

BAKER & O'BRIEN
I N C O R P O R A T E D

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U.S. REFINING MARGINS IMPROVE SIGNIFICANTLY IN SECOND QUARTER
PADDs 2 and 4 Return Refinery Profitability Back to the "Golden Age of Refining"
Houston, August 25, 2011

Baker & O'Brien, Inc.'s second quarter 2011 release to *PRISM*^{TM1} subscribers reflects higher margins overall and improvement in every refining district. When compared against the previous quarter, refinery cash margins² have risen, on average, just over \$4.50 per barrel, driven primarily by gains in PADDs 2 and 4 (each up over \$7/Bbl.). They continue to benefit from the well-publicized crude oil bottleneck in the Mid-continent region.

PRISM Cash Margins vs. Previous Periods (\$/Bbl.)

	11Q2 vs. 11Q1	11Q2 vs. 10Q2
PADD 1	+4.61	+3.56
PADD 2	+8.31	+14.75
PADD 3	+3.65	+4.05
PADD 4	+7.35	+12.58
PADD 5	+2.15	+2.61
U.S. Overall	+4.61	+6.50

So far in the third quarter, the light-heavy spread (LLS-Maya) is leveling off with the crack spreads continuing to improve. As was noted last quarter and demonstrated in the Chicago margins below, Mid-continent refineries continue to enjoy exceptional margins due to discounted crude oil pricing in the region. In fact, current margins have been consistently higher than the margins seen in the peak of the recent "Golden Age of Refining" (from 2005-2008).

Key Refining Margin Metrics, \$/Bbl.

	2011	2011	2010	2010	2009
	Jul	Q2	Q2	Annual	Annual
LLS crude price	115.85	118.33	82.15	82.73	64.34
LLS – Maya	13.19	15.13	14.16	12.55	7.80
USGC LLS 321*	10.96	7.95	5.27	4.89	4.70
USGC LLS 6321**	6.91	3.56	2.32	2.14	2.56
Chicago WTI 321***	32.58	30.54	12.88	10.09	9.26

* LLS deemed conversion to 67% conventional 87R gasoline and 33% ULSD

** LLS deemed conversion to 50% conventional 87R gasoline, 33% ULSD and 17% Fuel Oil

*** WTI deemed conversion to 33% conventional 87R gasoline, 33% RBOB and 33% ULSD

¹ *PRISM* is Baker & O'Brien's refining database system that models the operational and economic performance details for all of the refineries in the U.S.

² Net Cash Margin (Refinery EBITA), US\$ per barrel of input.

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Development in the Bakken has certainly been a key driver of the current healthy state of Mid-continent refiners. Rapidly growing development of the Eagle Ford play in southern Texas will also likely prove to be quite disruptive as it relates to crude oil flows in the Texas Gulf Coast. Current estimates place Eagle Ford crude oil production up to 100 MB/D through May 2011, with some forecasting production exceeding 500 MB/D by 2016.

Similar to the Bakken, there is no large refining base near Eagle Ford production sources and, once the few nearby (smaller) refineries are full, the oil will have to be moved further to larger refining centers. However, unlike Mid-continent refineries that have benefited greatly from bottlenecks in regional crude oil “takeaway” capacity, once the Eagle Ford barrels reach the Texas coast, they are likely to realize full margin-parity pricing with other domestic and imported waterborne crude oils. Thus, coastal refineries in Texas will likely not realize the same benefit, *provided* there are sufficient volumes of long-haul imported barrels to be displaced.

The following table identifies U.S. Gulf Coast refining centers, sources of foreign light sweet crude oils, and individual refineries likely to be affected by the increased volumes of Eagle Ford crude oil.

Imports of Light-Sweet Crude Oil Grades into Texas and Louisiana Refining Centers in 2010

	Corpus Christi	Texas City	Houston / Baytown	Beaumont / Pt. Arthur	Lake Charles	Total
Foreign Imports, MB/D	498	275	1,102	771	396	3,042
Of which Light-Sweet, MB/D	179	75	284	222	58	818
Of which Light-Sweet, %	36%	27%	26%	29%	15%	27%

Light-Sweet Imports - Top Countries

Nigeria	Nigeria	Nigeria	Mexico	Angola	Nigeria
UK	Congo	Algeria	UK	Algeria	Mexico
Russia		Mexico	Nigeria		Algeria

Light-Sweet Imports - Top Refineries

Flint Hills	BP	Pasadena	ExxonMobil	CITGO
Three Rivers*		Valero		
		ExxonMobil		

* publicly stated plans to significantly increase domestic processing

Source: U.S. DOE/EIA

The quality of liquids produced in the Eagle Ford ranges from medium (30 API) to very light (40 API) to condensates (45+ API). Imported grades in the “light” and “medium” quality classes might be naturally displaced by increased Eagle Ford production. However, the increasing flows of condensates may not find similar imported barrels to displace; thus, refineries may indeed benefit from price discounts required to avoid exporting the barrels.

About Baker & O'Brien

Baker & O'Brien is an independent professional consulting firm specializing in technology, economics, and management practice for the international oil, gas, chemical, and related industries. With offices in Dallas, Houston, and London, the firm focuses primarily on the downstream industry and assists clients with strategic studies, mergers and acquisitions, and technology evaluations. The firm also provides expert services to support insurance claims and a wide range of commercial disputes in the energy industry.

About PRISM

Baker & O'Brien's *PRISM* software is used to perform detailed analysis of individual refineries and the refining value chain from crude oil load port to products truck rack. The system combines a large historical database with a robust refinery simulator to provide analytical support to competitive analysis, strategic planning, crude oil valuation, and delivered cost of supply. The *PRISM* database currently includes operational and economic performance details for all refineries in the U.S. and Canada, most refineries in Europe, and selected refineries in the Asia Pacific region. The *PRISM* system is available for license and is used in consulting assignments for Baker & O'Brien clients.