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PIRINC has prepared the enclosed report, *Rising Gasoline Prices: Made in the USA.*

Since mid-2004 PIRINC and more recently the Department of Energy have been warning that the fall-out from certain provisions of Energy Policy Act of 2005 raised risks of near-term price surges. Gasoline prices have indeed been surging again, with only a partial assist from crude prices. The Act eliminated the 2% minimum oxygenate requirement for reformulated gasoline, effective May 5th of this year. The practical need to use MTBE to meet the requirement has been a key industry defense against threats of defective product liability lawsuits. With the end of the oxygenate requirement, the defense loses its justification and in response, the industry has been phasing out MTBE at an accelerating rate. The rush out of MTBE has put significant pressure on ethanol supply and logistics systems, while the May 1 upstream deadline for summer specification gasoline, especially reformulated gasoline, is straining capacity to produce the more stringent, and costly, RBOB (Reformulated Blendstock for Oxygenate Blending) needed when ethanol as opposed to MBTE is the oxygenate. Another provision of the Act, the renewable fuels mandate has also contributed upward price pressures on ethanol.

The report looks first at overall market conditions pushing up pump prices and then the specific gasoline supply problems that have exacerbated price pressures. The detailed analysis starts with a discussion of the changes in fuel specifications involved in the shift from MTBE to ethanol-based reformulated gasoline by focusing on two areas in New York and Connecticut where MTBE bans came into effect in 2004. The report then focuses on gasoline markets during the run-up to the far more abrupt changeovers underway at the national level. Although the report focuses on reformulated gasoline, conventional gasoline cannot be ignored. Modest amounts of MTBE have also been used in conventional gasoline. Moreover, to minimize losses in reformulated supply, the industry is shifting some conventional capability to production of reformulated. The industry is also shifting some ethanol from conventional to reformulated gasoline. Thus no part of the gasoline barrel has been exempt from short-term supply pressures.

In a world with minimal spare capacity, crude prices are high and extremely sensitive to events. But consumers should see some gradual relief from the extra price pressures due what are mostly transitional supply problems. But in the meantime, consumers are paying a heavy price for the unintended supply consequences of Congressional decisions. As a result of Congressional decisions taken (and not taken), a substantial portion of the gasoline price increases to date were homegrown.

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Rising Gasoline Prices: Made in the USA-

Summary

Since mid-2004 PIRINC and more recently the Department of Energy have been warning that the fall-out from certain provisions of Energy Policy Act of 2005 raised risks of near-term price surges.¹ Despite the absence of any new hurricanes, gasoline prices have indeed been surging again, with only a partial assist from crude prices. As of late April, the US average retail price for all grades and formulations was up by 74 cents/gallon from its December average post-hurricane low point, with 55 cents of the increase coming since mid-March. In particular, the Act eliminated the 2% minimum oxygenate requirement for reformulated gasoline, effective May 5th of this year. The need to use MTBE as means of meeting the oxygenate requirement has been a key industry defense against threats of defective product liability lawsuits. With the end of the oxygenate requirement, the defense loses its justification and in response, the industry has been phasing out MTBE at an accelerating rate with the goal of eliminating its use entirely by the time the oxygenate requirement expires. The rush out of MTBE has put significant pressure on ethanol supply and logistics systems while the May 1 upstream deadline for summer specification gasoline, especially reformulated gasoline, is straining capacity to produce the more stringent, and costly, RBOB (Reformulated Blendstock for Oxygenate Blending) needed when ethanol as opposed to MBTE is the oxygenate.² Even after expiration of the oxygenate requirement, the limited availability of non-oxygenate alternatives means that in the short term, ethanol will remain by far the dominant replacement for MTBE. Another provision of the Act, the renewable fuels mandate has also contributed upward price pressures on ethanol. The ethanol price increases, which have been much larger than the gasoline price increases, have also been sufficient to overcome current tariff barriers and attract imports to help meet immediate needs, although tight supplies in Brazil, the world's largest exporter, are limiting price moderating benefits from this option.

The report looks first at overall market conditions pushing up pump prices and then discusses in detail the specific gasoline supply problems that have exacerbated price pressures. The detailed analysis starts with a discussion of the changes in fuel specifications involved in the shift from MTBE to ethanol-based reformulated gasoline by focusing on two areas in New York and Connecticut where MTBE bans came into effect in 2004. The report then focuses on market trends for the different components of the gasoline barrel in the run-up to the far more abrupt changeovers currently underway at the national level.

¹ See the Energy Information Agency (EIA) January 5, 2006 release of **This Week in Petroleum**, and their report, **Eliminating MTBE in Gasoline in 2006**, released February 22, 2006. PIRINC reports on MTBE and ethanol issues include, **Congressional Action to Mandate Use of MTBE In Spite of Known Risks**, released June 2005 [MTBE at Center Stage](#), released January 2004, [MTBE, Ethanol - Sorting Through the Oxygenate Issues](#), released December 2001

² Other things equal, replacing MTBE with ethanol in gasoline raises gasolines's RVP (Reid Evaporative Pressure), a measure of evaporative tendencies. To compensate, other gasoline components with high RVP (such as butane and pentane) must be removed, raising costs. The problem becomes acute with the changeover to low RVP summer-grade gasolines.

Although the report focuses on reformulated gasoline, conventional gasoline cannot be ignored. Modest amounts of MTBE have also been used in conventional gasoline, where in any case a broad legal shelter comparable to the oxygenate requirement is not available. Moreover, to minimize potential losses in reformulated supply, the industry is shifting some conventional capability to production of reformulated. The industry is also shifting some ethanol from conventional to reformulated gasoline. Thus no part of the gasoline barrel has been exempt from short-term supply pressures.

In a world with minimal spare producing capacity, crude prices remain extraordinarily sensitive to international political developments and developments within key producing countries. However, consumers should see some gradual relief from the extra price pressures associated with what are mostly transitional gasoline supply problems resulting from the rapid switch from MTBE to ethanol. But in the meantime, consumers are paying a heavy price for the unintended supply consequences of Congressional decisions. In particular, because of the timing of the end of the oxygen mandate, the rush out of MTBE is reaching its climax as demand picks up with the beginning of the driving season and as refiners are coming out of a historically severe turnaround to meet more complex summer gasoline requirements and to meet a June 1 deadline for ultra-low sulfur diesel. As with crude, with no spare refining capacity to speak of, gasoline markets are also extraordinarily sensitive to any hiccoughs in the system. In effect, a substantial portion of the gasoline price increases was homegrown.

Impact on the Consumer

For the consumer, it makes little difference what specific factors are contributing to current gasoline supply problems. What impacts the consumer is the price at the pump, which in turn reflects overall gasoline supply/demand conditions. Of course the gasoline supply problems are in addition to renewed upward pressure on crude prices. The top half of the table below summarizes key price differences between April 2005 and April this year.

Prices for WTI this April have averaged 39 cents/gallon (\$16/barrel) above April 2005, supporting significantly higher gasoline prices for consumers even apart from specific gasoline supply problems. However, spot prices for gasoline, here represented by New York Harbor unleaded (87 octane) prices have moved up by 64 cents/gallon, far more than crude prices. Average April retail prices have also moved up by significantly more than crude prices, but apparently by less than the increase in spot product prices. The difference suggests some erosion of retail margins as happens during periods of rapid price increases, but also reflects lags between the

April 2006 vs. April 2005		
Price Changes ¢/gallon		
WTI	+39	
NY Harbor Unleaded	+64	
Ave. Retail Gasoline	+50	
Chicago Ethanol	+140	
Supply Changes		
	MB/D	%
Finished Gasoline		
Production	-600	-7%
Imports	-150	-26%
Total gasoline imports	+61	+6%
Total Gasoline Stock Draw (+)		
Daily Average Rate	MB/D	
April 2006	+533	
April 2005	+44	

weekly collection of retail price data by the Department of Energy and the daily availability of spot prices.³ Note that the increase in the Chicago ethanol price was much higher, up by \$1.40 versus April 2005.

As shown in the middle section of the table, April (through April 21) production and imports of finished gasoline were down by a combined total of about 750 MB/D or about 8% of gasoline demand. Note that the difference is much narrower for total gasoline imports, consistent with the shift to imports of blending components as opposed to the finished product. But the blending components as discussed earlier help prop up the finished gasoline production totals. In terms of supplies reaching the pump, a major offsetting factor has been the high rate of stock drawdown. This April, total gasoline stocks have been drawn down at an average daily rate of 533 MB/D, far higher than the minimal drawdown for the same period last year. This result is consistent with a rapid drawdown of MTBE-based gasoline in advance of the end of the legal protection offered by the expiring oxygenate mandate and the shift to summer specification product.

Allowing for potential gaps in the data and margins of error, it's likely that supplies of gasoline to the pump in April were at best about flat and more likely down 1 to 2% versus a year ago. Over the same period, a key driver of gasoline demand, real disposable income is up by about 3.5%, indicating that, other things equal, demand would be up somewhat as well. With supply constrained and potential demand up, higher prices become the means to balance and, as is widely acknowledged, given the low estimates for price elasticity associated with gasoline, the price increases have to be disproportionate to the supply shortfall to clear the market. With a short-term price elasticity of -0.05 , a figure close to the Energy Information Agency's view, prices have to rise by about 22% and 50% to clear supply shortfalls of 1% and 2% respectively. At a price elasticity of -0.1 , prices have to rise by about 11% and 22% for the same range of supply shortfalls. April 2006 average retail prices are averaging about 22% above a year-ago. Average retail prices on May 1, the latest survey date available, are 30% above a year ago.

Supply Shortfall	1%	2%
Price Increase to Clear Market		
Price Elasticity = -0.05	+22%	+50%
Price Elasticity = -0.1	+11%	+22%
Retail Price Increase		
April 2006 vs. April 2005		+22%
May 1, 2006 vs. May 2, 2005		+30%

The Shift to Ethanol in NY and Connecticut

On January 1, 2004, MTBE bans first enacted in 2000 came into effect in New York and Connecticut⁴. The shift in gasoline formulations that resulted from the ban illustrates the process

³ April 2006 spot prices are averages of daily prices from April 3rd through April 28th. Average retail prices are based on Department of Energy weekly surveys through April 24. The gap between April 2005 and the average retail price for the four weeks ending May 1st of this year is wider, 59 cents/gallon, closer to the April to April change in the New York Harbor Price.

⁴ California's MTBE ban also took effect on January 1, 2004 but since California has its own reformulated gasoline program, data collected under the Federal program were not available for that state.

underway on a nationwide scale and issues associated with the change. The table below highlights changes in reformulated gasoline properties between 2003 and 2004 for two specific reformulated gasoline areas within the two states, Poughkeepsie, NY and Hartford, CT.

The top half of the table shows shifts in summer specification gasoline. Summer specifications apply at the retail level from June 1 through September 15, although upstream the specifications take effect May 1, when only summer grade gasoline can be held in terminals. In both locations, the average oxygenate percentage moved up with the shift from MTBE---from 2-2.1% by weight in 2003 to 3.5-3.6% in 2004. The change corresponded to the shift from 9.2-9.6% MTBE by volume in 2003 to near-zero in 2004 while ethanol moved up from zero to just over 10%. To achieve a 2% by volume oxygen content for gasoline requires only a 5.7% ethanol content by weight as opposed to nearly 11% for MTBE. However, raising the ethanol content to 10% just about offsets the volumetric loss in gasoline supply from eliminating MTBE (and reaches the maximum level that attracts the tax incentive). In both locations, the shift to ethanol had minimal impact on average gasoline RVP levels, a measure in pounds/square inch of evaporative properties, even though ethanol has an RVP level of 18, more than double the 8 level for MTBE.⁵ Avoiding a significant increase in RVP requires a change in the RBOB, particularly the removal of other high RVP components (such as butanes and pentanes with blending RVPs of 65-71 and 17-20 respectively) (and for balance, removal of certain heavy, high-boiling temperature volumes). Although still within compliance limits, the shift to ethanol is accompanied by declines in the percent reductions in emissions of air toxics achieved versus baseline fuel emissions.

Moving to Ethanol in NY and CT				
Changes in Poughkeepsie & Hartford Gasoline*				
	Poughkeepsie		Hartford	
	Summer		Summer	
	2003	2004	2003	2004
% Oxygenate	2.0%	3.6%	2.1%	3.5%
% MTBE	9.6%	0.2%	9.2%	0.1%
% Ethanol	0.0%	10.1%	0.0%	10.2%
% Reduction in Toxic Emissions from Baseline	-32.5%	-30.7%	-32.8%	-28.9%
RVP	6.8	7.0	6.8	6.8
	Winter		Winter	
	2003	2004	2003	2004
% Oxygenate	2.7%	3.7%	2.4%	3.6%
% MTBE	5.1%	0.1%	7.3%	0.1%
% Ethanol	5.1%	10.5%	2.7%	10.3%
% Reduction in Toxic Emissions from Baseline	-24.9%	-23.1%	-26.2%	-22.3%
RVP	NA	NA	NA	NA

*Both locations are Federal Reformulated Gasoline Areas.

The lower half of the table shows the changes for the less severe winter specification gasoline. Already in 2003, both MTBE and ethanol were used in both areas and the average oxygenate percentages were above the 2% minimum. Although not shown, in the winter fuel months of 2002, only MTBE was in use and the oxygenate percentage in both areas was about at the 2% level. In 2004, MTBE use was down to near zero replaced by ethanol. Here too, the shift to ethanol leads to less of a percentage reduction in toxic emissions although the winter reduction requirements are much lower than summer requirements in any case. No figures are shown for RVP since there are no Federal winter VOC reduction requirements for reformulated gasoline.

⁵ There is no explicit RVP requirement for reformulated gasoline but about the average level satisfies the percent reduction in summer season VOC emissions compared to VOC emissions from a Federally defined baseline fuel that must be achieved by any RFG formulation.

In 2003, the last year for which data are available, the national average RVP of the winter reformulated gasoline was 12.1 psi.

The specifics of the changeovers in these two areas are helpful in understanding what is driving the recent price trends. Over the first months of the year, when RVP considerations are less restrictive, suppliers of RFG would be moving to 10 % ethanol content to reduce volume losses, in effect going beyond the 2% oxygenate mandate. The winter RBOB specifications for ethanol (and MTBE) are less severe. In any case, MTBE was still in use so the main early-year market impact is increased demand for ethanol.

With a May 1 deadline for upstream suppliers to shift fully to the more stringent summer specification gasoline, the dual transitions---away from MTBE and toward summer ethanol-based RBOB at refineries and terminals has gotten underway in earnest.⁶

So far the focus has been on reformulated gasoline because of the expiring oxygenate requirement, but conventional gasoline is impacted as well. Only a modest amount of MTBE is used in conventional gasoline---about 12 MB/D or 4.5% of total MTBE use according to an EIA estimate for 1997.⁷ The legal shelter provided by the oxygenate requirement for MTBE in reformulated gasoline would not apply to conventional gasoline. Replacement of MTBE in conventional gasoline with ethanol would also, other things equal, raise RVP levels. Currently summer season conventional gasoline is subject to a Federal RVP limit of 9 psi except for VOC nonattainment areas where a 7.8 psi limit applies. About 25% of conventional gasoline is subject to either Federal or State summer RVP limits of 7.8 or less. There is a Federal 1 psi RVP waiver for ethanol-based conventional gasoline if the ethanol content is 10% by volume.

While replacement of MTBE in conventional gasoline should have a minimal direct supply impact, spillover effects of reformulated supply problems have additional indirect impacts. The industry is shifting some conventional production capability to reformulated gasoline to compensate, at least partially, for potential losses in reformulated capability. Moreover, some ethanol is moving from the conventional gasoline (specifically gasohol) pool to supply the reformulated market. Both trends help limit shortfalls in reformulated supplies but tighten the market for conventional gasoline. One potential option for mitigating conventional supply losses, absorption of components removed from the reformulated gasoline pool, is restricted by the summer RVP limits discussed above.

⁶ In its Notice of proposed rulemaking regarding Regulation of Ruel and Fuel Additives: Reformulated Gasoline Terminal Receipt Date, published in the Federal Register on December 3, 2001, the EPA noted that, "Typical winter grade RFG may have an average RVP as high as 15 psi, compared to an average RVP of 8.34 psi for all winter grade RFG produced from April 8, 2000 and April 30, 2000." Batch data for March 24, 2000 through April 30, 2000 showed an average RVP of 9.28. The Notice can be accessed at <http://www.epa.gov/oms/regs/fuels/rfg/nfrtrans.pdf>.

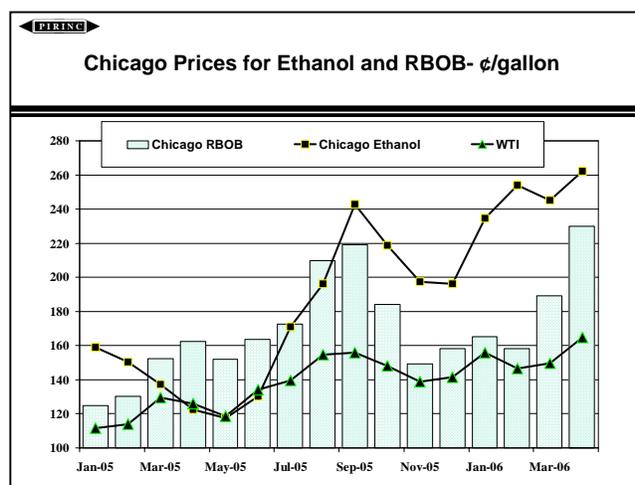
⁷ From the EIA report, MTBE, Oxygenates and Motor Gasoline, accessible at: <http://www.eia.doe.gov/emeu/steo/pub/special/mtbe.html>. There is a more limited winter oxygenate mandate for carbon monoxide control currently applicable to 16 metropolitan areas, all in the western US, including Anchorage, Alaska. But the same EIA report showed a predominant role for ethanol, with 18 MB/D used as opposed to less than 1 MB/D of MTBE.

The net effect of all these influences is some overall loss of conventional as well as reformulated summer specification gasoline supply capability. As discussed later, one supply option to balance, higher imports, has not yet materialized, not least because the US has moved to product specifications not produced for home markets elsewhere, leaving higher prices to do the work of balancing constrained supply with demand.

Chicago Prices for Ethanol and RBOB

Chicago has been using ethanol in its reformulated gasoline for a number of years and has no ethanol logistics issues. Examination of recent Chicago prices for ethanol and its RBOB thus abstracts from specific logistics and changeover considerations, although Chicago had its own transition problems in 2000 the first year of the more stringent phase 2 reformulated gasoline specifications. Instead, price trends would reflect a combination of changes in production costs and much higher competing demands from other parts of the country making the switch to ethanol-based gasoline for the first time. This chart summarizes spot prices since January 2005, including for comparative purposes, prices for WTI crude oil.

For the first five months of last year, Chicago ethanol prices were falling, reaching a low point of about \$1.18/gallon in May⁸. From March through August, ethanol prices were at or below RBOB prices. Ethanol prices more-or-less followed RBOB (and nationwide gasoline) prices upward over the summer and through the hurricane related price peaks but ethanol prices thereafter declined far less than RBOB prices and reversed themselves much



earlier reaching a February peak of \$2.54 before falling back slightly in March. Prices moved up in April to \$2.63, 8 cents above their previous February peak and more than double their level in April 2005. The increase in prices is far greater than the 52 cent/gallon tariff (to offset the tax credit for ethanol claimed by blenders) plus the 2.5% ad valorem duty.¹ The room for imports created by the earlier price increases should moderate further price pressures. However, tight near-term supplies from the world's most important exporter, Brazil, has meant increased US demands are putting greater pressure on international prices, limiting the benefits from accessing the international market.⁹

⁸ Prices shown are before allowing for the effective 52 cent/gallon tax incentive.

⁹ Domestic ethanol supplies have moved up substantially. As of January, the latest month available, fuel ethanol production was averaging 288 MB/D, or 4.5 billion gallons at an annual rate, well above the 2006 4 billion gallon renewable fuel requirement. On average, the month to month gain since January 2005 has been about 2.5 MB/D with a range of +22 to -20. However, between January 2006 and April, MBTE use (based on production of reformulated gasoline with ether) has fallen by about 60 MB/D, a far faster pace than the recent history of gains for domestic ethanol.

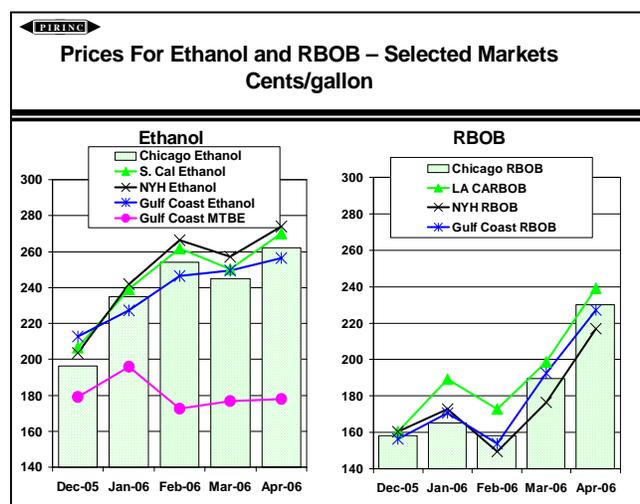
Ethanol makes up no more than about 10% by volume of a gasoline gallon. While the increases over the past year in ethanol prices have certainly helped push up gasoline prices, the recent sharp increases in RBOB prices, the other 90% of the gallon are having an even greater impact. RBOB prices in March rose by nearly 30 cents from their February level, and in April surged by a further 41 cents/gallon to \$2.30/gallon, nearly 70 cents/gallon above a year ago. Underlying crude costs can account for a share of the higher RBOB prices. Crude costs for April as discussed earlier were up by 39 cents/gallon from a year ago, a significant jump but less than half the increase in RBOB prices.

For other parts of the country, there can be additional costs associated with moving greatly increased volumes of ethanol and with transitional problems of meeting for the first time the more stringent specifications for ethanol blendstock. To assess the extent to which such problems have, the next section considers price developments in areas further from the country's ethanol heartland.

Prices for Ethanol and RBOB Beyond Chicago

The next chart shows trends in ethanol and RBOB spot prices in different parts of the country since December of last year, when markets had recovered from the impact of Hurricanes Katrina and Rita. Besides Chicago, the other markets are Southern California/Los Angeles, New York Harbor, and the Gulf Coast.

The panel on the left shows prices for ethanol in the four markets. Also shown are Gulf Coast spot prices for MTBE. Ethanol prices rose sharply in all four markets between December and February, with monthly average New York Harbor prices up by 63 cents/gallon and Southern California and Chicago prices up by 55 and 58 cents/gallon respectively. The December-February increase in Gulf Coast prices was much less, 33 cents. In March prices eased somewhat in the New York, Southern California and Chicago markets while Gulf Coast prices moved up again, narrowing much of the difference between the Gulf Coast and the other markets. All markets moved up again in April. In March, price differences between the markets had narrowed to less than 5 cents/gallon between the Chicago, Southern California and Gulf Coast markets with the New York Harbor price at the high end, at about 8 cents above the Chicago average. Differences in the first half of April were also relatively narrow, but with a widening in the New York vs. Chicago differential to an average of about 12 cents.¹⁰ The



¹⁰ At first glance, it would appear that Gulf Coast ethanol is somewhat cheaper than the other locations. However, Gulf Coast price data is on a weekly basis and lags the daily data available for the other locations.

broadly similar movements in ethanol prices between Chicago, closest to the country's ethanol supply center, and the other markets indicate logistics concerns are proving manageable, helped in part by the (high-priced) availability of imports at coastal locations.

In contrast to ethanol, MTBE prices, after rising in January have since fallen back to slightly below their December level and to about their same level a year ago. April MTBE prices were about 85 cents/gallon below the Chicago ethanol price versus a 17-cent gap in December. The price pattern for MTBE suggests that January saw little if any movement away from MTBE with the process accelerating thereafter. In January, production of MTBE-based reformulated, where most MTBE is used, was running about 4.5% below year-earlier levels. In February and March, production averaged 15% and 16% respectively below year-ago levels. With the approach of the May 1 deadline completing the changeover at terminals to summer reformulated, the pace has accelerated dramatically. In the first three weeks of April, production of MTBE-based reformulated averaged nearly 60% below year-ago levels.¹¹

The right panel of the chart shows RBOB prices for the same markets. Except for Los Angeles, RBOB prices in February, when winter specifications apply, were at or below December levels and of course well below ethanol prices. RBOB prices moved up sharply in March with increases ranging from about 26 cents/gallon in New York and Los Angeles to 31 cents in Chicago and 39 cents in the Gulf Coast. April prices show further strong upward movement in all four markets. The sharp upward price movements of March and April are consistent with the accelerated MTBE phase-out and the parallel shift to the more demanding RBOB for ethanol blending. Note that the New York Harbor prices for March and early April are below those in the other markets by about 15 cents/gallon. The price differential reflects the availability of imports, encouraged by the market effects of the MTBE bans in effect since 2004 in New York and Connecticut. In 2005, the East Coast accounted for 89% of the 40 MB/D of RBOB for ethanol blending imported into the US. The balance went to PADD 5.

Supply Trends

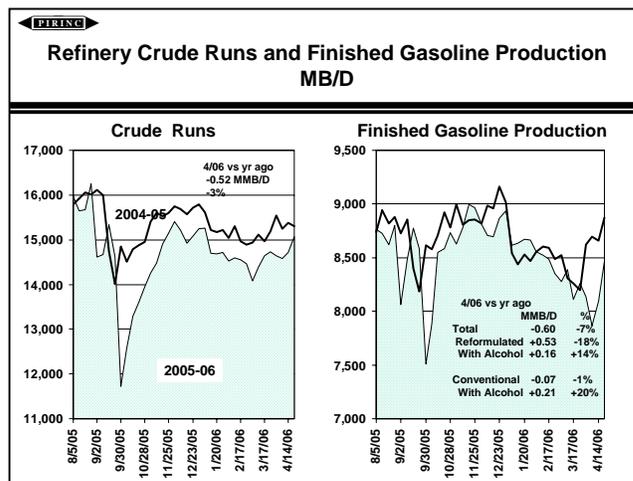
The stresses coming from the rapid phase-out of MTBE on the eve of the seasonal fuel changeover are being imposed on a supply network still suffering lingering aftereffects of last year's hurricanes. The next chart shows weekly refinery crude runs and finished gasoline production (by refiners and blenders) from just before the hurricanes through end-March.

Although crude runs rose rapidly from their end-September low-point, as of the end of the year, they were still running about 550 MB/D below year earlier levels, with, as would be expected, all the shortfall coming in PADD 3. The average gap for the first quarter of this year has continued

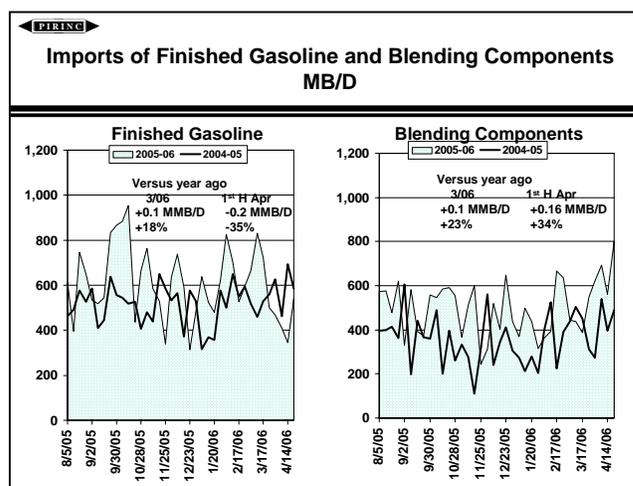
¹¹ In late February, the phase-out received what could have been a decisive earlier push when on February 24th the Colonial Pipeline asked the FERC for a waiver of the normal 30 day notice requirements in order to impose restrictions on shipments of RFG containing MTBE effective March 12. The FERC denied the request for the waiver. The FERC accepted the filing but suspending the effective date to the earlier of October 27th or a date established under a subsequent Commission Order, subject to the outcome of a technical conference. Given the accelerating decline in MTBE use, the issue should be moot by then.

at about that level. The average gap for March was somewhat higher, 650 MB/D, and more widespread, with PADD 3 accounting for about 450 MB/D of the difference. The gap narrowed to an average of about 520 MB/D for the first three weeks of April with PADD 3 still accounting for most of the difference..

In January and February, finished gasoline production was about even with a year ago. However, production in March lagged year earlier levels by about 150 MB/D and the gap widened in April to 600 MB/D, 7% below the year before. Within the finished gasoline total, the decline in production of reformulated accounted for most of the difference as the accelerated decline in production of MTBE-based reformulated far outpaced the gains in the ethanol blended product. Production of MTBE-based reformulated declined by nearly 700 MB/D versus a year ago while ethanol-based reformulated production was up by only about 160 M/D. April conventional gasoline production was down marginally, by about 70 MB/D or 1% from year ago levels.



The next chart shows for the same period imports of finished gasoline and blending components. Combined imports of finished conventional and reformulated gasoline in the first three months of the year were on average above year earlier levels. However beginning in late March and especially in April, imports fell behind year-ago levels. April finished gasoline imports (through April 21) averaged 150 MB/D below year earlier levels with losses concentrated in imports of finished, MTBE-based reformulated product.



Imports of blending components on the other hand have been moving up---by nearly 100 MB/D in March versus a year ago and by 210 MB/D in April. Among the blending components, RBOB for ethanol blending showed particularly strong gains, up 44% in March and 90% in April. However, the gains in volume terms are still relatively modest, averaging about 17 MB/D in both months.

In assessing imports, it should be kept in mind that for refiners outside the US, the stringent RBOB required for ethanol is a product not produced for their own domestic markets. While there is some limited ability to supply on an opportunistic basis, refineries would have to make investment commitments to produce substantial volumes dedicated to the US market. Of course,

the current profitability of doing so, if expected to persist, encourages such actions although time is needed to translate investment intentions into significant new supply.

Concluding Remarks

Currently, there is minimal spare crude producing capacity in the world. At such times historically, crude prices are high and extremely sensitive to international political developments as well as developments in key producing countries. At this time, production of highly desirable Nigerian crude is down by 500 MB/D as a result of ongoing internal conflicts. Production in the US is down by 300 MB/D reflecting the lingering impact of last year's hurricanes. However, consumers should see some gradual relief from the extra price pressures associated with the current gasoline supply problems. The industry is in the process of converting former MTBE production capability to other products that can be added back to the gasoline pool summer specification RBOB for ethanol blending and that, with the removal of the oxygenate mandate, can add flexibility to the making of reformulated gasoline. The acute transition problems provoked by last year's energy legislation will ease as teething problems associated with the switch to ethanol and to the more stringent blendstocks are resolved.¹² Refiners must also manage the shift to ultra low sulfur diesel due to begin on June 1.

In the meantime, consumers are paying a heavy price for the unintended supply consequences of Congressional decisions. Had Congress opted for a post-driving season date for the end of the oxygenate mandate (and thereby the legal defense for MTBE), or allowed defective product liability protection for the product at least temporarily, the most acute transition problems could have been avoided. A later date would also have allowed more time for the build-up of ethanol supplies and resolution of any remaining logistical problems. As a result of Congressional decisions taken (and not taken), a substantial portion of the gasoline price increases to date were homegrown.

¹² There are proposals in Congress to promote E85, a blend of 85% ethanol and 15% gasoline. In the short term, such actions would add to the logistics problems already experienced in moving sufficient volumes of ethanol to regions of the country transitioning away from MTBE. Moreover, right now ethanol is far more expensive than the rest of the gasoline barrel. The renewable fuels mandate already assures a rapidly growing market for ethanol and, with provision for credit trading, does so while allowing flexibility to the refining and distribution system in meeting it.