FEDERAL TRADE COMMISSION

REPORT ON SPRING/SUMMER 2006 NATIONWIDE GASOLINE PRICE INCREASES

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On April 25, 2006, President Bush, speaking at the Renewable Fuels Summit in Washington, DC, directed "the Department of Justice to work with the FTC and the Energy Department to conduct inquiries into illegal manipulation or cheating related to [then-] current gasoline prices."[1] As the President recognized in his remarks, the Federal Trade Commission ("FTC" or "Commission") was, at that time, investigating the increases in gasoline prices that occurred following Hurricane Katrina. The o e6ludg H4 Ƭc -0.0009 Tw 8.525 2 -2.3 w61osccurred fointensive e

to the supply shocks caused by the hurricanes was consistent with competition."[6]

In response to the President's April 2006 directive, and building upon the findings of the FTC's post-Katrina investigation, staff of the Commission worked with the Department of Justice, with assistance from the Department of Energy's Energy Information Administration ("EIA"), to conduct an economic analysis and investigation of the national average gasoline price increases that began during the spring of 2006 and continued through the summer. In particular, staff performed financial and economic analyses of crude oil and gasoline price data, as well as data on the costs of other key components of finished gasoline, for the relevant time period.[7] Staff also interviewed refiner personnel, reviewed key documents prepared in the ordinary course of business, and examined production statistics reported to EIA. Using this information, staff identified six factors that appear to explain the national average price increases that occurred during the spring and summer of 2006, and then quantified the price impact of each of those six factors. At the same time, Commission staff continued their surveillance of industry activities at a more localized level, for example by monitoring gasoline and diesel fuel price movements in 20 wholesale regions and approximately 360 retail areas across the nation, and initiating law enforcement investigations in response to abnormal local or regional pricing episodes as they were identified.[8]

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firms' price increases appeared comparable to local market trends in almost every instance.

[6] FTC HURRICANE REPORT at ix.

[7] This investigation of national average gasoline price increases did not require definition of a relevant product or geographic market for purposes of antitrust analysis. Accordingly, this report does not conclude or imply that a national market for gasoline exists for antitrust purposes, and it does not make determinations of whether specific market conditions in the United States or local areas within the United States are conducive to activities that violate the antitrust laws.

[8] The FTC staff monitoring team uses an econometric model developed by Commission economists to identify

As discussed in more detail below, the evidence indicates that about 75% of the spring and summer 2006 national average gasoline price increases stemmed from the seasonal effects of the summer driving season, increases in the price of crude oil (the primary raw material for gasoline), and increases in the price of ethanol (an essential component of cleaner-burning gasoline blends). The evidence further indicates that the remaining 25% of the price increases stemmed from declines in the production of gasoline—due to refiners' transition to ethanol from other widely used blending components, persistent refinery damage related to Hurricanes Katrina and Rita (which struck the U.S. Gulf Coast in August and September of 2005, respectively), and other refinery outages caused by unexpected events and required maintenance—coupled with increased demand. Although staff cannot definitively rule out all other contributing factors, these six factors adequately explain the 2006 price increases. Further, our targeted examination of major refinery outages revealed no evidence that refiners conspired to restrict supply or otherwise violated the antitrust laws. We therefore conclude that further investigation of the nationwide 2006 gasoline price spike is not warranted at this time. FTC staff will continue, however, to monitor petroleum industry activities and gasoline prices in local and regional areas throughout the United States in its ongoing efforts to identify and challenge any anticompetitive conduct that may have occurred or may arise in the future.

Section I of this report provides background information on the price increases that prompted the present analysis, as well as a summary of findings from previous Commission investigations into the causes of gasoline price spikes. Section II identifies six factors that contributed to the national average price increases during spring and summer of 2006, while Section III estimates the quantitative price impact of each. Finally, Section IV concludes that the

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Energy Gasoline Hotline complaints and similar information received through the FTC's Consumer Response Center and provided to the FTC by state and local officials and members of Congress, as well as documents and information collected in our ongoing merger reviews.

Staff's analysis reported here identifies and quantifies the factors underlying the $0.62 price increase that occurred between February 2006, when prices averaged $2.28, and the summer driving season of May through August, during which prices averaged $2.90.[13]

The FTC has investigated previous gasoline and diesel price spikes. These past

below full productive capacity in order to restrict output, by altering their mix of output to produce less gasoline, or by diverting gasoline from markets in the United States to less lucrative foreign markets. In addition, they examined allegations that companies refused to invest sufficiently in new refineries for the purpose of restricting output and raising prices in the long run. Staff found no evidence to suggest that refiners manipulated prices through any of these means.

In addition to studying specific instances of price spikes, in 2005, the Commission issued a more general report that explains the various factors that affect gasoline pricing, concluding that most of the variation in gasoline prices over the time period studied was attributable to changes in the price of crude oil.[17] Consistent with the findings of the 2005 report, in the spring and summer of 2006, the price of crude oil increased, contributing to gasoline price increases. As we discuss further below, however, the increase in crude prices alone was not large enough to explain all of the increase in gasoline prices.

The nationwide spring and summer 2006 price increases are a more complicated phenomenon than most previous episodes studied by the Commission. Prices reached levels similar to those that prevailed after the devastating hurricanes in summer 2005. In 2005, however, prices returned to pre-Katrina levels by the end of October—two months after Hurricane Katrina and one month after Hurricane Rita—and by the end of November they had fallen to levels that prevailed before the start of the summer driving season.

hurricanes. Moreover, unlike the hurricanes of 2005, there was not a single cataclysmic event or set of events that explains the price increases of 2006.

II. Factors Affecting Summer 2006 Gasoline Prices

Staff's economic analysis revealed that the national average price increases during the spring and summer of 2006 were most likely attributable to six factors, which are consistent with the natural operation of gasoline markets: (1) seasonal effects of the summer driving season; (2) increases in the price of crude oil; (3) increases in the price of ethanol; (4) capacity reductions stemming from refiners' transition from methyl tertiary-butyl ether ("MTBE") to ethanol; (5) refinery outages resulting from hurricane damage, other unexpected problems or external events, and required maintenance; and (6) increased consumer demand for gasoline beyond the seasonal effects of the summer driving season. The first three factors are cost increases, which were relatively straightforward to estimate because they are passed through from refiners to consumers approximately dollar-for-dollar. The last three factors, however, are capacity changes or their equivalent, for which the resulting price impact depends on variables such as the elasticity of demand for gasoline and the rate of supply responses from importers. Estimation of the price effect resulting from these factors therefore required more sophisticated economic analysis.

A. Upward Pressure Due to Seasonal Effects

Past experience shows that gasoline prices rise relative to crude oil prices during the spring and summer. This relative price increase is due to both an increase in demand for gasoline and a decrease in refiners' ability to produce gasoline. The demand for gasoline increases in the summer, because this is the high driving season in the United States.[19] Furthermore, gasoline must meet more stringent environmental specifications in the summer,

[19] In recent years, gasoline consumption typically has been 4-7% higher during May through August than during the other months of the year.

requiring refiners to use different processes that yield smaller amounts of gasoline.[20] This increase in demand, combined with the decrease in capacity during the summer, places upward pressure on gasoline prices. Historically, prices begin to rise in the spring as refineries and wholesalers drain tanks of winter-grade gasoline and build inventories of the more stringent summer-grade formulations to meet the anticipated peak summer demand.

To determine the price impact of these seasonal effects, staff analyzed the increases in gasoline prices relative to crude oil prices—what we refer to as the "gasoline spread"—between February 2006 and summer 2006. We used the difference between the New York Harbor spot price for conventional gasoline[21] and the West Texas Intermediate ("WTI") crude price, a commonly used crude oil benchmark, to measure the gasoline spread. First, we documented the baseline spread before gasoline prices started to rise. The average gasoline spread for conventional gasoline in February 2006 was $0.032. For the summer of 2006 (May through August), the spread averaged about $0.36 per gallon. Second, we used two methodologies to estimate what the gasoline spread would have been during the summer if there had been no additional changes in demand or production.

The first approach for estimating the expected gasoline spread during the summer of 2006 is to use the average gasoline spreads that prevailed during this season in previous years as a basis for comparison. From 2001 to 2005, the average monthly gasoline spread for conventional gasoline for the months May through August was $0.169. The 2006 spreads for

[20] The main difference between summer and winter gasoline is that summer gasoline has a lower Reid Vapor Pressure ("RVP"). Lower RVP gasoline does not evaporate as easily, and therefore reduces summer air pollution. One consequence of the lower RVP summer gasoline is that refiners cannot blend in as much butane (which has a high RVP) in the gasoline in summer as they can in winter. As a result, refiners are not able to make as much gasoline during the summer.

[21] The New York Harbor spot price of conventional gasoline is commonly used as a proxy for the value of gasoline as it leaves the refinery before it has been transported to a local distribution center.

those months reasonably could be expected to rise at least to the 2001-2005 average even if no unusual conditions prevailed. By itself, an increase in the gasoline spread to the levels that prevailed in 2001-2005 would have caused average prices to increase about $0.14 per gallon ($0.169 minus $0.032) during the spring and summer months of 2006.

An alternative benchmark value for spring and summer 2006 gasoline spreads is that which prevailed in the summers of 2004 and 2005, the most recent prior years for which data are available. During these summers, gasoline spreads were significantly higher than they had been in previous summers.[22] From May through August, they averaged $0.244 for conventional gasoline, which is roughly $0.21 per gallon ($0.244 minus $0.032) higher than in February 2006. Therefore, an increase in the gasoline spread to the levels that prevailed in 2004-2005 would have caused prices to increase by about $0.21 per gallon. In sum, depending on which of the two preceding alternative benchmark values is selected, the expected seasonal increase in national average gasoline prices from February 2006 to summer 2006 would be $0.14-$0.21 per gallon.

B. Increases in Crude Prices

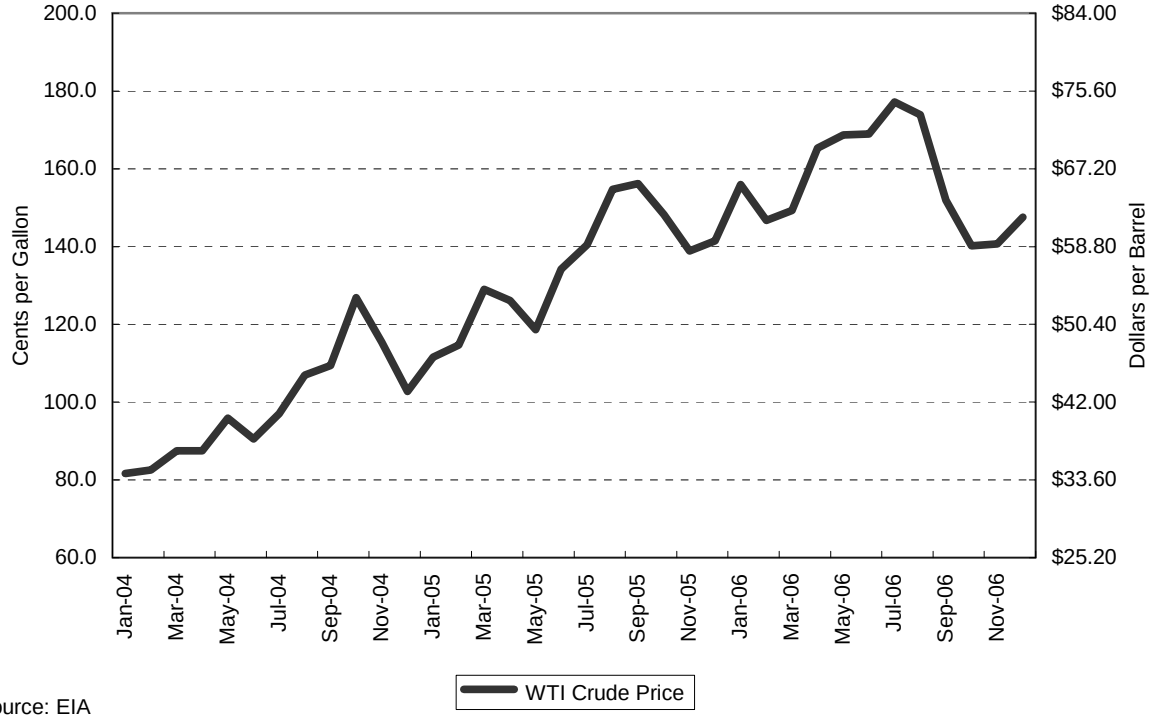
The largest cost component in producing gasoline is that for crude oil, and changes in the price of crude oil historically have been the source of a substantial fraction of changes in the

[22] Gasoline spreads have been increasing in recent years, especially during the summer, because summer supplies worldwide have become increasingly tight. There are at least two reasons for this increased tightness. First, over time, demand growth has exceeded capacity growth. Second, changes in gasoline specifications have reduced existing capacity to produce gasoline. Section II.D discusses the impact on capacity of the most recent switch from MTBE to ethanol.

State bans on MTBE in California, New York, and Connecticut became effective in 2004. Also in 2004, U.S. refiners were required to produce lower-sulfur gasoline—a switch that increased refining costs and modestly

price of gasoline.[23] Figure 2 shows the monthly average price of WTI from January 2004 through December 2006. Prices are shown both on a per-gallon basis, which aids comparability to retail gasoline prices, and on a per-barrel basis, which is how crude prices are normally reported.

Figure 2: Monthly Average WTI Crude Prices, 2004 - 2006



Source: EIA

Benchmark crude oil prices were $0.255 per gallon higher in summer 2006 than they were in February 2006. In February 2006, the price of WTI crude averaged $61.63 per barrel, or $1.47 per gallon. The average price rose to nearly $69.44 per barrel, or $1.65 per gallon, in April, and remained roughly constant through June. Then, in July, it rose to $74.41 per barrel, or $1.77 per gallon. Over the period from May 1 to September 1, the average price of crude oil was $72.34, or about $10.71 per barrel above the price in February 2006. Therefore, the cost of producing gasoline attributable to crude oil prices increased by approximately $0.26 per gallon

[23] GASOLINE PRICE CHANGES REPORT at 13.

($10.71 divided by 42) during the summer of 2006, and would be expected to increase national average gasoline prices by a comparable amount.[24]

C. Increases in Ethanol Prices

A key difference between the summers of 2005 and 2006 was refiners' increase in the use of ethanol as an additive in reformulated gasolin

refiners had to turn to imports of ethanol during the spring and summer of 2006.[30] As a result of the disproportionately higher demand in the first half of 2006, ethanol prices increased significantly, and this price increase in turn increased the cost of producing ethanol-blended gasoline.

The switch from MTBE to ethanol resulted from a change in environmental regulations as well as other factors. The Clean Air Act of 1990 required that a substantial portion of U.S. gasoline meet certain emissions goals, in part through the inclusion of oxygenates. Refiners were allowed to choose which oxygenate to use, with MTBE and ethanol being the primary two options. Because MTBE was less expensive than other oxygenates, refiners largely relied on it to meet the oxygenate requirement in the 1990 Clean Air Act.[31] Aside from their value as oxygenates, MTBE and ethanol also improve octane levels and help gasoline suppliers meet various other clean air standards.[32]

Over time, however, incidents involving leaks from MTBE storage tanks raised concerns of potential groundwater contamination, leading MTBE producers and gasoline suppliers to fear MTBE-based environmental contamination and the associated potential for liability.[33] Some

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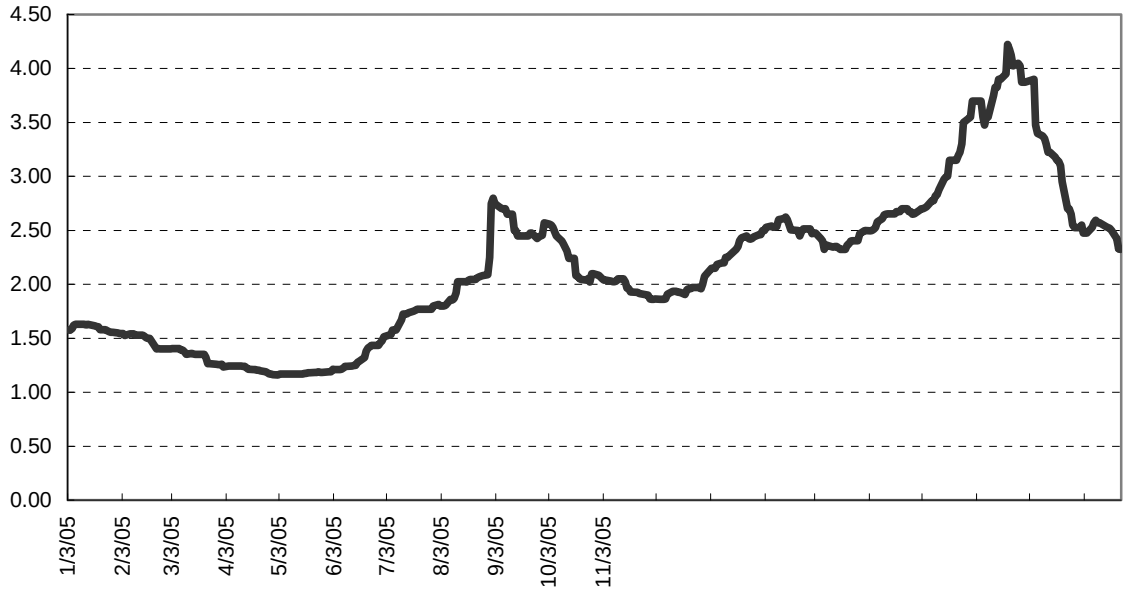
[30] Domestic monthly ethanol production averaged about 315,000 barrels per day in May through August 2006 (*see* Energy Info. Admin., U.S. Dep't of Energy, *Petroleum Navigator: U.S. Fuel Ethanol Oxygenate Production at Oxy Plant, available at* http://tonto.eia.doe.gov/dnav/pet/hist/m_epooxe_yop_nus_2m.htm), while imports averaged about 65,000 barrels per day (*see* Energy Info. Admin., U.S. Dep't of Energy, *Petroleum Navigator: U.S. Oxygenates, Fuel Ethanol Imports, available at* http://tonto.eia.doe.gov/dnav/pet/hist/mfeimus2m.htm). Domestic supply of finished gasoline averaged 9,480,000 barrels per day over those months (*see* Energy Info. Admin., U.S. Dep't of Energy, *Petroleum Navigator: U.S. Finished Motor Gasoline Product Supplied, available at* http://tonto.eia.doe.gov/dnav/pet/hist/mgfupus2m.htm).

[31] *See* ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, SUPPLY IMPACTS OF AN MTBE BAN at 4 (2002), *available at* http://www.eia.doe.gov/oiaf/servicerpt/fuel/pdf/question1.pdf.

[32] For example, neither MTBE nor ethanol contains sulfur.

[33] *See* ELIMINATING MTBE

Figure 4: Daily Chicago Ethanol Spot Prices,
January 2005 - August 2006



capacity of about 0.6-0.8%.[40] The effect of this capacity reduction on national average gasoline prices is discussed in Part III below.[41]

E. Further Output Reductions

There were further substantial reductions in refiners' ability to produce gasoline in the spring and summer of 2006 compared with this period during previous years. Even though operable refining capacity, measured as the amount of crude oil that a refinery can process,[42] increased by 1.5% between January 1, 2005, and January 1, 2006, gasoline production by domestic refiners fell by 0.5% in the first eight months of 2006 relative to that time period in 2005.[43] Similarly, gasoline production between April and August 2006 was roughly the same as

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[40] In 2005, 12.7% of domestic gasoline production was RFG blended with MTBE. This calculation assumes that 5-6% of those volumes will no longer be able to be made into finished gasoline that could be sold in the United States.

[41] An FTC staff analysis of data for RFG and RBOB futures scheduled for delivery between January 2001 and March 2007 provides another indication of the price impact of refiners' transition from MTBE to ethanol. The data show that, in April 2006, traders predicted an unusually large upcoming decrease in RBOB prices relative to crude oil prices in New York Harbor between summer (May 2006 and August 2006) and winter (October 2006 and January 2007), coinciding with the annual switch to winter-grade gasoline in mid-September. Thus, the traders predicted that a reduction in RBOB prices relative to crude oil prices would occur at the same time that gasoline would become easier to refine and that gasoline demand would fall relative to the peak summer demand, and, in fact, the predicted price reduction occurred. FTC staff finds the futures market data supportive of our conclusion that factors reflecting the normal operation of the market, rather than anticompetitive conduct, explain the spring and summer 2006 price increases.

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for those months in 2005, even though operable capacity increased.[44] This reduction in output relative to capacity is greater than can be explained by the effective capacity reduction due to the transition from MTBE to ethanol, discussed above.

During 2006, several U.S. refineries were unable to operate at full capacity as a result of planned and unplanned refinery outages. In general, a refinery outage may affect the entire refinery or only a portion of it. Planned outages occur when refineries shut down to perform required scheduled maintenance. Although refiners have some discretion over scheduling planned maintenance, this maintenance must occur regularly for refineries to operate safely and efficiently. Unplanned outages occur due to "exogenous" factors such as equipment failures or damage from fires, floods, or other disasters—that is, factors outside refiners' immediate control.

On the whole, domestic refining operations did not recover fully from Hurricanes Katrina and Rita until at least a year after the hurricanes struck in August and September 2005, respectively. Indeed, damage from Katrina and Rita continued to affect capacity utilization at two major Gulf Coast refineries significantly during the spring and summer of 2006.

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the first eight months of 2006 of 1.3% relative to that time period in 2005. However, this figure overstates the production decline because more RFG with MTBE was used in 2005 than in 2006. To adjust for the effect of the switch from MTBE to ethanol on refiner production, we removed the oxygenate portion of refiner domestic finished gasoline production. RFG with MTBE production, RFG with ethanol (in PADDs I through IV) production, and conventional gasoline production were adjusted down by 10%, while PADD V RFG with ethanol production was adjusted down by 5.7%. With these adjustments, gasoline production fell by 0.5%.

[44] Because refiners hold inventories of gasoline, the effect of an outage on prices is not limited to the precise time of the outage. This key feature of the industry is important in explaining many short-run movements in prices and illustrates why we have chosen to look at average prices over the summer. To analyze the impact of capacity outages on summer gasoline prices, one must identify a time period when production for the summer occurs. One basis for an estimate is the net output of normal butane and butylene, which are two of the products produced by refineries. Normal butane and butylene can be blended into winter-RVP gasoline in much greater amounts than summer-RVP gasoline (this is one of the reasons for the normal seasonal variation discussed above). A significant increase in normal butane and butylene output signals that refiners are not using as much to blend with gasoline. This increase, therefore, indicates that refiners are switching production from winter gasoline to summer gasoline. 2(e)8-2(t)4( )]oon mcatdueeA-1(i)4(ces,)6(o)]oon mc-1(e)5(aso)-5(B4(-0.0017 ndormal butan6(expl)4(dt)6(A ,-1(e o)sces, 9ort)4(a)

BP’s refinery in Texas City, Texas—one of the largest refineries in the United States

was scheduled and took place.[51]

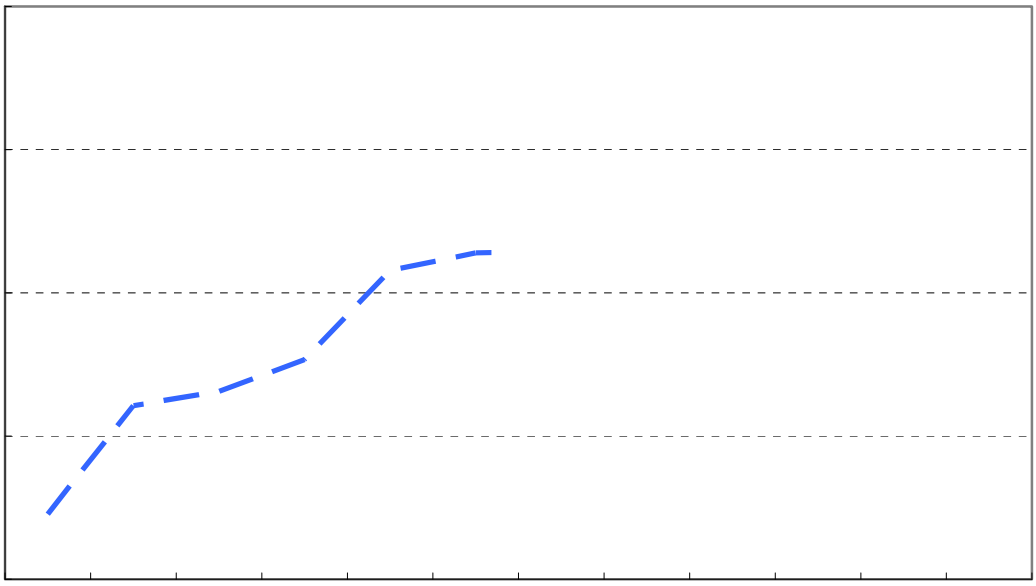
Other refineries shut down during the spring of 2006 in order to make system upgrades enabling them to meet more stringent ultra low sulfur diesel regulations that became effective on June 1 of that year. Due to the switch to ultra low sulfur diesel, many refineries required more planned maintenance in the first half of 2006 than normal.[52] Aside from these planned outages for required maintenance, there were reports of a number of other refineries experiencing outages due to equipment failures, fires, and other unanticipated events.[53]

In sum, if it were not for the outages described here, refining capacity—and likely, gasoline output—during the spring and summer of 2006 would have exceeded that for the same period during 2005. Based on the refiner production data and other information that staff obtained, we concluded that a minimum of 1.6% of capacity was not operative during the first

gasoline production increased to levels above those in 2005.[56] Nevertheless, the capacity reduction we describe here had a significant impact on gasoline prices during the spring and summer of 2006, as described below in Section III.

F. Increased Demand

The previous two capacity-related factors decreased refiners' ability to produce gasoline in 2006. Meanwhile, the demand for gasoline increased. Potential reasons for the increase in demand for gasoline include population growth and an increase in miles driven. Figure 5 shows U.S. monthly gasoline consumption for the years 2002-2006.



During the summer of 2006, while gasoline prices averaged 26% higher than in the summer of 2005, consumers still purchased 0.5% more gasoline. This increase in the quantity of gasoline purchased can be thought of as reflecting the net effect of two factors: (1) the increase

estimate. As discussed earlier, staff estimated that seasonality (the switch from winter- to

1.6% due to refinery outages, and 0.3-1.7% due to the increase in demand relative to the increase

evidence that U.S. refiners increased output once their refineries were repaired and back online, tends to support our conclusion that the 2006 price increases were caused by a confluence of factors reflecting the normal operation of the market and also tends to explain why we did not find evidence that those price increases were caused by activities that violate the antitrust laws.

The Commission continues its efforts to identify, prosecute, and prevent any unlawful anticompetitive practices or mergers within the oil industry. The agency's program of policing anticompetitive conduct in petroleum markets includes continuous examination of price movements and other activity to identify any that may not reflect the normal workings of competition. As stated previously, the Commission actively investigates price anomalies that it detects, as illustrated by its current investigation into bulk supply and demand conditions and practices for gasoline and diesel fuel in the Pacific Northwest. The Commission will take immediate action if these efforts reveal possible use of illegal anticompetitive practices, and will refer potential criminal matters to the Department of Justice, which has exclusive federal jurisdiction to bring such cases, and to appropriate state and local authorities.