Rocky Mountain Petroleum Business Update

Extracts from EAI, Inc.’s Rocky Mountain Petroleum Business Analysis & Outlook Study
2010 Update in Progress

for

Crude Oil Quality Association

June 10, 2010

EAI, Inc. (Energy Analysts International)
Presentation Topics

- Global Overview
- Rocky Mountain Petroleum Business Overview
  - Crude Supply-Logistics
  - Refining Trends and Update
  - Rocky Mountain Downstream Business
  - New Production activity
Global Overview
Global Petroleum Situation and Outlook

- Global crude oil demand has fallen due to the worldwide economic downturn. China and India had growth in 2008/2009 and are now rebounding. In the U.S., the drop in conventional crude demand is being driven by consumption declines and increasing use of biofuels and NGL’s. Significant probability for slow growth in economy going forward.

- Global production reached capacity limitations in 2006 which, when coupled with strong demand, speculation and politically driven activities involving production, drove prices to a July 2008 peak of 145 $/Bbl. Since then, the worldwide financial crises followed by an economic downturn resulted first in declining crude demand, falling prices then a rebound in prices.

- Production increases and improved export capability are anticipated for Brazil, Canada, West Africa, Russia and the Caspian and certain South America countries.

- The rate of production growth from these countries combined with a potential for slowing demand growth (recession, alternative fuels) will continue to put downward pressure on crude pricing.

Rocky Mountain Petroleum Business Analysis and Outlook

Rocky Mountain Petroleum Business Overview
U.S. Economy Overview

Downturn in U.S. economy specific to West Coast and Midwest to Southeast corridor. Many other areas relatively low impact in terms of unemployment. Housing and spending patterns highly impacted across the U.S. Overall real GDP growth outlook, 1.6 and 1.8 percent growth in 2010 and 2011, up from -2.9 percent in 2009. 2012 expected to be 3 percent. Major risk of double dip downturn due to European problems.
Refined Product Network Status
Rocky Mountain Region

Rockies gasoline demand flat to slightly increasing in 2009. Jet fuel demand down by 5 MBPD mostly at DIA and SLC. Distillate demand down across Rockies, down 24 MBPD in 2009 from 2007 levels. Penetration by ethanol to continue – further out potential for new gasoline specifications for Denver and SLC markets.

Decline from 2008 9MBPD to 5.8 MBPD in 2009

SLC refineries runs down by 2 MBPD. Flying J problems, Silver Eagle fire. 1 psi waiver for ethanol blending approved. Approval for UNEV pipeline received.

2009 decline by 12 MBPD

Denver Products pipeline volumes down

KM East Leg expanded – Longhorn shutdown but for sale. May be bought by Magellan.

Flint Hills expanded Pine Bend refinery by 50 MBPD-2008

Refinery utilization
Refineries in Colorado, Montana, Utah and Wyoming operating seasonally at full capacity

Refinery supply constrained
Sinclair Built Segment to Chase and can reverse Denver Products Pl

2009 demand Gasoline flat but ethanol increasing Diesel down 4 MBPD

Chase pipeline deliveries down

2009 NuStar pipeline volumes down, COP pipeline volumes up

Potential MC refinery shutdowns and low utilization

Major Demand Centers
Major Refining Centers
High Demand Growth Areas
Pipeline Capacities in MBPD
Crude runs leveled off in 2007 and started to decline in late 2008. This trend is similar to that observed for other areas of the country only much less exaggerated. Year 2009 runs at 532 MBPD down 8 MBPD from 2008 level. Year 2010 runs continuing downward trend so far.

With slow demand growth, increasing ethanol penetration and increasing supply availability from outside the region, more pressure on RM refineries to seek new markets to keep refinery runs up. This is the driver for the Holly-Sinclair UNEV product pipeline project to North Las Vegas.

Light crude discounting has been major “life-line” for U.S. light crude refiners including those in the Rocky Mountain region. These discounts have been key to keeping refining capacity with continued downward pressure on product margins.

Heavy crude refinery margins (running on heavy crude) are poor to negative and do not support conversion investments. These plants are shifting to lighter crude slate which is not efficient for a plant designed for heavy crude.

Given this situation and no immediate relief in site, total refinery capacity vulnerable to closure in the RM region is in the 80 to 100 MBPD range. This would bring capacity more inline with demand and would tend to improve market and refinery margins.
Crude production in the Rocky Mountain Core production area increased by 10 MBPD during 2009 driven primarily by EOR investment in the Powder River Basin and Wind River Basin. Total Rocky Mountain crude production will be flat to slightly increasing over the next few years due to continued investment in EOR and horizontal drilling technology.

Core production averaged 349 MBPD with Canadian crude making up the incremental 183 MBPD of crude runs during 2009. Rocky Mountain appetite for Western Canadian light grades (synthetic sweet, synthetic sour) will continue to be soft through 2015. Dilbit and synbit delivery to Montana refiners to remain flat with realignment of grade movement out of Rockies to the Midwest contingent on startup of Keystone.

Growth of non-core production (Williston light sweet crude) continues at dramatic rate and has displaced synthetic from RM markets with Canadian overhang being exported to MC/MW markets via pipeline and rail. Williston supply impacted RM crude prices due to limited export capacity on Butte and Enbridge systems.
Western Canada Crude Supply Outlook

Total supply is forecast to increase 2900 and 3200 MBPD by 2014 and 2019 respectively. Production focus on bitumen and heavy blends. Synthetic crude projects have slowed and more focus on bitumen blends.

Incremental production of 1.2 MM over next 10 years: 400 synthetic and 1000 bitumen blends (part of this offsets conventional decline)
Rocky Mountain Crude Supply Regions

Light crude production growth has shifted from Montana to ND Bakken. Utah Black and Yellow wax plays plus Wolverine continues to expand. DJ Basin activity expanding with Niobrara becoming very active.

Enbridge ND Pipeline Expands to 161 MBPD. Working on Northern Portal Export option.

**REGION** | **2008 MBPD** | **2009 MBPD**
--- | --- | ---
BIGHORN BASIN | 38.2 | 34.9
CENTRAL MT | 1.4 | 1.1
DJ | 43.1 | 50.9
GREEN RIVER BASIN | 44.1 | 42.7
OVERTHRUST | 5.8 | 5.4
NE MONTANA | 84 | 76
NORTH DAKOTA | 186.1 | 230 E
PRB | 39 | 40.1
NW COLO | 14.9 | 13.6
SE COLO | 4.4 | 4.5
SE UTAH | 17.4 | 20.1
UINTA BASIN | 40.8 | 43.6
WRB | 19.3 | 19.6

**Key Points**
- Enbridge ND Pipeline Expands to 161 MBPD. Working on Northern Portal Export option.
- DJ NGL connected to Overland-Pass 2009.
- Pacific (PAA) adds 95 MBPD PL capacity Evanston to SLC
- APAPIEN VALLEY FIELD ADDED TO HINGLINE DISCOVERY LIST
- Enterprise expands NGL system. New gas processing added to Piceance and Uinta Basins
- WILLISTON HEADED TO 350 MBPD AT CURRENT OIL PRICE
- BELL CREEK CO2 FLOOD PILOT
- SALT CREEK CO2 FLOOD EXPANDING
- NEW WRB CO2 ‘Beaver Creek’
- NIOBRARA HORIZ PLAY ADDS 50 MBPD TO FORECAST
- WAX PLAY MOVES INTO UNDEVELOPED TRIBAL LANDS
- DJ NGL connected to Overland-Pass 2009.
- White Cliffs Started up June 2009
- CRUDE FLOW (CORE)
- FLOW (NON-CORE)
Increased Williston Basin production has upset Rocky Mountain fundamentals. Light crude is discounted locally and Canadian Synthetic crude has been backed out of some markets. Refiners continue to court heavy supply – depending on location.
Rail export of EOG Bakken crude relieves constraint on Enbridge eastbound line by 30 MBPD (Jan 2010). Producers respond by expanding development. Plains reverses flow between Wamsutter and Fort Laramie to allow southwest Wyoming sweet crude to move east into Cheyenne area, i.e. Suncor Denver. This volume offsets DJ crude export on White Cliffs to Cushing.

Enbridge Portal reversal considered to transport 30 MBPD to Enbridge Cromer mainline

Enbridge ND Line Expanded to 161 MBPD in January 2010

Rail Export on BNSF 60 MBPD capacity

Plains Wamsutter Reversed Apr 2009

White Cliffs Started up 6-09 moved 21 MBPD 3Q09

Supply growth and reduced refining runs causes discount of Utah grades. UNEV product export would relieve some of this.
Crude Price Spreads to WTI – May 2010

Crude prices in Western Rockies particularly depressed relative to WTI – should continue until logistics to clearing markets opened – Keystone pipeline.
The shift to heavy in the RM plus increasing light crude production in the region has supported a sustained light crude surplus in the Rocky Mountain region. This light crude discounting has been a key advantage for RM light crude refiners. With increased Williston sweet delivery into eastern refineries and resumption of Rockies production declines, this advantage has narrowed.

The RM discounting is “global” in nature with increasing light crude supply overhang at Cushing expected to continue. The shortfall of heavy crude and surplus of light-medium crude at Cushing has narrowed the light-heavy differential. This occurred simultaneously with RM and other U.S. heavy crude projects having a major negative impact on conversion investments.

A flat to declining conventional gasoline market, corresponding downward pressure on refinery crude runs and increasing light crude supply will likely extend the light crude discounting.

Production from the “new” Niobrara play, increasing ND crude movements into the RM and existing light crude plays in the RM will create new light crude loadings on the Eastern RM crude supply corridor (Butte, Platte, Suncor & White Cliffs).
RM CORE: Most of the Rockies crude supply increase was Bakken development but the increases noted in Unita, and DJ Basins all have direct impact on RM trade.

Western Canadian Select expands to 250 MBPD. Synbit and other Hardisty area blends are being replaced by WCS which is being held at consistent export grade similar to ‘Bow River Heavy’. Refiners accept the WCS blend where other varieties had been rejected in the past.

North Dakota adds Three Forks – Sanish play to burgeoning Bakken development. New plays capable of adding 150 MBPD to existing Williston supply by 2012-13. As of March 2010 overall Williston supply at 323 mbpd (ND 250 MBPD and MT 73 MBPD).

Williston EUR’s continue to improve. Recent completions suggest EUR in 500-900 MBOE range for combo Bakken – TFS wells. Prior outlook assumed 425 MBO per lateral completion.

Sevier County Utah. Current production estimated at 8.2 MBPD. Providence Field discovery announced in 2008 (Wolverine-Oxy, Arapien Valley well) producing small volume of very light oil/condensate.

Monument Butte replaces Bluebell-Altamont as Utah’s #1 oil field making Newfield the #1 producer. Hundreds of wells shut in during 2006 due to lack of market options during refinery turn-arounds in SLC. New activity on Ute Minerals and deep drilling to increase supply.

Niobrara horizontal development in SE Wyoming - NE Colorado has potential to add 50 MBPD to area crude. Crude anticipated to be 34-38°API in core area (northern Weld County).
Montana play peaked in 2006 at 102 MBPD. Current 42 MBPD. Field limits appear to have been found. Infill and EOR being considered.

ND Bakken production has increased from 35 MBPD in midyear 2008 to over 160 MBPD by year end 2009. Most of the increased volume is coming from the Parshall area in Mountrail County.

Three Forks-Sanish play has developed into a new stand alone play. The Devonian aged sandstone lies directly beneath the Bakken shale.

SK Bakken play went from less than 1 MBPD in 2004 to over 20 MBPD during 2007 and ended 2008 at over 35 MBPD. SK Play extends into Daly, Sinclair, Birdtail, Field Units, Manitoba 36-41° API sweet crude.
Niobrara Fractured Limestone Fairway

Sweet Crude Accessible to RM Refiners
EAI, Inc. Base Case (Being updated with new EAI, Inc.’s New Niobrara forecast & Williston supply scenarios)

Rocky Mountain sweet crude production is undergoing production surge with Williston Bakken play leading the way. Williston sweet crude available to RM via Guernsey on Butte is limited to current capacity of 115 MBPD (with DRA).
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