West Coast Basis

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Discount on WTI Begins Descent from Unstable, Higb Level

On November 16, Enbridge, Inc. announced that it would acquire ConocoPhillips' 50% interest in the Seaway Crude Pipeline System for $1.15 billion. Enbridge will become partners with Enterprise Products Partners, L.P., which will continue to operate the pipeline system and storage facilities.[1] The firms announced that they would reverse flow in the pipeline system from landward to seaward, providing an outlet to the Gulf Coast and world markets for landlocked crude oil in the Midwest, including NYMEX benchmark West Texas Intermediate (WTI), priced at Cushing, OK. "Pending regulatory approval, the 500-mile pipeline could ship an initial 150,000 barrels of oil a day from Cushing to the Houston-area refining market by the second quarter of next year…After pump station additions and modifications, the capacity could rise to 400,000 barrels a day by early 2013, the two companies said."[2] ConocoPhillips declined to reverse the flow in Seaway in February, claiming that it needed more crude for its refineries in the midcontinent[3]; U.S. production rose 2.7% between 2010:I and 2011:I[4]. "As a transporter of energy, Enbridge operates, in Canada and the U.S., the world's longest crude oil and liquids transportation system. The Company also has a significant and growing involvement in natural gas gathering, transmission and midstream businesses, and an increasing involvement in power transmission."[1]

The discount on WTI to Brent reached a high of over $28 in mid-October, but by month's end it had fallen to around $19. The discount again dropped rapidly following the announcement by Enbridge: Figure 1 shows spot prices for Brent and WTI since March, 2010; the inlay tracks the discount during November 2011. Continuation at levels stable since mid-November would imply a lower monthly average discount for December.

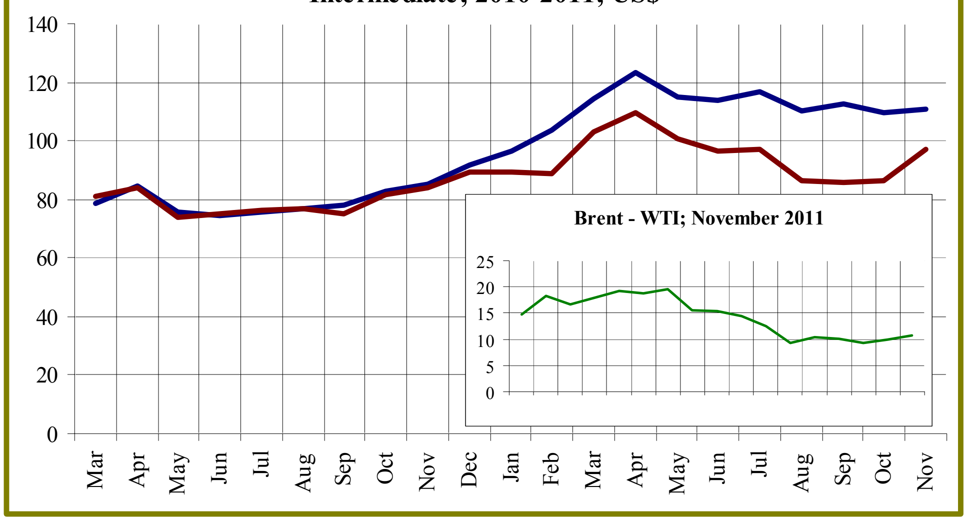

Figure 1: Monthly Average Price of Brent and West Texas Intermediate; 2010-2011; US$

Source: U.S. Department of Energy; Energy Information Administration

[1] See http://www.marketwatch.com/story/enbridge-to-acquire-conocophillipss-interest-in-seaway-crude-pipeline-system-for-us115-billion-2011-11-16-841110, accessed December 6, 2011.
[2] See http://online.wsj.com/article/BT-CO-20111116-711080.html, accessed December 6, 2011.
[3] See http://www.bloomberg.com/news/2011-02-15/conocophillips-not-interested-in-reversing-seaway-pipeline.html, accessed December 6, 2011.
[4] See http://www.eia.gov/forecasts/steo/, accessed December 6, 2011.

"TransCanada Corp.'s (TRP) expansion of its Keystone pipeline, which carries Canadian crude into Cushing, will offer an outlet to the Gulf Coast as well…But the timing for its completion remains up in the air after the State Department said last week that it won't offer a decision on whether to approve the pipeline until after the 2012 election."[2] Both the Enbridge and TransCanada developments represent part of the market's response to the arbitrage opportunity presented by what were historically high discounts on WTI and other crude oils from the North American interior. Physical implementation of what Enbridge and TransCanada have announced should put modest continued downward pressure on these discounts because their precise extent and timing are uncertain, but low rates of interest imply that current market prices reflect what *is* known about how these changes will play out with little adjustment for the time-value of money.

Historically high prices for crude oil worldwide have incented rapid expansion of production of unconventional crude oil in North Dakota and Alberta, and this response in production has yet to fully materialize. The Department of Energy forecasts significant increases in production in Canada and the Lower 48 in 2012.[4] The forces that drove a wedge between WTI and world markets also continue to apply upward pressure to the difference between world prices and that of WTI. If the world economy begins to grow more rapidly, it could put further upward pressure on prices for crude oil, buoying production in the North American interior and implying a need for even greater expansion of transportation to bring WTI fully in line with world markets.

Forces driving world and WTI prices apart and together, respectively, are both at work, but the rising discounts for WTI had to be a surprise initially; NYMEX originally selected WTI as its benchmark because of the extensive network of pipelines around Cushing. While the timing of the Enbridge announcement was clearly also a surprise, that transportation would expand to take advantage of the opportunity for arbitrage was not surprising. Even if the world economy begins to grow more rapidly, raising prices for crude oil to the $150/bl range, market participants will better understand the implications and respond faster to keep WTI connected to the world than they did in 2010 and 2011. We think the discount on WTI has reached its peak and will generally decline, and WTI will again play its role as a benchmark for contracting and instrument for risk management. A purpose of *West Coast Basis* is to track this process, up to three months out, as it applies to crude oil on the West Coast, which is well-connected to world markets.

Economic Insight's Forecast of Basis

To help producers and refiners continue to use WTI as a basis for contracting, Economic Insight has produced a forecast of monthly average basis differentials, or simply "basis", looking forward three months, for five major California crude oils: Buena Vista; Kern River; Midway-Sunset; Wilmington; and Huntington Beach. (We removed Alaska North Slope because our forecast did not perform well for that singular crude oil. We reintroduced Huntington Beach, using only Plains' postings because Chevron's recent postings were inexplicably different from past postings, from postings for other California crude oils, and from Plains' postings, and Chevron stopped posting prices for Huntington Beach in November.) The forecast is based on posted prices for these crude oils and spot and forward prices for Brent, WTI, and Dubai from 1998 to 2011. Figure 2 shows actual (Mar-present) and forecast (present-Feb 2012) US dollar basis, with 50% confidence intervals; we estimate a 50% chance that monthly average basis will fall within the intervals, and a 50% chance that it will not. Daily basis will sometimes fall outside these bounds even if monthly average basis does not.

Figure 2: Actual and Forecast Basis through February 2012

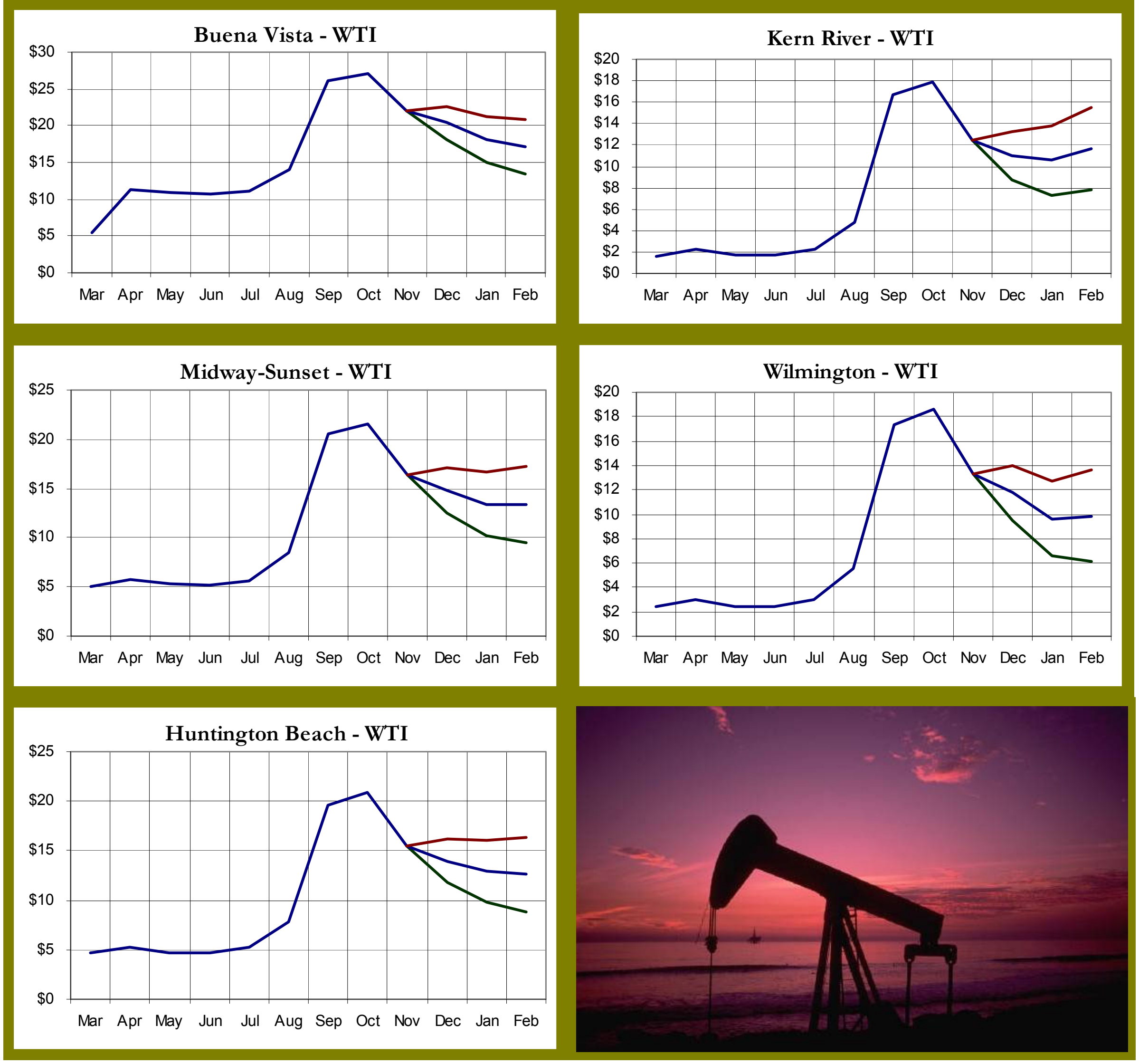

Table 1: Actual and Forecast Basis through February 2012

Crude	API°	Months	95% LB	50% LB	Pnt Frcst	50% UB	95% UB	October Forecast
			Actual Price Less Price of WTI Followed by:					
Buena Vista	26.0	Mar			$5.43			
		Apr			$11.36			
		May			$10.82			
		Jun			$10.68			
		Jul			$11.15			
		Aug			$13.98			
		Sep			$26.07			
		Oct			$27.14			25.97
		Nov	$22.02	$22.02	$22.02	$22.02	$22.02	22.33
		Dec	$13.80	$18.11	$20.38	$22.64	$26.95	
		Jan	$9.21	$15.03	$18.09	$21.16	$26.98	
		Feb	$6.35	$13.38	$17.07	$20.77	$27.79	
Kern River	13.0	Mar			$1.64			
		Apr			$2.25			
		May			$1.67			
		Jun			$1.69			
		Jul			$2.20			
		Aug			$4.80			
		Sep			$16.64			
		Oct			$17.87			17.49
		Nov	$12.50	$12.50	$12.50	$12.50	$12.50	13.59
		Dec	$4.41	$8.72	$10.98	$13.25	$17.56	
		Jan	$1.23	$7.35	$10.56	$13.77	$19.89	
		Feb	$0.34	$7.76	$11.65	$15.55	$22.97	
Midway-Sunset	13.0	Mar			$5.10			
		Apr			$5.72			
		May			$5.25			
		Jun			$5.11			
		Jul			$5.57			
		Aug			$8.41			
		Sep			$20.49			
		Oct			$21.57			21.43
		Nov	$16.44	$16.44	$16.44	$16.44	$16.44	17.44
		Dec	$8.23	$12.54	$14.81	$17.07	$21.39	
		Jan	$4.07	$10.18	$13.39	$16.60	$22.71	
		Feb	$2.04	$9.47	$13.37	$17.27	$24.69	
Wilmington	17.0	Mar			$2.39			
		Apr			$3.00			
		May			$2.42			
		Jun			$2.44			
		Jul			$2.95			
		Aug			$5.55			
		Sep			$17.39			
		Oct			$18.62			18.18
		Nov	$13.25	$13.25	$13.25	$13.25	$13.25	14.29
		Dec	$5.20	$9.51	$11.78	$14.04	$18.36	
		Jan	$0.72	$6.55	$9.61	$12.67	$18.50	
		Feb	($1.07)	$6.08	$9.84	$13.60	$20.75	
Huntington Beach	19.0	Mar			$4.64			
		Apr			$5.25			
		May			$4.67			
		Jun			$4.69			
		Jul			$5.20			
		Aug			$7.80			
		Sep			$19.64			
		Oct			$20.87			
		Nov	$15.50	$15.50	$15.50	$15.50	$15.50	
		Dec	$7.41	$11.72	$13.99	$16.25	$20.56	
		Jan	$3.90	$9.80	$12.90	$16.00	$21.91	
		Feb	$1.68	$8.84	$12.60	$16.36	$23.51	

The data underlying Figure 2 are shown in Table 1, which also gives lower and upper bounds of 95% confidence intervals; we estimate a 95% chance that monthly average basis will fall within these limits. Again, daily basis may not. The forecasts for October and November from the October issue are shown in the column at right.

We forecast a slowing decline followed by a leveling off of basis to WTI through February. With TransCanada's plans for the Keystone pipeline held up, more costly rail and truck transport will play a larger role connecting WTI to world markets than in the long term, when expansion of pipeline transportation and reductions in basis are complete.

Governments of large economies have been slow to adopt policies that would lead to trade flows which allow debtor countries to save more and creditor countries to, correspondingly, save less. As a result, the world economy remains sluggish, but crude oil prices have stabilized. Monthly average prices for Brent have been close to $110/bl since August. The world economy likes stable oil prices, but it does not like unsustainable lending and trade flows. The inevitable resurgence in U.S. manufacturing has lately slowed,[5] and this should help prevent any surge in oil prices from driving basis differentials back up.

Your feedback on *West Coast Basis* is most welcome. To ask questions or make comments, please email forecast@econ.com.

[5] See http://www.latimes.com/business/la-fi-job-gains-20111207,0,5240388.story, accessed December 6, 2011.

To apply this forecast to crude oils other than the major California crude oils shown, please refer to Table 2. Select the major California crude oil to which the crude oil you wish to obtain a point forecast for is most similar. Select the column showing API gravity close to that of the crude oil for which you wish to obtain a point forecast. To obtain a more precise adjustment for levels of gravity other than those shown, apply the formula given in the footnote to the table.

Table 2: Adjusted Forecast Basis Differentials to WTI by Selected API° and by Major California Crude Oil that is Most Comparable

	10°	15°	20°	25°	30°
			Similar to Buena Vista 26°		
December	$18.95	$19.40	$19.84	$20.29	$20.74
January	$16.94	$17.30	$17.66	$18.02	$18.38
February	$15.69	$16.13	$16.56	$16.99	$17.42
			Similar to Kern River 13°		
December	$10.72	$11.16	$11.61	$12.05	$12.50
January	$10.35	$10.71	$11.07	$11.43	$11.79
February	$11.39	$11.82	$12.26	$12.69	$13.12
			Similar to Midway-Sunset 13°		
December	$14.54	$14.98	$15.43	$15.88	$16.32
January	$13.17	$13.53	$13.89	$14.26	$14.62
February	$13.11	$13.54	$13.97	$14.40	$14.83
			Similar to Wilmington 17°		
December	$11.15	$11.60	$12.05	$12.49	$12.94
January	$9.11	$9.47	$9.83	$10.19	$10.55
February	$9.24	$9.67	$10.10	$10.53	$10.96
			Similar to Huntington Beach 19°		
December	$13.18	$13.63	$14.08	$14.52	$14.97
January	$12.25	$12.61	$12.98	$13.34	$13.70
February	$11.82	$12.25	$12.68	$13.11	$13.55

Adjustments are based on the formula: $B_i = Y_m \times \left(A_i - A_k\right) + B_k$

where B is basis, A is gravity, i denotes the crude oil to which adjustment is made, and k denotes the crude oil from which adjusment is made, indicated in the heading. $Y_m = 0.0892$ in December, 0.0722 in January, and 0.0862 in February.

Delivery

Economic Insight will deliver electronic copies of *West Coast Basis* in portable document format (pdf) monthly. As a special introductory offer, we will send the issue for any single month for $50. Past issues are available for $25. If you would like to receive *West Coast Basis*, please mail the information requested below to

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