

The US Shale Boom In A Global Market Context

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Key Themes

1. US oil boom in global supply/demand context

- The US and Saudi Arabia have supplied incremental market demand with virtually no help for 3 years
- The Call on OPEC has grown since the recession, despite the US boom

2. Two unique features of tight oil / gas production

- A condensed supply curve ostensibly makes tight oil growth more rapidly price elastic
- The type of companies producing tight oil (shale gas) are the types of companies that hedge
- Should we think of US production as global “peaking capacity”?

3. Implications for price structure

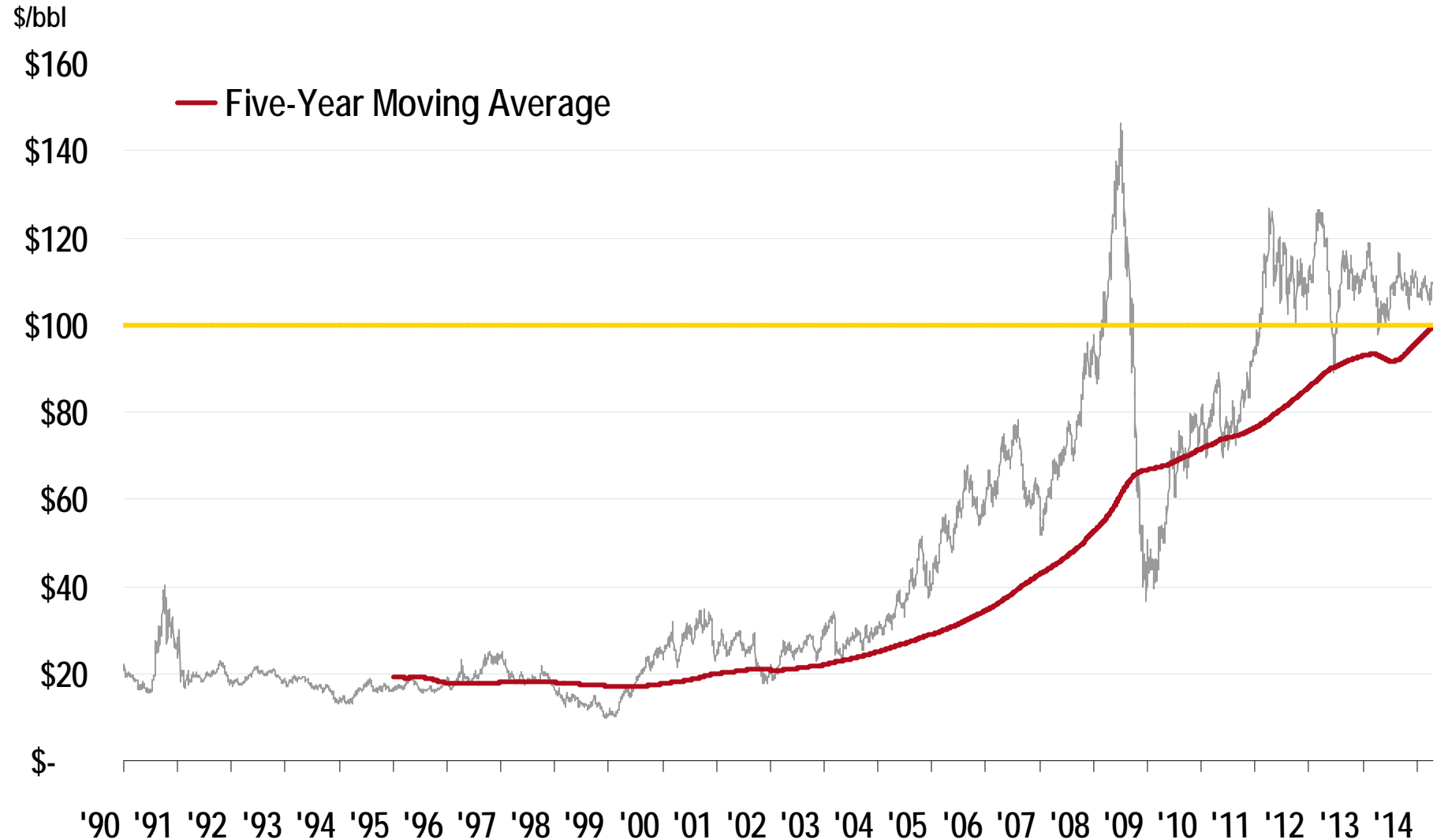
- WTI flat price (spot price) has been remarkably rangebound
- The long-dated part of the WTI curve has become disproportionately backwarddated
- WTI (and until recently Henry Hub) volatility is at historic lows
- Liquidity has deteriorated (electronic trading is another disruptive technology!)

4. Implications for infrastructure investment

- Industry fear of commitment?
- Who pays for marginal and potentially short-term distribution capacity, and how?

Blip? Outlier? Anomaly? Apparently Not.

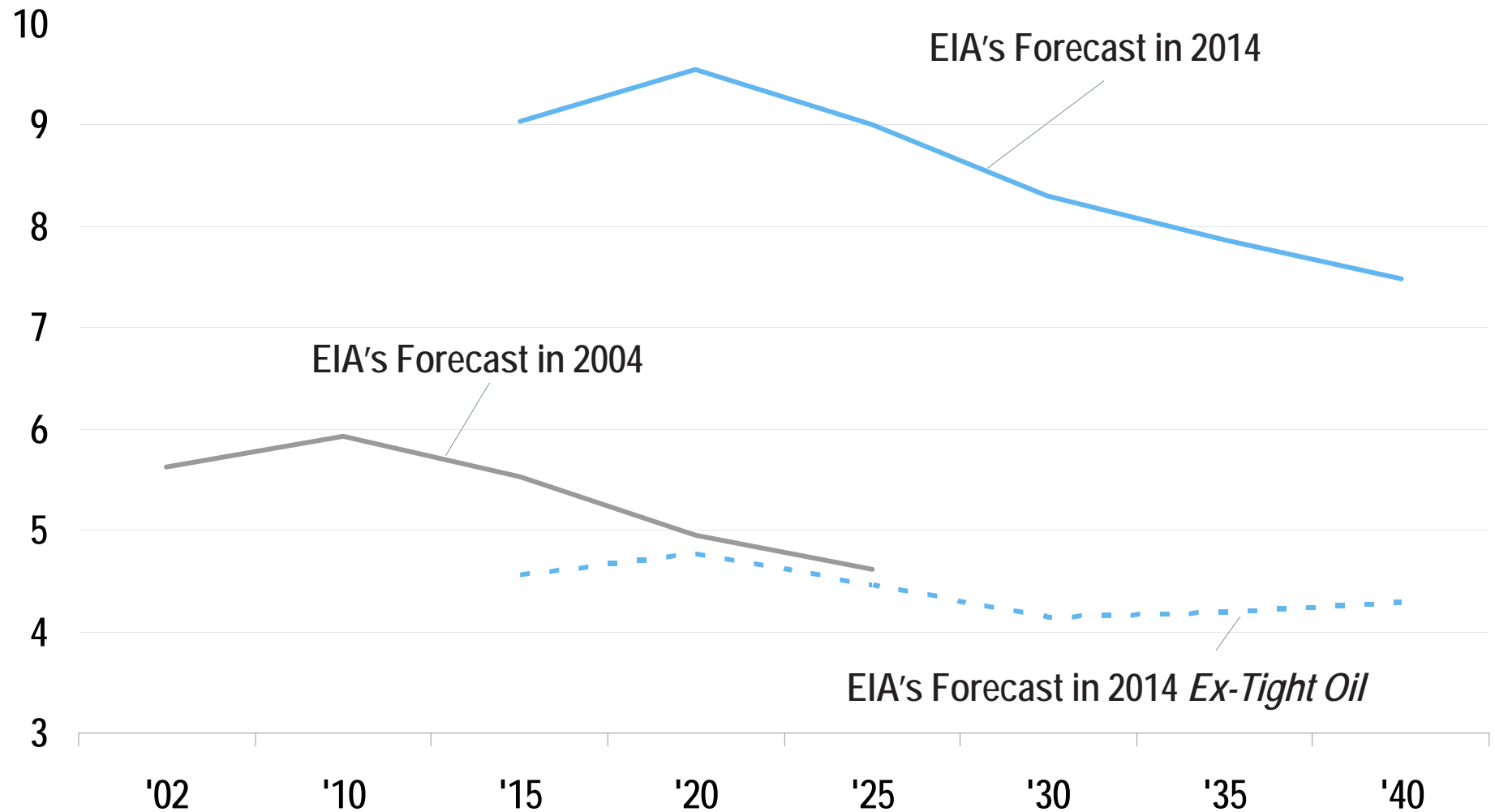
Five-Year Moving Average Crude Price Set To Cross \$100



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US Crude Supply Forecasts Were Low By *Half*

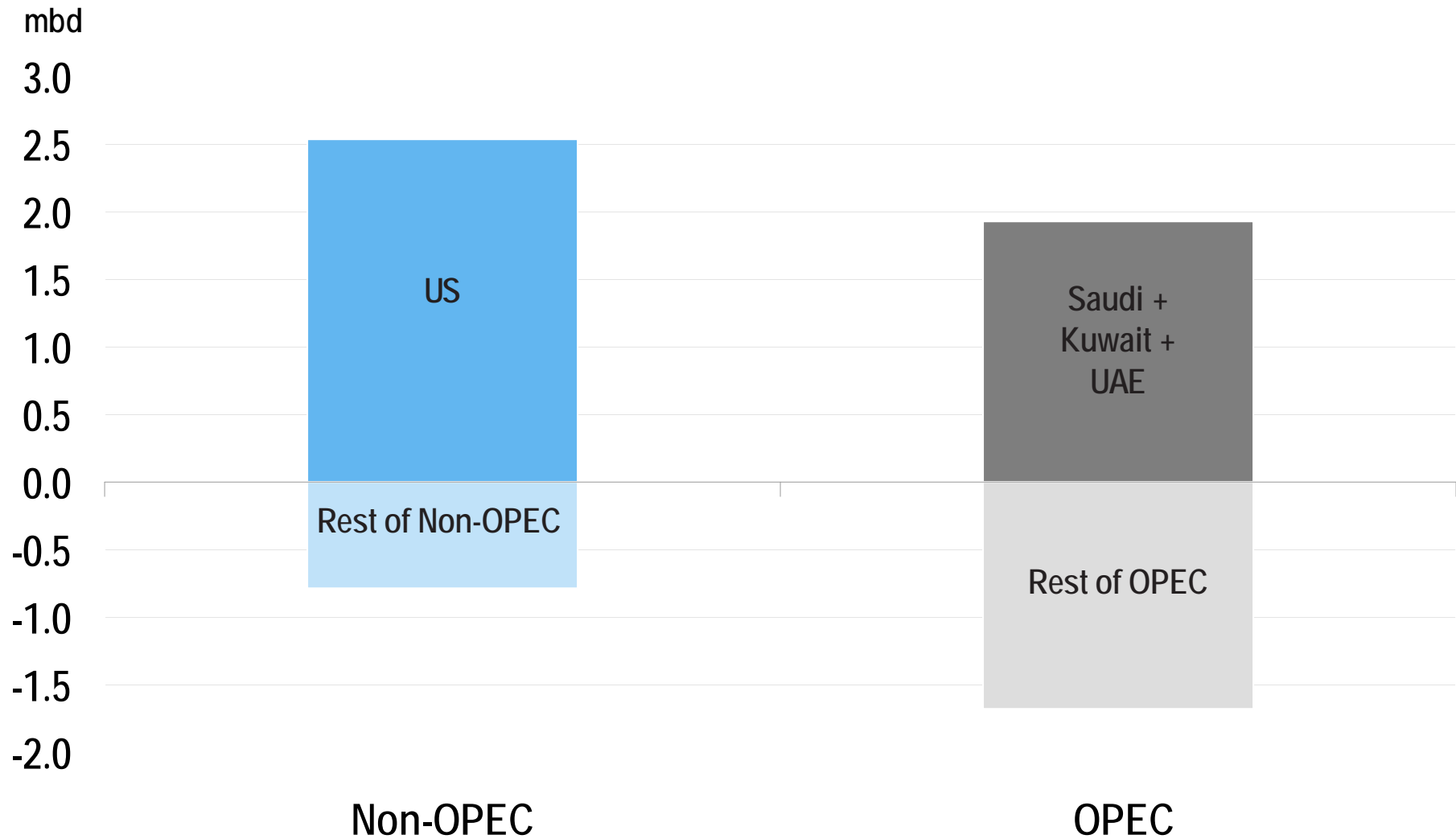
EIA's Forecast Of US Crude Supply, Then & Now
million b/d



CIBC Commodities Strategy, EIA's Annual Energy Outlooks

US + "Gulf-3" Bail Market Out

Supply Chg, 2013 vs 2010



CIBC Commodities Strategy, IEA, Petrologistics, gov't sources

Call On OPEC Still Increases During US Boom

Chg, 2013 vs 2010

million b/d

4.0

3.5

3.0

2.5

2.0

1.5

1.0

0.5

0.0

Global Oil Supply

Global Oil Demand

Call on OPEC

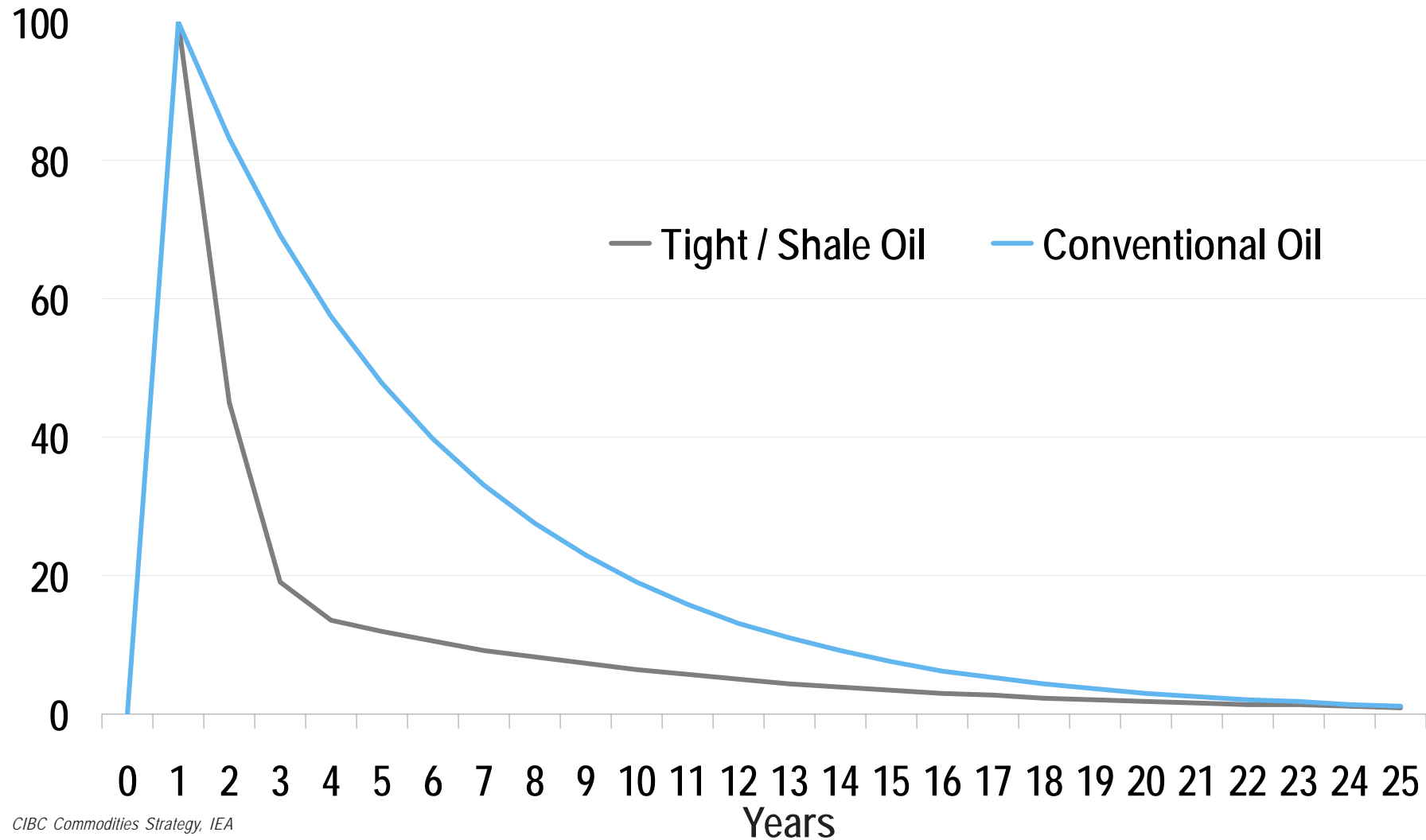
US

CIBC Commodities Strategy, IEA, Petrologistics, gov't sources

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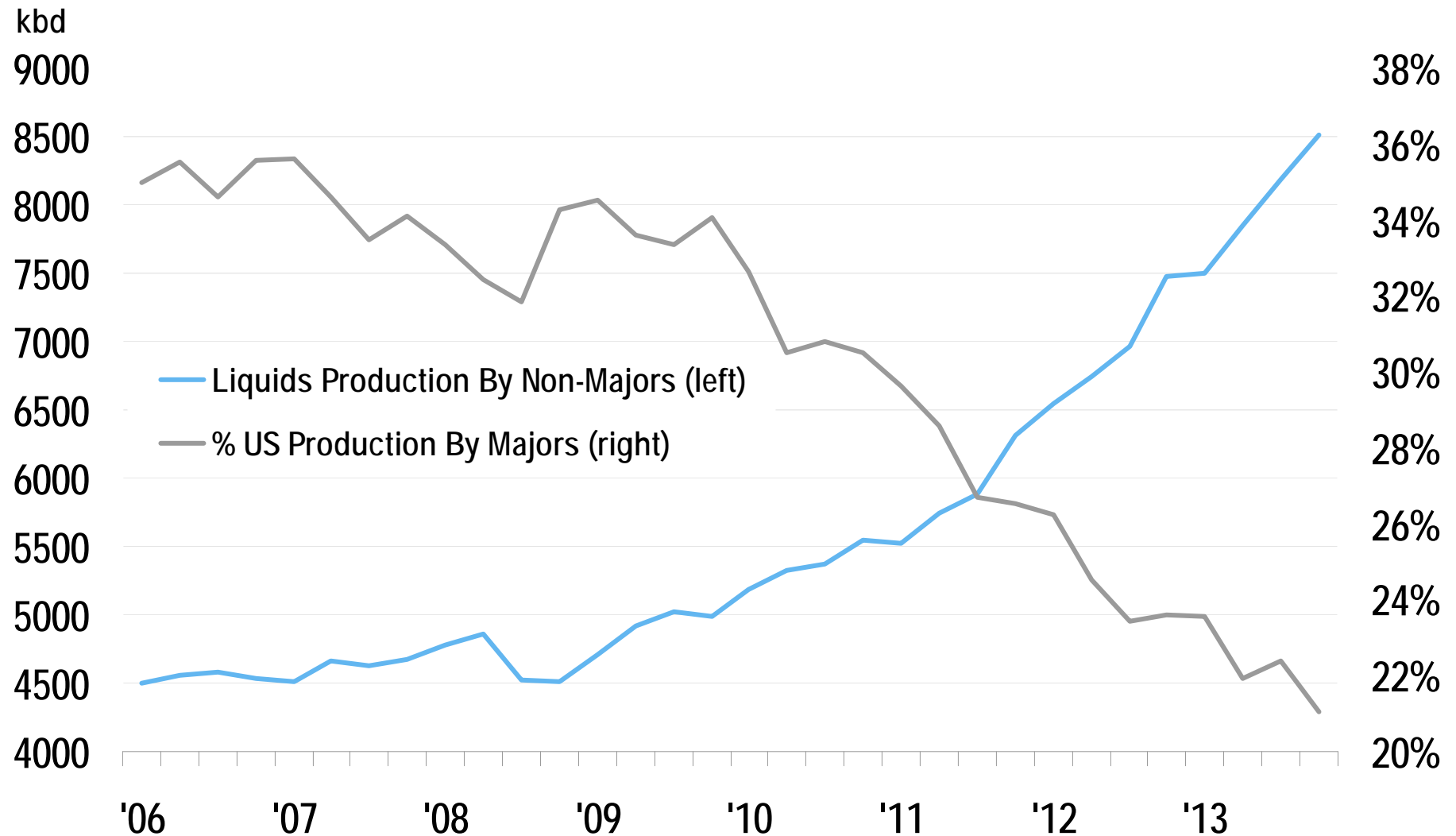
A New Type of Supply Curve

% of Peak Production



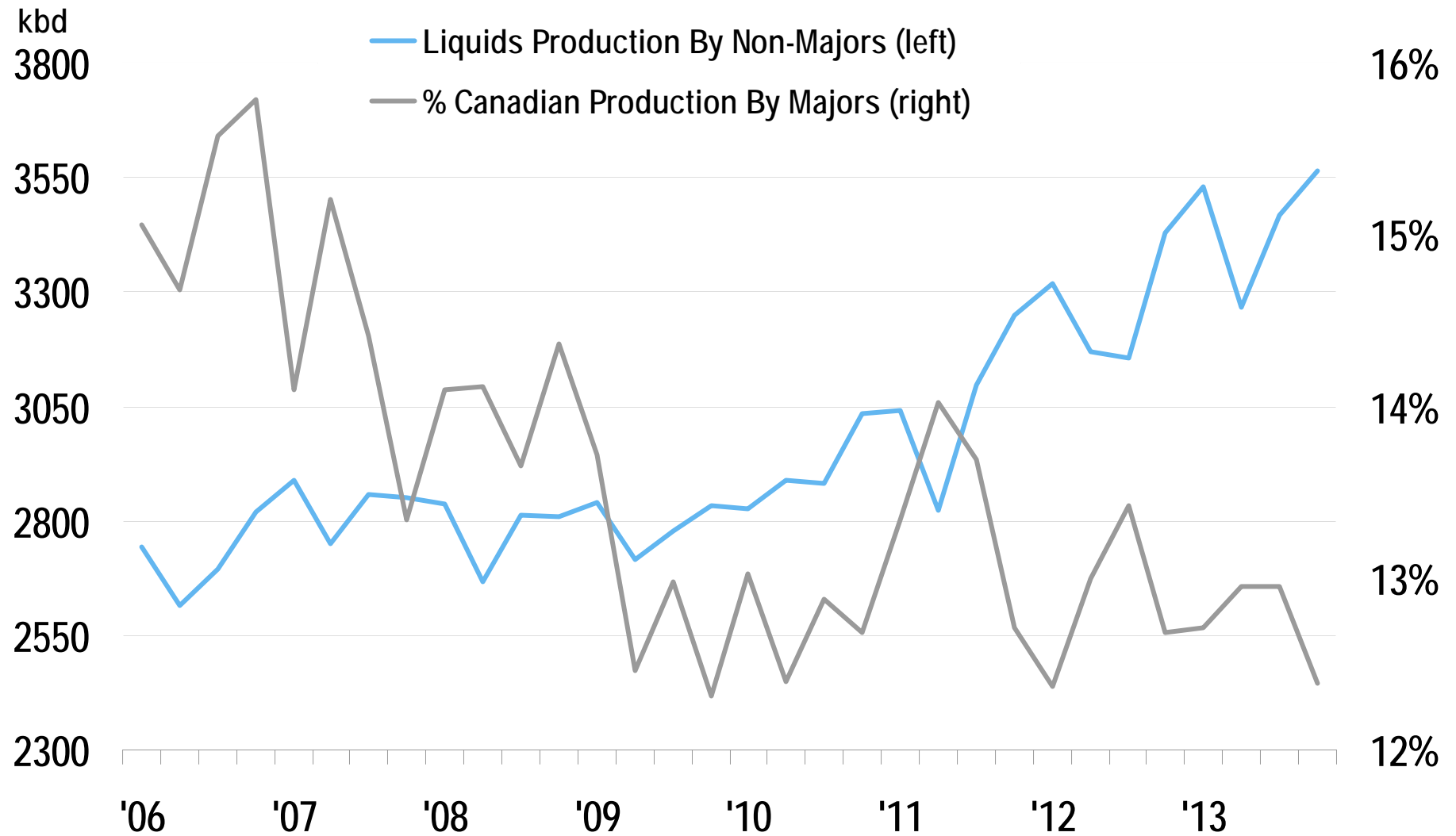
CIBC Commodities Strategy, IEA

Crude Growth Not From the Majors* In the US



CIBC Commodities Strategy, IEA, Industry Reports
 *Majors here include BP, CVX, COP, XOM, RDSA, TOT, OXY

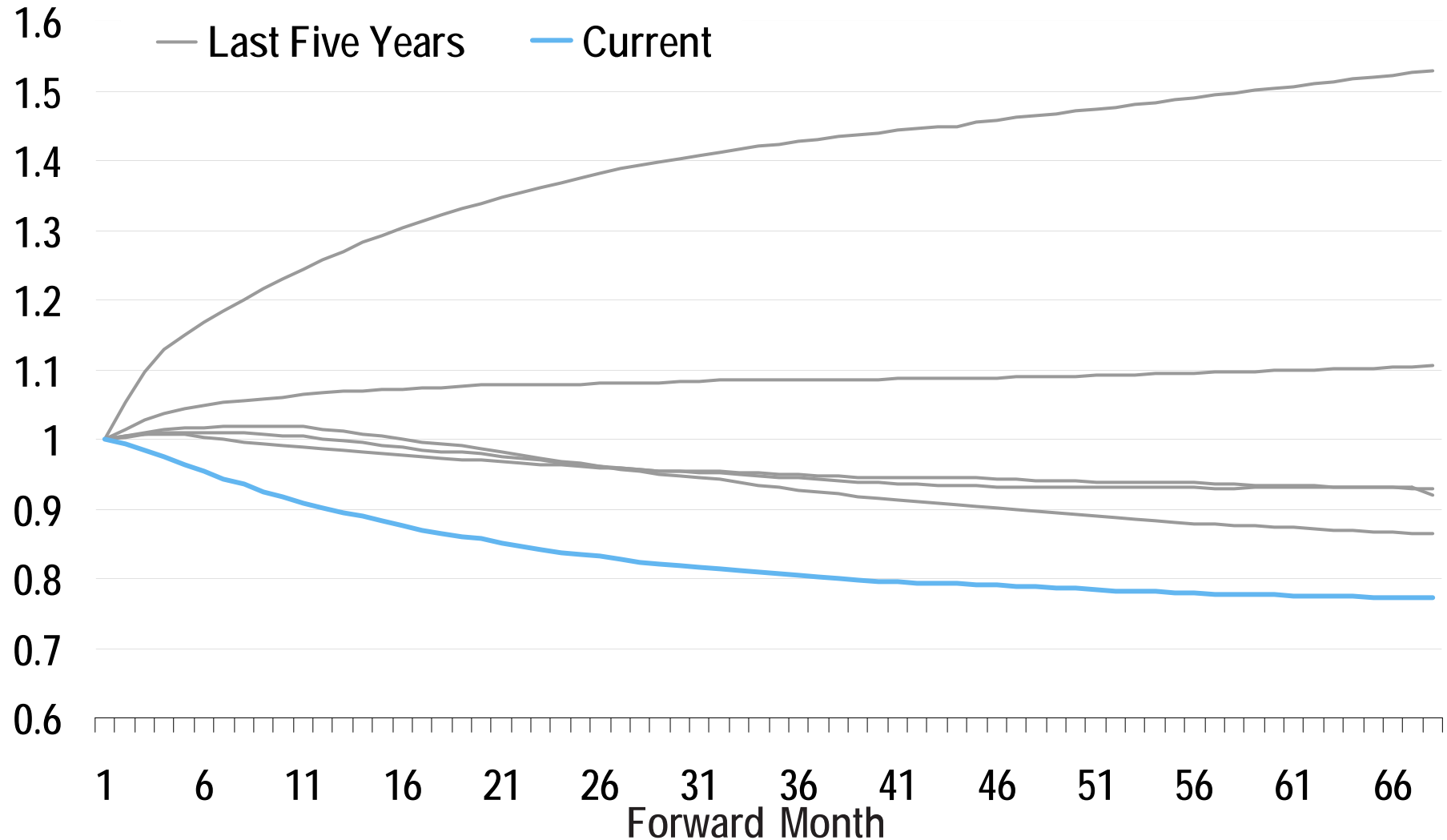
...Or In Canada



CIBC Commodities Strategy, IEA, Industry Reports
 *Majors here include BP, CVX, COP, XOM, RDSA, TOT, OXY

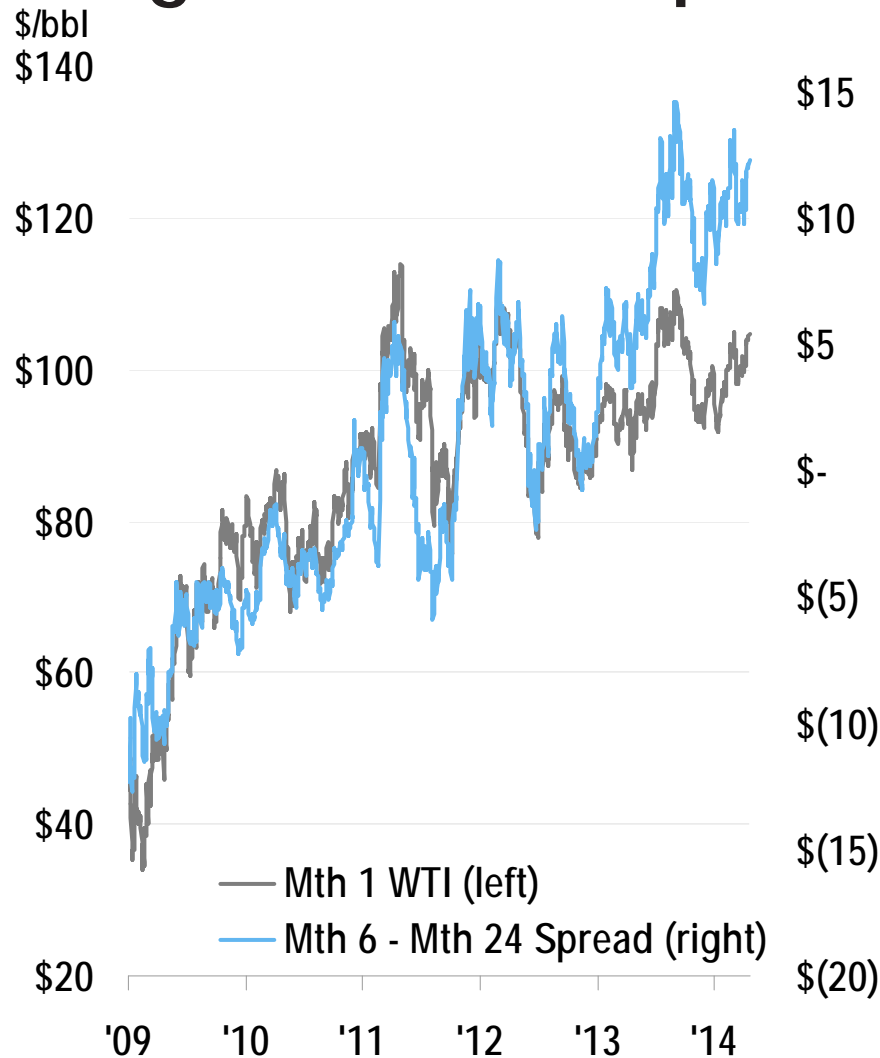
Fwd Curve Not A Forecast But Gives Market Clues

Spot Price = 1

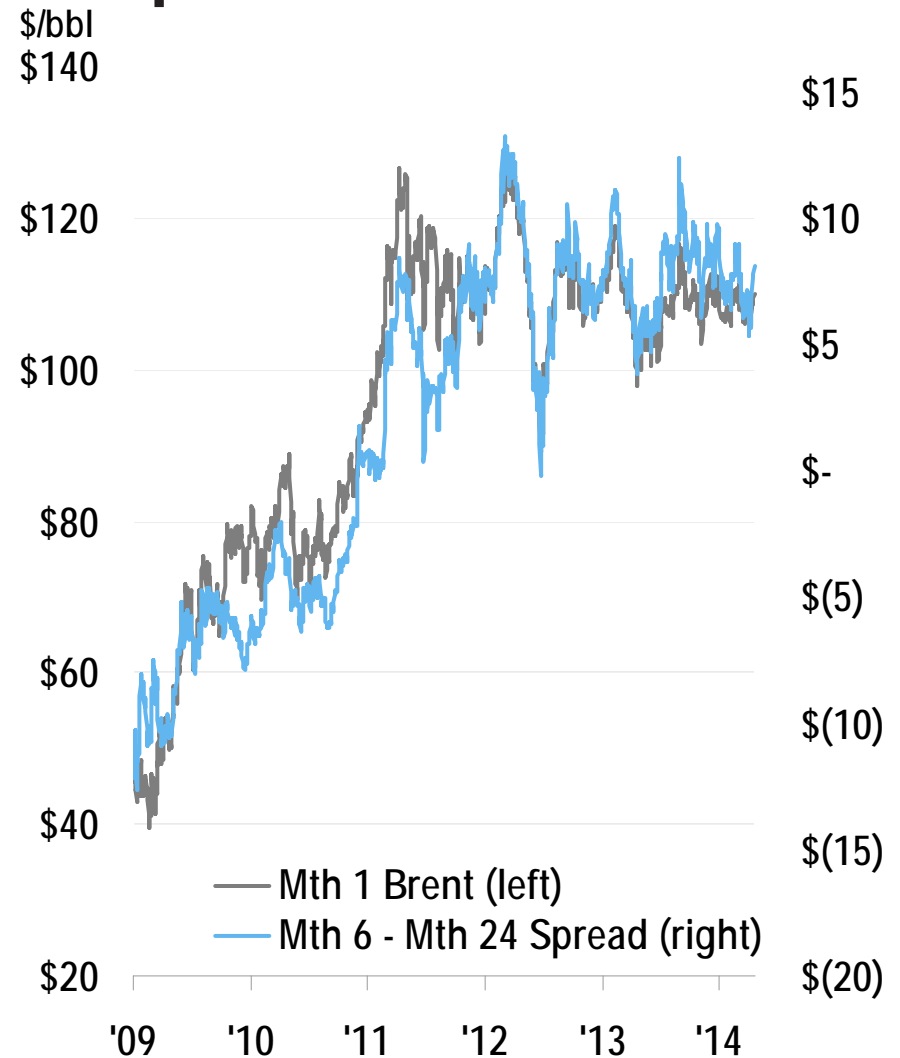


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Long-dated WTI Spreads Outpace Flat Price



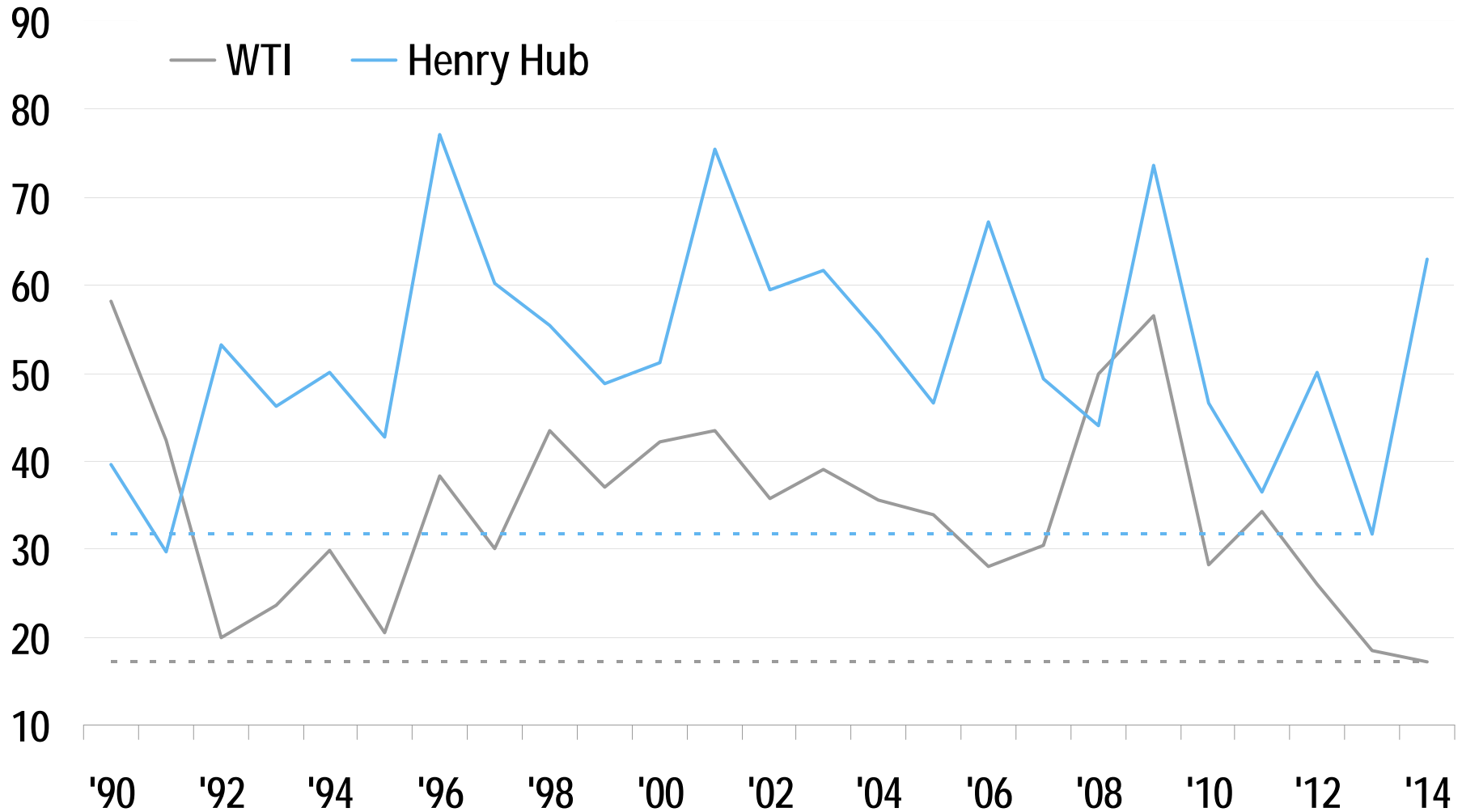
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3/27/14

How To Interpret Historically Low Volatility?

30-Day Realized Volatility, Annual Avg



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The Infrastructure We Need Is Not the Infrastructure We *Thought* We Would Need...

Instead of moving imported crude barrels north from the US Gulf to the Midcontinent (the way US pipelines were designed), volumes now have to go the other way. Canadian barrels need new outlets beyond the US Midcontinent, too.

US and Canadian light crudes are scrambling to make their way to US and Canadian East Coast refiners, and displacing waterborne crudes in the process.

US exports of products and NGLs need infrastructure changes / additions too.

And natural gas? We thought it would have to move from west to east in North America, and that's how pipeline infrastructure was designed. (Not to mention LNG infrastructure, which is also pointing the "wrong" way).

Marginal deliverability sets price, not marginal supply.

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