Outlook For Energy Markets

January 2014
Key Themes In Today’s Energy Markets

1. Crude Price: Rangebound with an upside bias...
   Ongoing supply outages versus mediocre demand growth have kept prices rangebound, but we have more confidence in the floor than the ceiling.

2. US energy landscape: What a difference five years makes!
   Time to think about ‘second order’ impacts of the boom...

3. Natural gas: Rangebound again, but this time with a bearish bias...
   For now, both supply and demand are extremely price elastic. The market will really turn a corner when utility demand for gas becomes price inelastic.
1. Rangebound Outlook for Crude Flat Price

*Ongoing supply outages versus mediocre demand growth*
Lesson learned: As Iran sanctions hit and SPR talk heats up, Saudi opens the pumps in 1H'12. Stocks rebuild.

In 2011, Saudi make up for some of the Libya shortfall but not all of it. Commercial stocks fall and the US/IEA release SPR.

Pretty orderly market...

... But genuinely tight in Aug’13
Oil Demand Growth is in the Emerging World

(Before the recession, during the recession, after the recession)

CIBC Commodities Strategy, EIA, IEA, country & govt sources
Global Supply Outages Pile Up

- OPEC Total
- Non-OPEC Total

Dec-10 Jun-11 Dec-11 Jun-12 Dec-12 Jun-13 Dec-13

CIBC Commodities Strategy, EIA
US + Saudi Bail Out Market Single-Handedly

August'13 Versus August'11, mbd

United States

Saudi + Kuwait + UAE

Other Non-OPEC

Other OPEC

Non-OPEC

OPEC

CIBC Commodities Strategy, IEA, EIA, Petrologistics, other company and govt sources
Macro Fundamentals Summary....

• Status quo oil demand...not a new story, likely marginal improvement in 2013.

• Supply was the story in 2011-12, and is very much the story again in 2013 thanks to a persistantly high outage rate in both OPEC and non-OPEC.

• Saudi has done a really good job of balancing the market.

• But the bullish take on this story? During a period of weak oil demand growth and unprecedented supply growth in the US, it still takes record Saudi production for months in a row to balance the market, and global oil prices never go much below $90.

• What would that last three years have looked like without US growth? Remember... it doesn’t come cheap. What are the implications for the investment cycle?
2. The US Energy Landscape:

What A Difference Three Years Makes! Time to Think About ‘Second Order’ Implications of the Boom
What A Difference Three Years Makes!


CIBC Commodities Strategy, EIA
Impact On WTI Term Structure

• The front of the WTI curve is a different story... we’ll get to that.

• Beyond the front six months though, we think spreads will stay very well bid, in large part because, going forward, an increasing percentage of new crude production will be hedged in the forward market.

• North American producers hedge more than producers in other regions, and that’s where virtually all incremental crude production growth is coming from. The type of companies most active in shale plays are even more inclined to be disciplined hedgers.

• At the same time, we would argue that deferred liquidity from hedge funds and banks has deteriorated.
Crude Growth Not From the Majors* In the US

Liquids Production By Non-Majors (left)

% US Production By Majors (right)

CIBC Commodities Strategy, IEA, Industry Reports

*Majors here include BP, CVX, COP, XOM, RDSA, TOT
...Or In Canada

- Liquids Production By Non-Majors (left)
- % Canadian Production By Majors (right)

CIBC Commodities Strategy, IEA, Industry Reports

*Majors here include BP, CVX, COP, XOM, RDSA, TOT
Long-dated WTI Spreads Outpace Flat Price

$/bbl
$160
$140
$120
$100
$80
$60
$40
$20

'09
'10
'11
'12
'13

Mth 1 WTI (left)
Mth 6 - Mth 24 Spread (right)

CIBC Commodities Strategy
Cushing Stocks Are Falling Rapidly

Cushing Storage Utilization (left)
Cushing Storage Volume (right)

CIBC Commodities Strategy, EIA
Cash Crude Premiums to WTI Shrink

Differential to WTI, $/bbl

- Average All Major US Grades
- Light Louisiana Sweet

CIBC Commodities Strategy
Backwardation? Not On Expiry Days

$/bbl

$1.50

$1.00

$0.50

$-

$(0.50)

$(1.00)

Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct

M1-M2 WTI Spread

On Expiry

CIBC Commodities Strategy
US Crude Production Gets Lighter and Sweeter

CIBC Commodities Strategy, EIA
US Refiners Tweak Their Slate... To A Point

API Gravity (left)  Sulphur Content (right)

CIBC Commodities Strategy, EIA
US Crude Production / Import Quality Shift

Production Gets Lighter, Imports Heavier
Volume Weighted Average API Gravity

Production Gets Sweeter, Imports More Sour
Volume Weighted Average Sulphur Content

CIBC Commodities Strategy, EIA

K. Spector - January 2014
US Sharply Trims Light, Sweet Crude Imports

Chg Versus 2008 (YTD)  Chg Versus 2012 (YTD)  Current From Canada  Current From Far Abroad

CIBC Commodities Strategy, EIA
How Much Imported Light Crude To Back Out?

- Light Sweet Canada
- Light Sweet Far Abroad

CIBC Commodities Strategy, EIA
### Crude Capacity At Tanks/Terminals vs Refineries

<table>
<thead>
<tr>
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<th>Cushing</th>
<th>Other P2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
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<td>Stocks</td>
<td>80</td>
<td>52</td>
<td>223</td>
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</tbody>
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**Tank/Terminal Stocks**

**Refinery Stocks**

*Source: CIBC Commodities Strategy, EIA*
Exclusive / Non-Exclusive Crude Storage Capacity

Million bbl

- Cushing: 48
- Other P2: 11
- 3: 49
- 4: 1
- 5: 10

CIBC Commodities Strategy, EIA
WCS Handicapped By More Than Infrastructure

$/bbl

- $(10)
- $(20)
- $(30)
- $(40)
- $(50)
- $(60)
- $(70)

Jan’12 May’12 Sep’12 Jan’13 May’13 Sep’13

Bakken-LLS WCS-Mars

CIBC Commodities Strategy
Just 6 US Refiners Take Half of Canada’s Exports

Refinery Capacity Offline

Top 6 offtakers of Canadian Crude: Bayway, Whiting, Joliet, Lemont, Pinebend, Wood River
CIBC Commodities Strategy
3. North American Natural Gas

*Don’t Get Too Excited Yet...*
Not Out Of The Woods Yet...

• The US gas balance looked marginally price supportive in 2013, but in the short-run (24 months) both gas supply and gas demand are still very price elastic. That means rangebound prices.

• In the medium- to long-run, gas production will continue to be price sensitive. It is when gas demand — specifically utility demand for gas — is no longer price elastic that the market will truly turn the corner. The 2015-16 period will be key.

• Last summer gave us a taste of what coal-to-gas substitution can do to the market. This year will pale in comparison, but eventual coal retirement will make that shift to gas permanent. One implication is that gas prices will reflect a steeper summer pricing.
  • Production of gas liquids has been phenomenal, and prices have come off sharply. What will it take to see a shift back to dry gas production?

• LNG will matter at the margin, but won’t be the game changer for the US supply/demand balance. Alberta may be a different story... maybe.
Is the Liquids Subsidy At Risk...?

NGL Prices Continue Their Collapse

- NGL Basket - WTI
- Ethane - WTI

NGL Subsidy At Risk At $90 Crude

- $4 gas break even
- $6 gas break even
- Today’s NGL Discount / $80 WTI

CIBC Commodities Strategy
Natural Gas Competes With CAPP Coal

- Competing Fuels - Past 12 Months

$/MMBtu

Mar-12 Aug-12 Dec-12 May-13 Oct-13

- CCGT: CAPP Coal Efficiency Band
- CCGT: PRB Coal Efficiency Band
- NYMEX Henry Hub
LNG Now Seems Like a Reality

• It is not clear to us that LNG will make or break the US gas balance... The market will ultimately cap export volumes, not policy.

• But there will be interesting seasonal implications. The US will be the one place in the world that can both import and export LNG. The US also has significantly more gas storage capacity than Europe does.

• LNG will matter more for AECO, but not for a while.
Net ‘East of Mississippi’ US Imports Of CAD Gas

- Michigan / Minnesota
- New England / New York
- Volumes on TRP Mainline
- Total Net

CIBC Commodities Strategy, EIA
Alberta Gas Balance Looks Heavy...Until 2020*

* MAYBE

CIBC Commodities Strategy, EIA
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