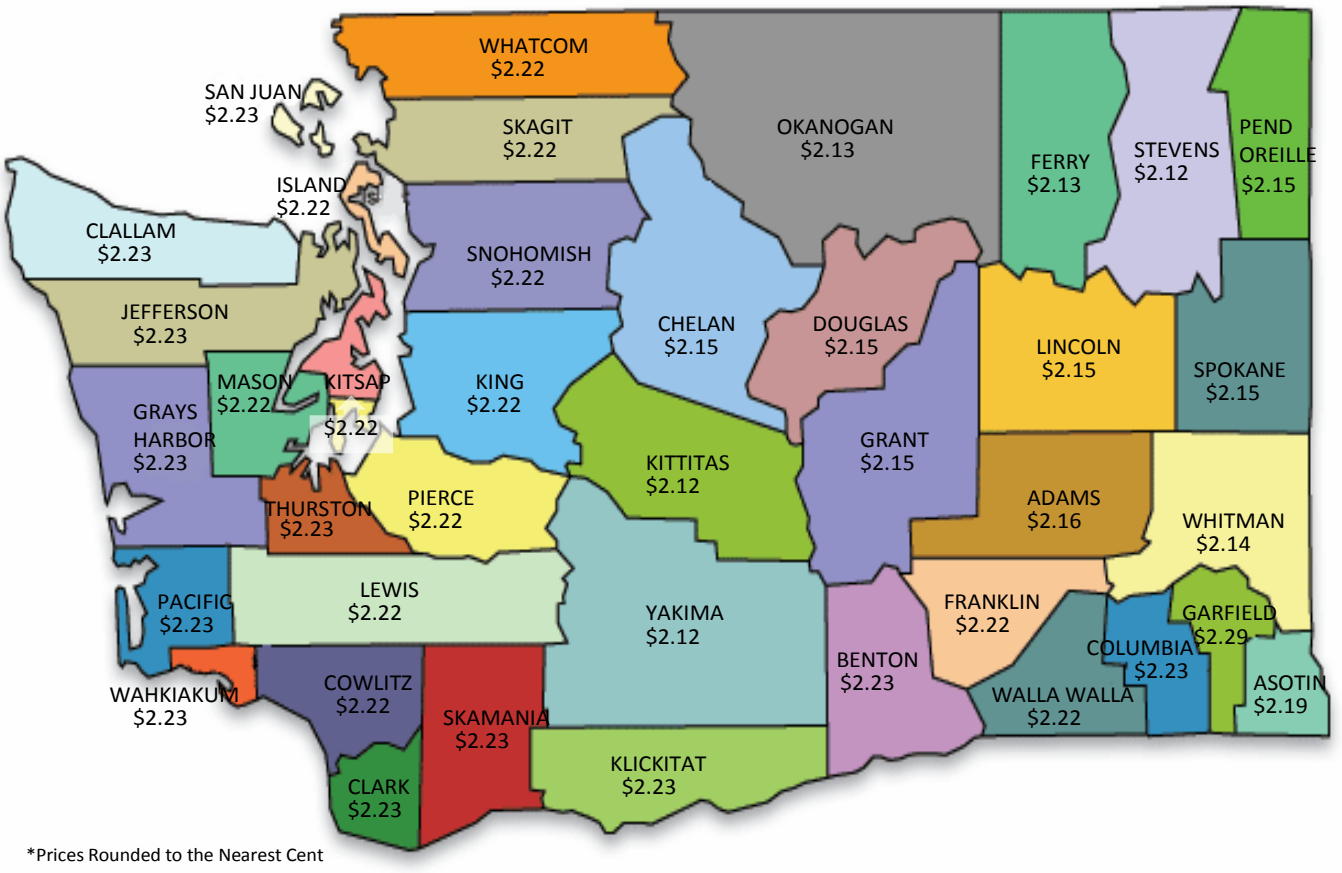
TABLE 5: Average Rack Prices by County by Year

COUNTY	2000	2001	2002	2003	2004	2005	2006	2007
ADAMS	104.57	92.29	85.73	103.72	132.55	172.25	202.52	215.95
ASOTIN	104.74	92.71	87.47	104.49	133.79	173.28	203.82	218.58
BENTON	104.82	92.51	87.12	104.64	133.75	173.99	207.15	222.82
CHELAN	104.24	92.06	84.37	103.00	132.10	172.04	203.36	214.80
CLALLAM	103.06	90.09	86.91	102.57	130.64	172.23	207.89	222.53
CLARK	102.34	90.20	84.95	101.88	131.40	172.10	205.99	222.76
COLUMBIA	104.85	92.73	87.87	104.45	133.27	173.52	206.51	223.20
COWLITZ	103.15	90.13	87.40	102.94	130.51	172.49	207.75	222.44
DOUGLAS	104.53	92.38	84.46	102.46	131.22	170.66	202.09	214.93
FERRY				102.65	131.00	170.77	199.77	212.56
FRANKILN	104.76	92.68	87.38	104.56	133.46	173.74	206.02	222.08
GARFIELD	104.88	91.86	84.20	103.99		177.93	214.01	229.47
GRANT	104.38	92.31	84.69	103.04	131.66	171.34	201.92	214.68
GRAYS HARBOR	102.90	89.81	86.61	102.37	130.83	172.15	207.66	222.67
ISLAND	102.93	90.85	88.36	103.20	131.33	171.59	206.61	222.15
JEFFERSON	102.87	89.21	85.42	102.08	130.74	172.47	207.78	222.89
KING	103.95	90.20	87.62	102.63	130.72	171.80	207.72	222.08
KITSAP	102.80	89.69	85.97	102.26	130.77	172.28	207.52	222.22
KITTITAS	102.69	90.91	84.89	102.56	129.55	169.44	198.92	211.98
KLICKITAT	103.41	90.20	87.62	102.99	130.55	172.57	207.78	222.99
LEWIS	102.92	89.86	85.64	101.80	130.54	172.07	207.63	222.32
LINCOLN	104.59	92.55	84.73	103.30	132.79	172.14	203.98	214.99
MASON	103.23	90.40	87.03	102.49	130.65	172.08	207.76	222.23
OKANOGAN	104.13	92.36	84.44	103.00	131.97	171.02	201.32	213.26
PACIFIC	103.30	90.91	87.99	102.55	129.96	172.18	207.45	222.93
PEND OREILLE				103.38	130.83	171.06	202.04	215.39
PIERCE	102.89	89.95	86.13	102.19	130.78	172.21	207.71	222.29
SAN JUAN	103.62					171.83	207.58	223.42
SKAGIT	102.70	90.51	87.77	102.69	131.39	171.27	206.47	221.55
SKAMANIA	103.27	90.68	87.82	102.68	129.97	172.26	208.11	223.24
SNOHOMISH	103.95	91.06	88.11	102.51	130.75	171.74	207.64	222.06
SPOKANE	106.27	94.34	86.54	103.53	133.03	171.29	203.44	215.40
STEVENS	104.00	92.08	84.43	102.75	130.90	170.48	199.34	212.08
THURSTON	103.15	90.23	87.24	102.72	130.64	172.35	207.81	222.53
WAHKIAKUM	103.15	89.80	86.66	102.90	130.91	172.75	207.80	223.24
WALLA WALLA	104.79	92.64	87.48	104.71	133.10	173.59	206.39	221.98
WHATCOM	102.87	90.57	87.91	102.83	131.31	171.35	206.55	222.17
WHITMAN	104.25	92.04	84.55	103.03	132.02	171.91	202.06	213.92
YAKIMA	102.66	90.90	84.88	102.72	129.51	169.51	198.81	212.05
STATE AVERAGE	**102.10**	**92.00**	**85.70**	**102.60**	**132.00**	**172.30**	**204.70**	**211.88**
SPREAD	**3.93**	**5.13**	**4.16**	**2.91**	**4.28**	**4.55**	**9.30**	**11.44**

The rack price is the price at the fuel terminal that is used to supply the stations of a particular county. This price includes the transportation to the terminal but it excludes the final transport from the terminal to the retail stations.

Thus, for example, the rack prices for San Juan County are generally quite close to those for Whatcom County, since product in both counties will principally be supplied by terminals in Anacortes or Ferndale. Also shown are the state averages and the spread between the highest (excluding Garfield County) and lowest rack prices for each year.[32] This same information, for 2007 only, is presented in geographic form in Figure 4.

FIGURE 4
AVERAGE RACK PRICES BY COUNTY FOR 2007*



*Prices Rounded to the Nearest Cent

[32] Garfield County data is aberrant and will be further examined in Phase 2.

A few points of interest. First is the significantly smaller spreads (the difference between the highest and lowest) among the rack prices than for the retail prices. Most extreme, in 2002, the difference in the spreads is nearly 20 cents per gallon (retail spread of 23.7 cents, and rack spread of 4.16 cents). The increasing rack spread is also notable.

The spread reached a low in 2003 of less than 3 cents, while for 2007 the spread (excluding the aberrant data for Garfield County) had increased to more than 17 cents. The reported rack prices for Garfield County for 2005 through 2007 are

puzzling. Garfield County is likely supplied out of terminals in the Tri-Cities and/or Spokane.

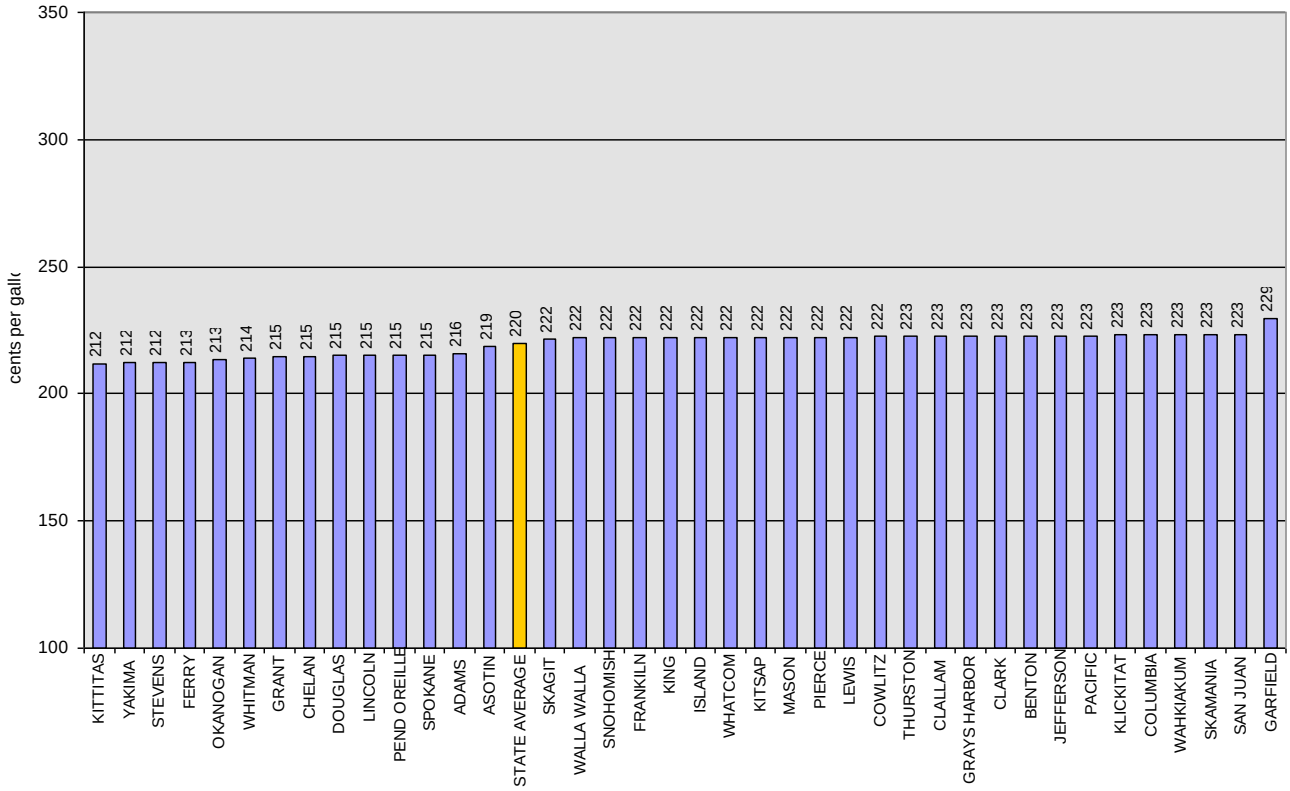
Yet the reported rack prices for Garfield County are substantially higher than for those areas. Finally, the Spokane County rack prices for 2000 and 2001 were the highest reported.

From Table 4, we see that the Spokane Country retail prices are among the lowest in the state, yet the rack prices are the highest. Indeed, including taxes and transportation, the reported prices imply little or no margin to cover the cost of retailing. These anomalies in the rack and retail price data will be examined further in the second phase of this study.[33]

Chart 11 focuses on 2007 rack prices. The average for the state is included in each chart. The counties are ordered as in Chart 10, showing the cities in order from lowest to highest.

[33] Comparing retail and rack prices, we find that counties with the highest or lowest annual average retail prices do not have the highest or lowest annual average rack prices.

CHART 11
Average 2007 Rack Price by County



A striking fact from Chart 11 is the relatively low wholesale prices in Eastern Washington. The 14 counties with the lowest wholesale prices are all in Eastern Washington, with prices generally in the $2.10-$2.15 range.[34]

In contrast, in Western Washington, the wholesale prices generally range in a very narrow range of $2.21 to $2.23.

Table 6 summarizes the estimated average margin between rack and retail prices net of taxes by county by year.

[34] This excludes Garfield County. The reported price for Walla Walla County is also aberrant.

TABLE 6: Average Wholesale-Retail Margins by County by Year

COUNTY	2000	2001	2002	2003	2004	2005	2006	2007
ADAMS	17.76	19.98	16.91	18.81	16.82	20.42	22.67	21.78
ASOTIN	11.34	5.21	2.41	10.97	9.25	11.85	10.94	7.65
BENTON	11.97	14.14	6.08	13.89	10.60	13.50	12.06	9.69
CHELAN	20.14	13.95	9.14	14.48	13.96	18.94	19.20	21.81
CLALLAM	24.81	24.80	16.94	21.34	19.90	22.47	23.86	25.46
CLARK	17.72	13.69	1.27	12.11	9.16	6.65	6.60	15.48
COLUMBIA	14.66	17.78	13.37	16.97	17.26	19.68	16.42	15.50
COWLITZ	18.99	17.85	12.48	18.01	17.73	17.01	13.31	18.68
DOUGLAS	18.46	12.59	6.20	14.06	14.92	19.32	21.10	22.33
FERRY				27.77	23.79	21.56	31.81	28.74
FRANKILN	10.01	13.36	6.10	14.35	11.30	14.32	15.20	13.57
GARFIELD	16.24	17.23	15.32	17.24		13.45	7.89	3.83
GRANT	17.35	18.05	12.35	15.92	14.53	16.67	18.74	17.79
GRAYS HARBOR	19.98	17.01	-1.62	15.41	17.58	17.52	18.15	21.81
ISLAND	16.35	17.95	10.25	18.39	17.59	19.65	17.49	14.34
JEFFERSON	21.30	19.15	9.10	20.70	19.97	20.92	23.42	21.14
KING	20.38	22.77	9.19	18.12	16.82	16.19	11.06	15.83
KITSAP	14.50	12.30	0.81	13.65	11.22	8.67	6.72	14.74
KITTITAS	24.72	24.15	20.41	22.08	19.58	21.42	26.19	25.77
KLICKITAT	22.81	23.36	16.76	20.82	21.01	19.69	18.32	21.20
LEWIS	21.99	20.00	12.36	18.36	19.27	18.79	18.53	24.22
LINCOLN	18.95	21.54	18.44	18.96	18.37	21.50	21.29	19.47
MASON	20.31	19.76	9.65	16.48	18.85	16.82	15.04	18.15
OKANOGAN	26.12	26.66	24.23	24.34	23.77	27.10	31.06	33.01
PACIFIC	27.99	26.73	19.03	25.83	25.71	27.86	25.39	32.92
PEND OREILLE				15.64	15.63	16.56	18.24	13.79
PIERCE	17.77	16.24	4.38	12.40	11.49	7.32	4.01	13.13
SAN JUAN	48.92					60.61	64.33	66.23
SKAGIT	15.62	13.16	1.42	17.25	16.79	16.81	15.99	16.69
SKAMANIA	23.97	23.31	18.26	24.81	23.02	20.28	18.01	24.02
SNOHOMISH	16.38	17.61	3.73	14.86	14.01	13.88	8.64	13.84
SPOKANE	11.74	10.73	5.16	13.46	12.75	16.05	13.57	10.25
STEVENS	14.34	14.01	11.33	16.48	15.44	21.39	25.99	22.84
THURSTON	16.46	11.57	-0.53	11.95	13.59	10.28	9.91	17.98
WAHKIAKUM	21.32	19.74	16.12	20.68	19.23	19.26	17.46	23.59
WALLA WALLA	16.85	17.62	15.54	18.61	17.51	19.02	16.37	17.63
WHATCOM	19.82	12.79	1.31	15.77	17.34	22.03	24.31	23.32
WHITMAN	17.21	18.74	14.71	18.81	17.19	19.38	18.98	17.48
YAKIMA	16.62	14.85	6.61	16.26	16.15	18.57	22.46	22.63

The margin at retail is the difference between the average retail price net of taxes and the rack or wholesale price. This “margin” is used to pay for the transportation to the stations and the costs of operating the stations. Not surprising, San Juan County has by far the greatest margin, followed generally by Pacific County.

We next examine the retail prices for the city locations listed in Table 6 above. In 1991, the Washington State Energy Office published a “Washington State Gasoline Prices Study.”

In that study, prices in 11 cities were examined. The cities studied were very similar to those we include, with the exceptions that the 1991 study included Wenatchee (which is not part of the current pricing data) but did not include Olympia or Bremerton.

In addition, in this current study we break the prices for the Seattle metropolitan region into Seattle, Bellevue, and Everett.

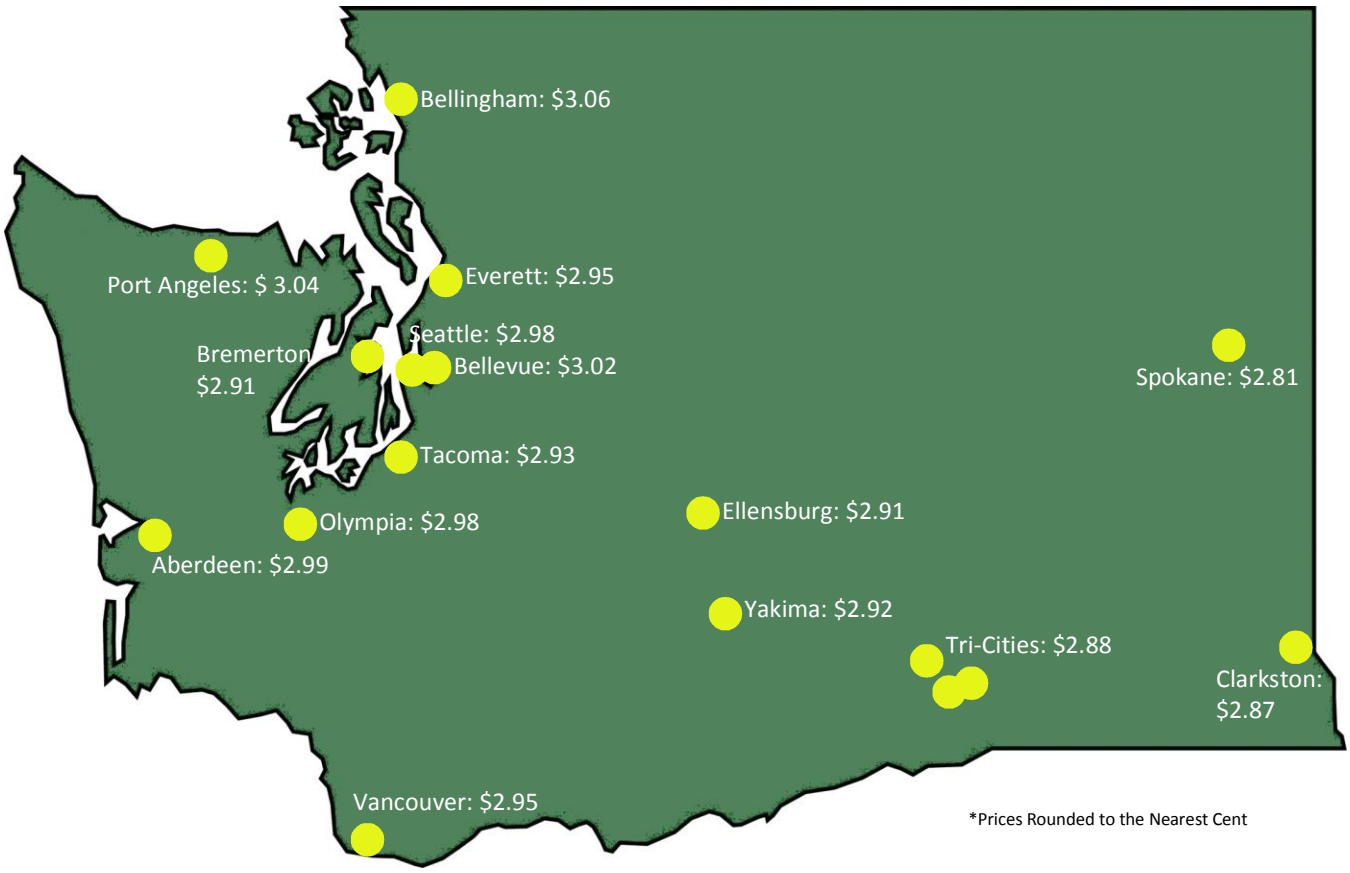
Table 7 summarizes the annual average retail prices for each of the city areas.

TABLE 7: Average Retail Prices by City by Year

CITY	2000	2001	2002	2003	2004	2005	2006	2007
ABERDEEN	165.14	148.72	126.48	164.21	195.92	238.47	277.00	298.81
BELLEVUE	173.20	162.97	145.55	169.15	202.31	245.05	278.65	302.06
BELLINGHAM	167.60	146.91	133.47	167.18	201.27	246.57	287.11	305.68
BREMERTON	161.69	146.96	129.89	161.89	193.41	230.17	265.43	291.17
CLARKSTON	158.53	138.06	131.81	161.78	191.74	237.38	270.00	287.08
ELLENSBURG	170.53	159.55	148.04	170.87	196.59	240.44	275.86	290.56
EVERETT	163.63	151.22	134.83	164.72	196.17	239.32	269.55	294.63
OLYMPIA	163.75	145.62	130.03	162.47	196.22	235.55	271.56	297.51
PORT ANGELES	171.20	158.36	148.26	169.82	200.81	246.56	286.03	304.42
SEATTLE	170.72	160.54	142.06	169.86	199.49	241.64	274.99	298.35
SPOKANE	159.27	146.11	131.76	162.73	193.66	237.22	269.65	281.47
TACOMA	164.53	150.06	132.74	161.02	191.91	230.69	265.04	293.02
TRI-CITIES	157.76	148.97	136.24	164.74	192.99	237.68	271.43	288.02
VANCOUVER	162.80	147.28	129.74	161.20	191.68	229.54	265.16	295.17
YAKIMA	162.60	147.62	133.15	166.09	196.80	242.08	275.57	291.77
STATE AVERAGE				**168.40**	**199.10**	**241.10**	**275.10**	**296.89**
SPREAD	**15.44**	**24.91**	**21.78**	**9.85**	**10.63**	**17.04**	**22.08**	**24.21**

This same information, for 2007 only, is presented in geographic form in Figure 5.

FIGURE 5
Average Retail Prices by City for Year 2007*



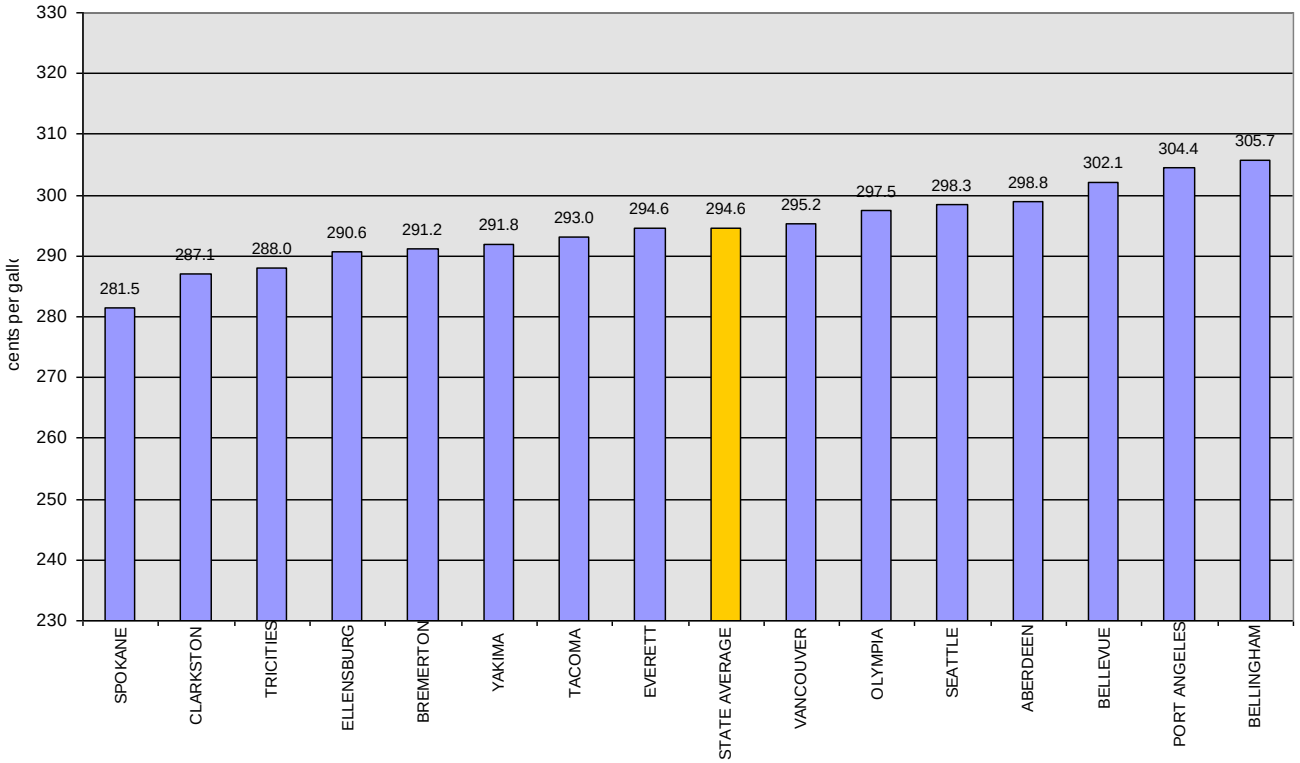
The highest average price for each year is in Western Washington, with Bellevue and Bellingham each having the highest average price in three of the eight periods. The lowest average price occurred in Eastern Washington three of the eight periods. Vancouver had the lowest average price two of the eight periods. Given the cost of supplying Port Angeles and Aberdeen, it is interesting that neither Port Angeles nor Aberdeen had the highest prices. Indeed, in 2002, OPIS data indicates that Aberdeen had the lowest average price of any of the studied areas.

There are a number of notable differences between the city prices 2000-2007 as compared to the finding of the 1991 Study. The 1991 study found that "Retail Prices In Seattle Tended To Be Lower Than In Eastern Washington."[35]

That certainly is no longer the case. The 1991 study found a spread in prices across the cities (for self serve regular) of about 11.5 cents per gallon (high of $1.33 in Port Angeles, low of $1.225 in Seattle). We find much larger spreads, particularly more recently. In 2007, the spread was more than 24 cents per gallon with the high price of almost $3.07 in Bellingham and the low slightly more than $2.81 in Spokane.[36]

Chart 12 focuses on 2007 retail prices. At one extreme, the Spokane average price for

CHART 12
Average 2007 Retail Prices by City



[35] Graph 7, p. 28. The retail prices used in the earlier study were collected directly from stations.
[36] In terms of percentage, these spreads are nearly identical. The 1990 spread is 8.6% while the 2007 spread is 8.9%. Adjusting for inflation, the "real" 1990 spread in today's dollars would be 17¢.

2007 is 13 cents per gallon below the state average, and at the other extreme, the Bellingham price is 11 cents per gallon above the state average.

Table 8 summarizes the average rack prices for each of the city locations by year. The average rack price for the state and the spread between the highest and the lowest average rack prices for each year are also shown.

TABLE 8: Average Rack Prices by City by Year

COUNTY	2000	2001	2002	2003	2004	2005	2006	2007
ABERDEEN	103.04	89.81	87.00	102.82	130.74	172.32	207.72	222.63
BELLEVUE	104.25	91.29	88.82	103.08	130.61	172.58	208.04	222.26
BELLINGHAM	103.67	91.66	89.58	103.64	131.46	172.08	207.52	222.94
BREMERTON	103.11	90.11	87.05	102.88	130.41	172.42	207.77	222.01
CLARKSTON	105.42	92.69	87.57	104.67	134.07	173.40	204.03	219.24
ELLENSBURG	102.67	90.90	84.87	102.55	129.54	169.46	198.88	211.83
EVERETT	104.16	91.29	89.05	103.32	130.66	172.51	208.04	222.56
OLYMPIA	103.06	89.95	86.90	102.89	130.51	172.48	207.58	222.36
PORT ANGELES	103.47	90.47	87.57	102.92	130.46	172.44	207.85	222.72
SEATTLE	104.23	91.32	88.88	103.15	130.62	172.38	207.98	222.09
SPOKANE	106.03	94.28	86.62	103.27	132.16	170.45	200.41	212.23
TACOMA	103.17	90.37	87.32	102.75	130.47	172.43	207.68	221.69
TRI-CITIES	104.75	92.85	88.07	104.82	132.94	173.10	204.27	219.63
VANCOUVER	102.90	90.32	86.01	102.98	131.43	172.71	204.89	222.81
YAKIMA	102.60	90.83	84.96	102.43	129.71	169.58	199.08	212.41
STATE AVERAGE	**102.10**	**92.00**	**85.70**	**102.60**	**132.00**	**172.30**	**204.70**	**211.88**
SPREAD	**3.42**	**4.47**	**4.71**	**2.39**	**4.53**	**3.95**	**9.16**	**11.11**

This same information, for 2007 only, is presented in geographic form in Figure 6. Similar to the County data, the lowest rack prices are generally in Eastern Washington, with the same anomalous highest prices in Spokane in 2000 and 2001.

FIGURE 6
Average Rack Prices by City for Year 2007*

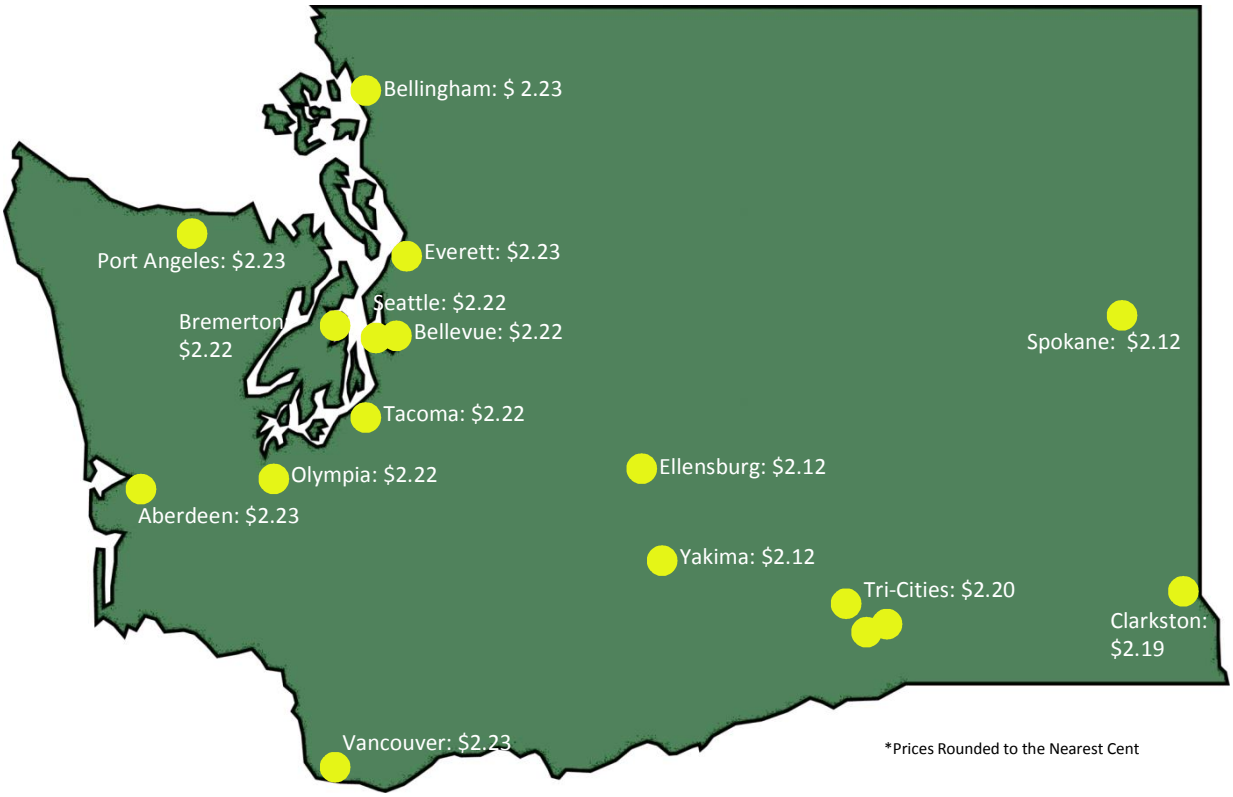
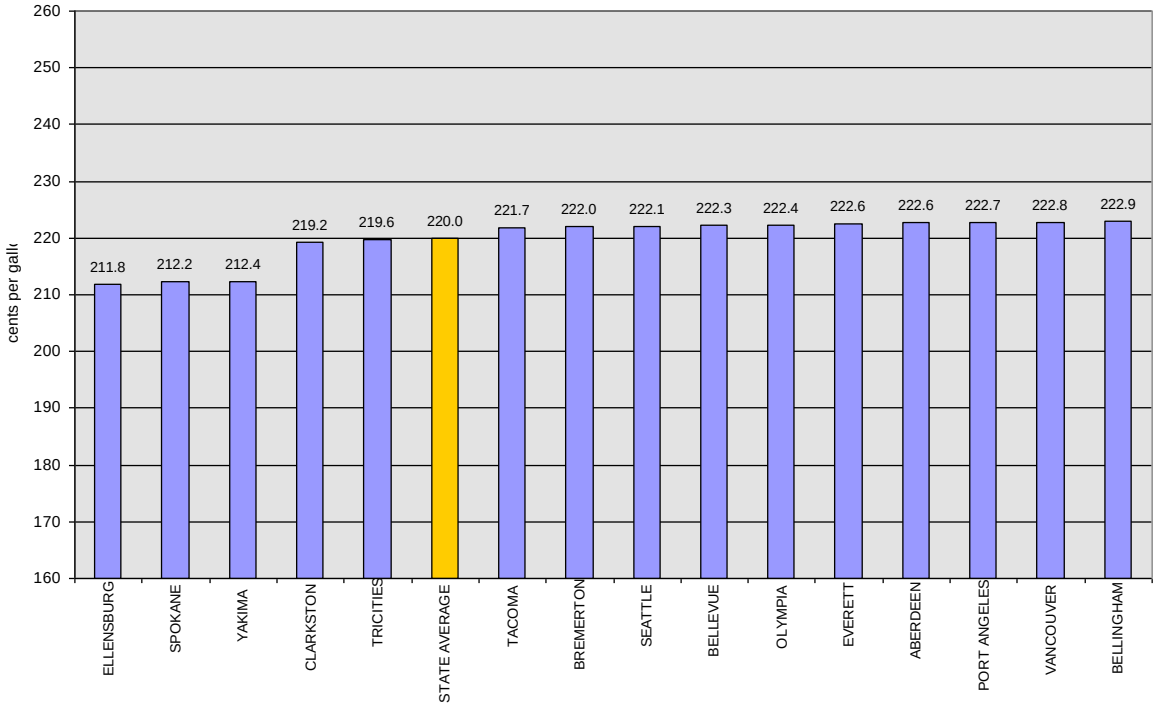


Chart 13 focuses on 2007 rack prices.

CHART 13
Average 2007 Rack Prices by City



Here the difference between Eastern and Western Washington is stark. Each city in Eastern Washington has a price below the state average, while each city in Western Washington is above the state average.

Table 9 summarizes the estimated average margin between rack and retail prices net of taxes by city by year.

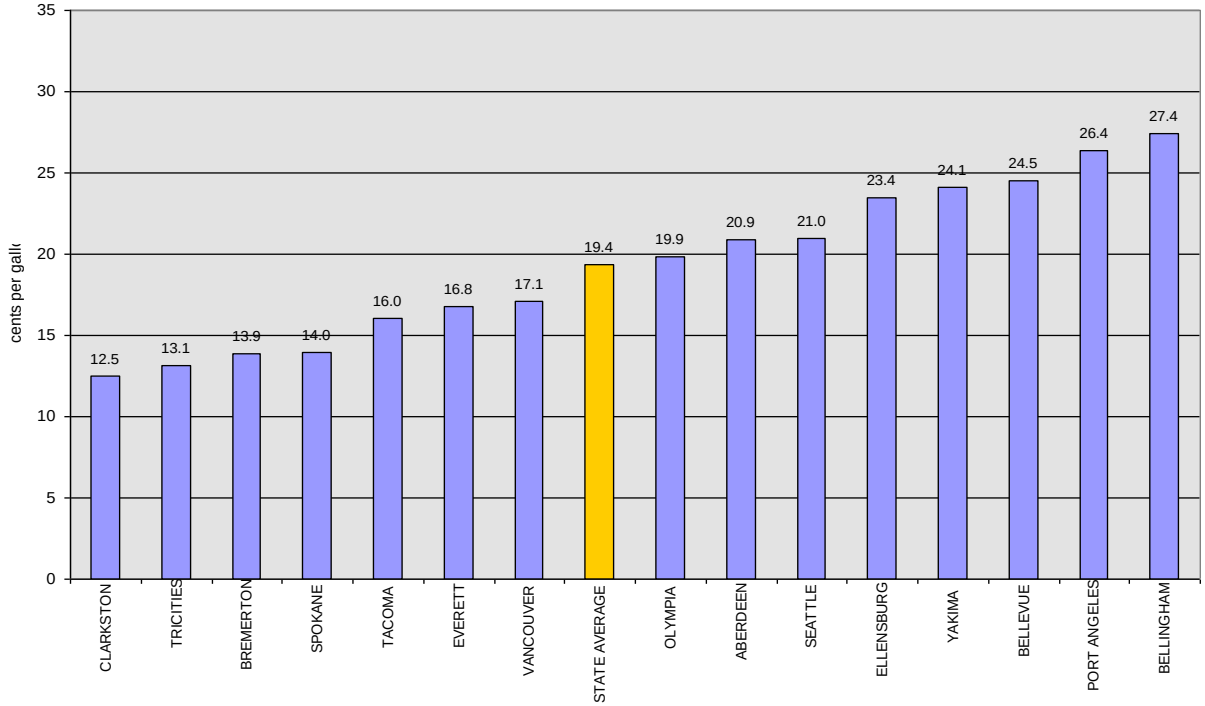
TABLE 9: Average Wholesale-Retail Margins by City by Year

CITY	2000	2001	2002	2003	2004	2005	2006	2007
ABERDEEN	18.50	15.32	-4.13	14.91	15.99	15.44	17.09	20.85
BELLEVUE	25.35	28.08	13.12	19.60	22.50	21.76	18.42	24.50
BELLINGHAM	20.33	11.65	0.29	17.06	20.61	23.78	27.40	27.42
BREMERTON	14.97	13.25	-0.77	12.52	13.81	7.03	5.47	13.87
CLARKSTON	9.51	1.77	0.64	10.63	8.48	13.27	13.77	12.52
ELLENSBURG	24.26	25.06	19.57	21.84	17.85	20.27	24.78	23.45
EVERETT	15.87	16.33	2.18	14.92	16.31	16.10	9.32	16.77
OLYMPIA	17.09	12.07	-0.46	13.11	16.52	12.36	11.78	19.85
PORT ANGELES	24.13	24.28	17.09	20.43	21.15	23.41	25.99	26.37
SEATTLE	22.89	25.62	9.58	20.23	19.67	18.55	14.81	20.95
SPOKANE	11.50	10.42	3.73	13.79	13.66	16.90	17.05	13.97
TACOMA	17.75	16.09	1.82	11.79	12.25	7.55	5.16	16.03
TRI-CITIES	9.41	12.51	4.57	13.45	10.85	13.87	14.96	13.12
VANCOUVER	16.30	13.37	0.14	11.75	11.06	6.11	8.07	17.07
YAKIMA	16.40	13.18	4.58	17.19	17.90	21.79	24.29	24.08

As in the county data, there are some suspect data points as it is unlikely that the retail prices are below the wholesale prices at the terminal as indicated for Aberdeen, Bremerton and Olympia in 2002.

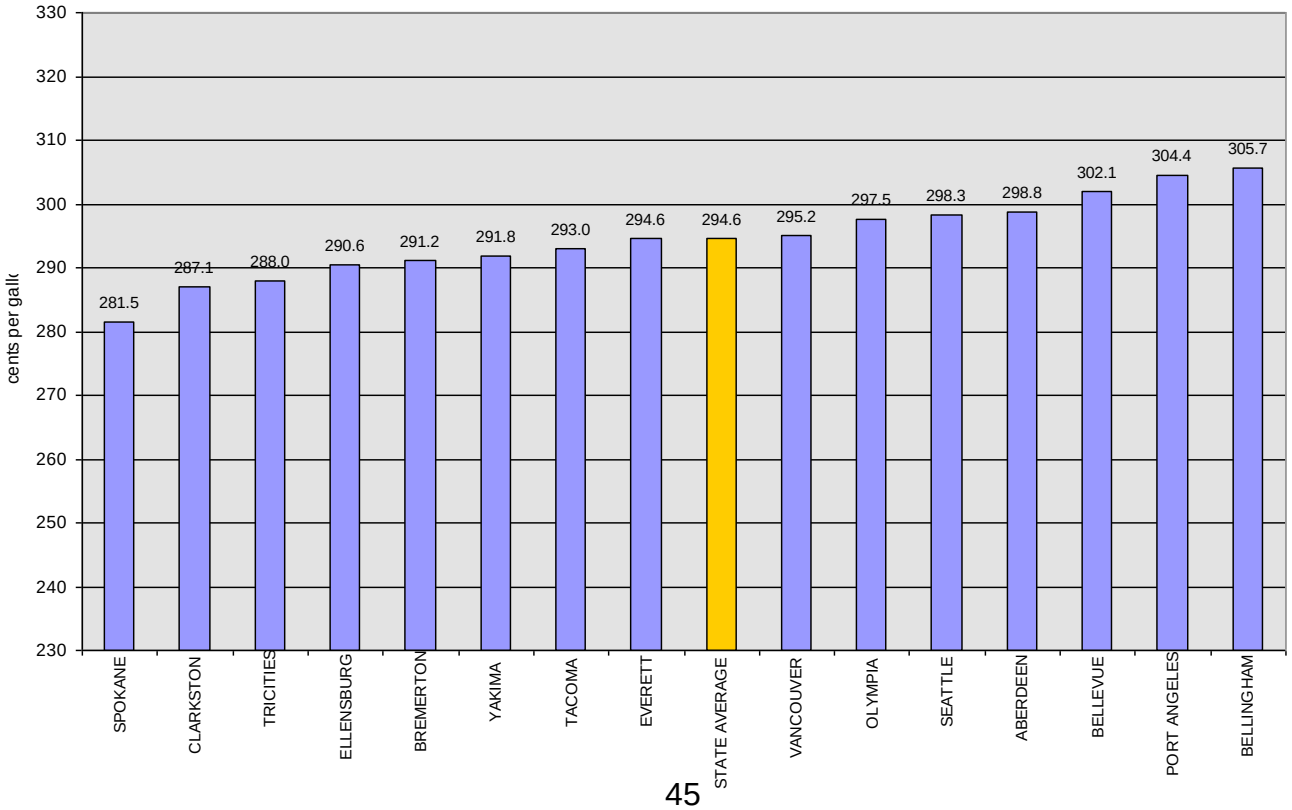
Chart 14 focuses on the 2007 difference between the rack price and the retail price net of taxes. The average wholesale-retail margin for the state of 19.4 cents per gallon is included in the chart.

CHART 14
Average 2007 Margins by City



We have also performed an initial analysis to identify any unusual changes in the relative retail prices of the Washington cities.

CHART 15
Average 2007 Retail Prices by City



Appendix A contains Charts 15 A-N which show the retail prices for each location 4/2/2000 through 7/15/2007. Appendix B contains Charts 16 A-N which show the difference between each locations price and the relative Washington state benchmark retail price (location price - benchmark state price) for each week.[37]

Some interesting changes in relative prices are apparent. For example, Bellingham enjoyed relatively low prices, as much as 23 cents per gallon less than paid in Seattle, while the Olympic Pipeline was closed after the 1999 explosion.[38]

However, since the pipeline reopened the relative prices in Bellingham have steadily increased reaching a high of more than 21 cents above the price in Seattle in August of last year.

Spokane prices also show an unusual increase in late summer 2006. Until 2003, Spokane typically had prices about 10 cents below Seattle. From 2003 through most of 2006, the Spokane price was about 5 cents less. However, beginning in August 2006, the price in Spokane jumped above that in Seattle, reaching a peak of 18.1 cents above Seattle in the week of September 10th. Since that time, things reversed and by January 2007, the Spokane prices were nearly 30 cents below those in Seattle.[39]

The prices in the other Eastern Washington cities of Clarkston, Yakima, Ellensburg and the Tri-Cities show changes strikingly similar to those in Spokane. For example, in April 2006, the gasoline prices in Clarkston were about 30 cents per gallon below Seattle prices.

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[37] For the relative state benchmark price we used the OPIS retail price for the Greater Seattle Region which includes Seattle, Bellevue and Everett. This region consumes more than 50% of all the motor fuel in the state. A positive price differential indicates that the city price is higher than the benchmark price while a negative price differential indicates that the city price is lower than the benchmark price.

[38] During this time, it was less expensive to truck product to Bellingham than to ship it by barge to Seattle.

[39] Following up on observations of anomalous pricing patterns affecting multiple cities over the past year, Federal Trade Commission staff is currently examining bulk supply and demand conditions and practices for gasoline and diesel in the Pacific Northwest.

Some six months later in September the Clarkston prices were 20 cents per gallon higher than in Seattle. The up and down pattern of relative prices continued. Prices were 31 cents per gallon less than Seattle in January 2007, but 14 cents above by June. Yakima, Ellensburg and the Tri-Cities have a similar but less extreme price pattern compared to Seattle.

Not surprisingly, the prices in the I-5 metropolitan corridor, Everett, Seattle, Tacoma and Olympia, show little variation compared to the prices in Seattle.

INDUSTRY DISCUSSIONS

Staff from CTED's Energy Policy Division and the Attorney General's Office Consumer Protection and Antitrust divisions met with industry stakeholders during the first phase of this investigation into gasoline prices. Meetings were held with representatives of refineries, wholesalers and retailers to gather perspective and insight about the petroleum industry and gas prices, in particular. Representatives of the following organizations participated in the discussions:

- Western States Petroleum Association, a trade association that represents 26 companies that explore, produce, transport, refine and market petroleum products.
- Washington Oil Marketers Association, a statewide trade association that represents 93 regular members and 65 associate members involved in petroleum marketing and related businesses.
- Automotive United Trades Organization, a trade association that represents 400 independent gasoline retailers in Washington.
- Tesoro Refining and Marketing Company, which operates the Tesoro refinery at Anacortes, Wash.
- BP America, Inc., which operates the BP refinery at Cherry Point in Ferndale, Wash.
- ConocoPhillips, which operates the ConocoPhillips refinery at Ferndale, Wash.
- Royal Dutch Shell, which operates the Shell refinery at Anacortes, Wash.
- Chevron U.S.A. Inc., which has 250 retail outlets in Washington.

In addition, U.S. Oil and Refining in Tacoma provided written comments.

Comments from those industry representatives are summarized below. Due to the nature of these discussions and the necessity to preserve competition among industry

stakeholders, the report does not attribute comments to specific organizations or their representatives.

It is important to recognize these are comments from industry representatives and not "findings" from an independent investigation or economic study. Comments presented here also do not necessarily represent the opinions or conclusions of the authors of this report but will be considered in relation to the gas price data analysis during the second phase of this investigation.

Supply and Demand

- In spite of record gas prices nationally, gas demand in the U.S. was up 1.8 percent in the last five months. State gasoline demand appears to be stable over the past several years.
- Washington refineries are operating profitably and near capacity much of the time. Small increases (4 percent overall) in refinery capacity have occurred over the last seven years with updates, efficiencies and new equipment being brought online. Washington refineries routinely produce enough gasoline and diesel to meet Western Washington and Oregon demand when combined with some product coming up to Portland from California. However, a couple of the Washington refineries (BP and Tesoro) produce gasoline made to comply with California's air quality regulations. This California Air Resources Board (CARB) quality gasoline is exported to the California market.
- Crude oil comes to Washington's refineries primarily from Alaska and Canada with lesser amounts from other oil fields around the world. Alaska North Slope crude oil is most desirable because the Washington refineries were optimized for its characteristics and it has intermediate sulfur content. But Alaska's North Slope oil field is in decline,

which will mean more reliance on Canadian crude and other foreign sources. Washington refiners are adapting to receive crude from different countries.

- Several provisions increase the cost of shipping crude oil to Washington refineries. The Magnuson Amendment (33 U.S.C. § 476) and cases interpreting the amendment state that a permit cannot be issued that allows the construction, renovation or modification of a dock, terminal or other facility on or adjacent to Puget Sound if construction will allow that facility to handle a higher volume of crude oil than it was capable of handling in October 1977. A state statute (RCW 88.16.190) limits the capacity of tankers headed for Puget Sound refineries to 125,000 dead weight tons. Specifically, the statute prohibits tankers larger than 125,000 deadweight tons from passing east of a line between the Discovery Island lighthouse south to the New Dungeness lighthouse. The Jones Act (47 U.S.C. § 55102) states that cargo may not be transported between two U.S. ports unless it is transported by vessels built in the U.S. and owned by U.S. citizens. The Jones Act has been waived occasionally in times of supply emergencies.
- The preferred method to transport refined products is through a pipeline but space is tight on the few pipelines that serve Washington. If a pipeline is not available, refined product may be barged or trucked at higher costs, typically an additional 3 or 4 cents per gallon.
- Gasoline and crude oil storage capacity, like pipeline capacity, is tight. Regulations and markets dictate different gasoline blends for different seasons and for pockets within larger markets. Without additional storage, the amount of gasoline in reserve shrinks, putting pressure on available supply. Any disruption in the refined product distribution

chain, such as a seasonal refinery turnaround, a shutdown of a pipeline, or inability to barge due to bad weather, may create temporary shortages.[40]

- Regulatory impediments can also create supply, transportation and storage challenges. These include inconsistent fuel specifications, such as three different ethanol blend mandates for Portland, the rest of Oregon and Washington.
- At the same time, the inventory philosophy of producers is "just in time" to have adequate supplies to meet expected demand. Only two to five days of finished product is available to bridge short-term supply interruptions.
- Federally mandated Corporate Average Fleet Economy (CAFE) standards, intended to improve the average fuel economy of vehicles, may have a significant impact on demand in the next several years. Meanwhile, the impact of Washington's new biodiesel regulations is unknown. There are no standards set yet, and little infrastructure to distribute it.
- While producers have plans for updating refineries to increase efficiency and meet future requirements for reducing sulfur and benzene, for example, most don't have major expansion plans. It is difficult and expensive to find a suitable site for a refinery, the permitting process takes years and there must be an assured long-term supply of crude oil. These risk/cost factors make it unlikely that companies will invest in new refineries to be built in Washington or elsewhere in the U.S.

Pricing and Profit

- Gas prices are generally set daily. Oil companies state that the price at which gasoline is sold at wholesale or retail is market-driven and varies by region. They say gasoline is

[40] Refineries change the formulation of gasoline they produce in response to climate/temperature changes and conduct routine maintenance.

not sold at a “cost plus” price (an amount based on what it costs to refine, transport and market the product plus a percentage for profit).

- When setting the daily price of gas, companies often look to the reported spot price (latest reported wholesale price) in Portland, rack (wholesale) price of competitors, volumes of their own sales (current inventory) and how their retail prices compare to their competitors. This produces a tier of prices from a low usually set by cash-only sales and hypermarketers. Hypermarketers are the high-volume, lower-price stations established by retailers such as Wal-Mart, Costco and Safeway. They are the fastest-growing segment of the retail market.
- If supply tightens, prices generally will rise. If inventories rise, prices generally fall. Gas pricing also has a seasonal component; prices are typically lower in the winter when there is less driving and higher in summer when there is more recreational/vacation driving. Not surprisingly, unanticipated supply interruptions can have a significant impact on prices. Regional price spikes generally don’t last longer than a few weeks, however, as the problem is resolved or arbitrage (the movement of gas from other areas where the price is lower) catches up.
- Refineries say a number of changes have affected production costs. These include fluctuations in the price of crude, increased electricity costs, environmental regulations, equipment and cost of chemicals needed to process crude oil. Some industry representatives report that refinery operating costs have about doubled in the last five years, but that does not include the cost of crude oil. Some report that capital improvement costs have tripled.
- Major oil companies are reducing their ownership of retail outlets. This means that fewer retailers are controlled directly by major oil companies.

- When gas sells for around $3 a gallon, retailers might pay up to 12 cents per gallon in credit card processing fees. This can affect how retailers who accept credit payments are able to compete with cash-only sellers. Some stations that accept credit may charge a higher price in the hope that consumers will choose their brand, resulting in a wider spread between these stations and those that accept only cash. Other retailers that accept credit may opt to make a smaller profit.
- Wholesalers and retailers would like to see greater transparency in wholesale pricing and timely information on issues that affect supply.

PUBLIC COMMENTS

As part of this investigation into gas prices, the Attorney General's Office asked the public to provide information that might suggest price-fixing or other violations of Washington's consumer protection or antitrust laws. The office received 56 letters and e-mail messages from the public during Phase I:

- Ten were from individuals who work in the petroleum industry, primarily at the retail level. They provided their perspectives on the price run-up that occurred in the spring.
- 43 were from Washington residents. Most expressed concerns that the prices at their local stations were excessive and rising too quickly.
- Two were from individuals who expressed opinions about how an economist should be chosen for the study.
- One was from a private organization that wanted political factors including tax decisions to be considered.

None of the comments included facts that would implicate illegal practices within the industry.

NEXT STEPS

The second phase of the gasoline price analysis will examine the possible explanations for both the general price differences in gasoline prices across the state, and also for the occasional significant changes in those price differences.

The various factors that will be considered include:

- **Differences in the wholesale costs of gasoline because of different supply sources.** For example, Spokane receives gasoline from Montana refineries via the Yellowstone Pipeline. Spokane is the only major population center in Washington which is supplied by these refineries. As shown in Table 6, the wholesale cost average about 8 cents per gallon less in Spokane than in Seattle.
- **Transportation costs to terminals.** For example, it is substantially less expensive to ship product by pipeline than by barge. However, the Olympic Pipeline is frequently at capacity such that product must be taken by barge to supply the southwestern part of the state. As another example, problems on the Yellowstone Pipeline can result in Spokane having to be supplied by product shipped down the Olympic Pipeline or barged to Portland, barged from Portland to Pasco, and shipped on the Chevron Pipeline to Spokane.
- **Transportation costs from the terminal to the stations.** For example, Tacoma is supplied out of a terminal in Tacoma with very small trucking costs. Port Angeles is also supplied out of Tacoma terminals but then trucked more than 100 miles.
- **Cost of retailing.** For example, land values and wages vary widely across Washington state.

- **Competitive conditions at retail.** For example, the Seattle and Portland metropolitan area is substantially “direct supplied.” That is, the major petroleum companies have branded dealers and company operated stores that they directly supply. Most other areas are indirectly supplied by intermediaries called jobbers. The jobbers contract with the gasoline producers to receive product and then make arrangements to supply the retail facilities. As another example, in some locations discount retailers and grocery stores are significant retailers of gasoline, but in other areas, they are not present.
- **Reported rack prices.** The prices to date are those calculated by OPIS for each county and city location. However, only some of those locations actually have gasoline terminals within the city or county. We have requested individual sellers’ rack prices for each operative terminal in Washington and for Portland. In Phase 2 of our study, we will attempt to understand the apparent anomalies in the reported rack prices by studying the actual prices posted by both branded and unbranded suppliers.
- **Diesel prices.**

Appendix A

CHART 15A
Weekly Average ABERDEEN Retail Price

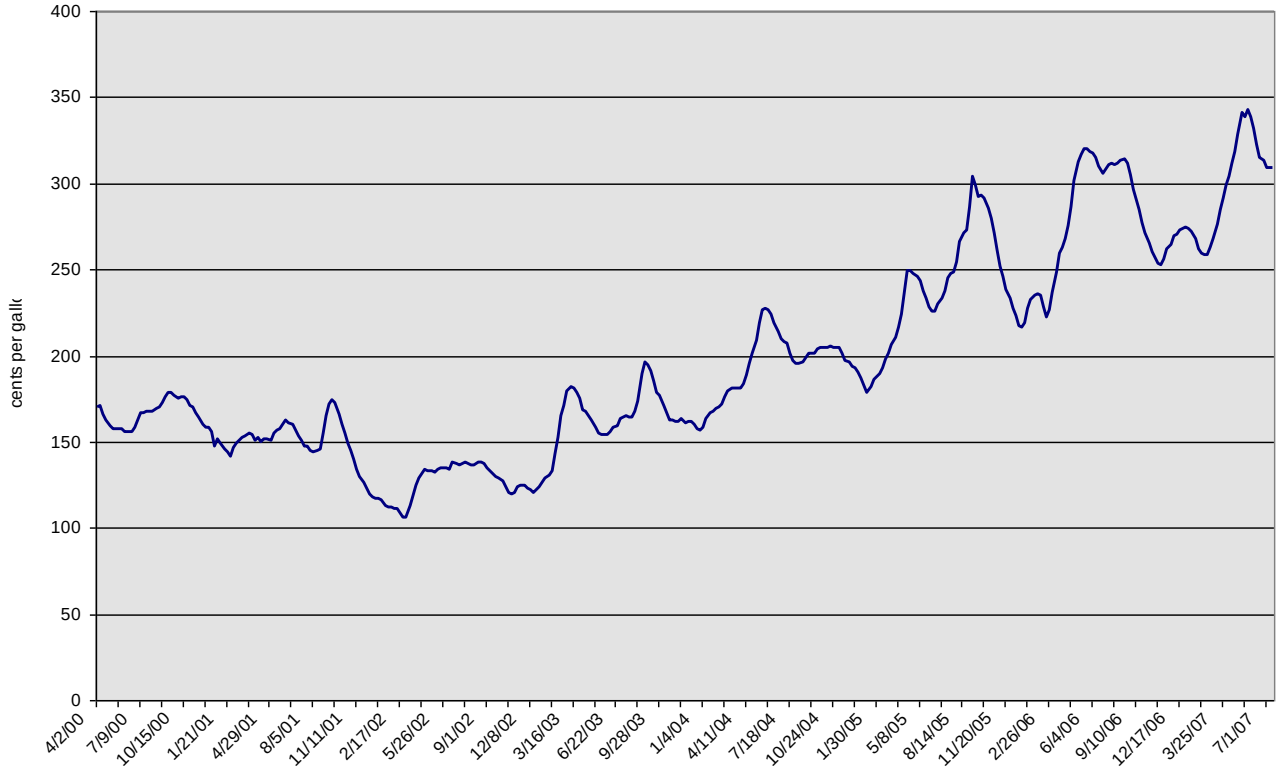


CHART 15B
Weekly Average BELLEVUE Retail Price

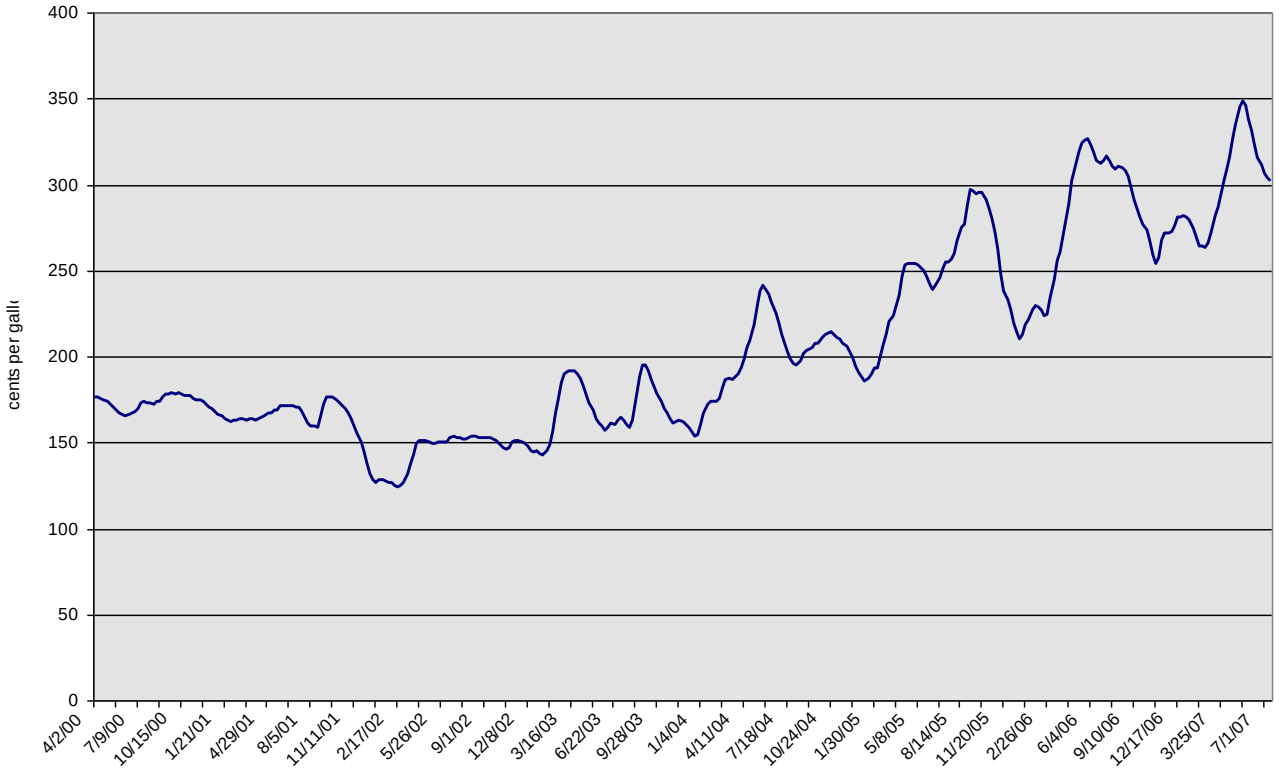


CHART 15C
Weekly Average BELLINGHAM Retail Price

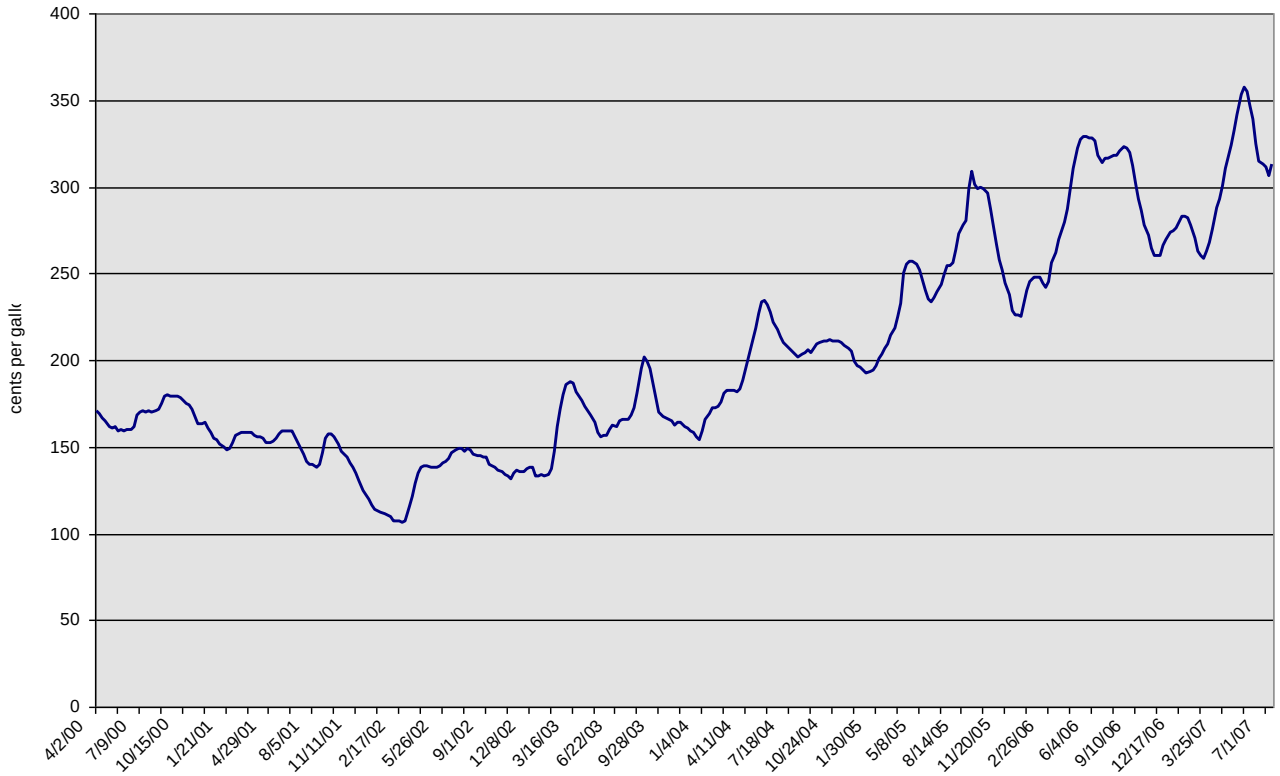


CHART 15D
Weekly Averge BREMERTON Retail Price

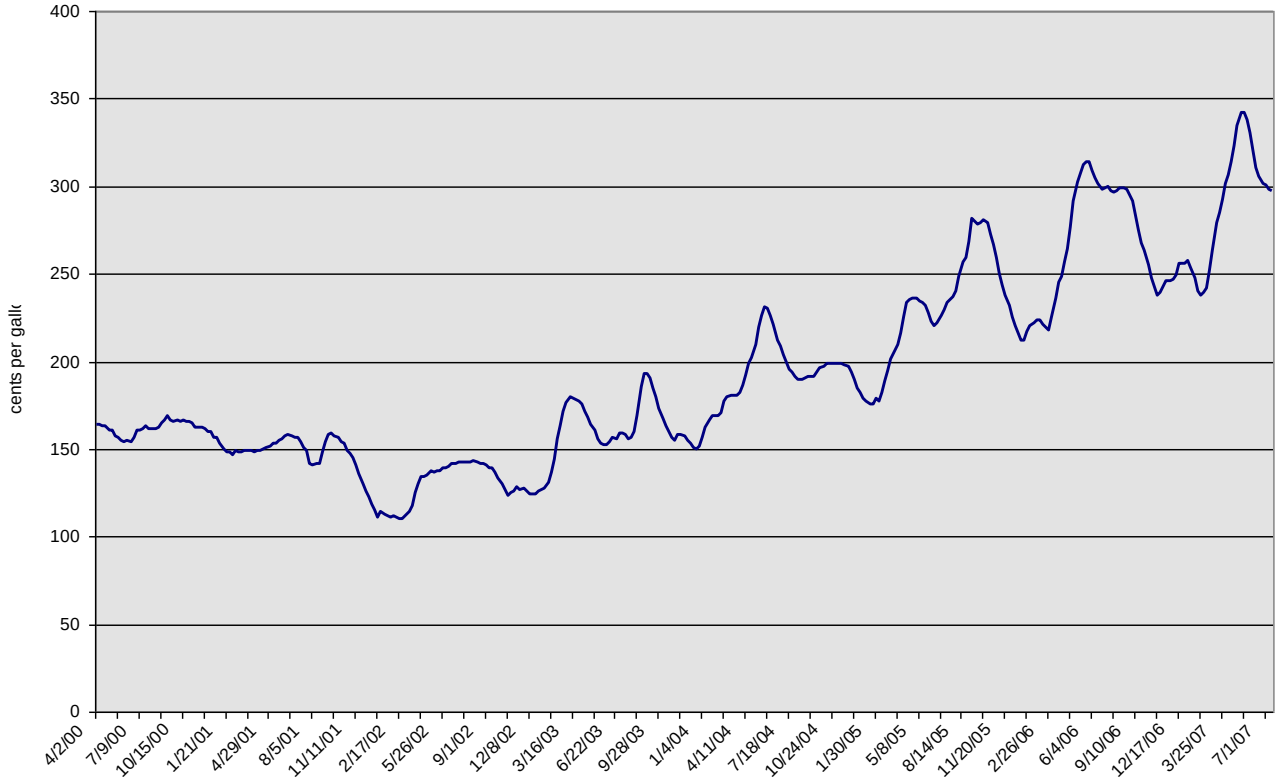


CHART 15E
Weekly Average CLARKSTON Retail Price

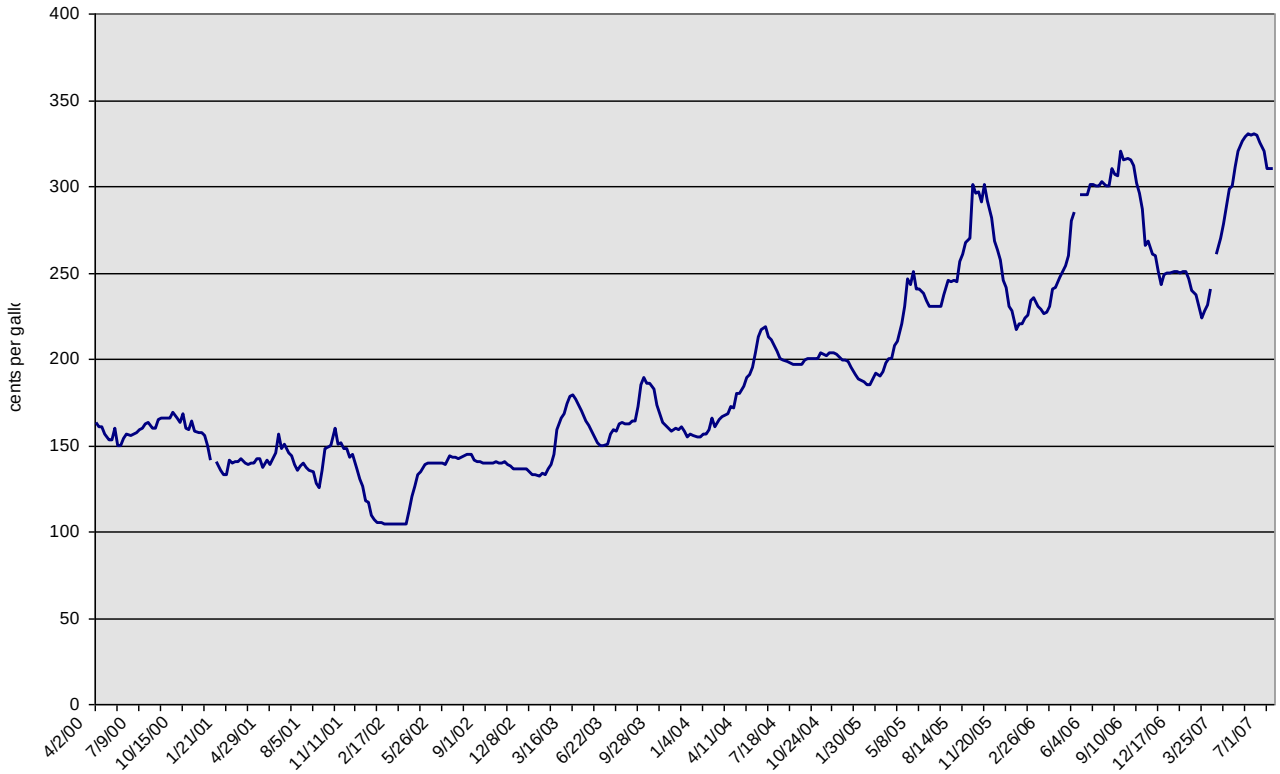


CHART 15F
Weekly Average ELLENSBURG Retail Price

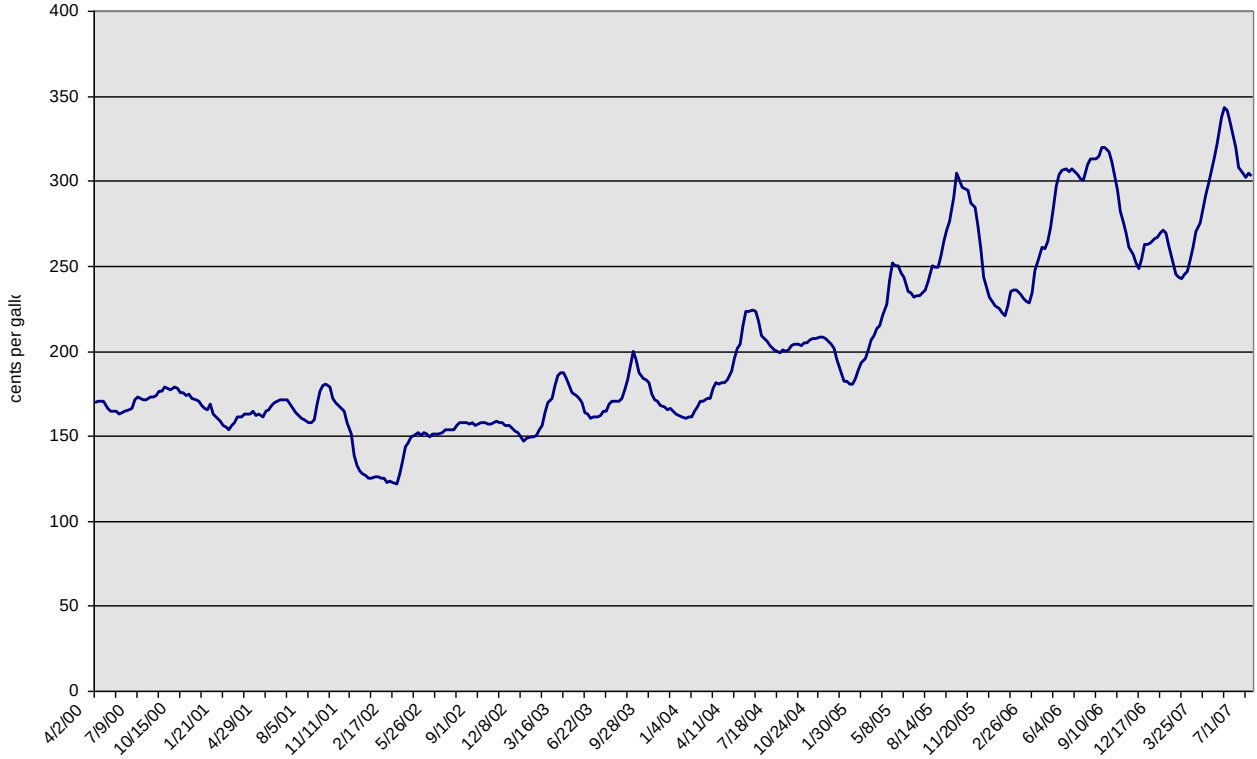


CHART 15G
Weekly Average EVERETT Retail Price

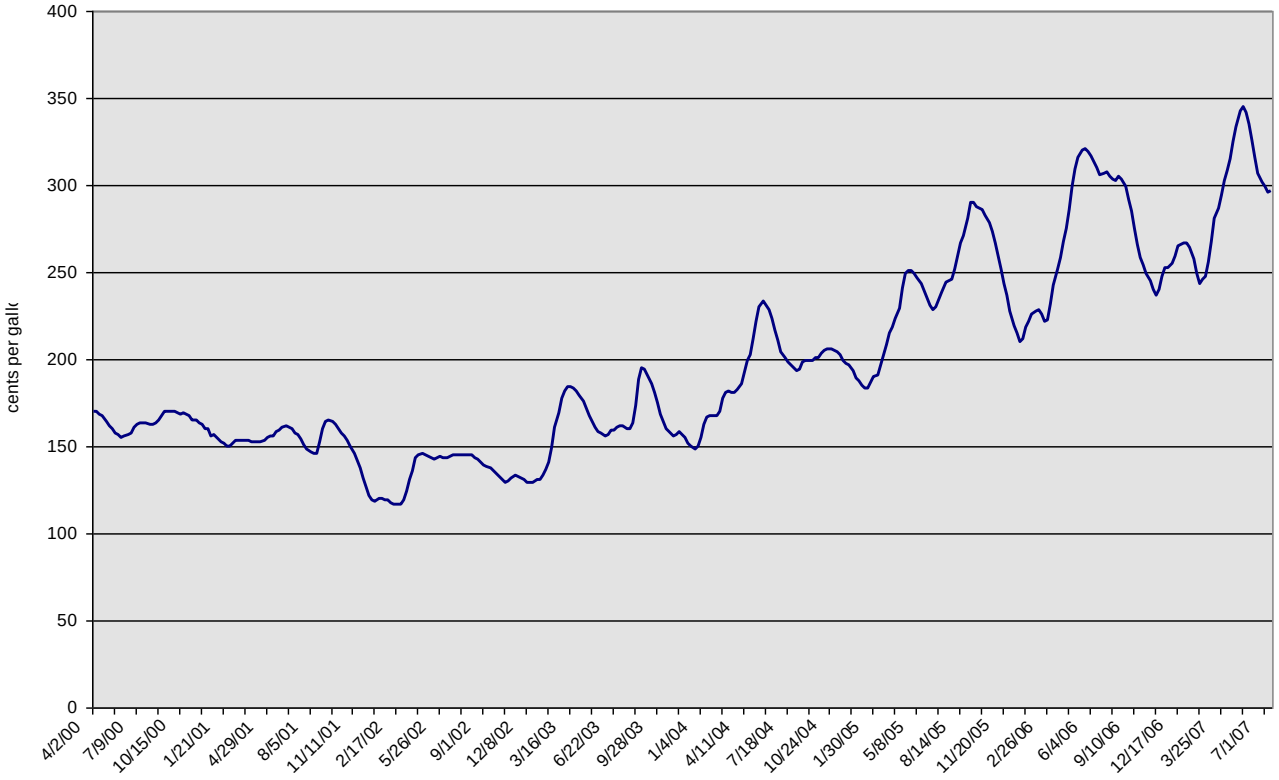


CHART 15H
Weekly Average OLYMPIA Retail Price

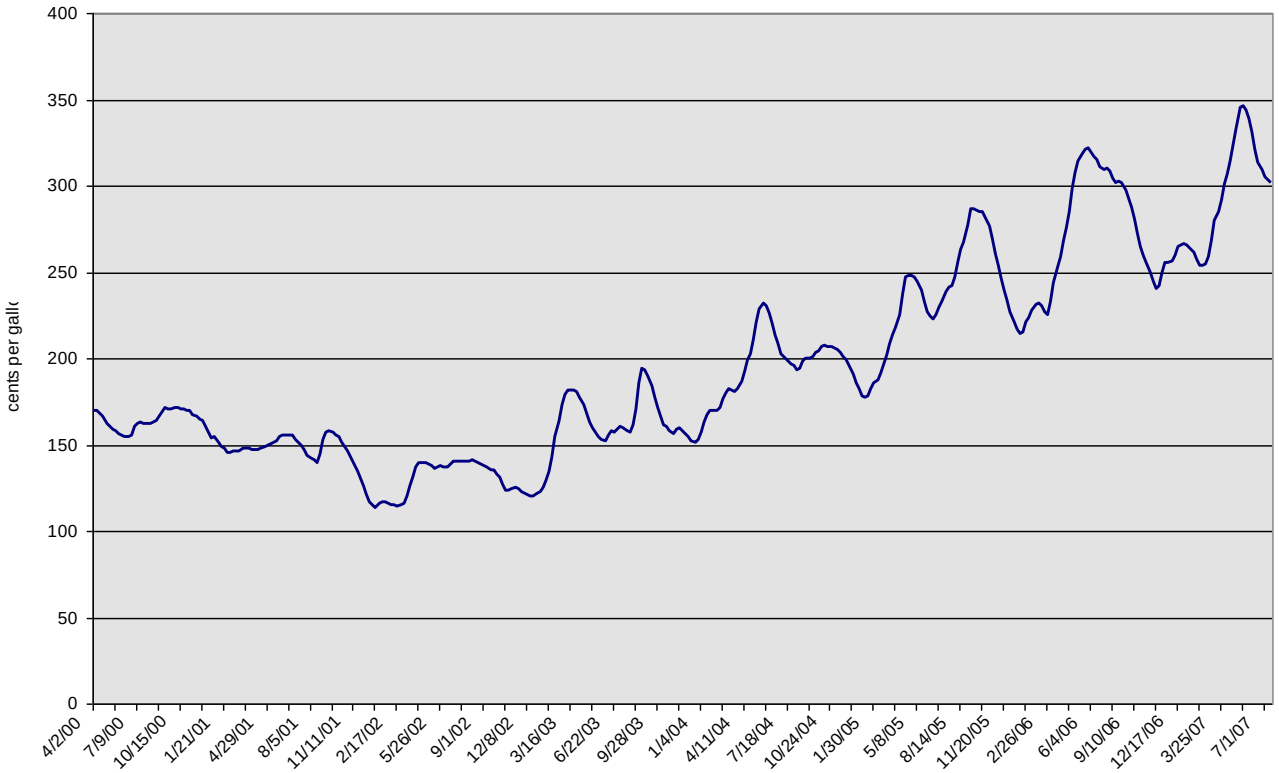


CHART 15I
Weekly Average PORT ANGELES Retail Price

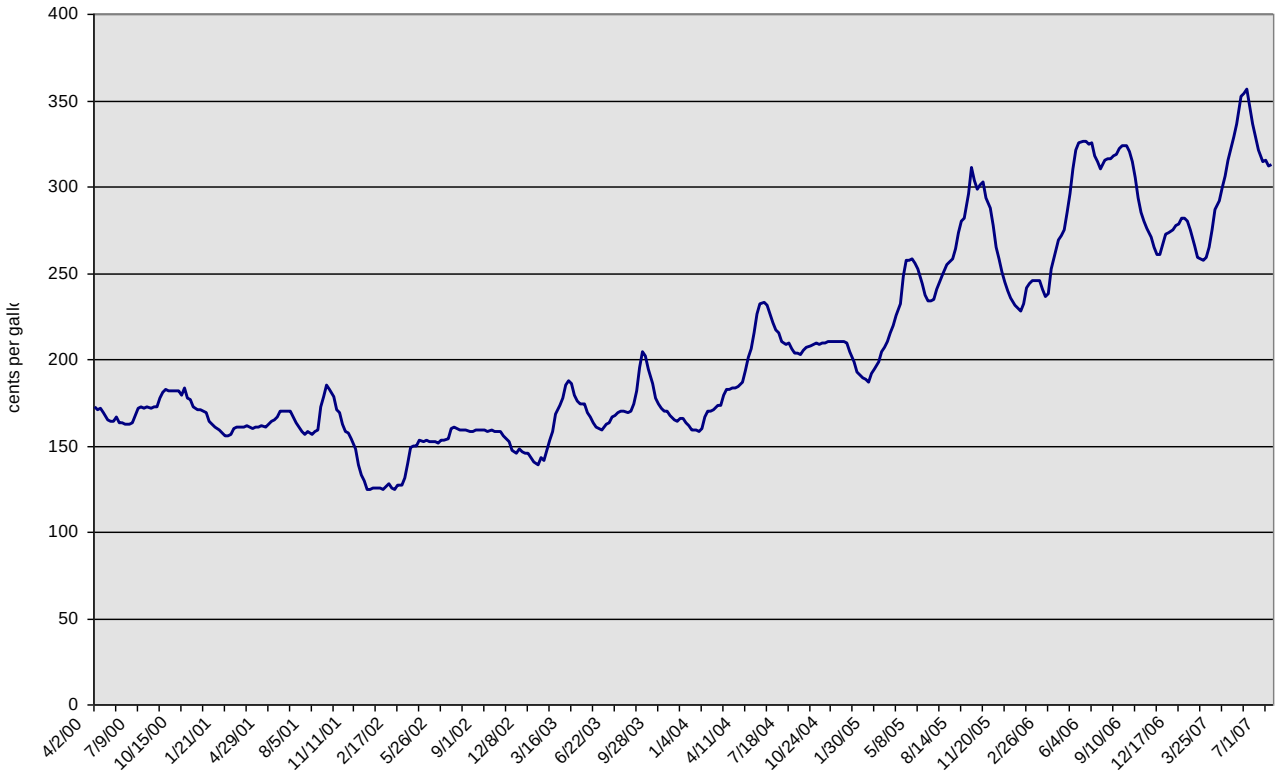


CHART 15J
Weekly Average SPOKANE Retail Price

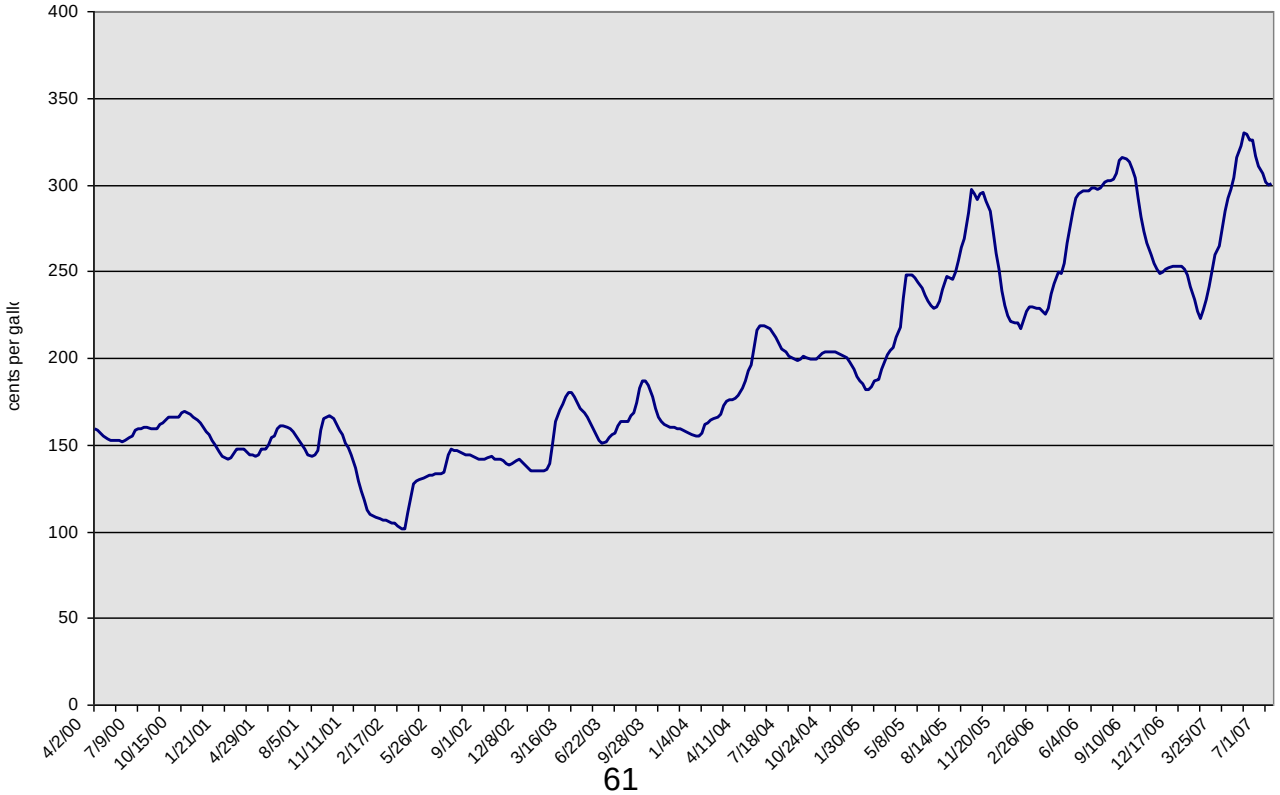


CHART 15K
Weekly Average TACOMA Retail Price

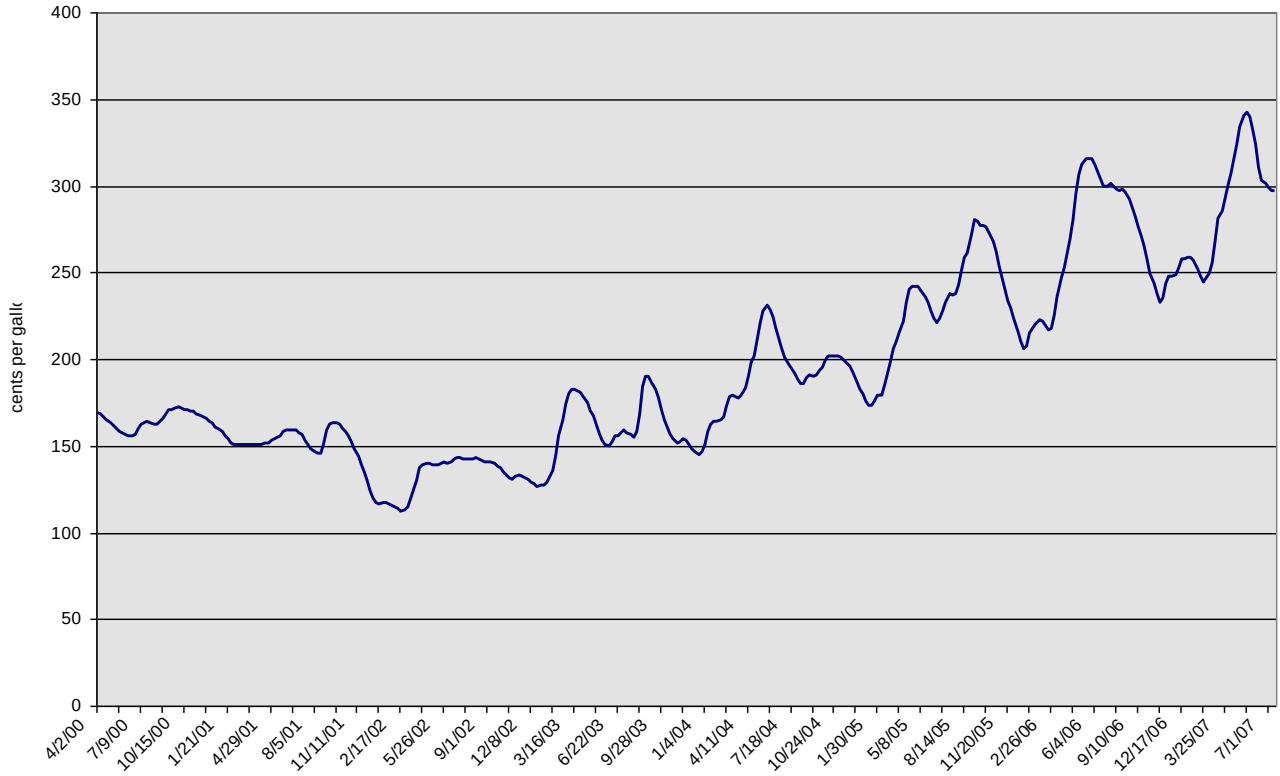


CHART 15L
Weekly Average TRICITIES Retail Price

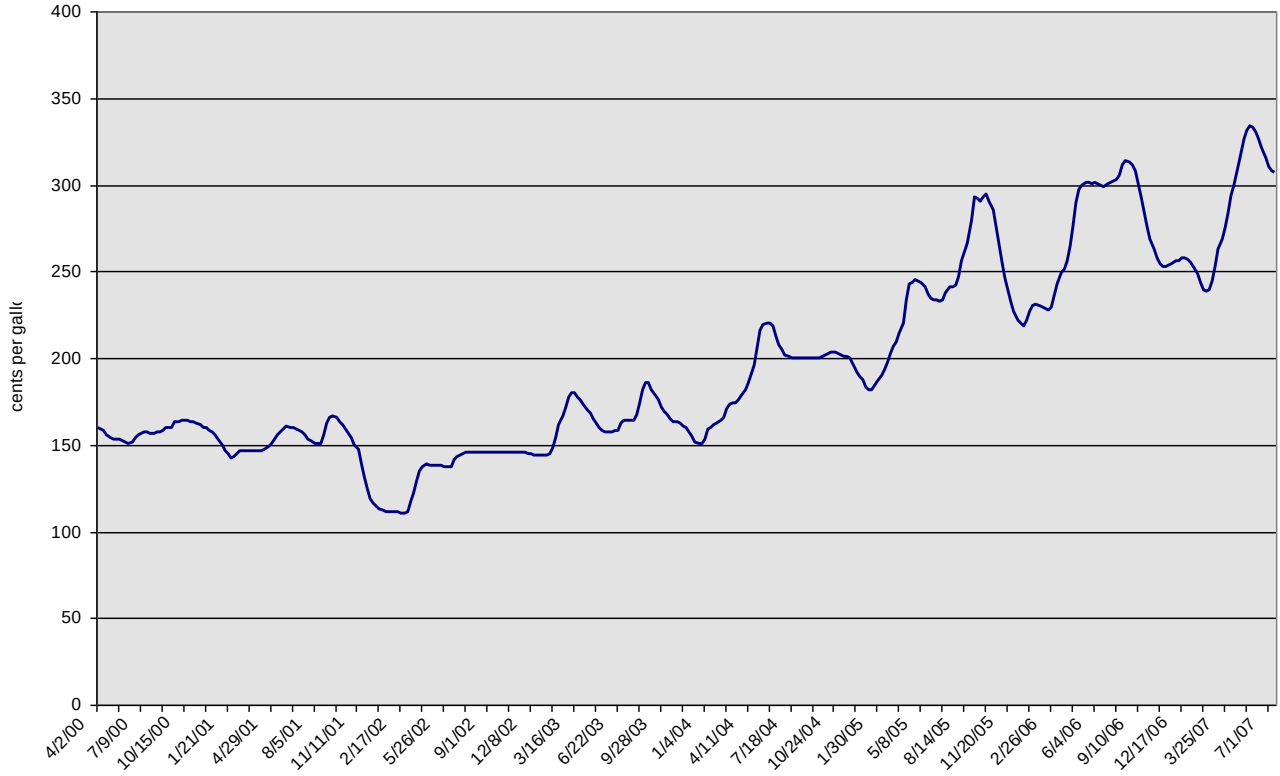


CHART 15M
Weekly Average VANCOUVER Retail Price

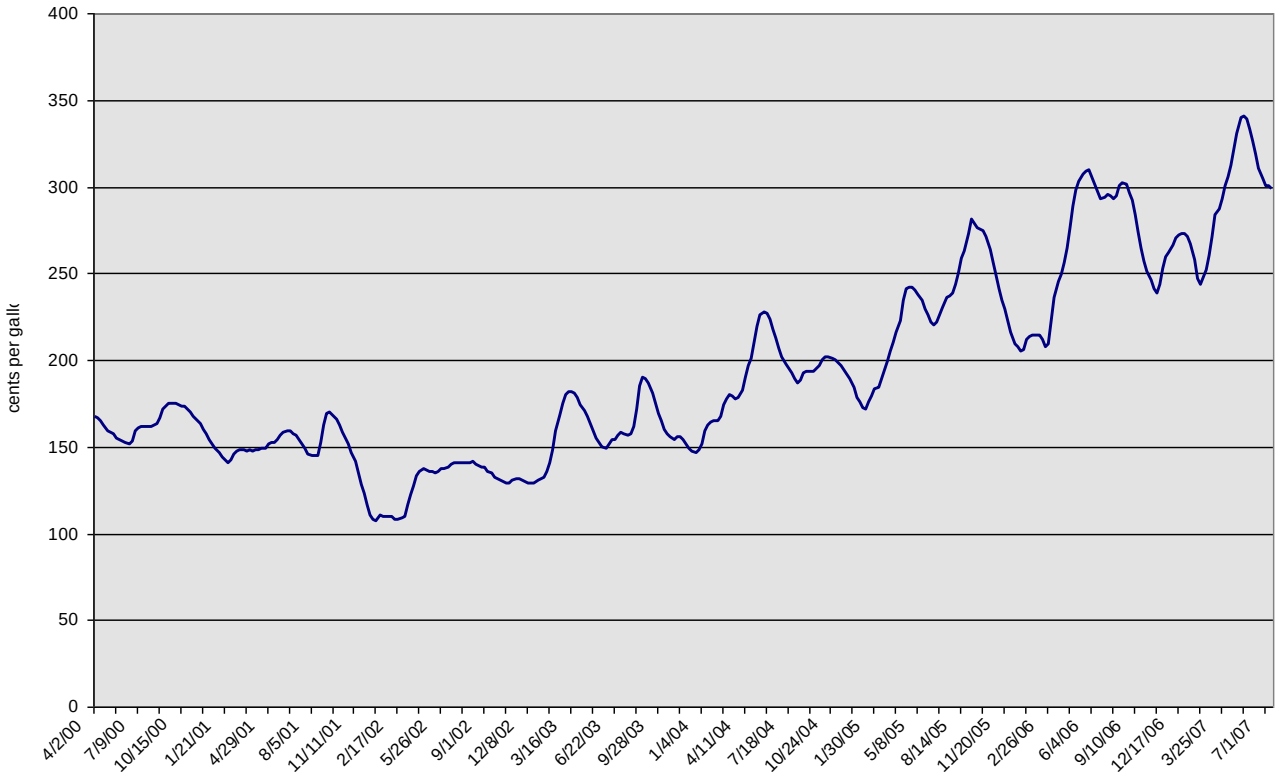
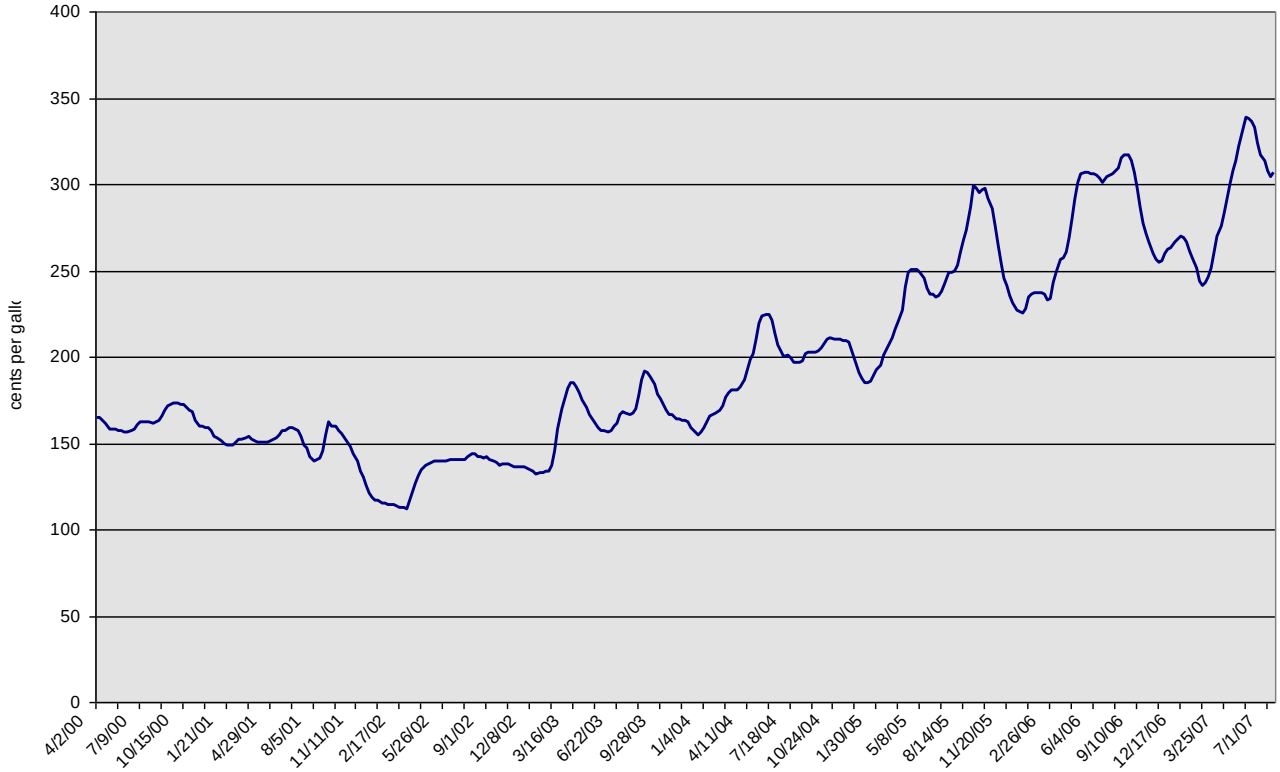


CHART 15N
Weekly Average YAKIMA Retail Price



Appendix B

CHART 16A
Weekly Difference Between ABERDEEN and Washington Benchmark Retail Price

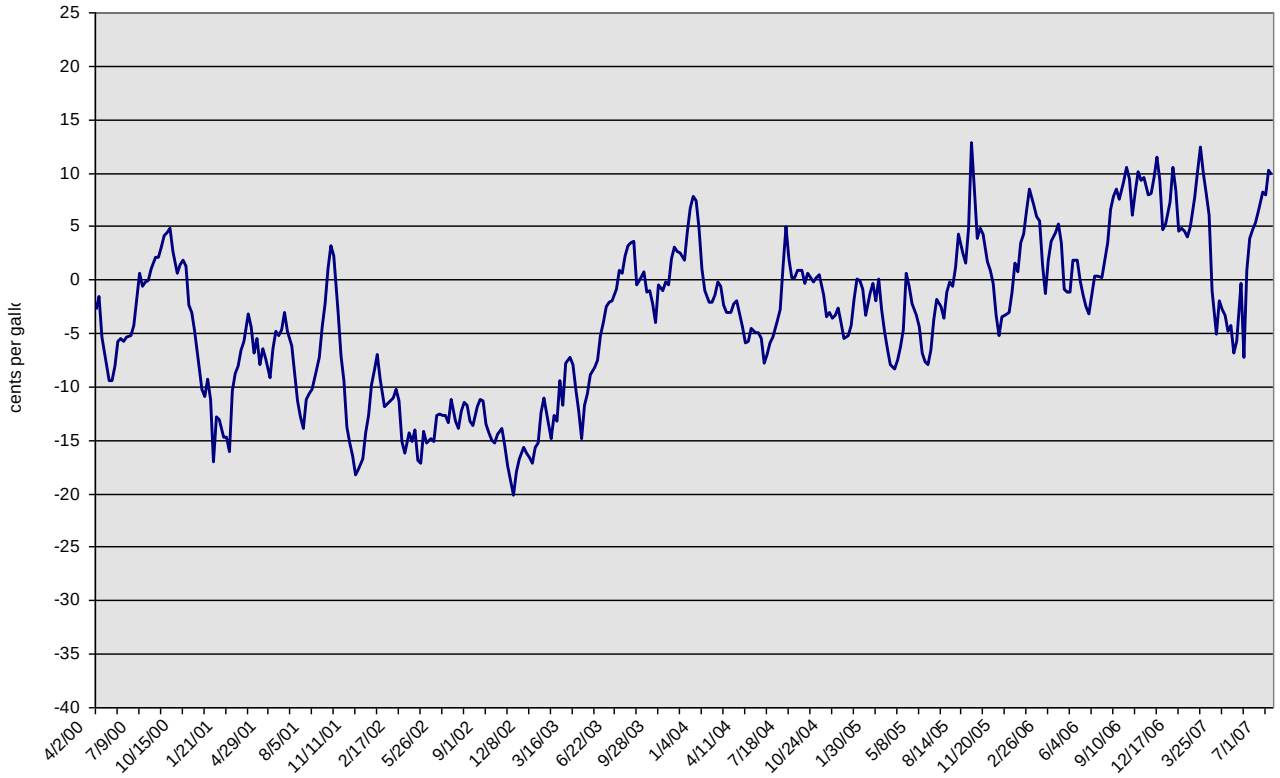


CHART 16B
Weekly Difference Between BELLEVUE and Washington Benchmark Retail Price

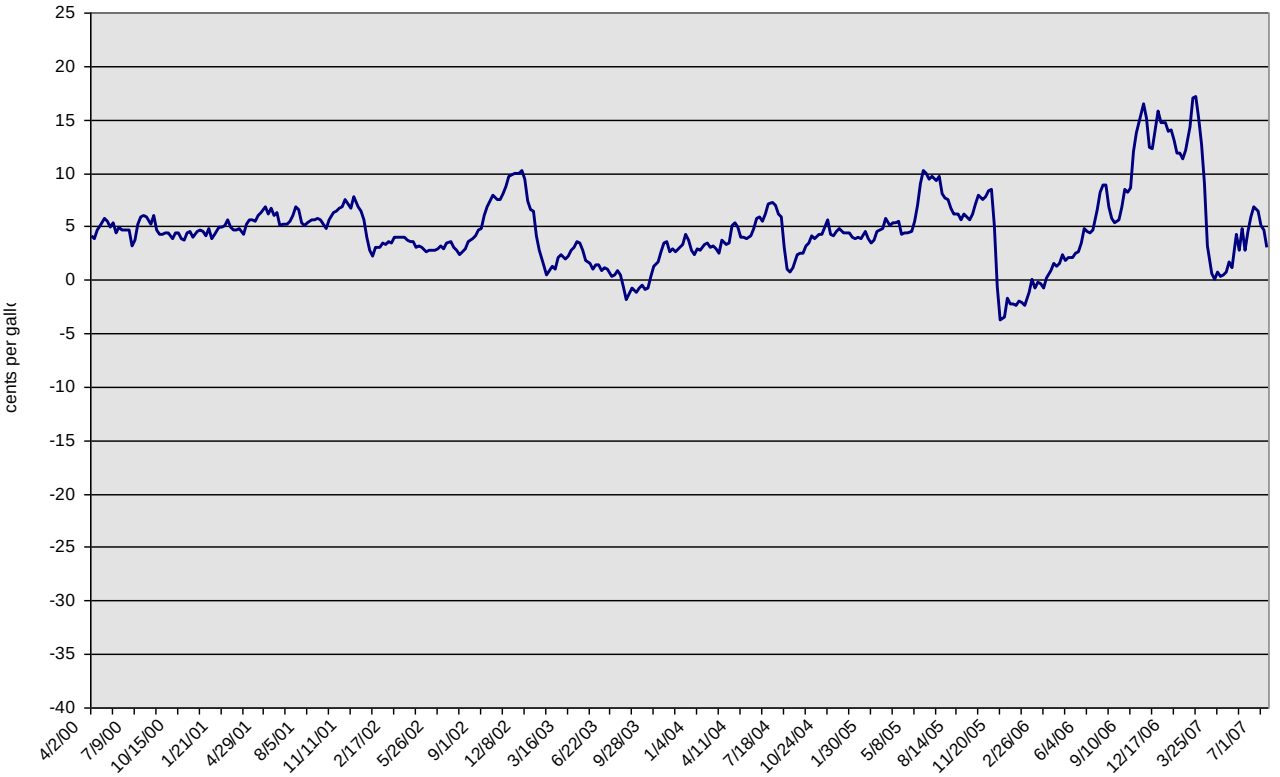


CHART 16C
Weekly Difference Between BELLINGHAM and Washington Benchmark Retail Price

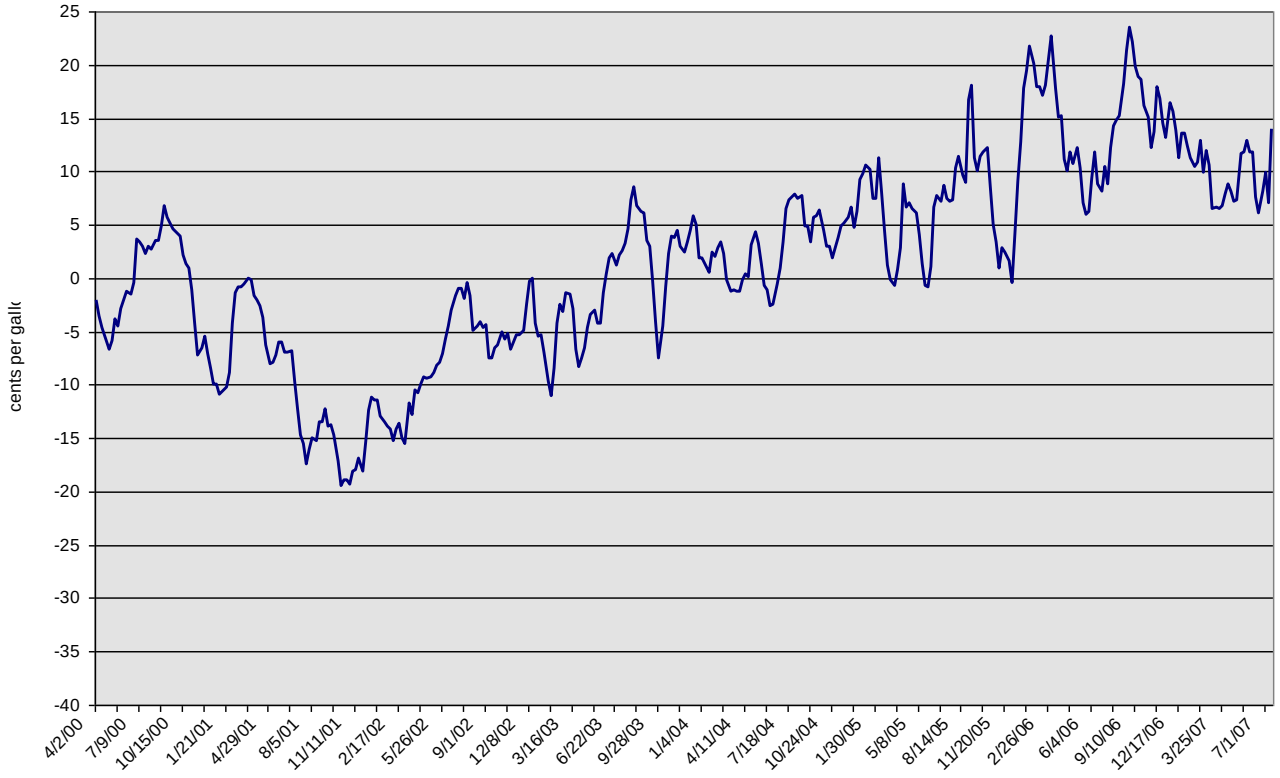


CHART 16D
Weekly Difference Between BREMERTON and Washington Benchmark Retail Price

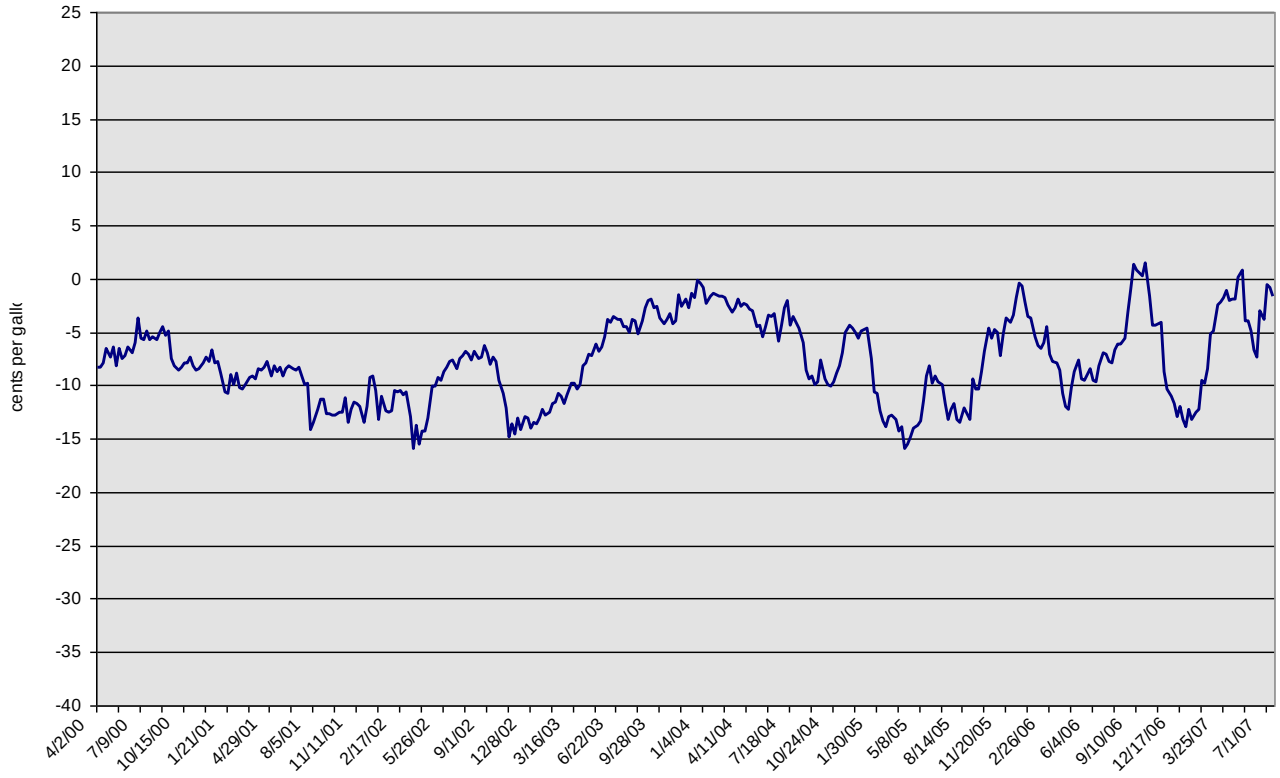


CHART 16E
Weekly Difference Between CLARKSTON and Washington Benchmark Retail Price

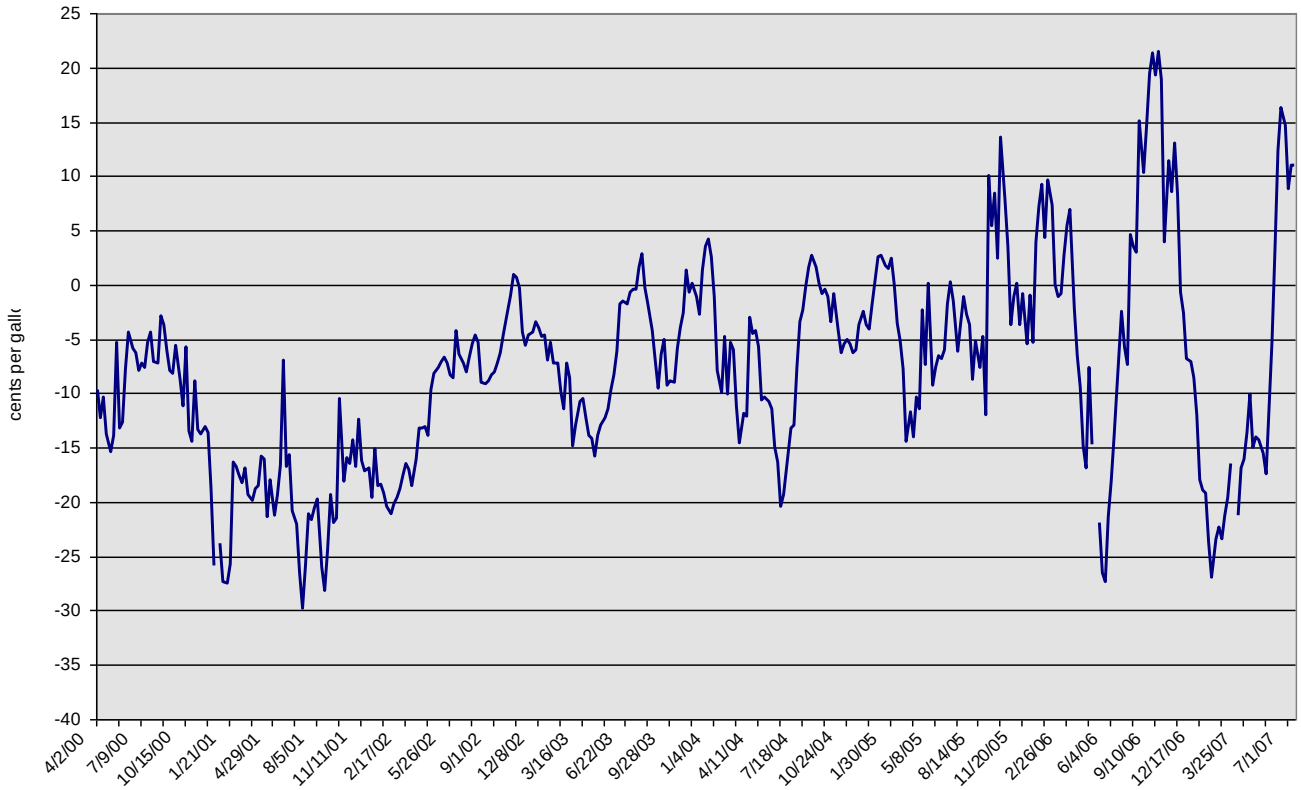


CHART 16F
Weekly Difference Between ELLENSBURG and Washington Benchmark Retail Price

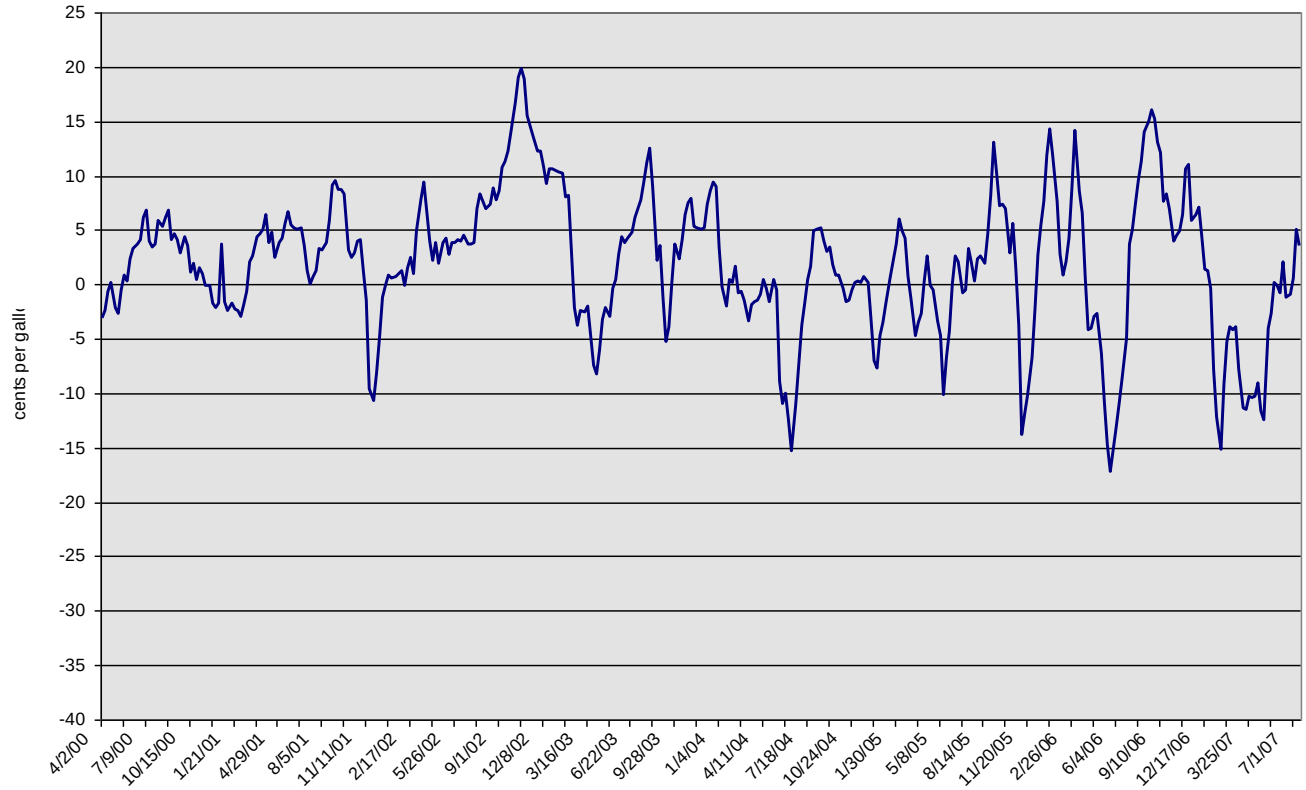


CHART 16G
Weekly Difference Between EVERETT and Washington Benchmark Retail Price

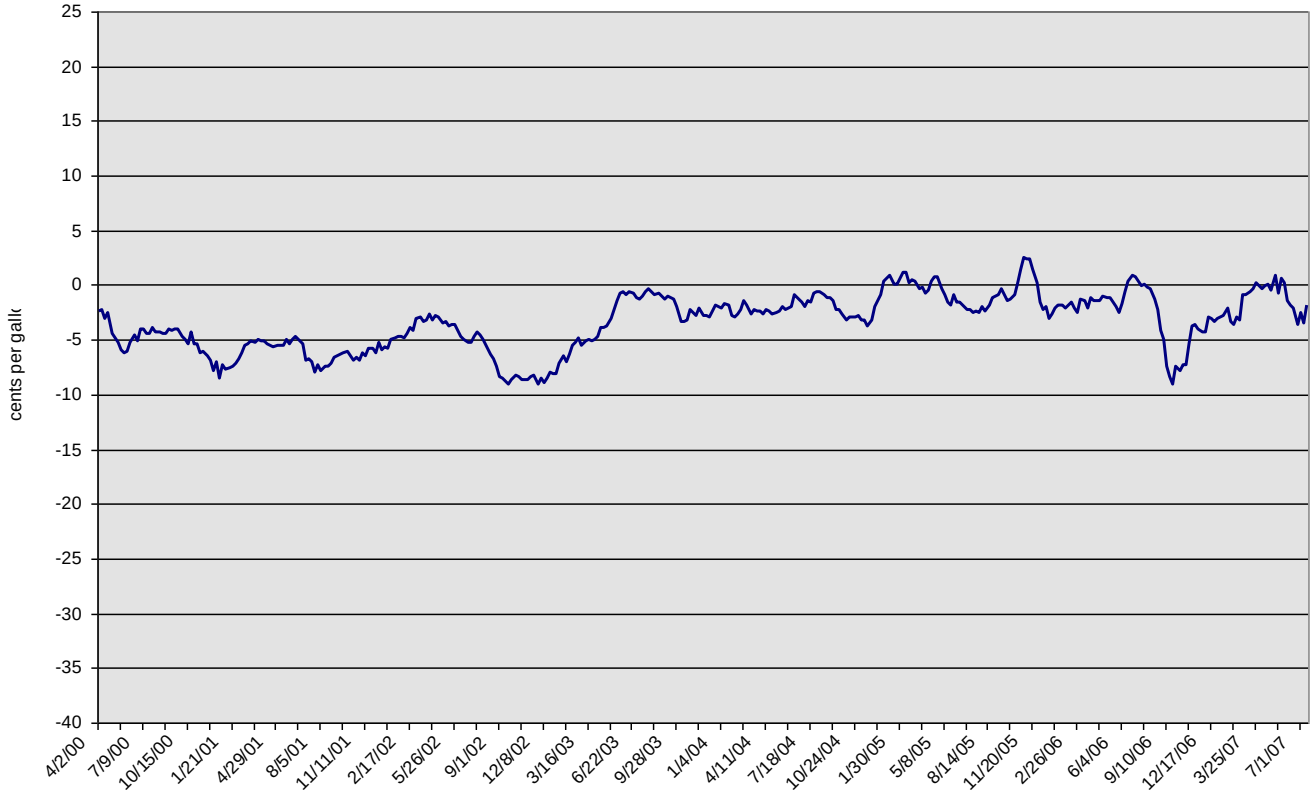


CHART 16H
Weekly Difference Between OLYMPIA and Washington Benchmark Retail Price

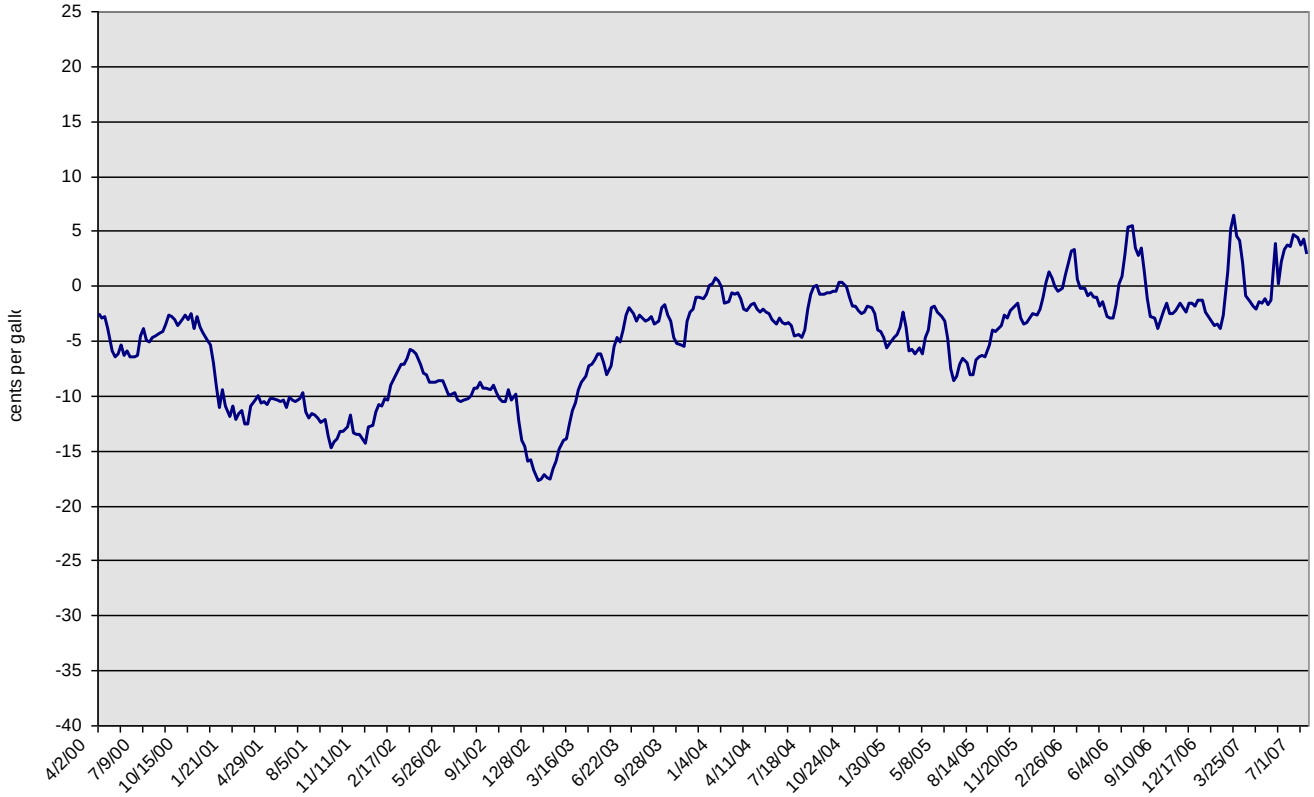


CHART 16I
Weekly Difference Between PORT ANGELES and Washington Benchmark Retail Price

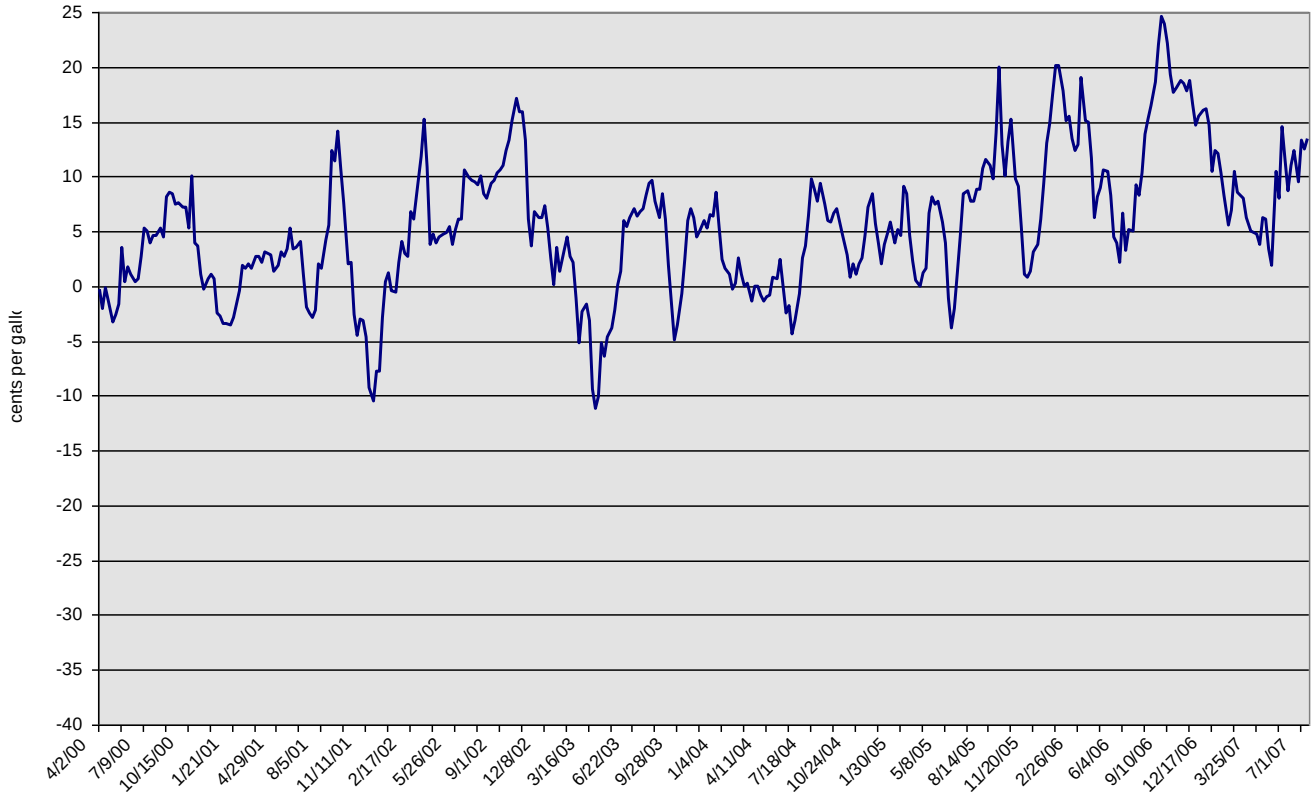


CHART 16J
Weekly Difference Between SPOKANE and Washington Benchmark Retail Price

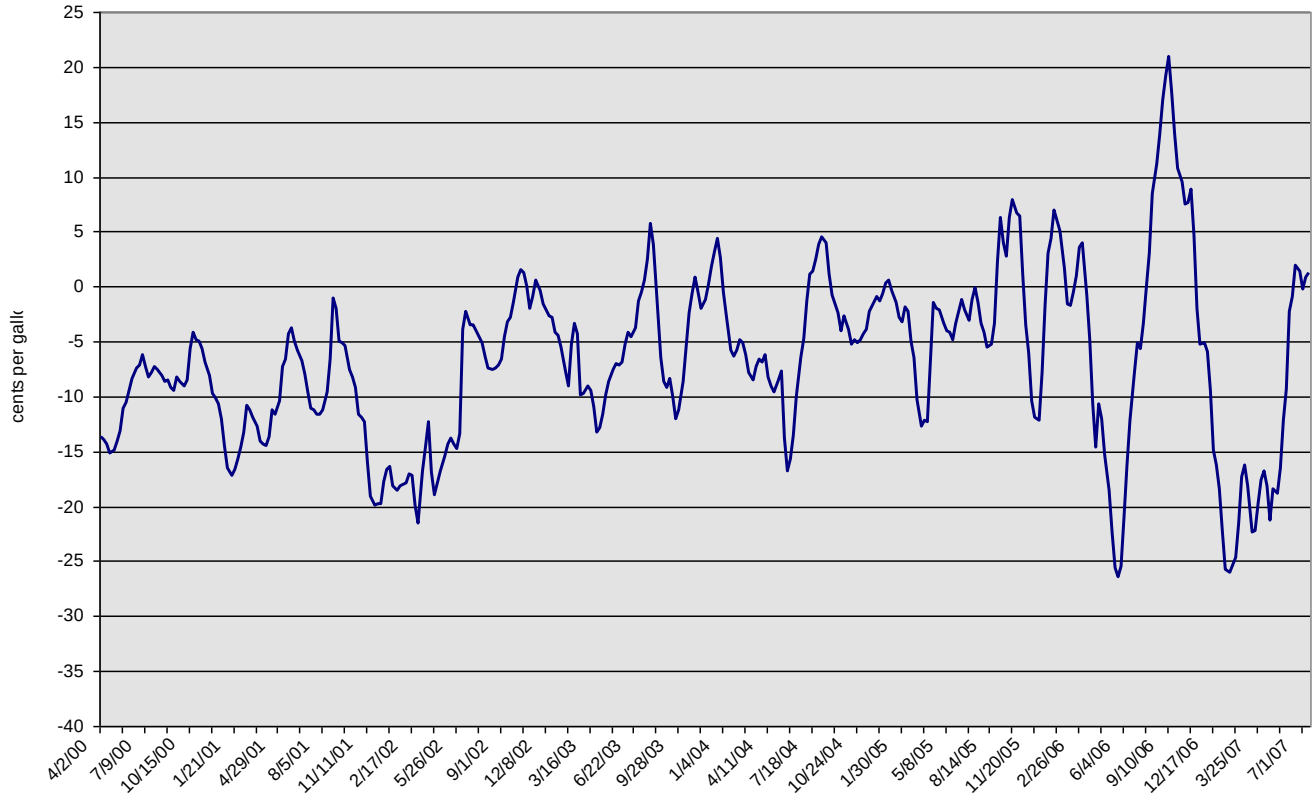


CHART 16K
Weekly DIfference Between TACOMA and Washington Benchmark Retail Price

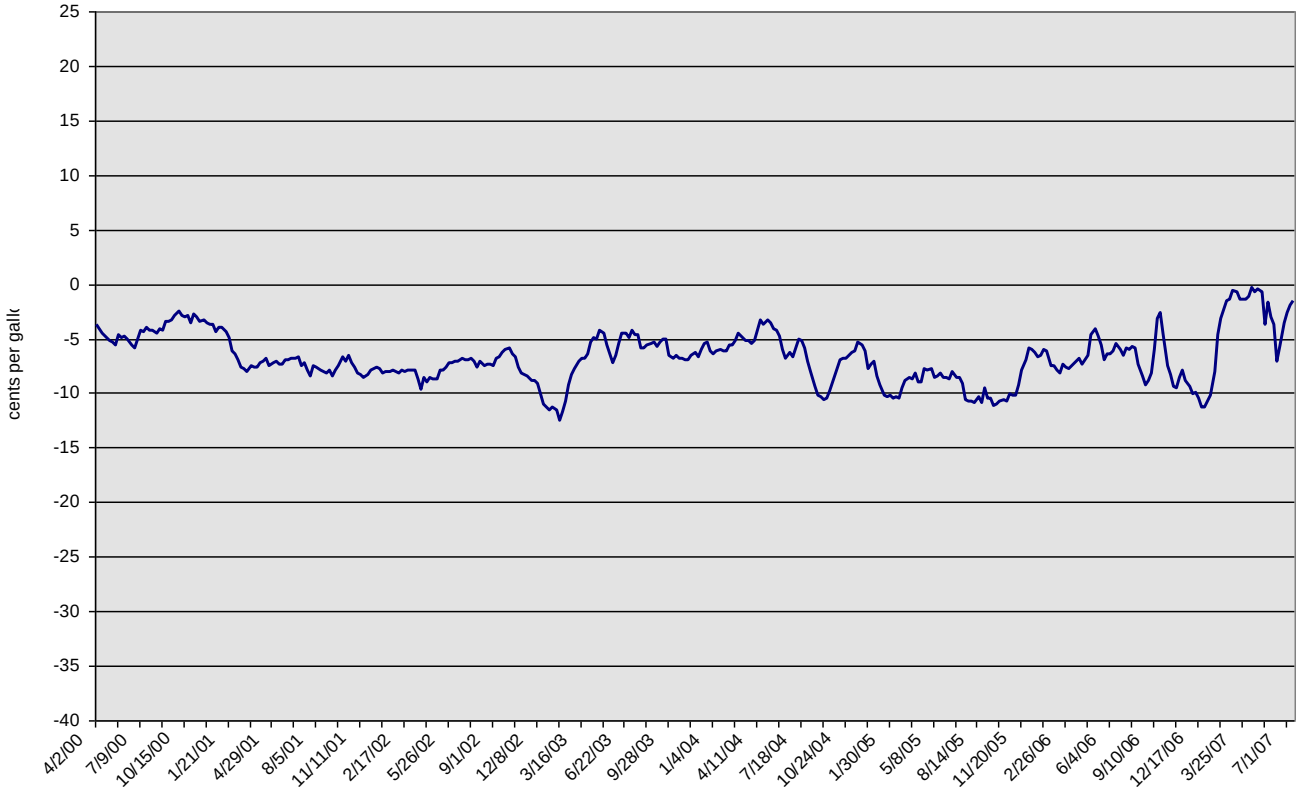


CHART 16L
Weekly Difference Between TRI-CITIES and Washington Benchmark Retail Price

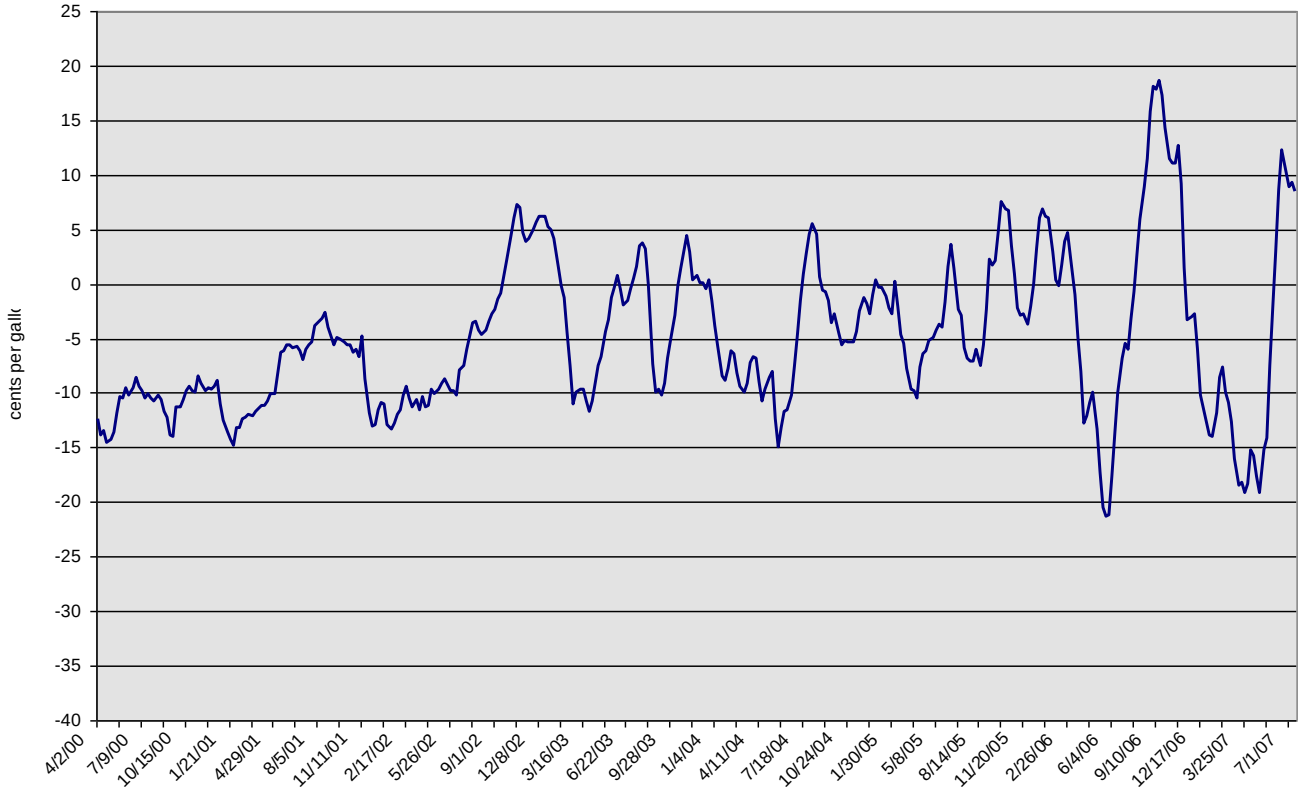


CHART 16M

Weekly Difference Between VANCOUVER and Washington Benchmark Retail Price

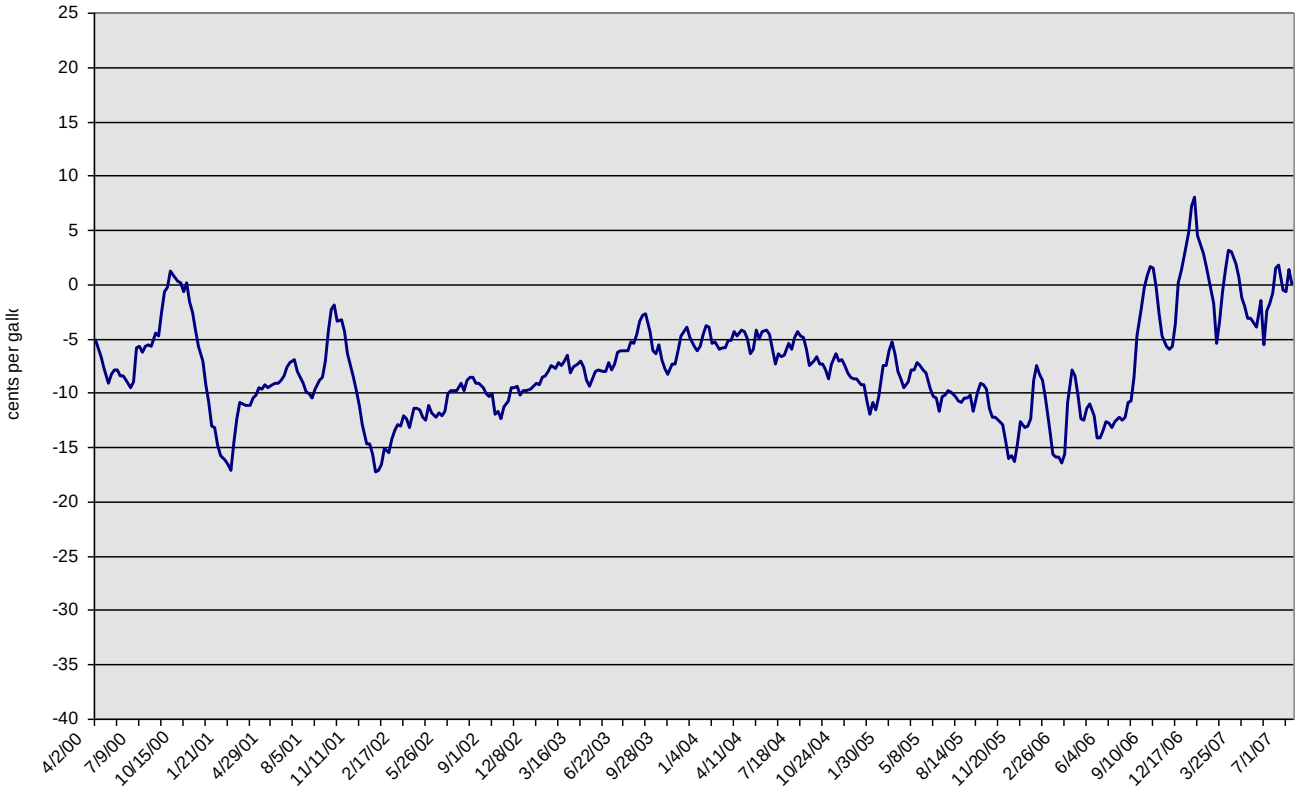


CHART 16N

Weekly Difference Between YAKIMA and Washington Benchmark Retail Price