

U.S. Refining Capacity – Past, Present and Future Outlook

**Malcolm M. Turner, Chairman
Turner, Mason & Company**

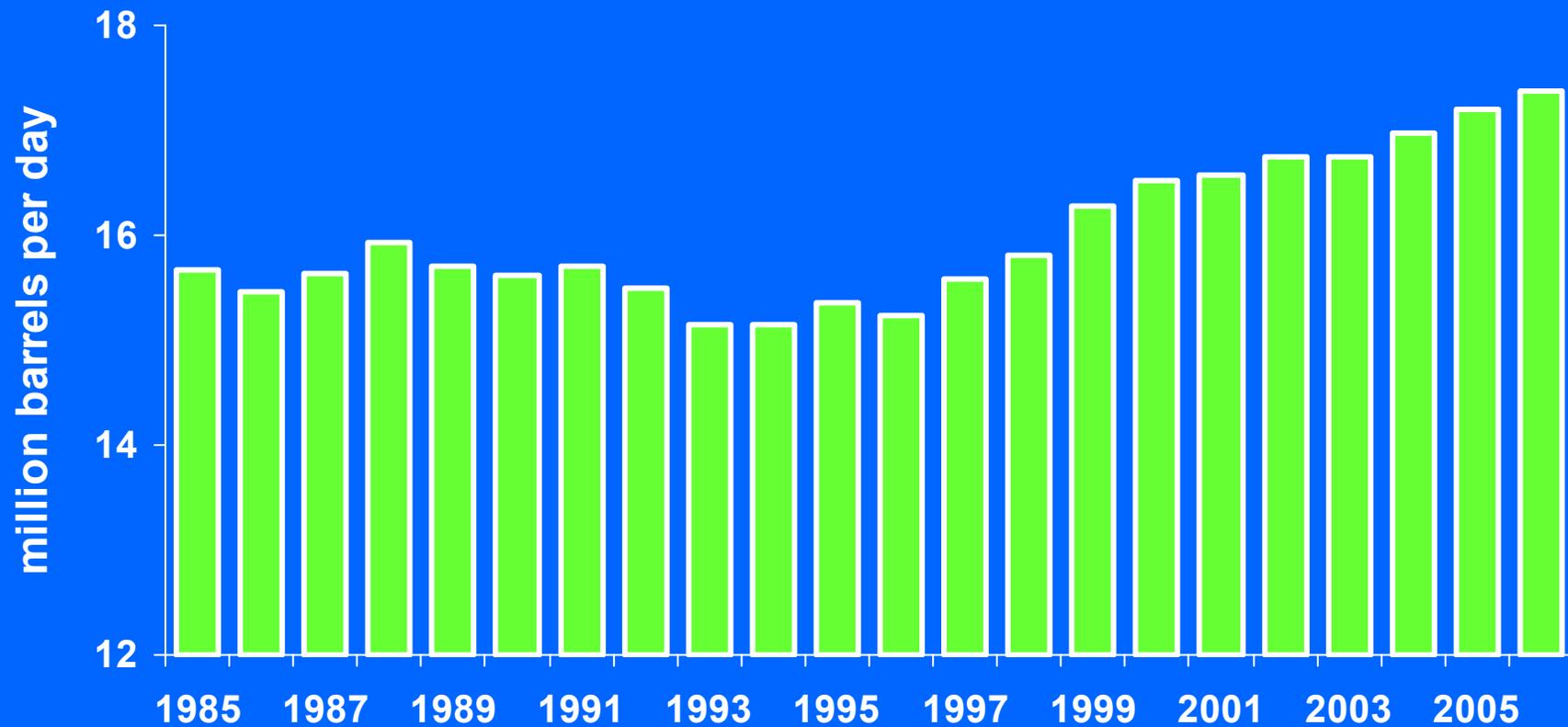
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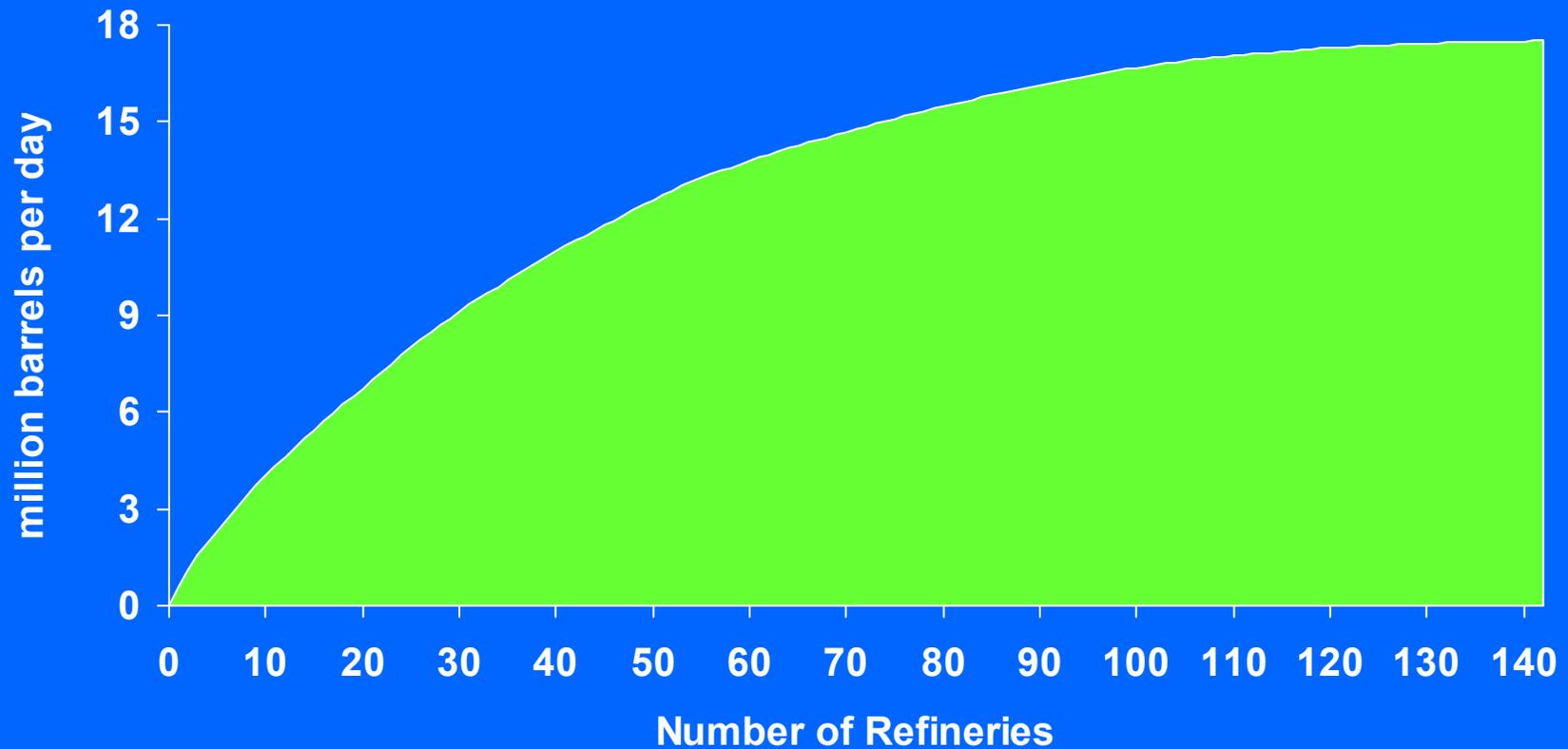
U.S. Refining Capacity – Past and Present

- With sharply declining numbers of refineries in the U.S., the total capacity hit a bottom of 15.1 million barrels per day (MMBPD) in 1993. Since then, steady growth has increased U.S. refining capacity to a current level of 17.4 MMBPD (see Slide 3).
- With the number of refineries in the U.S. reduced to 142, the average refinery capacity today stands above 120,000 thousand barrels per day (MBPD). This surprisingly high average figure reflects the impact of 21 large U.S. refineries with capacities in excess of 250 MBPD (see Slide 4).

U.S. Refining Capacity



U.S. Refining Capacity – Past and Present



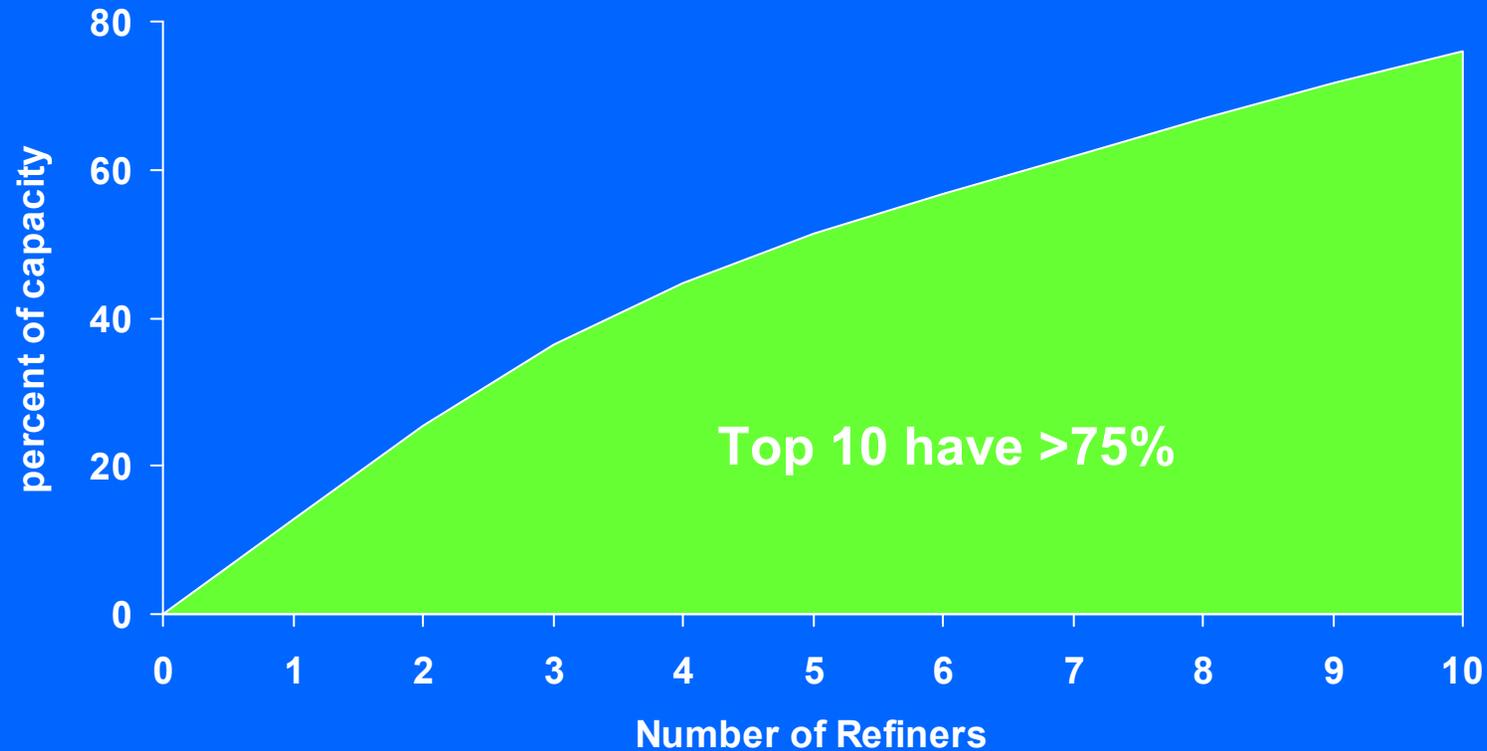
U.S. Refining Capacity – Past and Present

- Ownership of U.S. refining capacity has changed dramatically over the last ten years. Currently, the top ten U.S. refiners are as follows:

<u>Top 10 Refiners</u>	<u>Capacity (MBPD)</u>
Valero	2,257
ConocoPhillips	2,178
ExxonMobil	1,940
BP	1,475
Shell	1,143
Marathon	935
ChevronTexaco	909
Sunoco	880
PdVSA	828
Flint Hills	746
Total	13,291

U.S. Refining Capacity – Past and Present

- Concentration of U.S. refining capacity is also increasing as the number of refiners and refineries diminishes.



U.S. Products – Supply Sources

- To understand the substantial change in the financial health of U.S. refiners and the increased value of refineries, a closer look at the sources of supplies for U.S. petroleum products is helpful.
- For the many years that the U.S. was capable of supplying its own demands for petroleum products from domestic refineries (including those nearby offshore facilities that are part of our traditional supply, such as Irving Oil and Vitol in Canada and the Caribbean refiners), consumers enjoyed the competitive benefits of low incremental refining costs of surplus capacity serving as a dominating force on price setting.

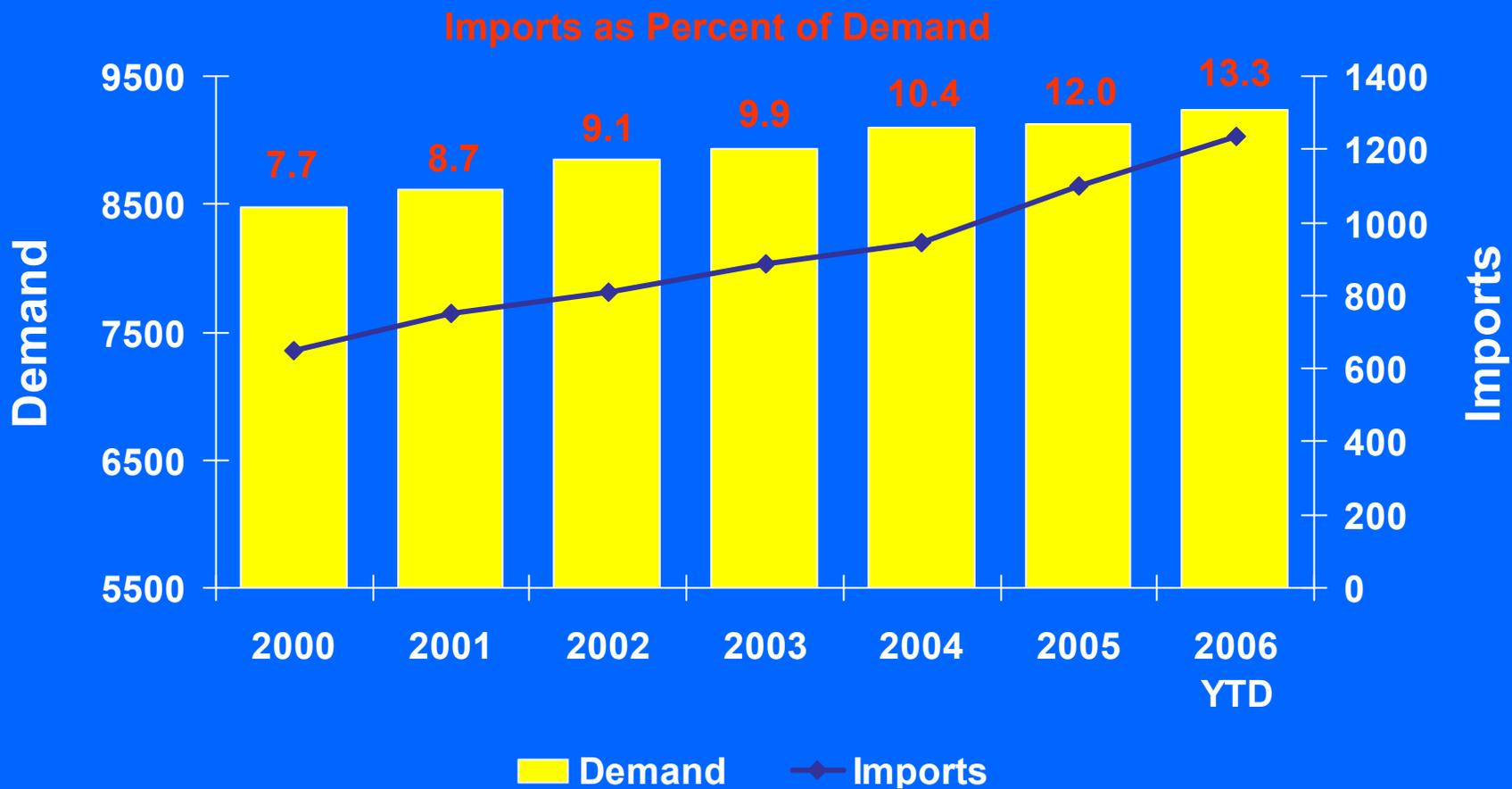
Supply Sources (cont.)

- When U.S. refiners lost the ability to meet growing demands, they likewise lost the ability to be the incremental source of supply and thus the dominant price setter.
- With subpar margins and unattractive profits, capital investment was not available for refinery expansion projects or new refineries. John Auers, Vice President of TM&C and key author of our firm's August study "The Outlook", was recently quoted: "The lack of significant investment in grass roots refineries for over three decades and sustained economic growth in recent years, especially in Asia and North America, have combined to create a worldwide shortage of refining capacity."

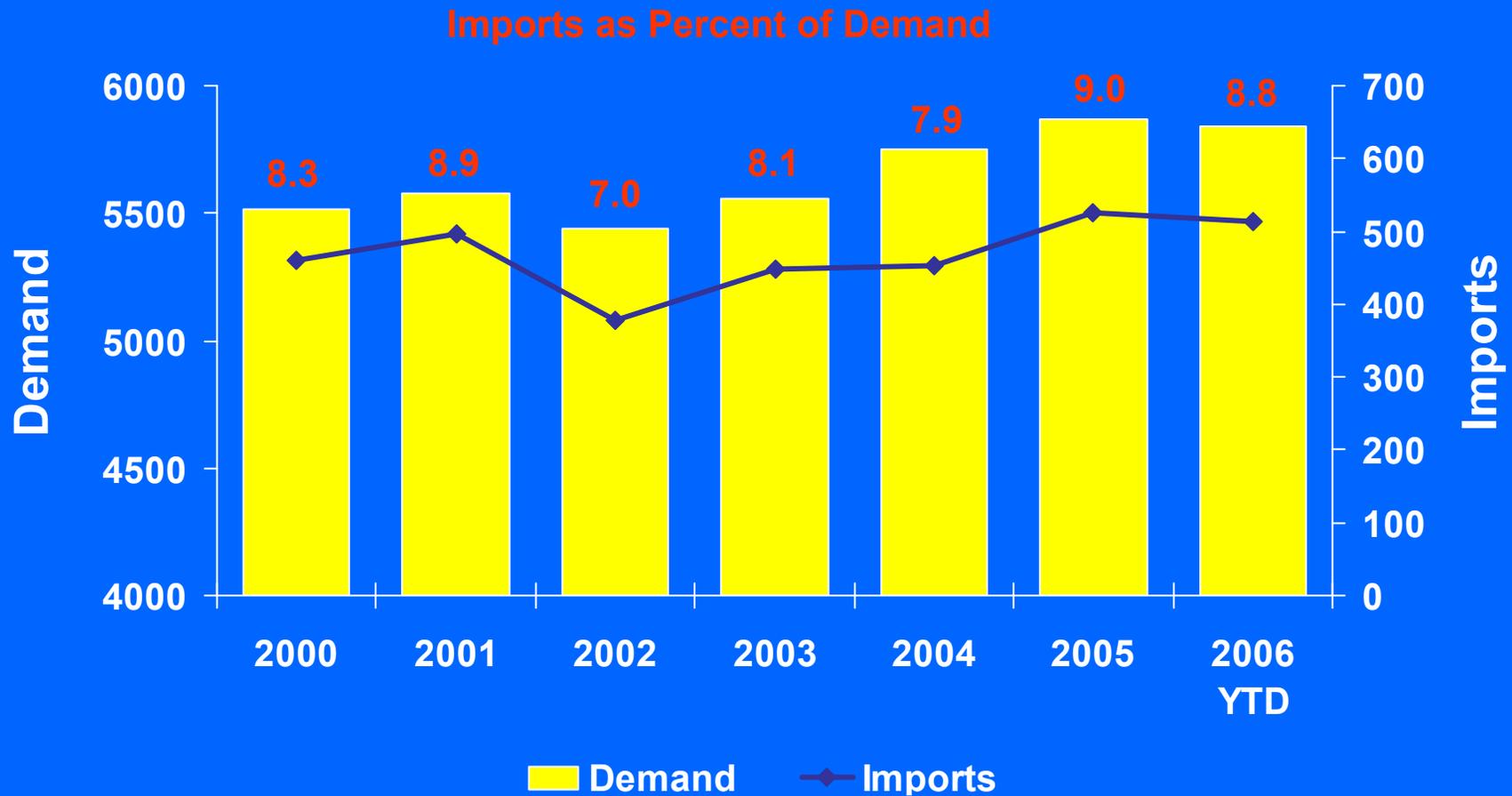
Supply Sources (cont.)

- Looking at U.S. gasoline demand and imports, we may see that the trends are dramatic. In 1985, imports were only 450 MBPD, which comprised 6.6% of total U.S. gasoline demand, and none of that was from long-haul sources. In 2006, about 1,200 MBPD of U.S. gasoline demand was supplied by imports (see Slide 10), and most of it was long-haul.
- With distillate imports above 500 MBPD and almost 9% of U.S. demand, we have come to depend more on sources where competition from other purchasers is stiffening (see Slide 11).
- Most product imports come into PADD I, the U.S. East Coast. Here imports have risen to over 30% of demand. More importantly, this is the price setting area for most of the U.S., with the home of the NYMEX in New York City (see Slide 12).

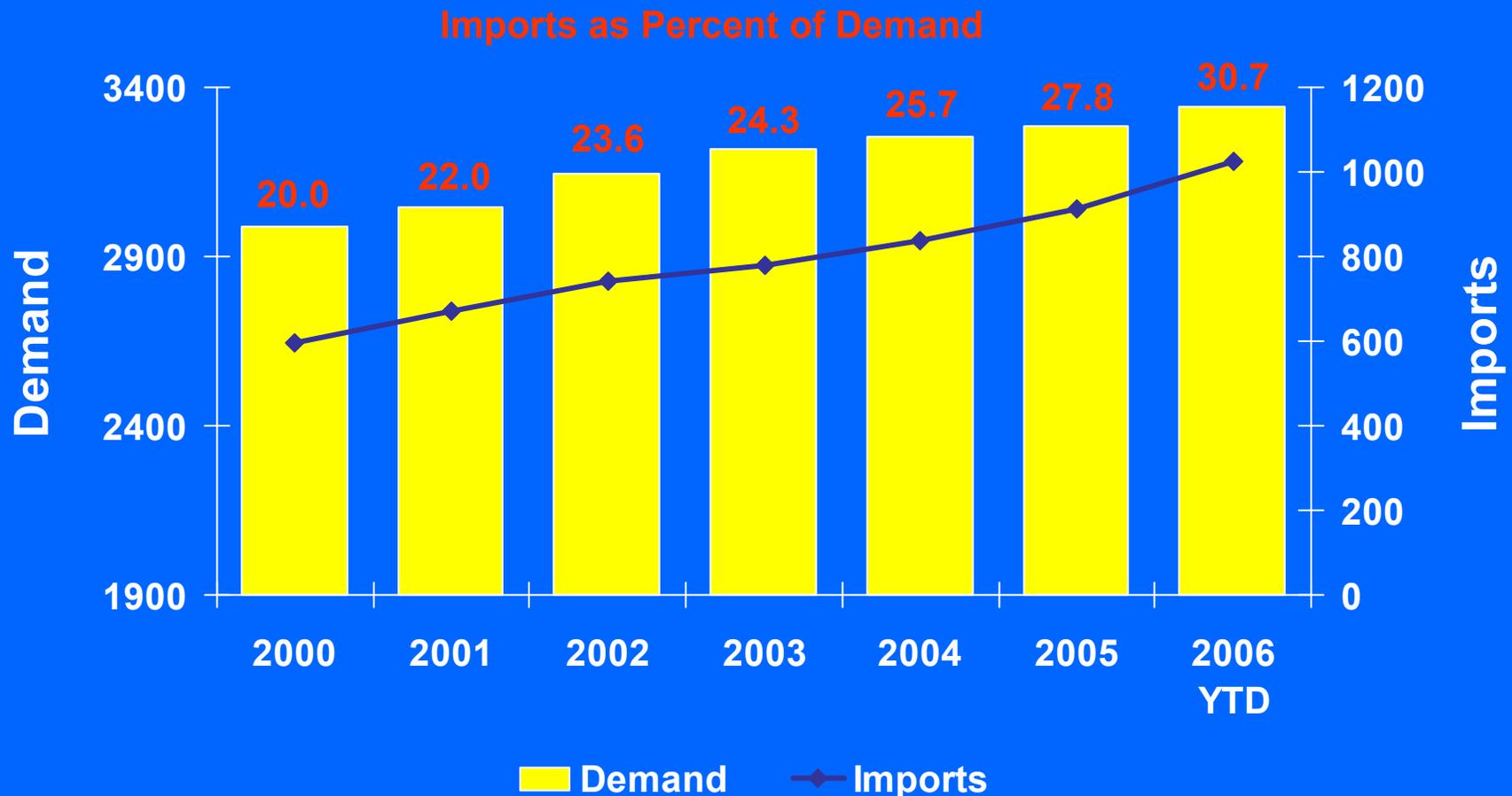
U.S. Gasoline Demand and Imports (MBPD)



U.S. Distillate Demand and Imports (MBPD)



PADD I Gasoline Demand and Imports (MBPD)

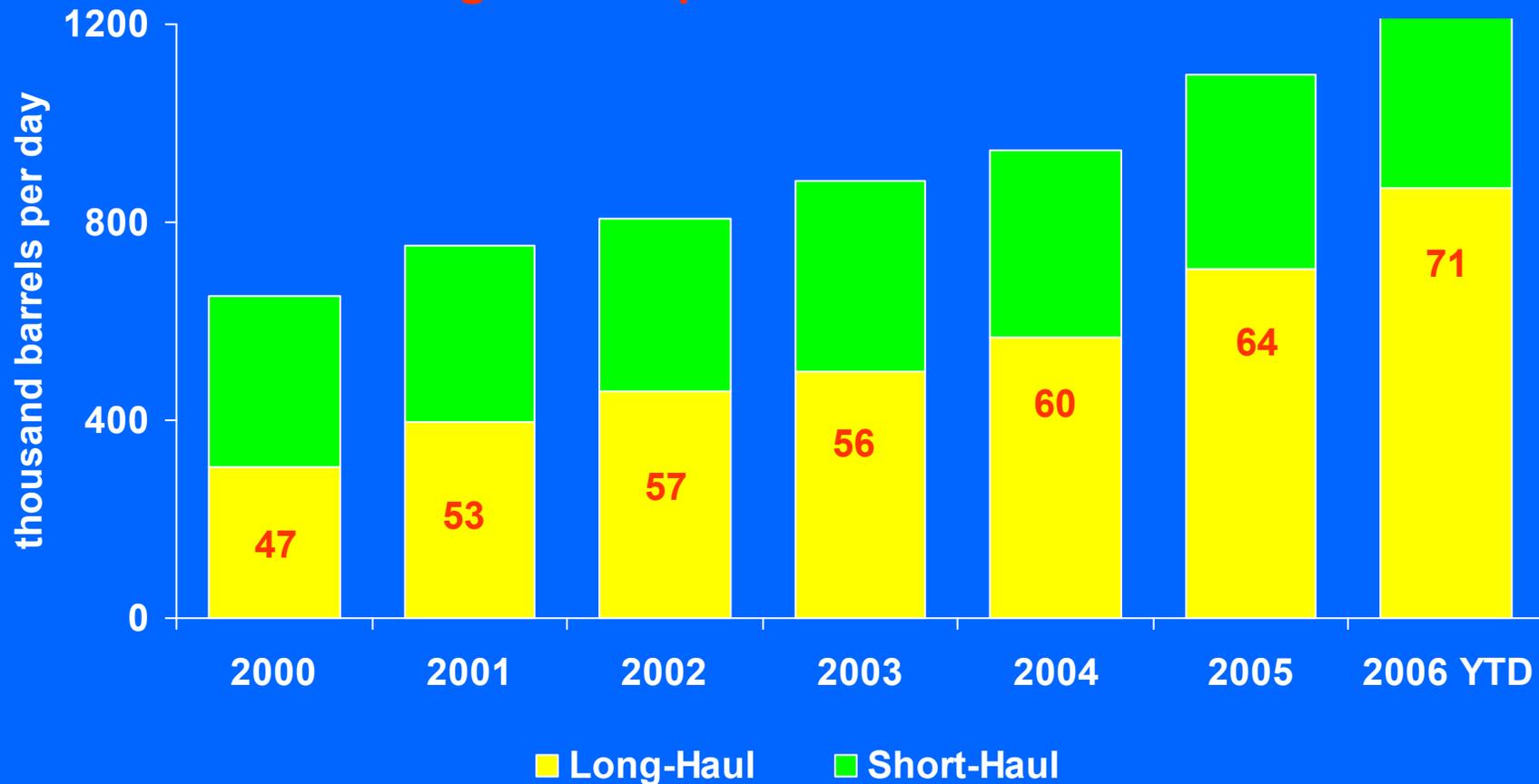


Supply Sources (cont.)

- With the U.S. markets becoming more dependent each year on long-haul imports, the costs are increasing relatively, and the price setting mechanism has proved to be especially beneficial for U.S. refiners. Long-haul imports have risen from less than half in 2000 to about 71% of total imports in 2006 (see Slide 14).
- For two growth scenarios, we have estimated the impact on long-haul imports in 2015 (see Slide 15). Based on the TM&C growth outlook for gasoline, long-haul imports will increase and the new Middle East refinery sources will come into play. For the more pessimistic growth outlook, plentiful gasoline import sources should be available from European refiners.

U.S. Gasoline Imports by Source Category

Long-Haul Imports as Percent of Total



Projected U.S. Gasoline Imports by Source Category (MBPD)

	<u>Est. 2006</u>	<u>TM&C Outlook 2015</u>	<u>Low Growth 2015</u>
Total Demand	9,240	10,281 ⁽¹⁾	9,751 ⁽²⁾
Refining Production	7,761	8,500 ⁽³⁾	8,500 ⁽³⁾
Less Exports	(150)	(150)	(150)
MTBE	93	0	0
Ethanol	303	489 ⁽⁴⁾	489 ⁽⁴⁾
Imports – Short-Haul	364	364 ⁽⁵⁾	364 ⁽⁵⁾
Imports – Long-Haul	869	1,078 ⁽⁶⁾	548 ⁽⁶⁾

- (1) “The Outlook”, mid-year 2006.
- (2) Annual growth at 0.6%.
- (3) TM&C estimate.
- (4) 2012 federally mandated volume.
- (5) Assumed to be constant.
- (6) Calculated by difference.

Supply Sources (cont.)

- The technical, economic and commercial inadequacies of ethanol and most all biofuels as substitutes for petroleum motor fuels have been well known by scientists and engineers for many years. It is regrettable that our politicians continue to create such a debacle in this arena.
- Now with anti-petroleum Democrats joining “bio/ethanol” Republicans, the U.S. could see a doubling of the current mandated ethanol and other biofuels required in motor fuels. (Without subsidies and mandates, these volumes would be zero.)
- TM&C’s supply/demand estimates indicate that such a happening could remove long-haul imports as the primary U.S. price setting mechanism. Ironically, Federal/State ethanol and biofuels subsidies could work to discourage much needed refinery capital expenditures by creating a margin catastrophe.

Supply Sources (cont.)

- Long-haul imports are defined as production from refiners not located in Canada or the Caribbean. Major sources are European countries such as Netherlands, United Kingdom and France, and surprisingly Russia (see Slide 18).
- Large refining projects announced in the Middle East, especially Saudi Arabia, indicate that these long-haul sources expect to become incremental suppliers of imported products for the U.S. markets.

U.S. Gasoline Imports by Country of Origin

June 2006

	<u>MBPD</u>		<u>MBPD</u>
<u>Short-Haul</u>		<u>Long-Haul (cont.)</u>	
Canada	132	Italy	30
U.S. Virgin Islands	125	Portugal	29
Venezuela	77	Finland	21
Other Caribbean	<u>23</u>	Sweden	20
Subtotal	357	Germany	19
		Saudi Arabia	18
<u>Long-Haul</u>		Latvia	17
Netherlands	179	Nigeria	14
United Kingdom	170	Norway	11
France	59	Other Long-Haul	<u>81</u>
Russia	55	Subtotal	863
Spain	54		
Belgium	49	Total Imports	1,220
Estonia	37		

U.S. Refining Capacity – Future Outlook

- **TM&C expects most additional new capacity in the U.S. to be concentrated on the Gulf Coast, although some will be in the Midwest.**
- **Collectively, these regions may add an additional 1.5 MMBPD of capacity with negligible additions in the East Coast and Rocky Mountain regions. West Coast additions will be nominal (see Slide 20).**

U.S. Refining Capacity Increases through 2012

	<u>Crude Capacity (MBPD)</u>		
	<u>Heavy/Sour</u>	<u>Light/Sweet</u>	<u>Total</u>
PADD I	30	(30)	0
PADD II	675	(84)	591
PADD III	1,060	(107)	953
PADD IV	63	(35)	28
PADD V	<u>140</u>	<u>(31)</u>	<u>109</u>
Total U.S.	1,968	(287)	1,681

Capacity – Future Outlook (cont.)

- **TM&C notes that virtually every U.S. refiner has expansion projects under study for its currently owned plants, and several are continuing to look at acquisitions. The high prices, both for buying refiners and building capacity, are significant deterrents. The extraordinary EPC circumstance worldwide has undoubtedly caused many aspirants to cancel or scale back plans.**
- **It has been suggested that some skilled and well financed refiners might enjoy speculative announcements concerning new capacity simply to deter the entry of newcomers and even fellow competitors. TM&C of course has no evidence of such activities, but such ideas make for interesting conversation.**

Capacity – Future Outlook (cont.)

- On the bright side from the perspective of U.S. refiners, all of these new supplies will be relatively high cost. That is, they will require returns on capital based on new grass roots investments. These are classic 100% of replacement cost facilities.
- Existing U.S. refiners, with lower capital cost from current capacity or even newly built facilities, will enjoy competitive advantages. This circumstance is one of TM&C's primary bases for a continued outlook for relatively prosperous financial times for the U.S. refining industry.

Capacity – Future Outlook (cont.)

- In the final analysis, TM&C believes that U.S. refiners will not be able to “build” their way out of their new-found prosperity for perhaps a decade. On the other side of the supply/demand equation, products demand outlooks could indeed change dramatically during that time period.
- TM&C does believe that U.S. refiners will see consistent transition in feedstock supplies, with Canadian syncrude becoming a significant factor all the way into the Gulf Coast. We are actively involved in and well aware of several pipeline, refining and upgrading projects that will bring about shifts in crude oil supplies. Canadian WCS and similar grades will gain some markets from Venezuela and perhaps Mexico.

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Appendix

Some Key Metrics for U.S. Petroleum Refiners

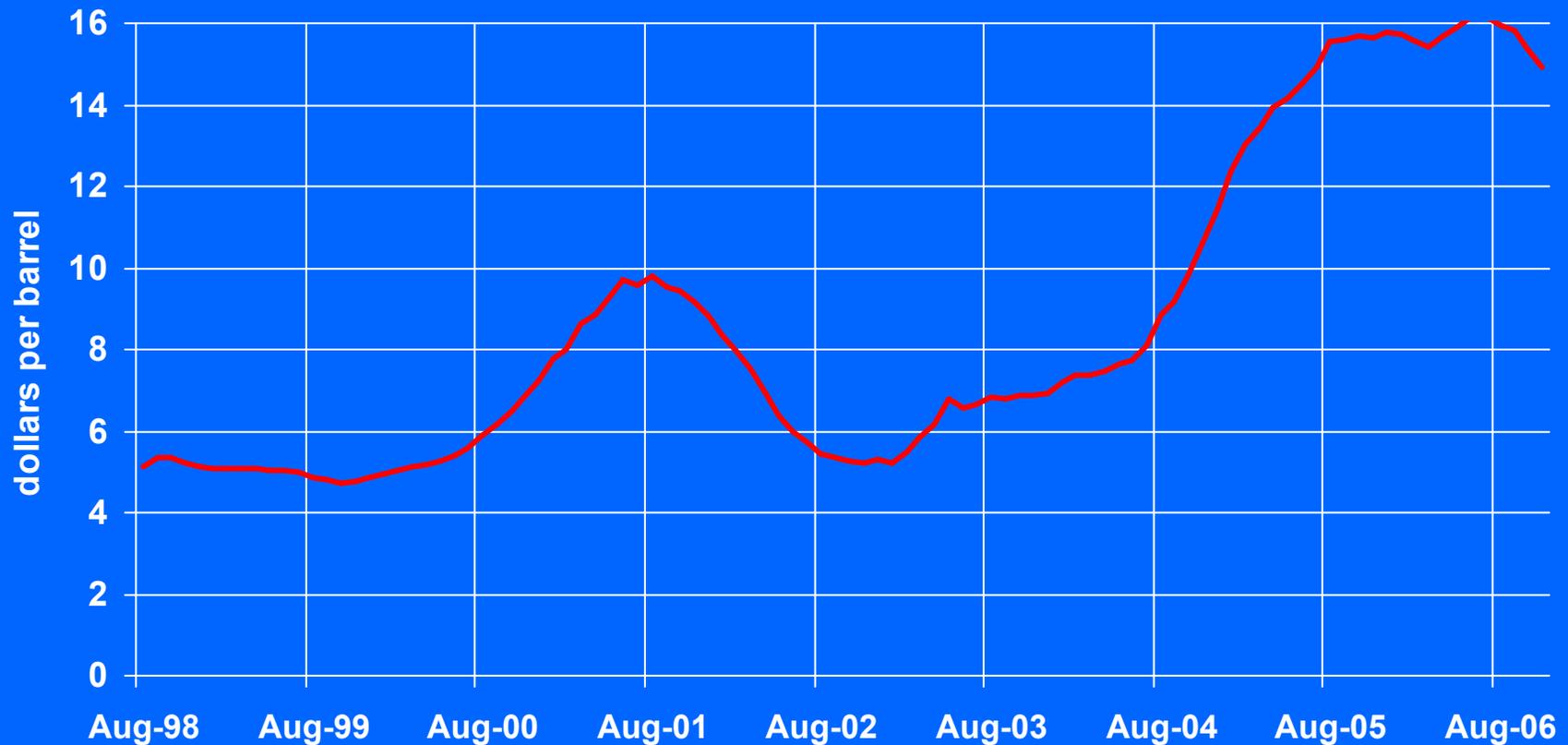
NYMEX Light Sweet Crude

12-Month Rolling Average



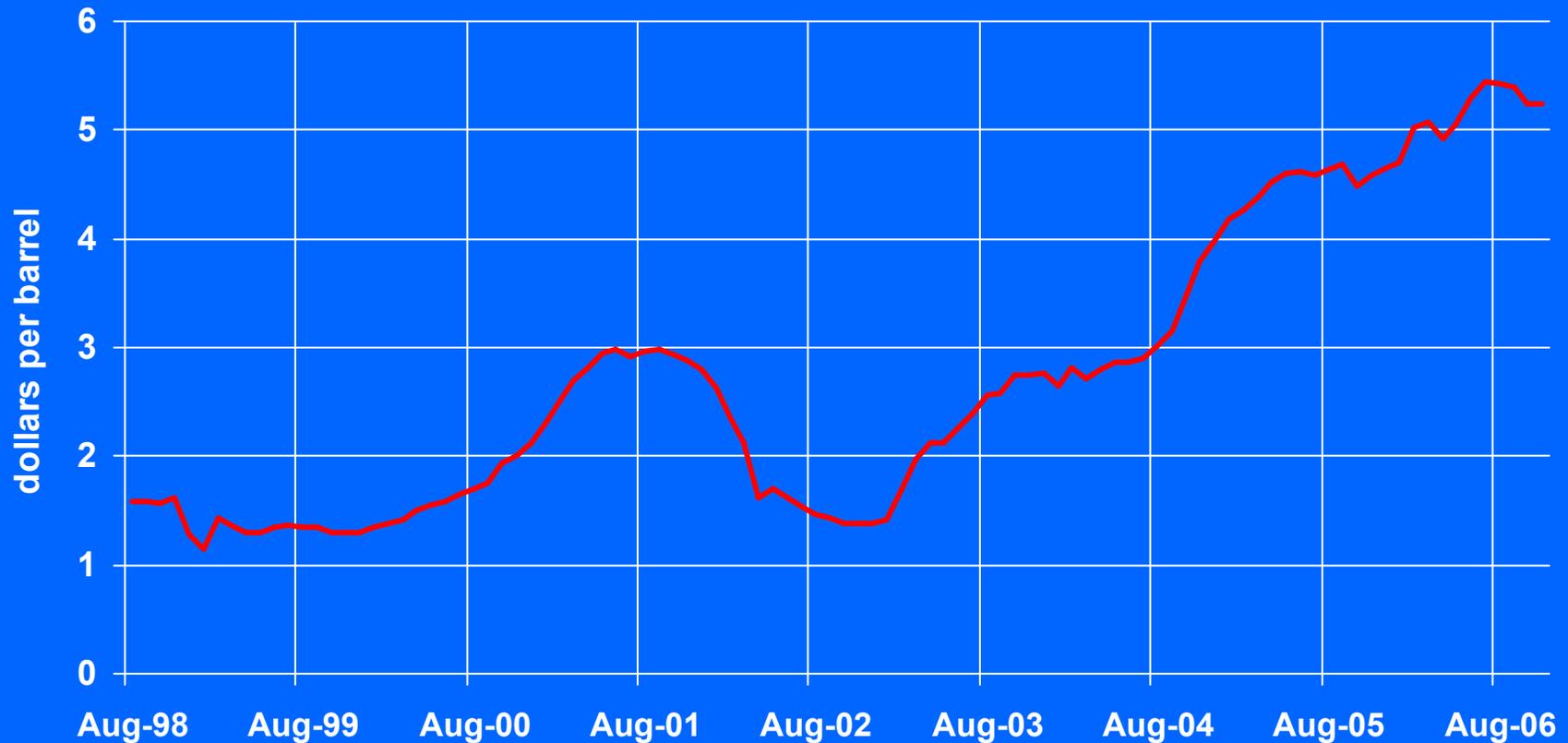
Light Sweet Crude – Maya

12-Month Rolling Average



Light Sweet Crude – WTS Midland

12-Month Rolling Average



Light Sweet Crude – WCS Hardisty

30-Day Rolling Average



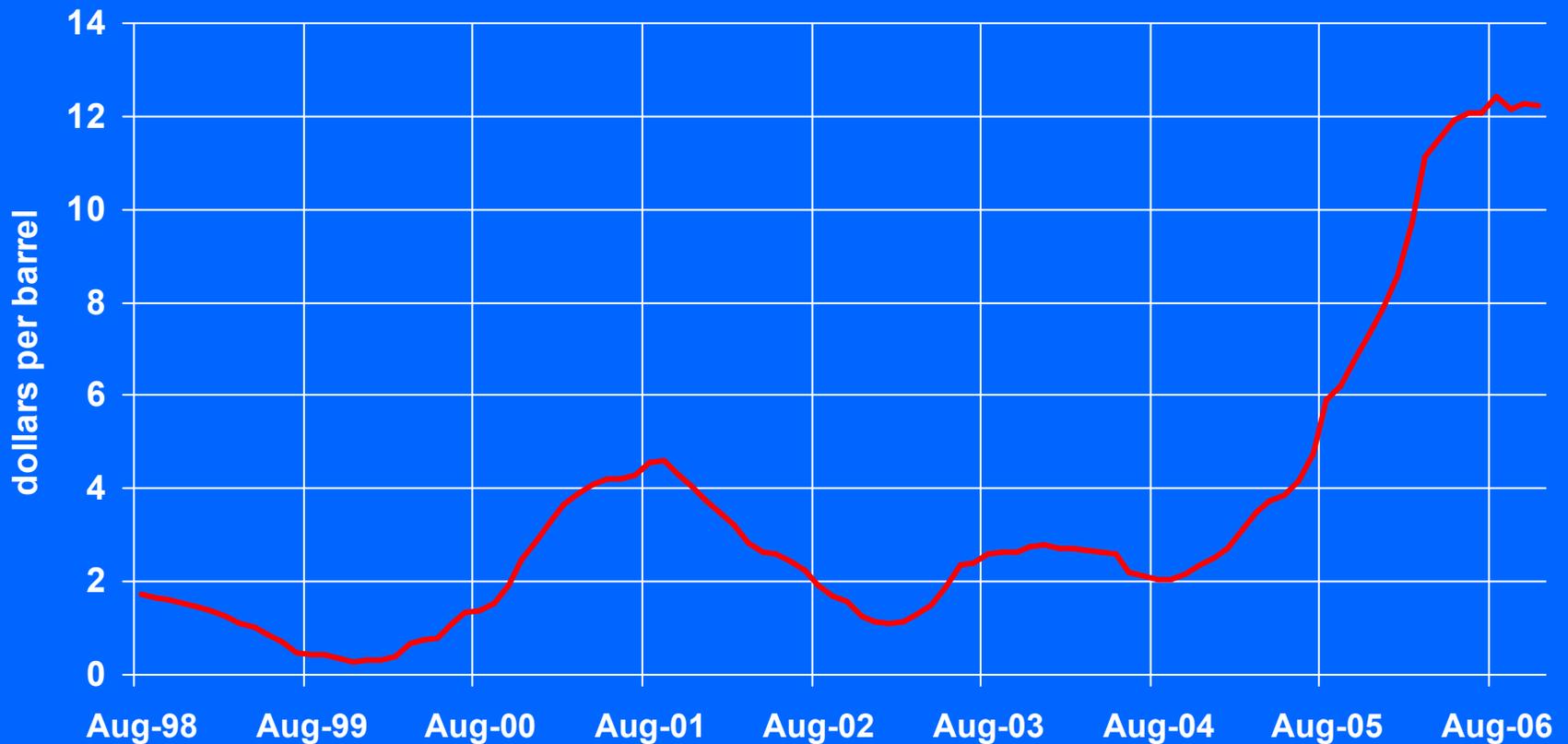
Gulf Coast Gasoline Crack

12-Month Rolling Spot Price Average



Gulf Coast Heating Oil Crack

12-Month Rolling Average



Gulf Coast Gasoline Crack

Monthly Average of 12-Month Forward Swaps



Gulf Coast Heating Oil Crack

Monthly Average of 12-Month Forward Swaps

