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

A WORLD LOOK
Crude Oil Supply (2006)

World Crude Oil Production
Millions of Barrels Per Day

- FSU/E. Europe: 12.6
- W. Europe: 6.3
- Latin America: 10.6
- US/Canada: 11.3
- Africa: 8.4
- Asia/Pacific: 9.8
- Middle East: 26.0

Total: 85MMB/D

World Proven Crude Oil Reserves
Billions of Barrels

- FSU/E. Europe: 79
- W. Europe: 116
- Latin America: 743
- US/Canada: 201
- Africa: 102
- Asia/Pacific: 36
- Middle East: 15

Total: 1,292 BB
Crude Oil Demand

- Demand has risen by 7 MMBD (9%) since 2002.
- Demand at 85 MMBD or 98% of world daily delivery capacity.
- Vulnerable to supply disruptions caused by storms, accidents, breakdowns, political unrest.
- 65% of proven reserves within national oil companies and 16% held by Russia.
- Traditional companies have full access to 7% of reserves and 12% through partners (if allowed).
CRUDE OIL PRICING
Current Crude Pricing

U.S. Crude Oil Stocks

Million Barrels

Sep-06  Dec-06  Mar-07  Jun-07  Sep-07

Average Range  Monthly  Weekly
REFINING CAPACITY
Topping Refinery

CRUDE OIL

DU

650-
GASES

NAPHTHA AND
GASOIL FEEDSTOCKS

6OIL or ASPHALT
(if heavy crude)

650+

“Tea Pot” Not A Refinery Really Just A Crude Distiller
Simple Refinery

CRUDE OIL → DU

650- → GASES → TO MOGAS

650- → NHT → CRU

650- → KHT → JET/KERO

650- → DHT → TO NO.2

650+ → 6OIL or ASPHALT (if heavy crude)

“Hydroskimming” Refinery, many exist all over the world
CCU - “Complex” Refinery

- **CRUDE OIL**
  - **GASES**
    - **650-**
      - **NHT**
      - **CRU**
        - **TO MOGAS**
    - **KHT**
      - **JET/KERO**
    - **DHT**
      - **TO 2OIL**
  - **DU**
  - **GASES 650-1050**
    - **ALKY**
      - **TO MOGAS**
  - **1050+**
    - **CCU**
      - **GASOLINE**
      - **GASOIL**
    - **TO 2OIL**
  - **60IL**
  - **ASPHALT**
CCU/HCU/Coker - “Very Complex” Refinery

- **CRUDE OIL**
  - **DU**
  - **H2 PLANT**
  - **VAC**
  - **CCU**
  - **COKER**

- **GASES**
  - **NHT**
  - **CRU**
  - **KHT**
  - **DHT**
  - **ISOM**
  - **ALKY**
  - **MTBE**

- **Products**
  - TO MOGAS
  - TO MOGAS
  - TO JET/KERO
  - TO 2OIL
  - TO MOGAS
  - TO MOGAS
  - TO MOGAS
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

- # Refineries w/Cokers
- Coke Production, MT/D


- 1995: 50 (50), 81 (56, 52, 58, 60)
- 2000: 56 (54, 52, 56, 58, 60)
- 2006: 58 (54, 52, 56, 58, 60), 138 (58, 60, 62, 64, 66)
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
PRODUCTS
SUPPLY/DEMAND
Supply Source for U. S. Demand

- Domestic Crude Production
- Imported Crude
- Imported Products

Years: 1995 to 2006

Graph showing MMB/D (Million Barrels Per Day) for each year.
U. S. Product Demand, MB/D
Historical Asphalt Supply/Demand
Millions Tons - Liquid

Source: Oil & Gas Journal
PRODUCTS PRICING
Gasoline Price Components

Retail Price: $3.00

- Crude Oil: $1.80
- Federal and State Taxes: $0.65
- Refining, Distribution, and Marketing: $0.45
- Profit: $0.10

Source: U.S. Department of Energy and ConocoPhillips estimates
Prices by Quarter

- WTI
- Gasoline
- Asphalt
Asphalt vs Coker Feed Value

The graph compares the value of WTI, P&P MC Avg, and Gulf Coast Coker Value from January 2002 to May 2007. The graph shows the trend of each value over time, with WTI generally staying above the other two lines.
## Current Coking Economics

<table>
<thead>
<tr>
<th>Gasoline/Diesel Pricing</th>
<th>Kansas City Asphalt Pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aug., 07 Price:</strong></td>
<td><strong>Aug 07:</strong></td>
</tr>
<tr>
<td>$95.00/BBL</td>
<td>$54.50/BBL*</td>
</tr>
<tr>
<td><strong>Less Distribution:</strong></td>
<td>($40/Ton):</td>
</tr>
<tr>
<td>6.00/BBL</td>
<td>$7.15/BBL</td>
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<tr>
<td><strong>Net to Refinery:</strong></td>
<td>$47.35/BBL</td>
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<tr>
<td>$89.00/BBL</td>
<td></td>
</tr>
<tr>
<td><strong>Lost Value:</strong></td>
<td>$41.65/BBL</td>
</tr>
</tbody>
</table>

*Source – Poten & Partners*
Current Coking Economics

- 30,000 BBL/S Day Asphalt Production
- $X 70% Gasoil Production

- 21,000 BBL Gasoil for Gasoline/Diesel
- $X $41.65/BBL Gasoline/Diesel diff. To Asphalt

- $874,650 per day added margin

- $1 Billion / $874,650 = 1,143 days (3.1 years payoff)
FUTURE OF THE INDUSTRY
Current Realities

- Crude production at maximum rates based on existing infrastructure
- U.S. refining running at maximum capacity (less turnaround activity)
- No new refineries in the near term
- Existing refinery expansions must fill gap
- Increase crude capacity and conversion capabilities to meet light product demand
- Asphalt must keep pace with conversion feed values to encourage production
Factors Influencing Asphalt Price

- Absolute price of crude (WTI benchmark)
- Light/Heavy crude price differential
- Light product “crack spread”
- Coking economics
- Impact of clean fuels (sweet crudes)
- Heavy crude availability (Venezuela/Canadian)
- Transportation costs
- Supply/Demand
Future For Asphalt

- More heavy crude being run (availability and price)
- Clean fuels capital behind refiners, up-graders next?
- Asphalt is more expensive in a $70.00 crude world
- Asphalt has to trend faster with crude oil prices
- Asphalt has to be more competitive with light products
- Transportation costs rising – Rail, Barge, Terminalling
- State asphalt price indexes reduce supplier/contractor risk
QUESTIONS