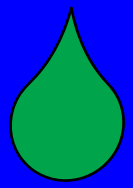
U.S. Refining Outlook – Surplus Capacity?

Presented By

Malcolm M. Turner, Chairman
Turner, Mason & Company

October 2007



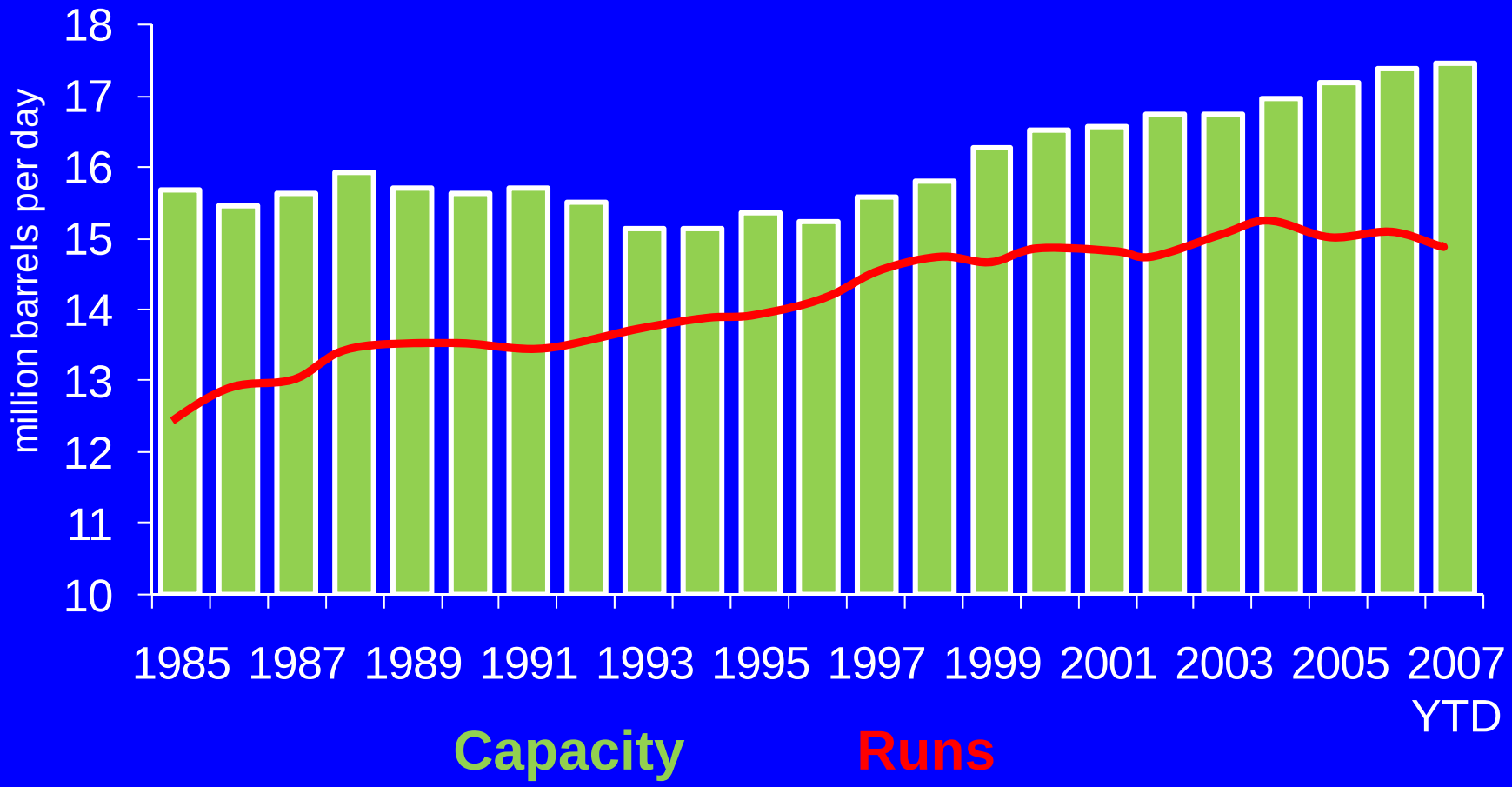
Oil & Money
London 2007

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 of about 1% annually has increased U.S. refining capacity to a current level of 17.5 MMBPD (see Slide 3).

- Nonetheless, crude runs have been relatively flat for ten years, reflecting increased operational problems with respect to equipment reliability, difficulty in meeting new stringent product specifications, increased weather related downtime and shortages of experienced and qualified technical and engineering services. In addition, the BP Texas City disaster has precipitated a more cautions operating philosophy in the U.S.

U.S. Refining Capacity & Crude Runs

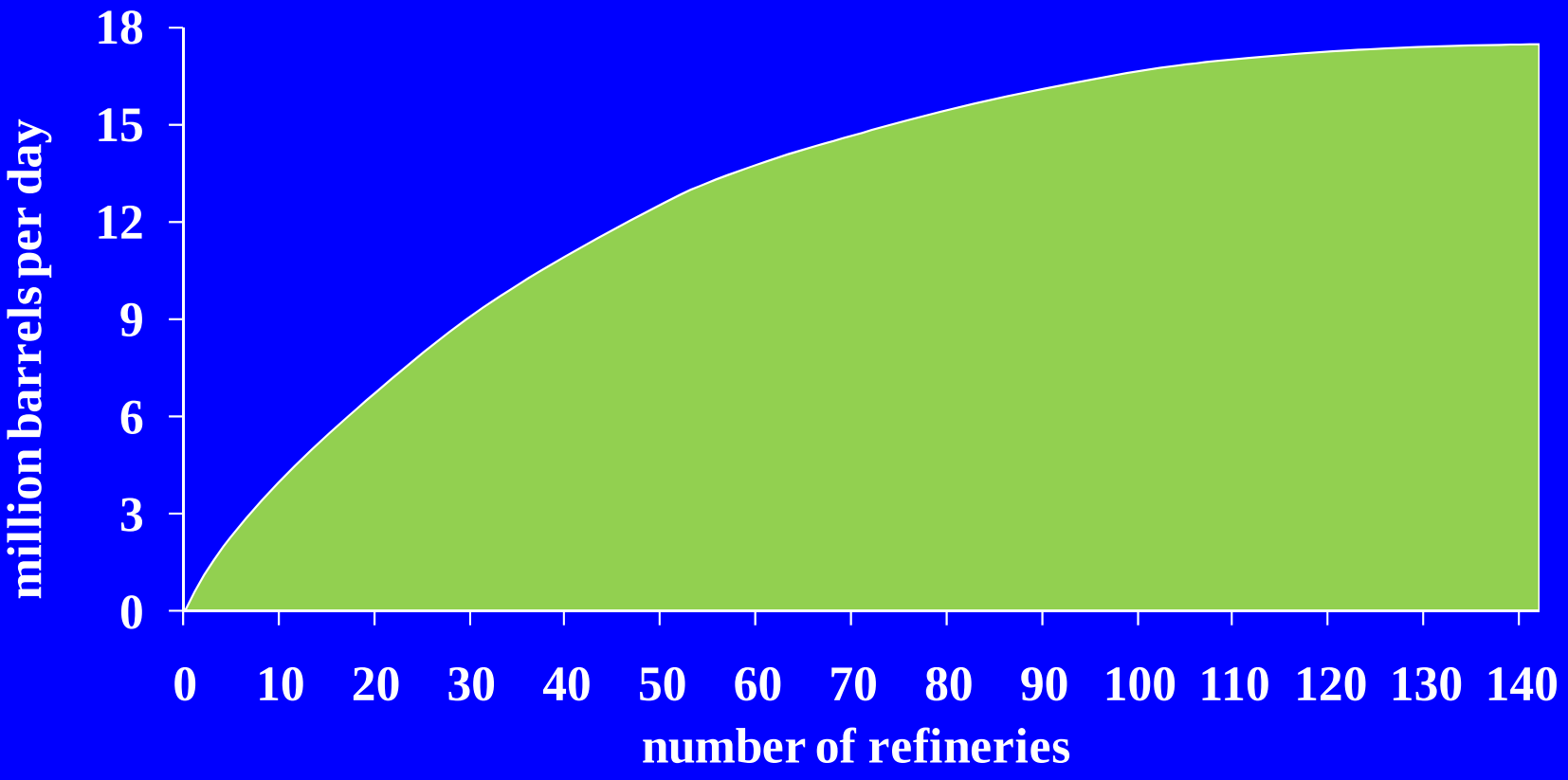


U.S. Refining Capacity (cont.)

- With the number of refineries in the U.S. reduced to 142 from more than 300 in 1980, 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 5).

U.S. Refining Capacity – Distribution



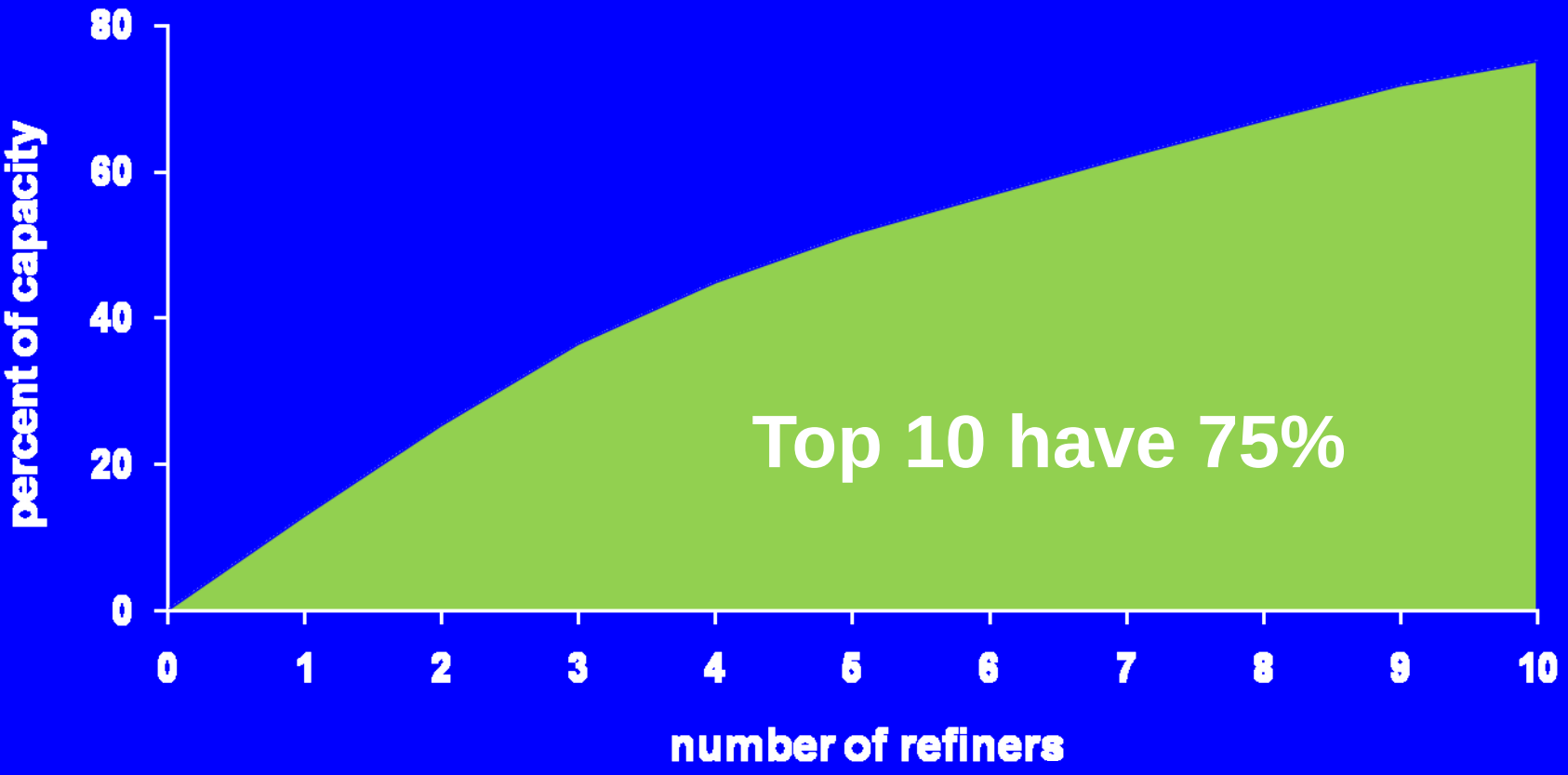
U.S. Refining Capacity – Ownership

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

Top 10 Refiners	Capacity (MBPD)
ConocoPhillips	2,178
Valero	2,159
ExxonMobil	1,940
BP	1,475
Shell/Motiva	1,043
Marathon	935
Chevron	909
Sunoco	880
PdVSA/Citgo	852
Flint Hills	746
Total	13,117

U.S. Refining Capacity – Concentration

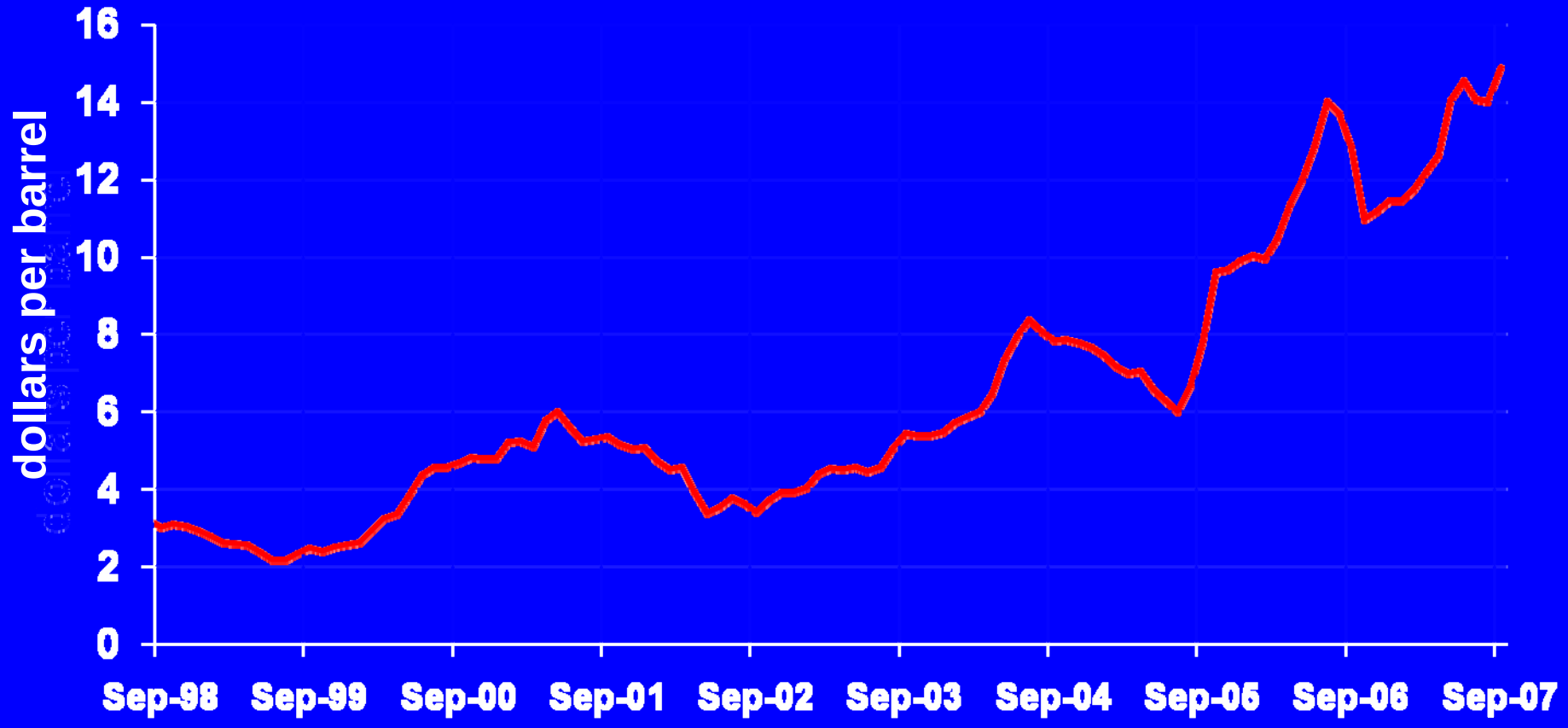
Concentration of U.S. refining capacity is also increasing as the number of refiners and refineries diminishes.



Some Key Metrics for U.S. Petroleum Refiners

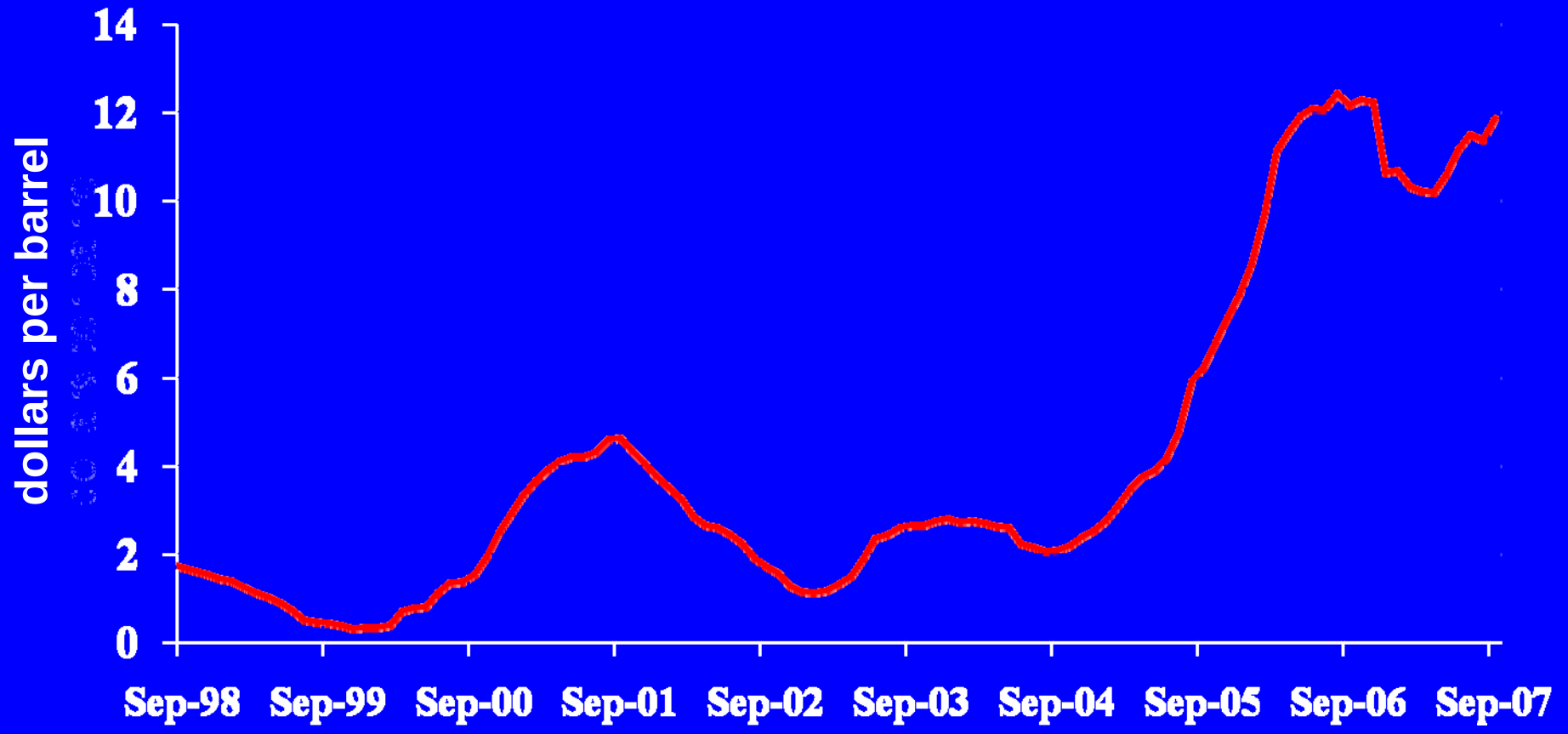
Gulf Coast Gasoline Crack

12 Month Rolling Average Spot Prices



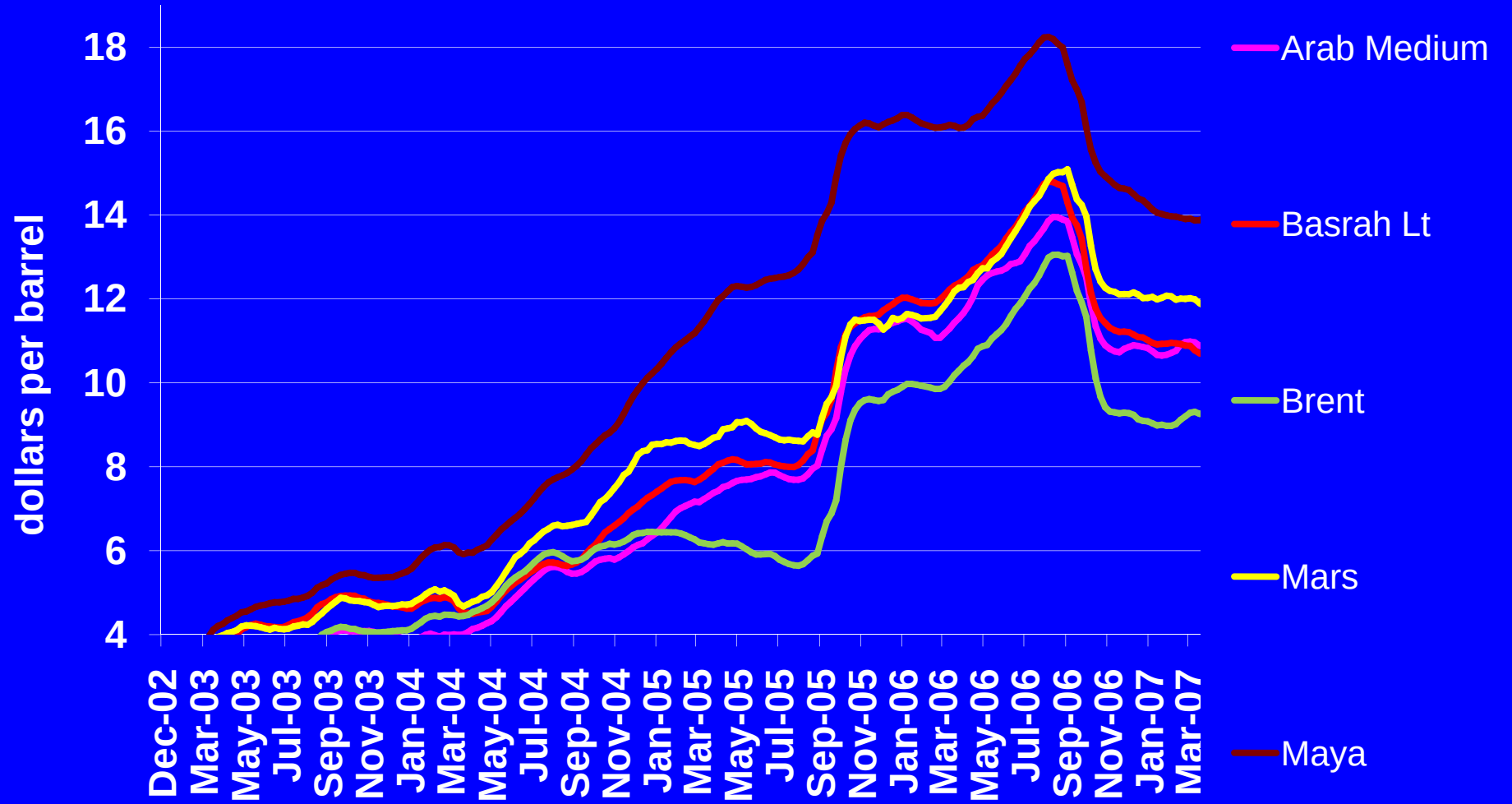
Gulf Coast Heating Oil Crack

12 Month Rolling Average Spot Prices



Gulf Coast Coking Netback Minus Spot Values *

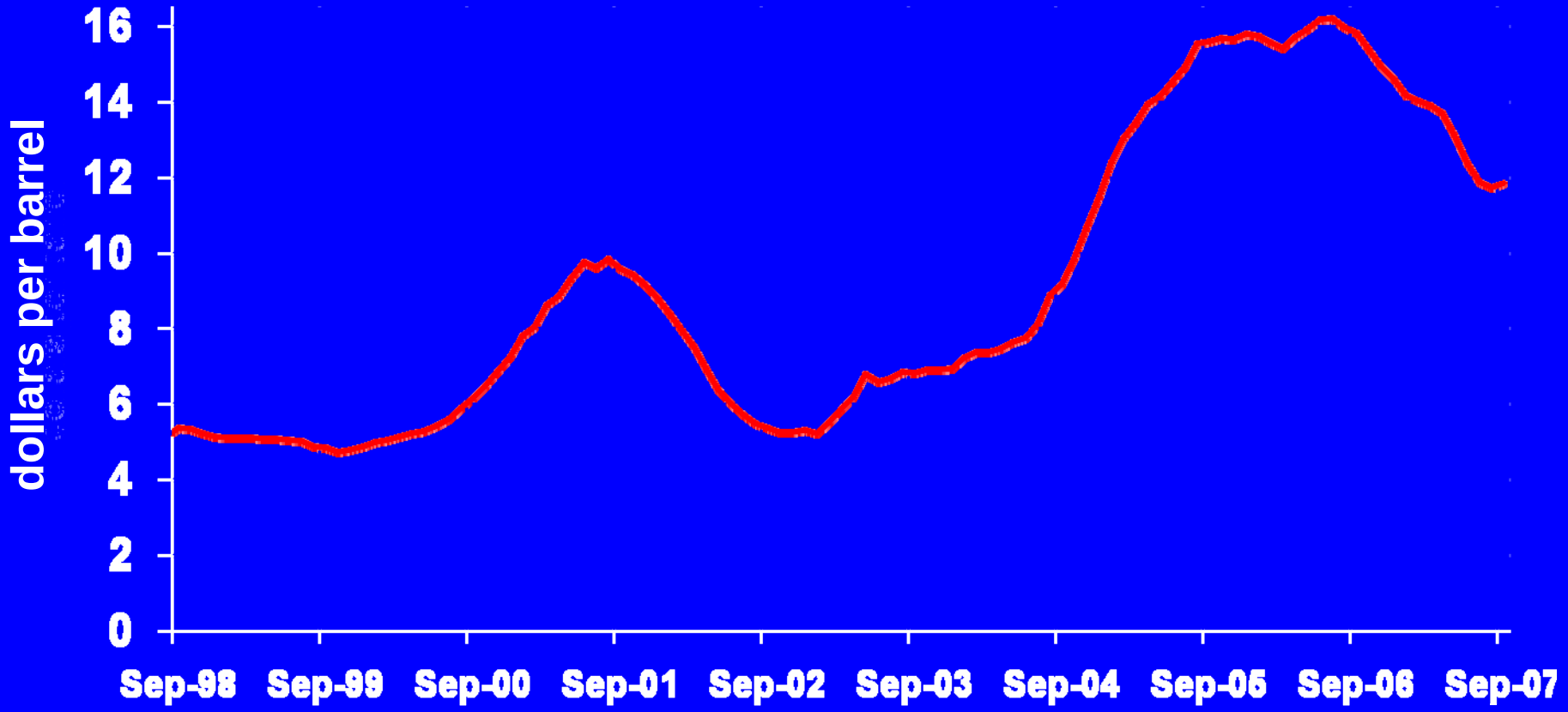
12-month Rolling Averages



* Based on data provided to and published by Platts Oilgram by Turner, Mason & Company

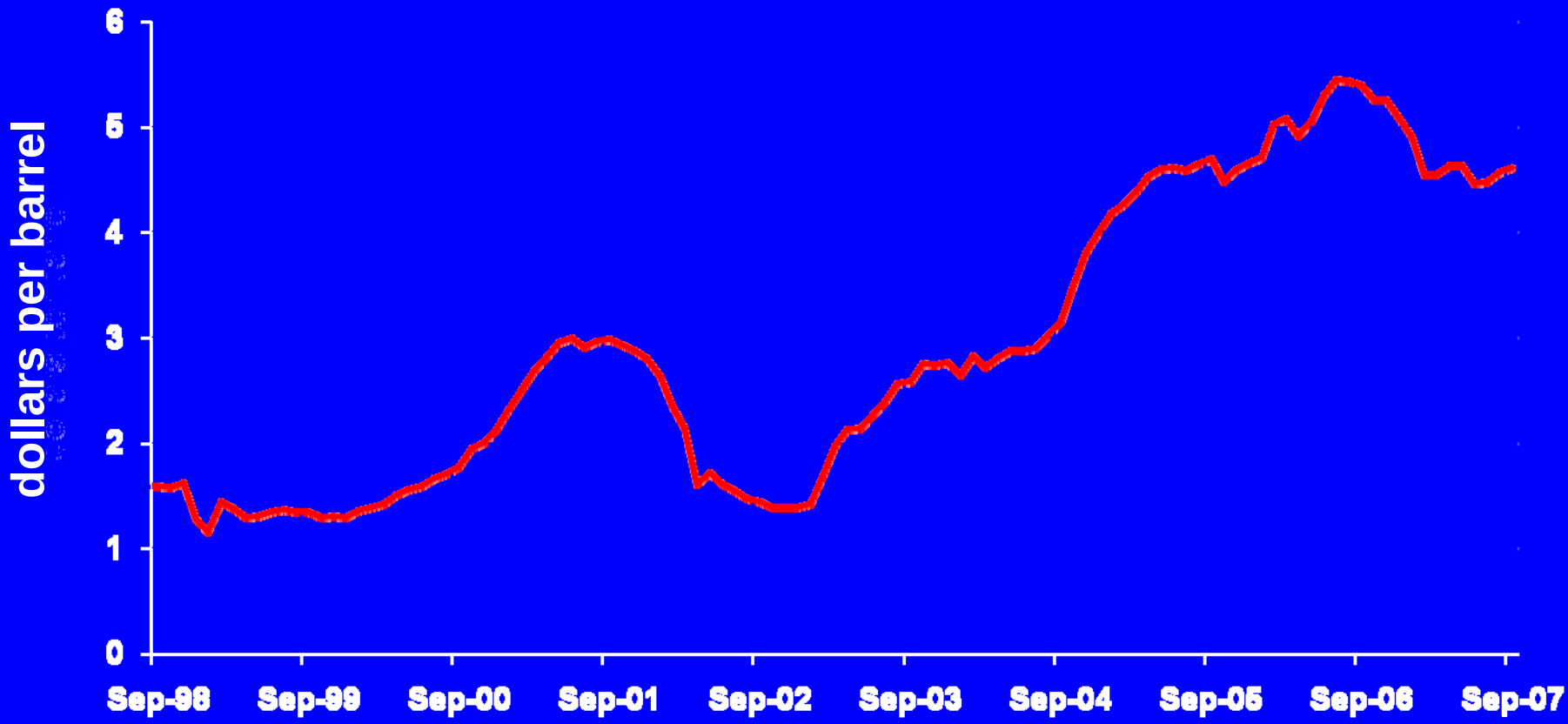
Light Sweet Crude – Maya

12-Month Rolling Average Spot Prices



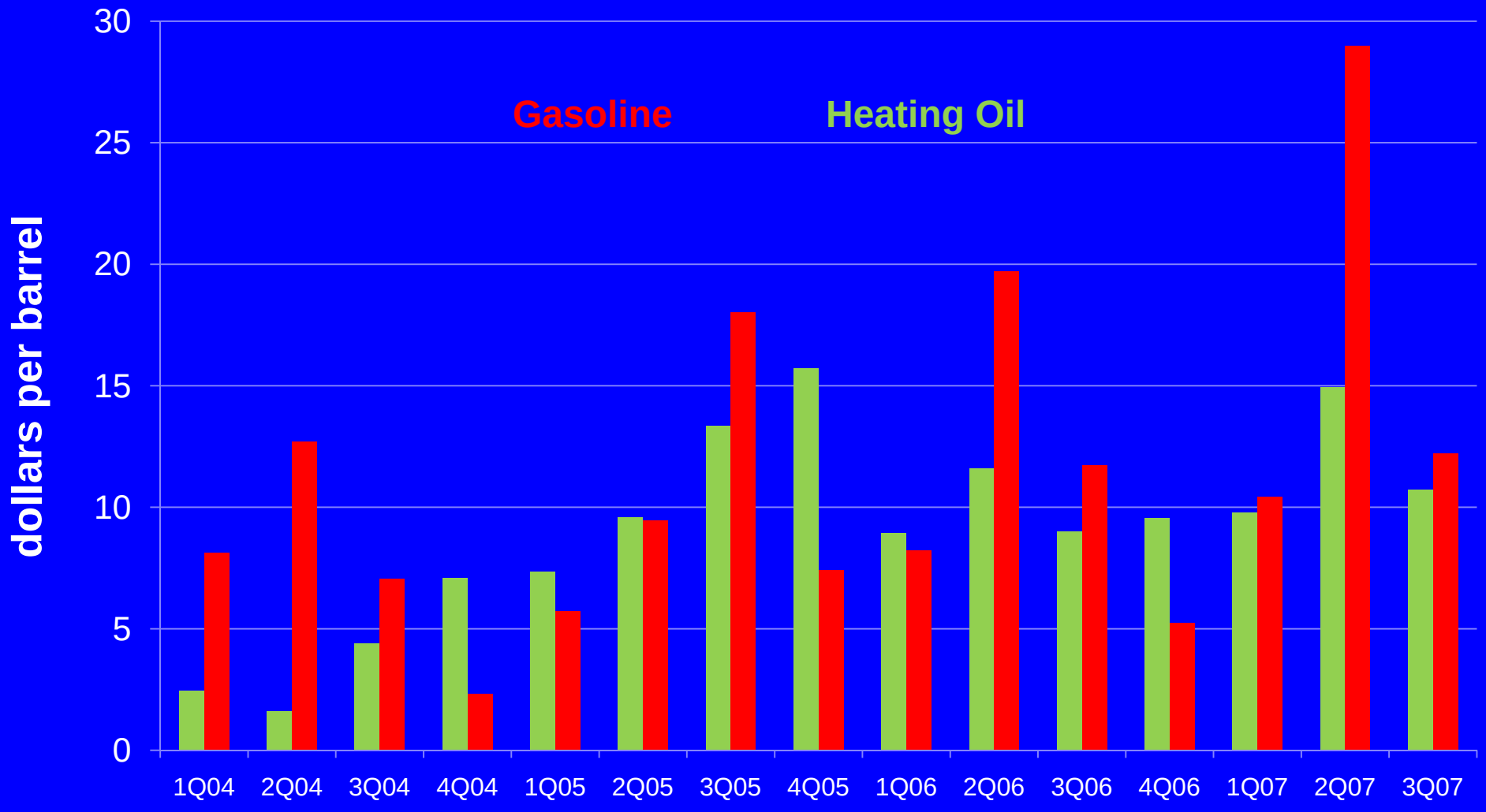
Light Sweet Crude – WTS Midland

12-Month Rolling Average Spot Prices



Quarterly Average Crack Spreads

US Gulf Coast



Commentary Re: Metrics

- U.S. refiners' clean products margins have risen dramatically during recent years. Crack spreads of $3 per barrel, which were once considered reasonable for Gulf Coast refiners, have now been multiplied threefold and more--- with more strength in distillates than gasoline.

- The chart showing Gulf Coast Coking Gross Margins (Netback minus Spot Values) illustrates the rapid run up of profitability and the distinct advantages of having heavy sour crude processing capabilities.

- For refiners with sour crude capacity--- both heavy and medium--- margins have jumped in recent years to stimulate capital spending for both crude quantity and quality driven projects.

Commentary (cont.)

- The Gulf Coast quarterly average crack spreads depict the extraordinary margins experienced by U.S. refiners for short periods, permitting the reporting of record earnings recently. The downside of these exceptional periods has been to establish unrealistic expectations for petroleum refiners' profitability performance on future quarterly bases. There is no avoiding, it seems, the reality that ***petroleum refining is inherently volatile with respect to earnings.***

- In summary, U.S. refiners have moved to a new economic era---called by many the "Golden Age". This era of unprecedented profitability has led to numerous transactions in the U.S. where values have approached and even exceeded replacement cost for new refinery facilities. This contrasts sharply with a long period of time where typical sales were made in the 10 to 25% value range of replacement cost.

U.S. Products --- Supply Sources

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 semi-annual report "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."

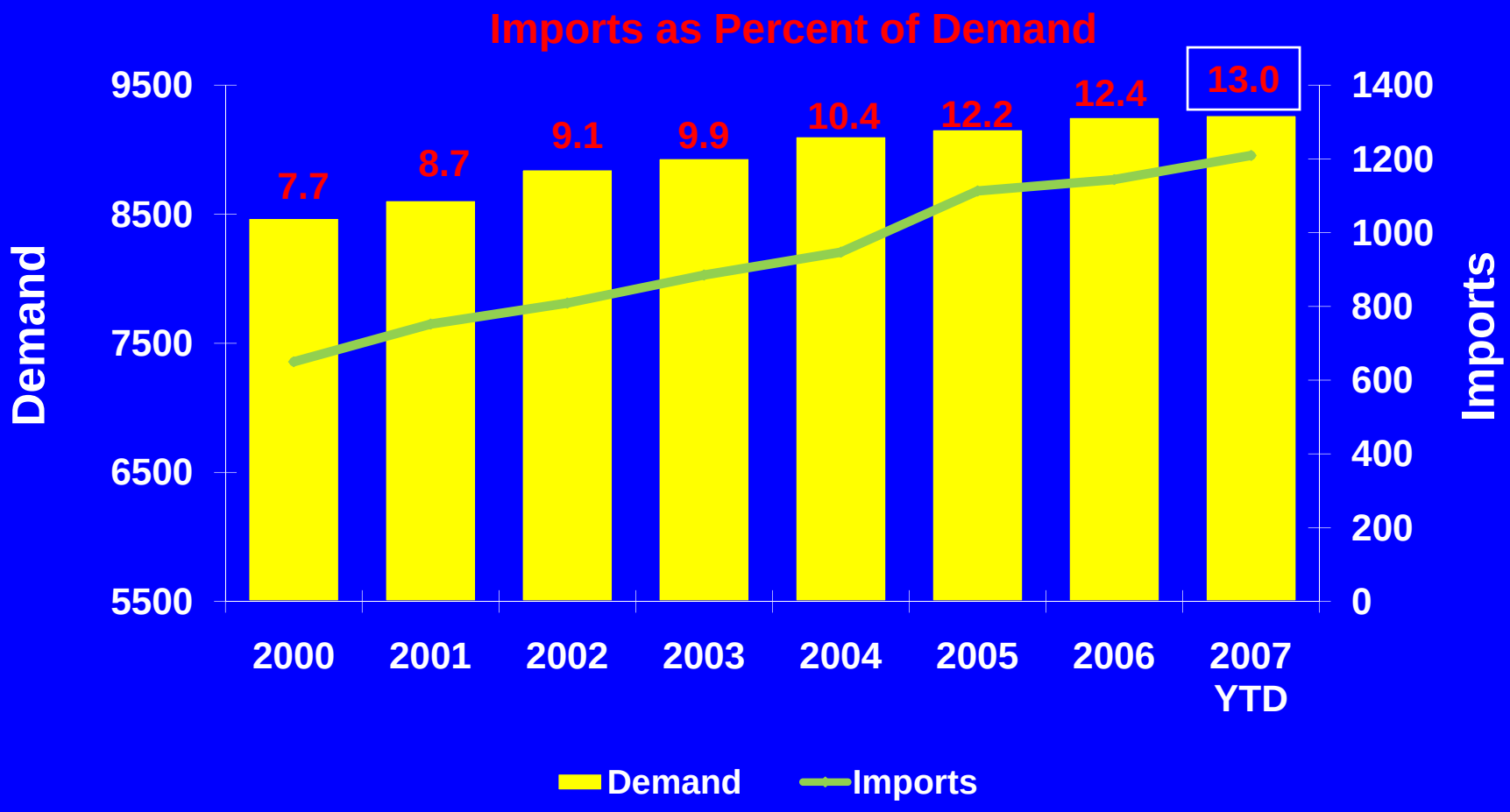
Supply Sources (cont.)

- Looking at U.S. gasoline demand and imports, we 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 2007, about 1,200 MBPD of U.S. gasoline demand was supplied by imports (see Slide 21), and most of it was long-haul.

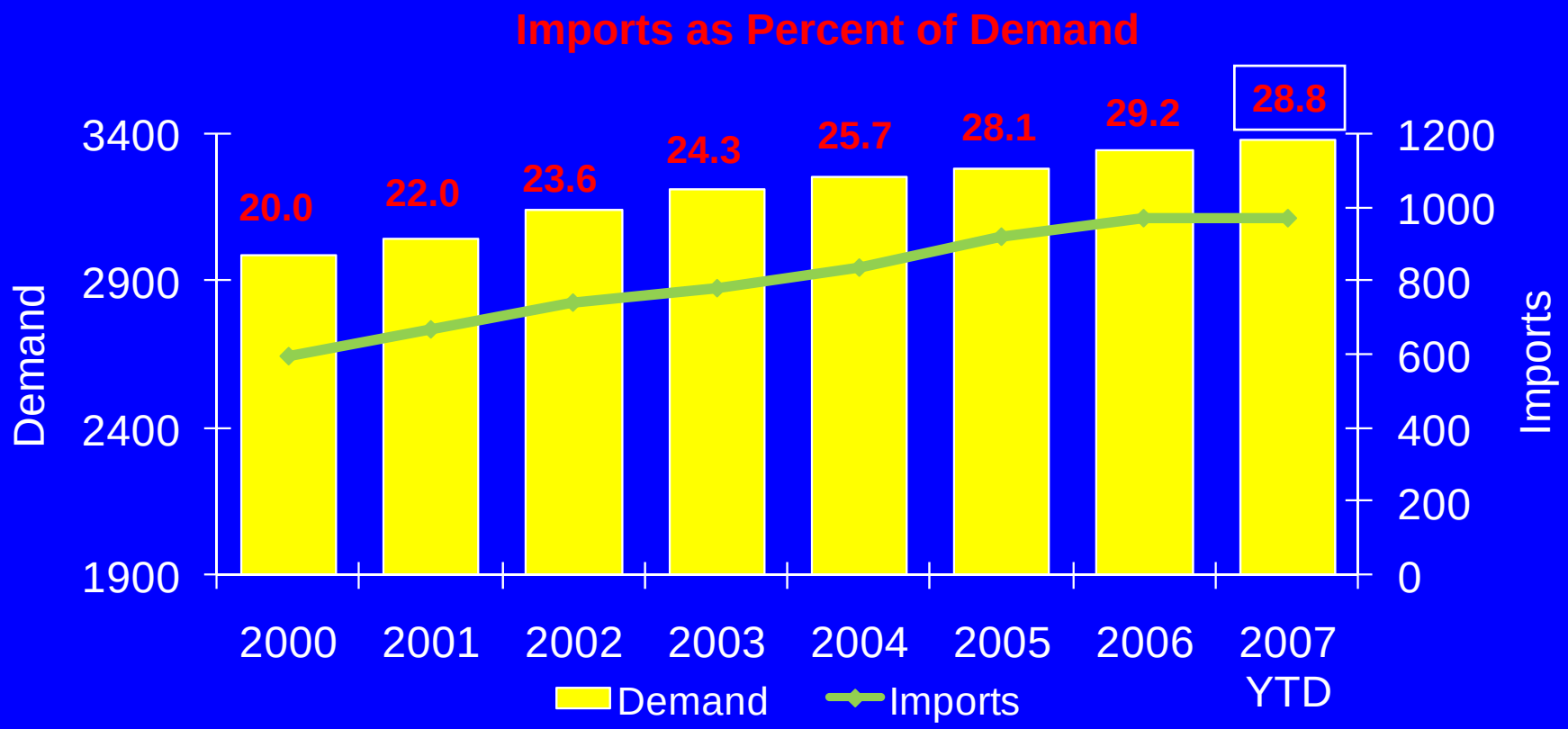
- Most product imports come into PADD I, the U.S. East Coast. Here gasoline imports have risen to about 30% of demand. More importantly, this is the price setting area for most of the U.S., with the home of the NYMEX in New York City (see Slide 22).

U.S. Gasoline Demand and Imports

(MBPD)



PADD I Gasoline Demand and Imports (MBPD)



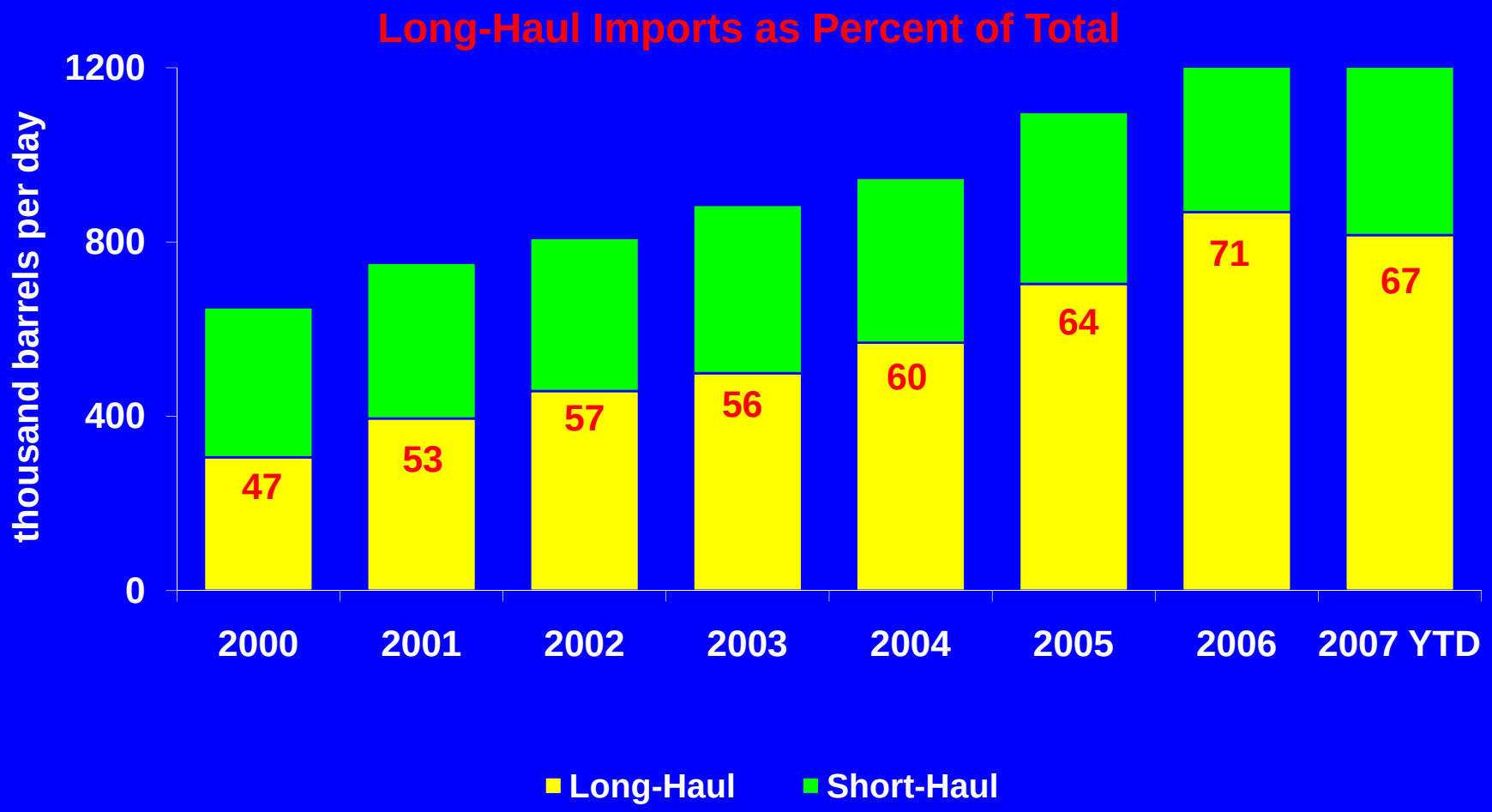
Supply Sources (cont.)

- 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 70% of total imports in 2007 (see Slide 24).

- 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 25).

- 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 Source Category



U.S. Gasoline Imports by Country of Origin

2007 Ytd

	MBPD
Short-Haul	
Canada	184
U.S. Virgin Islands	137
Venezuela	64
Other Caribbean	8
Subtotal	393
Long-Haul	
United Kingdom	179
Netherlands	82
France	66
Russia	53
Spain	52
Germany	37
Norway	35

	MBPD
Long-Haul (cont.)	
Italy	34
Finland	32
Belgium	27
Portugal	22
Taiwan	21
Estonia	20
Saudi Arabia	16
Korea	15
Nigeria	14
Sweden	13
Belarus	12
Egypt	8
Other Long-Haul	78
Subtotal	816
Total Imports	1,209

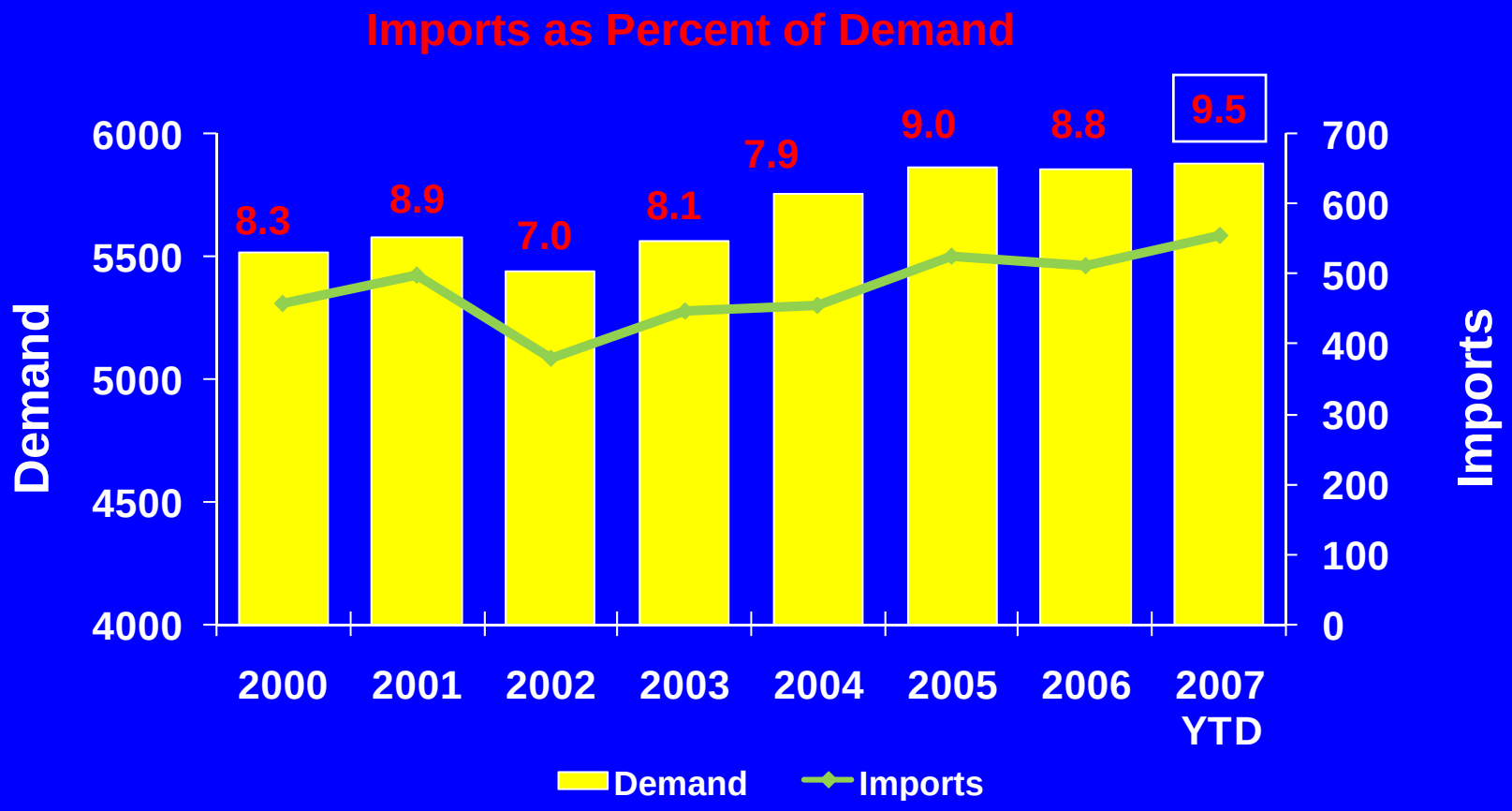
Supply Sources (cont.)

- With distillate imports above 550 MBPD and almost 10% of U.S. demand, the U.S. has come to depend more on sources where competition from other purchasers is stiffening (see Slide 27).

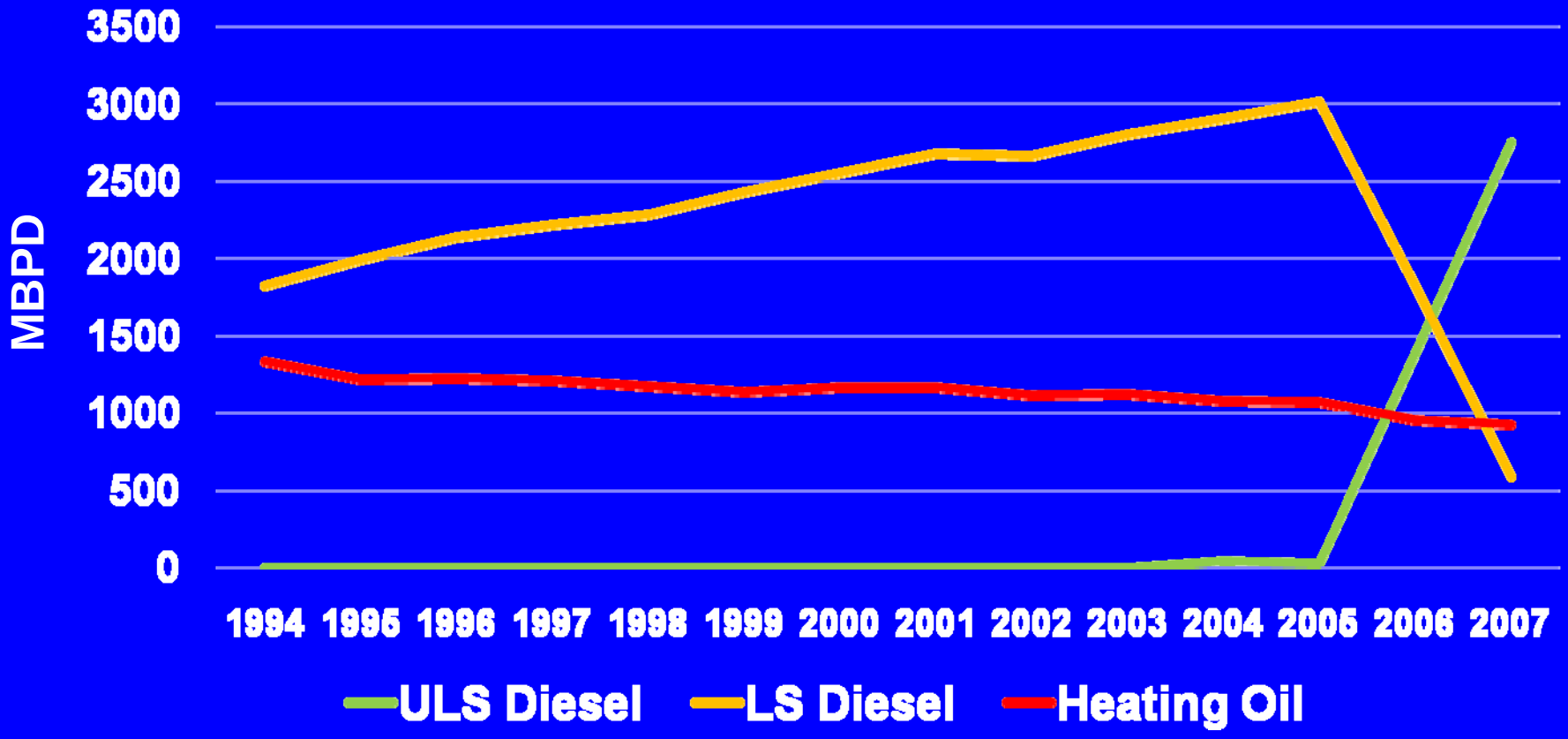
- U.S. demand for distillates are now dominated by ULS Diesel. Heating Oil consumption, which is confined almost entirely to the Northeastern U.S., is steadily declining as the use of natural gas becomes more widespread (see Slide 28).

- U.S. distillate exports are nominal--- currently less than 250 MBPD (see Slide 29).

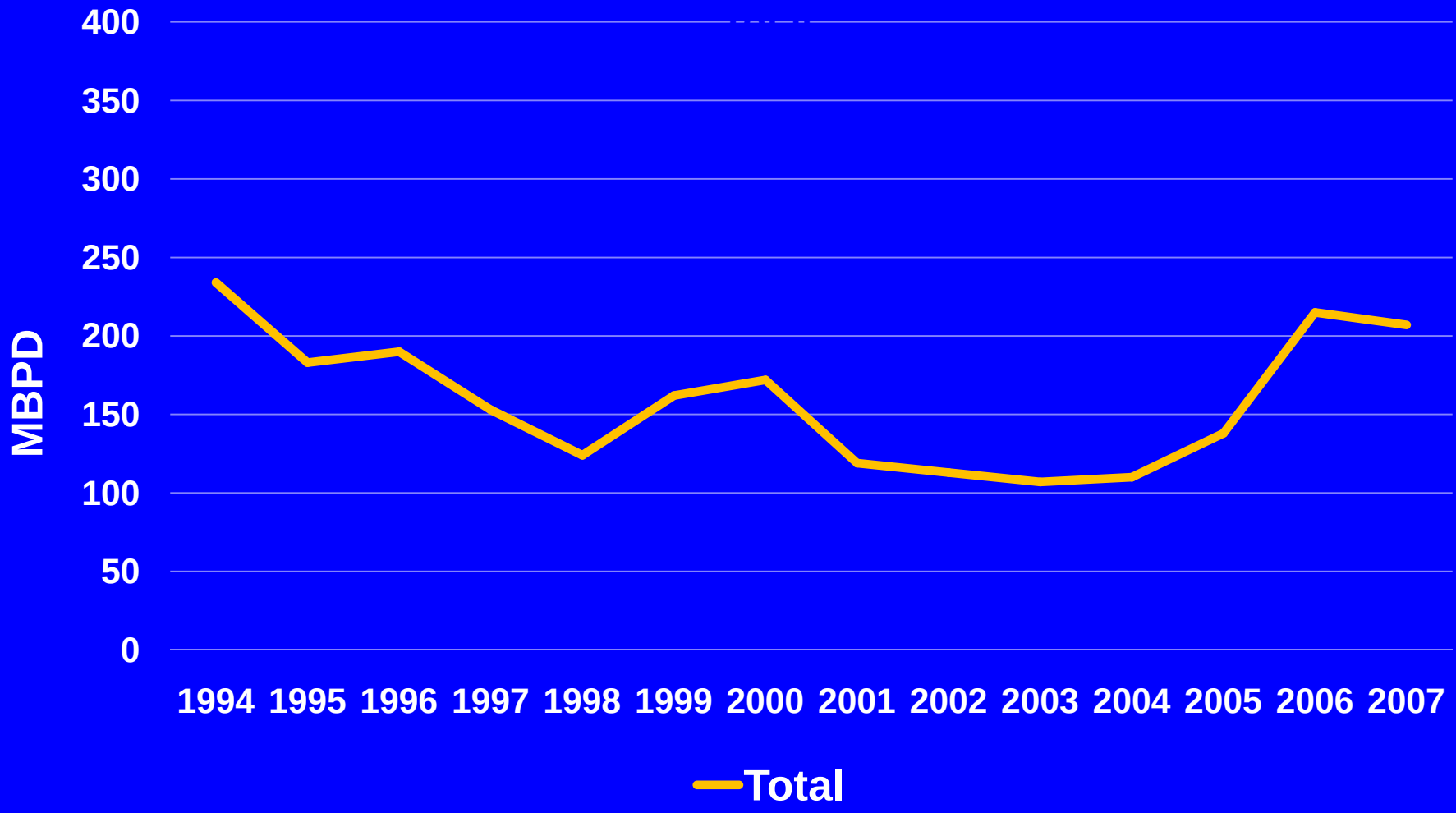
U.S. Distillate Demand and Imports (MBPD)



U.S. Distillate Supply



U.S. Distillate Exports



U.S. Refining Capacity --- Future Outlook

U.S. Refining Capacity – Future Outlook

- 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 costs, both for buying refineries and building capacity, are significant deterrents. The extraordinary EPC circumstance worldwide has undoubtedly caused many aspirants to cancel or scale back plans.

- Most new capacity in the U.S. will be concentrated on the Gulf Coast, although some will be in the Midwest. Collectively, these regions may add about 1.5 MMBPD of capacity, with negligible additions in the East Coast and Rocky Mountain regions. West Coast additions will also be nominal (see Slide 32).

- The Appendix includes brief descriptions of several significant U.S. refinery expansion projects that are announced and almost certain to be executed.

U.S. Refining Capacity Increases through 2014[1]

	Crude Capacity (MBPD)				
	Heavy	Medium	Lt. Sour	Lt. Swt.	Total
PADD I	0	0	0	0	0
PADD II	1,180	(40)	(270)	(386)	484
PADD III	740	325	(52)	(227)	786
PADD IV	68	10	0	(45)	33
PADD V	241	0	(50)	(30)	161
Total U.S.	2,229	295	(372)	(688)	1,464

[1] "The Outlook ", 2007 Mid-Year

Capacity – Future Outlook (cont.)

- Certainly the U.S. refining competitive forces are not standing still. There will be growth in domestic refining capacity in combination with large new refineries around the world.

- 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 costs 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.

Negative Factors Influencing U.S. Refiners' Investment Decisions

1. "**Prejudice Against Crude**"

- Saudi Oil Minister, Ali Naimi, was correct in his recent assertions that President Bush, the U.S. Congress, and other nations are supporting policies and subsidizing other forms of energy in a manner which clearly promote "prejudice against crude oil".

- 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. These are horribly misguided examples of "prejudice against crude"

Negative Factors (cont.)

- There is now an encouraging backlash against ethanol and biofuels in the U.S. and elsewhere in the world (see Appendix for news items). As of today, the current U.S. mandate for ethanol use in 2012 will require 7.5 billion gallons per year. Unfortunately, proposals in Congress and the Administration to increase this quantity by various means to as much as 38 billion gallons per year are under consideration.

- We believe (and hope) that U.S. ethanol usage will remain below 10% of total motor fuel demand. Corn -derived ethanol production may be limited to this quantity or less as well. Accordingly, we have adopted this figure as a maximum for future gasoline supply, equivalent to approximately 978 MPBD.

Negative Factors (cont.)

- Another “prejudice against crude” tactic is the “Global Warming” and “Climate Change” worldwide catastrophic fear campaign. We also hold on to faint hope for enlightenment here.

An October 15, 2007 Forbes commentary corrected NASA’s recent claims that the 10 hottest years in history have occurred since 1990. Specific corrections included:

- “The hottest year on record was 1934 not 1998.”
- “The third hottest year was 1921 not 2001.”
- “Three of the five hottest years on record occurred before 1940.
- “…the warming trend apparently started before the real expansion of human caused carbon dioxide emissions. And if humans didn’t cause global warming, it is not clear how much they can do to stop it.”

Negative Factors (cont.)

- S. Fred Singer, distinguished professor at the University of Virginia, with engineering degrees from Ohio State University and his PhD In Physics from Princeton University, has testified repeatedly that the entire matter is promoted for political hysteria rather than science.

- In response to the question whether there is appreciable manmade warming today, he states: “There is not. Any attempt by governments to control greenhouse gas emissions are pointless and unwise.”

- “ The irony is that a slightly warmer climate with more carbon dioxide is in many ways beneficial rather than damaging. Economic studies have demonstrate that a modest warming and higher carbon dioxide levels will increase GNP and raise standards of living.”

Negative Factors (cont.)

- A third aspect of “prejudice against crude” is related to attacks on the source of crude oil production. In the U.S. today, there is real concern created by large producer nation radicals (Iranian’s Ahmadinejad, Venezuelan's Chavez and from time to time Russia’s Putin). These concerns may indeed be well founded, but it is totally wrong to associate these characters with long time friends of the U.S. and proven reliable suppliers of crude oil .

- Nonetheless, 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.

Negative Factors (cont.)

2. Lack of Long Term Stable Earnings History

- As shown in the “Key Metrics” section, U.S. refiners have enjoyed large crack spreads and thus good earnings for a relatively short period–- only about five years. Currently, Gulf Coast margins have disappeared, and some refiners have reported continued operations while realizing negative cash flows as a result of the skyrocketing crude oil prices above $90 per barrel.

- A primary deficiency in the quality of U.S. refiners earnings is their lack of control over results. Refining companies have amazingly little to say about both the cost of their feedstocks and the prices for their products. These are set by commodity markets (speculators and traders oftentimes totally unfamiliar with the industry itself). This reality presents a barrier for many potential investors and sources of funds.

- Because publicly-owned refining companies must report and explain earnings quarterly, they are constantly faced with analysts and investors lacking both understanding and sympathy with real industry conditions that produce routine earnings volatility. Investors and sources of funds do not like constant surprises; yet refiners live in that kind of world.

Negative Factors (cont.)

3. Project Schedules/Costs Risks

- Currently EPC contractors worldwide are busy and often overloaded with work. New refining projects in the U.S. may not be attractive alternatives for qualified companies with proven capabilities. Today it is virtually impossible to obtain bids or proposals for LSTK (fixed price) project work with defined completion dates.

- Similarly, equipment and materials manufacturers are busy and shops are enjoying backlogs worldwide. It is ordinary to be unable to obtain bids for specialized equipment, and certainly costs and deliveries are accelerating at record paces.

- Not surprisingly, management and engineering talent available for U.S. refiners is in short supply as well. This has not been a glamorous area of business for many years, and colleges and universities have diverted their programs and attention to other business areas and engineering fields.

Negative Factors (cont.)

4. NIMBY (And Other Regulatory Barriers)

- "NIMBY" --- Not in my backyard! --- has long been a barrier to industrial development in the U.S. and many other nations. It has, however, been overused by industry in our opinion, as the reason for lack of new refinery projects in the U.S. With perseverance and deep $$$ pockets to fund development costs, environmental regulations and permitting requirements can in fact be met in a number of areas in the U.S.

- Historically, basic economic realities (refining has been a poor business!) and the inevitable delays and public relations problems encountered have successfully thwarted the building of a new grassroots refinery in the U.S. for some 30 years.

- The Arizona Clean Fuels Yuma refinery project has continued to move ahead, however, and many believe that this new 150 MPBD complex refinery will be built to supply clean products for California/Arizona markets --- in spite of NIMBY. (TM&C has not officially included this in "The Outlook" list of probable projects.)

Capacity – Future Outlook (cont.)

Conclusions

- 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.

- Biofuels, including ethanol, will not displace petroleum transportation fuels produced from crude oil refineries in the U.S. to achieve the Bush Administration "20/20 Target", in our opinion.

- TM&C projections for 2015 indicate that long-haul imports of gasoline will continue to be required to supply U.S. motorists and, in all probability, remain as the price setting reference (see Slide 43).

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

	Est. 2007	TM&C Outlook 2015	Pessimistic Demand 2015
Total Demand	9,268	10,209 (1)	9,744 (1)
Refining Production	7,722	8,300 (2)	8,300 (2)
Less Exports	(124)	(124) (4)	(124) (4)
MTBE	64	0	0
Ethanol	397	978 (3)	978 (3)
Imports – Short-Haul	393	393 (4)	393 (4)
Imports – Long-Haul	816	662 (5)	197 (5)

(1) "The Outlook", 2007 Mid-Year
(2) TM&C estimate.
(3) Arbitrarily limited
(4) Assumed to be constant.
(5) Calculated by difference.

Appendix

Significant U.S. Refinery Expansion Projects

- Motiva, Port Arthur, Texas -- This Shell/Saudi venture has announced a $7 billon expansion program for its Port Arthur refinery, which will add 325 MBPD crude capacity. This will make this refinery, which was originally owned by Texaco, the largest in the U.S.
- Marathon, Garyville, Louisiana -- $3.2 billion expansion will increase crude capacity from 245 MBPD to 425 MPBD. This refinery was the last U.S. grassroots construction in 1976.
- Valero, Port Arthur, Texas -- This former Gulf refinery will be expanded to above 400 MBPD and modified to process almost a full slate of heavy sour crude oil, including up to 200 MBPD Canadian WCS quality. No budget figures have been announced.
- Sinclair, Tulsa, Oklahoma -- This former Texaco refinery will be expanded to 115 MBPD capable of processing heavy sour Canadian crudes. The feature additions will include new crude distillation, coking, hydrocraking, hydrogen and SRU units. The estimated cost is approximately $1.5 billion.
- Flint Hills, Rosemount, Minnesota -- This refinery owned by Koch Industries has undergone a 50 MBPD expansion, bringing capacity to 330 MBPD. This $200 million project is being completed at this time, permitting additional processing of heavy sour Canadian crude oil.
- Chevron, Pascagoula, Mississippi – Proposed 200 MBPD expansion not yet approved because of escalating cost estimates.

Press Comments on Ethanol

- *The Canadian Press* writes “the cost of everything from tortillas to cereals and corn starch will rise in Canada because America’s policy of subsidizing ethanol. When you overlay more corn production to be diverted to ethanol and with inflationary hit from oil itself, they’re going to produce the hottest inflation numbers that we’ve seen.”

- On September 28, 2007 “the National Petrochemical and Refiners Association Executive Vice President Charles T. Drena dismissed Ethanol Coalition claims as ludicrous attempts at damage control.”

- The *E&E News* reported Friday that a” global increase in biofuels use could emit nine times more carbon dioxide than conventional gasoline and diesel as forests and grasslands are cleared for ethanol-crop production, according to a study published in the journal *Science*.”

- The *Houston Chronicle* reports “The government- supported push for ethanol will not only increase taxes and damage the environment, but will add to America’ burden of high fuel and food cost. According to a study by Iowa State University, corn- based ethanol during the past 12 months has raised food prices by $47 per person.”

- The *Los Angeles Times* writes “there are much better ways to cut greenhouse gas emissions and decrease our reliance on foreign oil. They start with improving fuel economic standards, not turning vast quantities of food into fuel, [creating] a recipe for global starvation.”

Press Comments on Ethanol (cont.)

- *Oil Daily* reported October 18th that the National Research Council conducted a study published by the National Academy of Science "concluding that if ethanol production increases as forecast, it will have a harmful impact on water supplies at the regional and local levels."

- The *Orange County Register* "calls for no new taxes to subsidize ethanol production."

- The Canadian *National Post* writes "though it [ethanol] causes less pollution in automobiles, ethanol does require more energy to produce than gasoline. And let's not forget that farmers use tractors -- often diesel powered and not exactly environmentally friendly. "

- According to *USA Today*, "E85 is roughly 40% more expensive than conventional gasoline. Ethanol has only 70% of the energy of common gasoline."

- *Daytona Beach News-Journal* op-ed writes that "ethanol doesn't burn cleaner than gasoline, nor is it cheaper. Our current ethanol production represents only 3-5% of our gasoline consumption– yet it consumes 20% of the entire U.S. corn crop."

- *The Indianapolis Star* reports neighbors in Shideler are "concerned about pollution, traffic and ultimately, declining property values, and have filed a lawsuit to block construction of an ethanol plant."

Press Comments on Ethanol (cont.)

- *E&E News* reports “a clean air advocacy group today joined the chorus of voices asking Congress to postpone expanding the biofuels mandate. The Boston-based Clean Air Task Force argued in a report that Europe’s 2003 biofuels directive led to unexpected increases in greenhouse gas emissions, tropical deforestation and biodiversity loss.”

- From an editorial in *The Eagle- Tribune* “The economist Milton Friedman was fond of noting that there’s no such thing as a free lunch. This is the driving philosophy behind the ludicrous idea of reducing America’s dependence on foreign oil by burning fermented food in our cars. Ignoring warnings that the energy obtained by burning a gallon of ethanol in a vehicle is less than the energy that went into producing it.”

- *The Wall Street Journal* reports that “ethanol’s frenzied growth over the past year is coming to a halt- at least for now. The price of ethanol has fallen by 30% over the past few months as a glut of the corn-based fuel looms, while the price ethanol’s primary component, corn, had risen.”

- *The New York Times* reported “while generous government support is expected to keep the output of ethanol fuel growing, the poor planned overexpansion of the industry raises questions about its ability to fulfill the hopes of President Bush and other policy makers to serve as a serious antidote to the nation’s heavy reliance on foreign oil.”

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