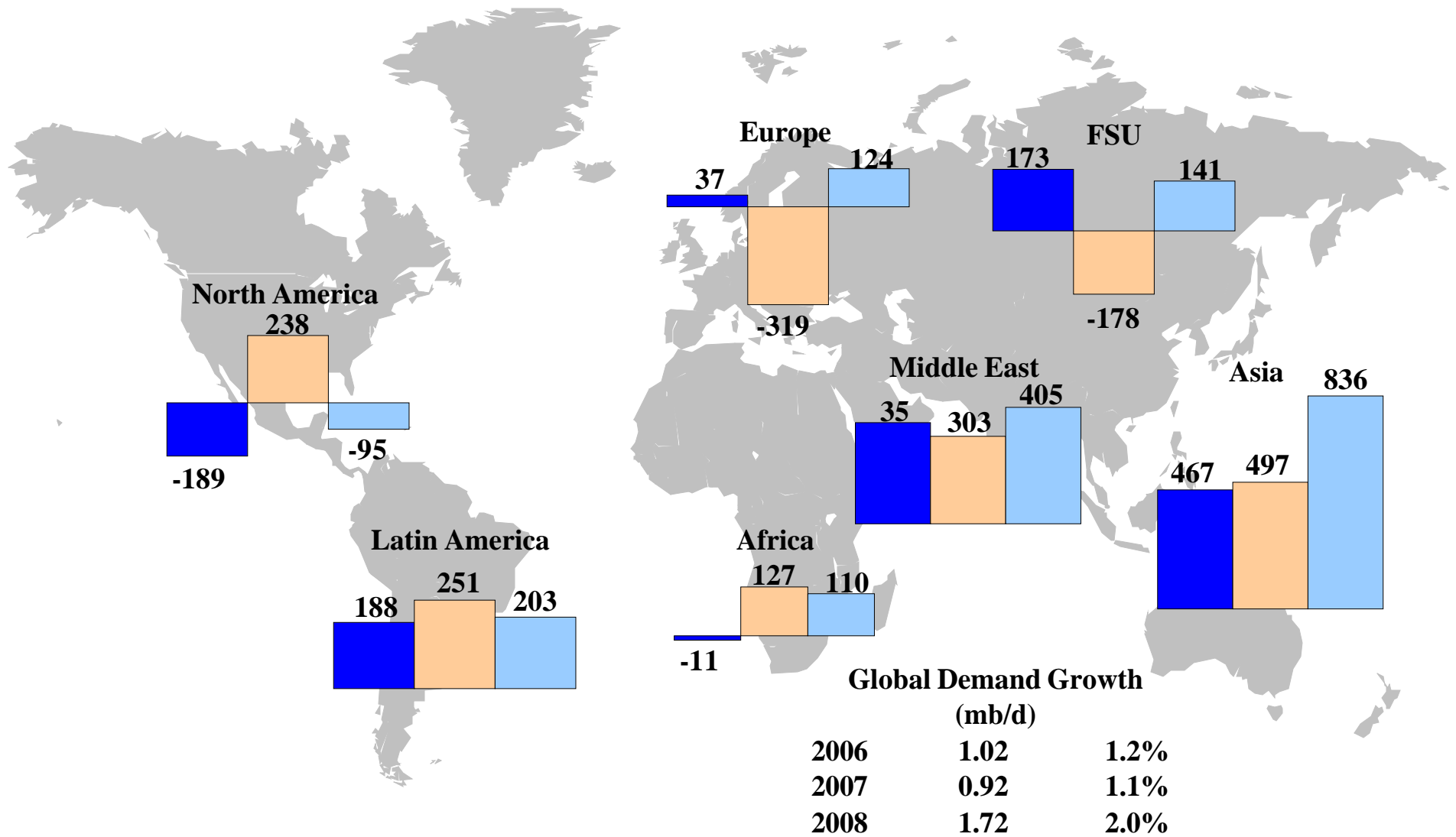


Global Demand Growth 2006/2007/2008

thousand barrels per day



Source: IEA (3/11/2008)



Petroleum Demand Drivers

▲ Economic Growth

◆ Social Trends

- Population (growing but shifting)
- Environmental consciousness
- Globalization

◆ World Financial Direction

- Central banks (interest rates, money supply)
- Stock markets (wealth, consumer psychology)

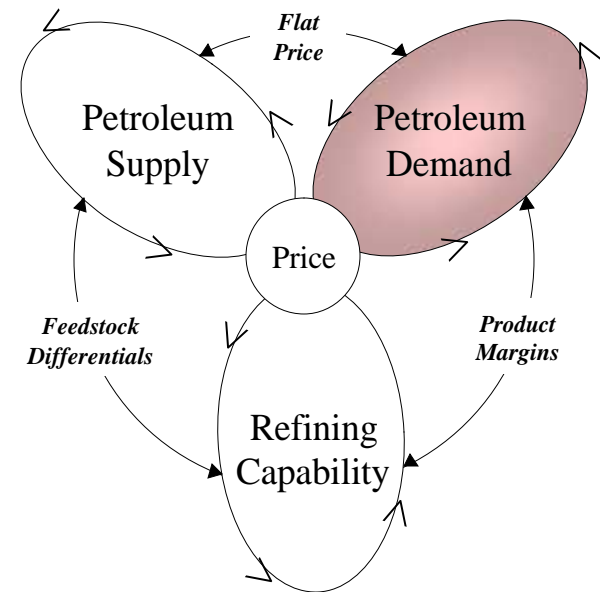
▲ Energy Efficiency (Energy Consumed/\$GDP)

▲ Government Regulation

- ◆ Environmental (CAFE, RFS, Carbon Tax)
- ◆ Subsidies (Consumers, Industry)

▲ Evaluate Sector Fuel Requirements

<u>Sectors</u>	<u>Products</u>
Transportation	Gasoline
Utility	Jet Fuel
Commercial	Diesel
Residential	Fuel Oil
Industrial	



Petroleum Supply

▲ Worldwide View of Petroleum Availability

▲ Petroleum Supply Choices

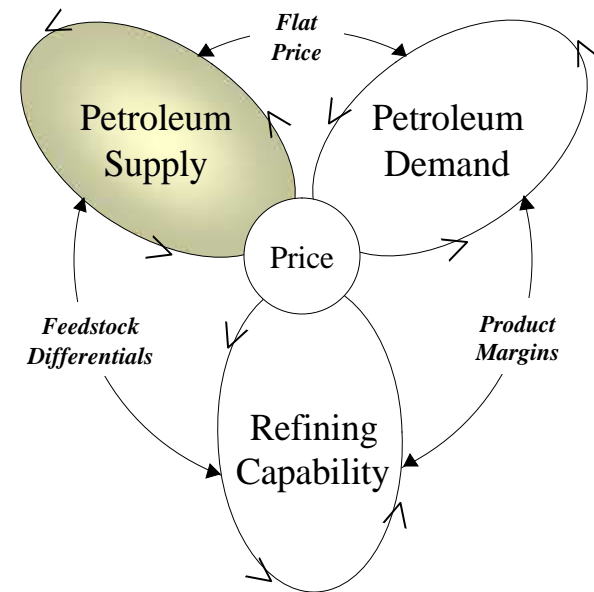
- ◆ NGLs
- ◆ Condensates
- ◆ Crude Oil
 - Sulfur (sweet vs. sour)
 - Gravity (light, medium, heavy)
 - Acidity (High TAN)

▲ Geo-political Environment

- ◆ Limits Access to Resources
- ◆ Revenue Allocation
- ◆ Supply Risks

▲ Competitive Energy Supply

- ◆ Coal
- ◆ Nuclear
- ◆ Alternative Energy (wind, biofuels)
- ◆ Conservation (cheapest)



Refining Capability

▲ Refining Configuration/Capacity

- ◆ Crude Distillation
- ◆ Conversion (reformers, HCU, FCC, cokers)
- ◆ Processing (hydrotreating)

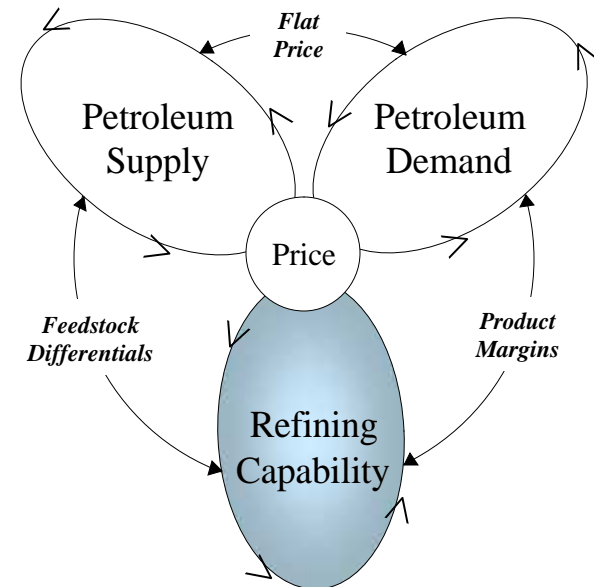
▲ New Facility Construction

- ◆ Constraints
 - Capital
 - Available Labor and Materials
 - Timing (delayed)
- ◆ Announced vs. Expected
 - Literature Review/Consultants
 - Where and How Much
 - “Who” Announces

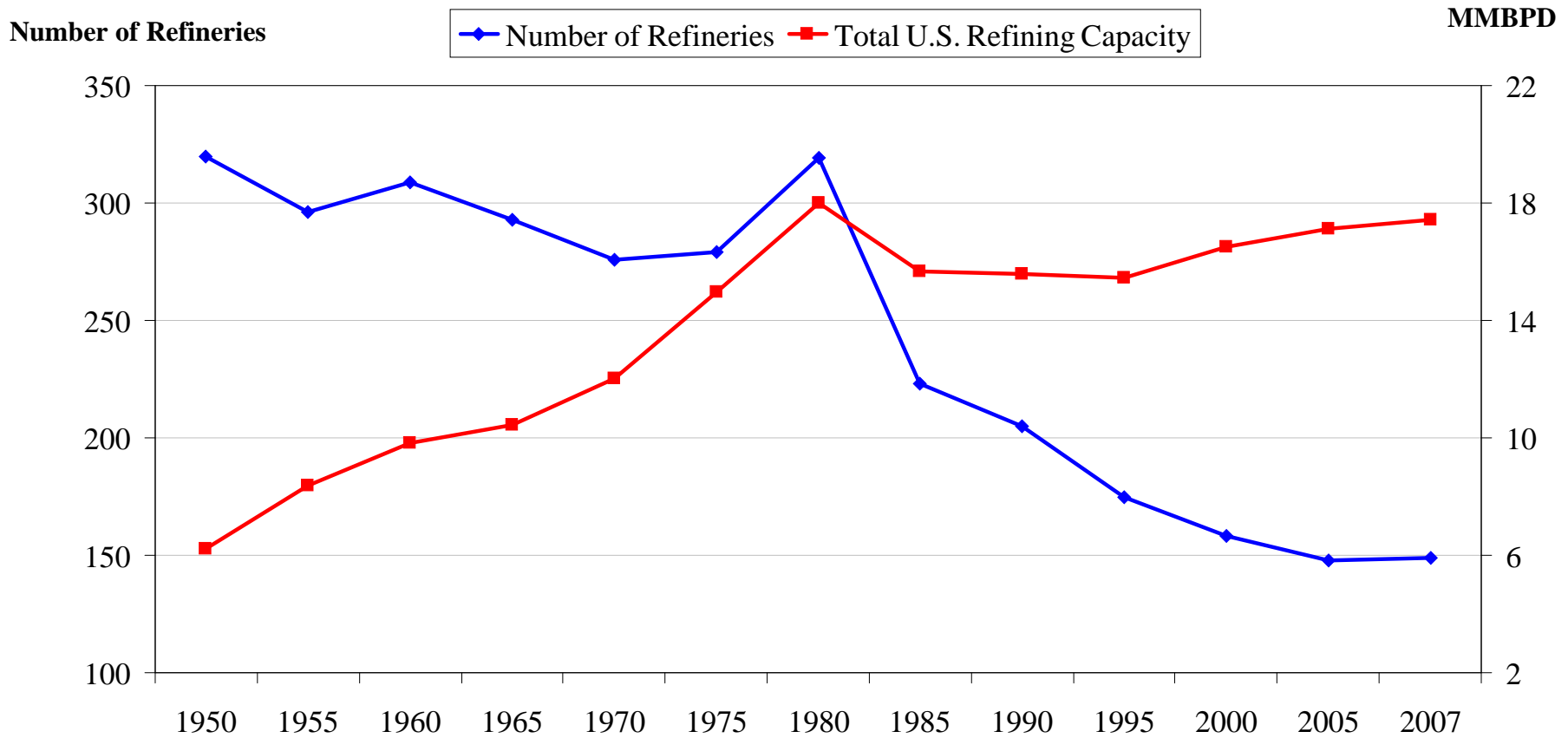
▲ Existing Facility Creep

▲ Future Refining Capability Impacts

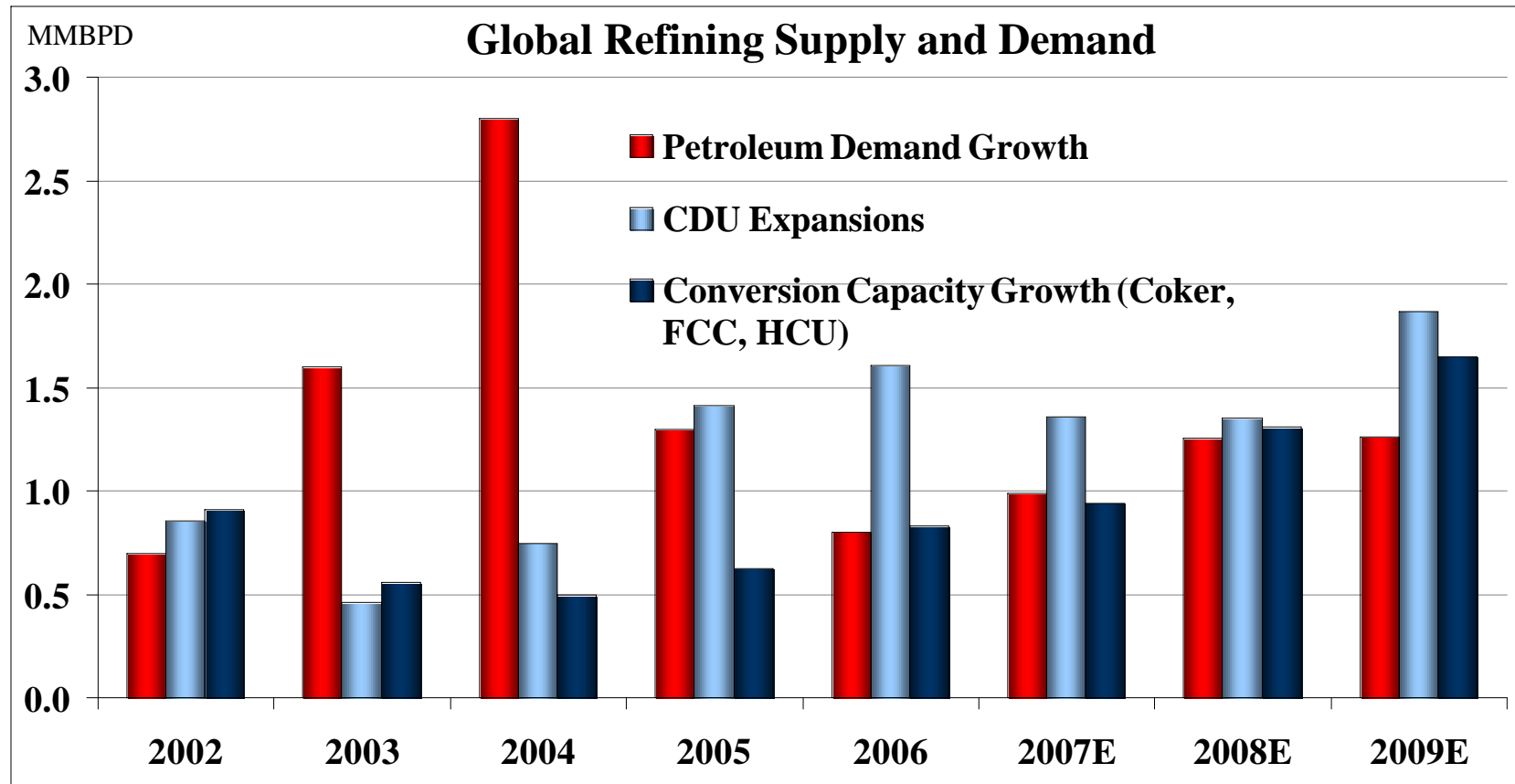
- ◆ Feedstock Requirements and Price Differentials
- ◆ Refinery Production and Product Margins



Number of U.S. Refineries & Total U.S. Refinery Capacity



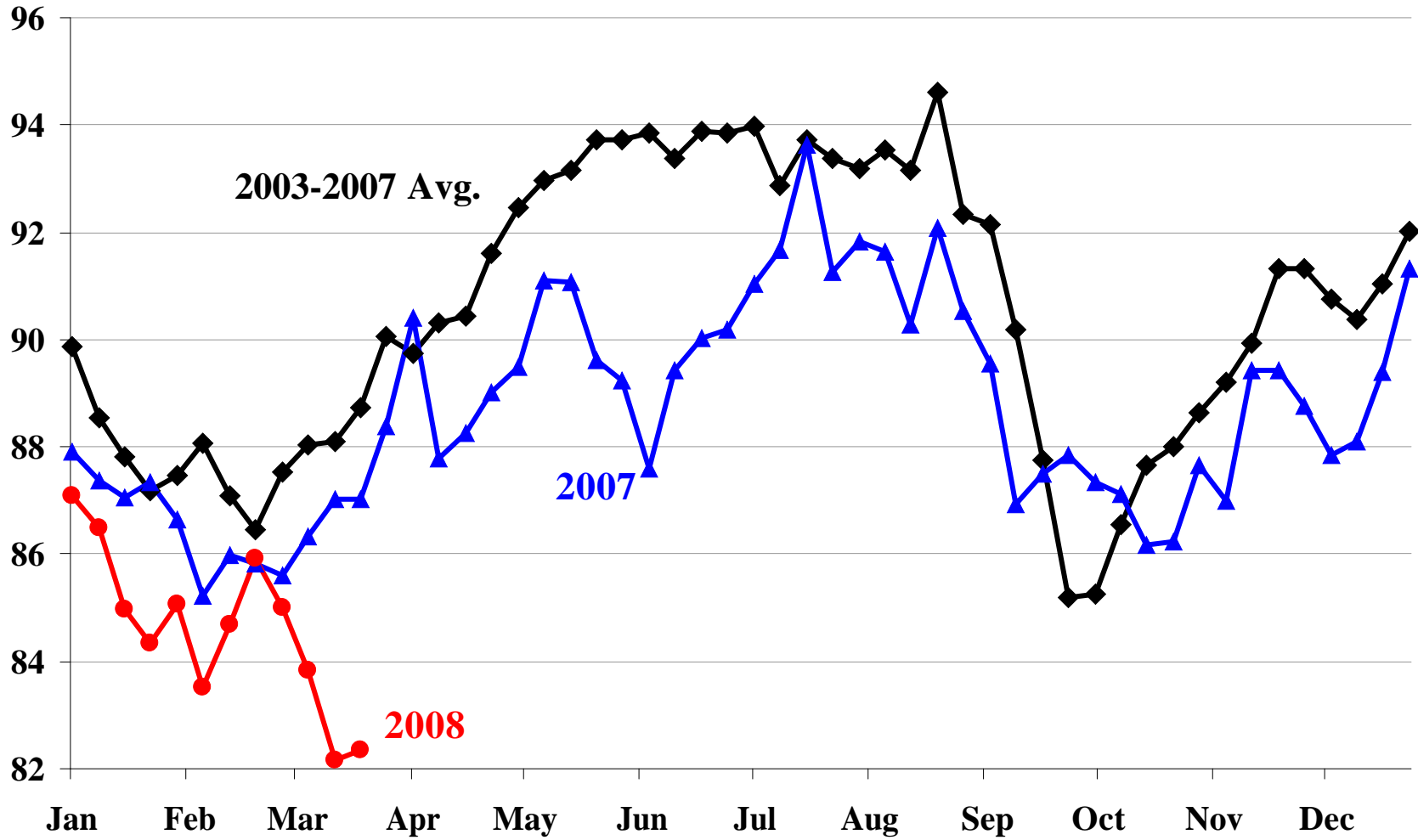
Worldwide Capacity Expected to Remain Tight Through This Decade



Source: Industry reports and Valero forecast; 2008 and 2009 estimates are based on consultant averages and are subject to change; includes capacity creep

- **Conversion capacity remains tight – especially with down time**
- **Expect incremental conversion capacity growth in 2009, but economic recovery should drive higher demand growth**

U.S. CDU Percent Utilization



Source: DOE

