Refiners Perspective on Asphalt Supply

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Questions To Be Answered

Is asphalt a by-product or a specialty product?

Why have major refiners reduced their presence as an asphalt binder supplier?

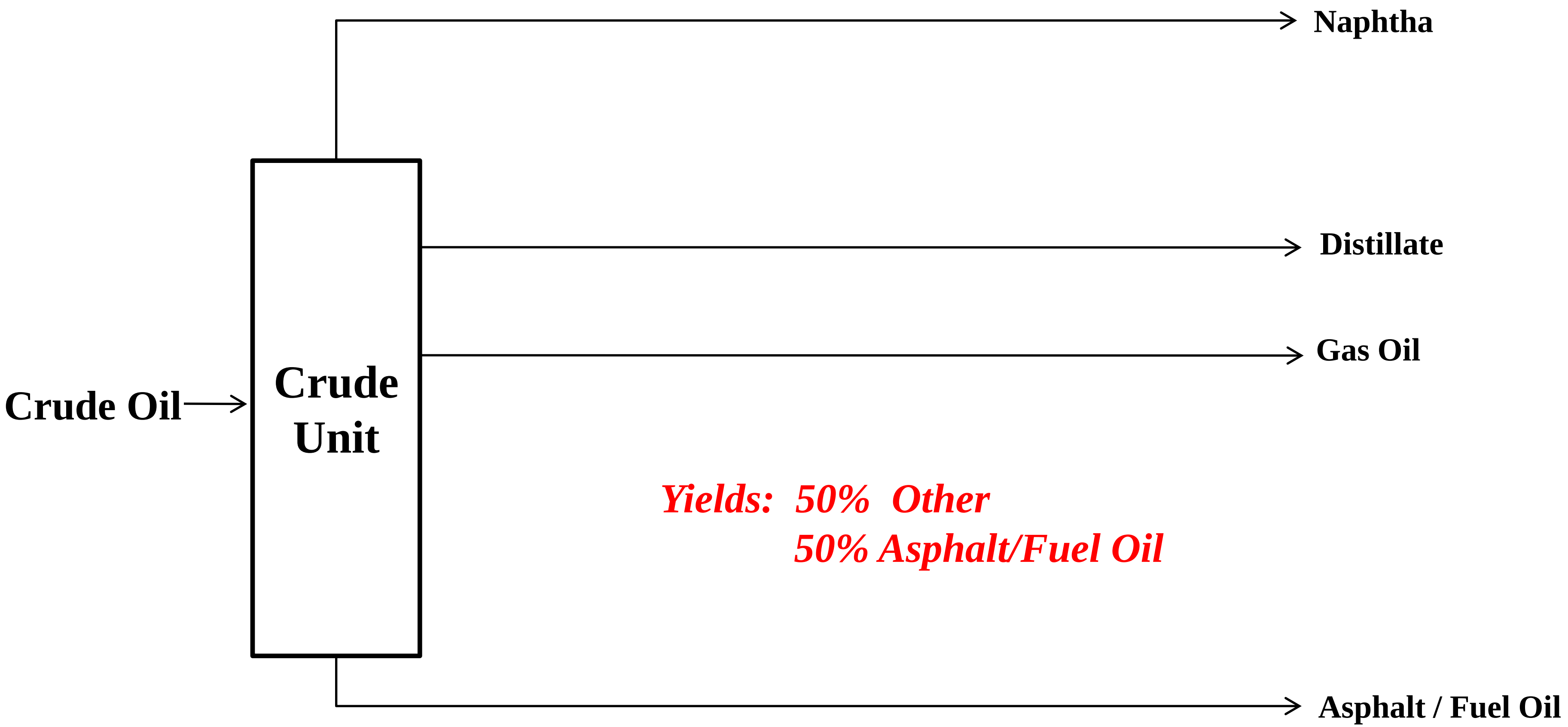
Why can’t refiners predict asphalt binder prices any better than they do?

What drives asphalt prices in today’s market?

Does “winterfill” make sense these days?

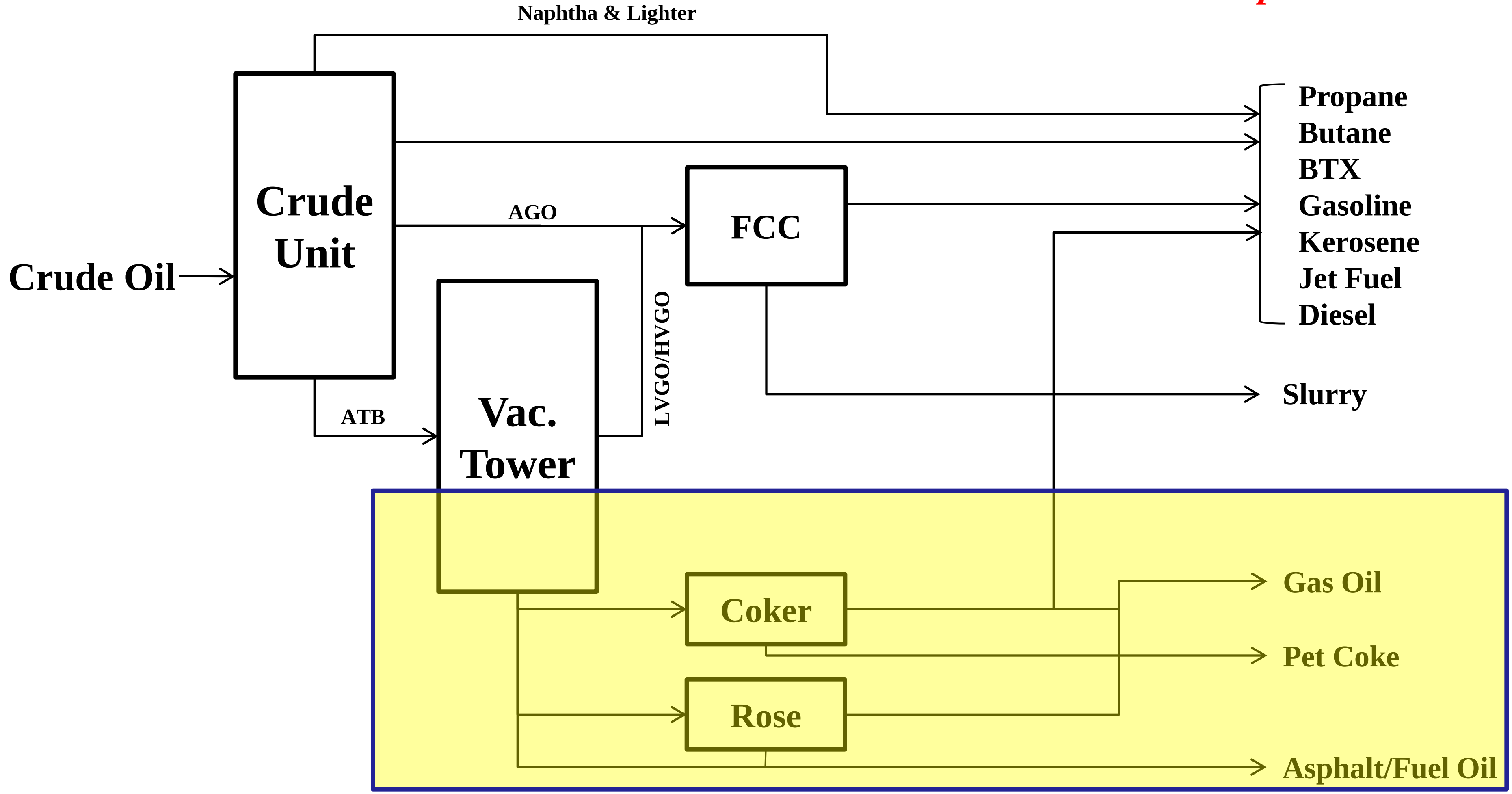
Will there be enough asphalt production to meet future demand?

Simple Refinery



Complex Refinery

Yields: 70% - 95% Other
5% - 30% Asphalt/Fuel Oil



THEN
vs.
NOW

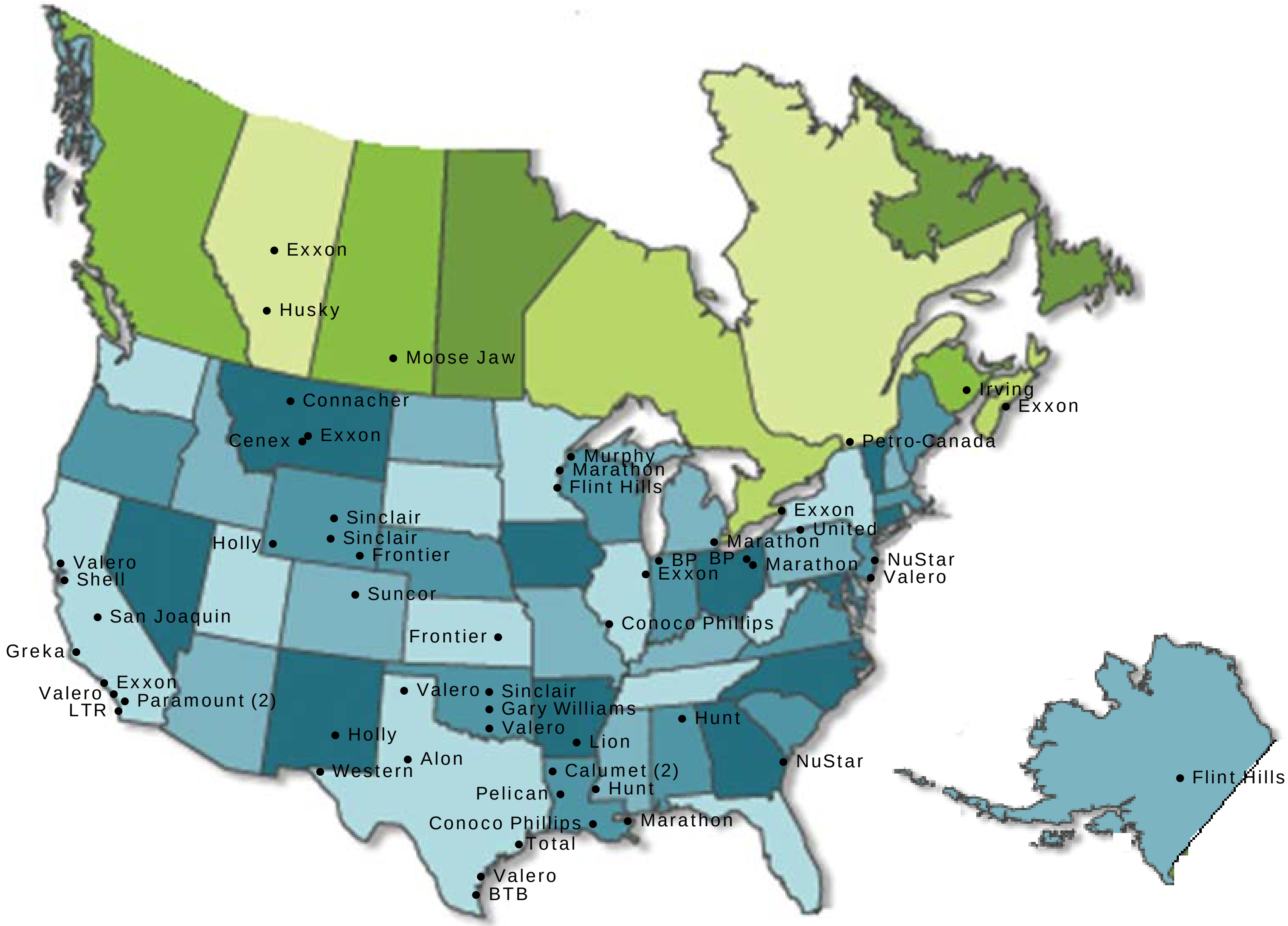
“THEN”

- Keep the refinery tanks empty / do not cut back the refinery (AT ALL COSTS)
- Low crude costs and low product values
- Crude / product pricing relatively stable – easier to predict
- Asphalt binder specification were simpler

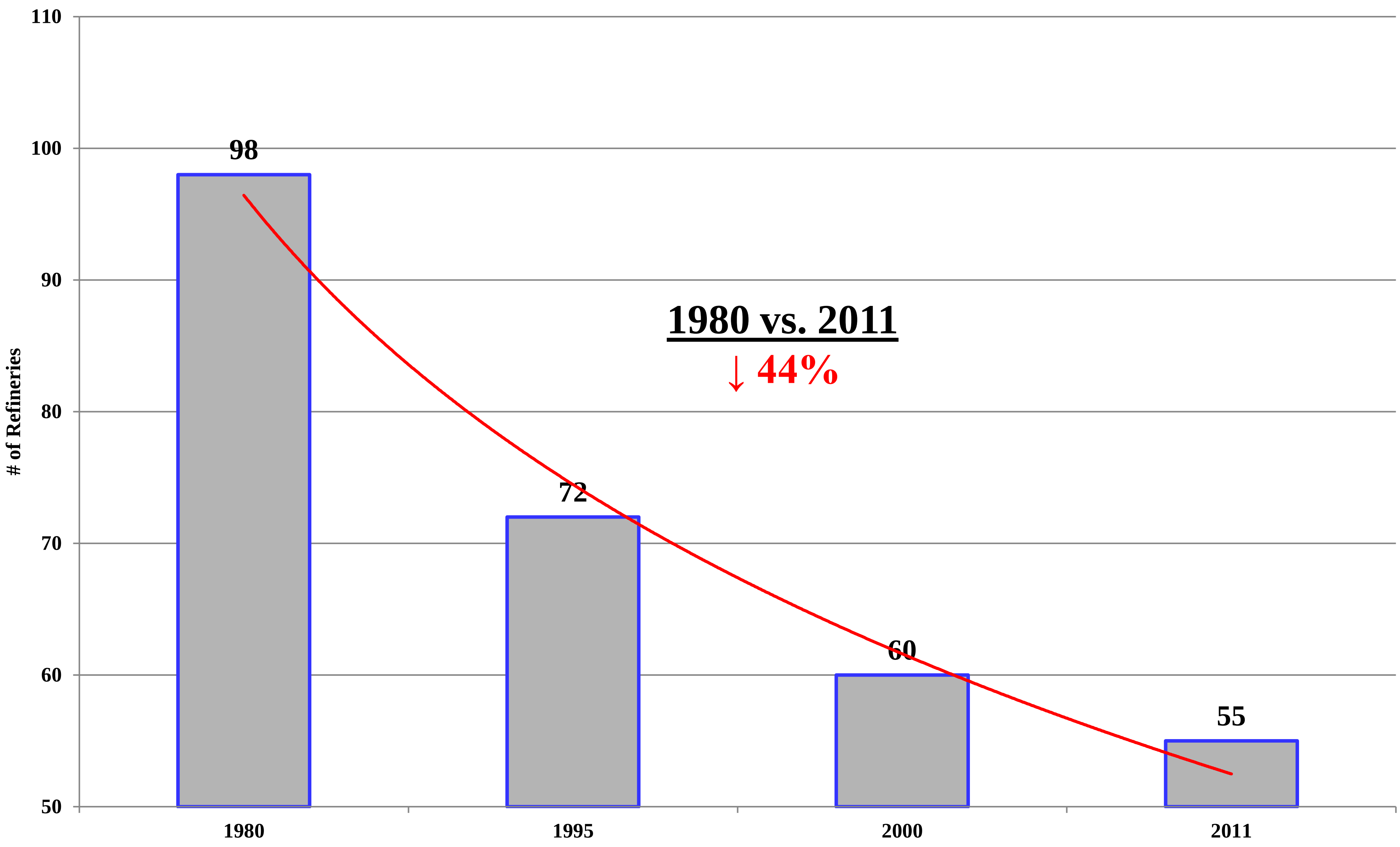
“NOW”

- Do not cut back the refinery but maximize profitability
- High crude costs and high product values
- Asphalt prices must keep pace with crude prices
- Crude / product pricing volatile – impossible to predict
- Asphalt binder specifications governed by SHRP

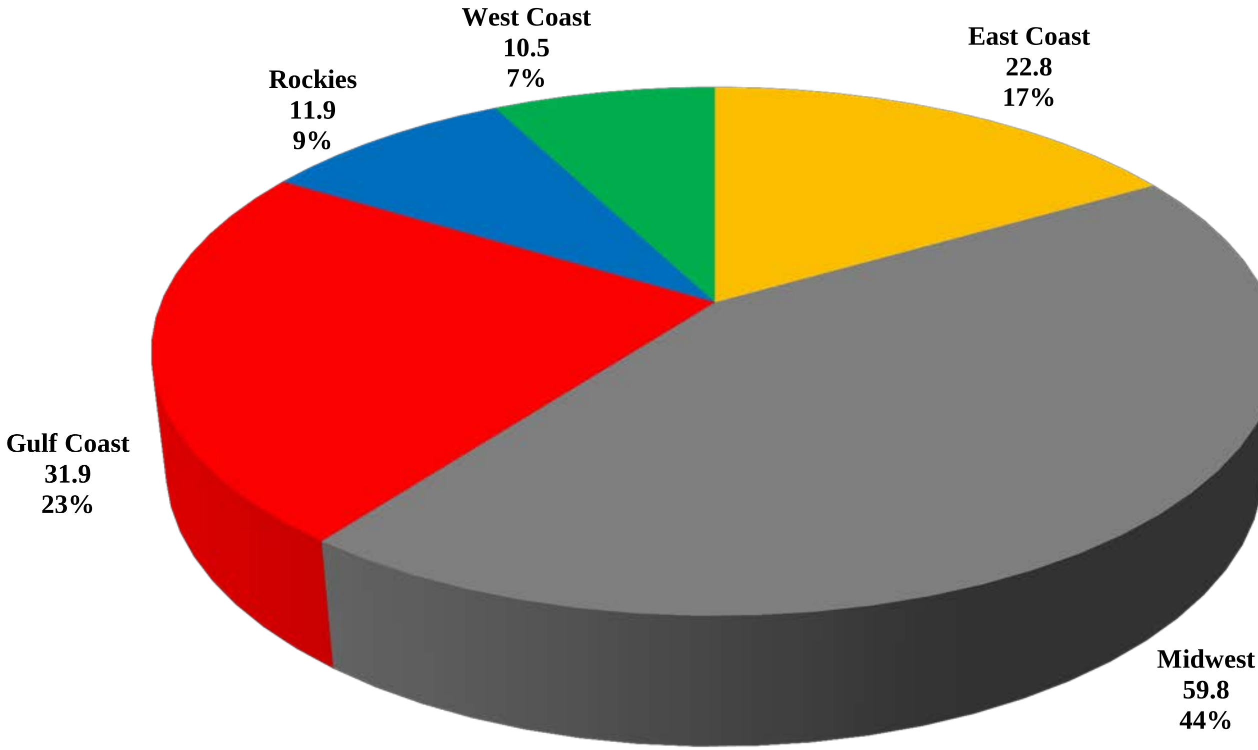
Asphalt Producing Refineries



Historical Asphalt Producing Refineries



Asphalt Production by US Region



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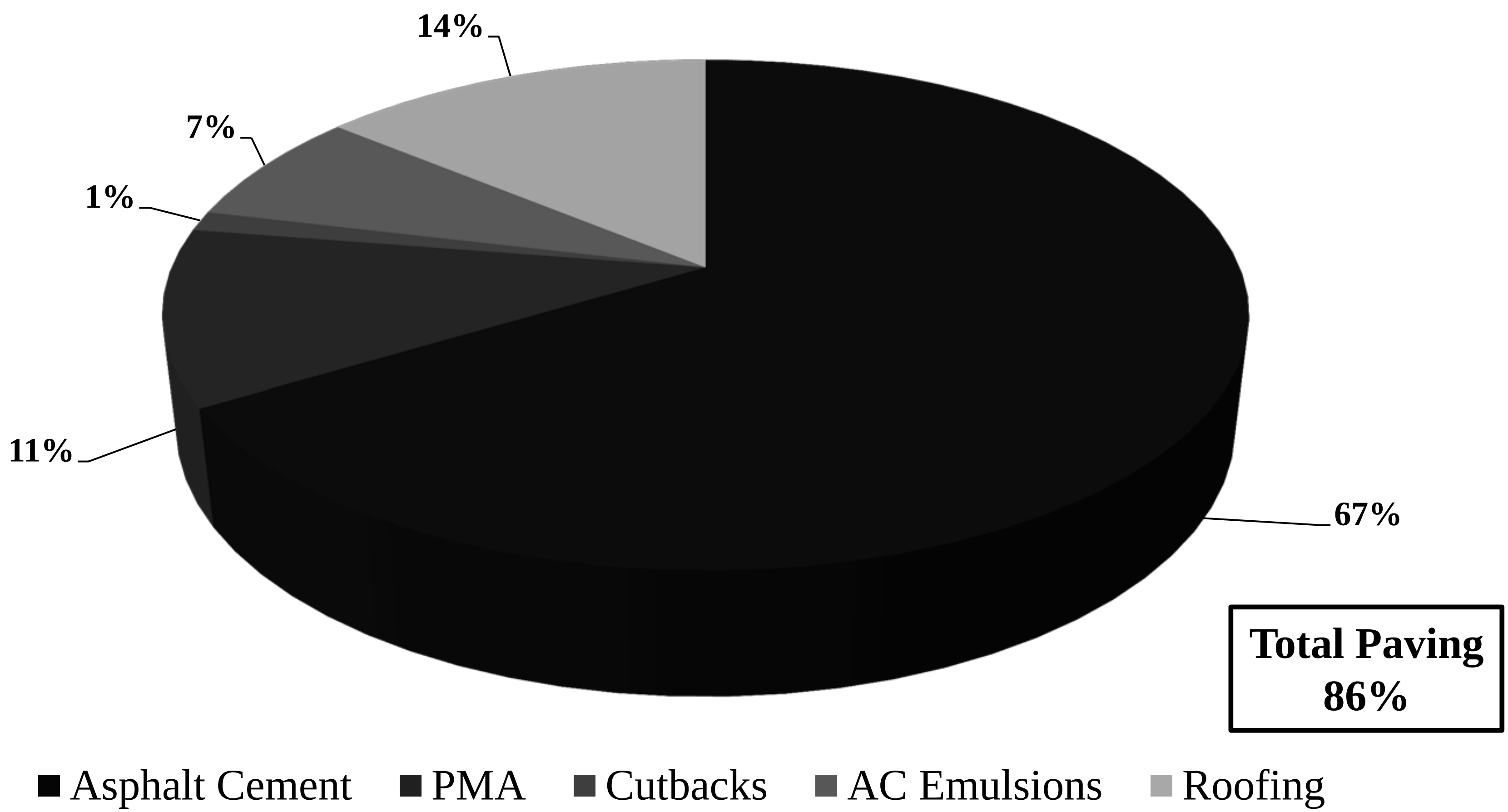
Source: Argus

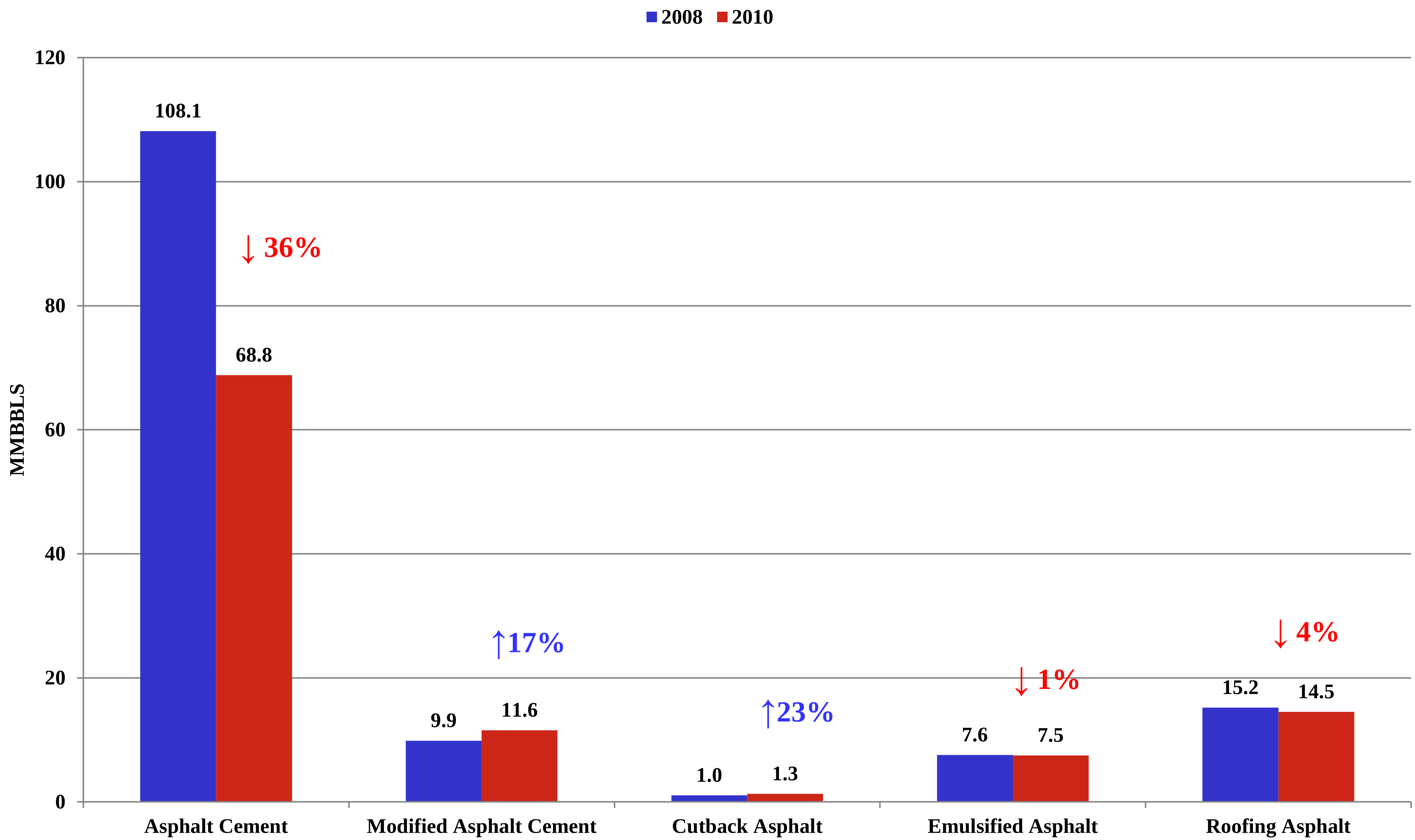
US Asphalt Usage



Source: 2010 Asphalt Usage Survey, published by the Asphalt Institute

US Asphalt Usage

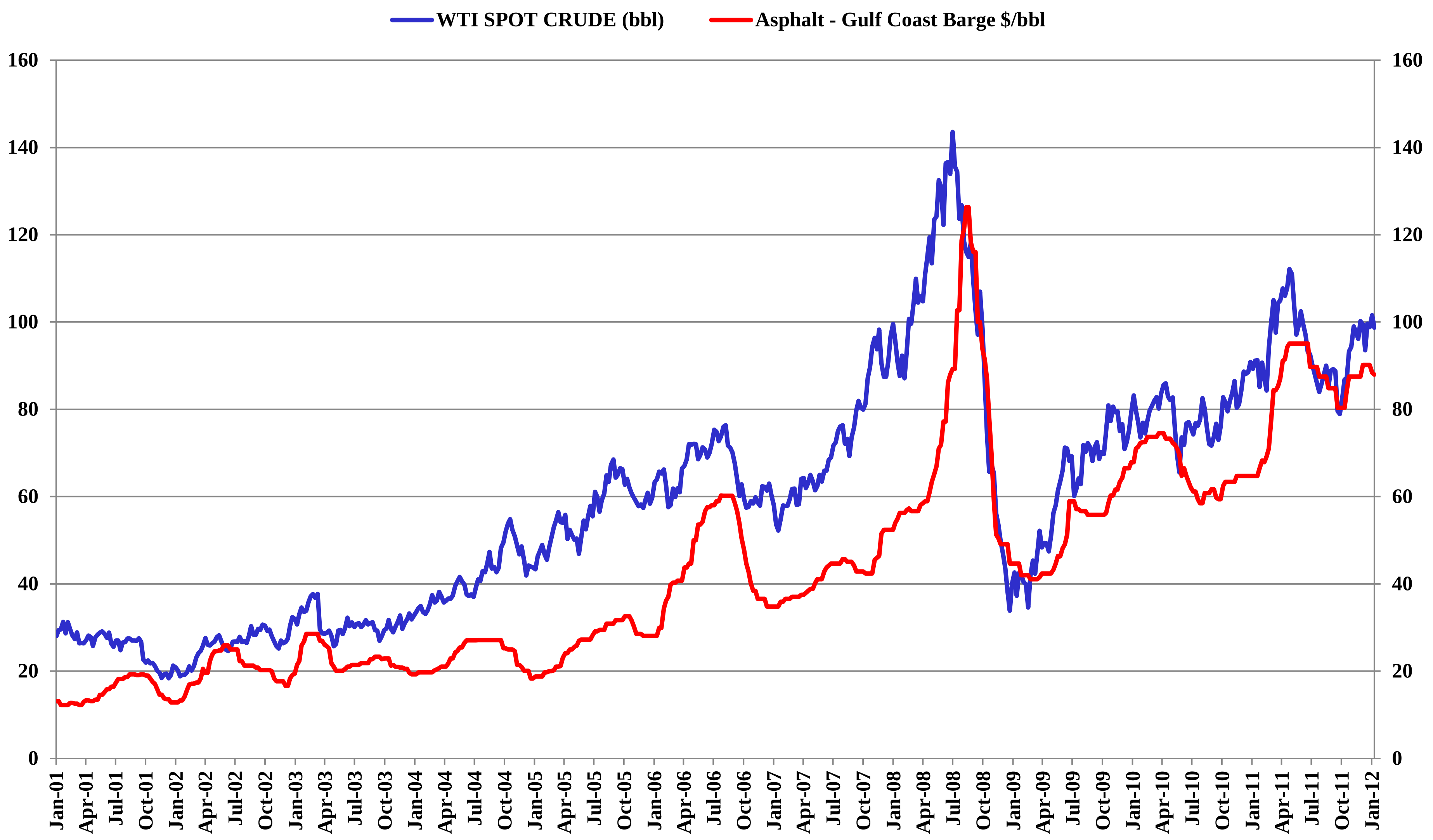
2008 vs. 2010



Source: Asphalt Usage Survey, published by the Asphalt Institute

Crude Pricing vs. Asphalt Pricing

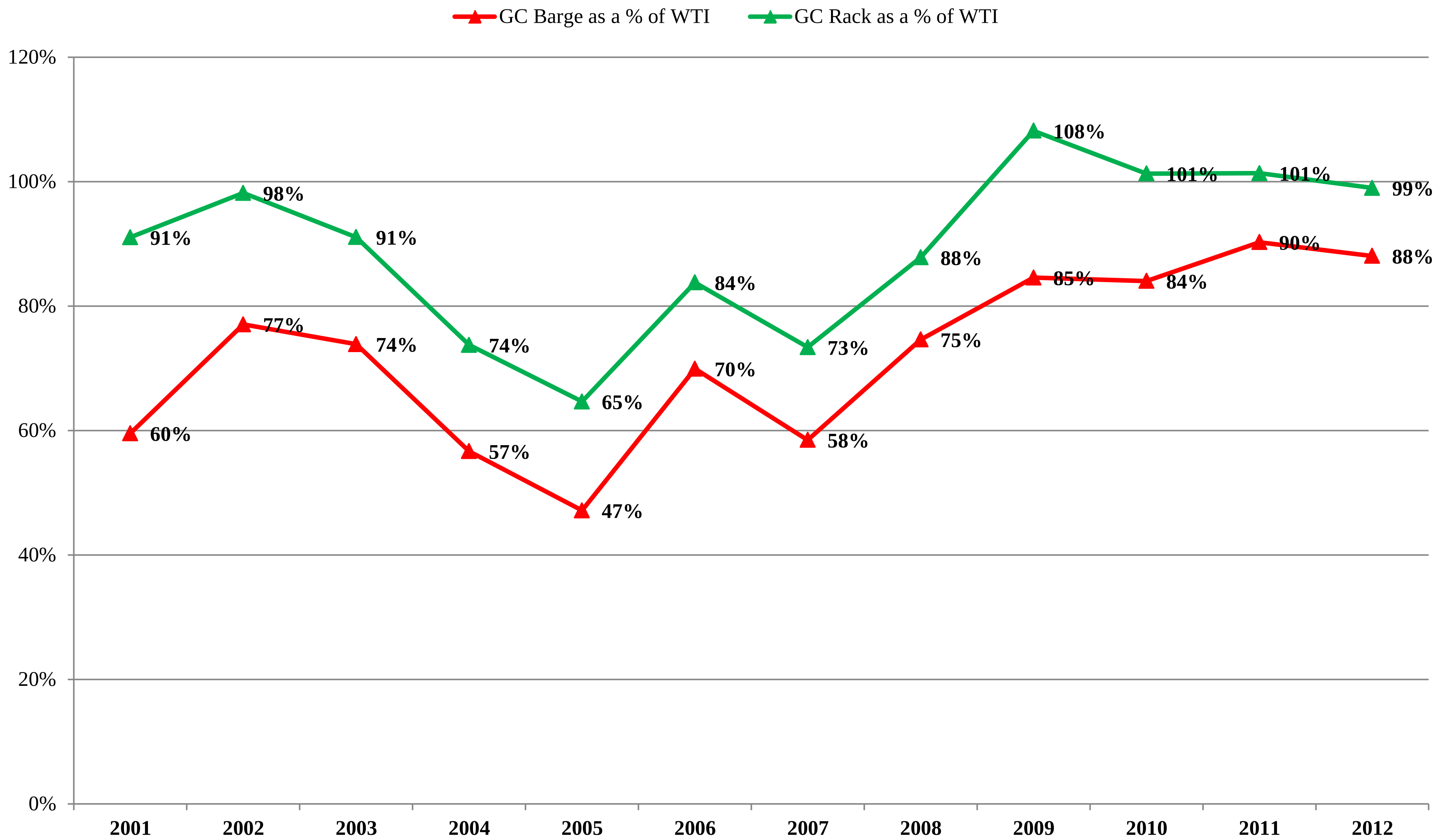
2001 – Jan 2012



Source: Argus

Asphalt Pricing as a % of WTI

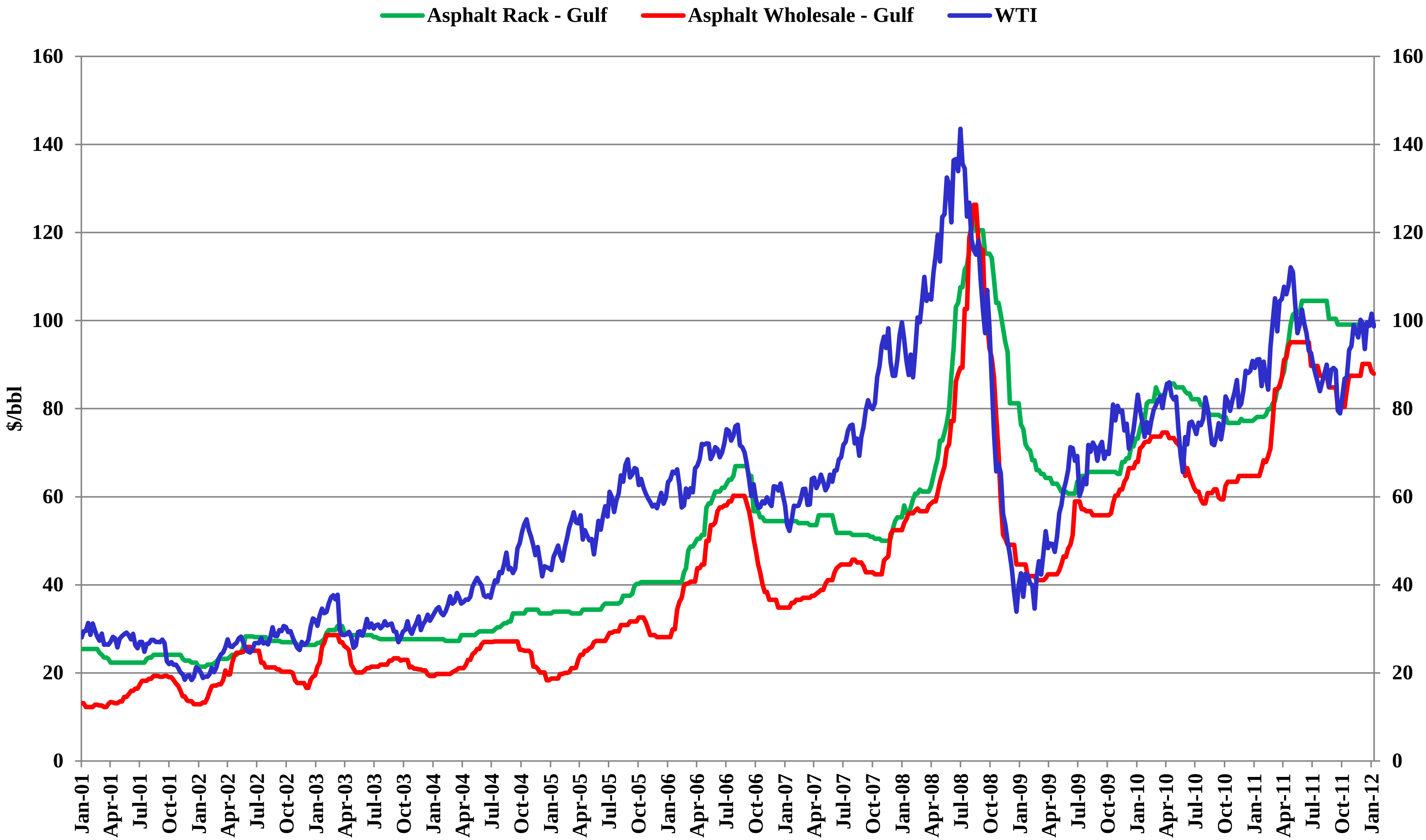
2001 – Jan 2012



Source: Argus

Gulf Coast Market

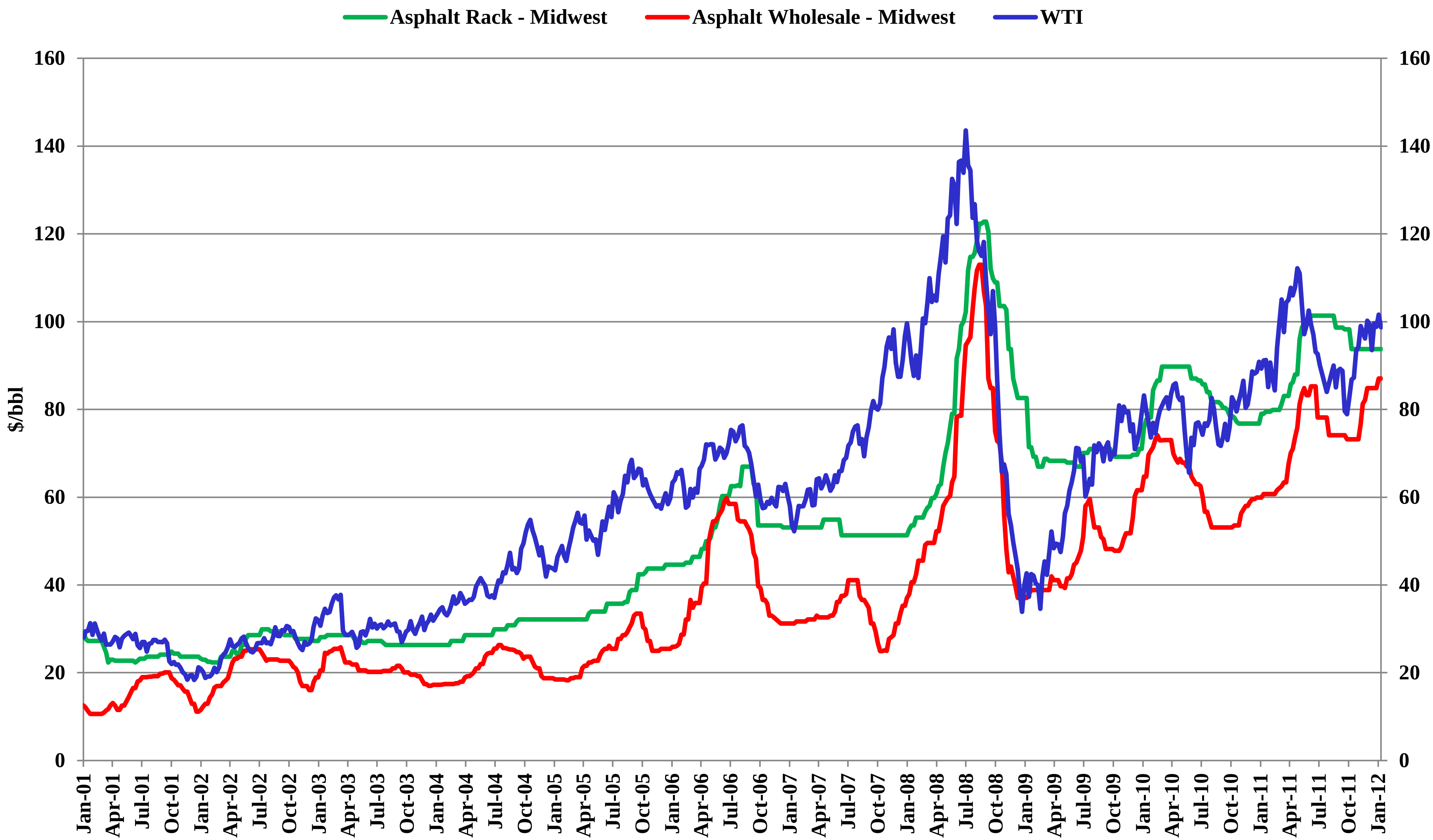
2001 – Jan 2012



Source: Argus

Mid-Continent Market

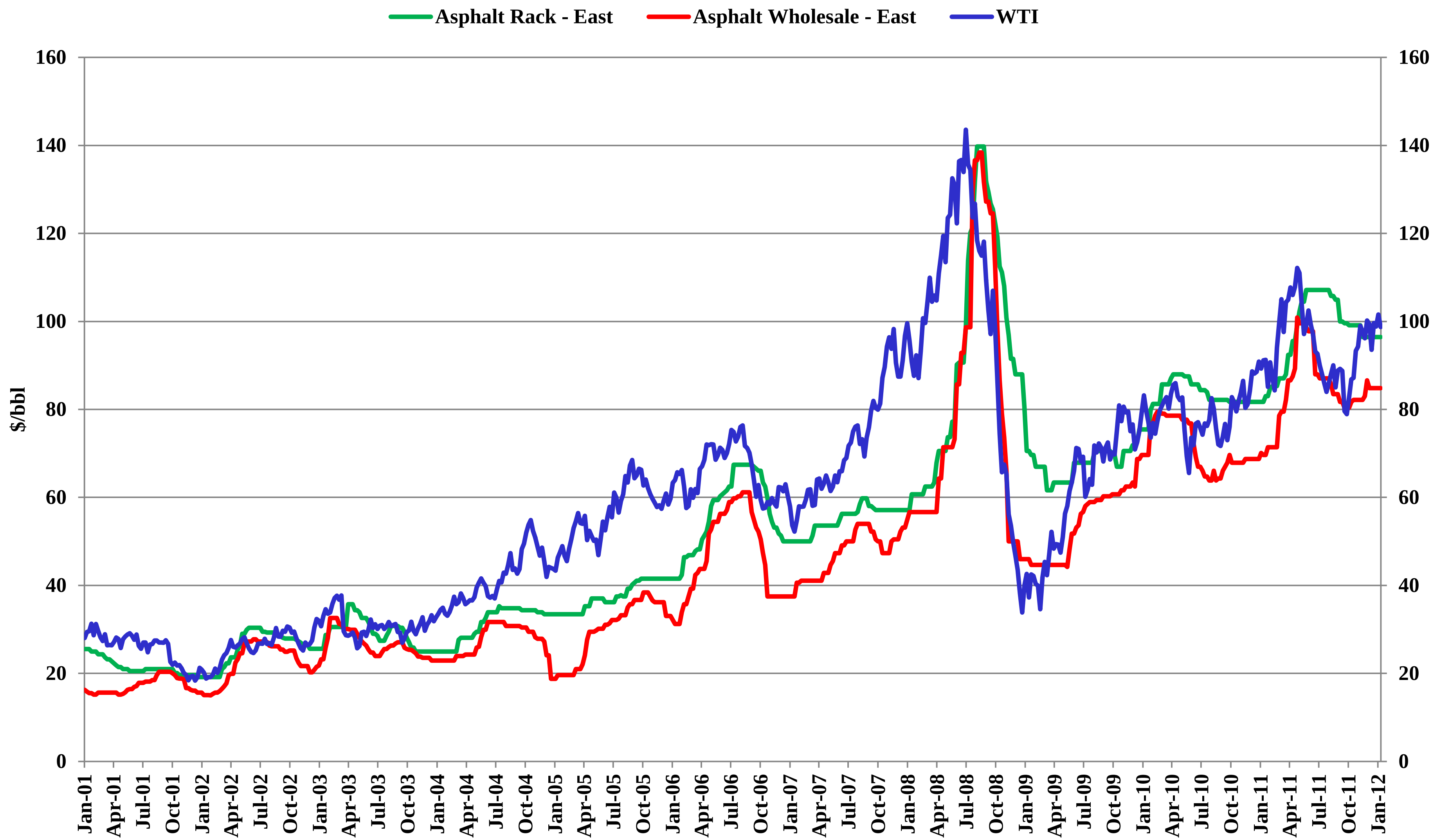
2001 – Jan 2012



Source: Argus

East Coast Market

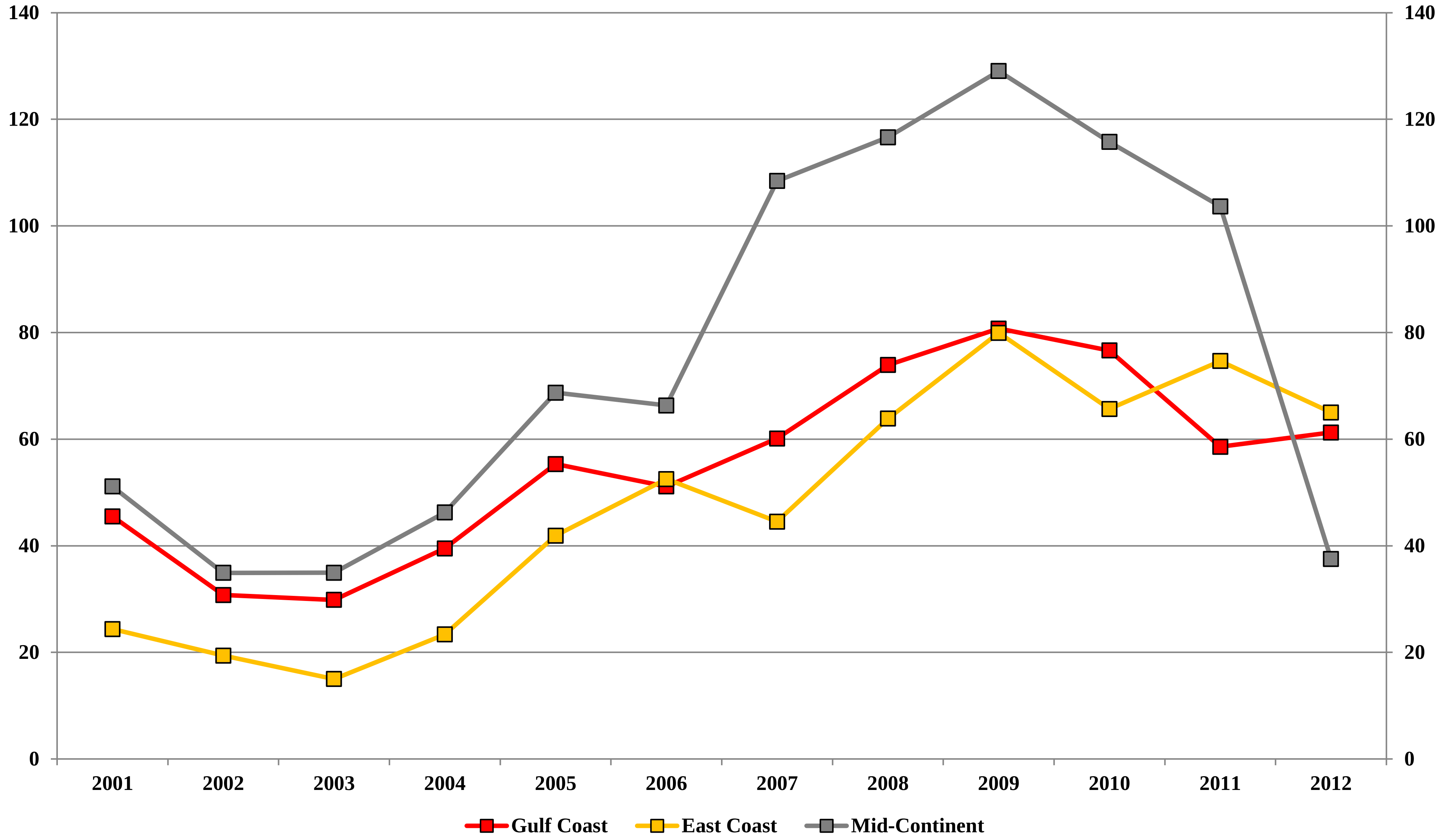
2001 – Jan 2012



Source: Argus

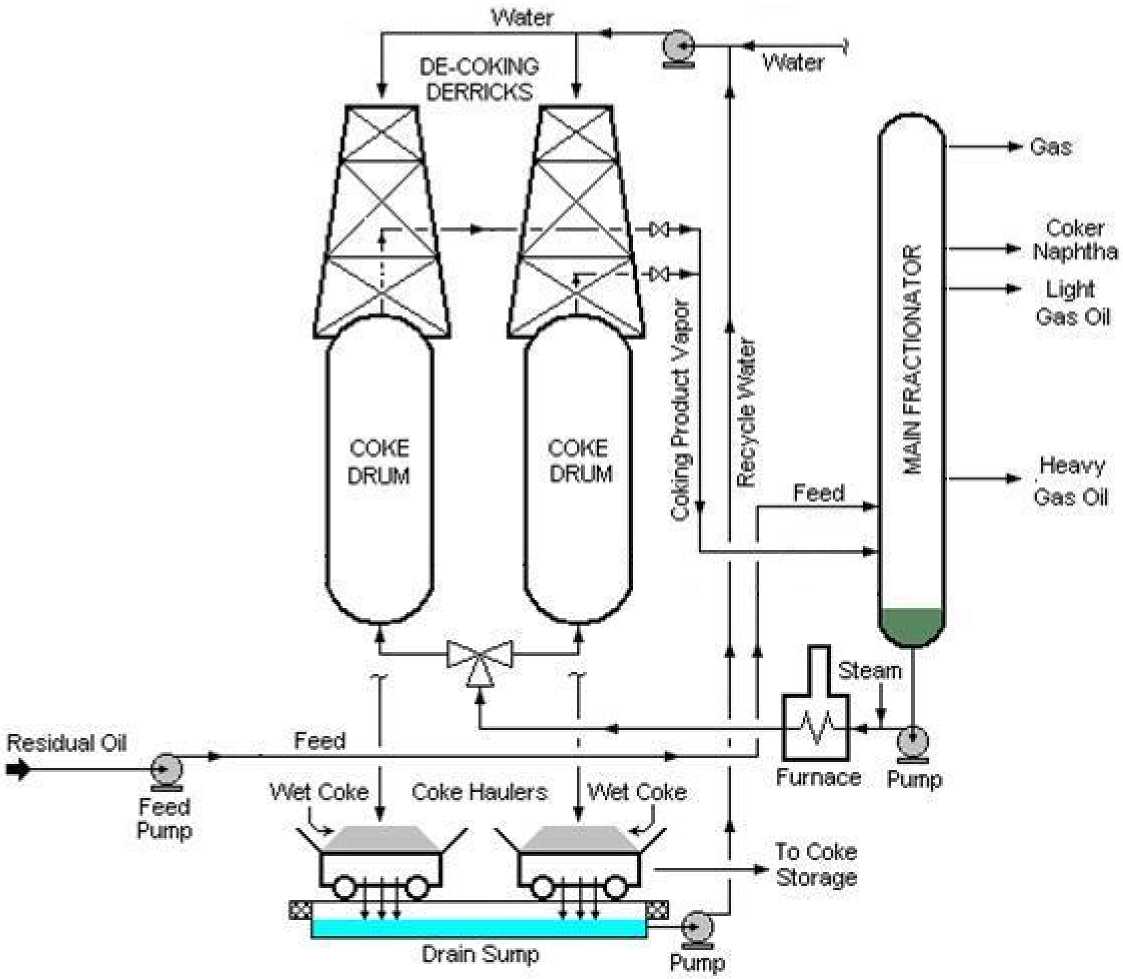
Asphalt Rack Uplift

2001 – Jan 2012 ($/ton)

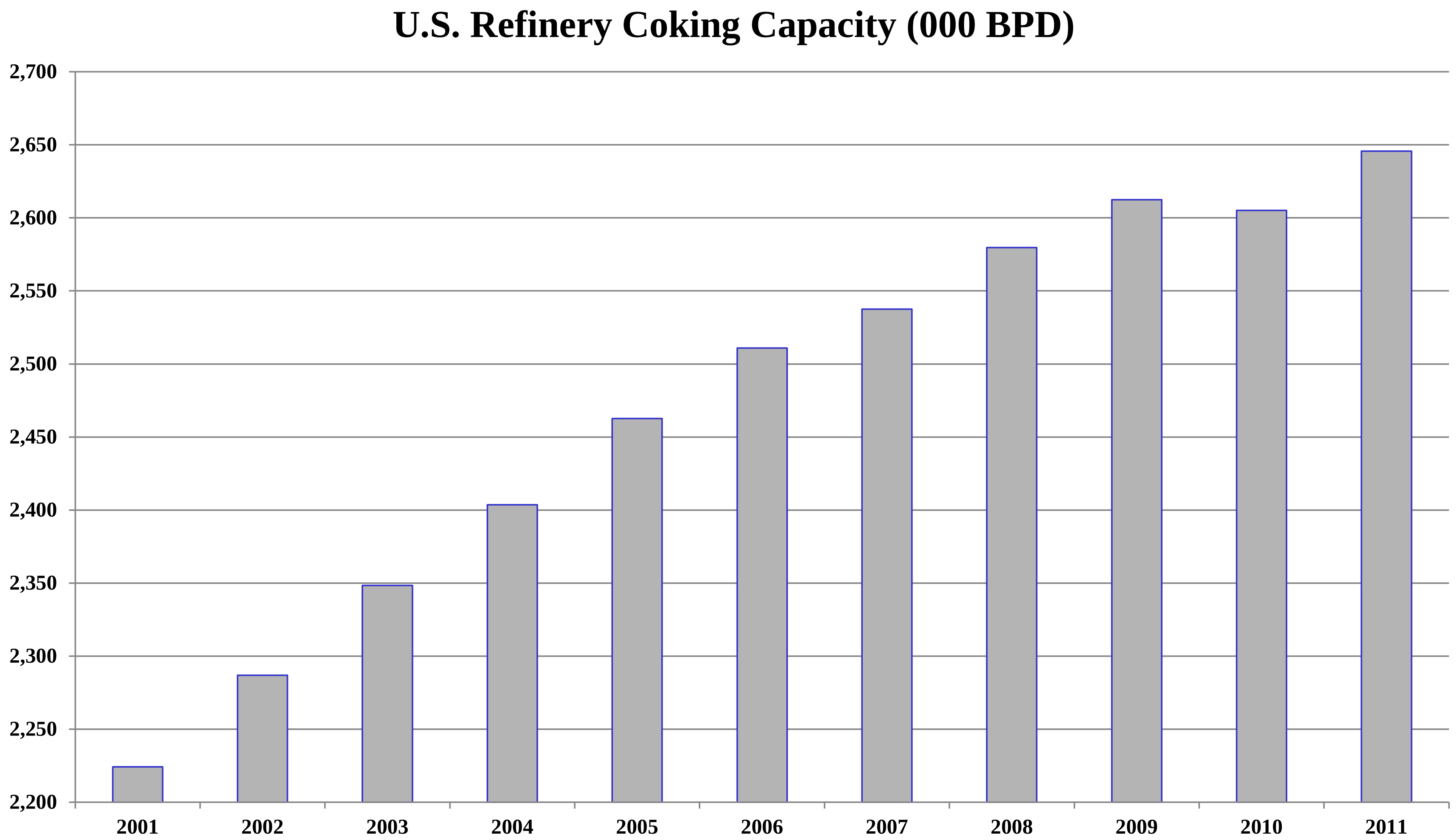


Source: Argus

What is a Coker?

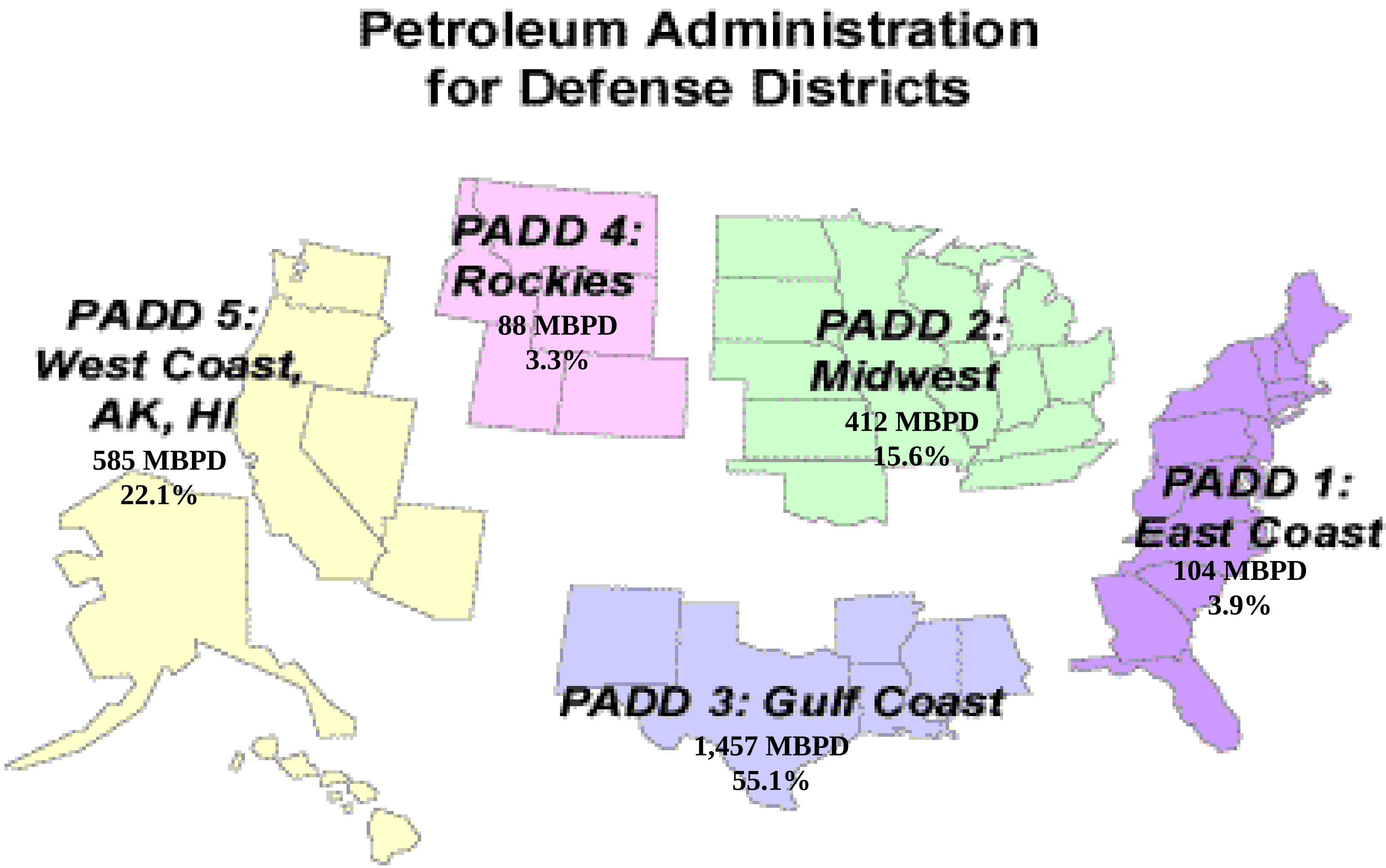


US Coking Capacity



Source: EIA

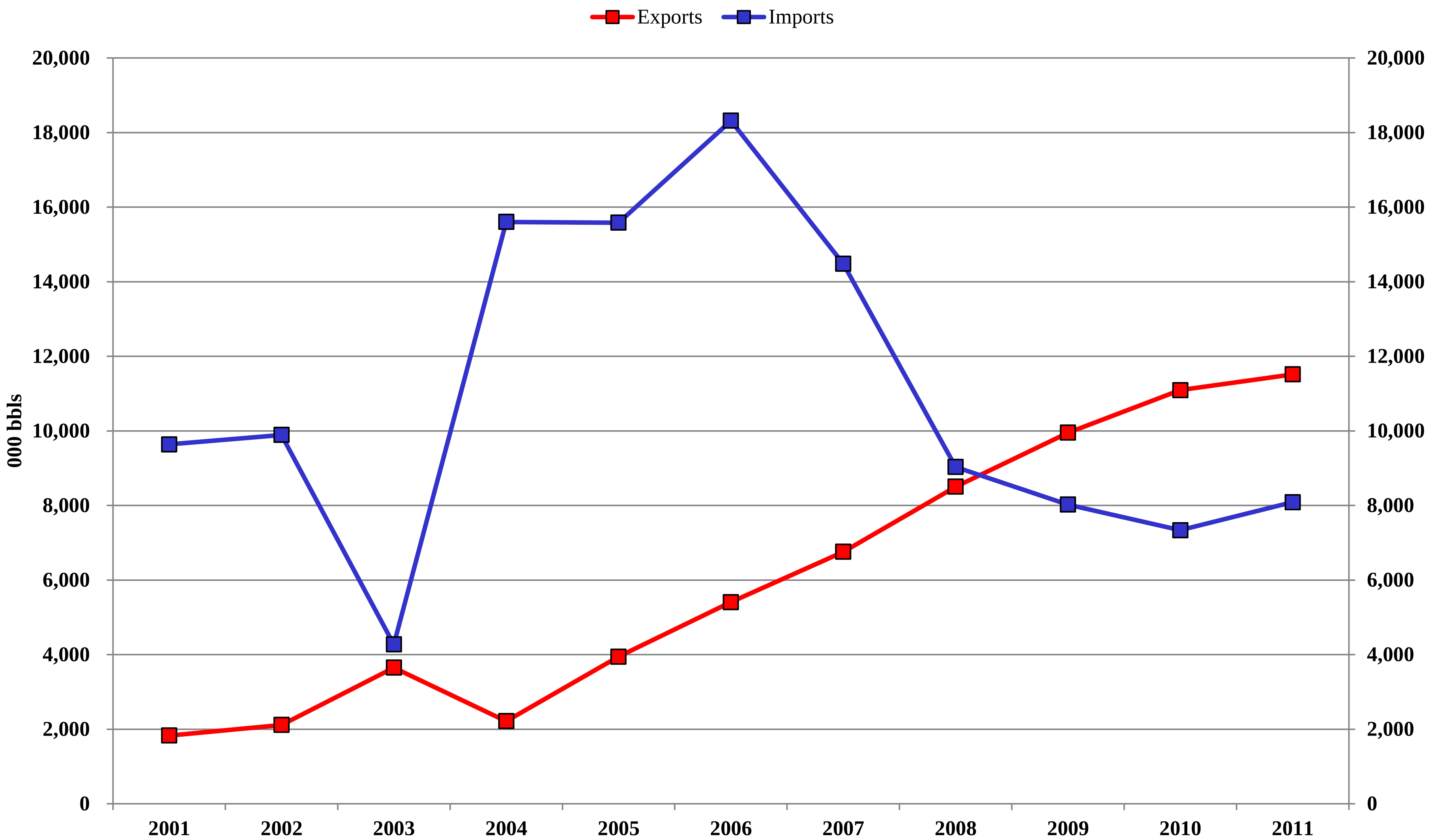
Where are the Cokers?



Source: EIA

Asphalt Import/Exports

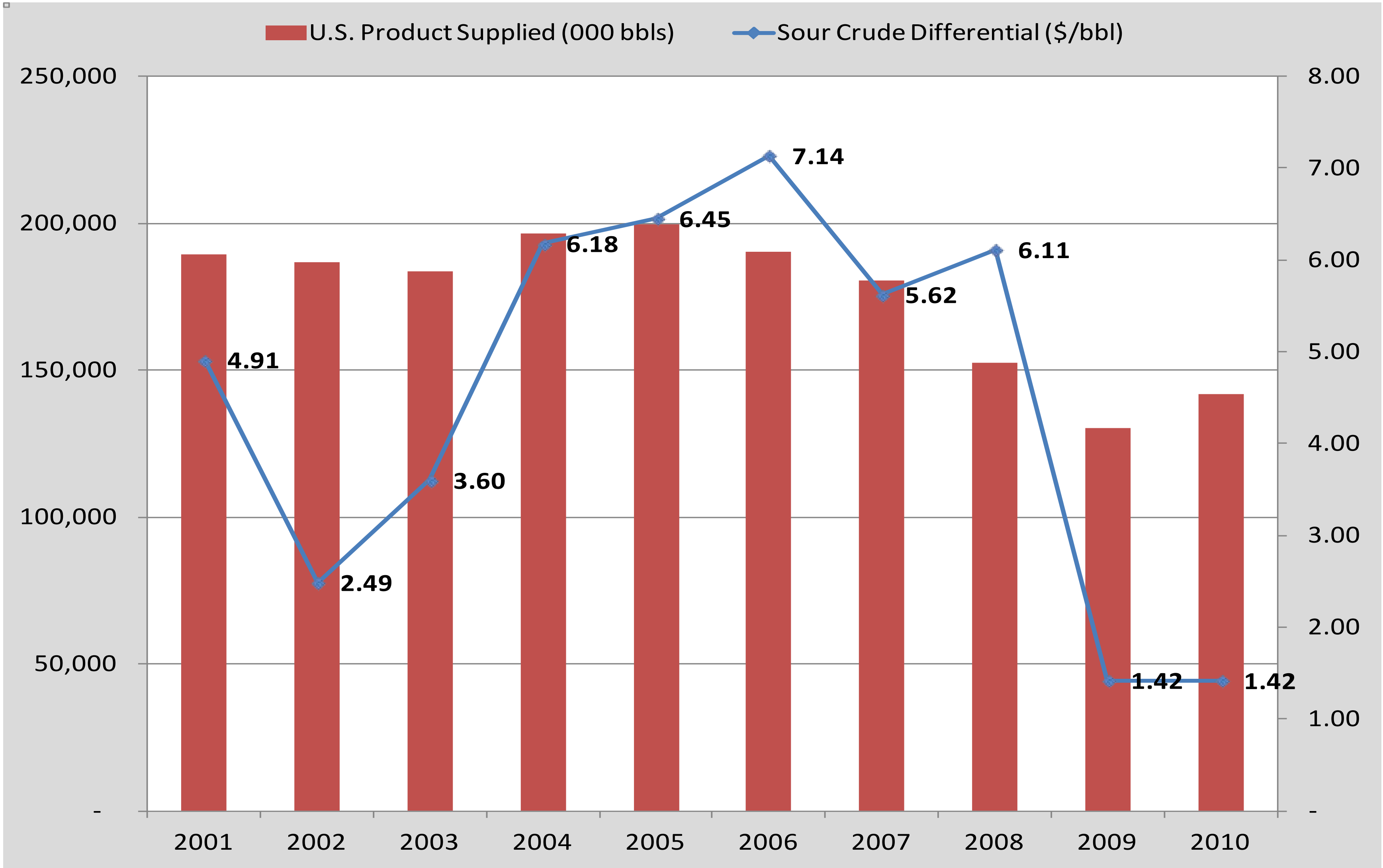
2001 – 2011



Source: EIA

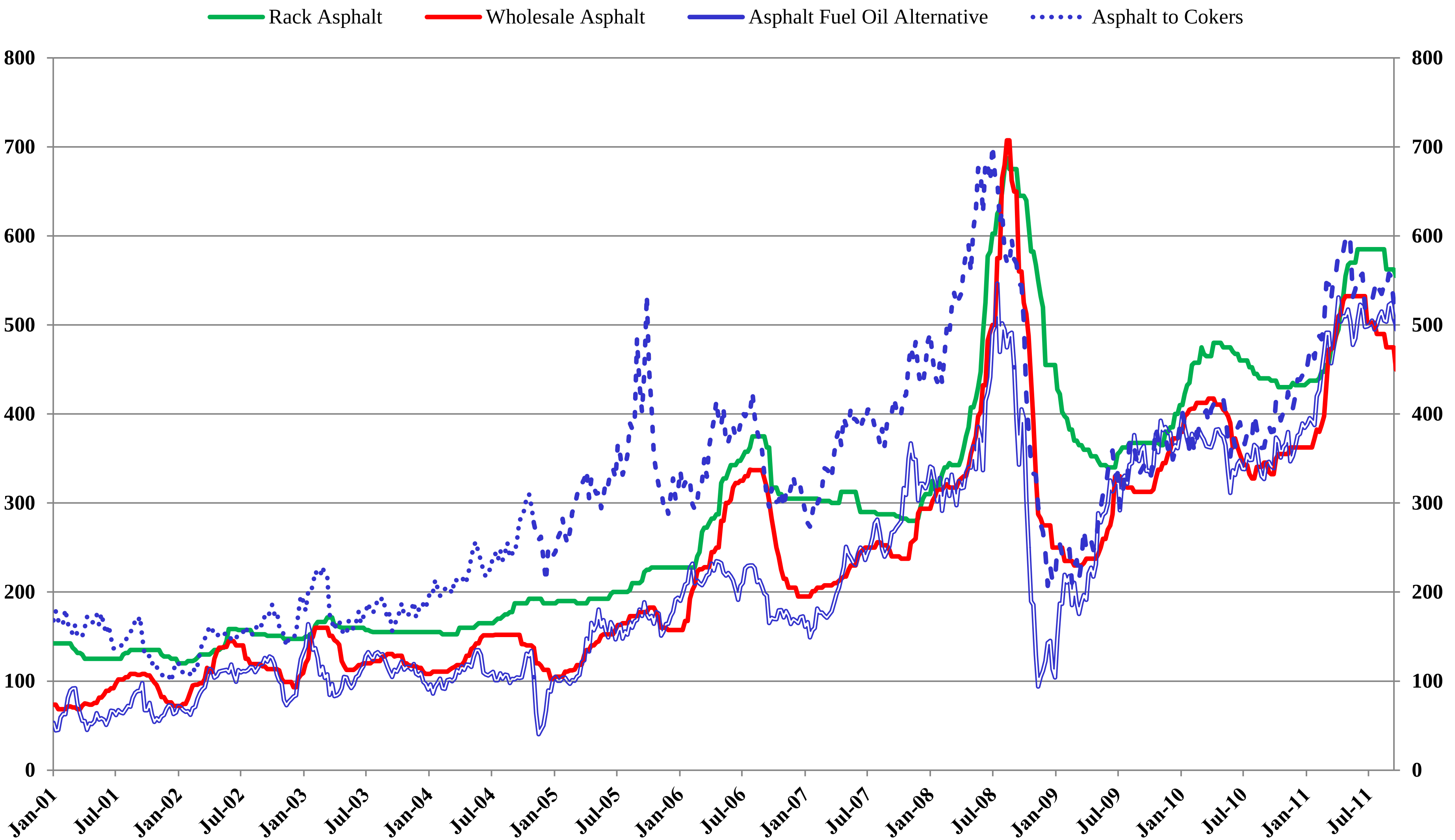
Asphalt Production/Sour Crude Differentials

2001 – 2010



Source: EIA & Argus

The Refiner's Choice



Source: Argus

Business Comparison: Light Products vs. Asphalt

- **Fungible products vs. specialty products**
- **Movement restrictions (transportation considerations)**
- **Customer base comparison**
  - **Credit considerations**
  - **Technical service needs**
  - **Product pricing needs**
- **Economic drivers**
- **Financial Predictability (seasonal cycles/economic cycles)**

Summary

- Major shift in philosophy from by-product to specialty product.

- Asphalt paving and flux pricing will track with crude pricing

- Rack and wholesale differentials will continue to remain volatile
  - Is winterfill a good decision?
  - No market mechanisms are available to “effectively” hedge asphalt

- Increased coking capacity = Reduced asphalt production

Summary Cont.

- **US exports are expected to continue to outpace imports adding pressure to asphalt availability and prices**

- **Asphalt supply will primarily depend on availability of vacuum tower bottoms (VTB)**
  - **Lower domestic refinery utilization**
  - **Declining growth in incremental heavy crude oil production**
  - **Start-up of new delayed coker projects**
  - **Asphalt/Coker/Fuel Oil Economics**

- **A strong US/World economy will add pressure to asphalt supply and prices**

QUESTIONS