- a. Unavailability of RFM as a Substitute for RFE
- b. Unocal Patents
- c. Waiver of RFG II Requirements in St. Louis
- d. High Crude Oil Prices
- e. Increase in Gasoline Demand
- f. Taxes
- 3. Forecast Errors and Other Actions of Market Participants

In the spring of 2000, retail gasoline prices in parts of the Midwest spiked sharply higher. Beginning in May and peaking in mid-June, the national average retail price of reformulated gasoline ("RFG"), required by Environmental Protection Agency regulations in certain urban areas, reached a high of \$1.67 per gallon. The price increase in the Midwest, however, was significantly higher. The price of RFG reached \$2.13 a gallon in Chicago, and \$2.02 a gallon in Milwaukee. The price of conventional gasoline showed similar sharp movements in these and other areas in the Midwest. The price run up was intense, but brief; by mid-July prices had receded to pre-spike levels or even lower.

The large price run-up in the Midwest prompted a bipartisan group from Congress to request that the Federal Trade Commission open an investigation to determine whether an antitrust violation had caused or contributed to the price spike. In collaboration with representatives of several Midwestern states, Commission staff undertook this charge. This report answers that question and also reflects information collected in the course of the investigation on the possible causes of the price spike.

The completed investigation uncovered no evidence of collusion or any other antitrust violation. In fact, the varying responses of industry participants to the price spike suggests that the firms were engaged in individual, not coordinated, conduct. Prices rose both because of factors beyond the industry's immediate control and because of conscious (but independent) choices by industry participants.

In recent years, oil refiners in the United States have been operating at close to their maximum capacity utilization level. Industry statistics illustrate that oil refining capacity in the United States is generally tight, and refining capacity utilization rose from 85 percent in May 1990 to 96 percent in May 2000. The average monthly capacity utilization rate in 2000 was 94 percent. By way of comparison, the capacity utilization rate across all U.S. industries in 2000 was 82 percent. (2).

The current high capacity utilization rates in the oil refining industry leave little room for error in predicting short-run demand. Unexpected demand for a certain oil product is difficult to satisfy without reducing the supply of another oil product, and unexpected supply problems can result in temporary shortages across many oil products. Assuming that demand continues to grow, occasional price spikes in various parts of the country are likely unless refining capacity is increased substantially.

Against this backdrop, staff found no evidence of illegal collusion to reduce output or raise prices. Rather, each industry participant acted unilaterally and followed individual profit-maximization strategies. Some firms diverted production from conventional gasoline in order to maximize RFG output, while others reduced their RFG production and produced more conventional gasoline. Several firms produced gasoline for the Midwest markets in refineries that had previously not supplied those markets and shipped the gasoline into the Midwest.

Staff's investigation identified several factors that contributed to the price spike in the Midwest but were largely beyond the immediate control of the industry participants. For example, the refiners that supply gasoline to the Midwest experienced significant production problems in the spring of 2000 that disrupted the ordinary flow of operations and contributed to the general tightness of both conventional and reformulated gasoline in the Midwest and to the specific shortfalls of reformulated gasoline in the Chicago and Milwaukee areas. These problems included longer-than-expected maintenance outages, several refinery breakdowns, and unexpected difficulties in producing the new summer-grade RFG required by EPA regulations for use in Chicago and Milwaukee. This last problem was particularly acute in Chicago and Milwaukee because of the exclusive use of ethanol as an oxygenate for RFG in these markets. These production difficulties contributed to the supply shortage in the Midwest and also hindered the ability of the refiners to respond quickly to the shortage.

Compounding the supply shortage caused by the refiners' production problems were the unexpected supply disruptions resulting from the failure in the first half of 2000 of two pipelines serving the Midwest. The Explorer Pipeline, which transports gasoline from refineries on the Gulf of Mexico to Chicago, was closed for five days in March 2000 because of a rupture, and its capacity was thereafter reduced to 90 percent until December 2000. In addition, the Wolverine Pipeline, which carries a third of Michigan's gasoline supply, was shut down for nine days in June, and subsequently operated at only 80 percent of capacity for a month, causing shortages in Detroit and northern Ohio.

These problems were exacerbated because gasoline inventories in the Midwest were at or near minimum operating levels in May and June 2000. These inventory reductions were prompted by the high price of crude oil and the expectation (reflected in futures prices) that crude oil prices would fall, the industry's movement to just-in-time distribution techniques, and the reduction in supply resulting from the Explorer Pipeline break. These low inventory levels made it more difficult to respond to unexpected supply problems.

The investigation also identified a number of additional factors that may have affected Midwest gasoline prices, including: the unavailability of reformulated gasoline using MTBE as an oxygenate ("RFM") as a substitute for reformulated gasoline using ethanol as an oxygenate ("RFE") in Chicago and Milwaukee; the assertion by one refiner of certain patents relating to the production of RFG; multiple waivers of the RFG requirements that allowed the continued use of conventional gasoline in St. Louis, which increased the incentive to supply conventional gasoline to St. Louis and may have increased expectations of waivers in

A significant part of the reduction in the supply of RFG was caused by the investment decisions of three firms. When determining how they would comply with the stricter EPA regulations for summer-grade RFG that took effect in the spring 2000, three Midwest refiners each independently concluded it was most profitable to limit capital expenditures to upgrade their refineries only to the extent necessary to supply their branded gas stations and contractual obligations. As a result of these decisions, these three firms produced, in the aggregate, 23 percent less summer-grade RFG during the second quarter of 2000 than in 1999. Consequently, these three firms were able to satisfy only the needs of their branded gas stations and their contractual obligations, and could not produce summer-grade RFG to sell on the spot market as they had done in prior years. On the other hand, these three firms produced more conventional gasoline in the second quarter of 2000 than in 1999. (4).

In addition, at least one firm increased its summer-grade RFG production substantially and, as a result, had excess supplies of RFG available and had additional capacity to produce even more RFG at the time of the price spike. It thus found itself with considerable market power in the short term. This firm did sell off some inventoried RFG, but acknowledged that it limited the magnitude of its response because it recognized that increasing supply to the market would push down prices and thereby reduce the profitability of its overall RFG sales.

In sum, the evidence does not indicate that the price spike in Midwest gasoline in the spring and early summer 2000 was caused by a violation of the antitrust laws. The spike appears to have]nM

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During the winter of 1999-2000, gasoline prices in the Midwest did not differ significantly from those in other areas of the country. In the spring of 2000, gasoline prices began increasing nationwide. From May 30 to June 12, 2000, the national average retail price of RFG II increased from \$1.61 to \$1.67 per gallon, before declining to \$1.61 on July 17, 2000.

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largest cost component in manufacturing gasoline is crude oil. However, some aspects of gasoline production, such as refining capacity, remain fixed in the short term. Moreover, shipping gasoline between regions cannot happen instantaneously. In the short run, therefore, there will be periods during which the prices of some kinds of gasoline vary across regions.

The term "price elasticity" refers to the percentage change in demand for a product caused by a one percent increase in price. Numerous studies have estimated the price elasticity of gasoline. Although the estimates in these studies vary slightly, all studies agree that the short-run demand for gasoline is quite price inelastic. In other words, even a substantial price spike will lead to a fairly small reduction in short-run consumption.

Given the low price elasticity for gasoline, relatively small short-term supply reductions (or ep

As retail gasoline prices in the Midwest rose in late May and early June 2000, representatives of the Department of Energy and the EPA convened several meetings of refiners to determine the causes of the price spike. In these meetings and in various hearings convened by local and federal legislators throughout the period, refiners identified a number of factors as possible causes of the price spike, including: the difficulties many refiners experienced in producing the new RFG II (especially the ethanol blend); disruption of shipments over the Explorer Pipeline; problems involving another Midwest pipeline; the tripling of crude oil prices in the previous 18 months; (23) increased difficulties in switching from winter to summer-grade gasoline at terminals (because tanks essentially had to be drained before being filled with the summer blend); and a court decision upholding several patents held by Unocal Corp. relating to reformulated gasoline. (24)

The magnitude of the price increases, their particular intensity in one section of the country, and their occurrence in both conventional gasoline and RFG, prompted the Commission to consider the reasons for the price increases and, specifically, whether price fixing or other anticompetitive activity might have occurred. A bipartisan group of Senators and Representatives urged the Commission to investigate these matters.

In early June 2000, Commission staff began a preliminary investigation, relying initially on publicly available data and consumer complaints. That preliminary investigation, and the ensuing formal investigation, (25) were intended to determine whether there was sufficient evidence to conclude that violations of the antitrust laws had caused or contributed to the price spike in the Midwest. Commission staff also sought information on other potential causes of the price spike. Throughout its investigation, the Commission worked with representatives of state Attorneys General in the Midwest, many of whom conducted their own parallel investigations.

The Commission issued subpoenas to nine refiners that supply Midwest markets in late June, and to four additional refiners the following month. The Commission issued Civil Investigative Demands ("CIDs") to the refiners, requesting compilations of data and answers to written questions, and in July, issued subpoenas and CIDs to ten entities that own or control the pipelines serving the Midwest markets. The Commission received nearly one thousand boxes of documents and more than one hundred compact disks containing data in response to its process. Staff also took testimony under oath from witnesses from each major participant in Midwest gasoline markets. In addition, staff interviewed persons knowledgeable about factors that may have contributed to the price spike, industry structure, and the regulatory environment. Staff conducted a refinery site visit, retained two prominent outside economists to provide additional expertise, and reviewed thousands of pages of published materials analyzing the industry and the price and supply issues relating to spring and early summer 2000.

The Commission's investigation was intended principally to determine whether any behavior leading to, or resulting from, the Midwest price spike violated any federal antitrust statutes. As relevant to the analysis here, the federal proscriptions against anticompetitive conduct are contained in the Sherman Act and the FTC Act. Section 1 of the Sherman Act prohibits a "contract, combination . . . or conspiracy, in restraint of trade." Section 2 of the

Sherman Act prohibits conduct that amounts to monopolizing, an attempt to monopolize, or a conspiracy to monopolize, a market. While the Commission does not have direct enforcement authority over the Sherman Act, conduct subject to the Sherman Act may be challenged under Section 5 of the FTC Act, which prohibits "unfair methods of competition."

(31) In such cases, the Commission refers to legal standards developed under the Sherman Act.

The Sherman Act, as outlined above, prohibits two principal kinds of anticompetitive conduct: (1) an agreement among two or more independent firms that unreasonably restrains competition, such as an agreement to increase prices, curtail output or divide markets (Section 1), and (2) the unreasonable acquisition or maintenance of monopoly power, or an unreasonable attempt to acquire such power, which typically consists of exclusionary conduct by a single firm to prevent or impede competition (Section 2). Because it does not appear that any one firm has sufficient market power in Midwest gasoline markets to engage in illegal monopoly behavior, the Commission's investigation searched for evidence of collusive activity among refiners, retailers, transportation companies, and other participants in the market.

The critical first step in establishing a violation of Section 1 of the Sherman Act is proof of an agreement. An agreement may be explicit or tacit, and the evidence may be direct or circumstantial. Either form of agreement, and either form of proof, can support a violation. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574 (1986); *Monsanto Co. v. Spray-Rite Serv. Corp.*, 465 U.S. 752, 765-66 (1984). Since direct evidence of an explicit agreement (*e.g.*, an admission or eyewitness testimony) rarely is available (and none was uncovered in this investigation), plaintiffs usually rely on circumstantial evidence to establish an inference of either an explicit or a tacit agreement.

Strict legal standards govern the use of circumstantial evidence to establish a conspiracy. In Matsushita, the Supreme Court held that "conduct that is as consistent with permissible competition as with illegal conspiracy does not, without more, support even an inference of conspiracy." 475 U.S. at 597 n.21 (citing *Monsanto*, 465 U.S. at 763-64). When equally plausible competing inferences can be derived from the conduct at issue, the plaintiff must come forward with other, "sufficiently unambiguous," evidence "that tends to exclude the possibility" that the defendants were acting lawfully. Matsushita, 475 U.S. at 588; see also In re Coordinated Pretrial Proceedings in Petroleum Products Antitrust Litigation, 906 F.2d 432, 438 (9th Cir. 1990). In *Monsanto* the Supreme Court stated: "The correct standard is that there must be evidence that tends to exclude the possibility of independent action by the [parties]. That is, there must be direct or circumstantial evidence that reasonably tends to prove that [the parties] had a conscious commitment to a common scheme designed to achieve an unlawful objective." 465 U.S. at 768. (32) The Court in Matsushita identified two separate inquiries relevant to this determination: (1) whether the defendant had "any rational motive" to join the alleged conspiracy, and (2) whether the defendant's conduct "was consistent with the defendant's independent interest." 475 U.S. at 587. Underlying the rulings in Matsushita and Monsanto is the concern that adverse inferences based on ambiguous conduct may have the effect of deterring significant procompetitive conduct. See, e.g., Petroleum Products at 439-40.

Under prevailing law, parallel or interdependent pricing behavior among market participants is not sufficient, standing alone, to establish the existence of an agreement. [33] See, e.g., Theatre Enterprises v. Paramount Film Distributing Corp., 346 U.S. 537, 541 (1954) ("conscious parallelism" is not a violation of the Sherman Act); Petroleum Products, 906 F.2d at 444; Clamp-All Corp. v. Cast Iron Soil Pipe Inst., 851 F.2d 478, 484 (1st Cir. 1988)

(Breyer, C.J.), *cert. denied*, 488 U.S. 1007 (1989); *see also United States v. International Harvester Co.*, 274 U.S. 693, 708-09 (1927) ("The fact that competitors may see proper, in the exercise of their own judgment, to follow the prices of another manufacturer, does not establish any suppression of competition or show any sinister domination.").

The courts accordingly have held that some "plus factor" must be present to demonstrate that an unlawful agreement or understanding was reached. *See, e.g., Petruzzi's IGA Supermarkets* v

differential between Chicago and Dallas conventional gasoline prices was one cpg. Those historical differentials were exceeded for RFG around May 13, 2000, and for conventional gasoline about two weeks later. The competitive model predicts that additional gasoline supply would have been moved into the Midwest, displacing diesel fuel in the pipelines, when the price disparity reached and exceeded these historical levels. The graphs showing shipments received in PADD II from PADD III (Figures 5 and 6, Appendix [Figure 5, Figure 6]) demonstrate that a higher percentage of gasoline (and a lower percentage of diesel) was received in PADD II in June 2000 than in prior years. When one accounts for the normal shipping delay of approximately three weeks, it appears that additional supply was actually shipped into the Midwest in May 2000, at the time the differentials exceeded historical levels.

This arbitrage analysis suggests that firms behaved in a manner consistent with the competitive model. Firms acting in concert likely would have been slow to erase the geographic price disparities by moving new product into the area. Thus, neither the firms' differing responses to the price spike nor the conclusions of the arbitrage analysis are consistent with collusion to reduce supply in reaction to higher prices in the Midwest.

While the industry does engage in substantial firm-to-firm contact and exchanges of information, which may constitute "plus factors" under some circumstances, such information exchanges are customary in this industry and appear to help the market function efficiently. Companies with an excess of a particular petroleum product at one location may trade for the same product at another location, for another type of petroleum product at the same location, or for another petroleum product at another location. These exchange agreements are motivated by factors peculiar to the industry: refineries are large-scale organizations that produce myriad products; crude oil comes in different grades that may be more suitable for some refineries than others; demand for different products varies seasonally, cyclically, and for other reasons; and the physical movement of the product is slow. A certain amount of contact and exchange of information between companies is necessary to work out the terms of the agreements. Companies also frequently buy and sell particular products at various locations for the same reasons they enter into exchange

Companies had differing degrees of success in their efforts to solve these problems, and their ability to do so improved as they gained experience with making summer-grade Phase II

Two refiners that supply the Midwest provided evidence that they were unable to produce as much RBOB as they would have but for the Unocal patents. All other refiners were either noncommittal about the effect of the Unocal patents on their production or reported that the patents did not significantly impede their production efforts for summer 2000.

The March 9, 2000 Explorer Pipeline disruption affected the delivery of RFM to the St. Louis area. The resulting shortage of reformulated gasoline in St. Louis prompted the EPA to grant a temporary waiver from the RFG II requirements in the St. Louis area on March 17, 2000. The EPA waiver for the St. Louis area continued until June 6, 2000. Lawmakers and retail gasoline trade associations requested similar waivers in Chicago and Milwaukee in early June 2000, but EPA rejected these requests after it surveyed local refiners and concluded that supplies of RFG II in the Chicago and Milwaukee areas were "tight" but "adequate."

The waiver increased incentives to supply more conventional gasoline instead of RFM to St. Louis, thereby diminishing the supply of conventional gasoline in other areas of PADD II including Chicago and Milwaukee. To the extent existing supplies of RFM were freed up in St. Louis due to increased use of conventional gasoline, that RFM could not be shipped to the Chicago/Milwaukee area because RFE is used there. (54).

Furthermore, the possibility that the EPA would grant waivers for Chicago and Milwaukee may have contributed to the RFE supply shortage in Chicago and Milwaukee. The calls for RFE waivers for Chicago and Milwaukee met nearly universal opposition from the large oil companies, who argued that waivers would penalize companies that had invested to meet the new RFG guidelines by allowing those companies that had not invested to sell cheaper conventional gasoline. One refiner delayed its initial production of RBOB in part due to the possibility that the EPA would grant a waiver in Chicago and Milwaukee. While one cannot measure the effect of this decision, the uncertainty could have aggravated the supply situation in the Midwest.

High crude oil prices have been suggested as another possible cause of the price spike in Midwest gasoline. In the oil industry, a large share of the reserves of the base commodity is owned and regulated by sovereign nation states. These states regard crude oil as their primary (and perhaps only) natural resource and tightly control how that resource is exploited.

In the second half of 1999, OPEC countries, joined by several non-OPEC oil exporting countries, curtailed the global supply of crude oil. During the same period, worldwide demand for petroleum products increased significantly, as economies in Asia and Europe recovered and the United States continued its period of strong economic growth. As a result, worldwide consumption of crude oil exceeded production in the spring and summer of 2000, and U.S. inventories were low. Prices of crude oil increased dramatically in the spring of 2000. The average price of West Texas Intermediate crude oil in the first five months of 1999 was \$12.60 per barrel, compared to \$26.20 in the first five months of 2000. Refiners responded to the crude oil price increases by cutting gasoline production and using existing inventories of gasoline to meet demand, in the expectation that inventories could be replenished when crude oil prices dropped.

While higher crude oil prices explain a substantial percentage of the national increase in gasoline prices, they do not explain why Midwest gasoline prices rose more than prices elsewhere. High crude oil prices did, however, contribute to the low inventory levels in the

Midwest and elsewhere, which, as discussed above, made it more difficult to respond to the Midwest gasoline price spike.

The inelastic demand for gasoline means that even small increases in demand can result in large price increases if supply does not also increase. Sales data suggest that increased demand for gasoline in the Midwest in spring 2000 may have exacerbated supply shortages and, therefore, the price spike. According to the data, sales of gasoline throughout PADD II increased by 2.1 percent from January to May 2000 compared to the same period a year before. This is significantly higher than the national figure, which shows a *decrease* in sales of 1.3 percent for the same time period. Once Midwest gasoline prices began increasing dramatically in mid-May 2000, sales in Illinois and Wisconsin began to decrease.

State and local gasoline taxes have been cited as contributing to the gasoline price spike in

- 1. Staff coordinated its investigatory efforts with the Attorneys General of Illinois, Wisconsin, Michigan, Ohio, Indiana, Missouri, Iowa, Minnesota, Kentucky, South Dakota and West Virginia.
- 2. Board of Governors of the Federal Reserve System, *Historical Statistics for Industrial Production Capacity and Utilization: Total Industry*, G.17, Monthly.
- 3. Although OPEC reduced crude oil output in the second half of 1999, this cannot explain why Midwest gasoline prices rose more than in other parts of the country because OPEC's actions affected all parts of the United States similarly.
- 4. These three firms produced more conventional gasoline in the second quarter of 2000 than in 1999, and as a result, in the aggregate, they produced roughly the same total amount of gasoline in the second quarter of 2000 as in 1999. Once prices spiked, two of these three refiners sought to supply more RFG by utilizing additional high grade blendstocks to increase their effective capacity and by shipping in RFG from other refineries. Nevertheless, the aggregate summer-grade RFG supply of these three firms was 17 percent lower in the second quarter of 2000 than in 1999.
- 5. The Department of Energy divides the United States petroleum markets into five Petroleum Administration for Defense Districts. PADD II encompasses Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Ohio, Oklahoma, Tennessee, and Wisconsin.
- 6. Energy Information Administration, Office of Oil and Gas Daily Price Report (June 12, 2000; July 3, 2000; July 24, 2000). RFG II requirements may differ between summer and winter and also among localities.
- 7. EPA Data, RFG-CG Price Information, based on Oil Price Information Service data (June 14, 2000, June 23, 2000). During the week of June 19, 2000, RFG prices at some Chicago gas stations were reported to have risen Information Service data (June 14, 2000, June 23,
- 2000). During the week of June 19, 2000, ise hetion es p ion preport qiallit r# h MMR M0"

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32. See also In re Brand Name Prescription Drugs Antitrust Litigation, 186 F.3d 781, 785 (7th Cir. 1999) (Po

make RFE for the Chicago market; hence the Detroit gasoline price is set to some extent by competition with Chicago for scarce supplies of these blendstocks.

- 50. Most refiners and experts seem to believe that the production of RFE more directly implicates the Unocal patent than RFM, because the extremely low RVP required in refining RBOB for ethanol blending reduces refiners' flexibility to produce RBOB blends without following Unocal's formula.
- 51. See, e.g., Facts About the RFG Patents, www.unocal.com/rfgpatent/rfgfact.htm; D. Koenig, Higher Gasoline Prices Predicted, AP Online, May 31, 2000; Gasoline Prices in Perspectives, www.bp.com/consumerissues/gasolinepricesupply; Testimony of J. Louis Frank President Marathon Ashland Petroleum LLC, Federal News Service June 29, 2000; Statement of James McCarthy, General Manager, CITGO Petroleum Corporation, Federal News Service July 20, 2000; Refineries Struggle to Keep Up With Demand, Florida Times-Union (Jacksonville, FL) May 27, 2000 at D-7.
- 52. See Auto/Oil Study Provisions, www.unocal.com/rfgpatent/rfgao.htm at 1.
- 53. See RFG Emissions Research, www.unocal.com/rfgpatent/rfgresch.htm at 1.
- 54. At least two refiners that served the St. Louis market were left with large inventories of RFM that could only be sold at a loss when the EPA granted the waiver there.
- 55. EIA statistics show the following changes in sales for the states in PADD II for January through May 2000 compared to the same period in 1999: Illinois (-0.4 percent); Indiana (-2.2 percent); Iowa (+3.4 percent); Kansas (-0.5 percent); Kentucky (-1.0 percent); Michigan (+0.4 percent); Minnesota (+3.7 percent); Missouri (+4.6 percent); Ohio (+1.2 percent); and Wisconsin (+2.3 percent). Although the data show a decrease in sales in Illinois, the data also show that sales in Illinois in March through May 2000 were 1.2 percent higher than the same period a year earlier.
- 56. Energy Information Administration, Department of Energy, Prime Supplier Report, various issues.
- 57. Illinois and Wisconsin sales decreased from May 2000 to June 2000 by 3.2 percent and 1.1 percent respectively.
- 58. Monthly Motor Fuel, OHPI, at 10-11. Similar taxes apply in California, Georgia, Hawaii and New York. *Id.* at 11.
- 59. Consisting of federal tax of 18.4 cpg; statewide IL excise tax of 19.0 cpg; statewide IL storage tax of 1.1 cpg; Cook County excise tax of 6.0 cpg; and Chicago excise tax of 5.0 cpg.
- 60. Consisting of statewide IL sales tax of 6.25 per cent; Cook County sales tax of 0.75 per cent; Chicago sales tax of 1.00 per cent; and Regional Transportation Authority tax of 0.75 per cent.
- 61. In early July, Illinois followed Indiana's lead and suspended the state portion of the sales tax (5.0 percent) through the end of the year 2000. The fall in wholesale prices beginning in late June 2000 would have led to a decrease in retail prices even without the tax suspension. Other Midwestern states, including Wisconsin, rejected removal of any or all of their taxes on gasoline.