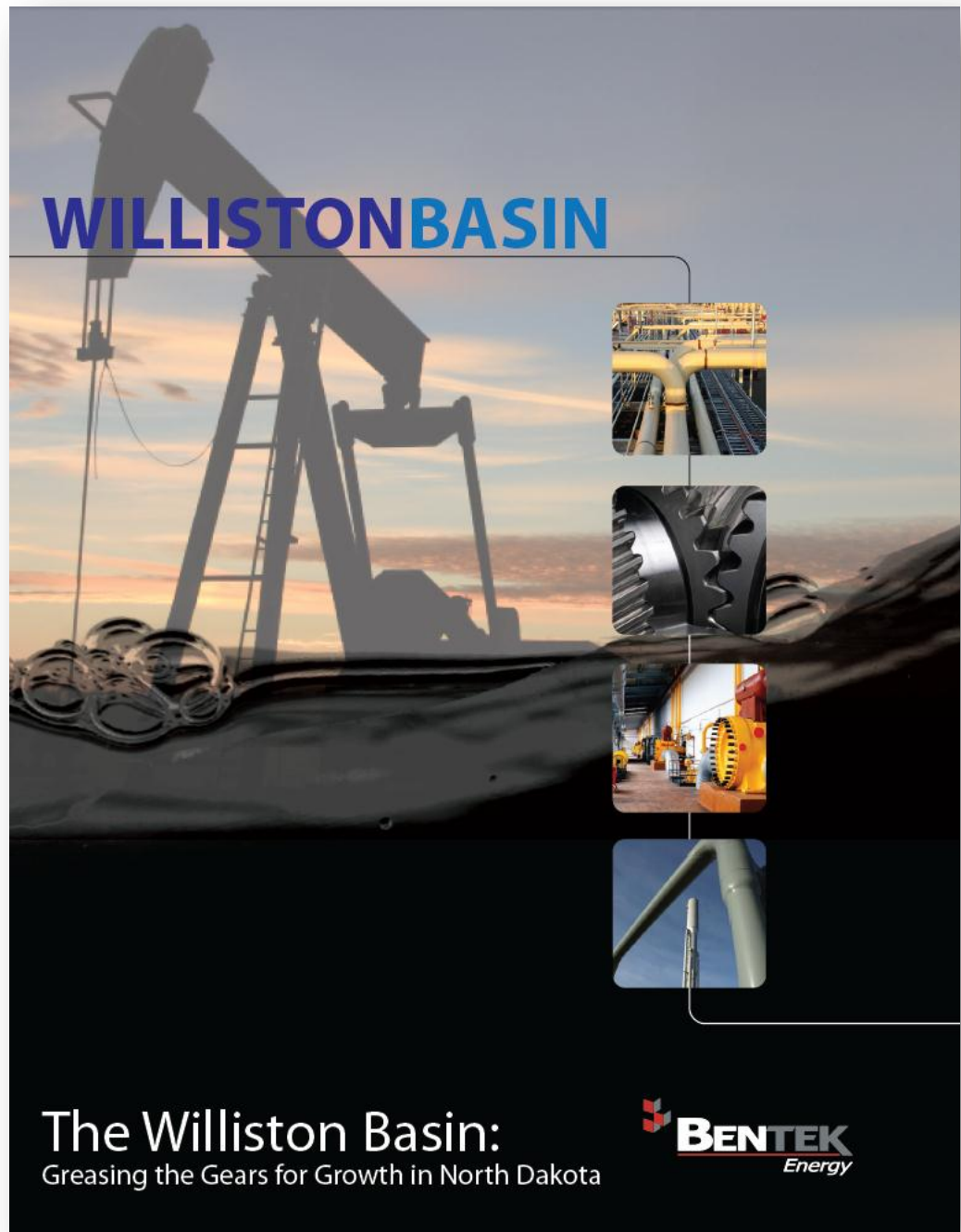


Natural Gas Study



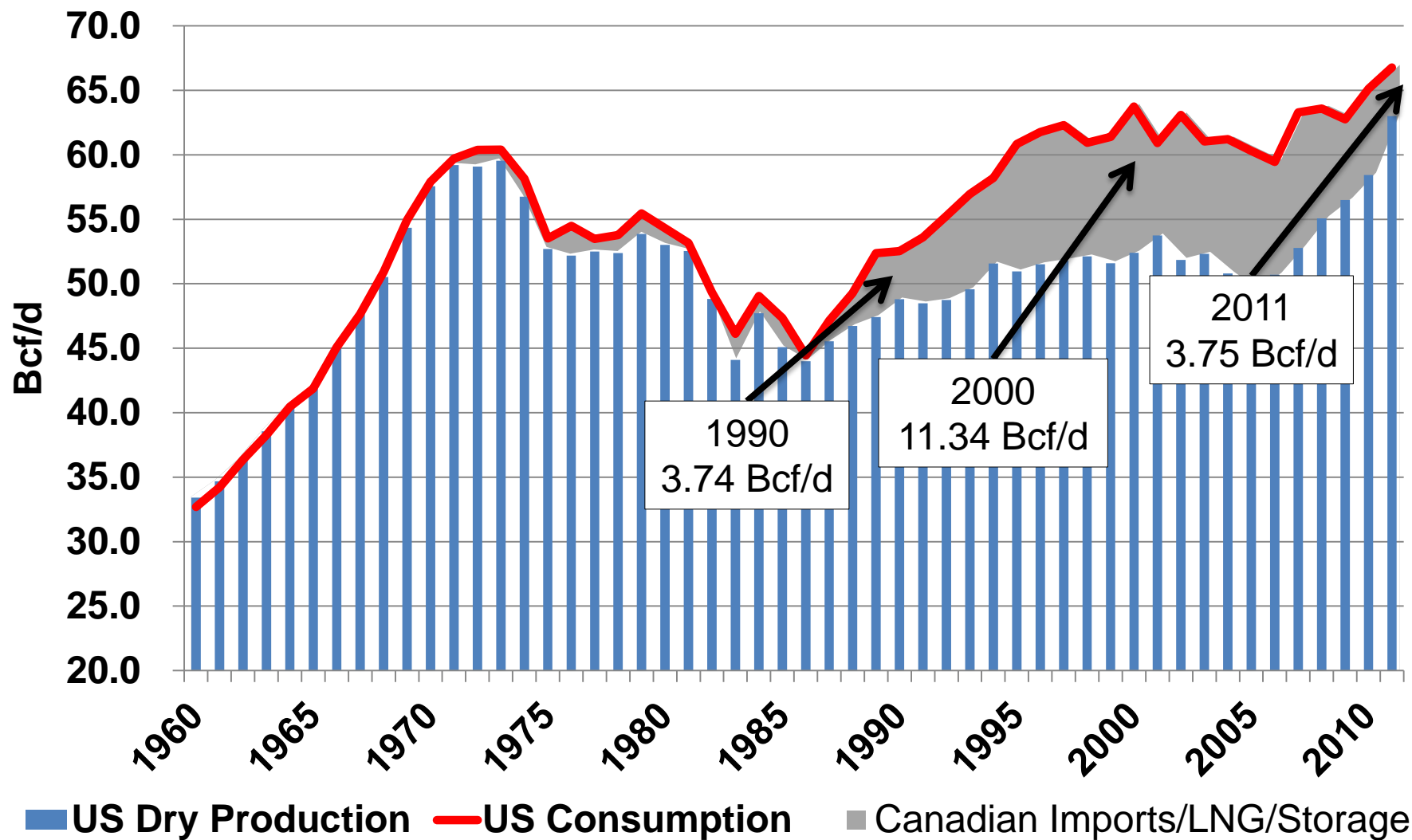
Basin Conclusions

- ❖ The Williston Basin Is Benefiting From the Significant Shift in Natural Gas Dynamics as a Result of:
 - A Realignment of Producer Investment Criteria Toward Oil and NGL Plays.
 - Reduction in Production From Neighboring, Less Economic Producing Basins.
- ❖ While Still Early, Current Data Suggests the Basin Could Yield Higher Future Gas and NGL Volumes Due to a Rising Gas to Oil Ratio (GOR).
- ❖ Strong Drilling Economics, a Rising GOR and Greater Efficiency Will Increase the Future Output From the Basin. Under BENTEK's Base Case Scenario, Oil Production Will Climb to 2.2 MMB/d and Gross Gas Production Will Top 3.0 Bcf/d by the end of 2022.

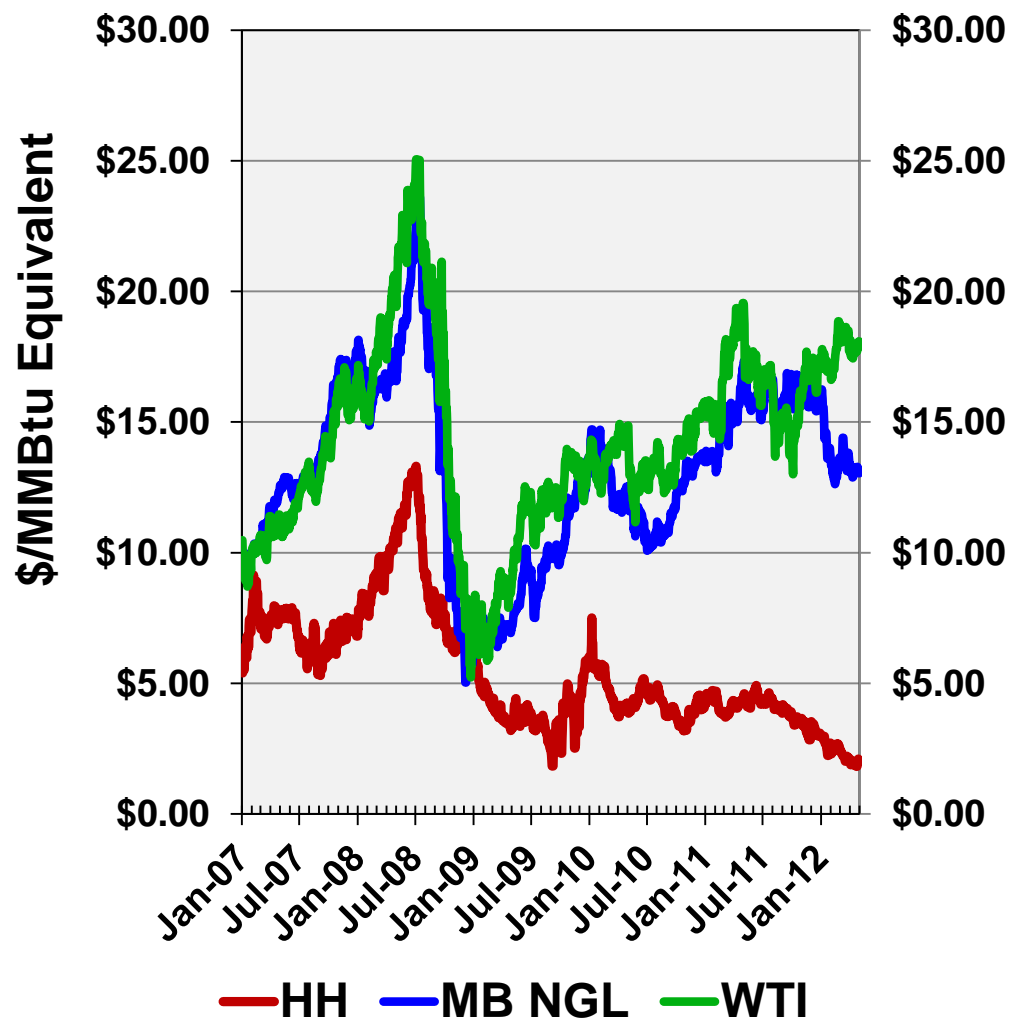
Basin Conclusions (Continued)

- ❖ Oil Prices and Oil Infrastructure Takeaway Capacity Are Primary Drivers of the Strong Economics in the Region and Will Ultimately Drive Growth.
- ❖ Given Growth Expectations, Significant Midstream Investment Will Be Required To Capture Natural Gas and NGL Value in the Basin.
- ❖ Williston Basin Economics Enable Producers in the Region to Sufficiently Compete on Price with Upstream Natural Gas Supply In the Rockies and Canada for Space Out of the Region on Existing Infrastructure.

Natural Gas Supply Growth is Changing The US Energy Landscape



Commodity Price Disparities Are Shifting Producer Behavior



- Low Natural Gas Prices Are Forcing Producers to Reevaluate Economics and Investment in Conventional and Even Unconventional Lean Gas Assets.

AND

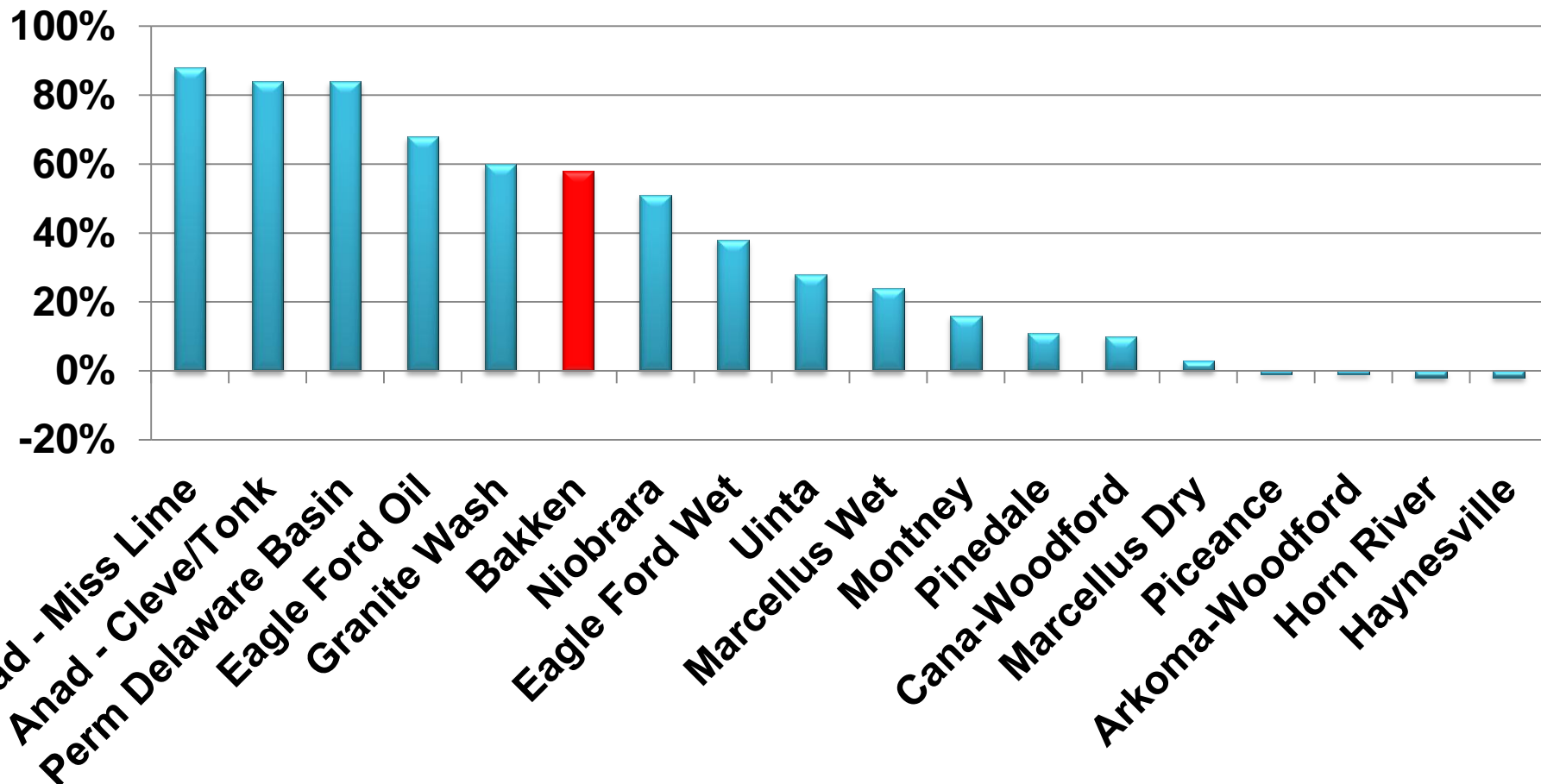
- Higher Relative Oil and NGL Prices Incentivize Producers to Redirect Resources Toward Assets With a Higher BTU Content.

ARE

- Driving Capital into the Williston Basin and Reducing Competition For Space on Existing Infrastructure Moving Gas Out of the Area.

Source: ICE, EIA

Bakken Earns Above Average Returns

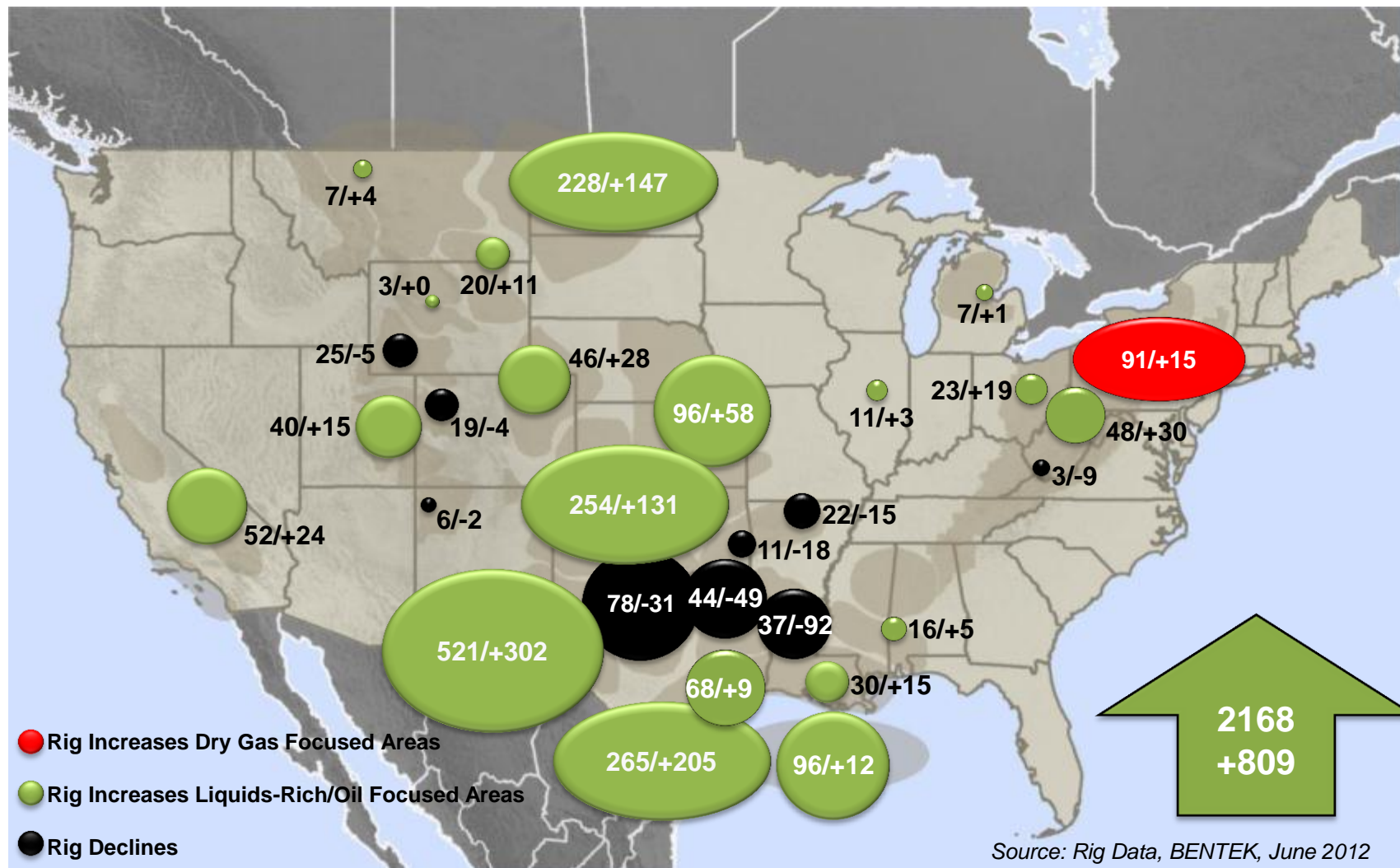


Price Assumptions: Gas = 12 month forward average curve for each regional pricing point as of June, 2012 (price range \$2.45-\$2.86/Mcf)

Oil = 6 month average WTI +/- differential as of June, 2012 (price range \$84.40-\$100.43/barrel)

NGLs = weighted average \$/barrel based on current Mt. Belvieu prices and the typical composition in each region (range \$23.79-\$45.22/barrel)

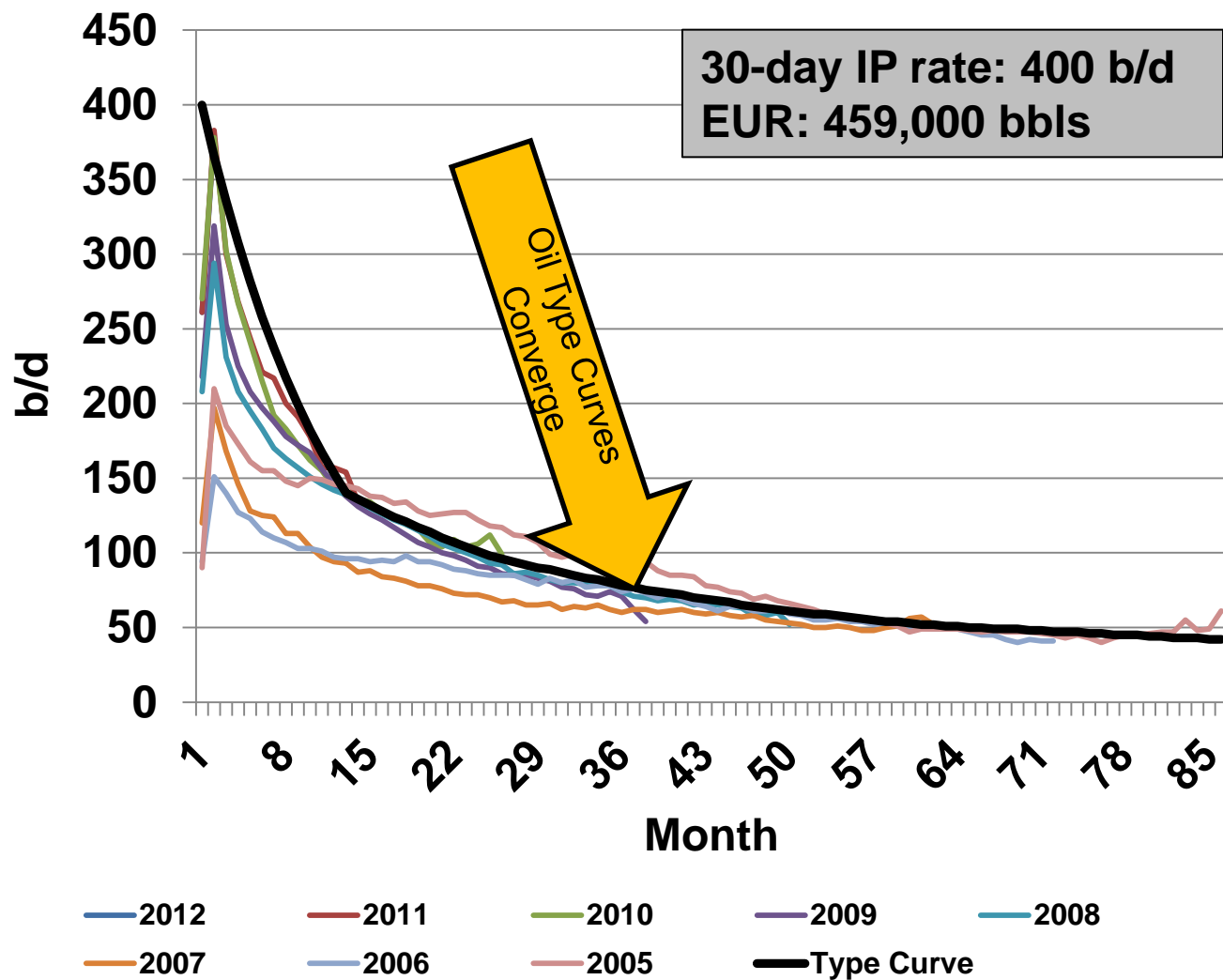
Plays With High Returns Attract Drilling Rigs





Williston Basin Forecasts

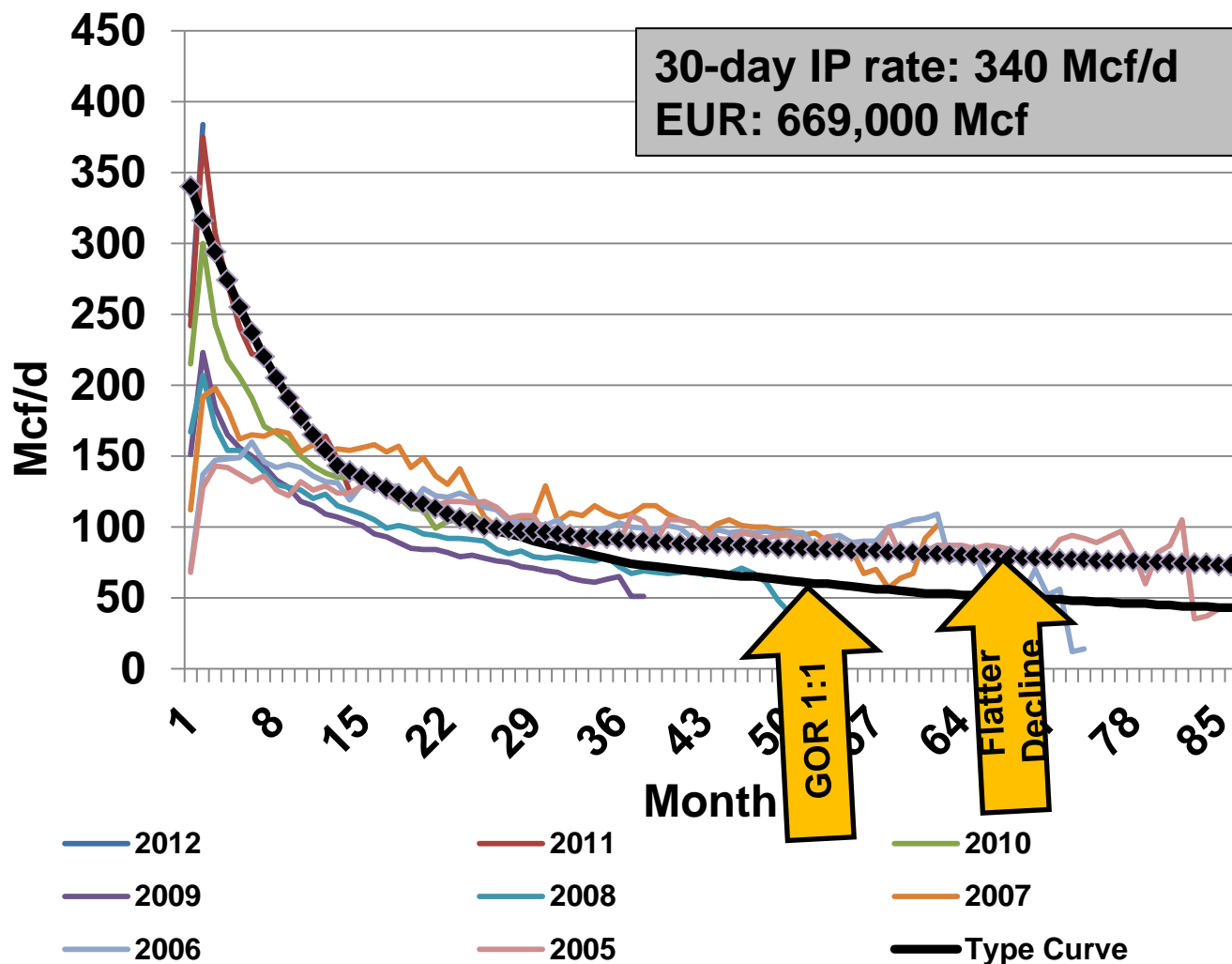
Williston ND Horizontal Oil Type Curve Converges



Yr	Decline
1	65%
2	30%
3	22%
4	19%
5	16%
6	10%
7	10%
8	5%
9	5%
10	2%

Well Life: 25 years

Older ND Wells Suggest a Flat Gas Type Curve



Yr	Avg Decline	Adj Decline
1	58%	58%
2	30%	30%
3	26%	10%
4	15%	5%
5	15%	5%
6	10%	5%
7	10%	5%
8	6%	5%
9	4%	4%
10	2%	2%

ND Model EURs Inline with Producers Expectations

Model

Oil: 459,000 Bbls

Gas: 111,500 Boe

Total: 570,500 Boe

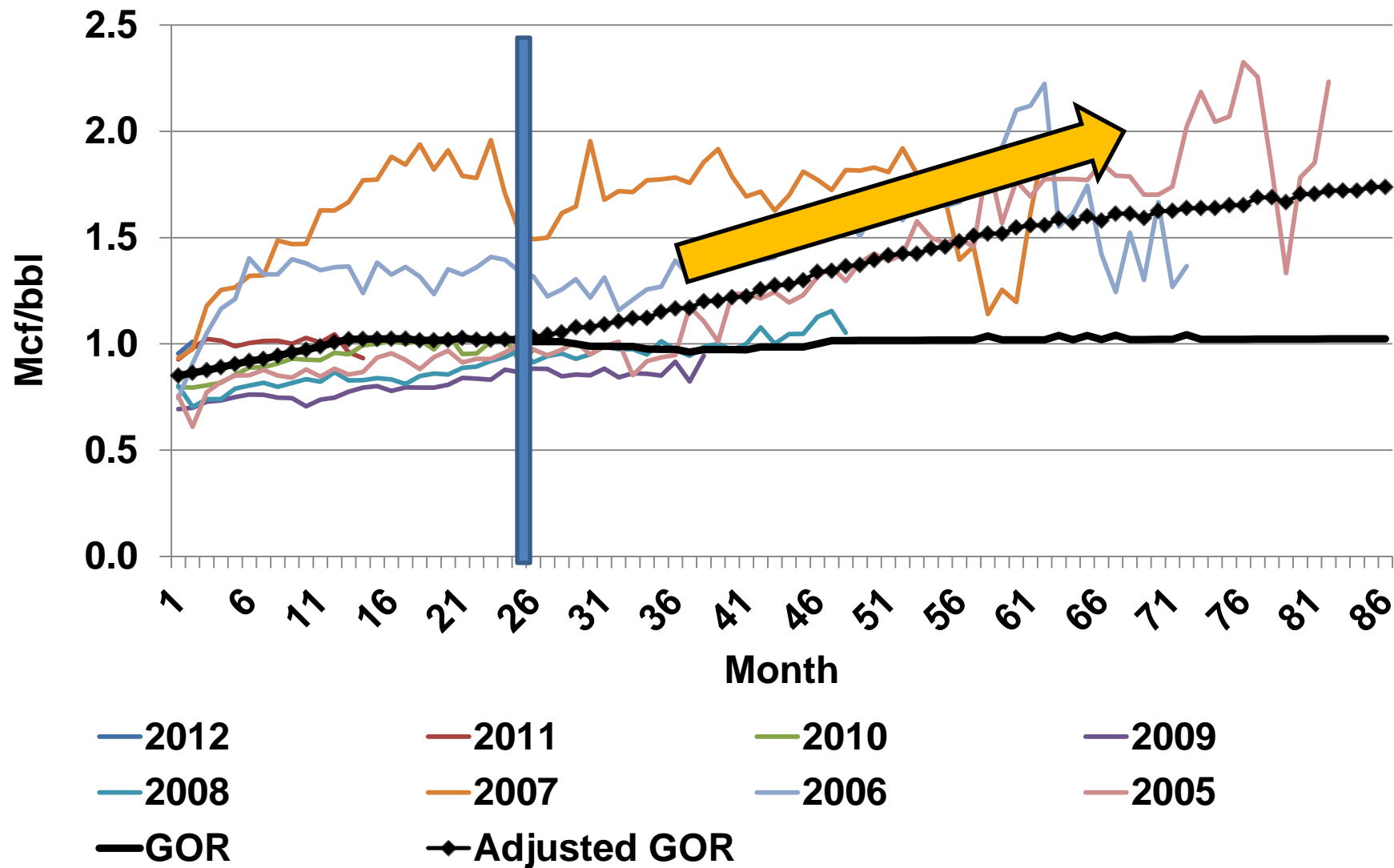


CLR: 603 Mboe

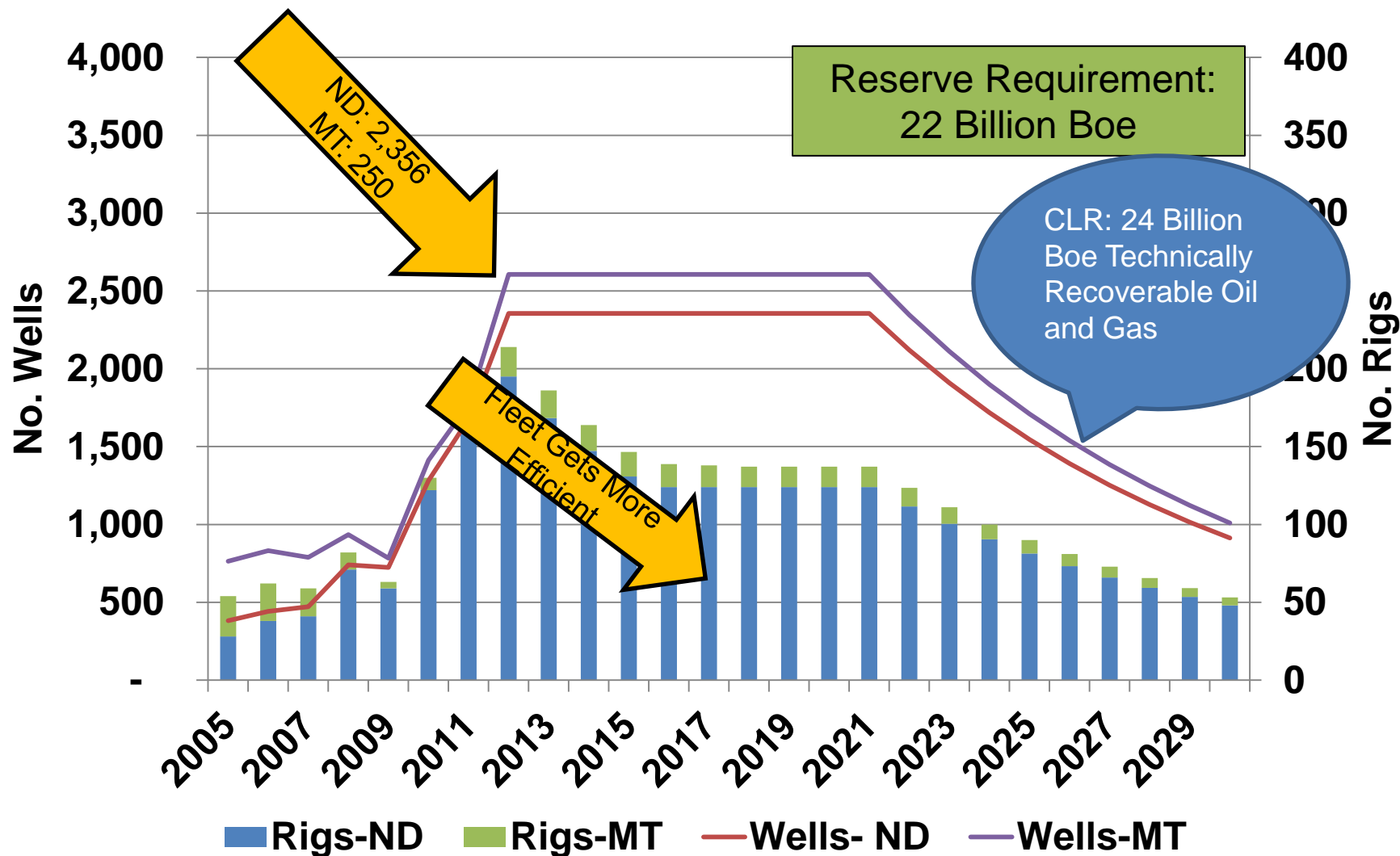
Whiting:
450-900 Mboe
(Sanish)

Oasis:
450-750 Mboe
(Middle Bakken)

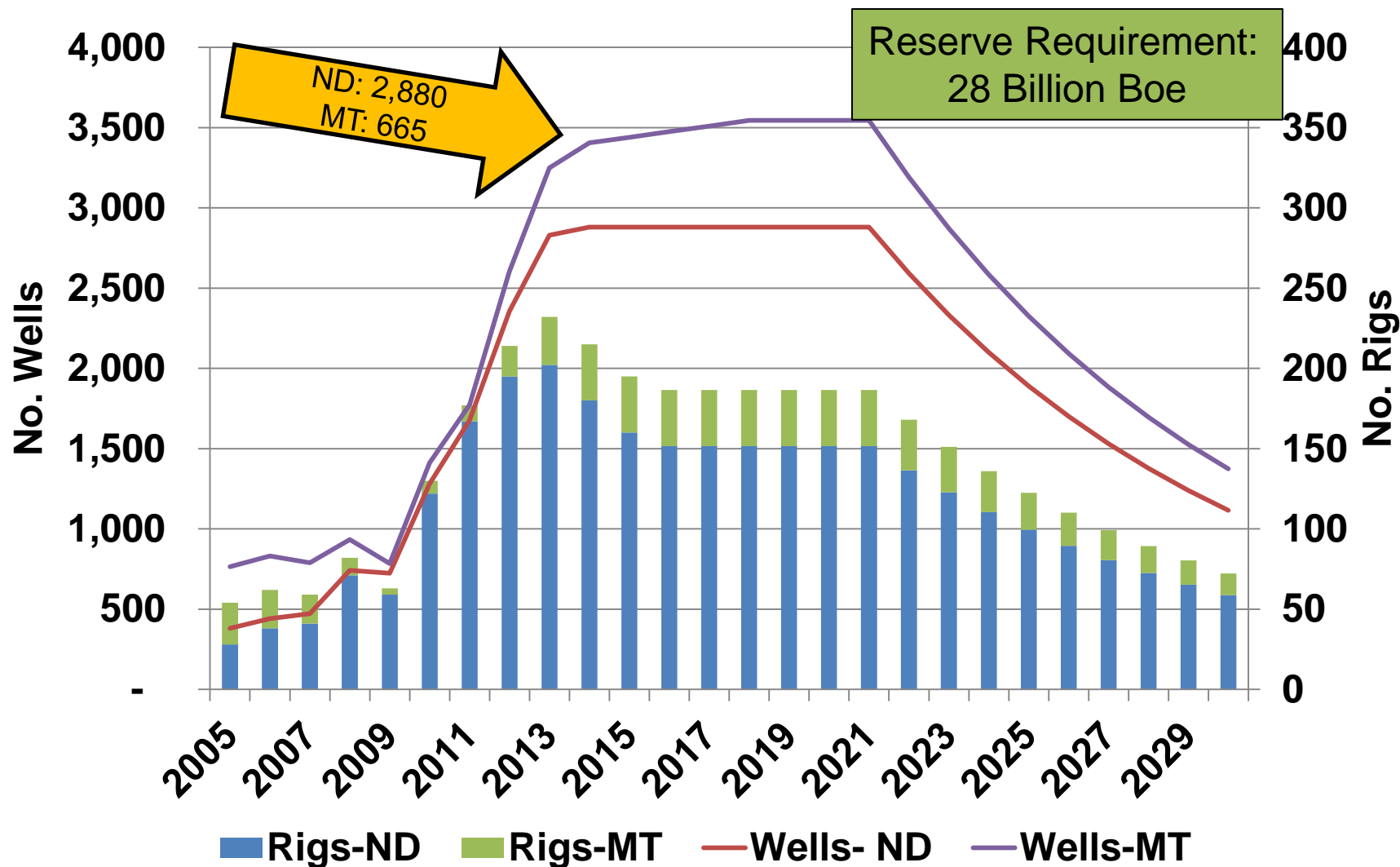
Stronger Gas Oil Ratio (GOR) Expected For ND Horizontal Oil Wells



Base Case- Level of Activity Remains At Current Levels For the Next 10 years

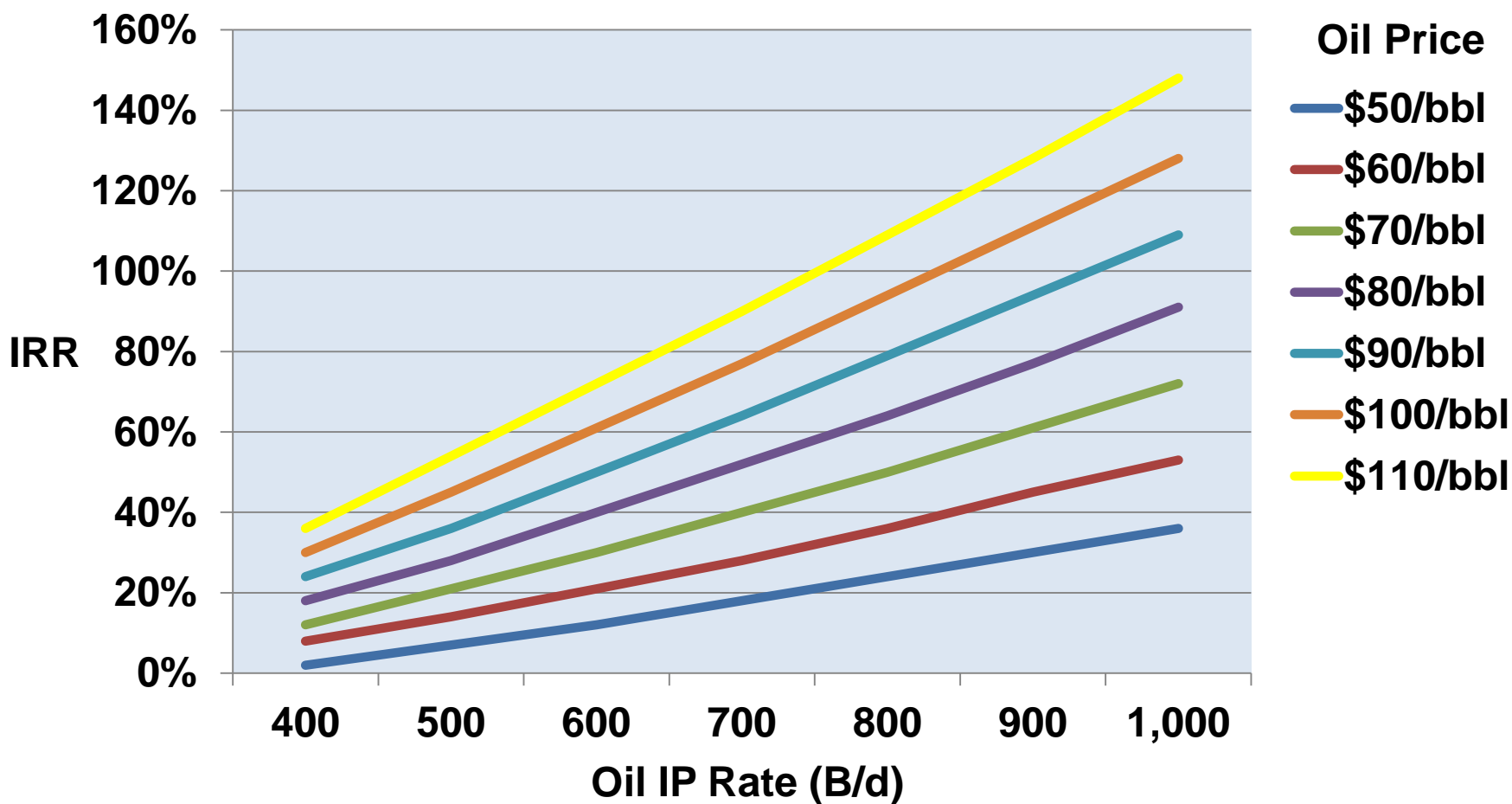


High Case Scenario-Consistently Tests Oil Takeaway Capacity, Stressing Prices and Producers

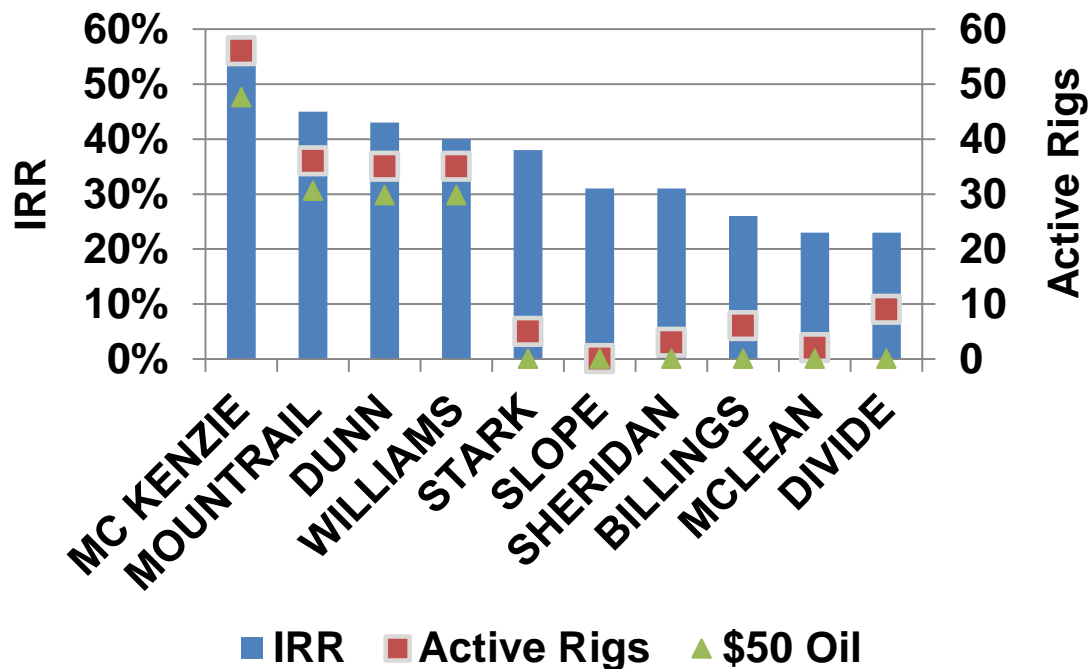
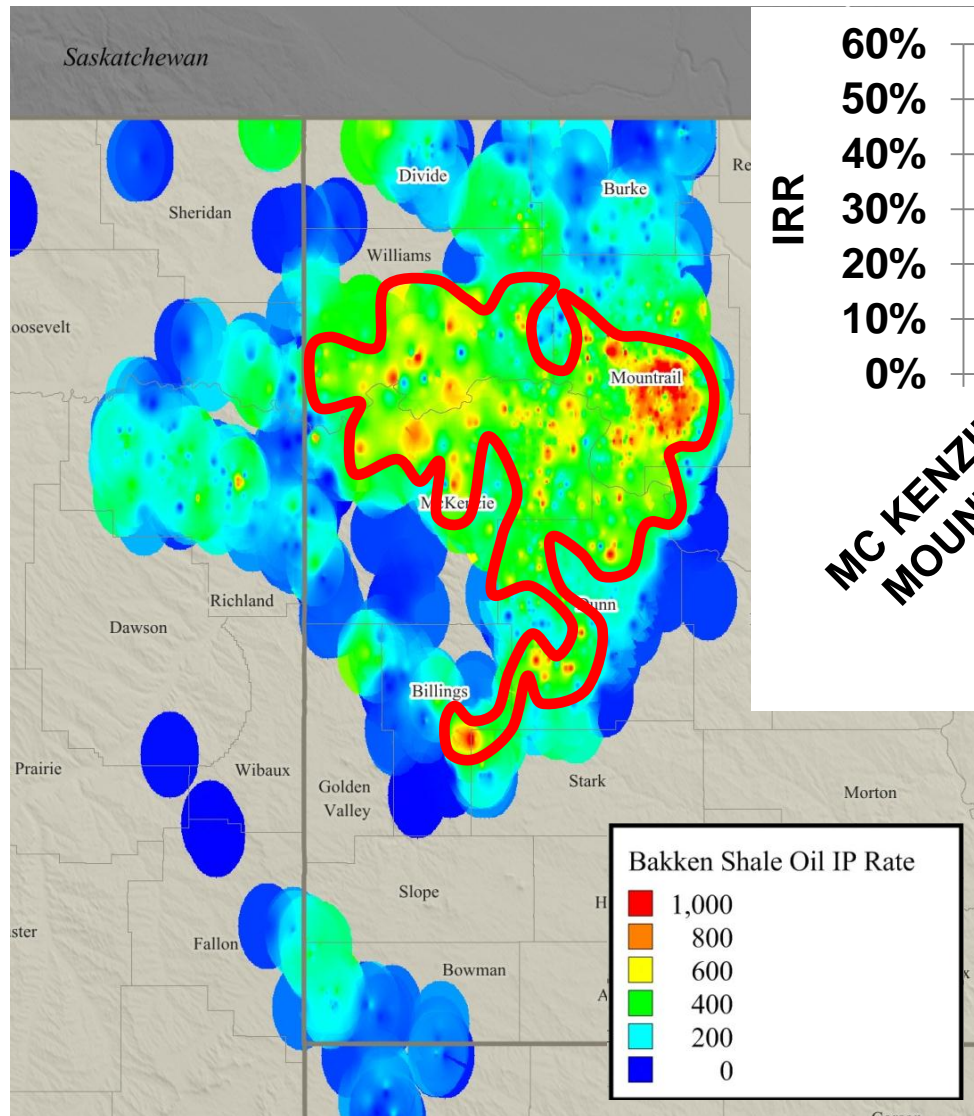


Williston Growth Can Be Maintained at Low Prices

Williston IRR Sensitivities: Oil IP Rates/Oil Prices

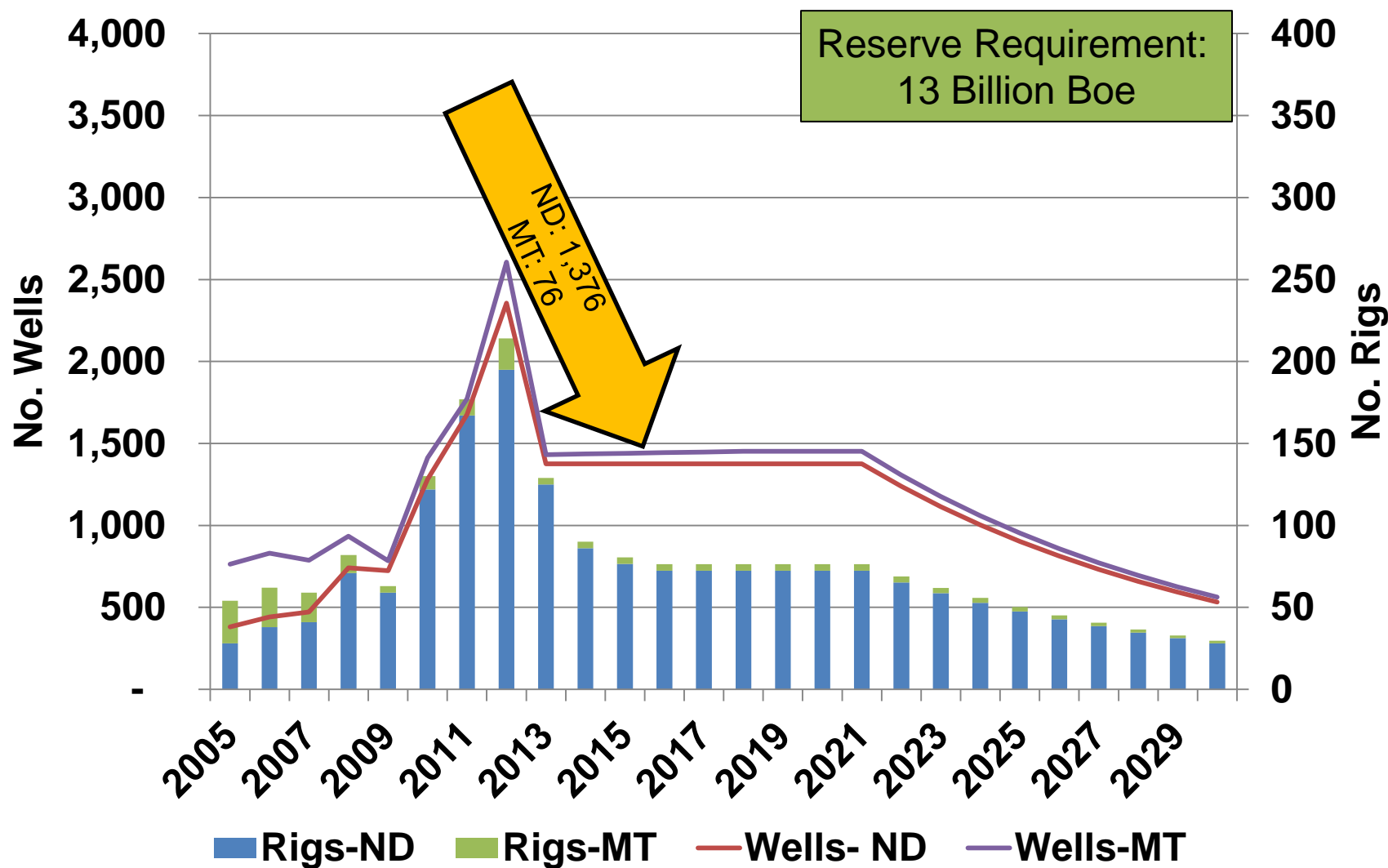


\$50 Oil Challenges Fringe Economics

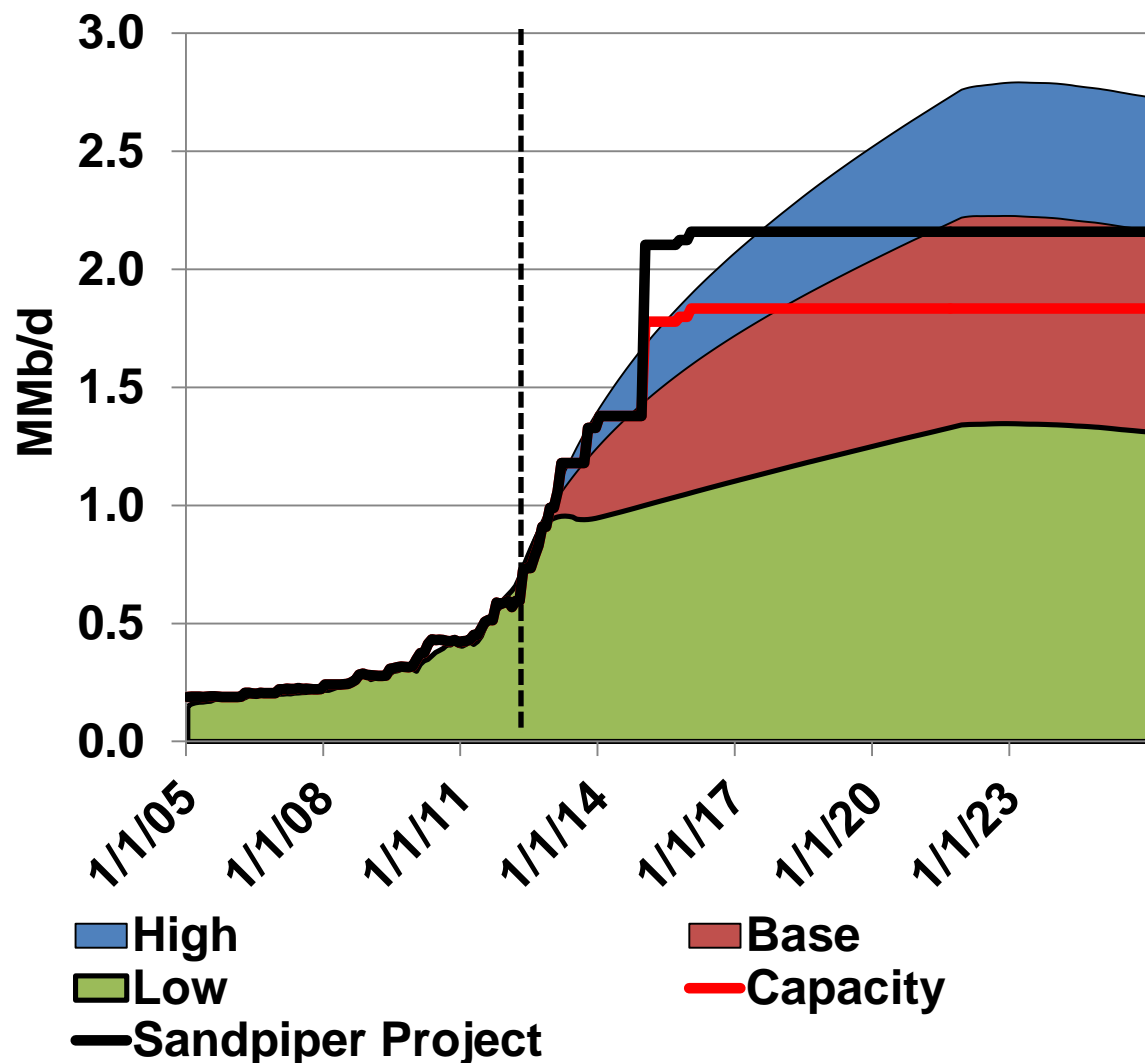


Other counties with active rigs that see reduced activity include: Bowman, Roosevelt, Richland, Golden Valley, Burke

Low Case – Driven By Low Oil Prices



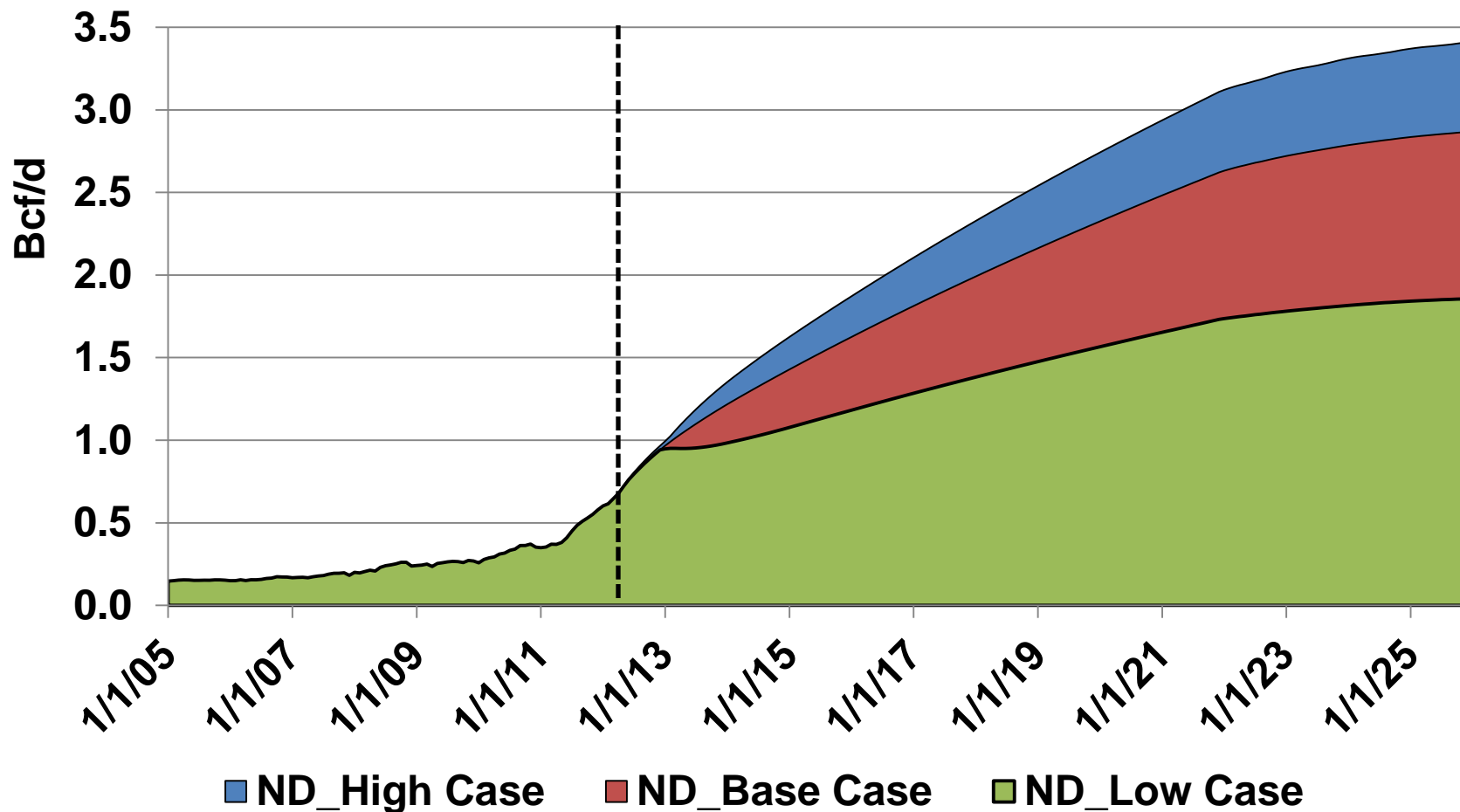
Comparison of Oil Production Based on Various Scenarios



- **High Case:** Consistently Tests Oil Takeaway Capacity, Stressing Prices and Producers.
- **Base Case:** Provides Strong Consistent Growth For the Basin Without Straining Takeaway Capacity Until Around 2022.
- **Low Case:** Suggests a Significant Pullback in Activity Due to Falling Oil Prices.

North Dakota Gross Gas Production Set To Climb

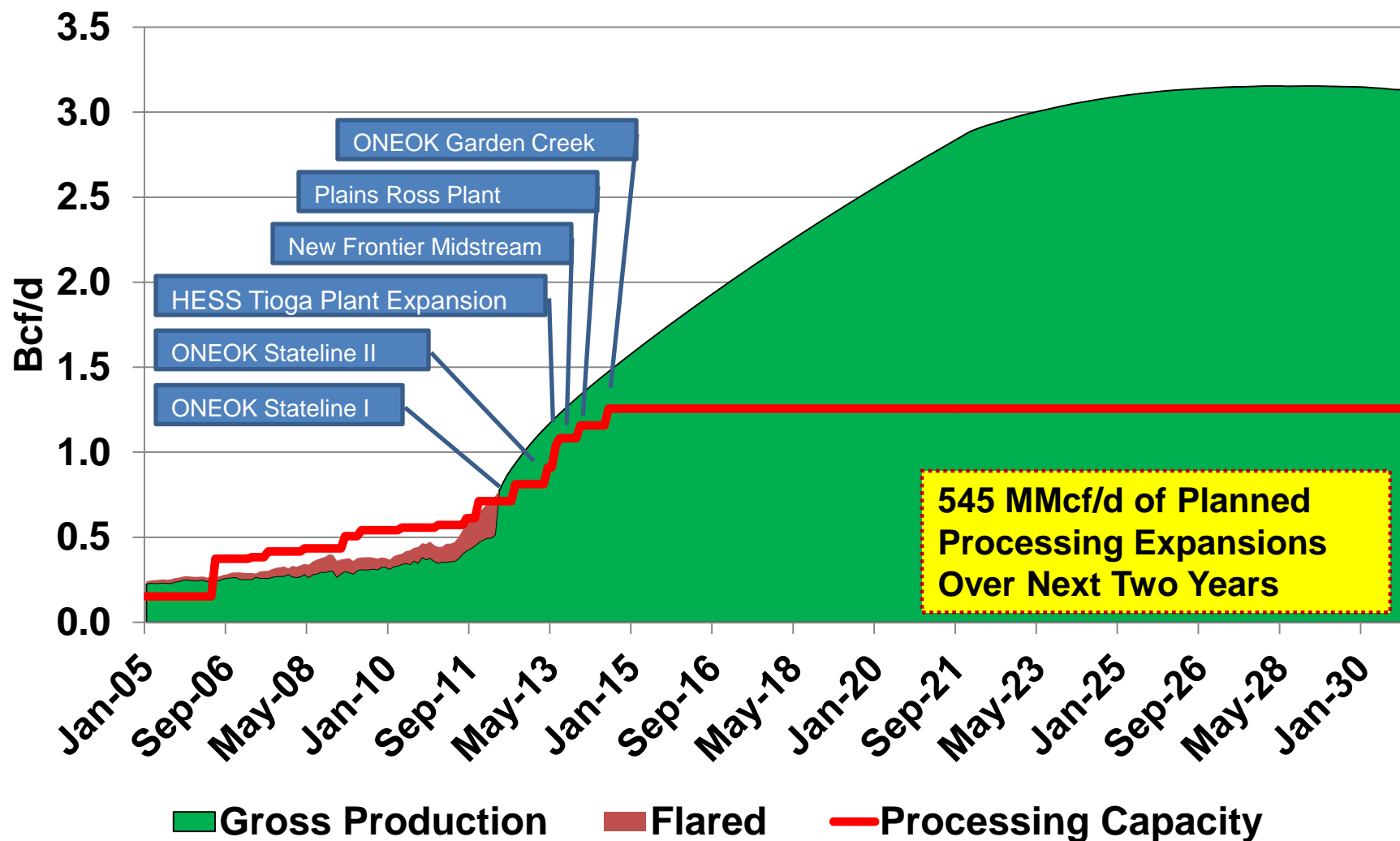
North Dakota Gross Gas Production

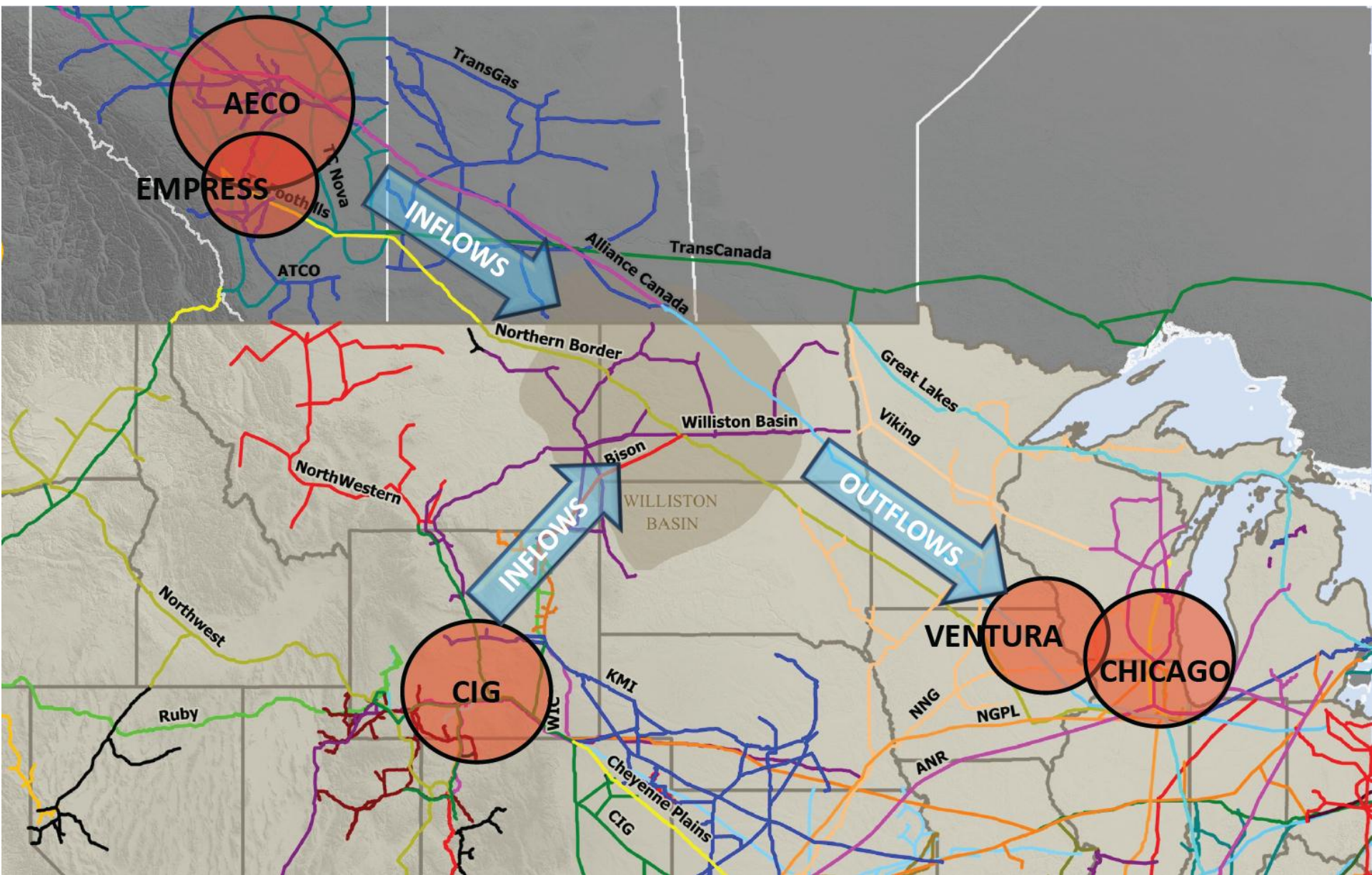




Bring Gas Supply to Market

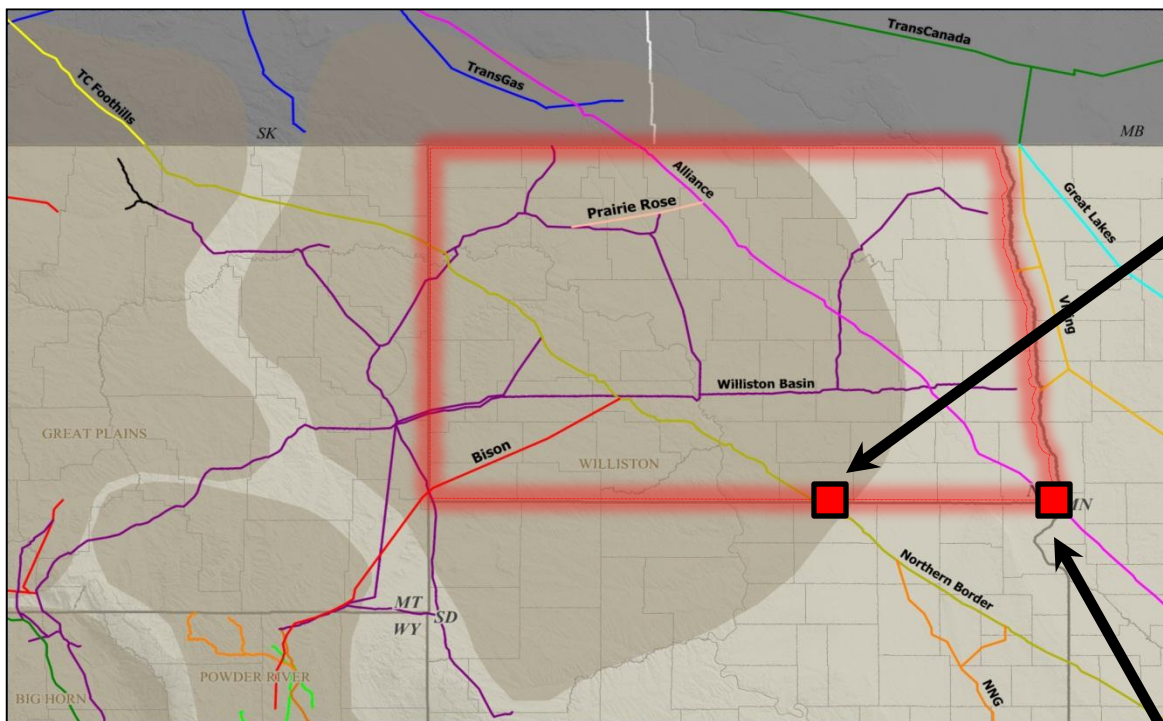
New Processing and Midstream Infrastructure Needed to Meet Growing Gas Production in the Williston





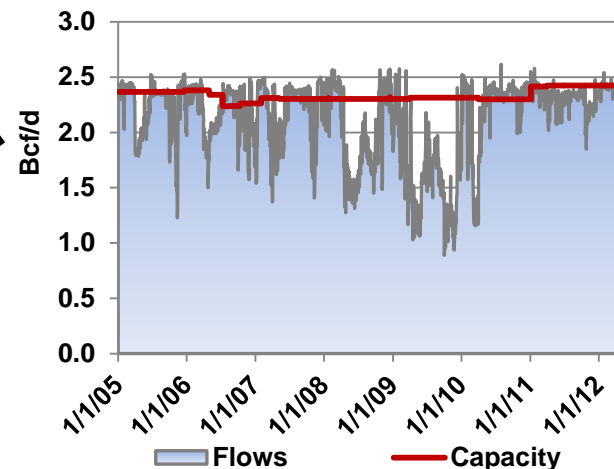
Source: BENTEK Energy July 2012 Report

Open Capacity Leaving N. Dakota Is Tight

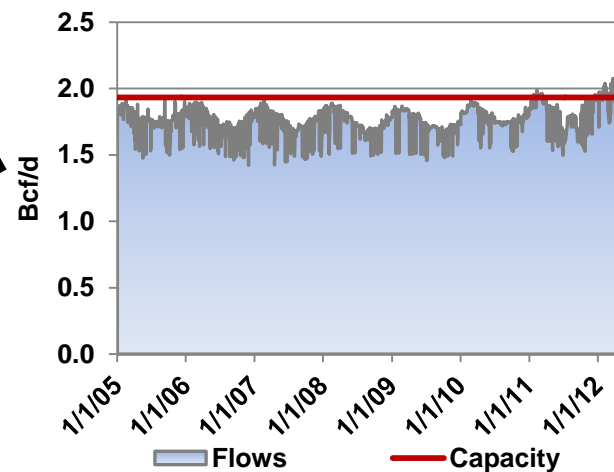


- Northern Border and Alliance Serve As the Primary Routes to Transport Gas From the Region.
- Each Have Limited Open Mainline Capacity to Carry Additional Williston Supply.

Northern Border Flows

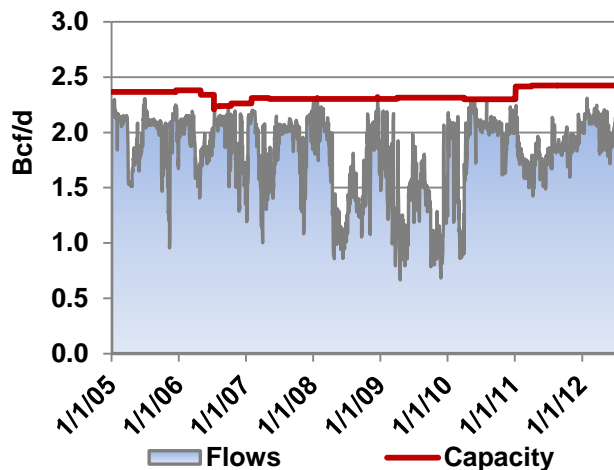


Alliance

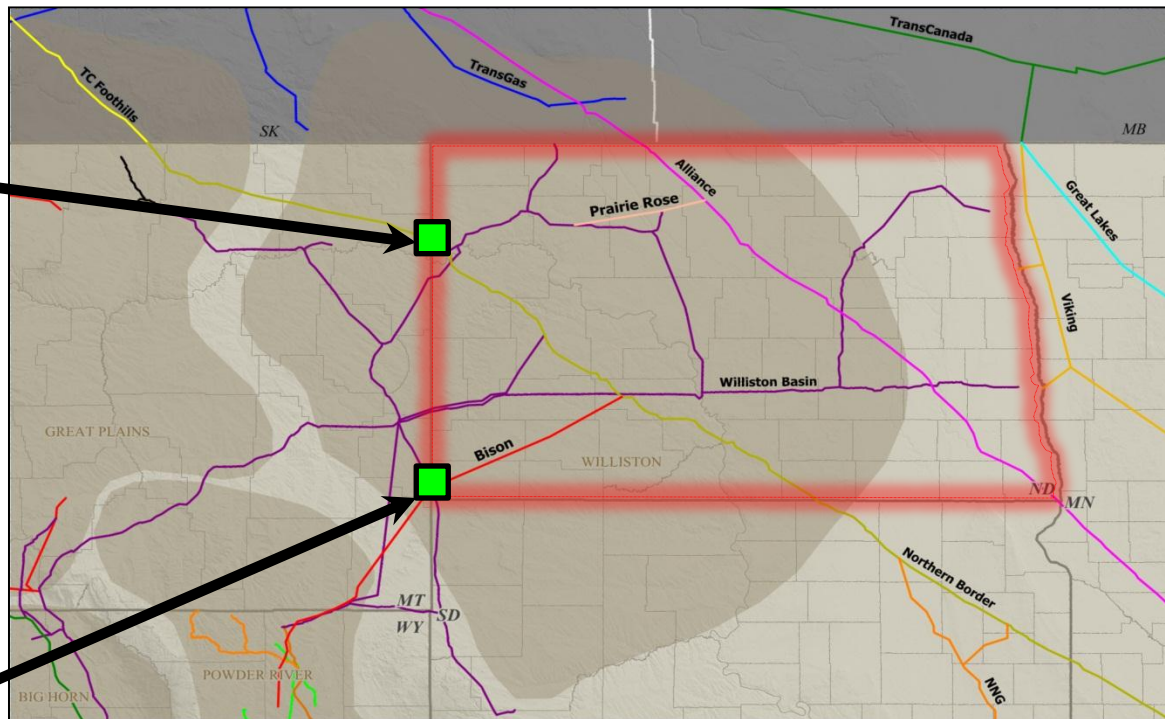
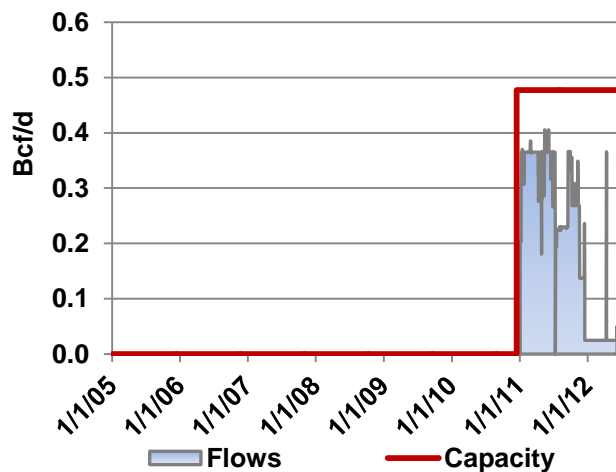


Inlet Flows Currently Losing Market Share

Northern Border – Port of Morgan



Bison

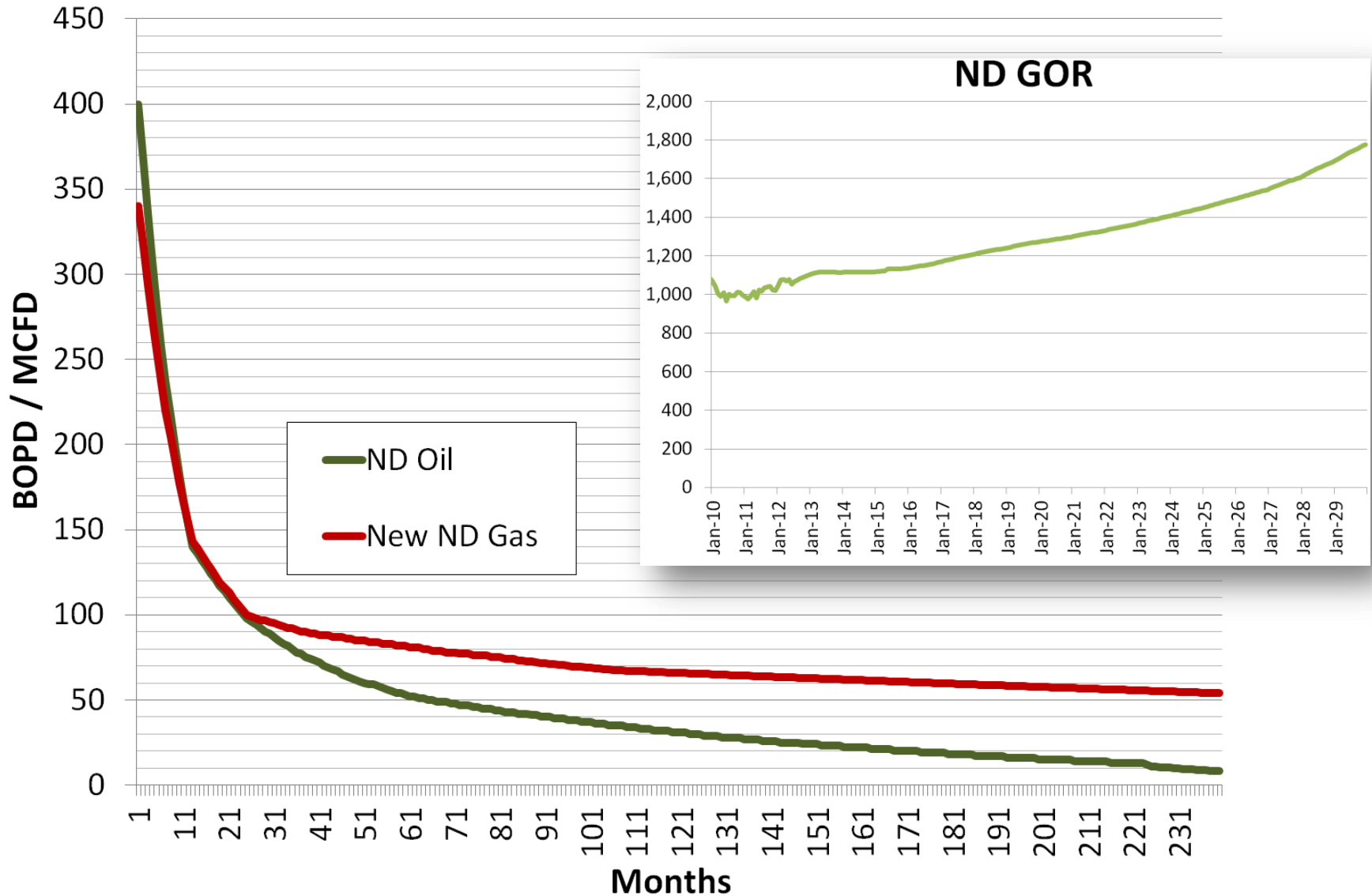


- Declining PRB Production and Increased Competition For Space Has Resulted in Reduced Flows on Bison.
- Canadian Inflows Into Northern Border Have Remained Relatively Strong, But Have Experienced Displacement in the Past and Now.



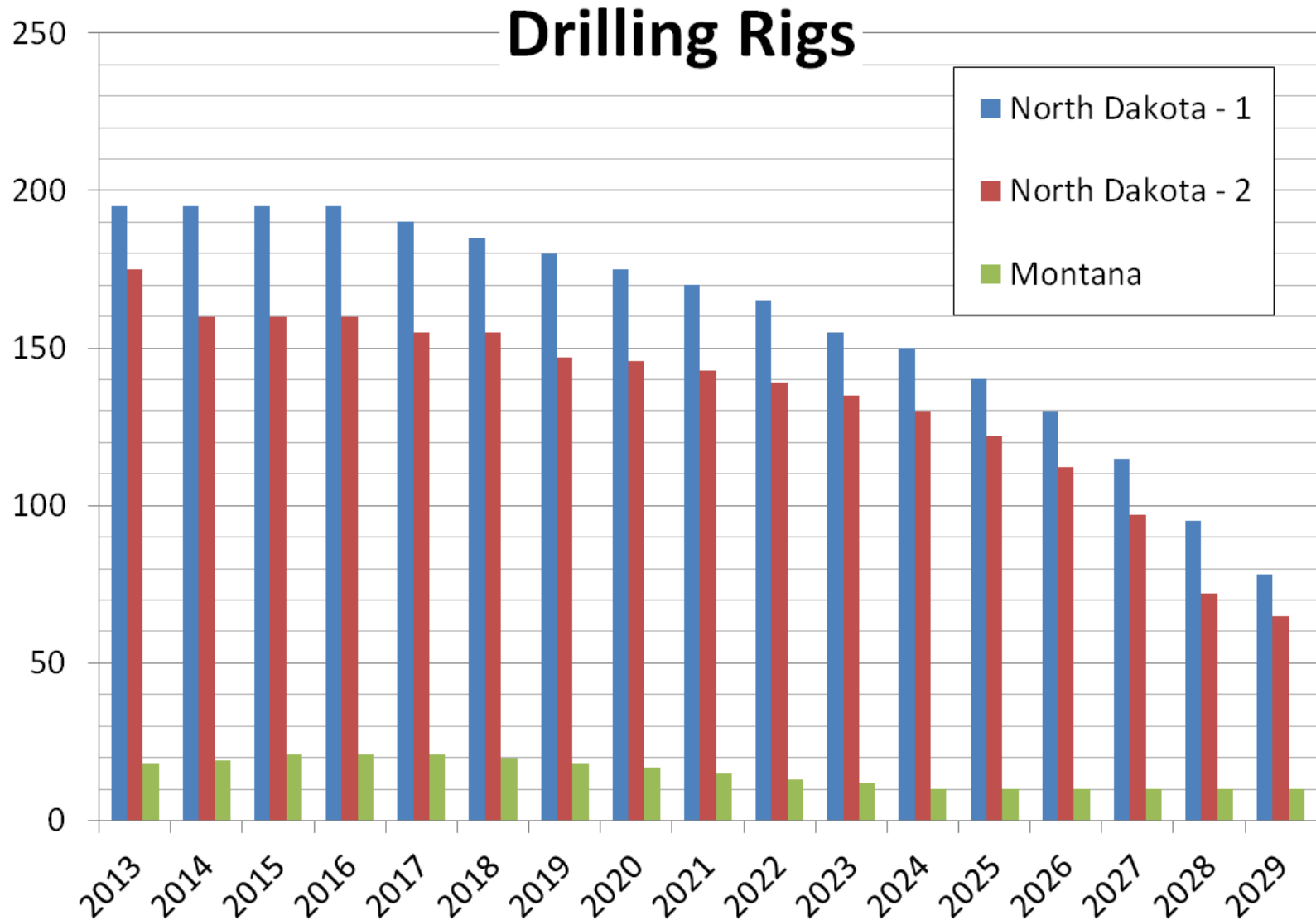
North Dakota Pipeline Authority
North Dakota Petroleum Council Annual Meeting
September 20, 2012 – Medora, ND

North Dakota Type Curves*

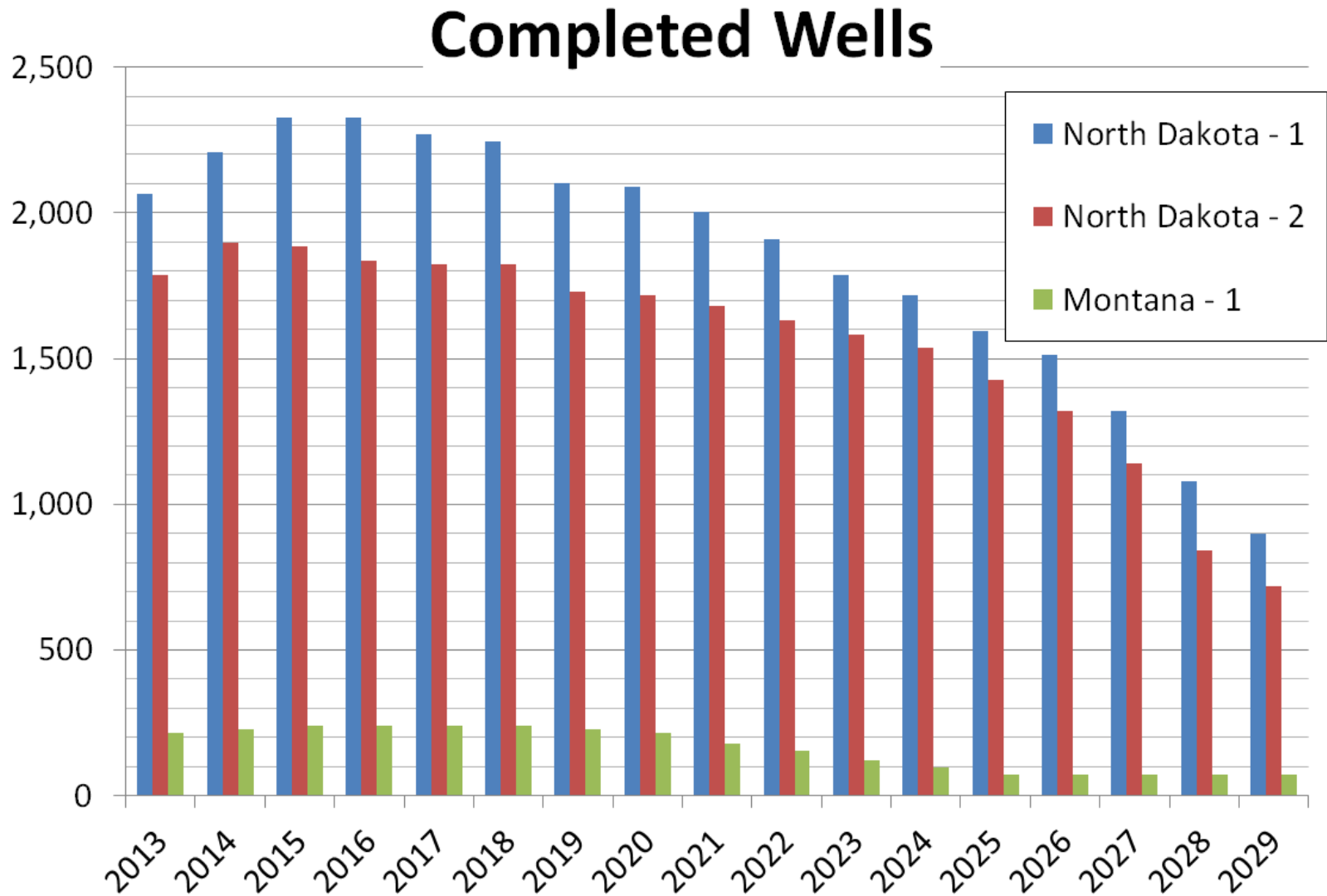


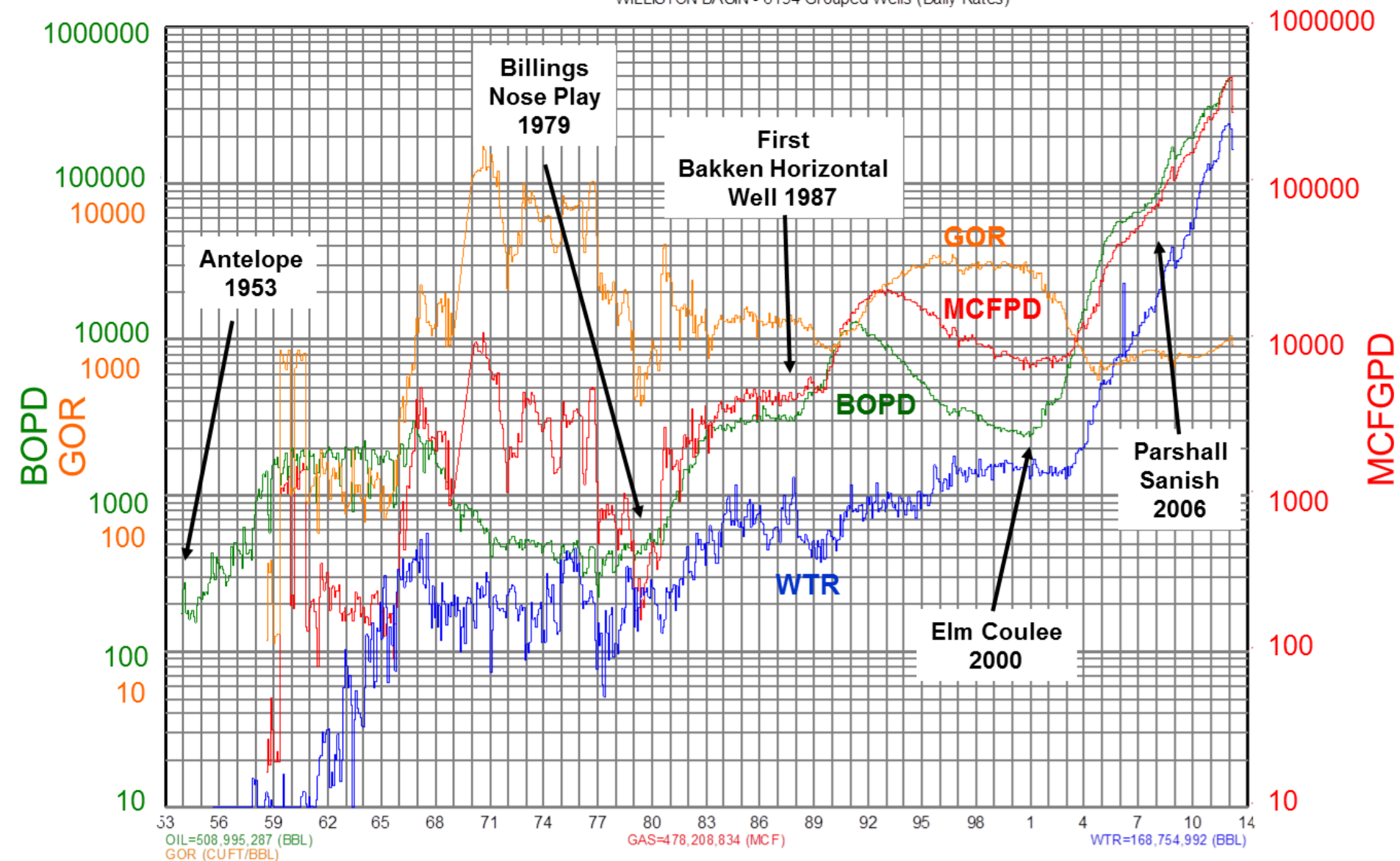
*Based on the July 2012 BENTEK Natural Gas Study

September 2012 Forecast Assumptions



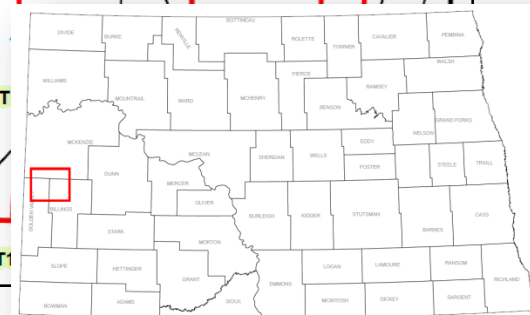
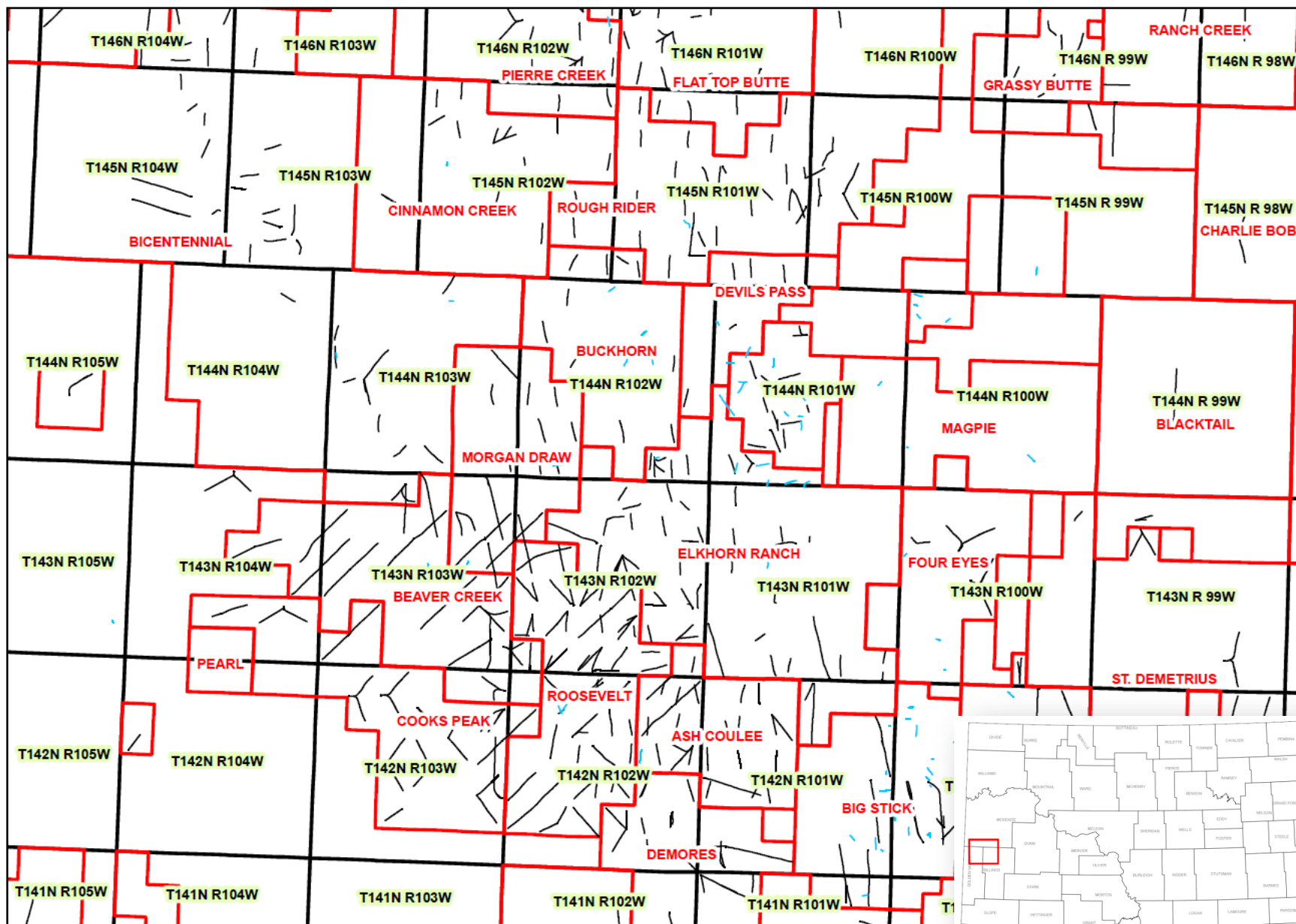
September 2012 Forecast Assumptions





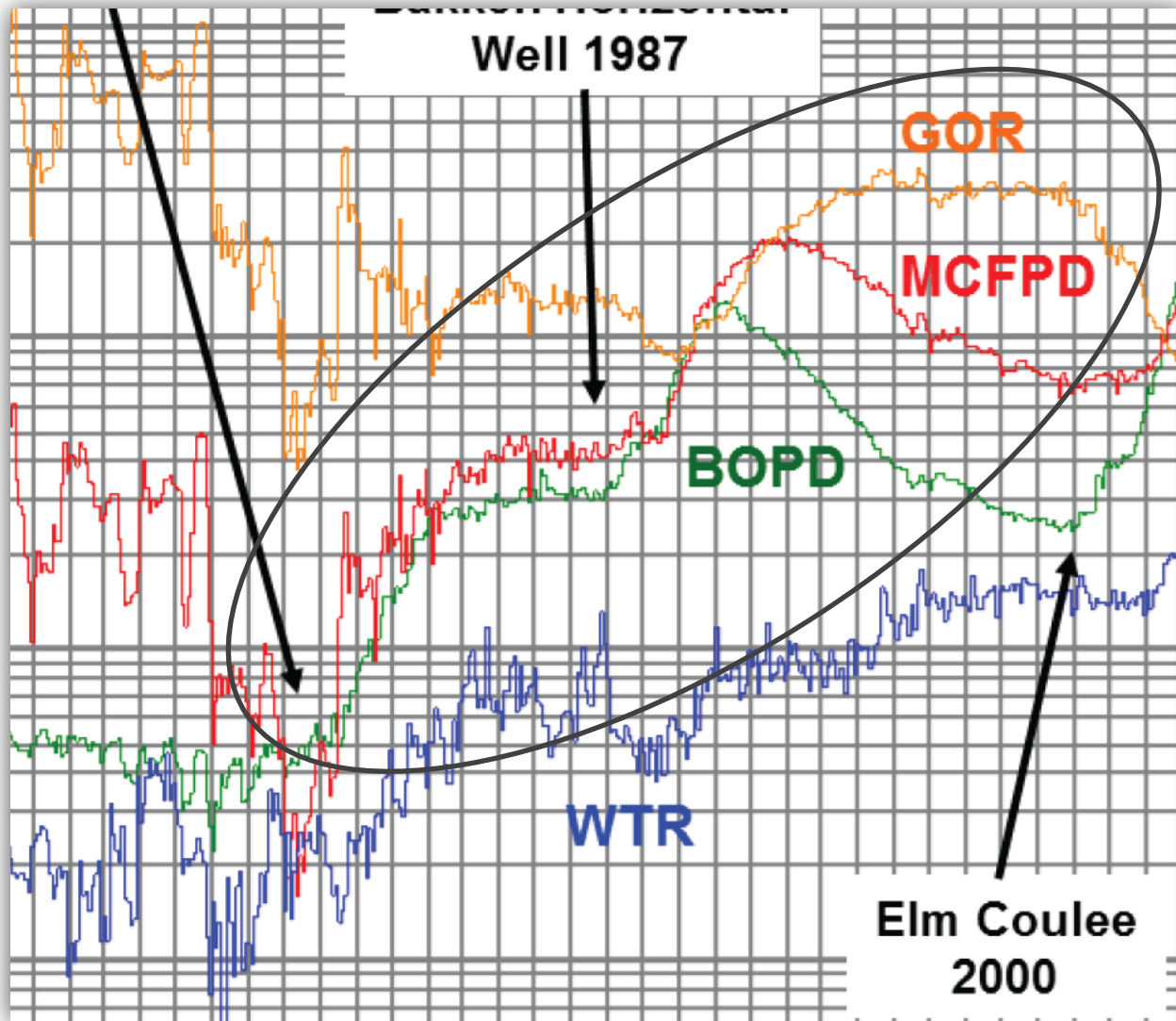
Production curve for the Bakken and Three Forks, US Williston Basin.

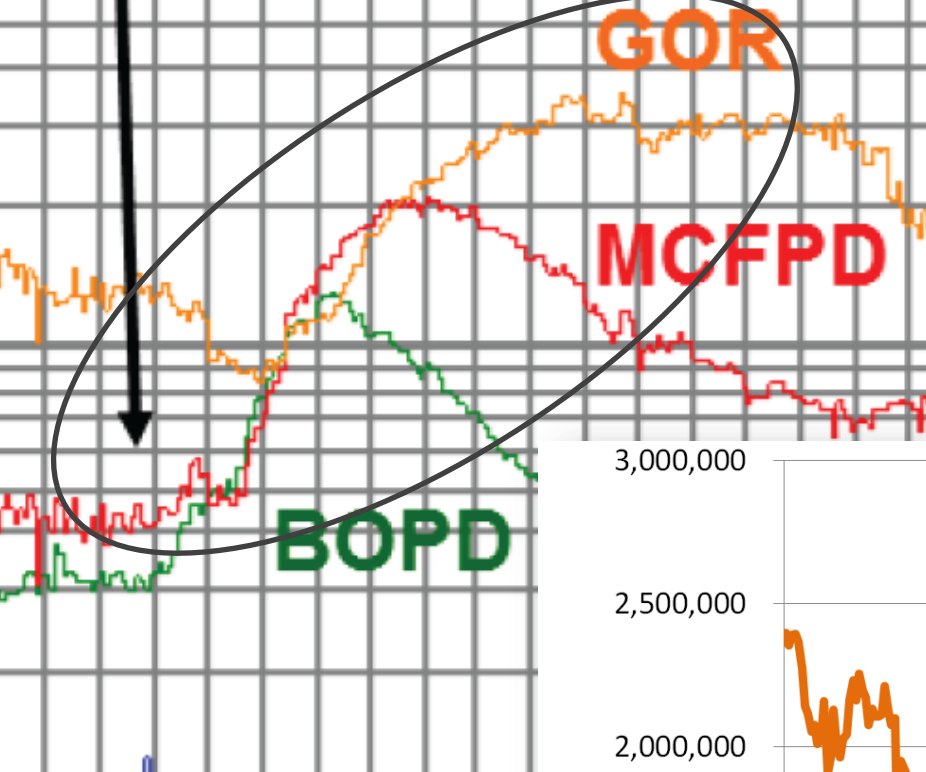
Source: BENTEK Energy July 2012 Report



Only horizontal wells shown on map

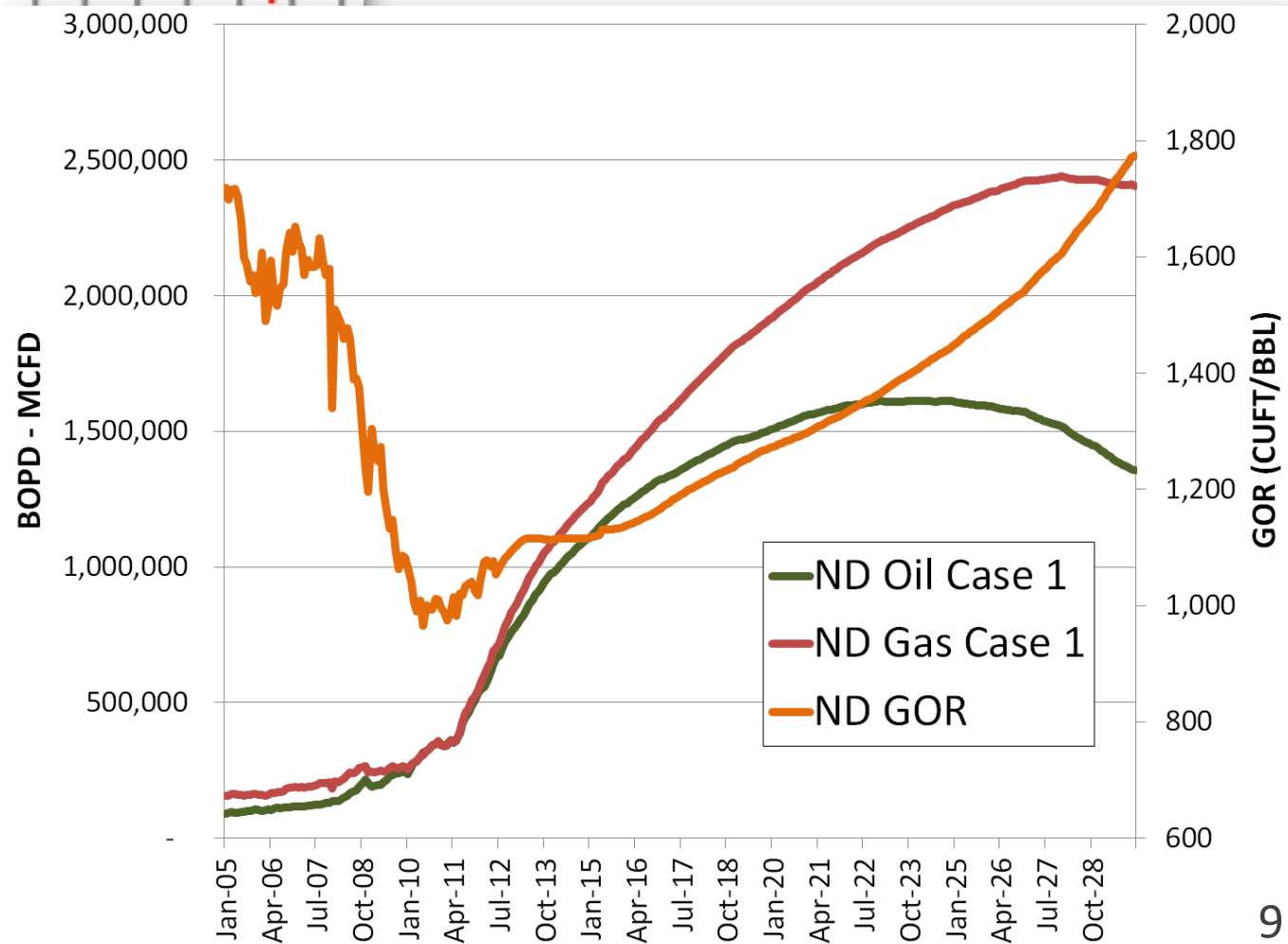
1980's-90's Bakken Development



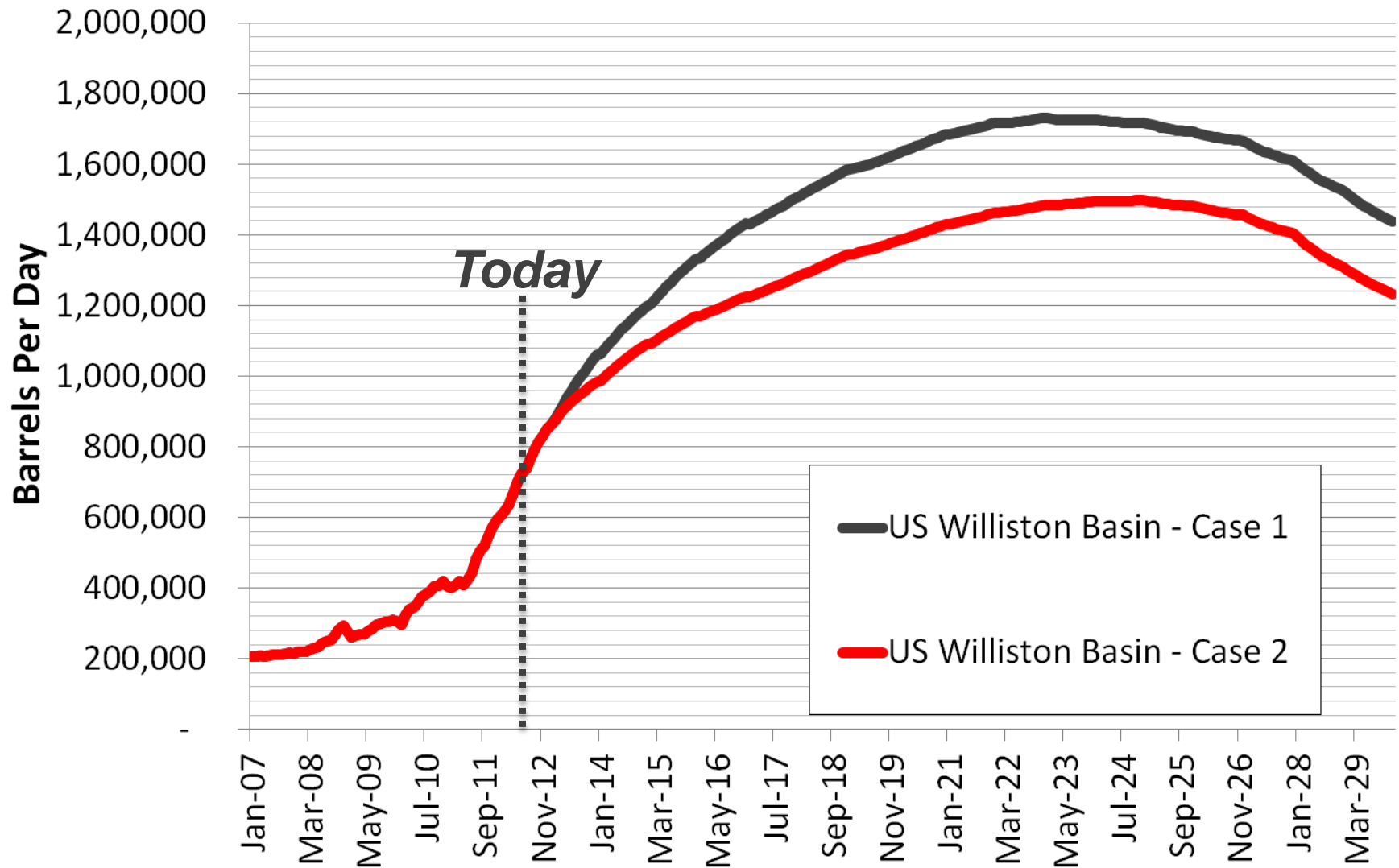


← GOR 3,000 CUFT/BBL

← GOR 1,000 CUFT/BBL

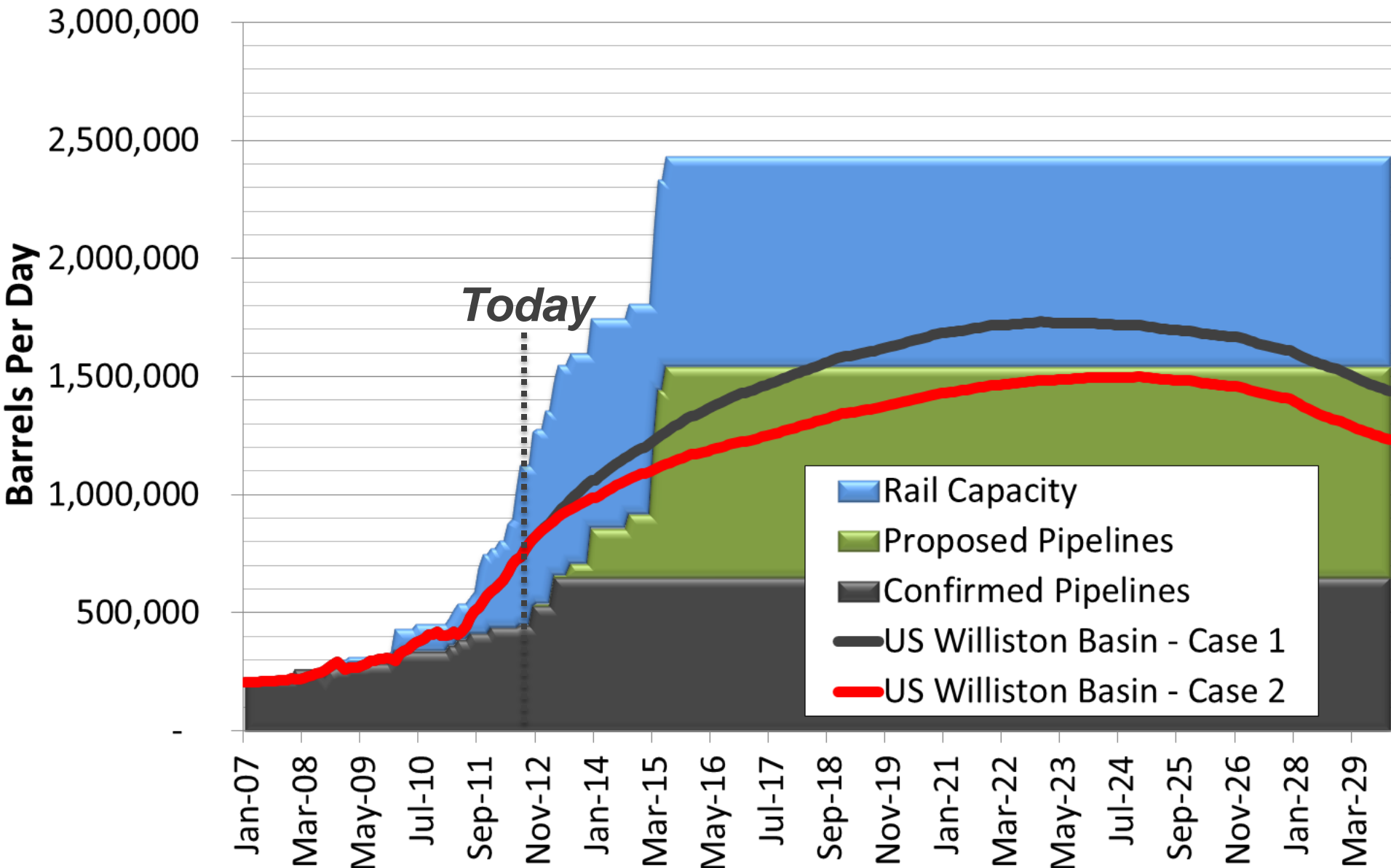


Forecasting Williston Basin Oil Production, BOPD



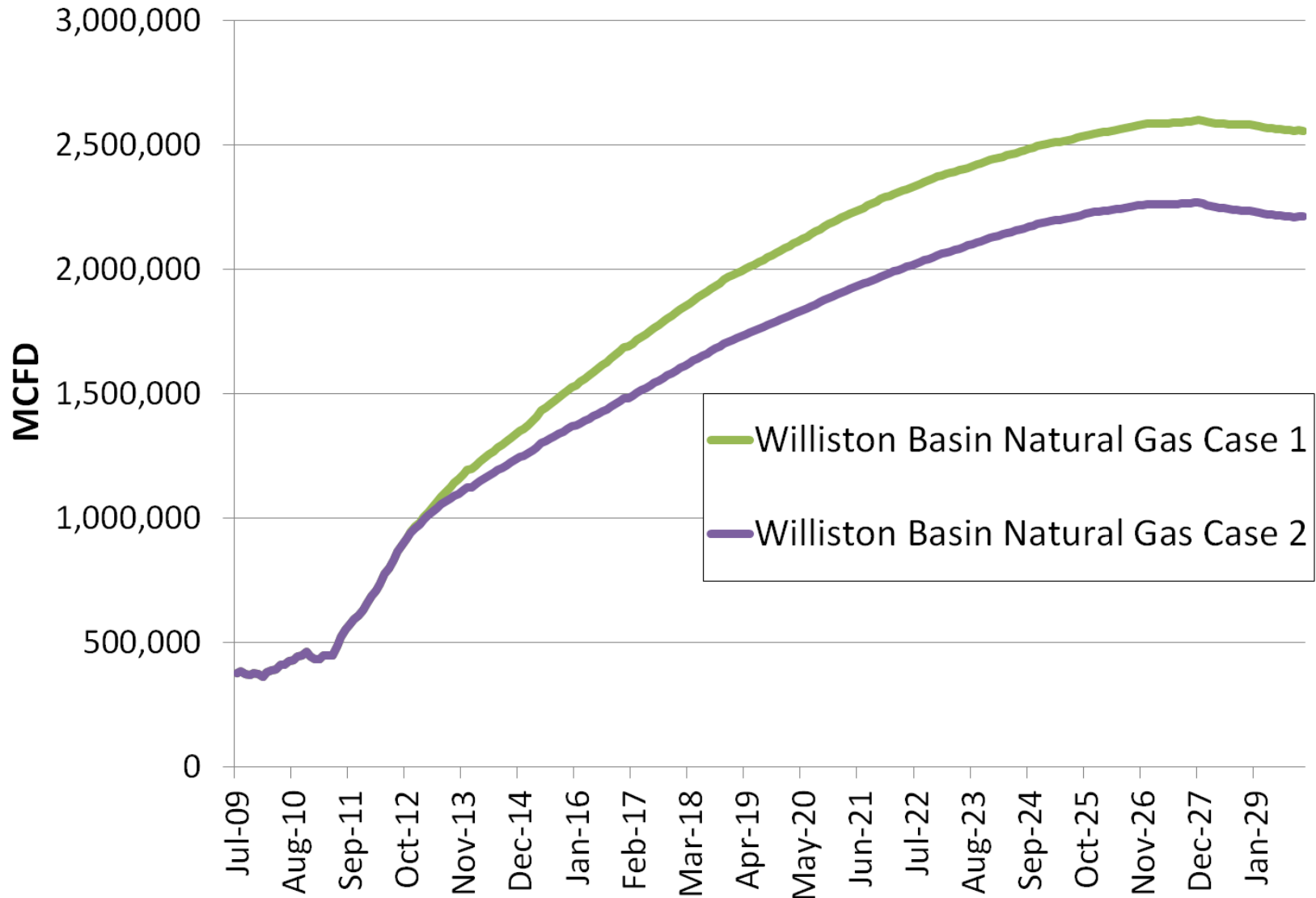
Production forecast is for visual demonstration purposes only and should not be considered accurate for any near or long term planning.

Williston Basin Oil Production & Export Capacity, BOPD



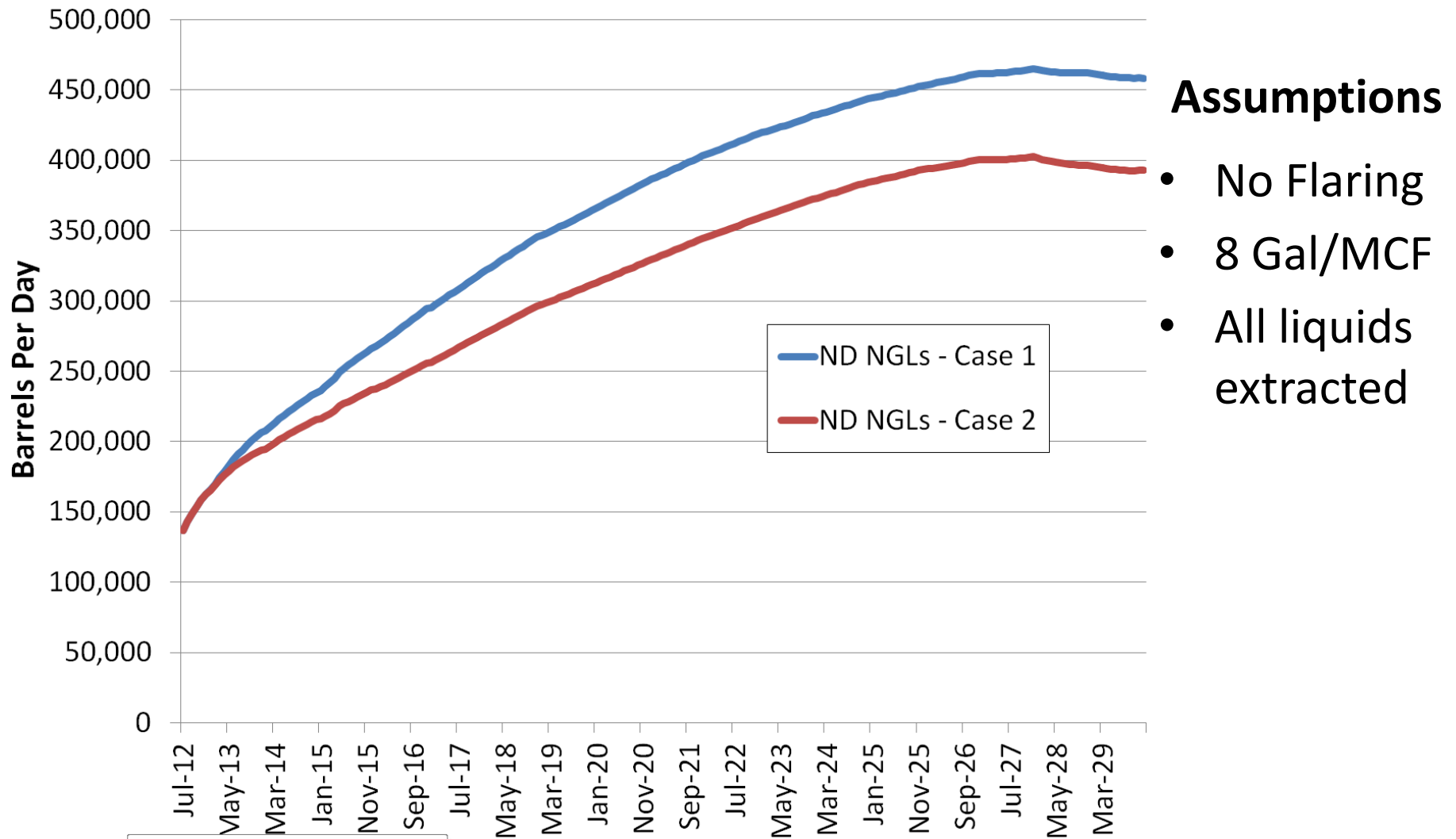
Production forecast is for visual demonstration purposes only and should not be considered accurate for any near or long term planning.

Williston Basin Gas Production

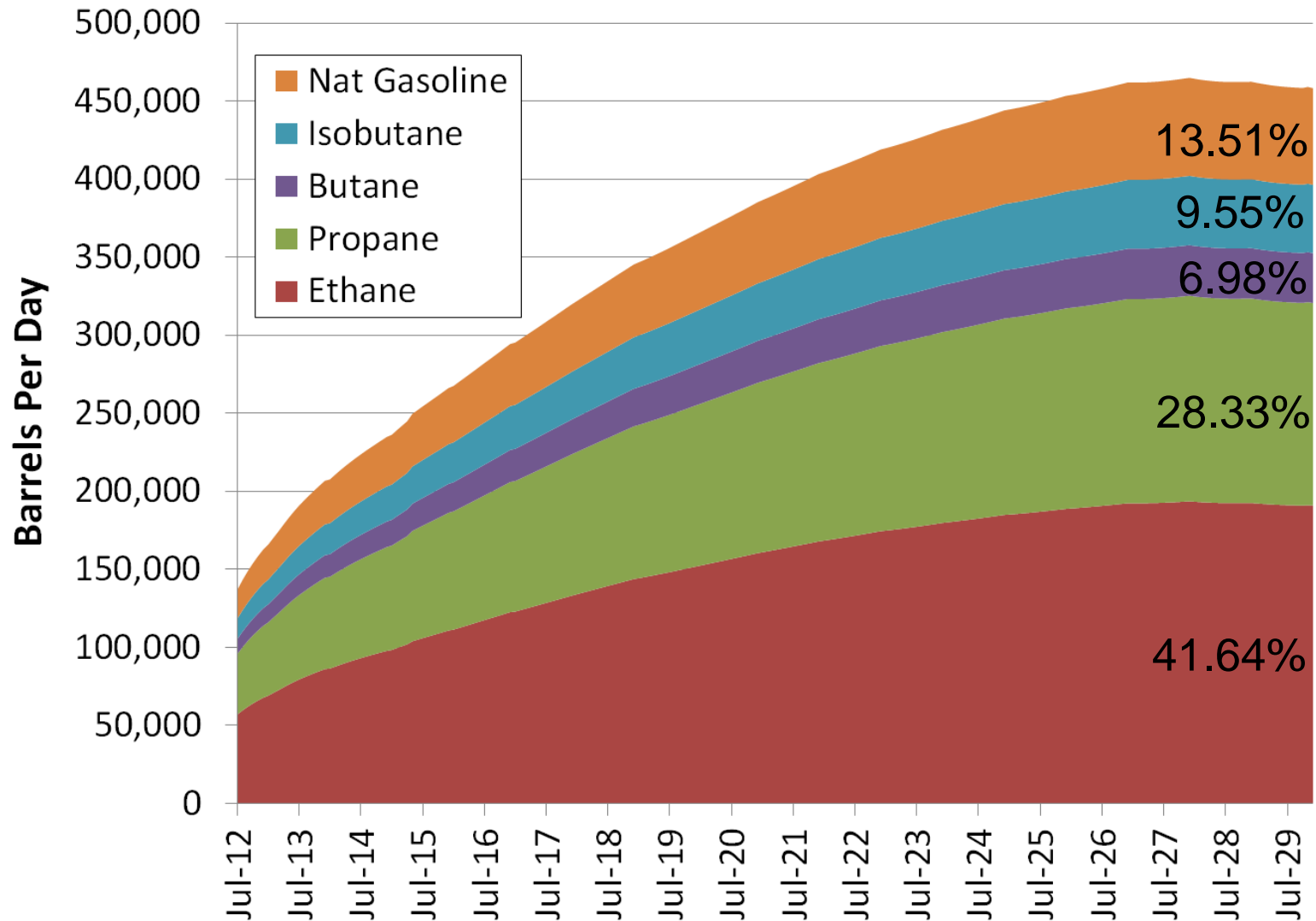


Production forecast is for visual demonstration purposes only and should not be considered accurate for any near or long term planning.

North Dakota NGL Potential

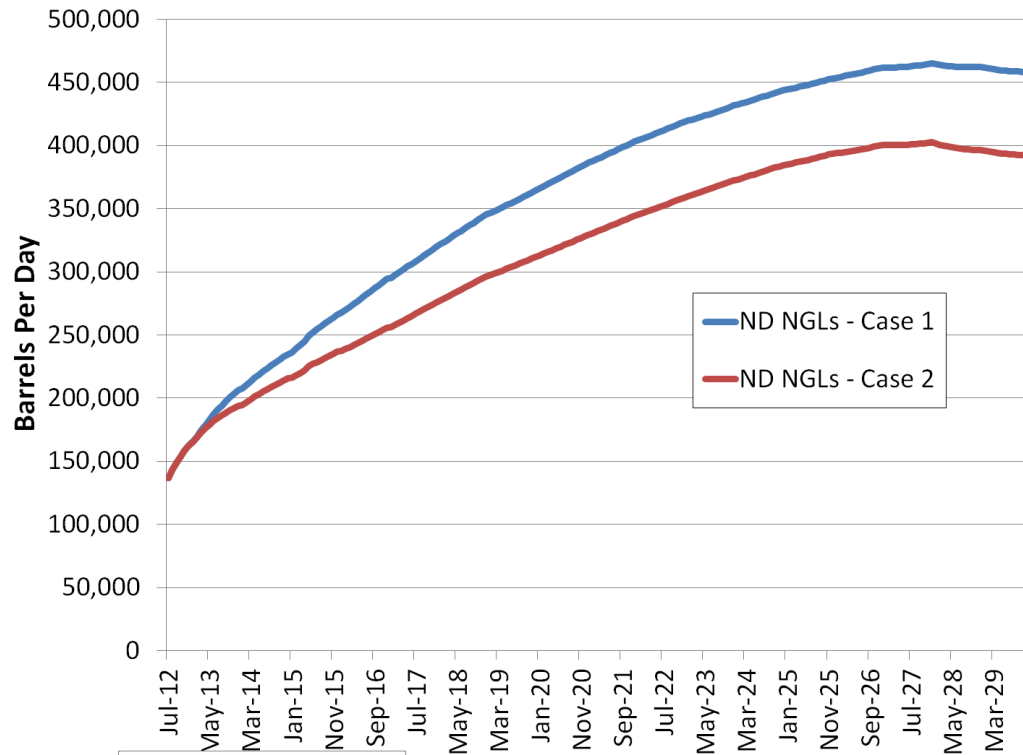


Case 1: ND NGL Potential*



*Using NGL breakdown from the July 2012 BENTEK Natural Gas Study

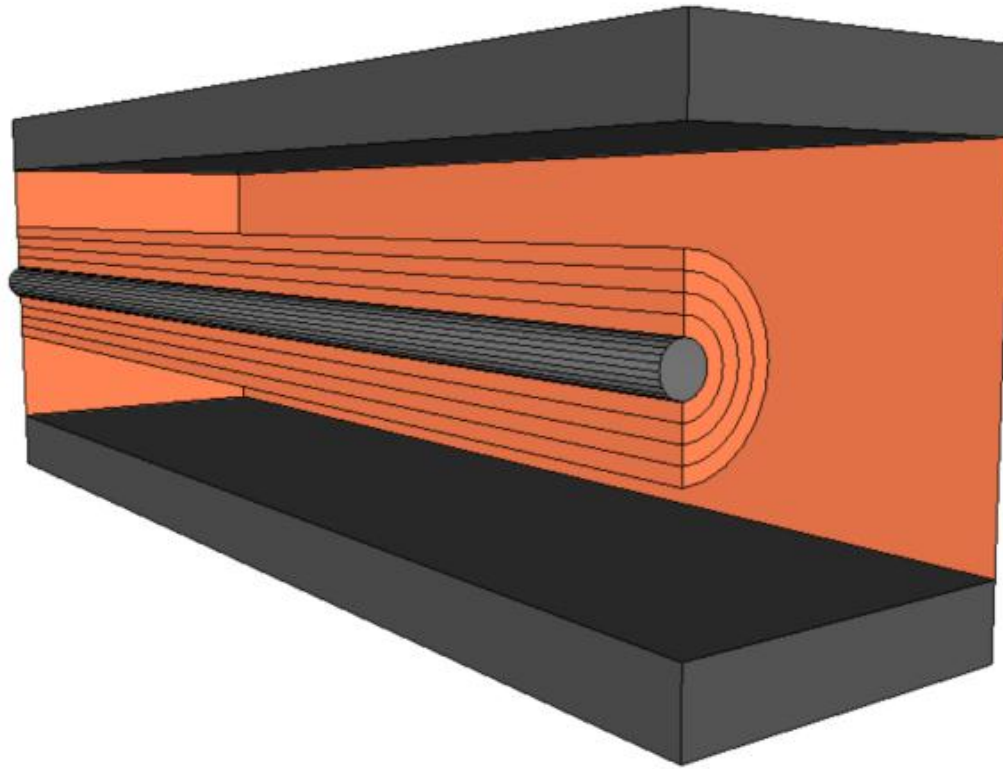
Moving Future NGL Volumes



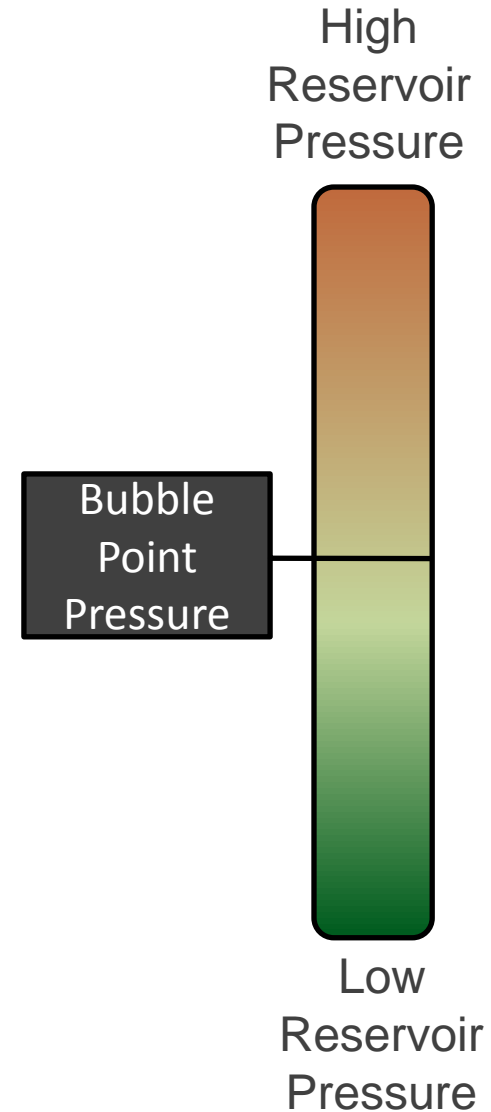
Transportation Options

- Trucking Regionally
- Rail Transportation
- Vantage Pipeline (Ethane)
- ONEOK Bakken Pipeline (Y-Grade)
- Alliance Pipeline (Rich Gas)
- New Pipeline Infrastructure??

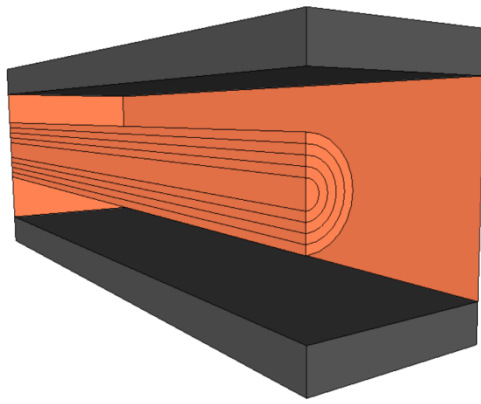
Gas – Oil Ratio (GOR) Increasing Over Time



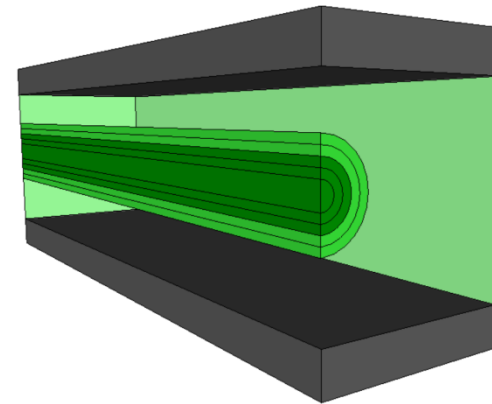
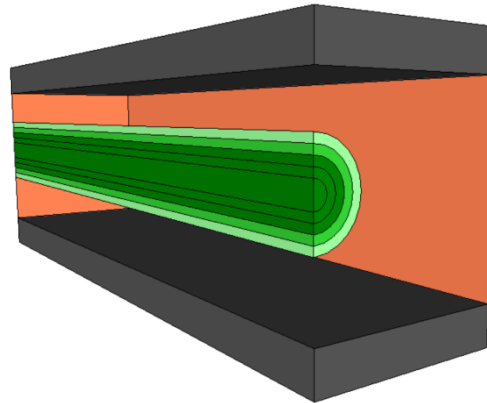
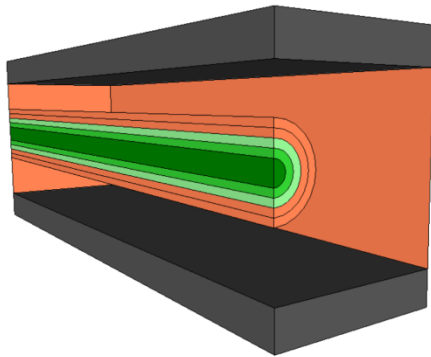
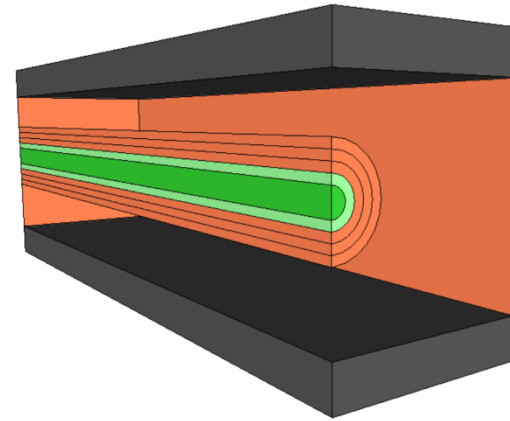
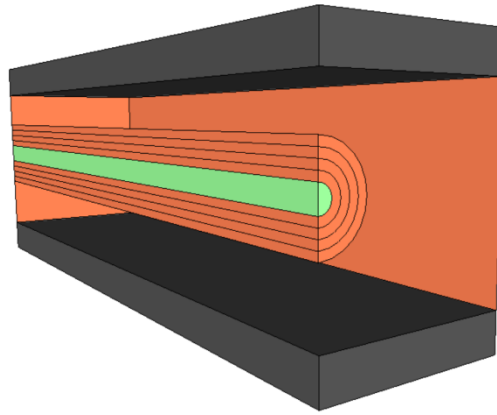
Horizontal Well Completed
in Target Reservoir



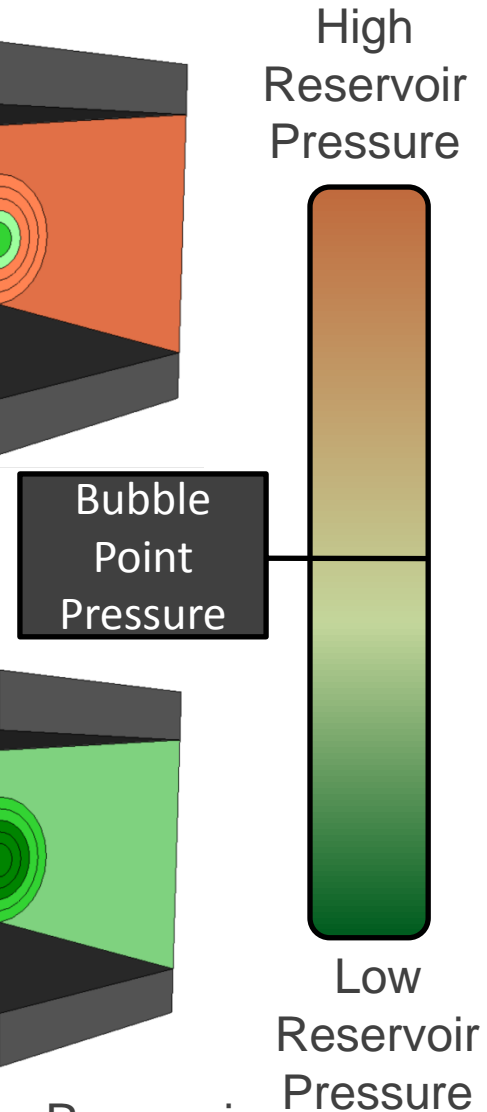
Gas – Oil Ratio (GOR) Increasing Over Time



Youngest - Original
Reservoir Pressure



Oldest – Entire Reservoir
Below Bubble Point



Contact Information

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Phone: (701)220-6227

Fax: (701)328-2820

E-mail: jjkringstad@ndpipelines.com

Websites:

www.pipeline.nd.gov

www.ndpipelines.wordpress.com



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