

The Changing Face of the Oil and Gas Markets

Calgary event | 22 October 2013

US Crude Oil Market: UPDATE

Esa Ramasamy

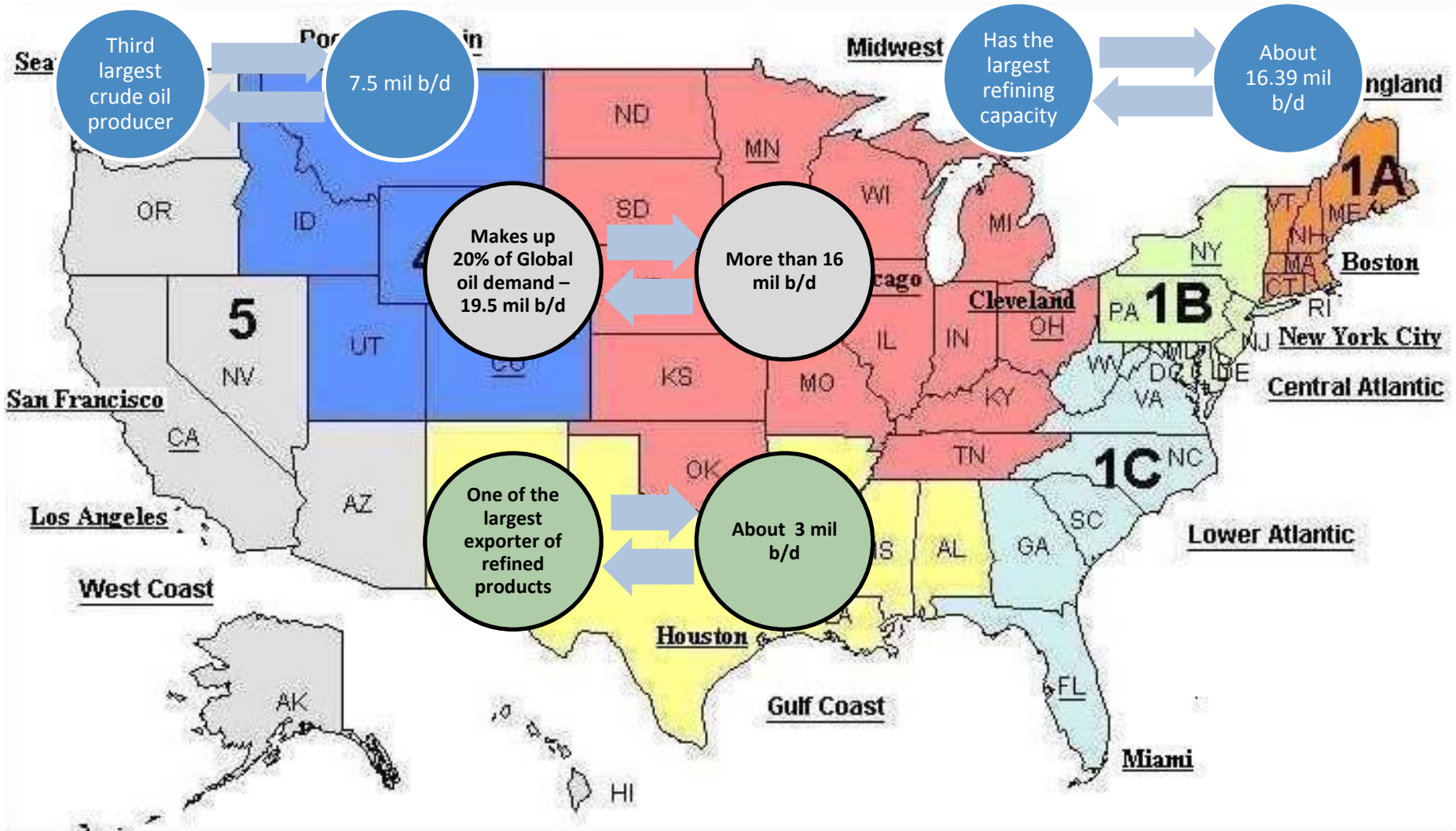
Global Director – Strategic Oil Markets Development

October, 2013

***“nothing is permanent
except change”***

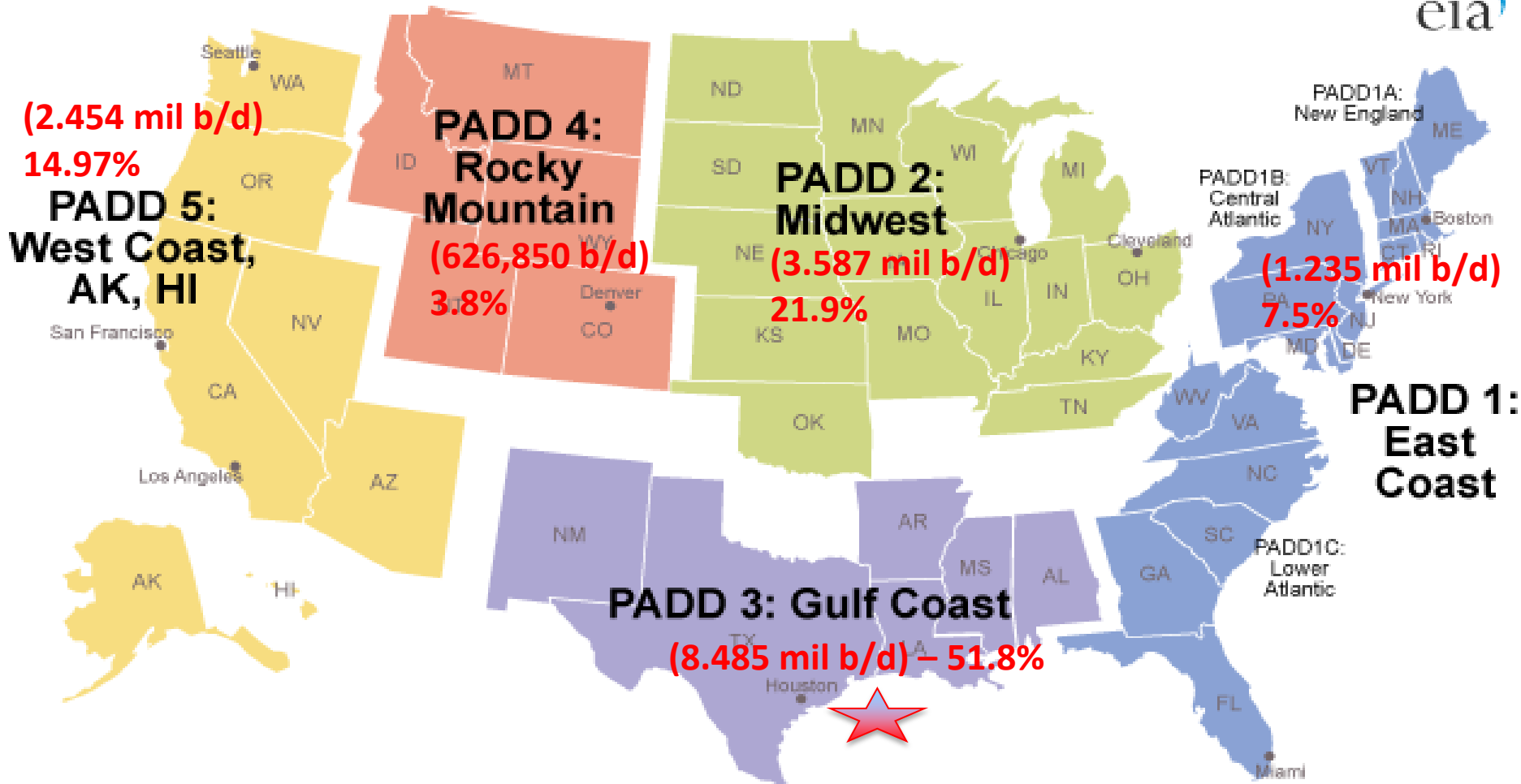
Heraclitus

Has the US taken Center Stage?



Total Capacity: 16.388 mil b/d

Petroleum Administration for Defense Districts



US Tight Oil Takes Center Stage

U.S. Is Overtaking Russia as Largest Oil-and-Gas Producer - WSJ

US to become largest crude oil producer by 2020: EIA

US crude production in August hits 25-year high for month of 7.6 mil b/d: API

US tight oil a challenge to OPEC's future: IEA

Oil markets oversupplied amid 'staggering' US shale boom: BP

US shale boom to further cement links to global market - Naimi

Impact of US monetary policy: Impact on oil prices

January 2002

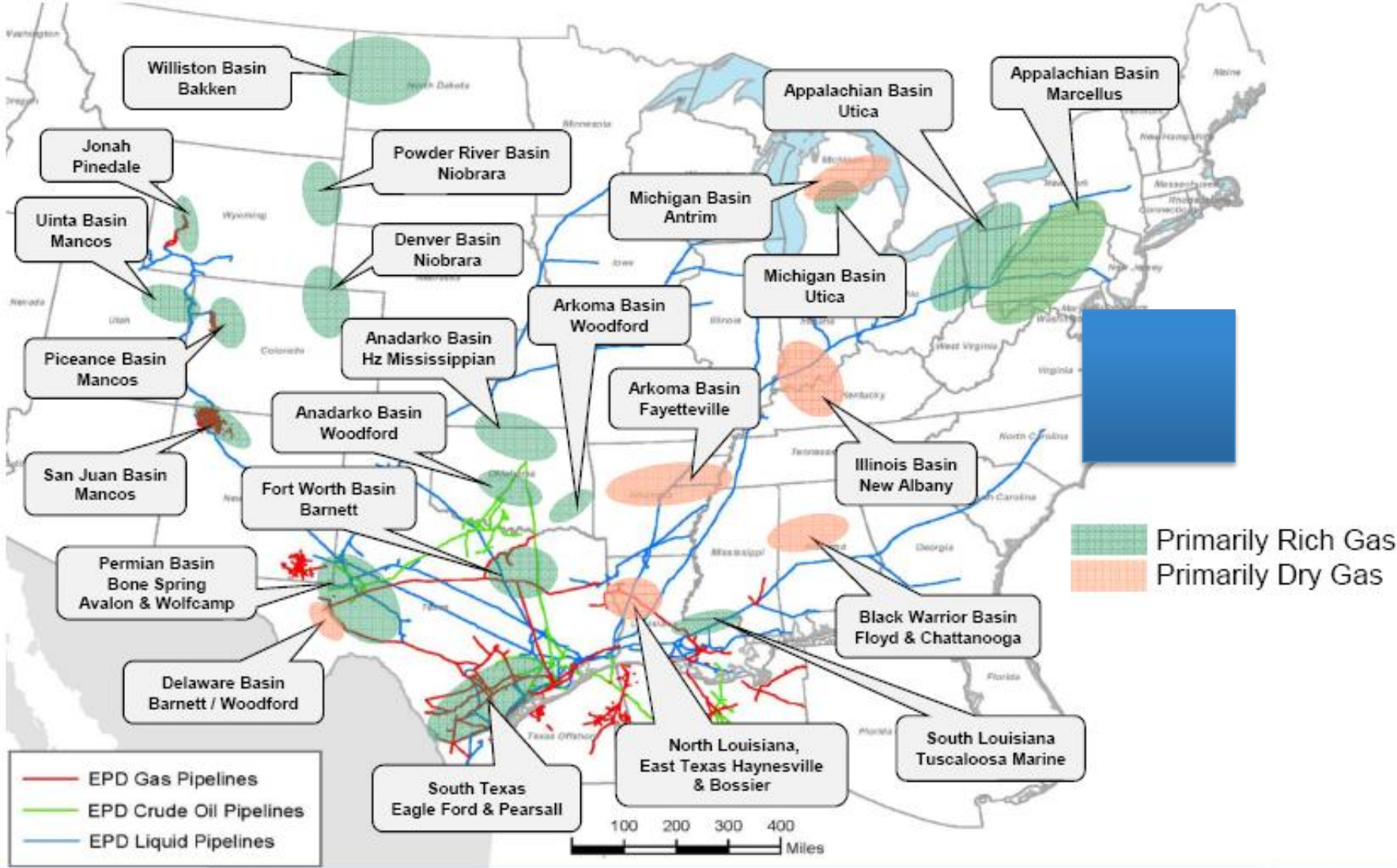
Boundary representation is not necessarily authoritative.

802804AI (R00352) 12-01

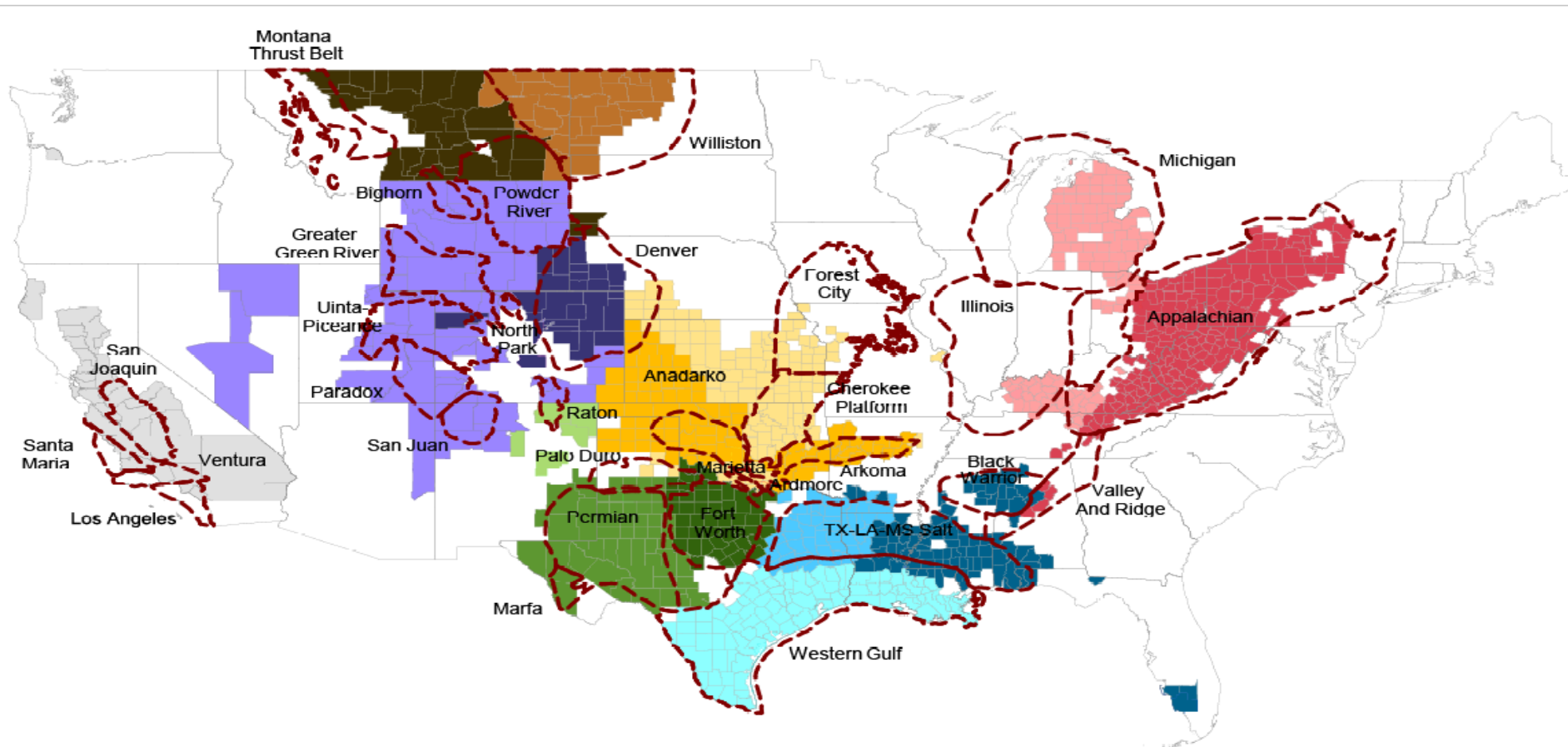
Impact of US Monetary Policy



Map of US Shale Plays

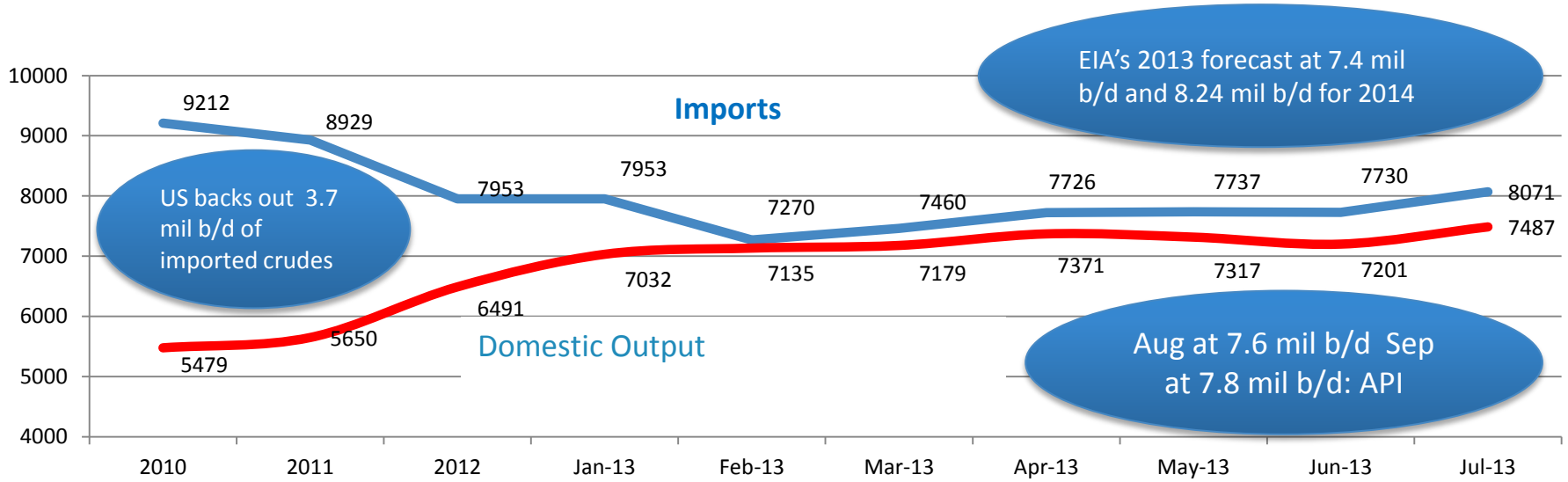


Major Onshore US Producing Areas



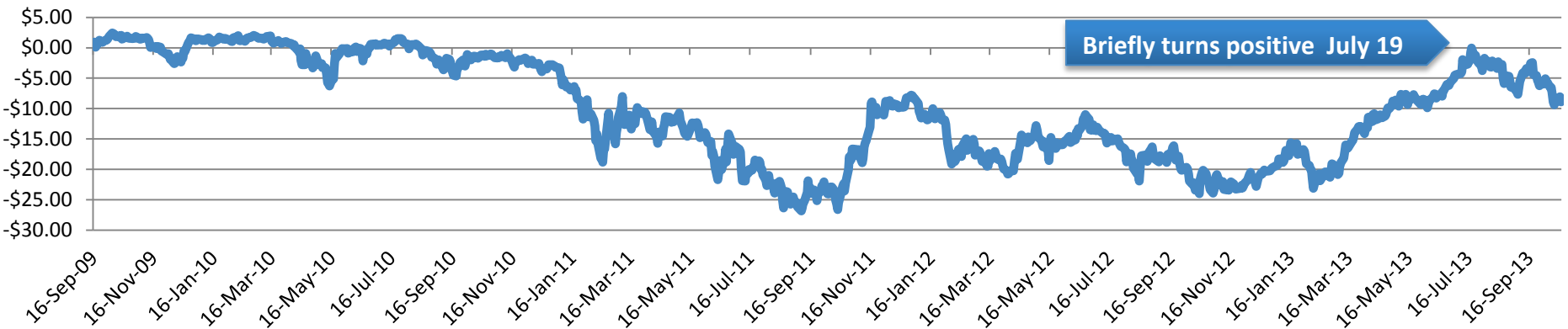
EIA Model Regions and Basins

■ 1-APPALACHIAN BASIN	■ 2-WESTERN GULF	■ 4-OTHER SOUTHWEST	■ 6-OTHER WEST COAST
■ 1 OTHER NORTHEAST	■ 3 ANADARKO/ARKOMA	■ 4 PERMIAN BASIN	■ 7 OTHER NORTH GRPLAINS
■ 2-EAST TX/HAYNESVILLE	■ 3-OTHER MIDCONTINENT	■ 5-DENVER BASIN	■ 7-WILLISTON BASIN
■ 2-OTHER GULF COAST	■ 4-BEND ARCH-FORT WORTH	■ 5-OTHER ROCKIES	



Source: US EIA

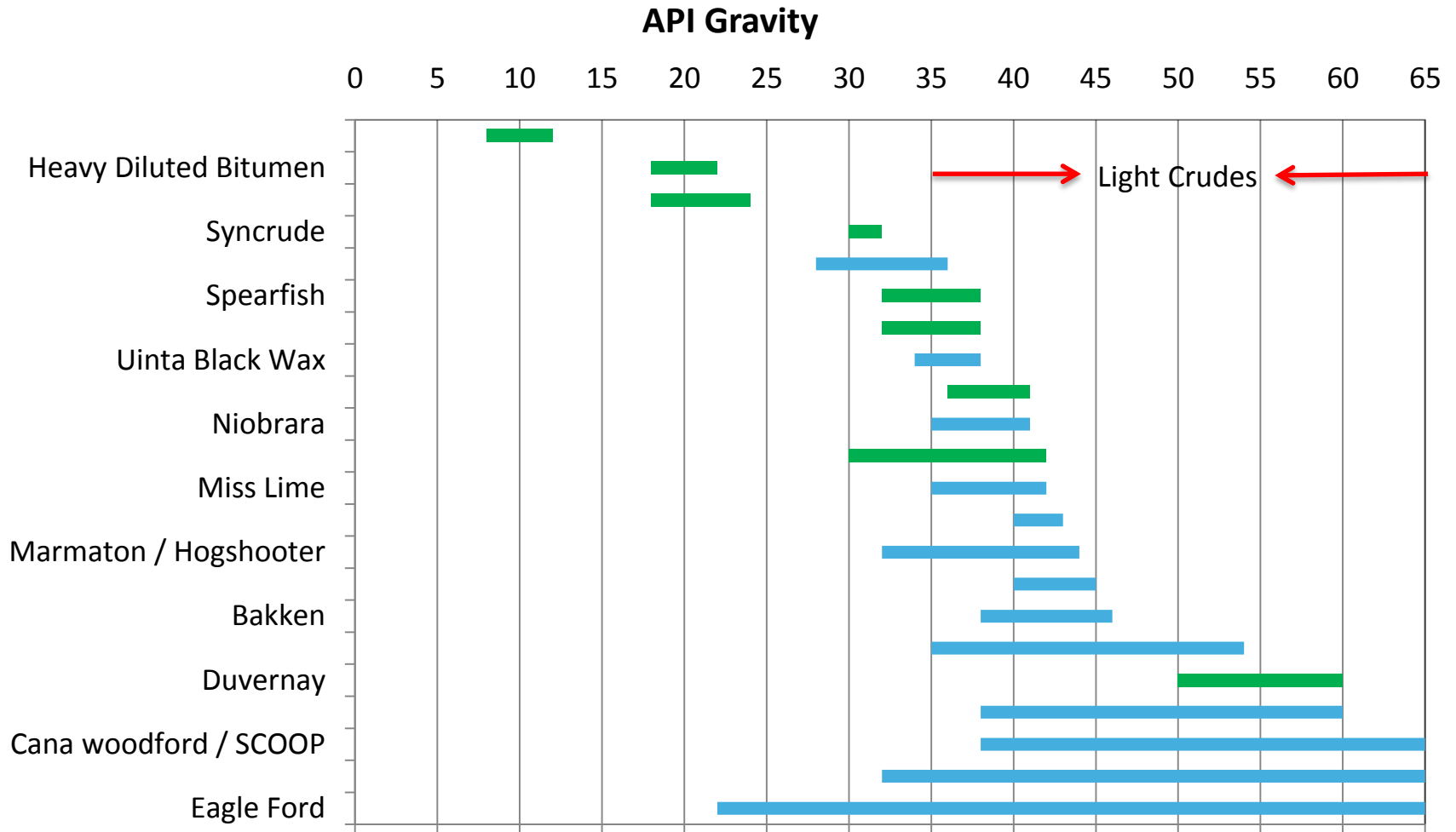
ICE Brent-NYMEX WTI Spread



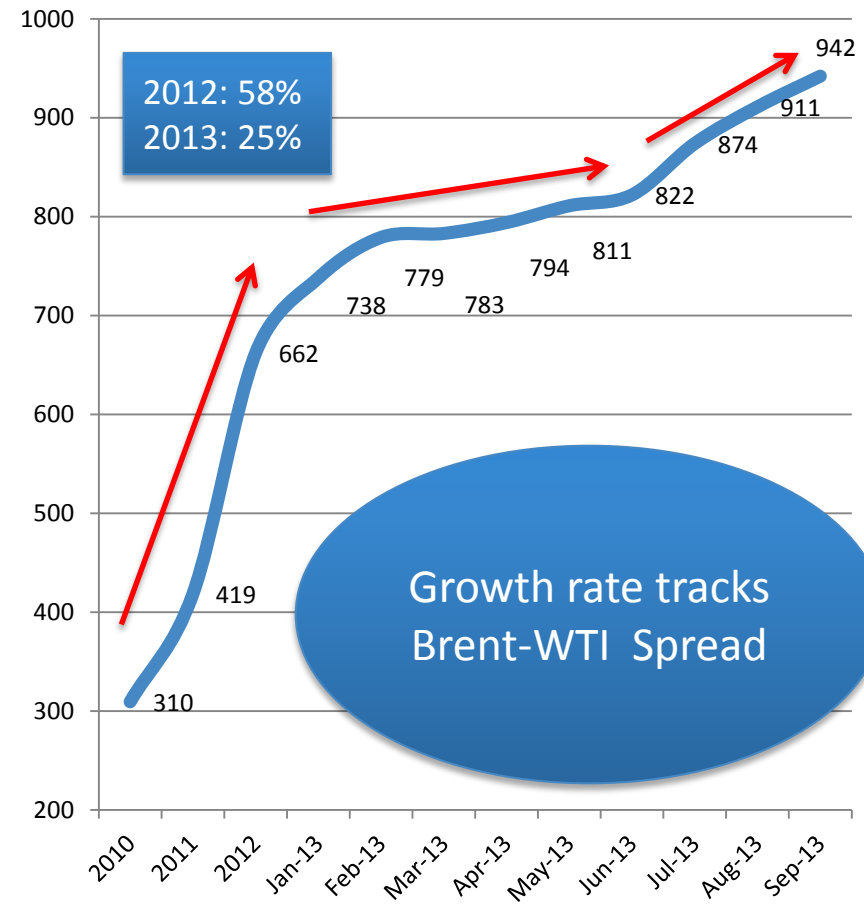
Source: Platts

- US crude oil production growth appears more reliant on economics --- not national policy of energy independence
- Production expected to continue to rise but at lower rates
- Brent-WTI spread seen as “circuit breaker” for US output
- Extent of US crude oil output growth rate dependent on market structure, export policy, storage development and domestic refining capacity

US Shale Crude Quality

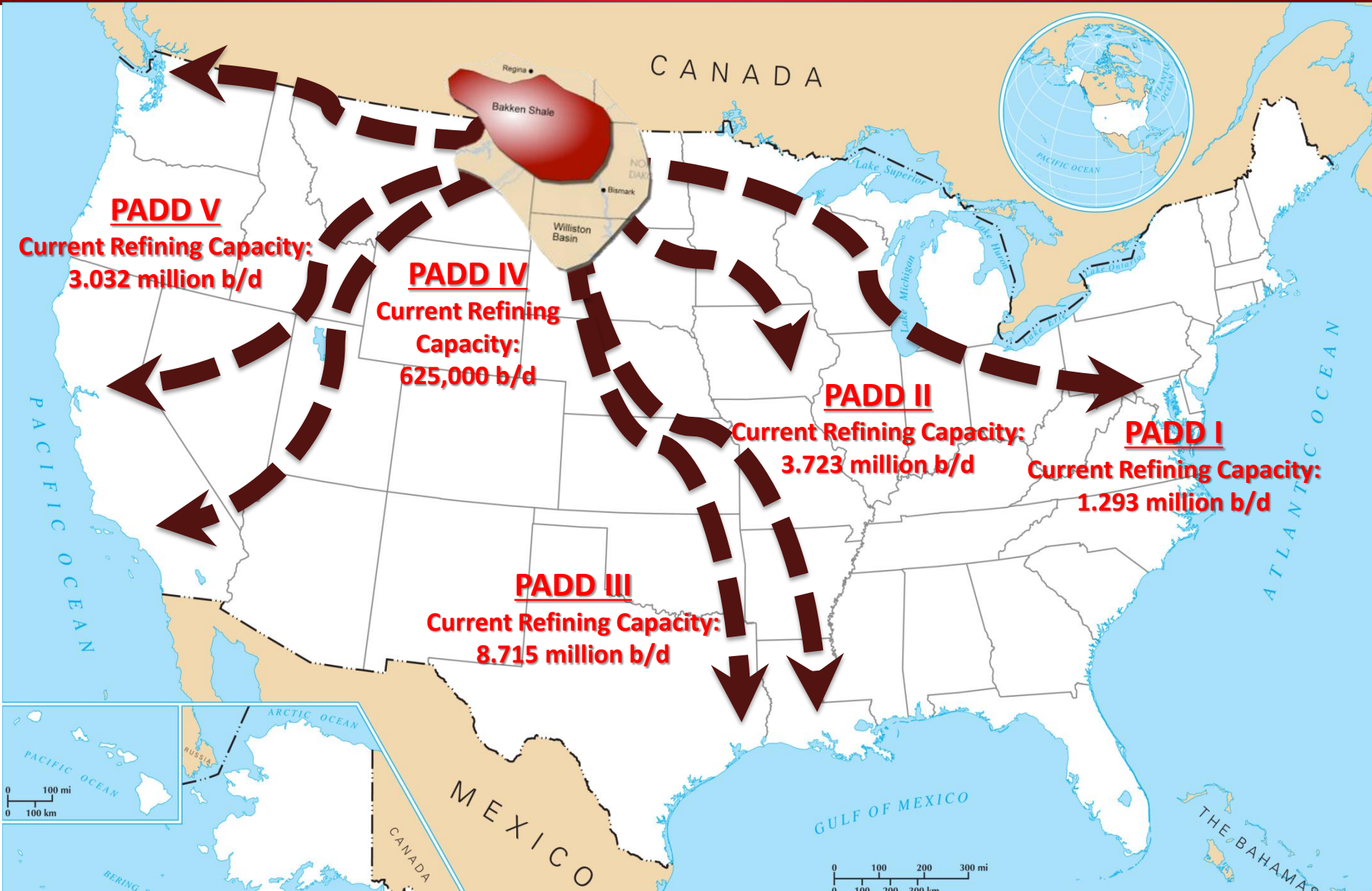


- Current focus is largely on North Dakota (Bakken) and Texas (Eagle Ford Shale and Permian Basin)
- Other developments taking shape include the Utica Shale (Ohio/Pennsylvania); Niobrara (Colorado); Mississippian Lime (Oklahoma/Kansas); Monterey Shale (California)
- Makes up close to 12% of total US crude oil output as of July
- N.Dakota currently just over 900 kb/d, expected to reach 1 mil b/d by year end – beats expectations
- Production growth has slowed compared to previous years as Brent-WTI spread narrows

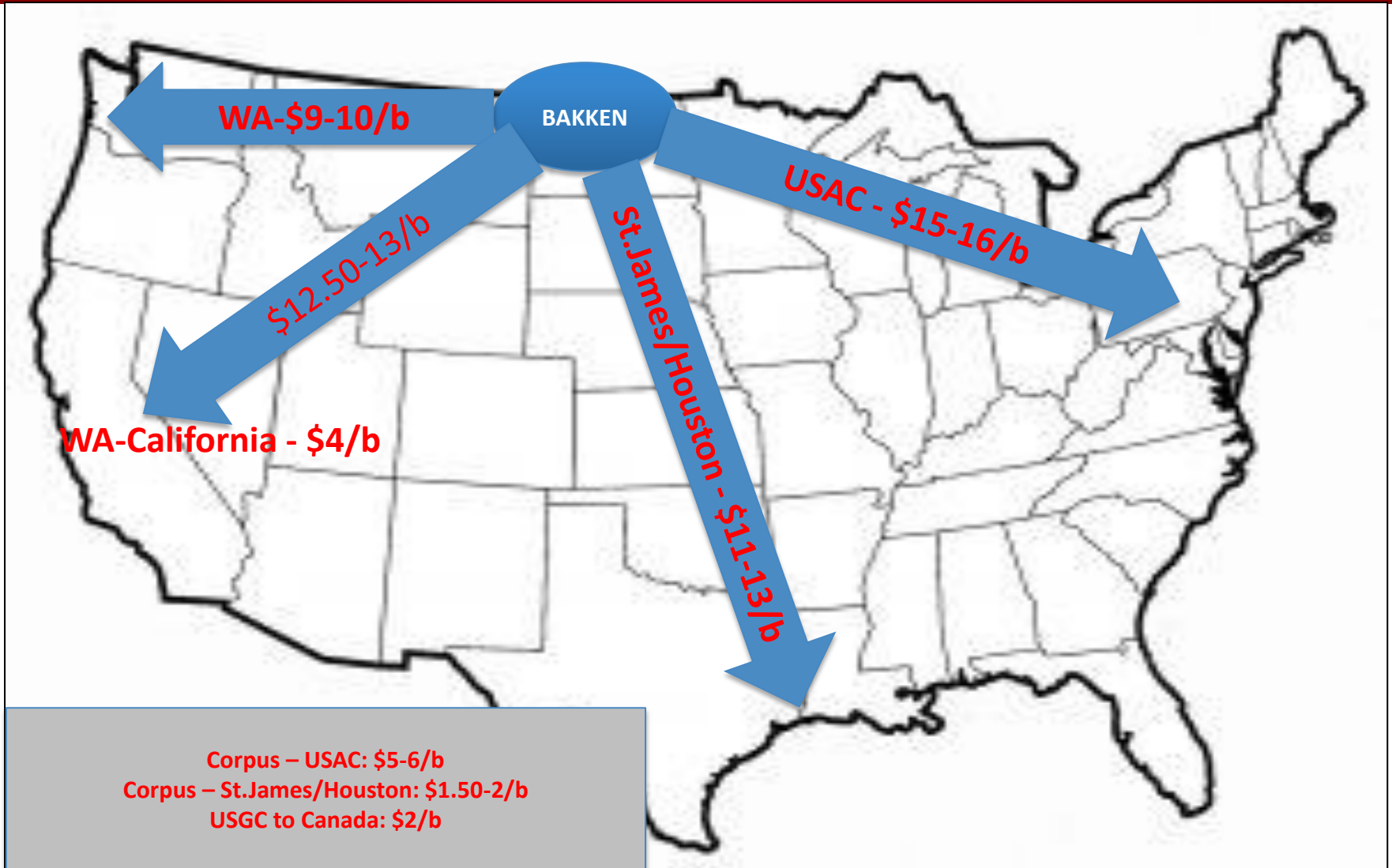


Source: North Dakota & API

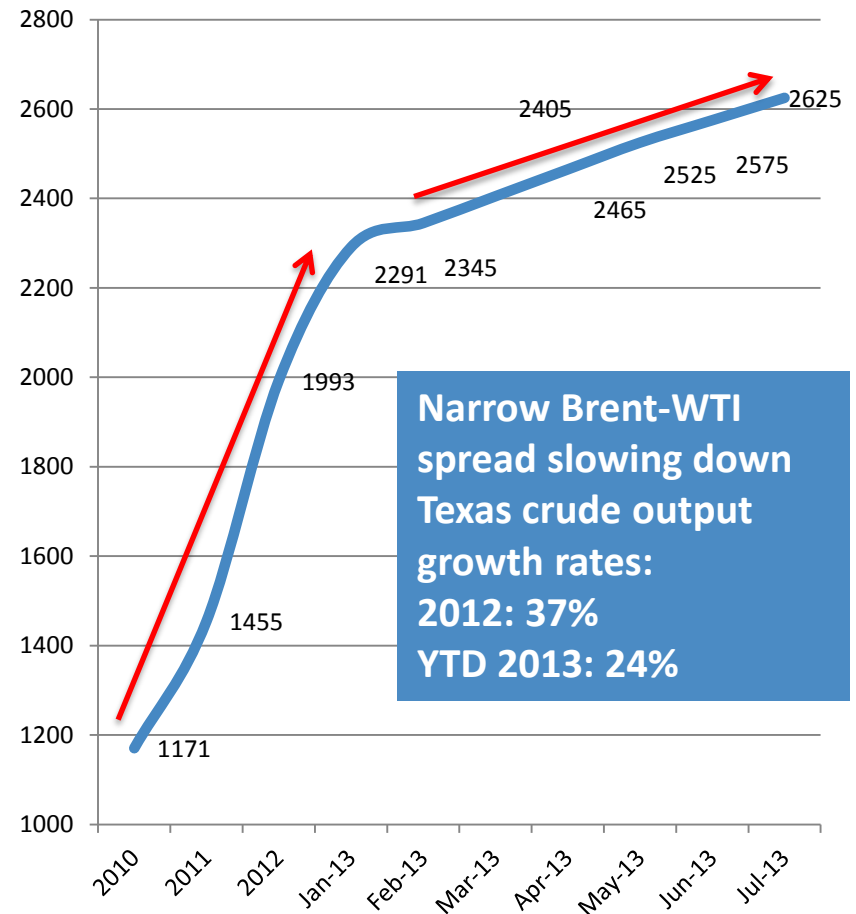
Bakken Crude Oil Reach



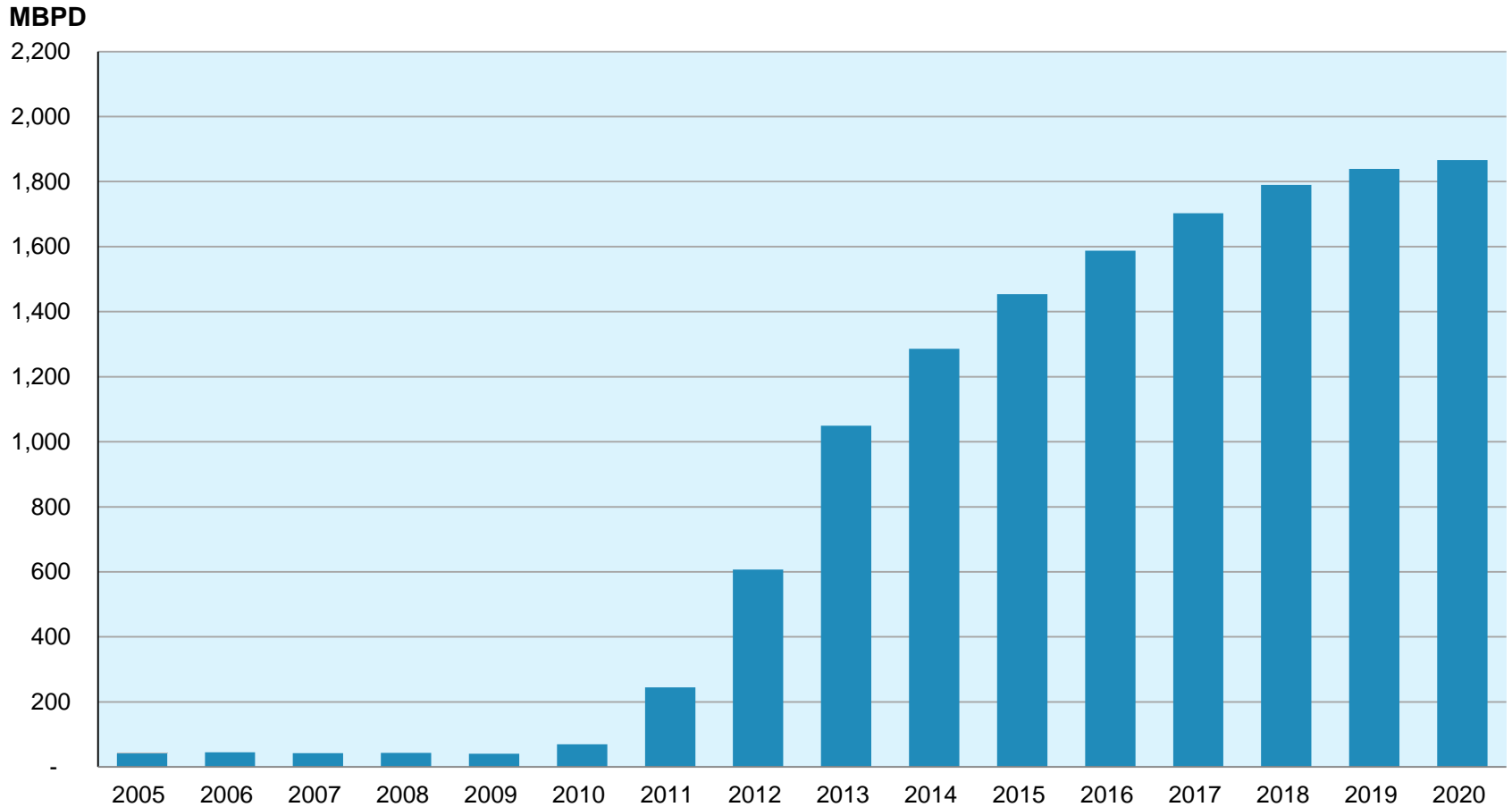
Cost of Shipping and Rail



- Texas crude output makes up 35% of total US production
- Exceeding expectations with output rising about 2.6 mil b/d
- Shale production accounting for about 2.2-mil b/d
- Permian Basin producing between 1.4-1.5 mil b/d - crude alone at more 1.1 to 1.2 -mil b/d
- Eagle Ford Shale production close to or over 900 kb/d with crude over 650 kb/d

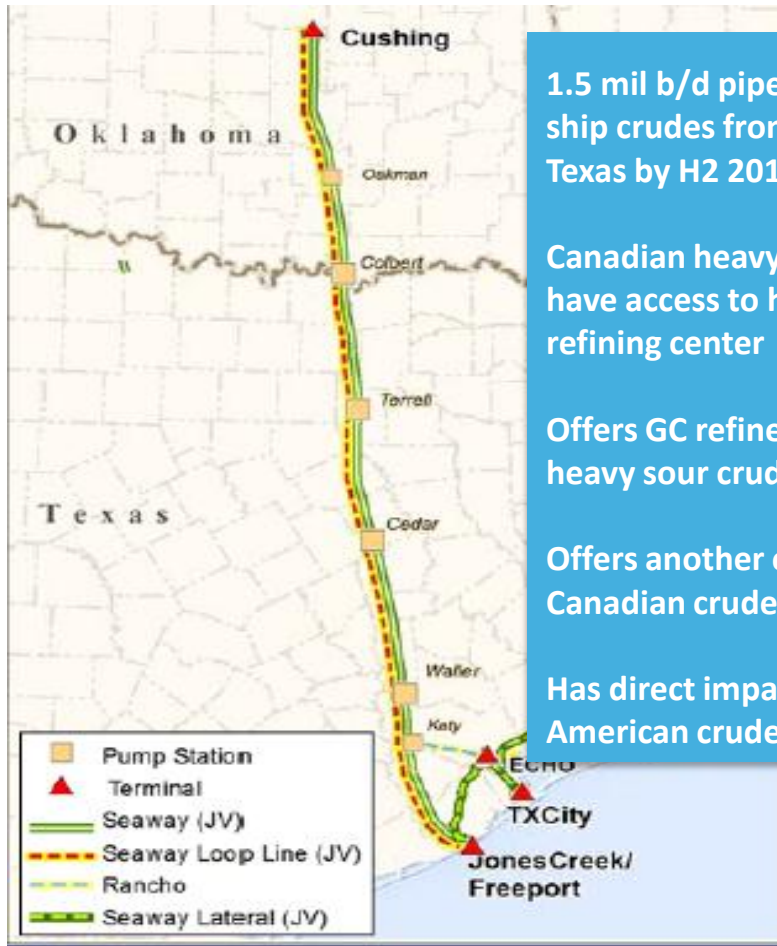


Source: EIA



Source: Bentek Energy

Seaway Pipeline



1.5 mil b/d pipeline capacity to ship crudes from Cushing to Texas by H2 2014

Canadian heavy sour crudes would have access to heart of US refining center

Offers GC refiners competitive heavy sour crudes

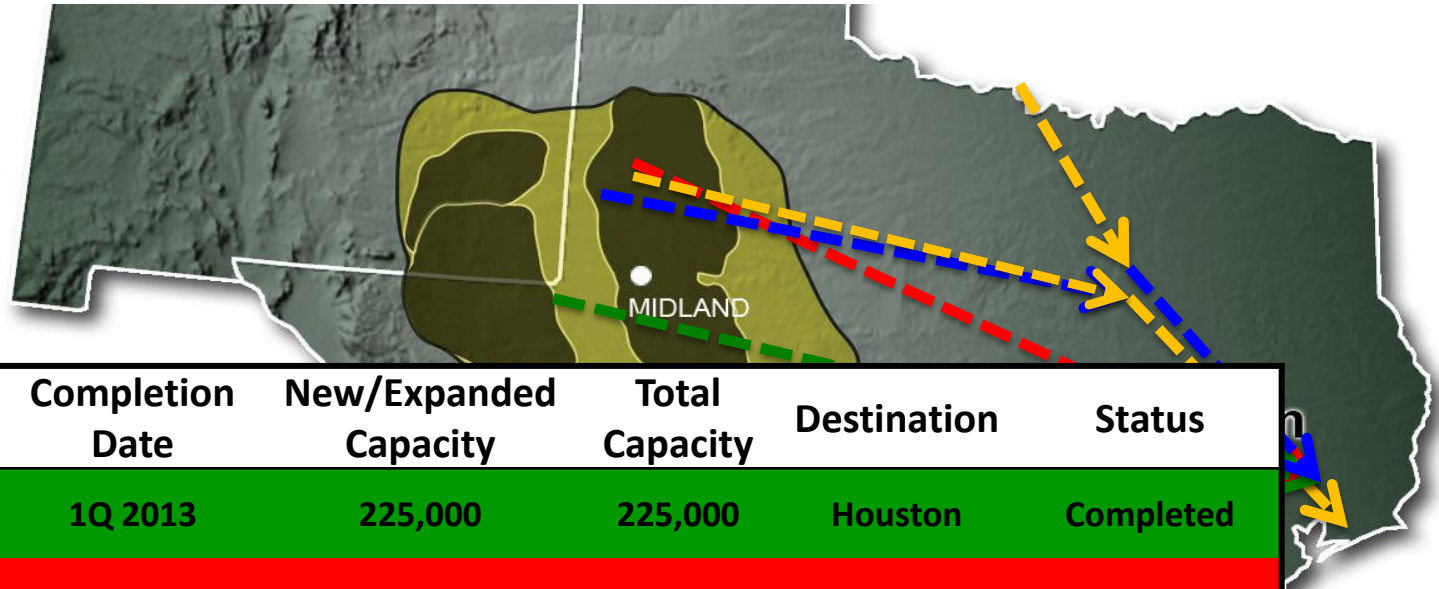
Offers another export route for Canadian crudes

Has direct impact on Latin American crude producers

Gulf Coast Pipeline

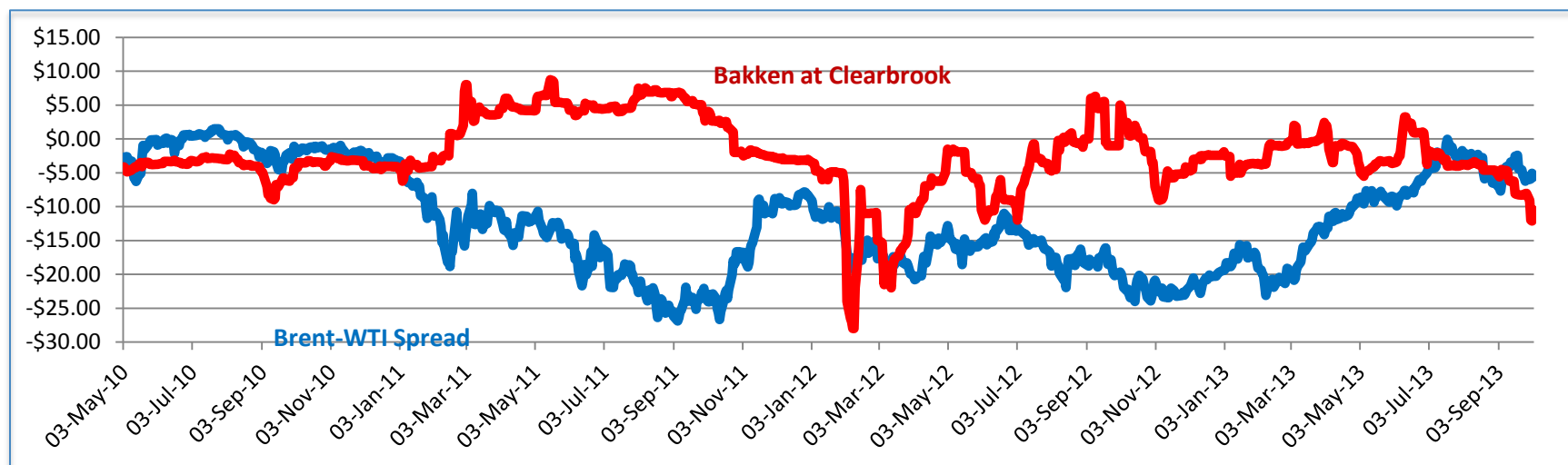


Current Developments

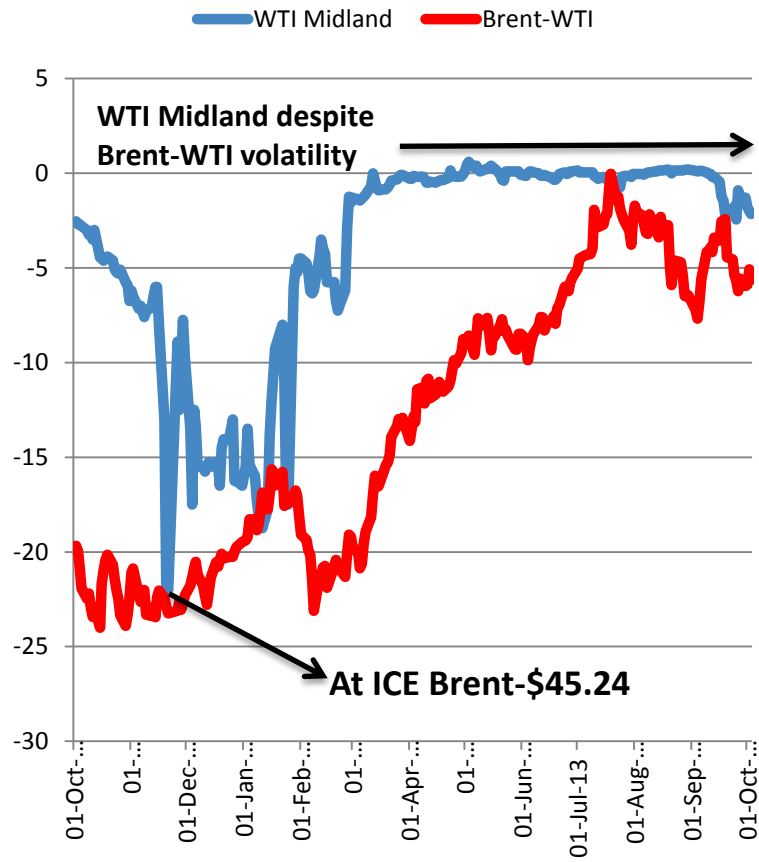


	Completion Date	New/Expanded Capacity	Total Capacity	Destination	Status
Magellan Longhorn Segment Reversal	1Q 2013	225,000	225,000	Houston	Completed
BridgeTex (50/50 Oxy & Magellan)	Mid-2014	300,000	300,000	Houston	Developmental Stage
Permian Express (Sunoco Logistics)	2H 2014	350,000	350,000	Nederland	Phase 1 Complete 60 kb/d to come in late 2013/early 2014
Phase I	June 2013		90,000	Nederland	
Phase II	Mid-2015		200,000	Nederland	
Sunoco West Texas Gulf	Houston, Longview operational	70 out of 110,000 operational	110,000	Nederland	Construction
TOTAL		985,000			

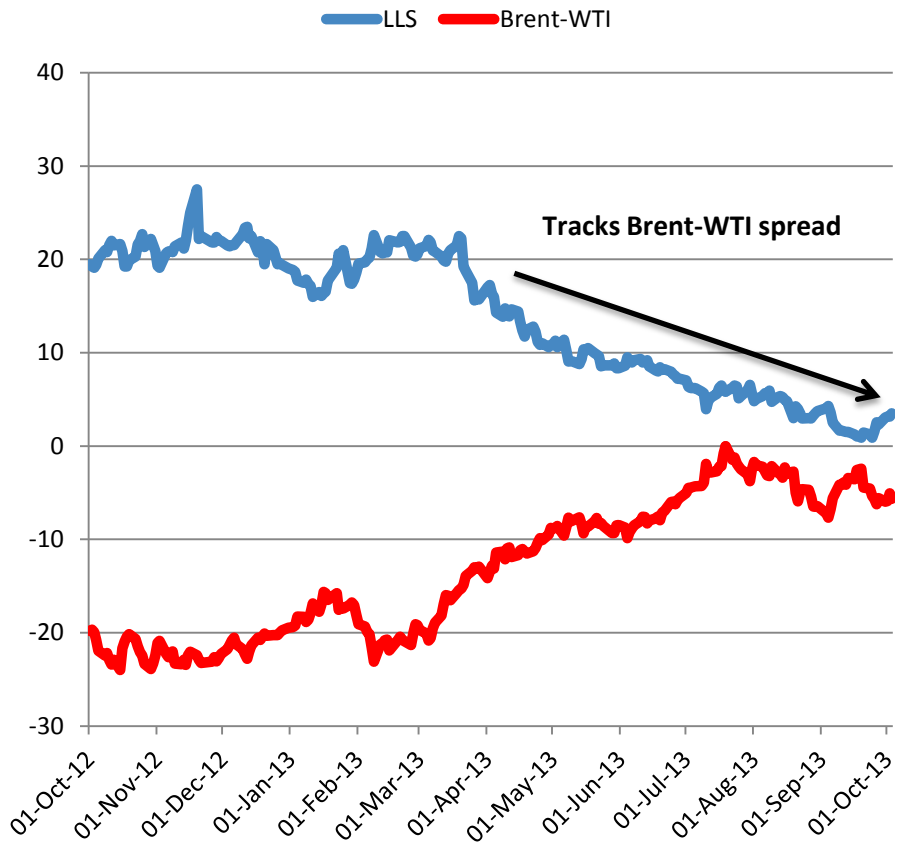
- ICE Brent-WTI spread between end Feb/to-date has narrowed by more than \$16/b
- Bakken's differential at Clearbrook has only recently reacted to the narrowing of the Brent-WTI spread

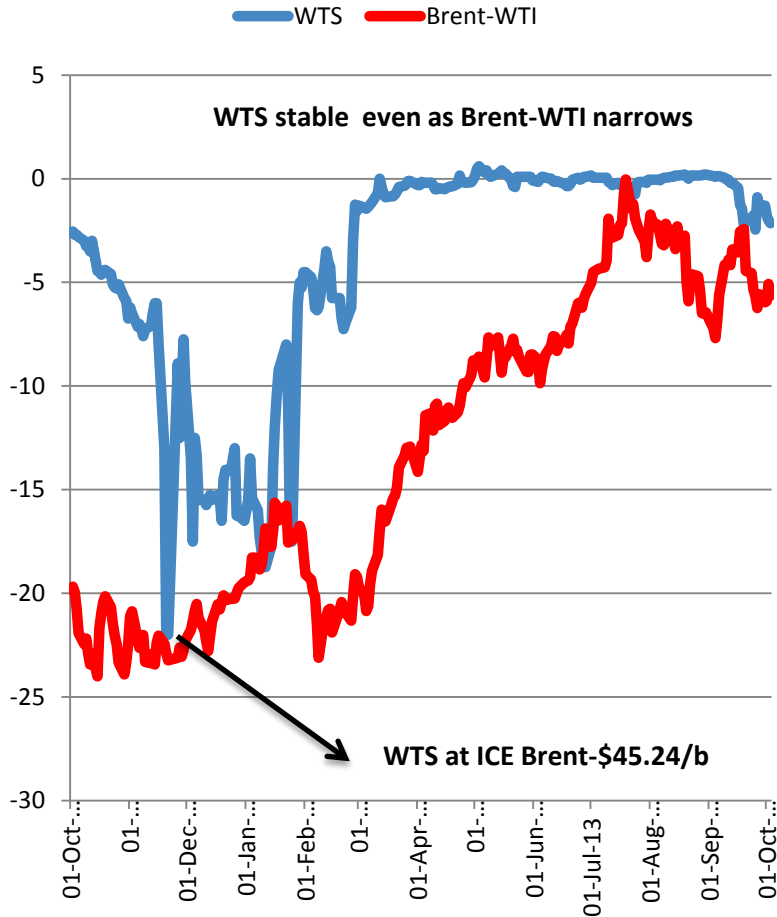


Source: Platts

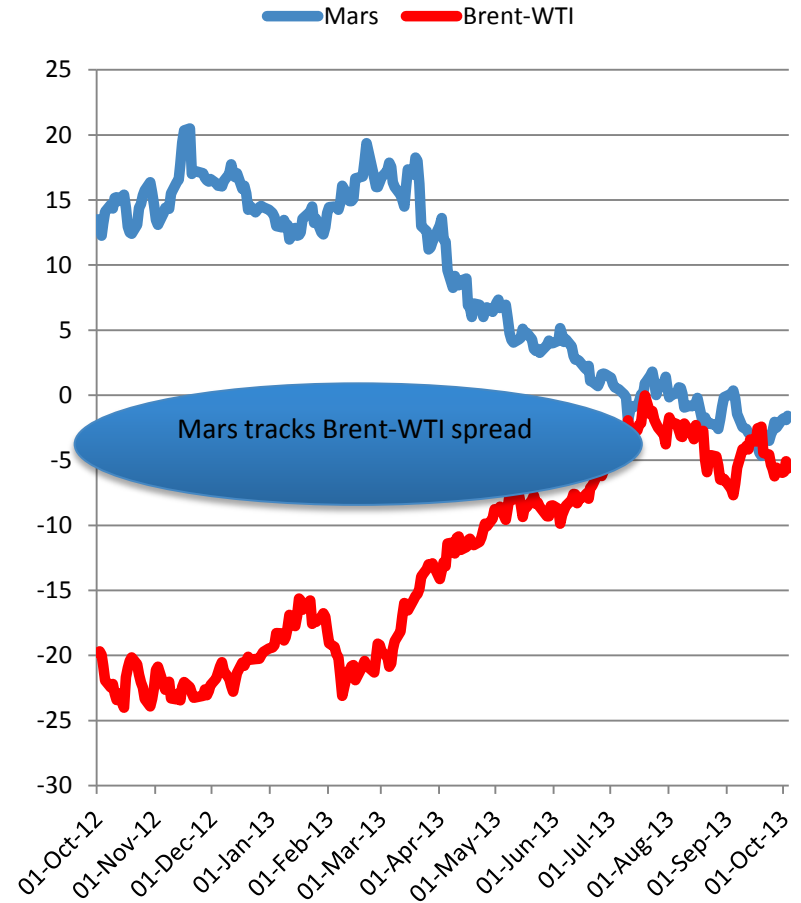


Source: Platts





Sources: Platts



- US shale developments and Canadian heavy sour's arrival into US Gulf Coast seen having global implications – even to Middle East producers
- Backing out of light sweet and heavy sweet crudes to have bearish impact on Brent
- Increase movements of Latin American crudes to Asia – first symptom
- Rise in topping capacity & condensate splitting capacity said to add more than 500 kb/d of capacity – mostly brownfield.
- Increased US exports of refined products along with new refining capacity in Saudi Arabia having bearish impact on global refining margins

- Limitations to US shale developments lies within
 - Export restrictions not enabling US crudes to react to international developments
 - Rising production projected to slow on lack of greenfield refining capacity
 - Narrowing Brent/WTI spread may set stage for lower differentials or production cut or short term inventory build
 - High cost of transportation – within the US
- Houston to replace Cushing as key pricing point
- Light Houston Sweet (reflecting WTI Midland specs) trading at WTI CMA+\$1.76/b or Americas Dated Brent-\$7.07/b (Oct 20)

Q&A

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The Path Forward: The Evolving Relationship Between the US and Canada

Justin Carlson, Senior Manager – Energy Analytics
October, 2013

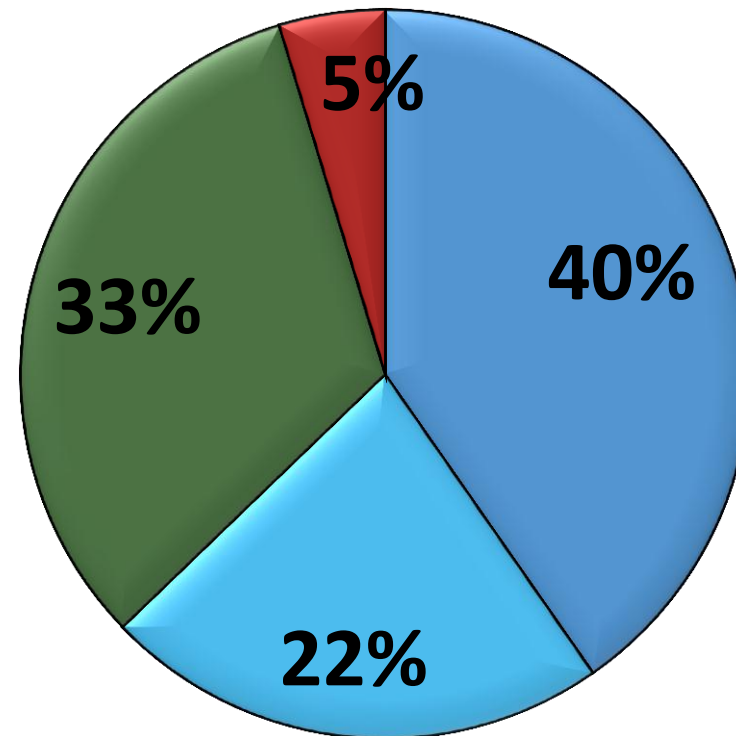
Who Is BENTEK?

Who We Are

- Based in Evergreen, CO
- 120 People
- 450+ Customers
- Subsidiary of McGraw-Hill/Platts

What We Do

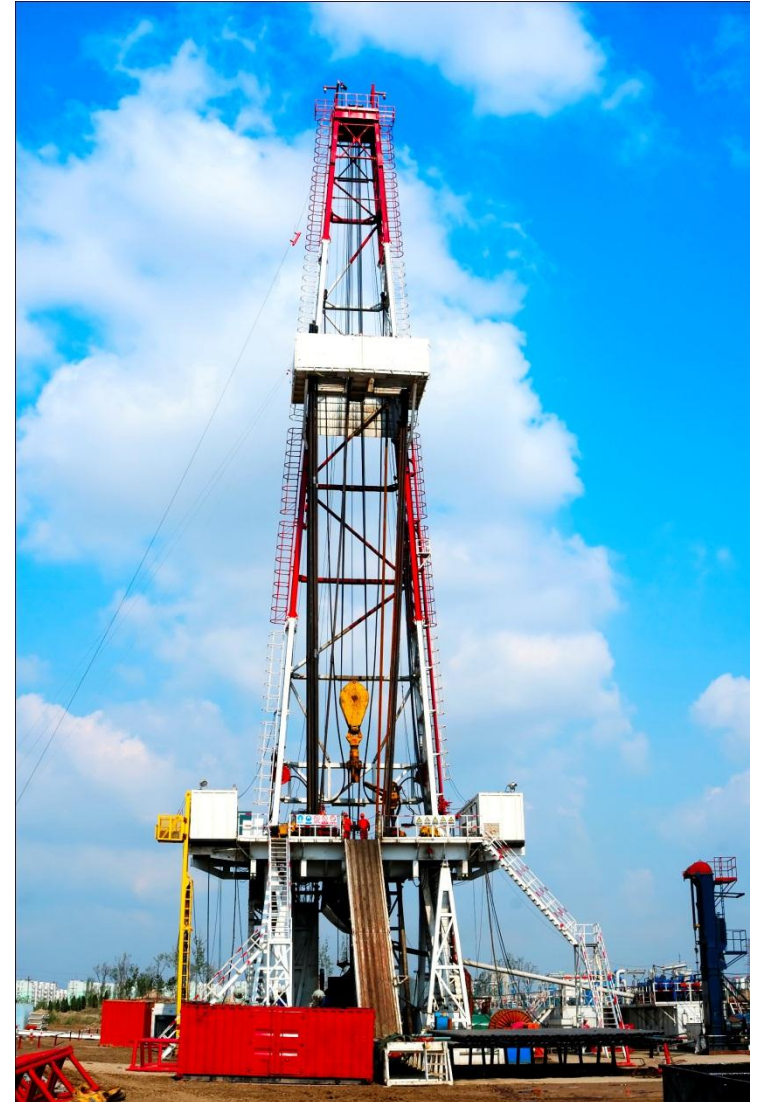
- Collect, Analyze and Distribute Information and Knowledge to the Energy Industry
- Reports, Data, Consulting, and Tools

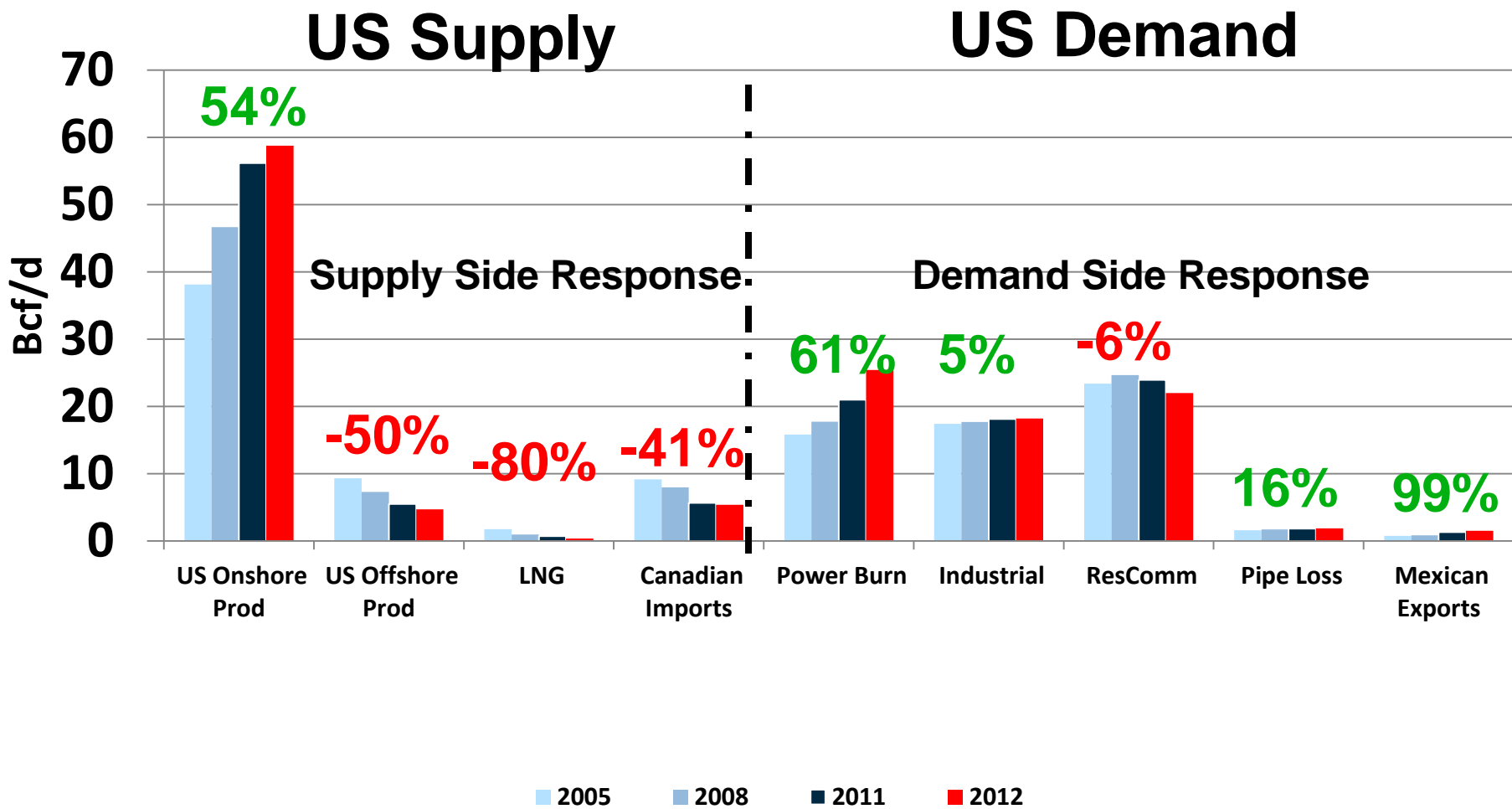


- Majors, Producers, Mktrs, Industrials
- Pipelines, Utilities, Midstream
- Financial and Hedge
- Government, Associations, Consultants

Key Points

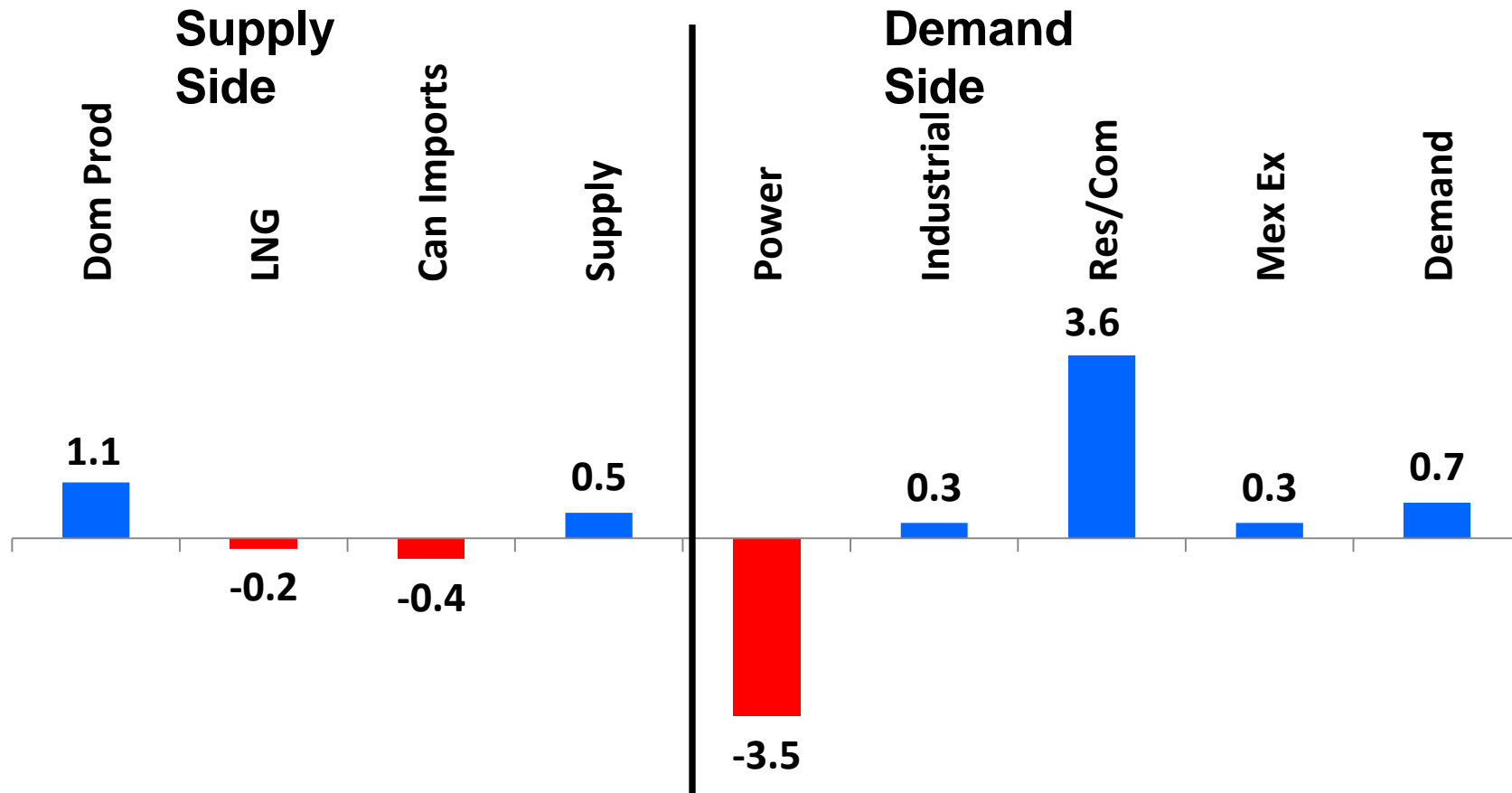
- ❖ U.S. Production growth will continue to negatively impact Canadian exports into Midcon and Northeast Regions
- ❖ Western Canada will still be supply long as significant export declines will outpace production and demand growth.
- ❖ Near-term AECO basis to remain weak, but the development of an LNG export industry is seen as a critical relief valve that may lift AECO prices long-term.





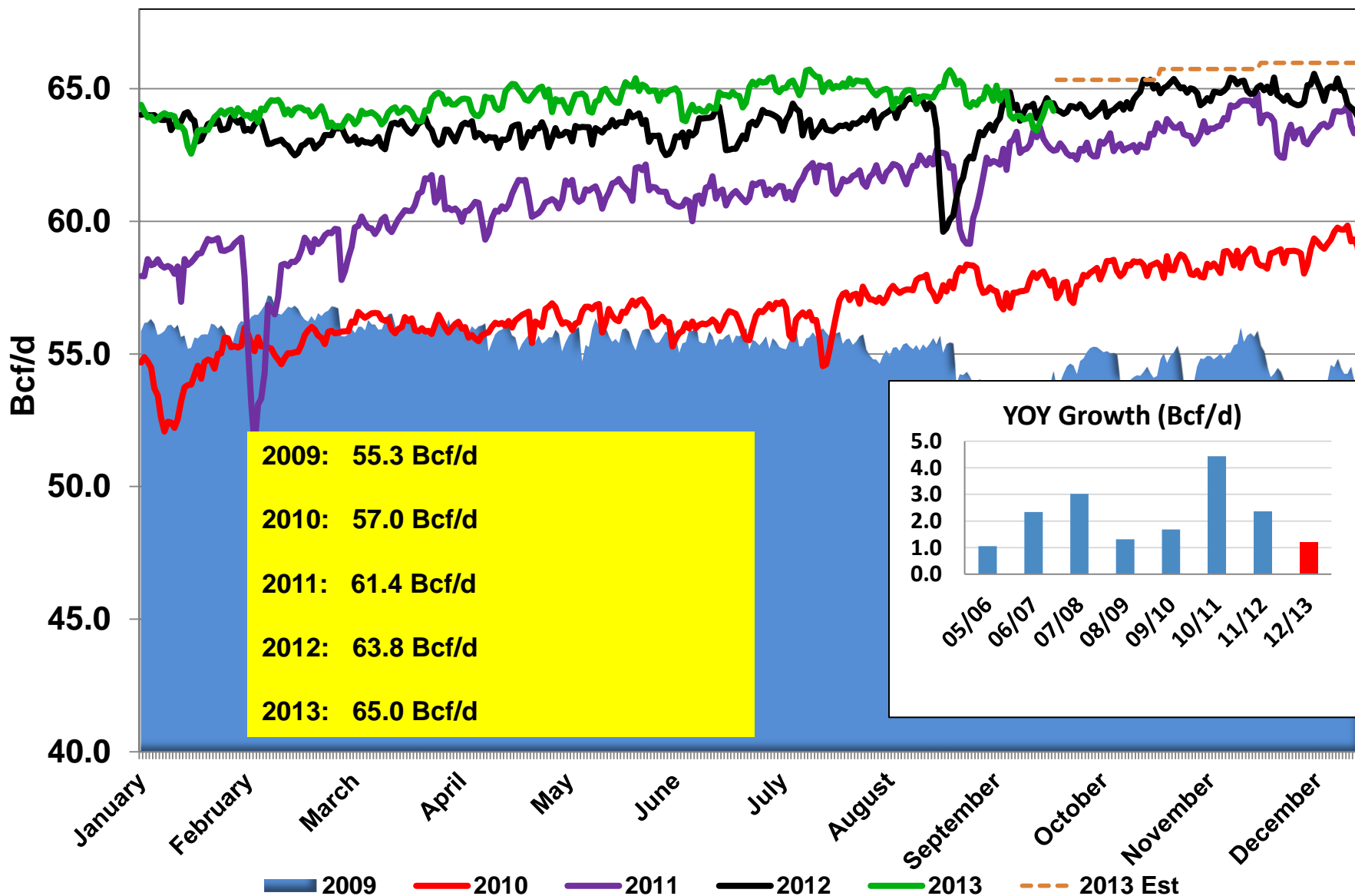
Source: BENITEK Daily Supply Demand Data

2013 vs. 2012 – Weather Re-Balancing U.S. NG Market



Market is **0.2 Bcf/d** short year on year – has been getting rapidly less short...

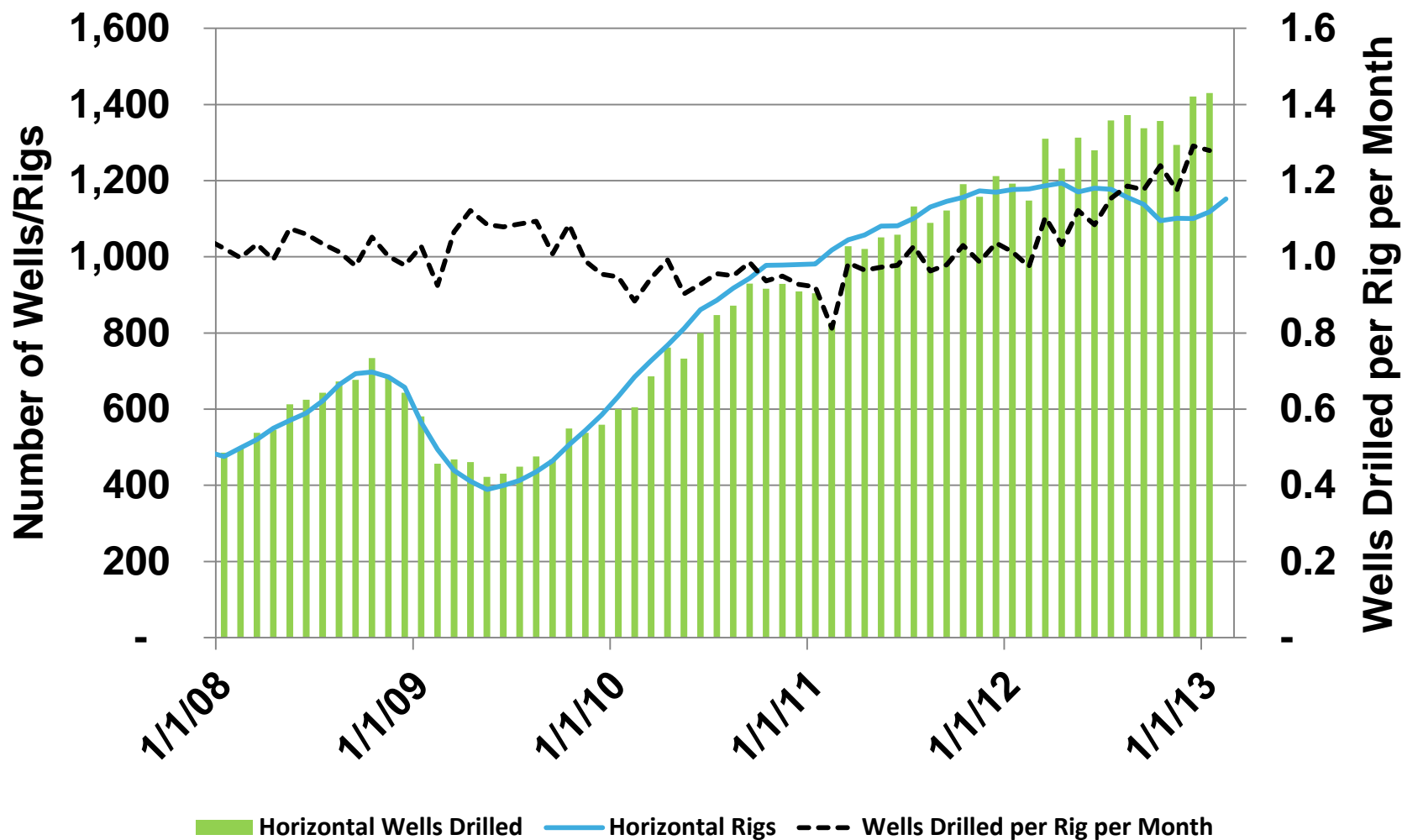
US Production Slows in 2013, But Still Growing



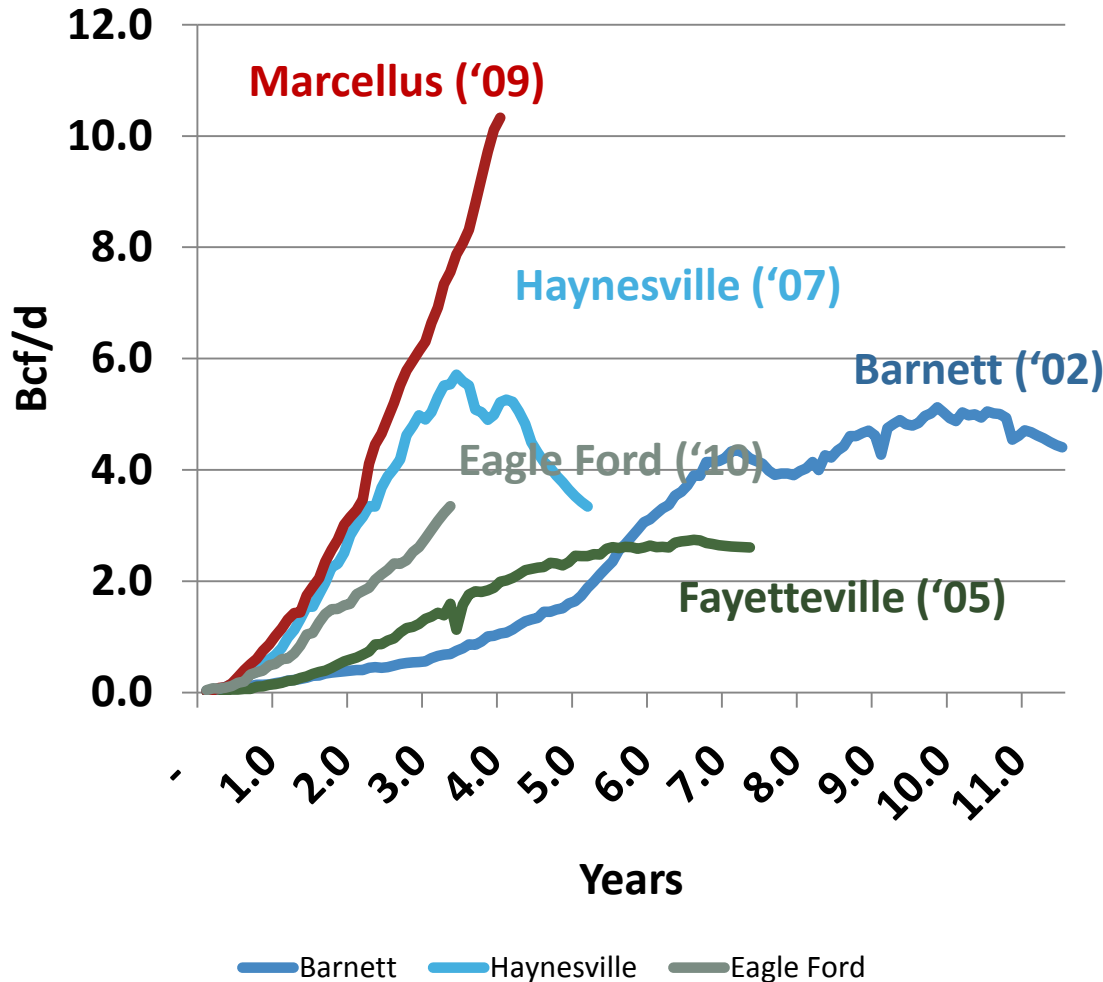
Source: BENTEK Supply and Demand Report, Dry Production

Well Starts Grow Despite Lower Rig Counts

U.S. Horizontal Drilling Dynamics



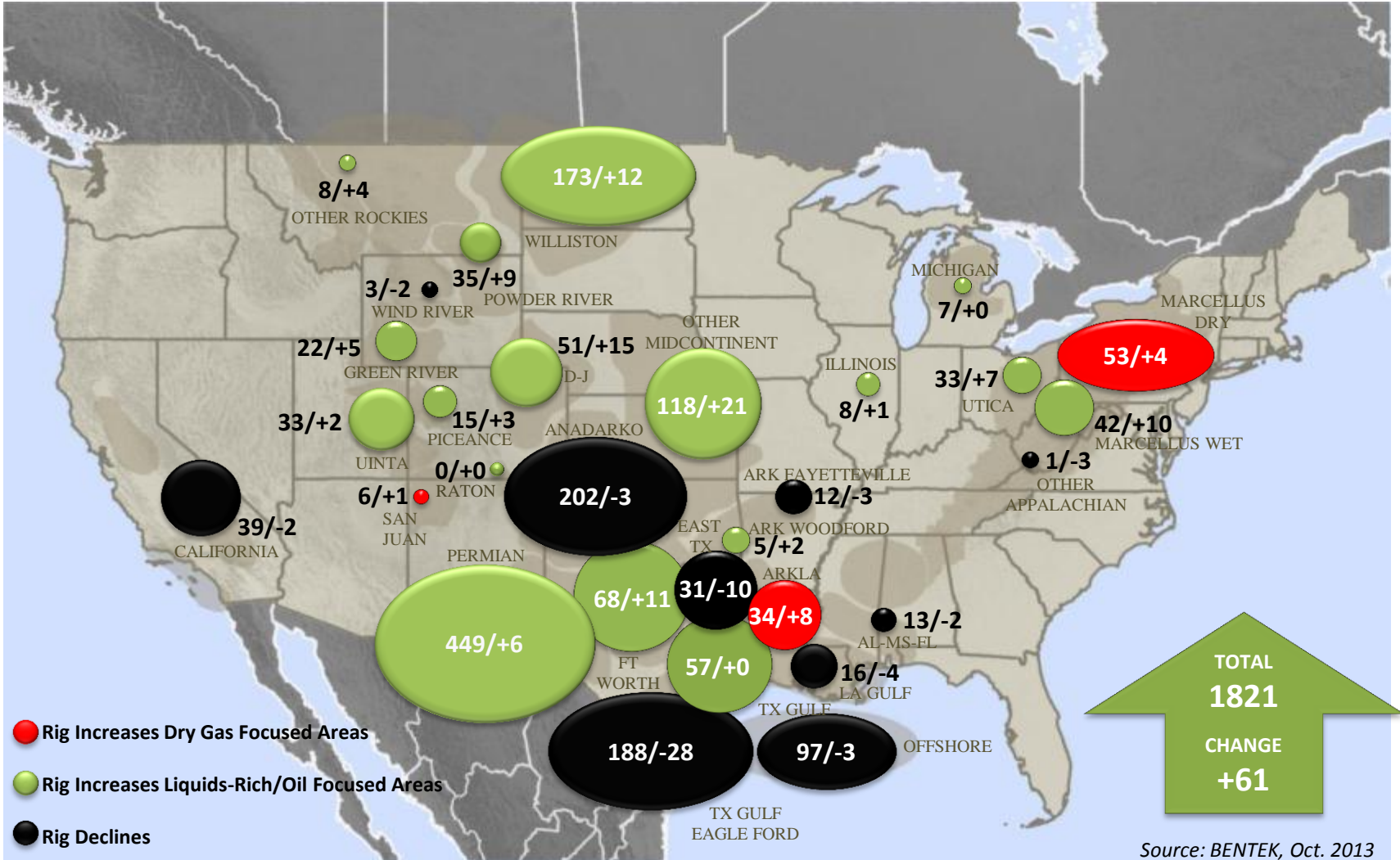
Production Growth Since Play's Inception



Rig Count

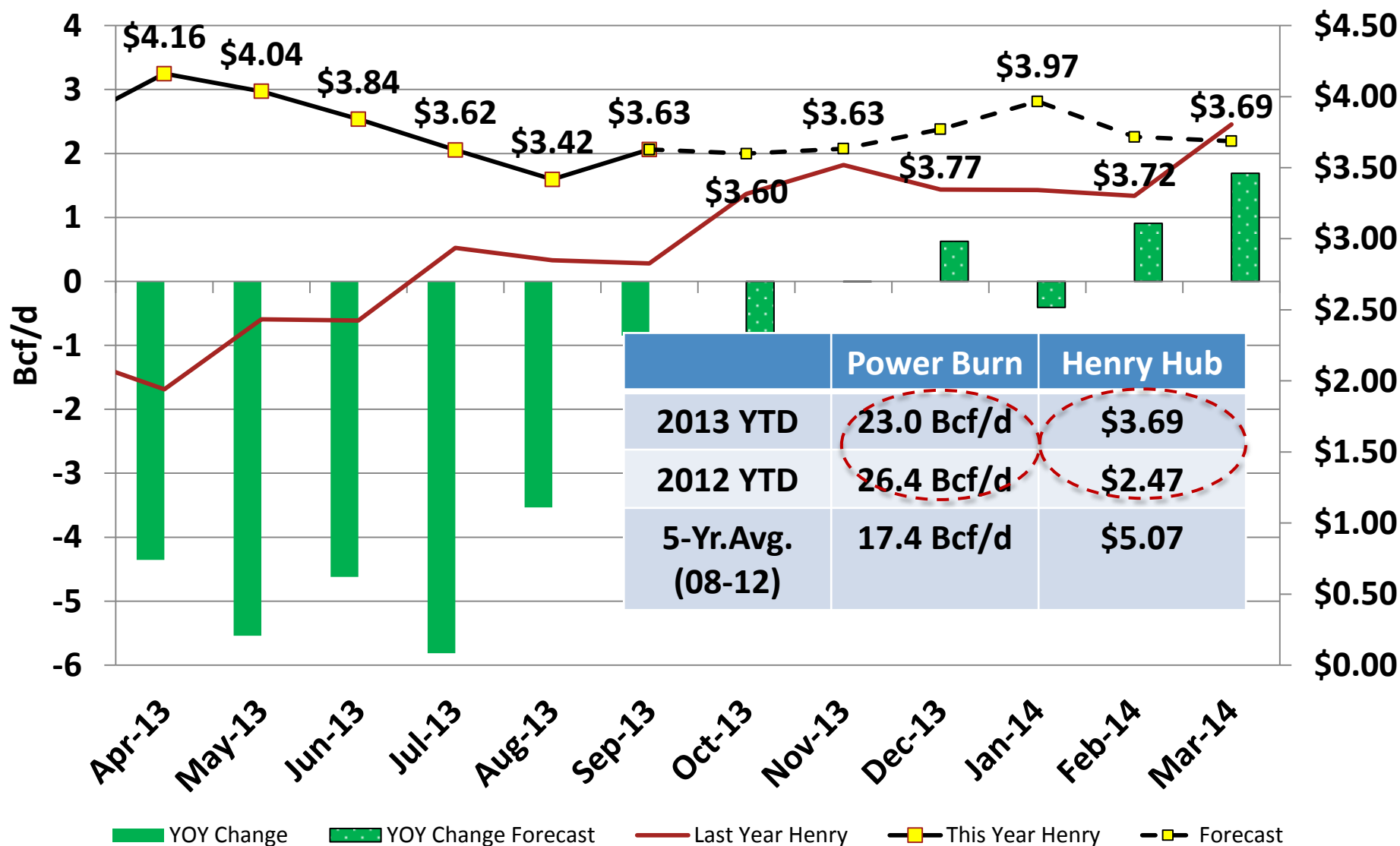
	Peak Rig	July 2013
Marcellus	106	75
Hayneville	149	32
Eagle Ford	331	280
Barnett	240	65
Fayetteville	68	15

Round and Round She Goes.....



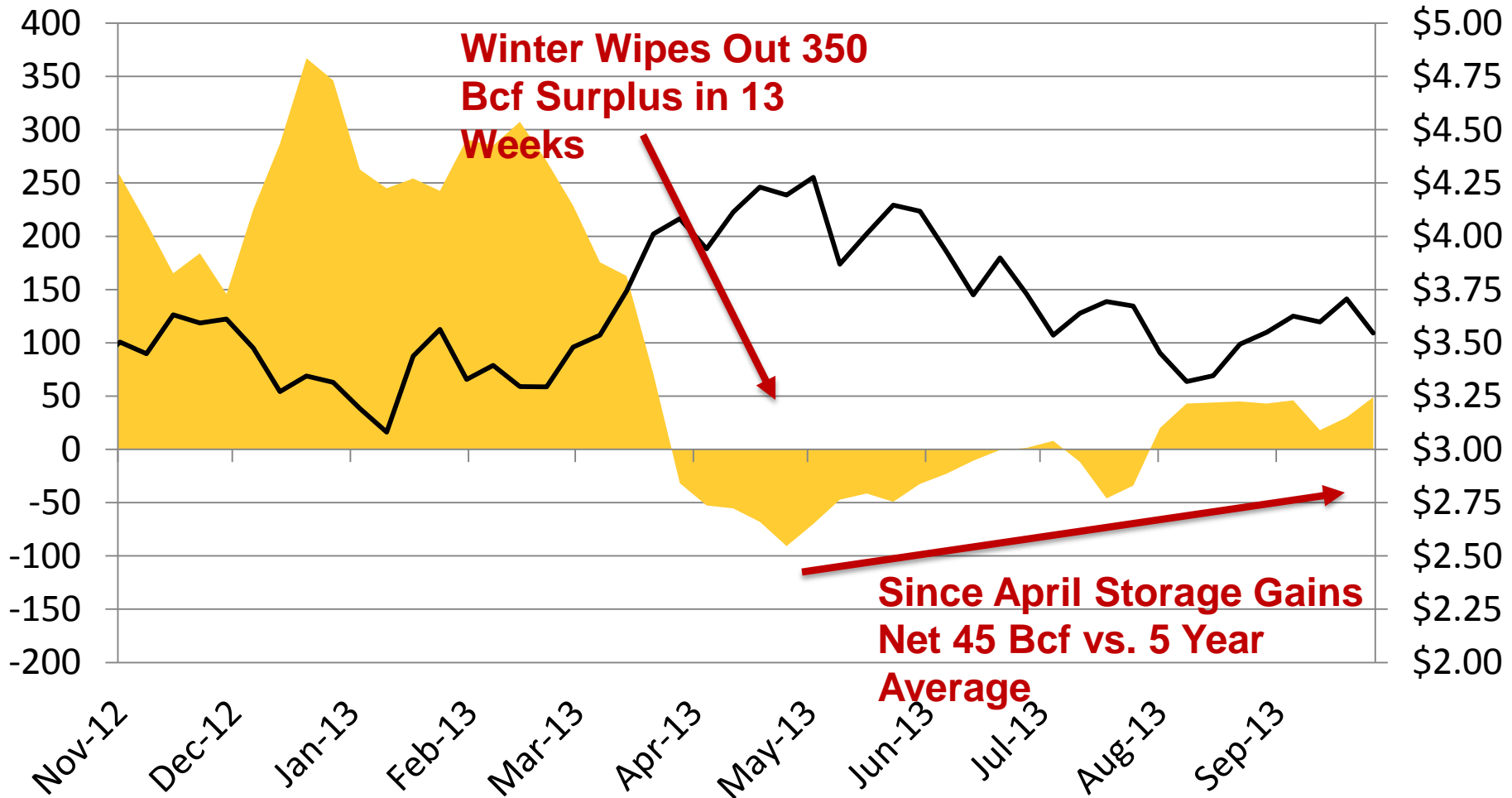
Active rig count: Oct. 4, 2013 / Change in rig count from Jan. 4, 2013

Shifting Sands: The Power Balance

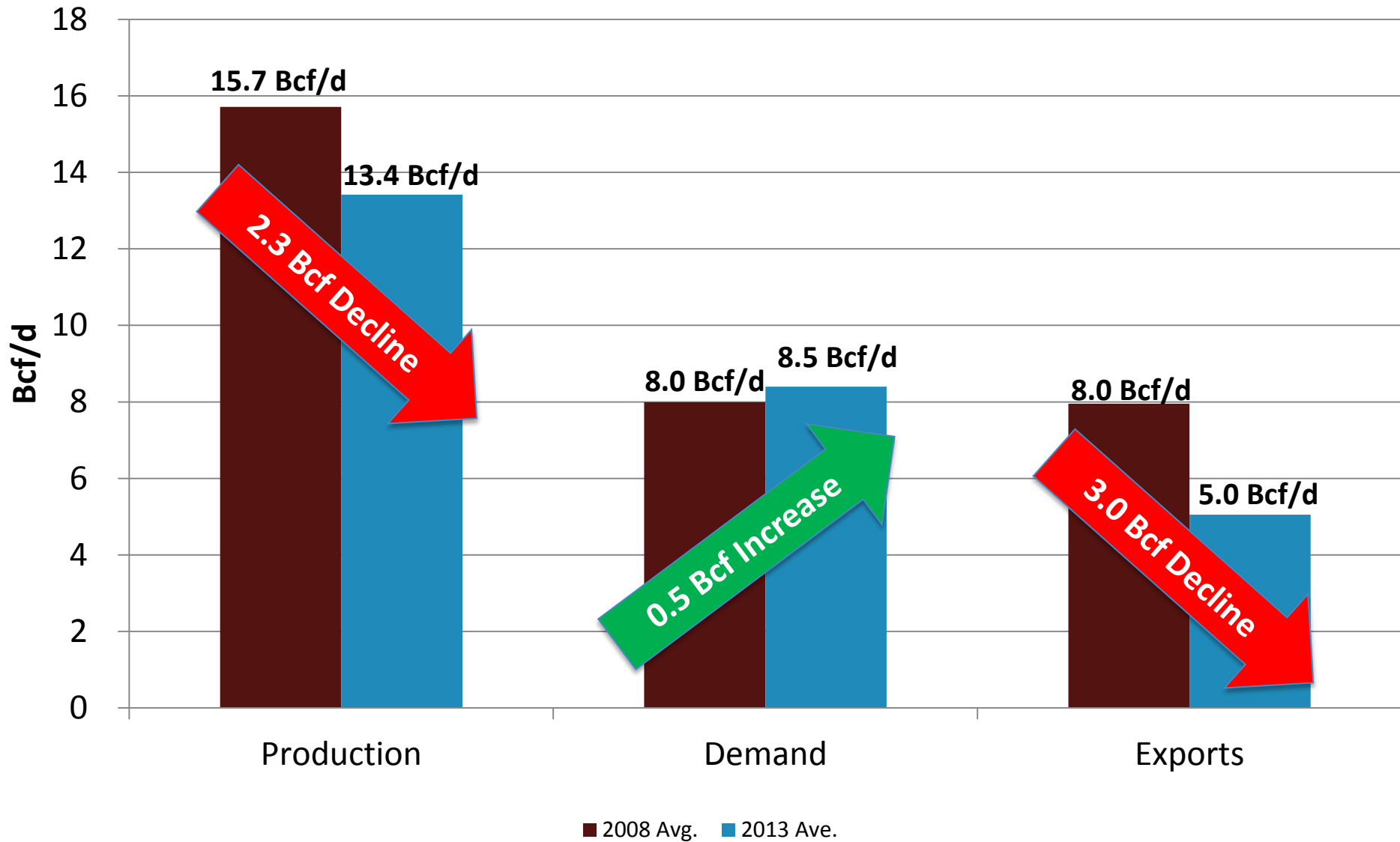


Where We Are Right Now - Storage Inventory

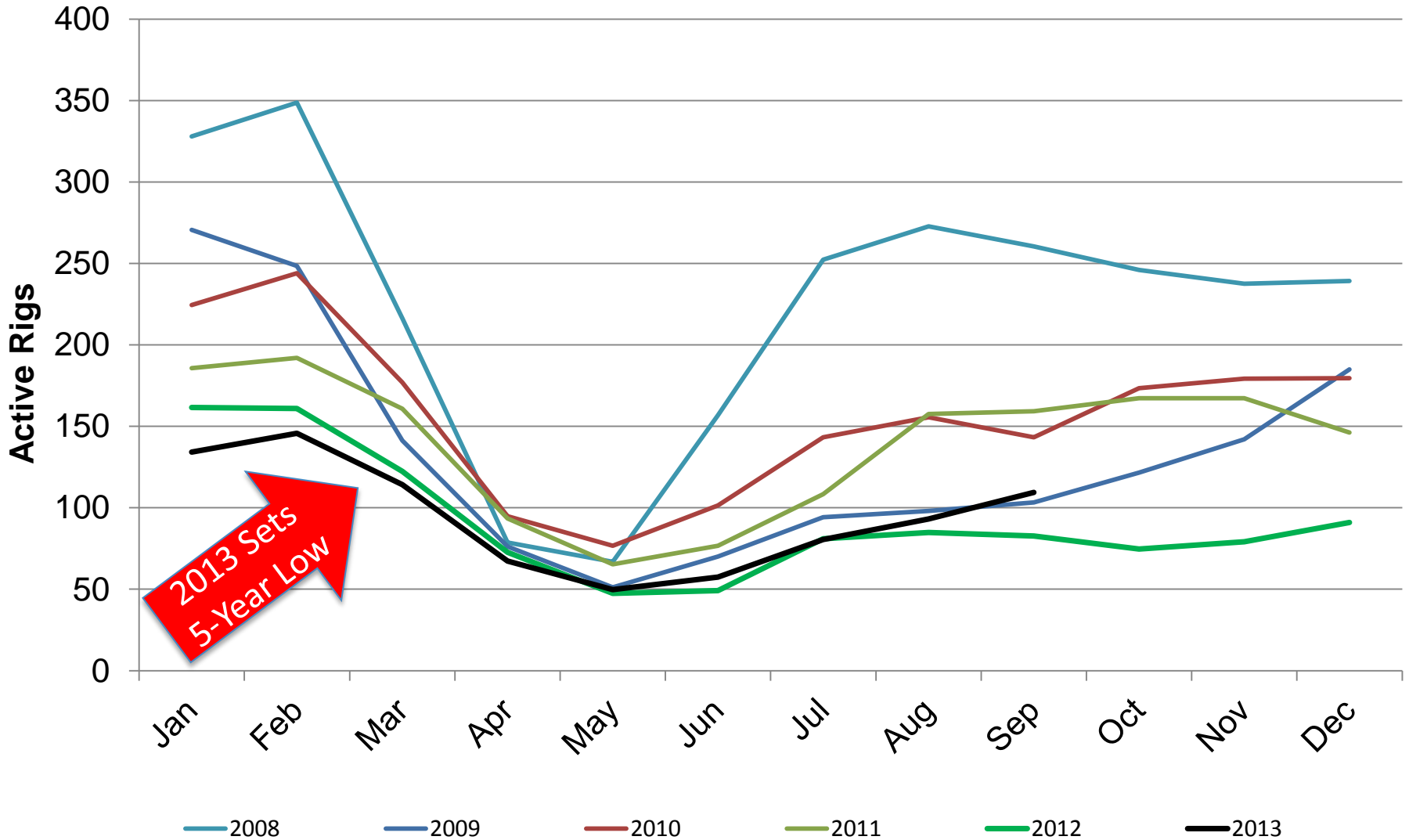
Inventory vs. 5 Yr Avg (Bcf) vs. Price



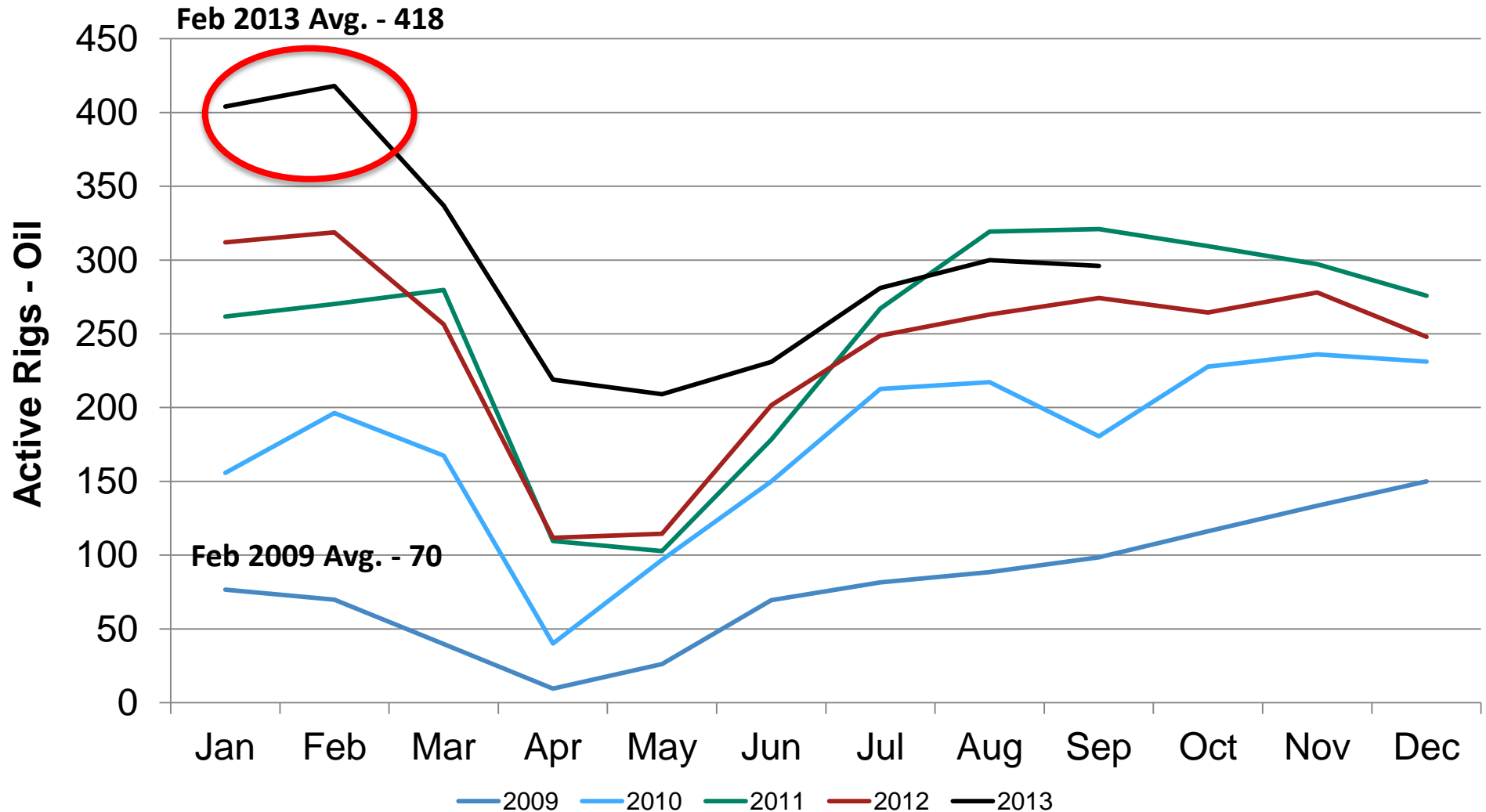
Canada Production Slows, While Domestic Demand Grows



Natural Gas Rigs Set Five-Year Low

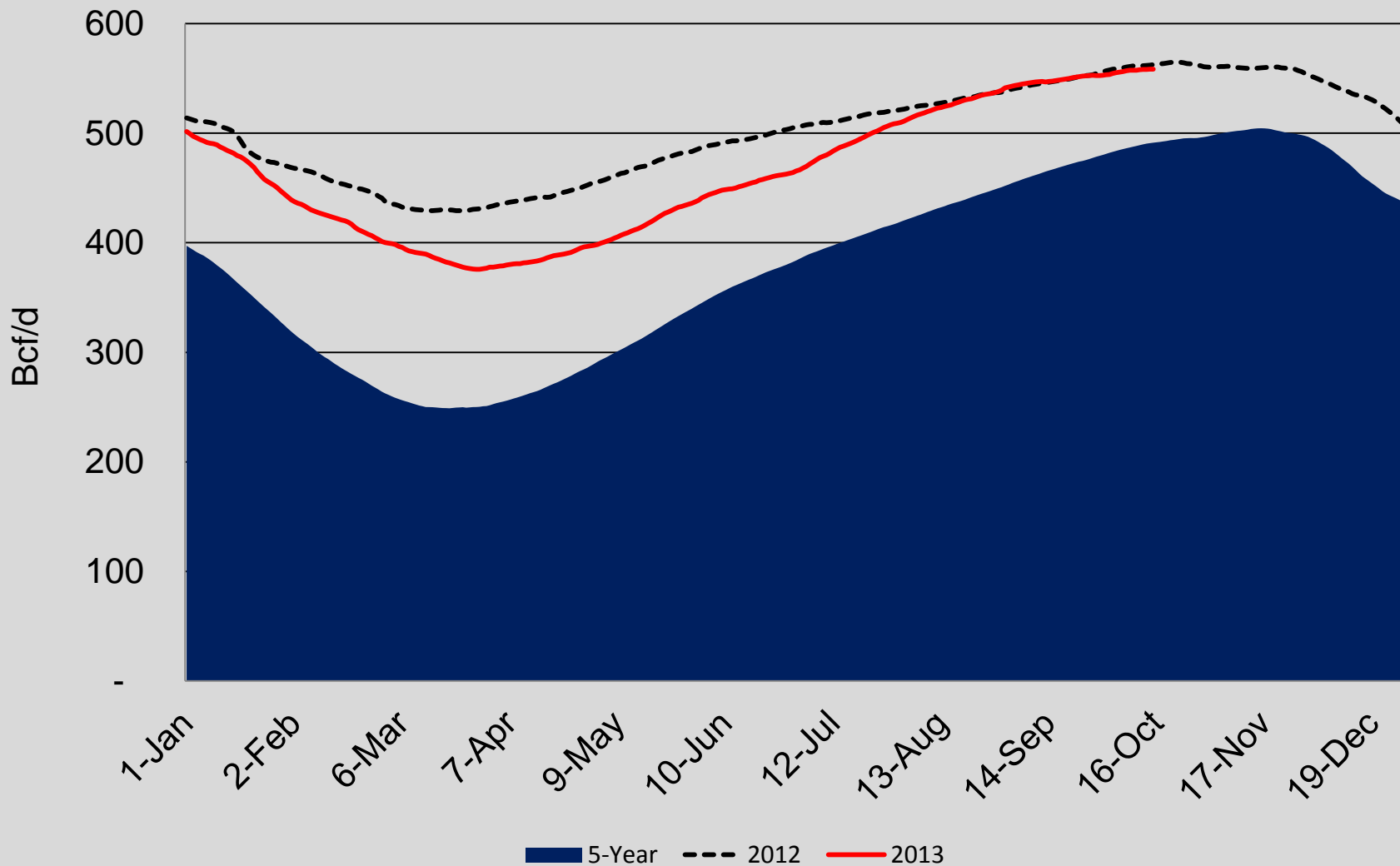


West Canada



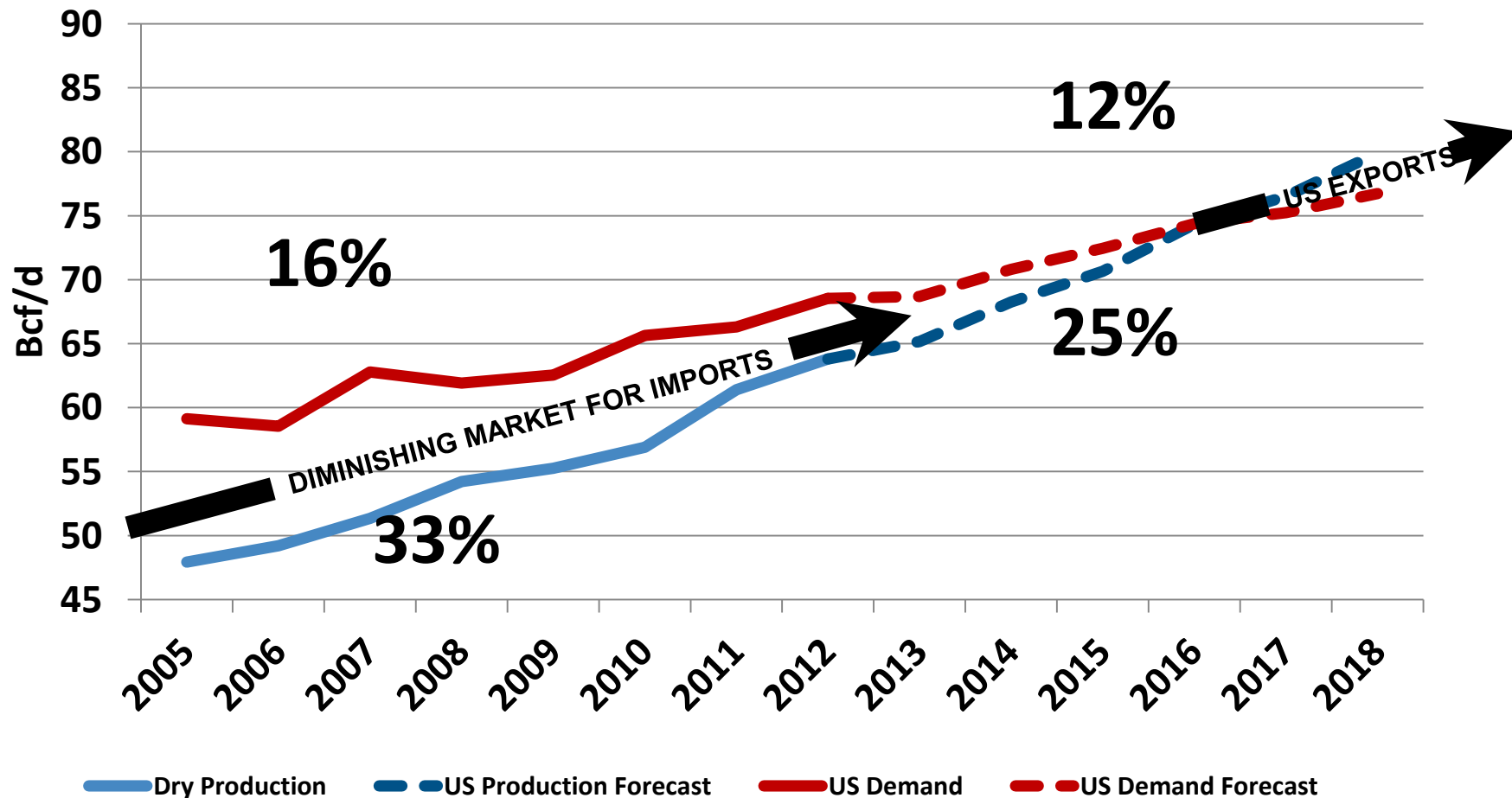
Western Canada Storage Inventory

Gas Storage Field



Canada

U.S. Supply/Demand Balance

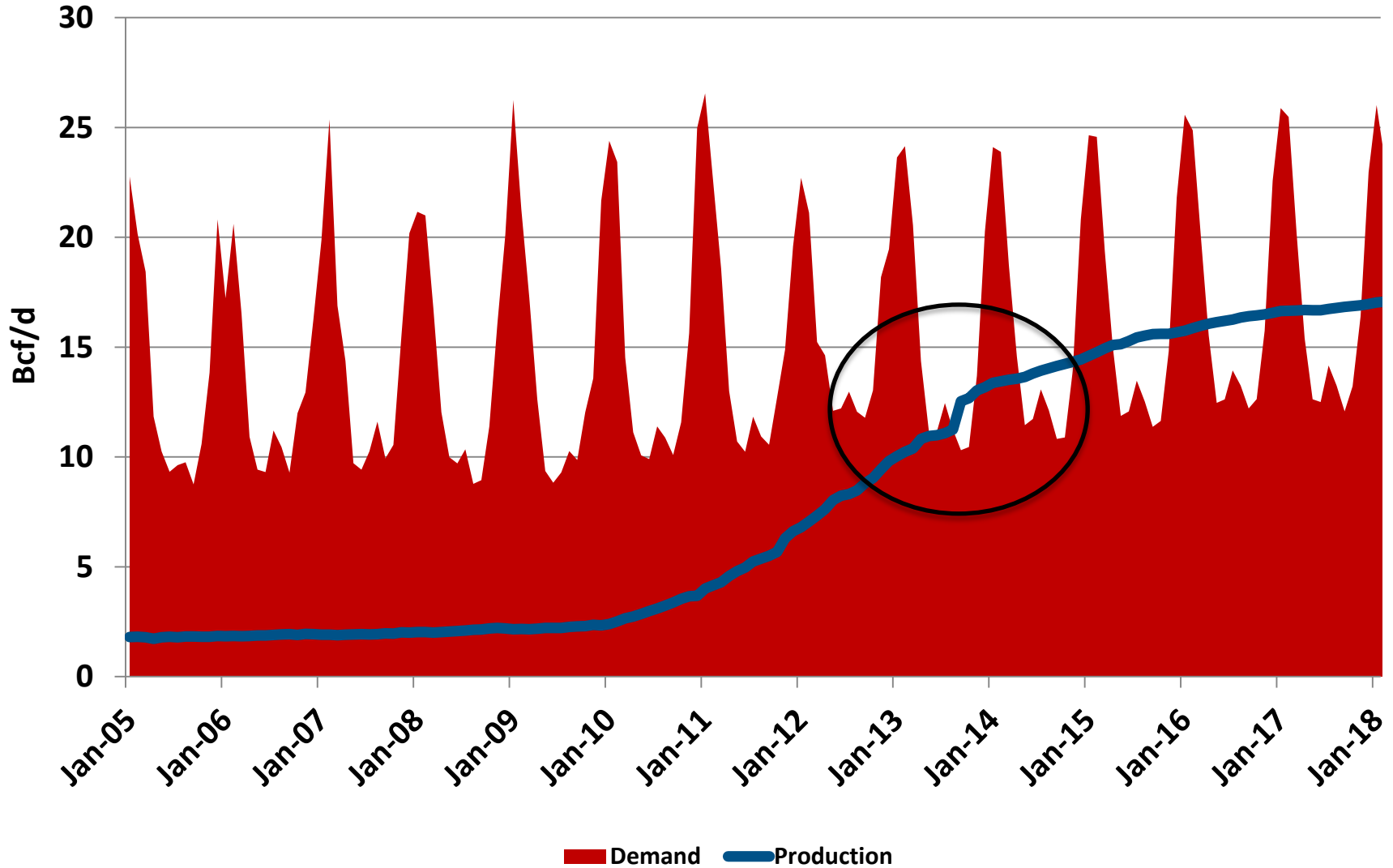


Highlights:

- NE continues to become more imbalanced
- Infrastructure development will be key to the pace of change
- Dramatic demand growth across the SE
- SE interregional flows will change dramatically
- Shifting dynamics will lead to shifting basis relationships

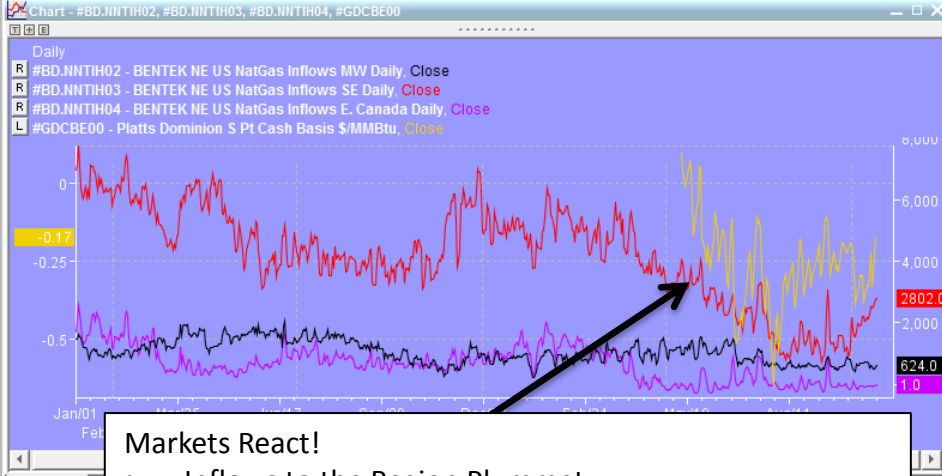
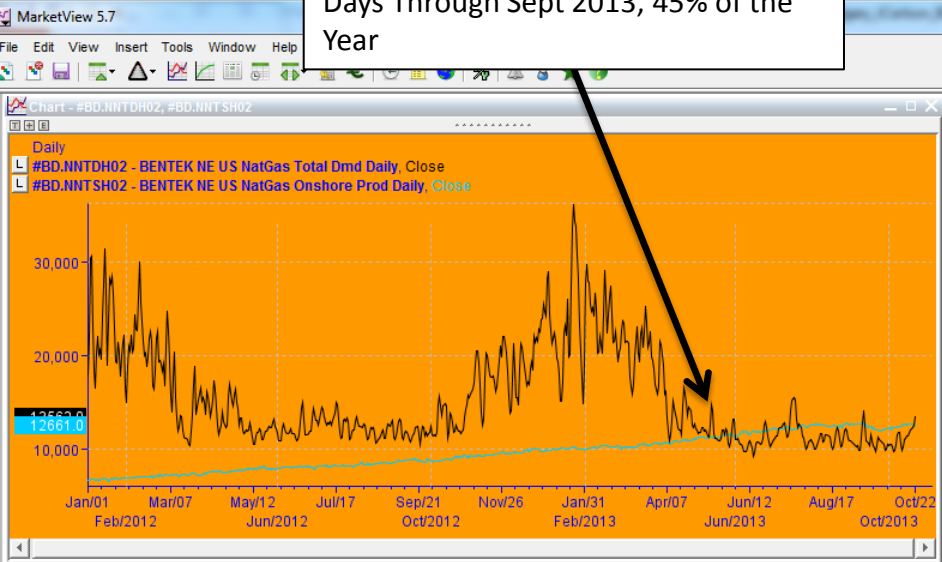


Northeast Supply/Demand Balance



Making the Turn - 2013 Balance Shift

NE Supply Has Outpaced Demand 126 Days Through Sept 2013, 45% of the Year



Northeast Demand	Actual (MMcf/d)				
	7 Day Prior	10/18	10/19	10/20	10/21
Power Demand	3,945	4,382	3,410	3,401	3,738
Res/Comm/Ind Demand	6,916	7,677	8,806	8,966	8,932
Total NE Demand	10,860	12,059	12,216	12,367	12,567
Net Inflows/LNG	2,865	3,194	3,224	3,287	3,833
Production (Grossed)	12,635	12,804	12,753	12,754	12,644
Total NE Supply	15,500	15,998	15,977	16,041	15,579
Implied Storage	4,640	3,940	3,786	3,699	3,438
Avg Temp Dept Norm	3	3	(1)	(1)	0

Observer Report™

October 21, 2013

Daily Northeast Observer

DTI places Tioga Area Expansion into service over the weekend

FERC on Oct. 11 approved DTI's request to place the Tioga Area Expansion into service. A DTI notice and an increase in flows indicates the project began service this past weekend, about two weeks earlier than expected. The project increases takeaway capacity by 270 MMcf/d from primary receipt points in Tioga and Potter Counties, PA to an existing interconnect with Transco at Leidy (150 MMcf/d) and a new interconnect with TETCO at DTI's existing Crayne Station in Greene, PA (120 MMcf/d). DTI receipts at Leidy were up over the weekend to 786 MMcf/d, from a YTD of 602 MMcf/d.

Over the next decade, the North American natural gas market will see a series of major pipeline reversals that will change gas flows and price relationships across the continent. Are you ready? Contact **Bentek** for a sample copy of our new Market Alert, *Son of a Beast: Utica Triggers Regional Role Reversal*.

Northeast Demand	Actual (MMcf/d)					Projected (MMcf/d)							
	7 Day Prior	10/18	10/19	10/20	10/21	10/22	10/23	10/24	10/25	10/26	10/27	10/28	Day 8-14
Power Demand	3,945	4,382	3,410	3,401	3,738	3,749	3,660	3,563	3,321	3,198	3,238	3,499	3,490
Res/Comm/Ind Demand	6,916	7,677	8,806	8,966	8,832	8,882	11,511	12,591	12,473	12,367	9,886	9,411	10,610
Total NE Demand	10,860	12,059	12,216	12,367	12,567	12,631	15,172	16,154	15,794	15,566	13,124	12,910	14,100
Net Inflows/LNG	2,865	3,194	3,224	3,287	3,335	3,973	4,742	5,387	5,714	5,781	5,848	5,939	6,493
Production (Grossed)	12,635	12,804	12,753	12,754	12,644	12,655	12,663	12,668	12,671	12,674	12,675	12,676	12,678
Total NE Supply	15,500	15,998	15,977	16,041	15,979	16,628	17,405	18,055	18,385	18,455	18,523	18,615	19,170
Implied Storage	4,640	3,940	3,786	3,699	3,438	3,998	2,233	1,901	2,591	2,889	5,398	5,705	5,070
Avg Temp Dept Norm	3	3	(1)	(1)	0	0	(7)	(9)	(9)	(8)	(1)	1	(1)

Wave 1

Today: 223
Chg: 41
% Util: 0%

Wave 4

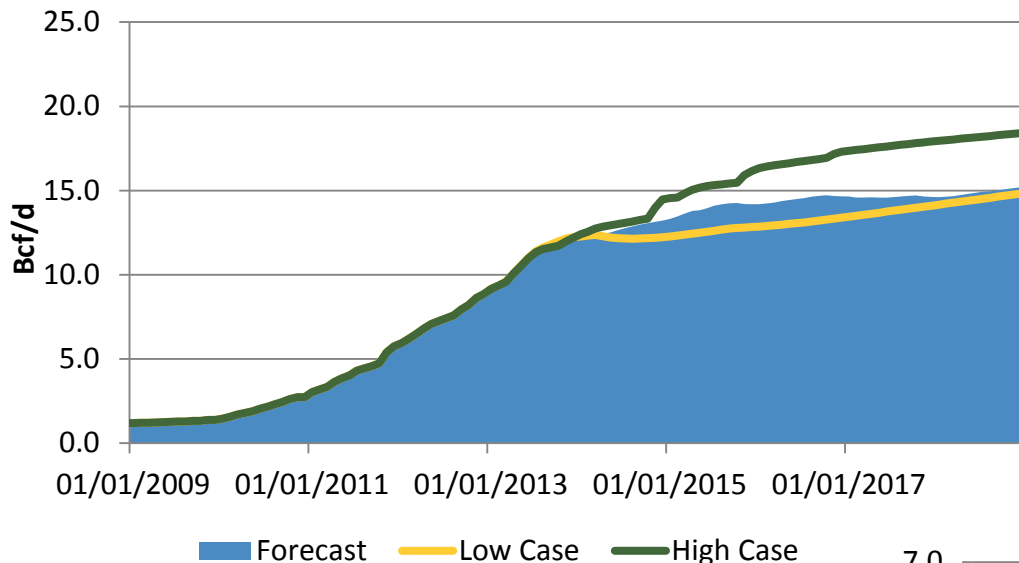
Today: 4,668
Chg: 136
% Util: 42%

Northeast Demand

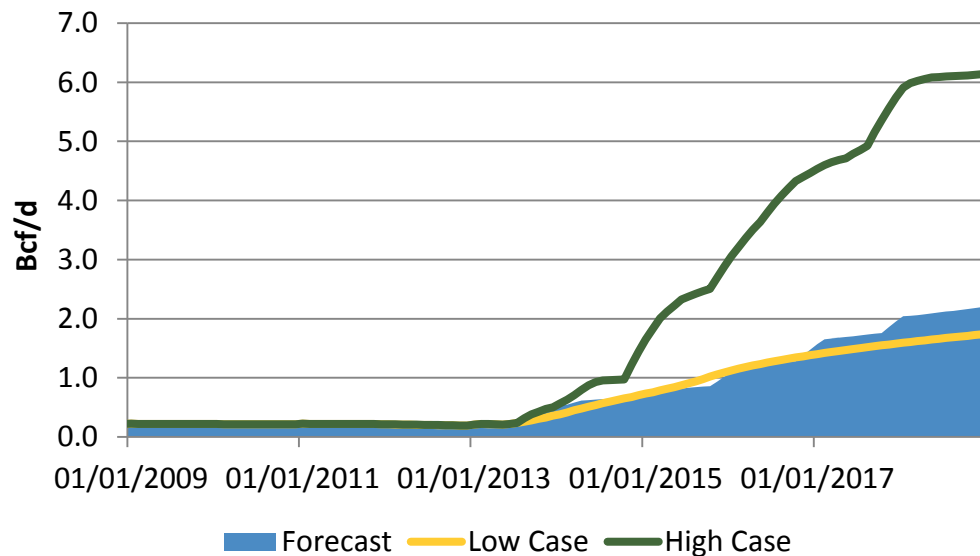
- Markets React!**
- Inflows to the Region Plummet
 - Basis Takes a hit

Marcellus & Utica growth dependent on demand & takeaway capacity

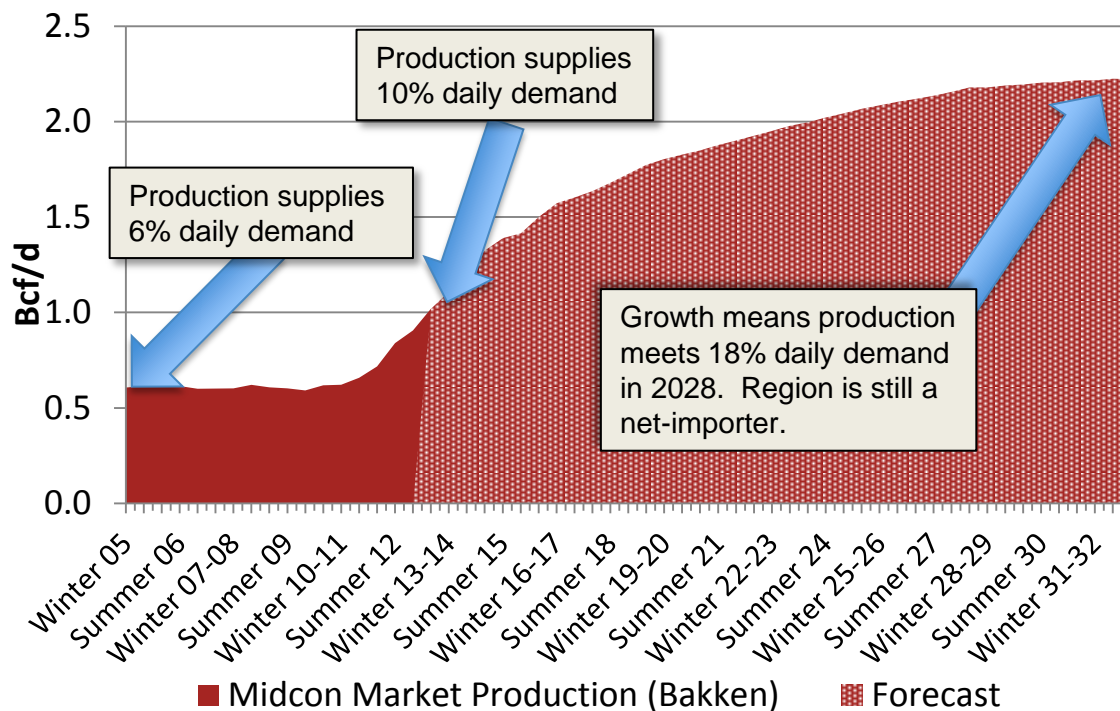
Marcellus Gas Production Forecast



Utica Gas Production Forecast

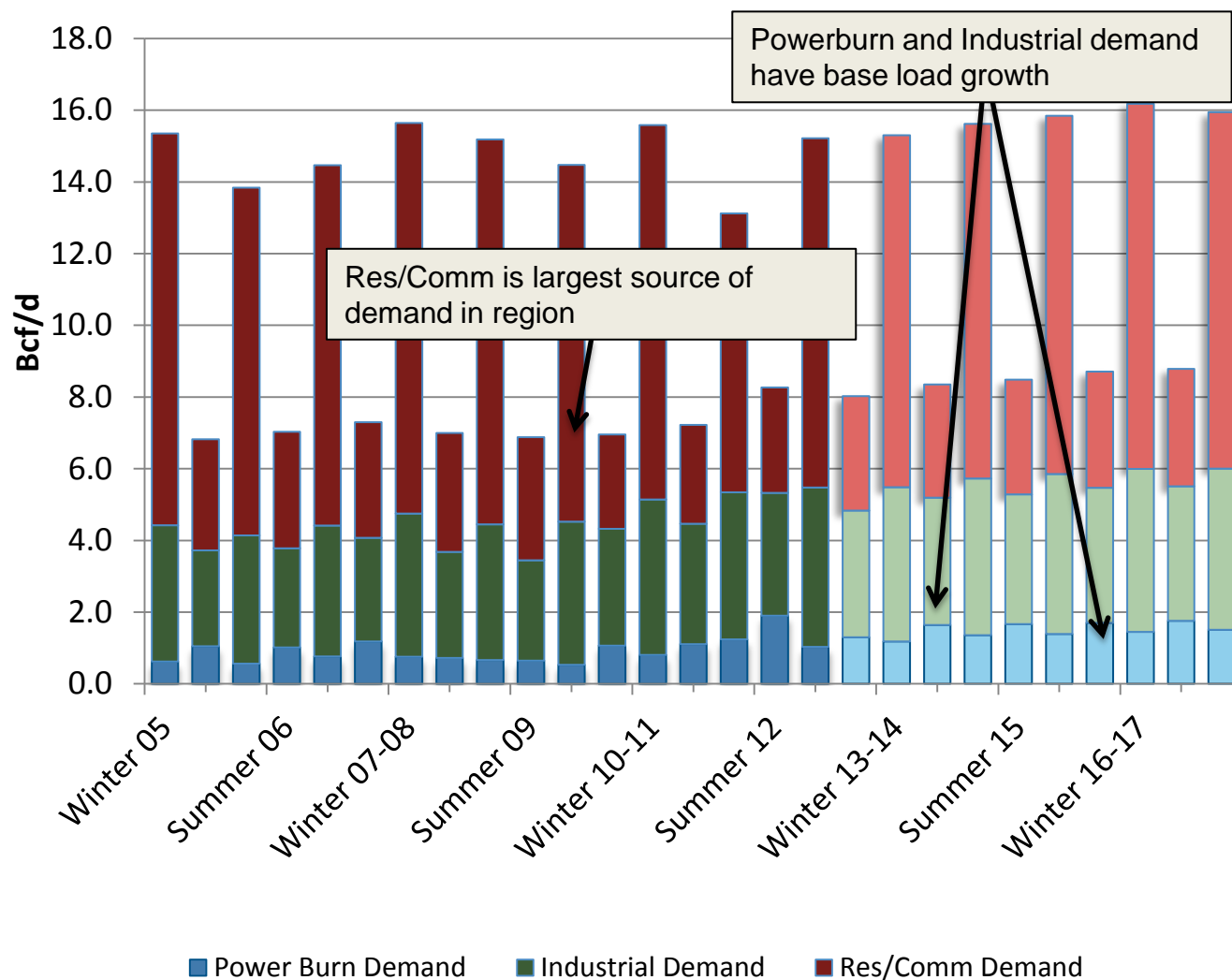


Bakken Production Growth to add to local supply

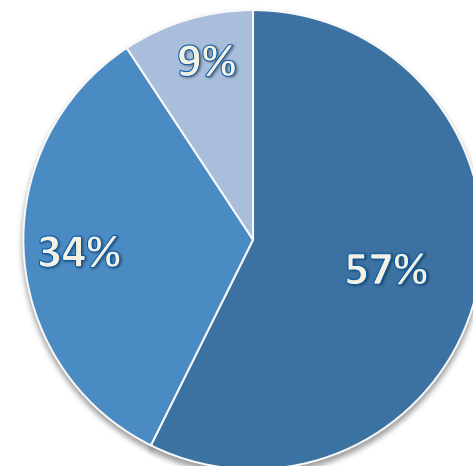


- Oil production growth is main driver of gas growth. High IRRs in the region will bring continued growth to region.
- Decline curves for historic wells in the area show associated gas yields stronger gas/oil ratio as well ages.
- Currently, there is processing constraint in the region. However, over 500 MMcf/d in new processing plants have been announced for the region by 2019. Current processing capacity is approximately 920 MMcf/d, however region is constrained by gathering systems.

Midcon Demand Still Mostly Res/Comm

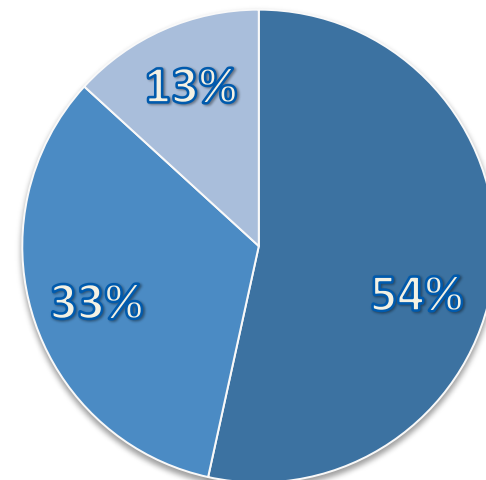


2009-2013 Avg



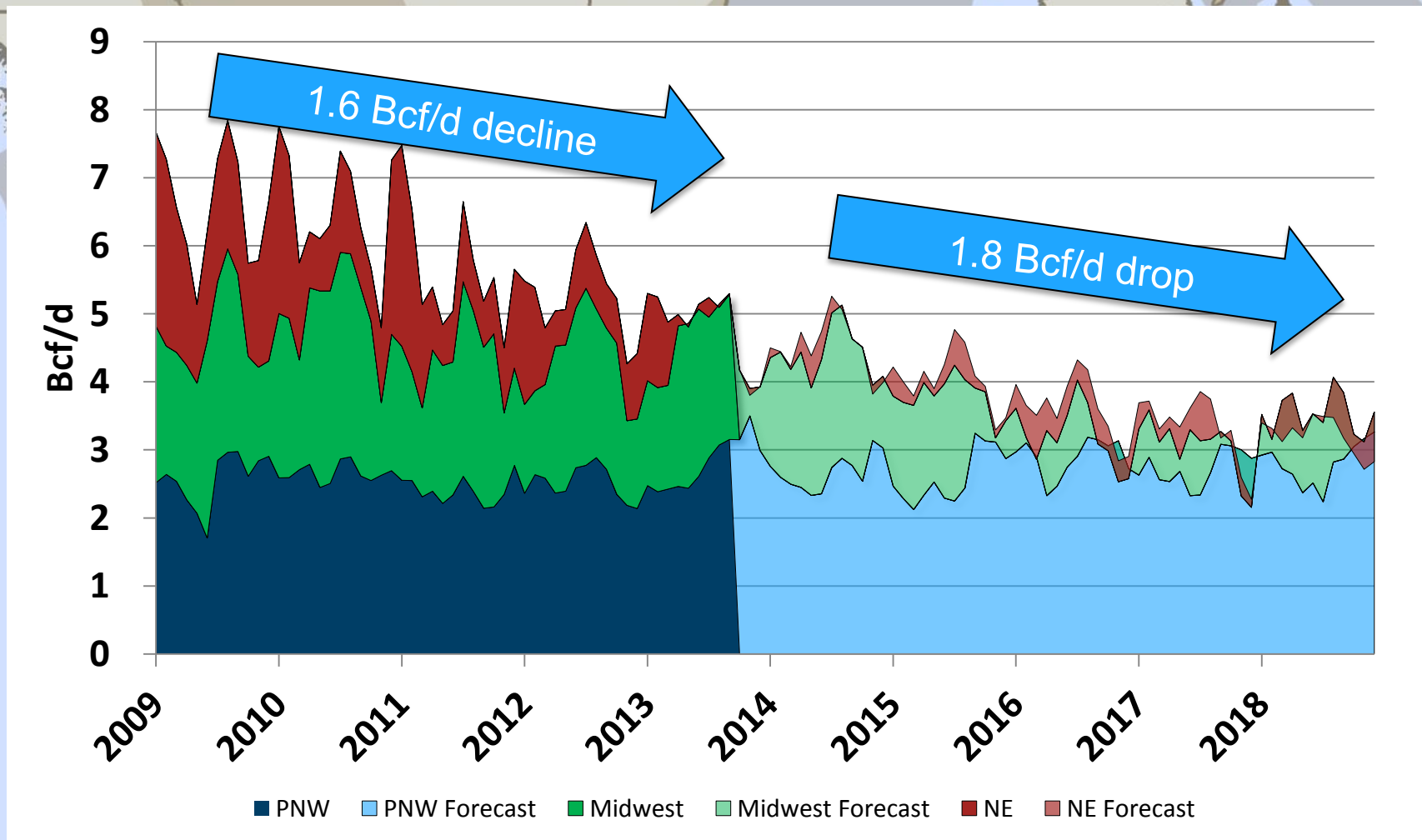
■ Res/Comm ■ Industrial ■ Power burn

2017-2018

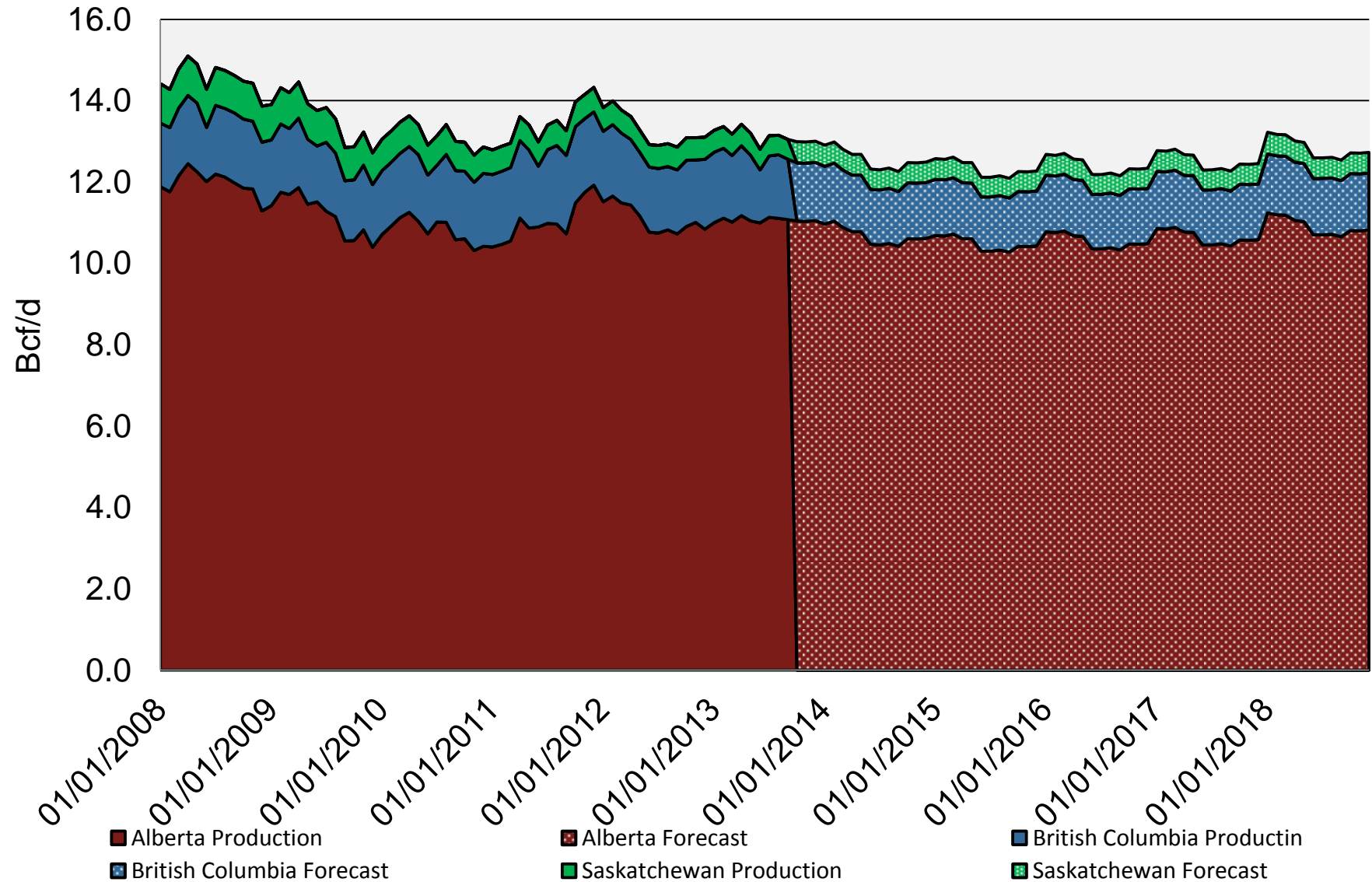


■ Res/Comm ■ Industrial ■ Power burn

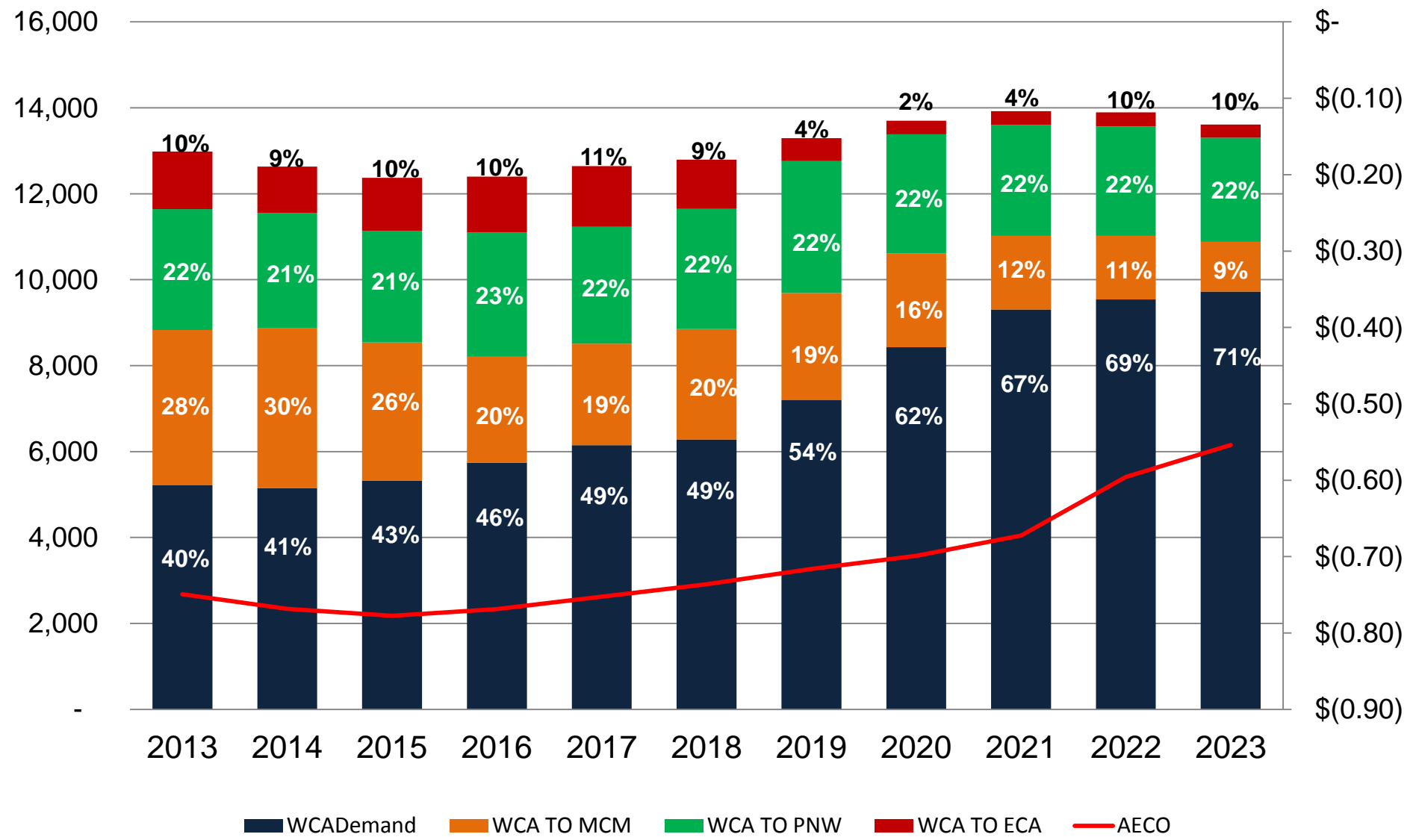
Canadian Outflows to PNW Remain Strong in Face of Pushback in NE & MW



Western Canadian Production



WCA Demand will Help Strengthen AECO Basis



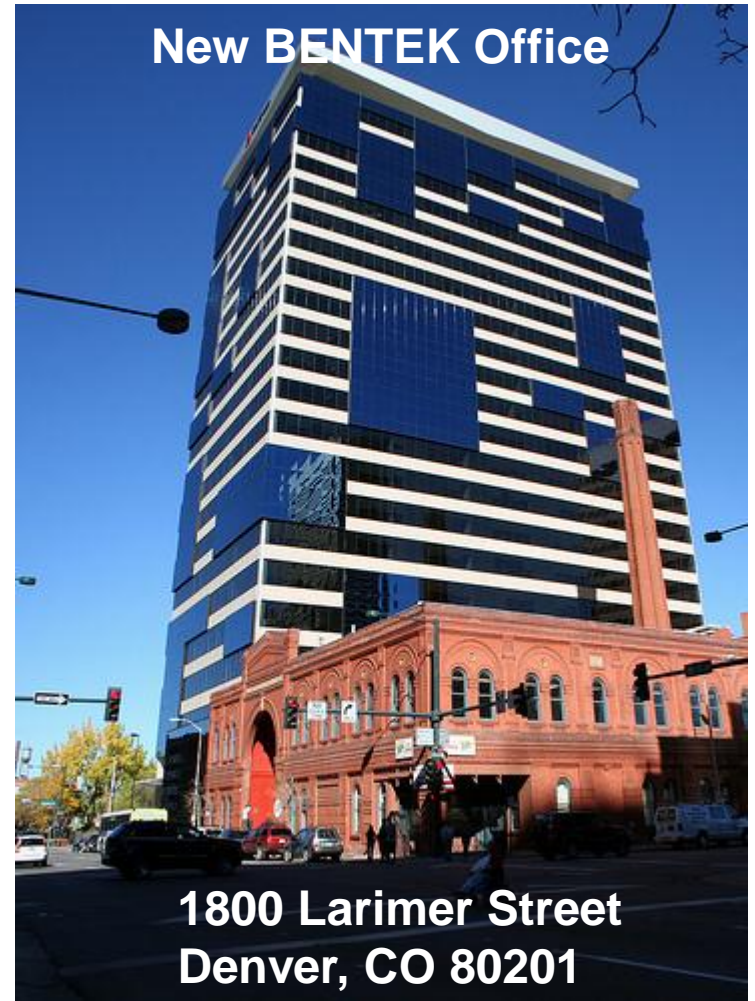
Thank You

BENITEK is an energy market analytics company, focused on the natural gas, ngl and oil markets.

Old BENITEK Office



New BENITEK Office



**1800 Larimer Street
Denver, CO 80201**

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