CRUDE OIL QUALITY GROUP

“CANADIAN CRUDE MARKET OUTLOOK”

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February 8, 2007
CANADIAN CRUDE MARKET OVERVIEW

- What are the prospects for additional Canadian crude processing capacity?
  - Heavy sour bitumen blends
  - Sweet/sour synthetic

- Where are the prospects for market expansion?
  - Expansion of Existing Markets
  - Expansion Into New Markets
    - North America
    - Northeast Asia

- What are the forward Canadian crude pricing implications?
ANNOUNCED REFINERY UPGRADE/EXPANSION PROJECTS
CANADIAN HEAVY CRUDE DEMAND OUTLOOK

- Not all upgrading projects will proceed, and even fewer will proceed on schedule
  - Less activity oriented at adding synthetic processing capacity

![Potential Canadian Heavy Crude Demand Increases](chart)

- Sanctioned
- Commercial Development
- Conceptual Study Phase
- Probability Weighted
Recent financial returns for coker projects are extremely attractive.
EXTERNAL MARKET EXPANSION PROSPECTS

Current Market

Refinery Crude Slate
- Heavy Sour
- Medium Sour
- Light Sweet

PADD V
PADD IV
PADD III
PADD II
PADD I
- China and Japan are the 2nd and 3rd largest oil markets in the world.
The Japanese crude import pattern is typical for Northeast Asia.
NORTH AMERICAN MARKET EXPANSION PROSPECTS

Current Market

Refinery Crude Slate
- Red: Heavy Sour
- Medium: Medium Sour
- Light: Light Sweet

PADD V
PADD IV
PADD III
PADD II
PADD I

NORTH ORTH AAMERICAN MERICAN MARKET EXPANSION PROSPECTS
The U.S. Gulf Coast is the largest market for heavy sour crude in the world, and California also is a sizable market.
The Canadian heavy crudes have been price competitive on the U.S. Gulf Coast for most of this decade.

3-Month Moving Average

ULB (Hardisty) - LLS
Maya (USGC) - LLS
INLAND MARKETS VERSUS THE U.S. GULF COAST

Louisiana Light Sweet Less WTI
3-Month Moving Average

SOURCE: Platts
CONCLUSIONS – FUTURE MARKETS

- The Canadian crude market space will expand in geographical extent within North America
  - South, west, and perhaps east
- The Canadian market space will also expand within its traditional markets, as refiners add capacity and capability
- Northeast Asia is a viable market for Canadian crudes
- There is plenty of demand for Canadian crude
CRUDE PRICING IMPLICATIONS

- Reaching a state of supply-demand equilibrium with stable pricing relationships is likely a mirage.
- Crude production is not added in perfect harmony with refinery projects and pipeline expansions.
- Directionally, the sweet synthetic prices will be under moderate pressure.
- Directionally, the recent and prospective market shifts are supportive of Canadian heavy crude prices.
- The widening, and deepening, of the Canadian crude market will decrease the volatility of the Canadian light-heavy crude differentials.