

# ASPHALT SUPPLY IN A VOLATILE OIL WORLD

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ConocoPhillips Company

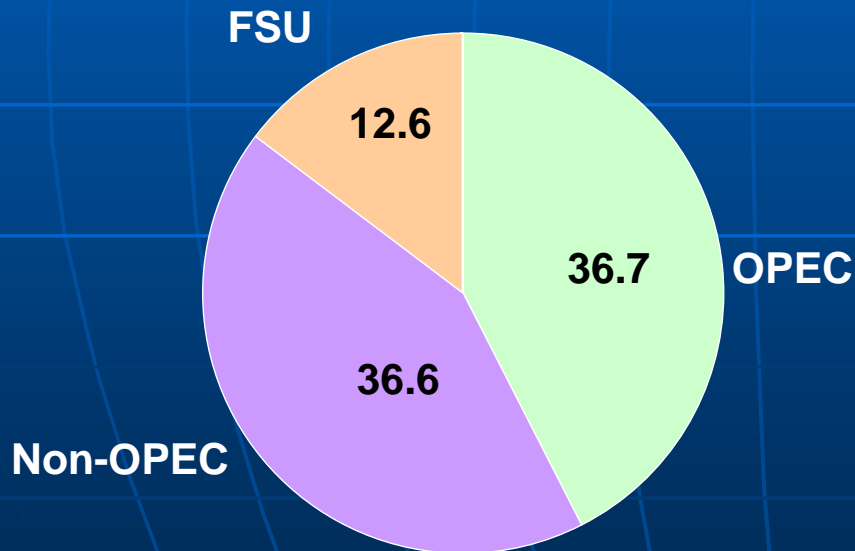
# Issues to be Discussed

- Crude Oil Supply
- Crude Oil Pricing
- Refining Capacity
- Products Supply
- Products Pricing
- Future of the Industry

# Crude Oil Supply/Demand

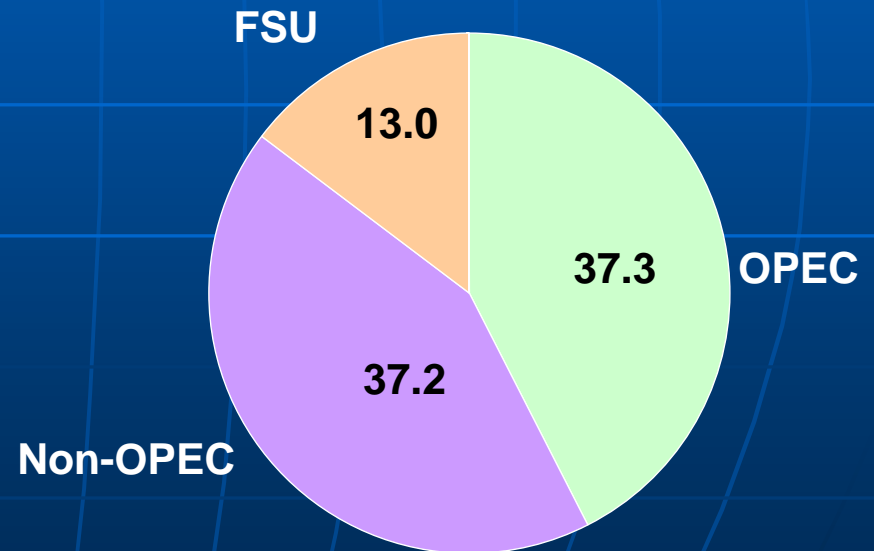
# Crude Oil Supply

**2007 World Crude & Gas  
Oil Production  
Millions of Barrels Per Day**



**Total: 86 MMB/D**

**2008 Forecasted World  
Crude & Gas Oil  
Production  
Millions of Barrels Per Day**



**Total: 87.5 MMB/D**

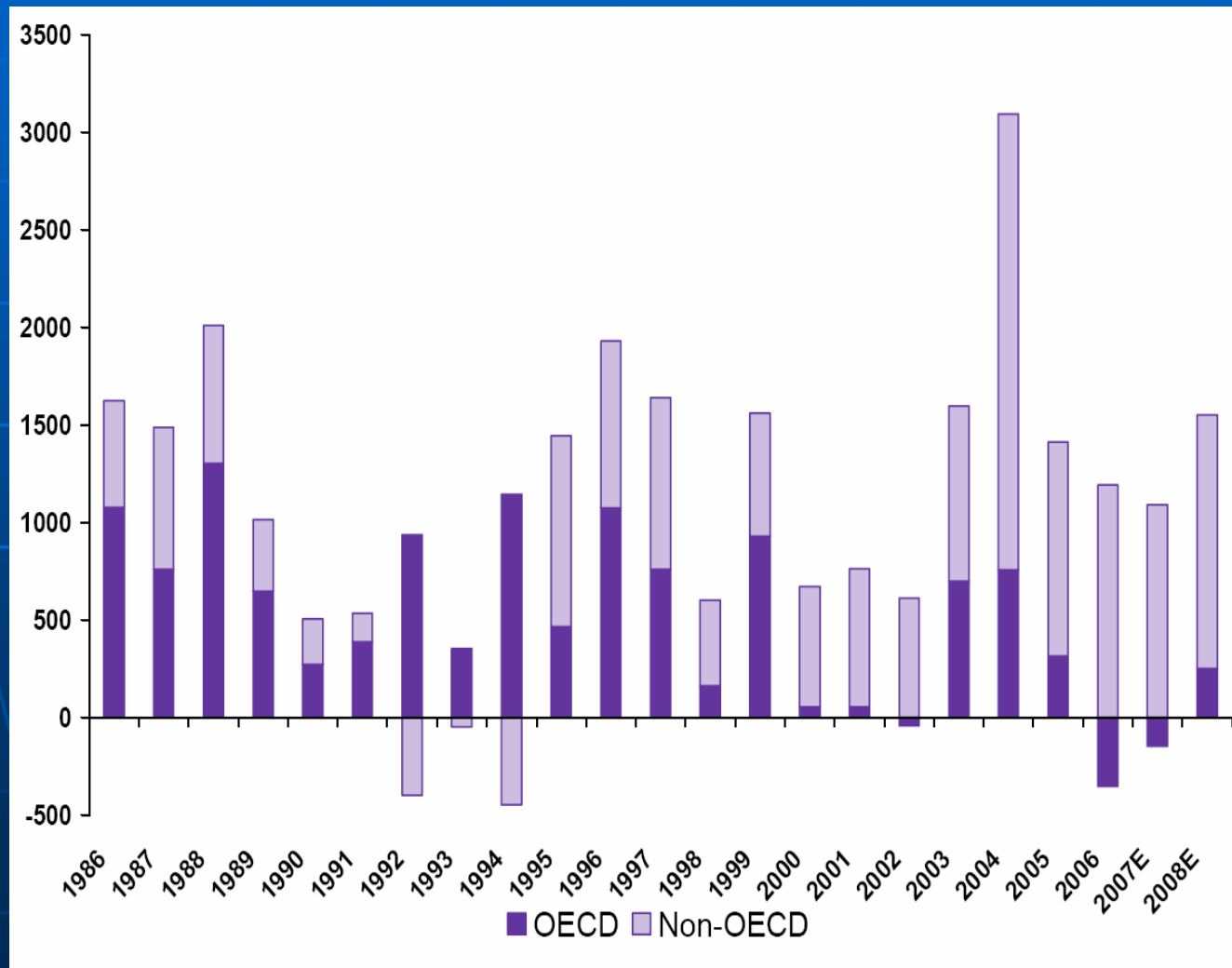
# Crude Oil Supply

- The world will rely on OPEC to increase production to meet the 2008 Demand
- Only Saudi Arabia, Kuwait, & UAE have notable reliable spare capacity
- Nigeria and Iraq have capability to increase supply, but are likely to remain unreliable
- Non-OPEC supply vs. projections have disappointed in recent years
- Canada is becoming increasingly important

# Crude Oil Demand

- World demand has risen by 8.4 MMBD (10+%) over the past 5 years
- 2008 Projected Demand at 87.5 MMBD, within a couple million barrels per day of the world daily deliverable capacity
- Vulnerable to supply disruptions caused by storms, accidents, breakdowns, political unrest
- Driven by developing countries

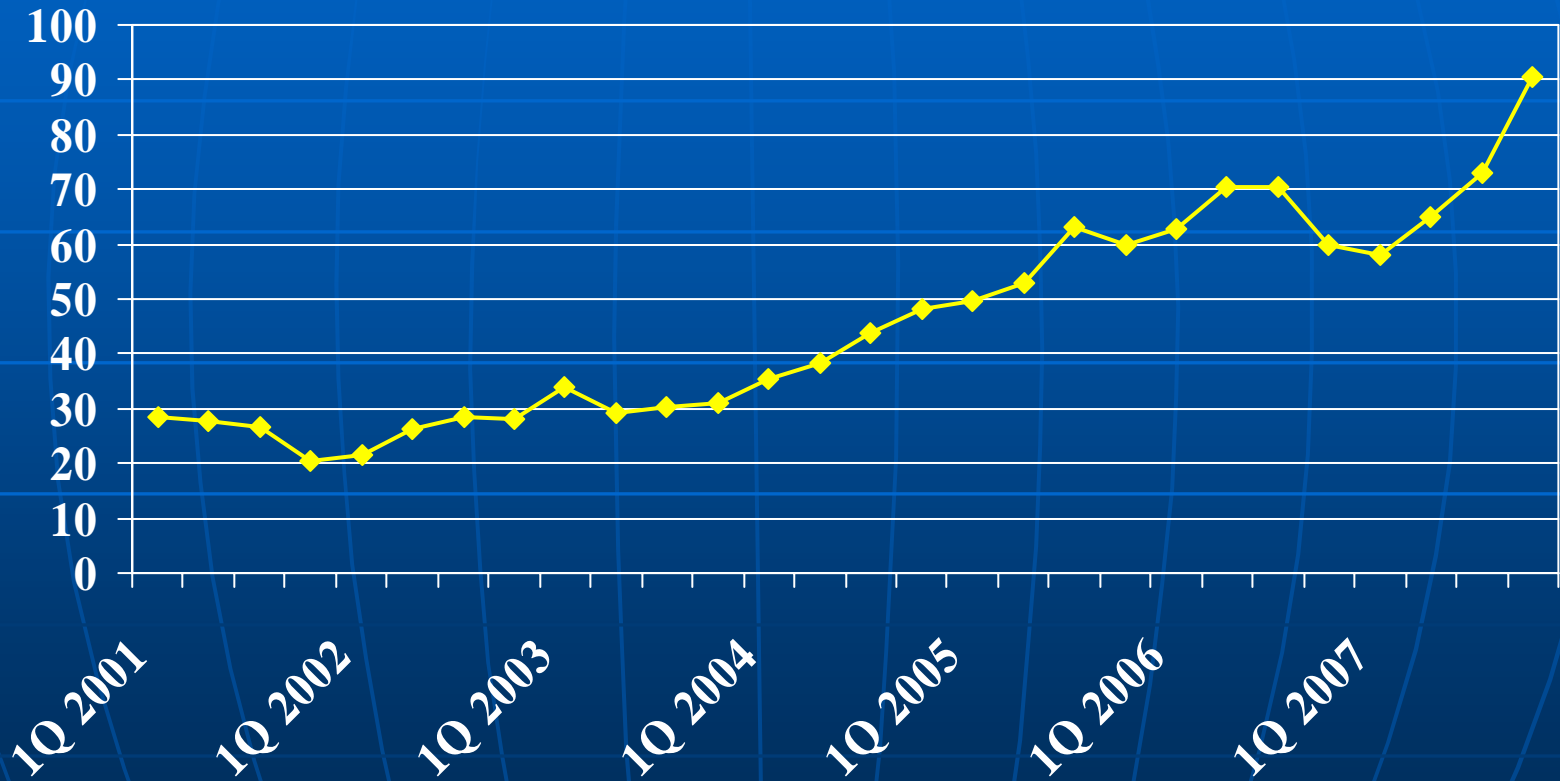
# Crude Oil Demand (MBPD)



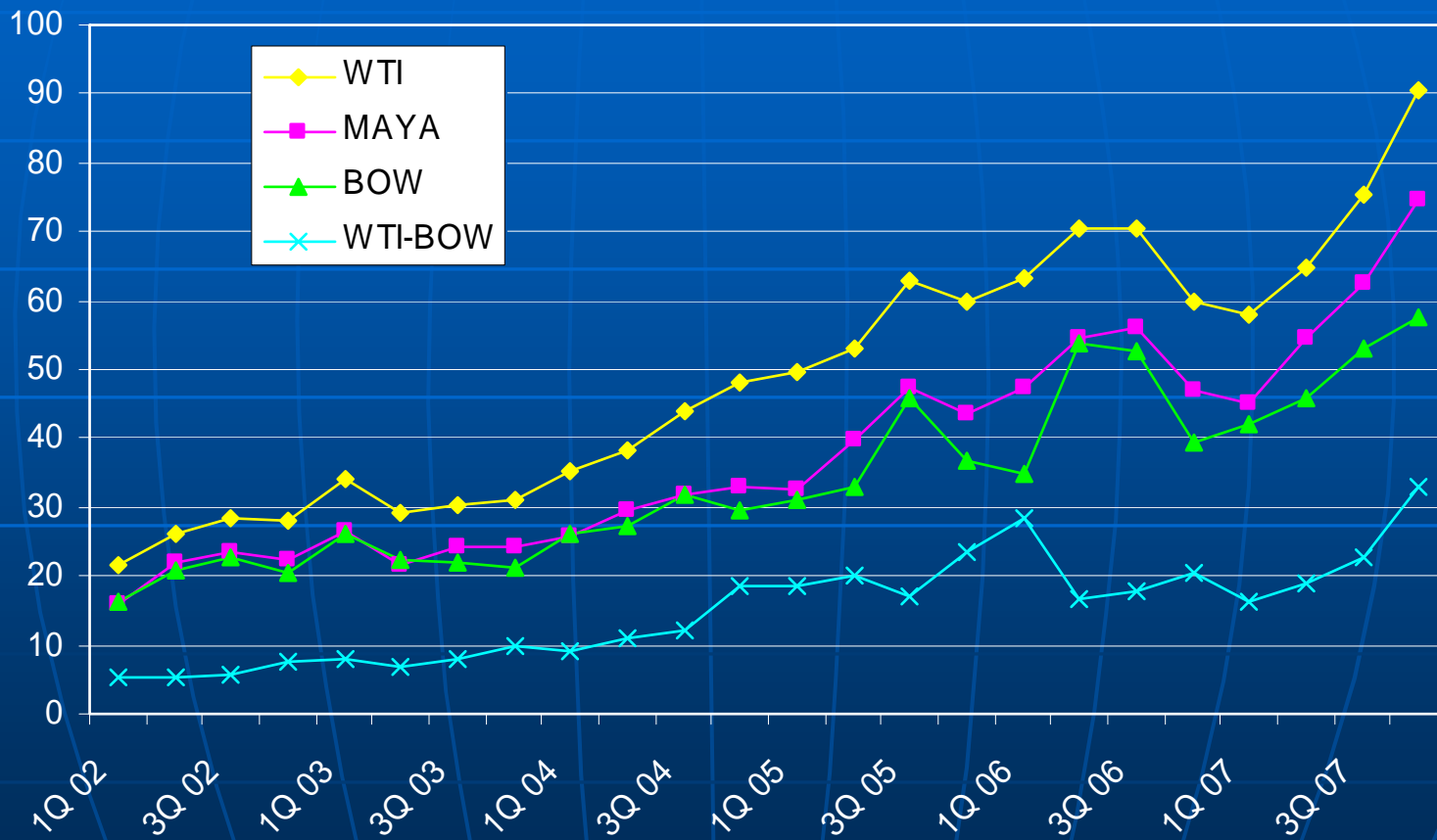
# Crude Oil Prices



# WTI Price by Quarter

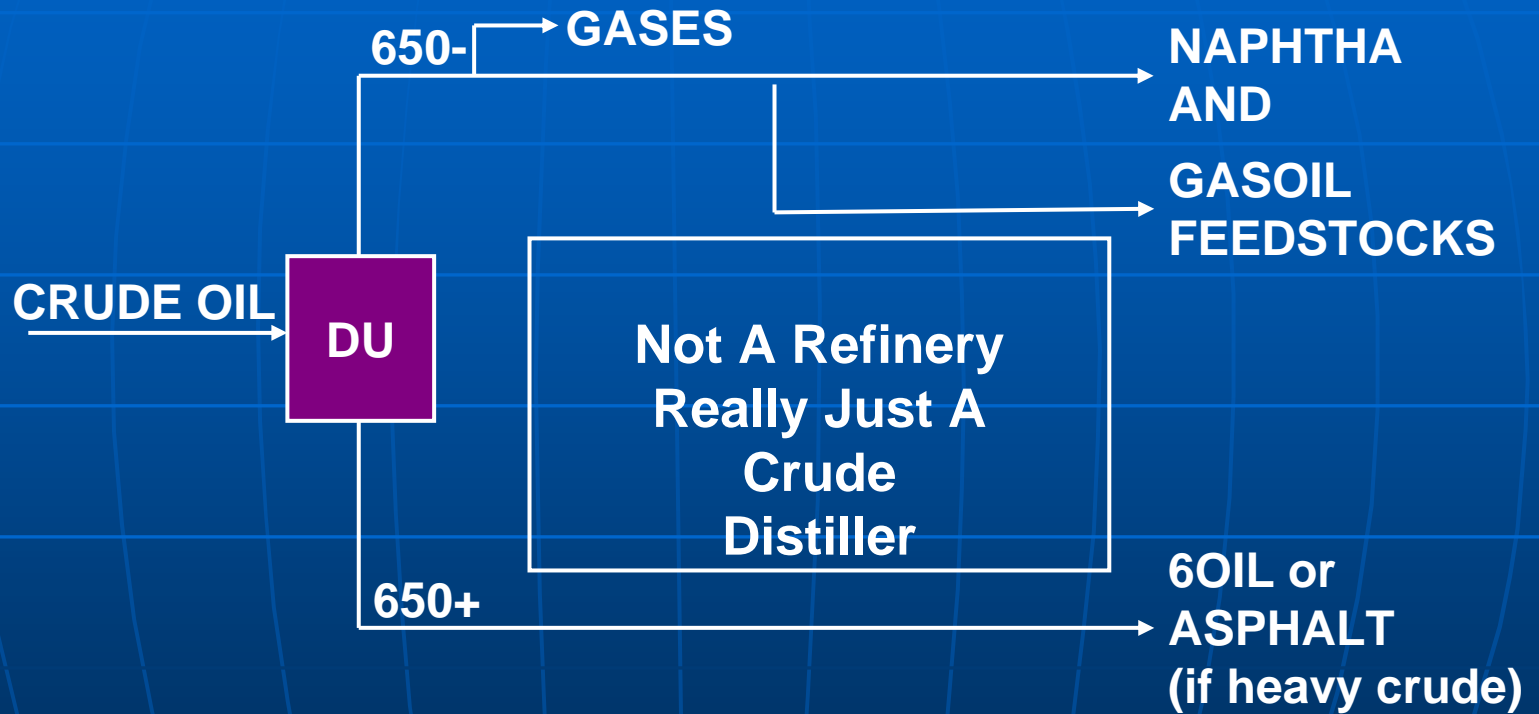


# Light-Heavy Crude Prices

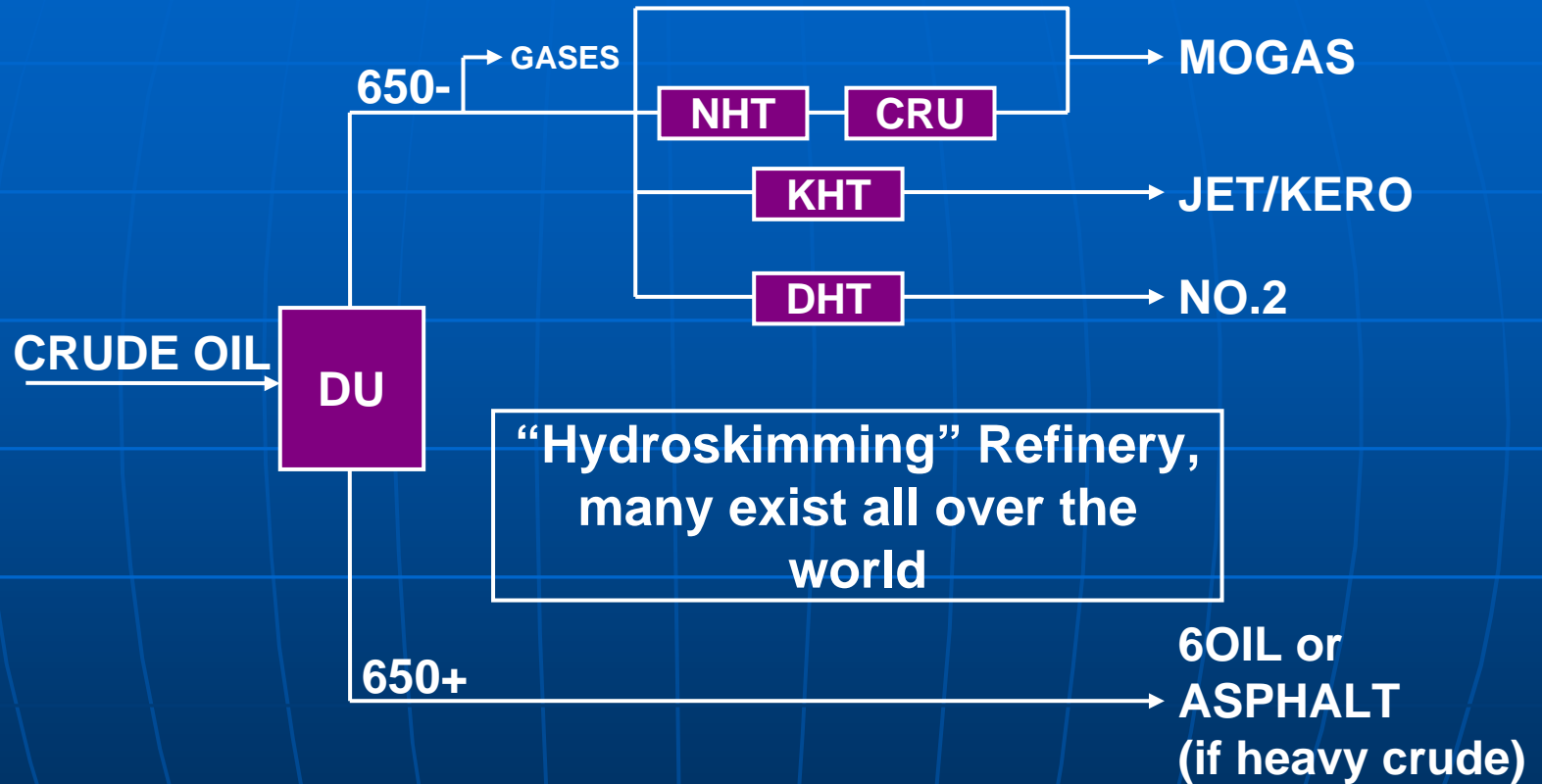


# Refining

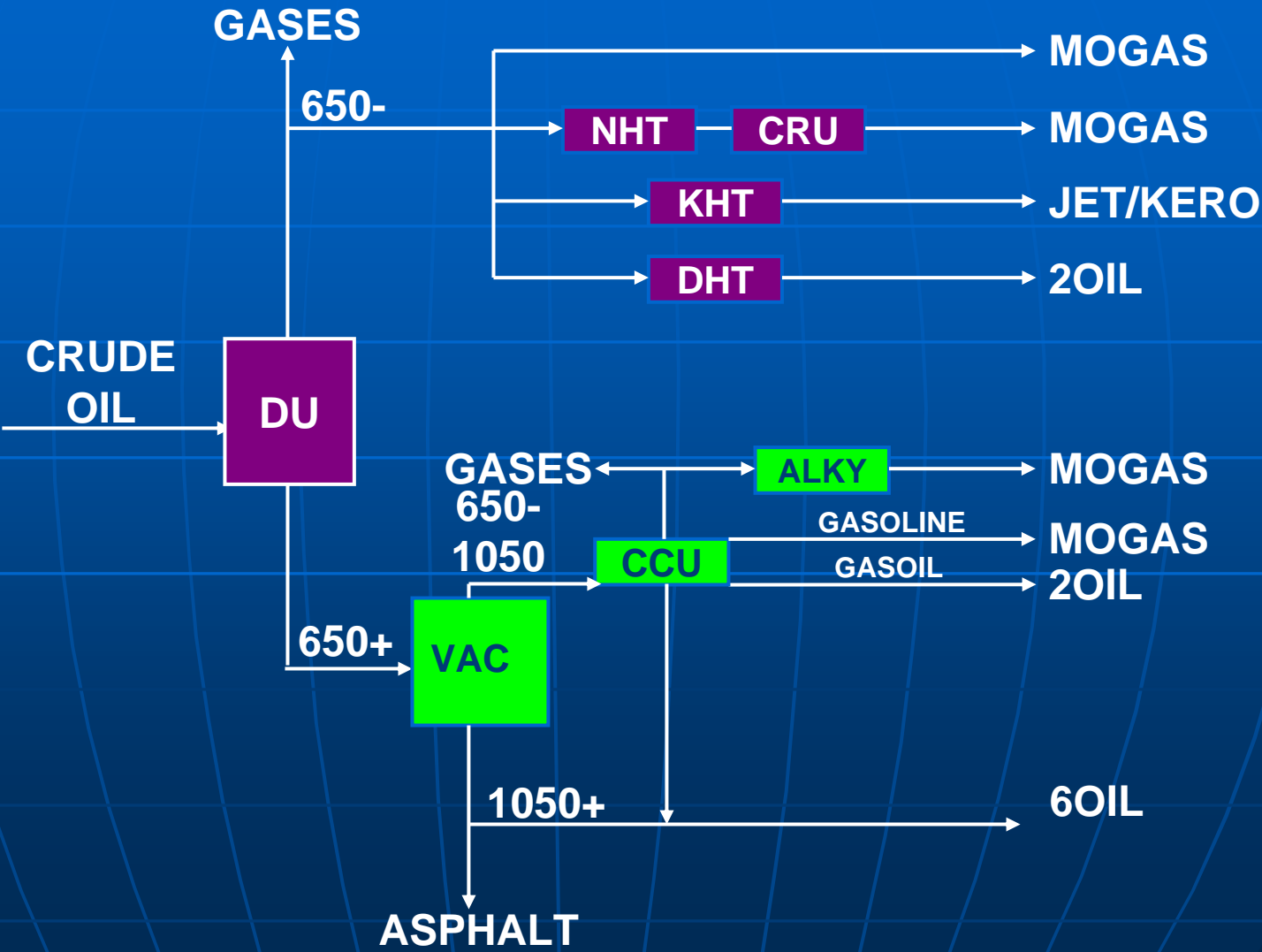
# Topping Refinery



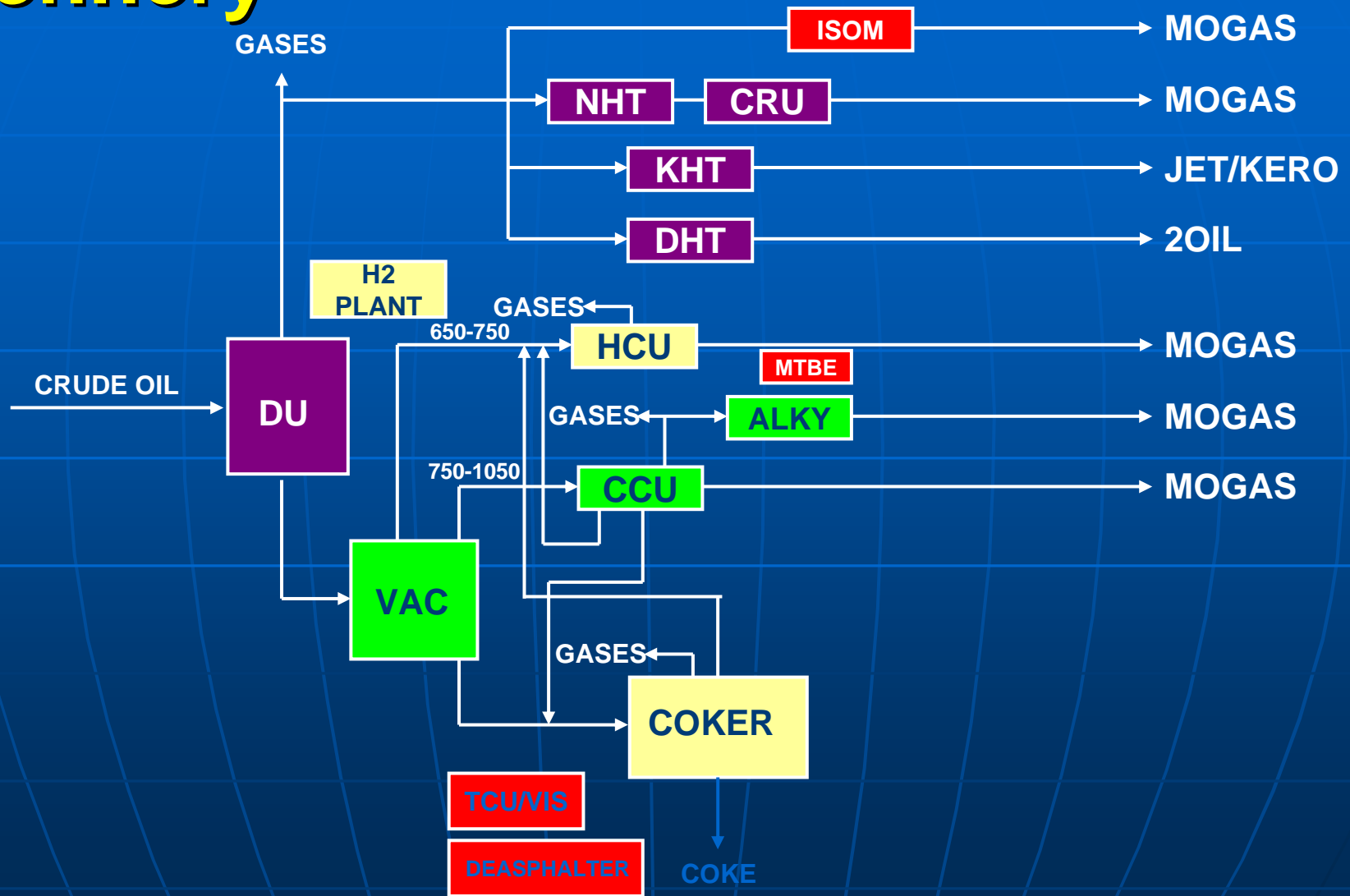
# Simple Refinery



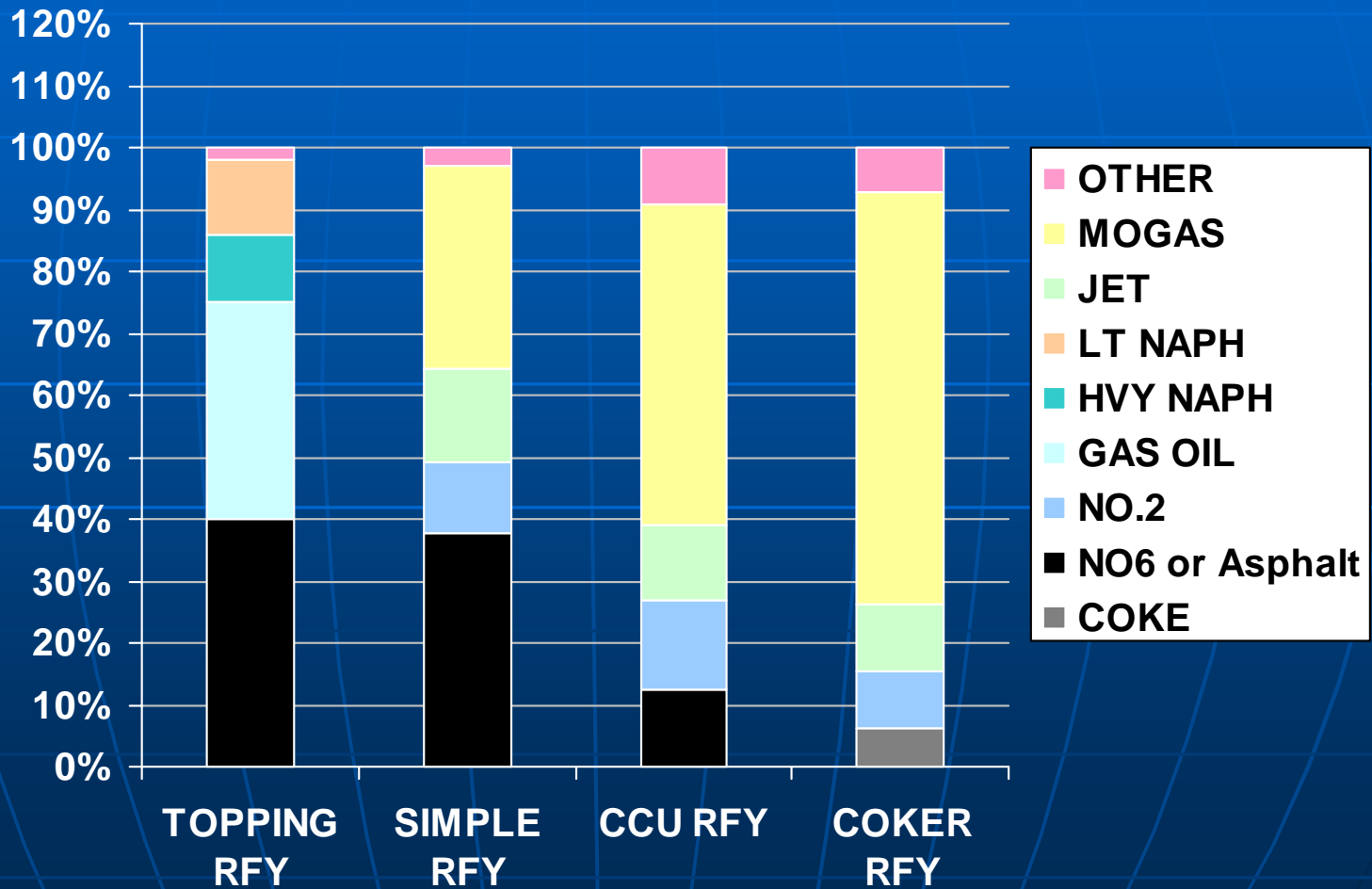
# CCU - "Complex" Refinery



# CCU/HCU/Coker - “Very Complex” Refinery

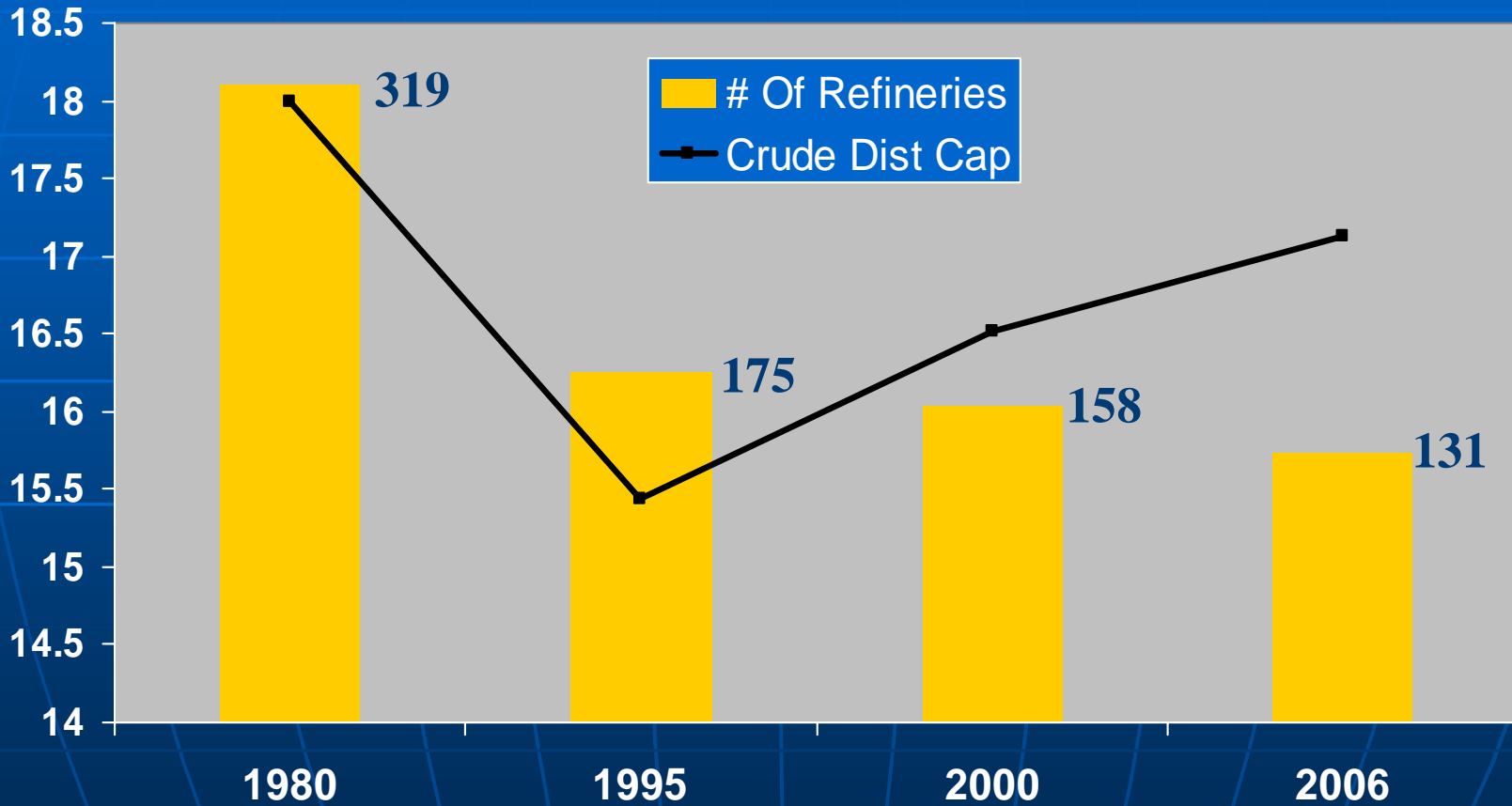


# Refinery Yield (% of Crude Intake)





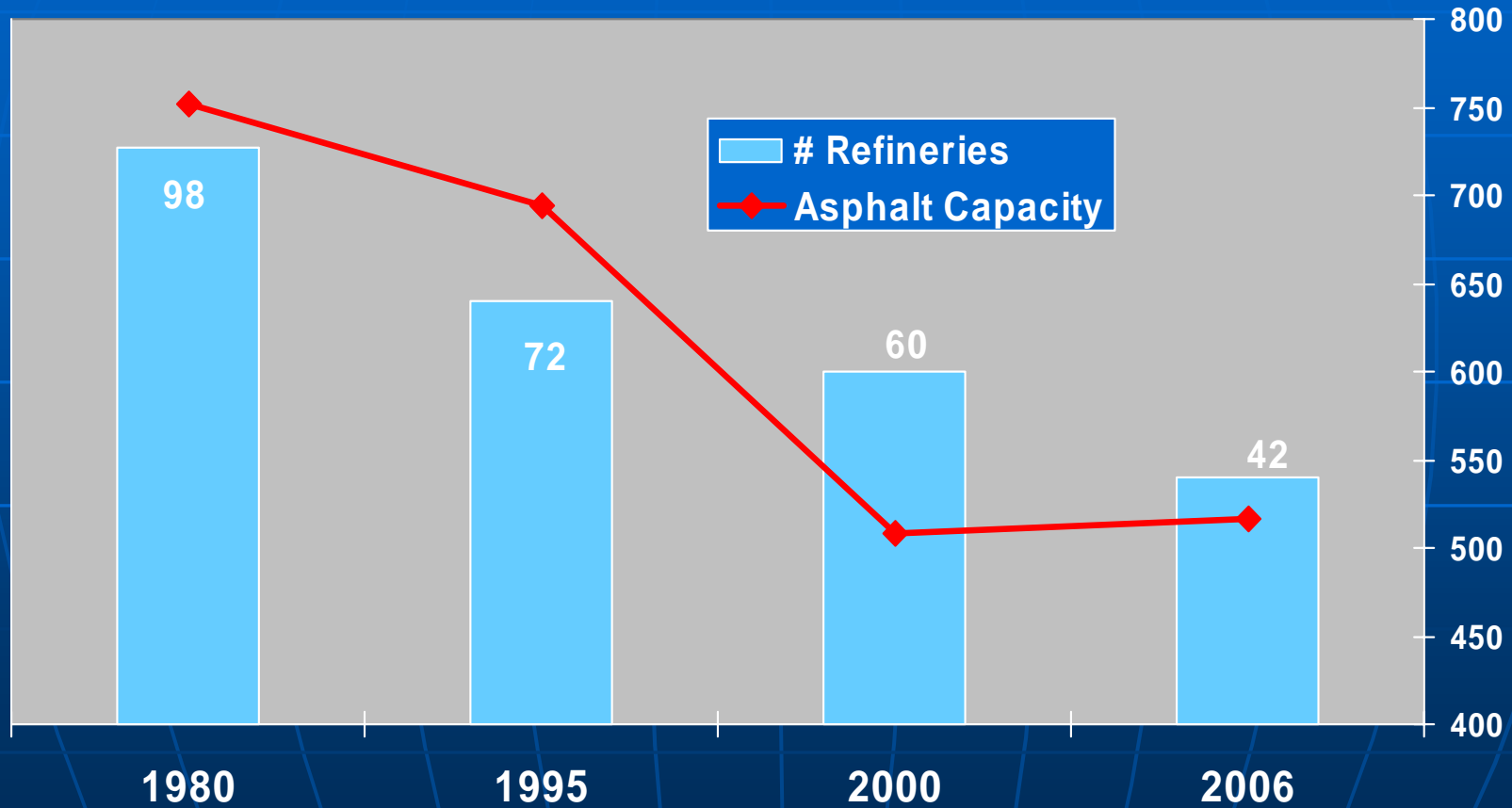
# U. S. Refining Capacity



Last New U. S. Refinery Built in 1976

Source: Oil & Gas Journal

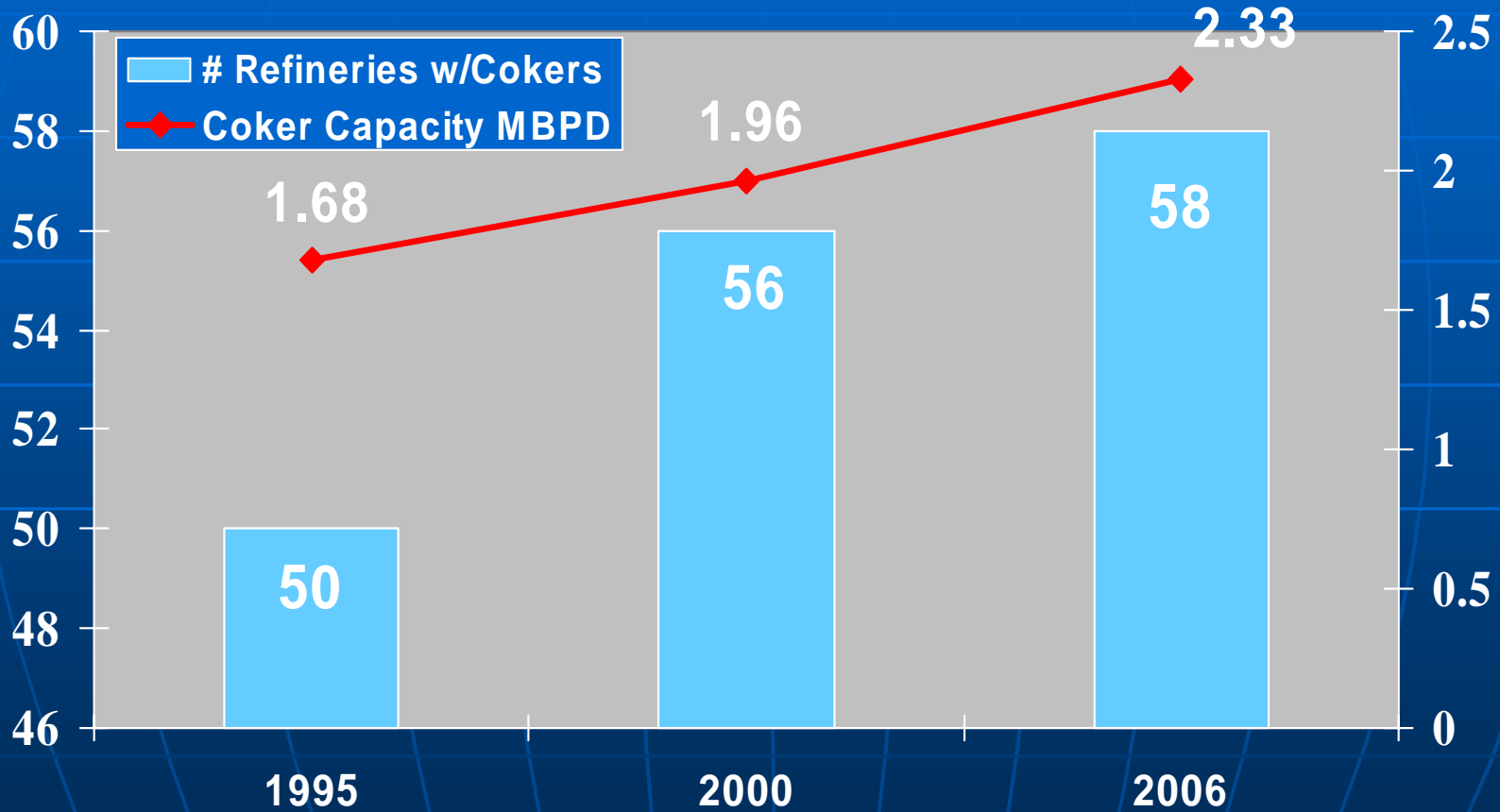
# U. S. Asphalt Refining Capacity



Production Range: 600 B/D to 60,000 B/D

Source: Oil & Gas Journal

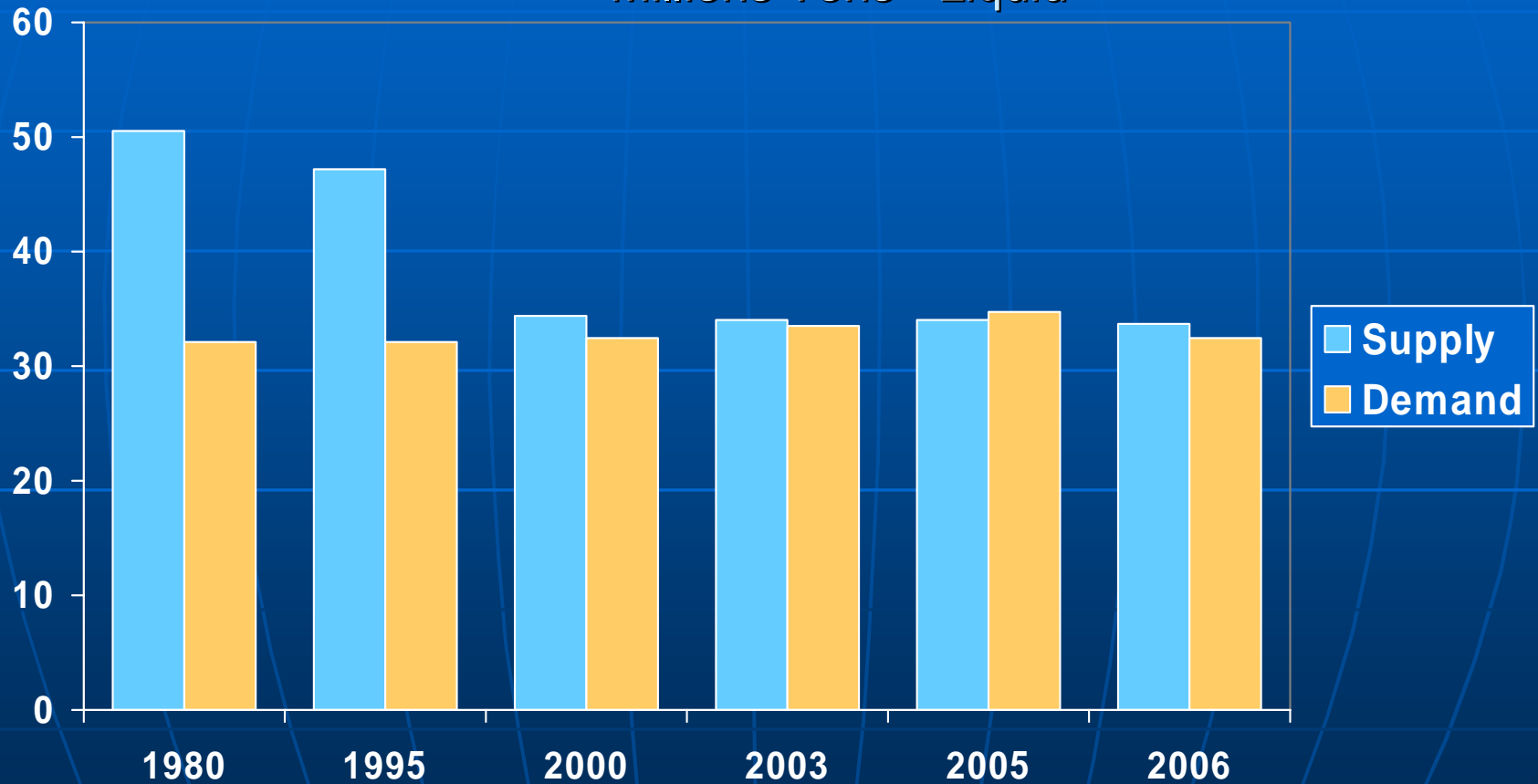
# U. S. Refining Coking Capacity



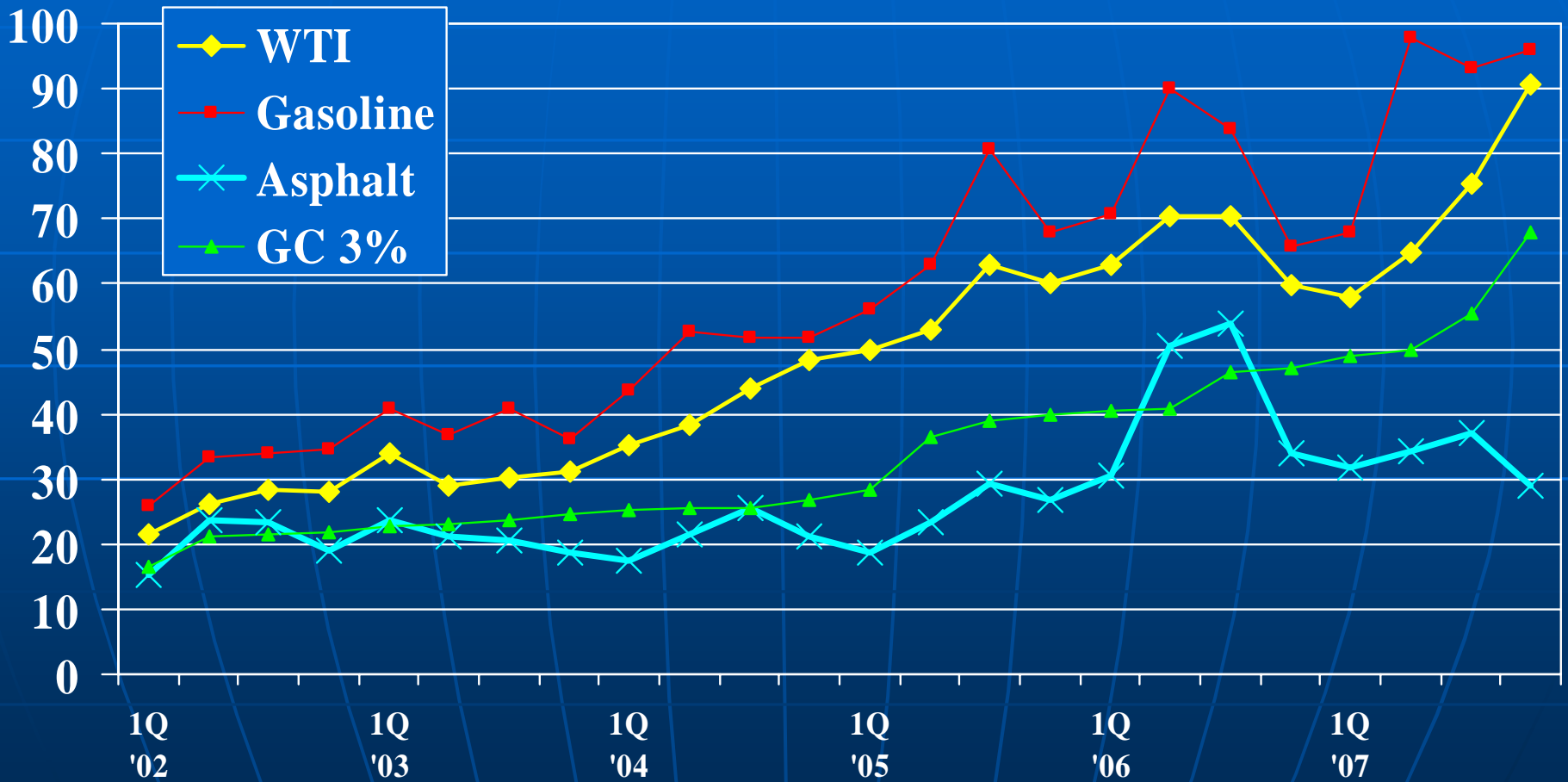
Source: Oil & Gas Journal & EIA

# Historical Asphalt Supply/Demand

Millions Tons - Liquid



# Crude/Product Prices



# Coking Economic Example

## Gasoline/Diesel Pricing

- DEC., 07 Price: \$98.50/BBL
- Less Distribution: \$6.00/BBL
- Net to Refinery: \$92.50/BBL
- 70% Coker Yield: 21,000 BPD
- Gasoline/Dsl Net: \$1,942,500

## Kansas City Asphalt Pricing

- DEC 07: \$50.90/BBL\*
- (\$45/Ton): \$8.04/BBL
- \$42.86/BBL
- Asphalt Make 30,000 BPD
- Asphalt Net \$1,285,800
- Lost Value: \$656,700 per day

\* Source – Poten & Partners

# Current Coking Economic Example Continued

- \$656,700 per day added margin
- $\$1 \text{ Billion} / \$656,700 = 1,523$  days (4.2 years payoff)

# U.S. Coker Construction Projects 2005 - 2011

- Planning, Engineering, or Construction Phase
- Total Refineries: 360 MB per day
- Asphalt Refineries: 197 MB per day

Source: Argus Asphalt Report



# FUTURE OF THE INDUSTRY

# Current Realities

- Crude oil and refined products are a part of a global market
- Crude production is near maximum rates based on existing infrastructure
- U.S. refining running at maximum capacity (less turnaround & unplanned down time activities)
- No new refineries in the near term
- Many refinery expansions planned
- Asphalt must keep pace with conversion feed values to encourage production
- It's all about hydrocarbon value

# Factors Influencing Asphalt Price

- Absolute price of crude (WTI)
- Light/Heavy crude price differential and heavy crude availability
- Relative prices of other refined products (gasoline, 6 Oil)
- Refinery configuration/reliability
- Logistical costs
- Supply/demand

# Future For Asphalt

- Many refinery expansion/coker projects planned
- More heavy crude being run
- Asphalt is more expensive in a \$90.00+ crude world
- Asphalt has to trend faster and be more competitive with product/crude prices
- Transportation costs rising – Rail, Barge, Terminalling
- High volatility will dominate the market

# QUESTIONS