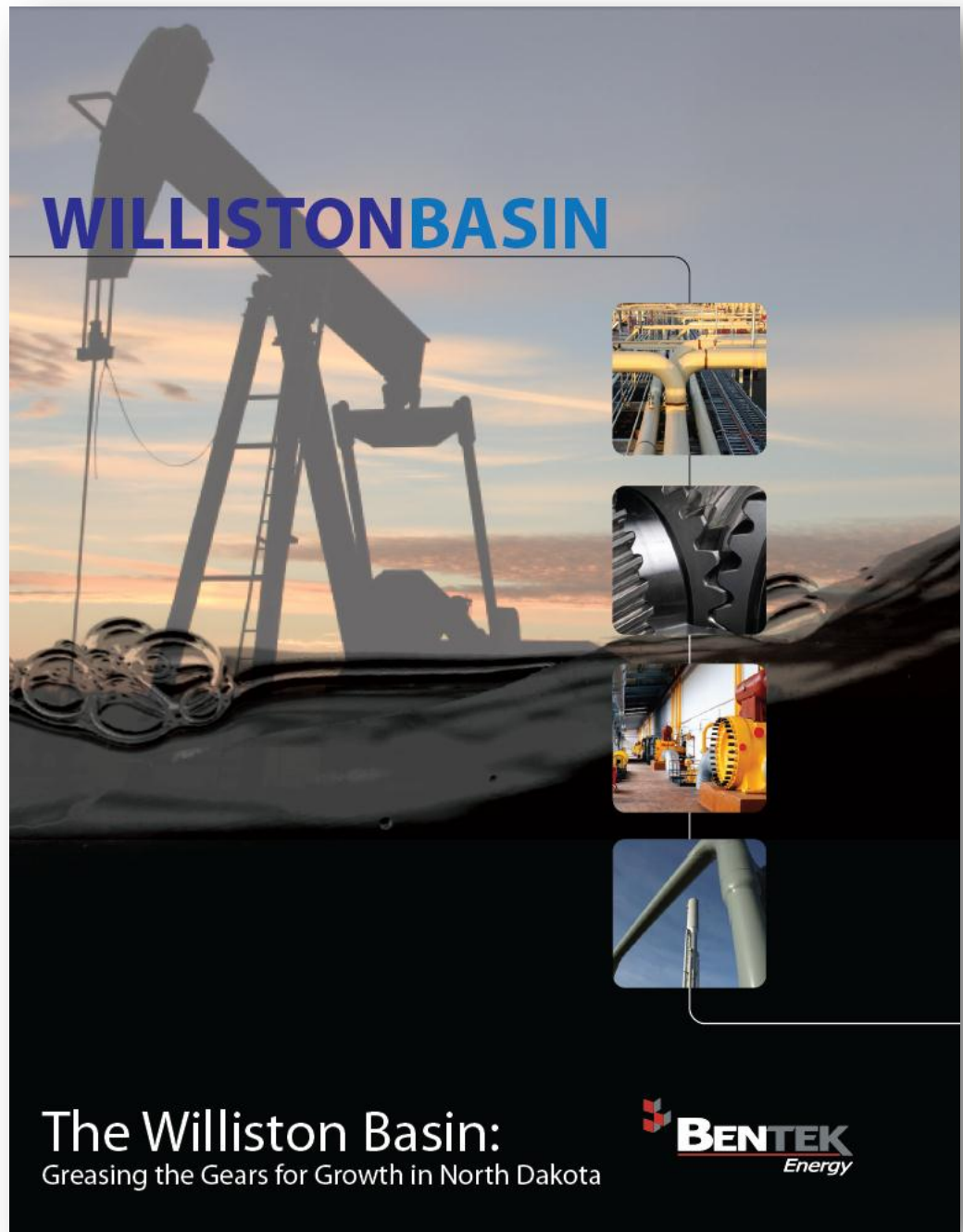


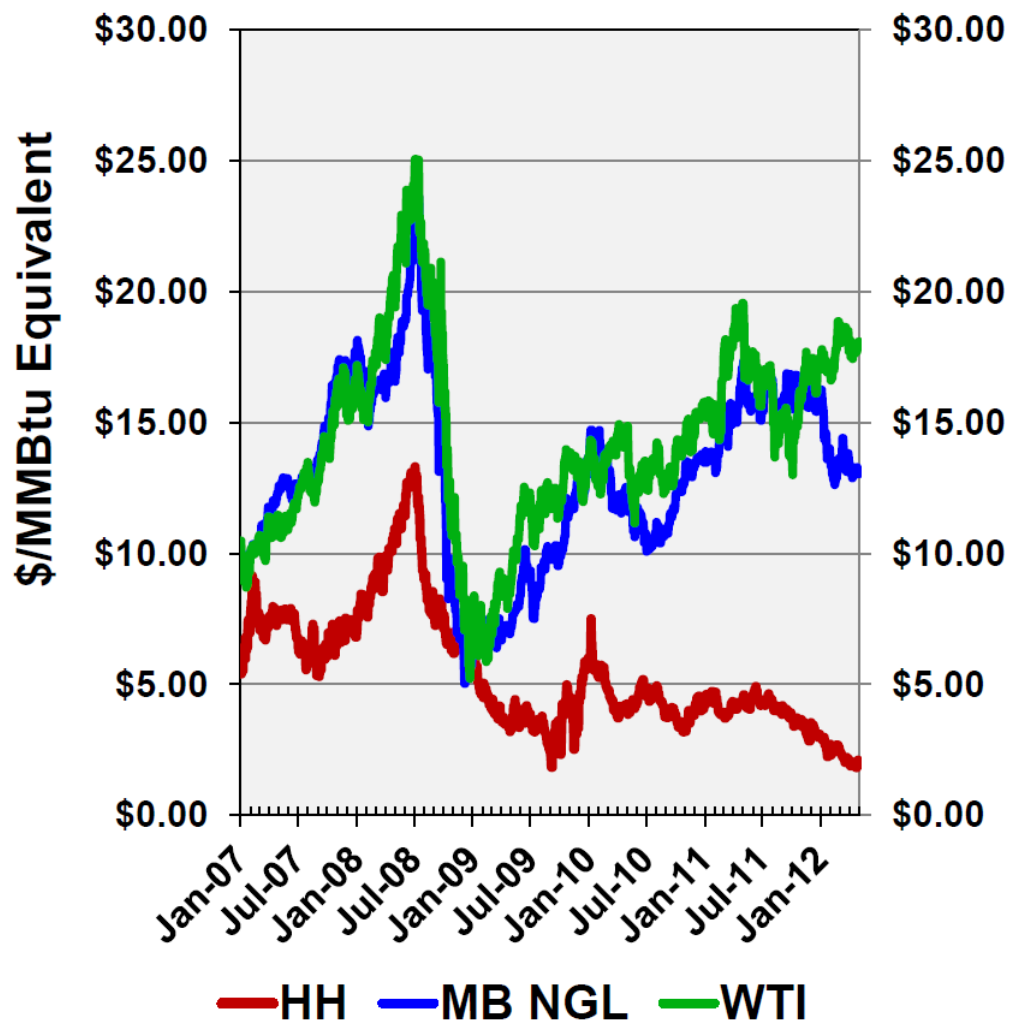


**North Dakota Pipeline Authority**  
**Great Plains & EmPower ND Energy Expo**  
**November 19, 2012 – Bismarck, ND**

# Natural Gas Study



# 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**

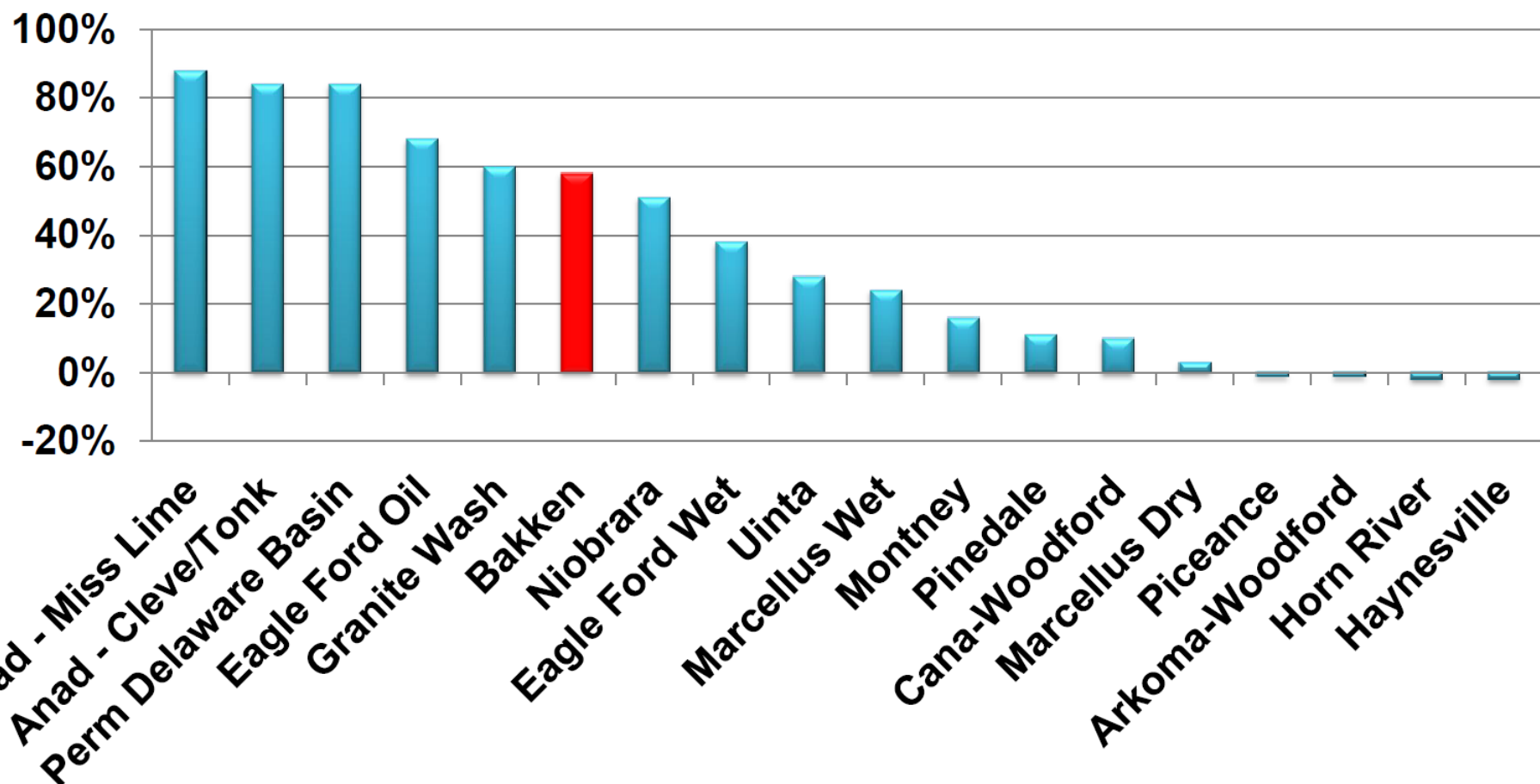
- Higher Relative Oil and NGL Prices Incentivize Producers to Redirect Resources Toward Assets With a Higher BTU Content.

**ARE**

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

Source: ICE, EIA

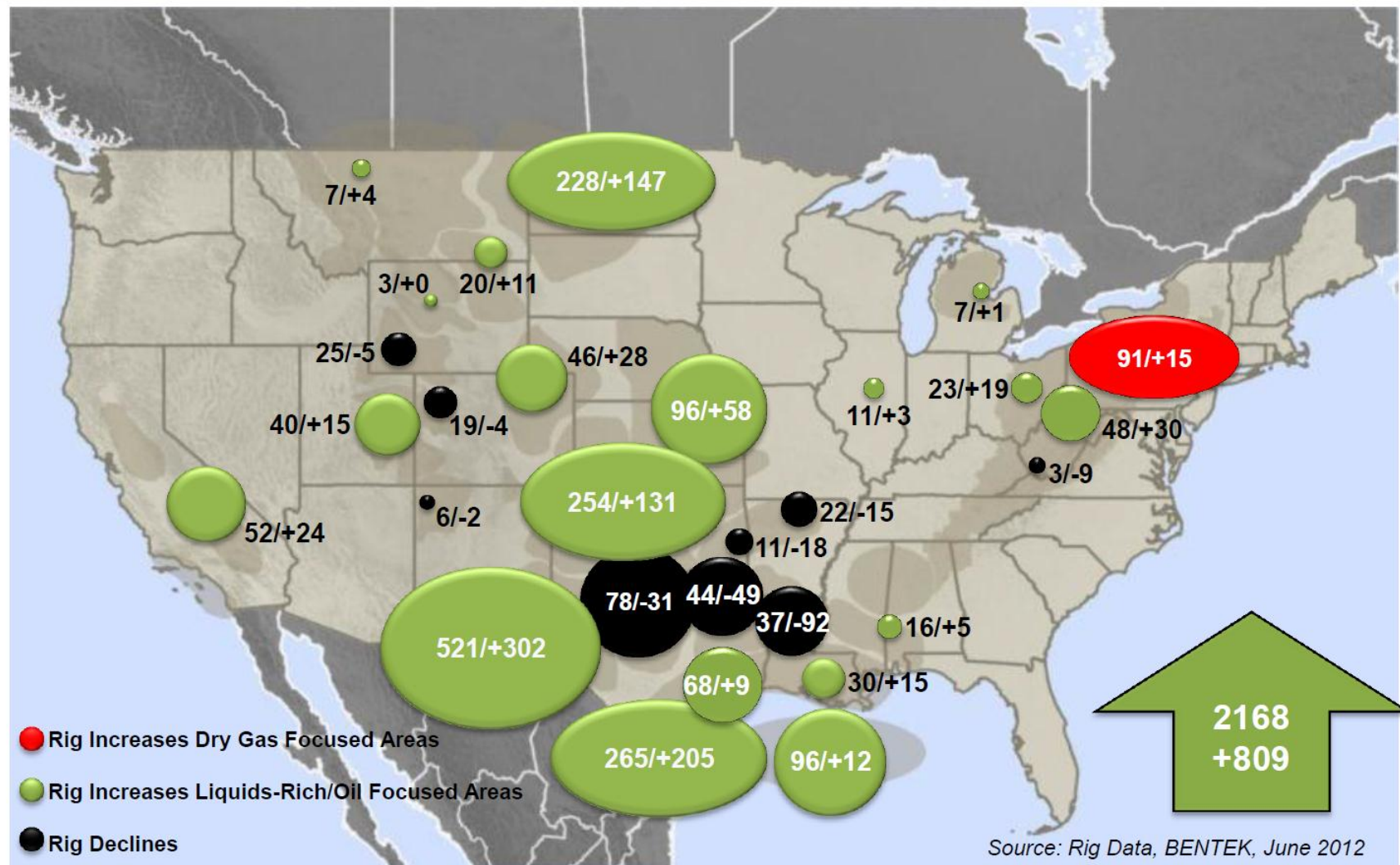
## Bakken Earns Above Average Returns



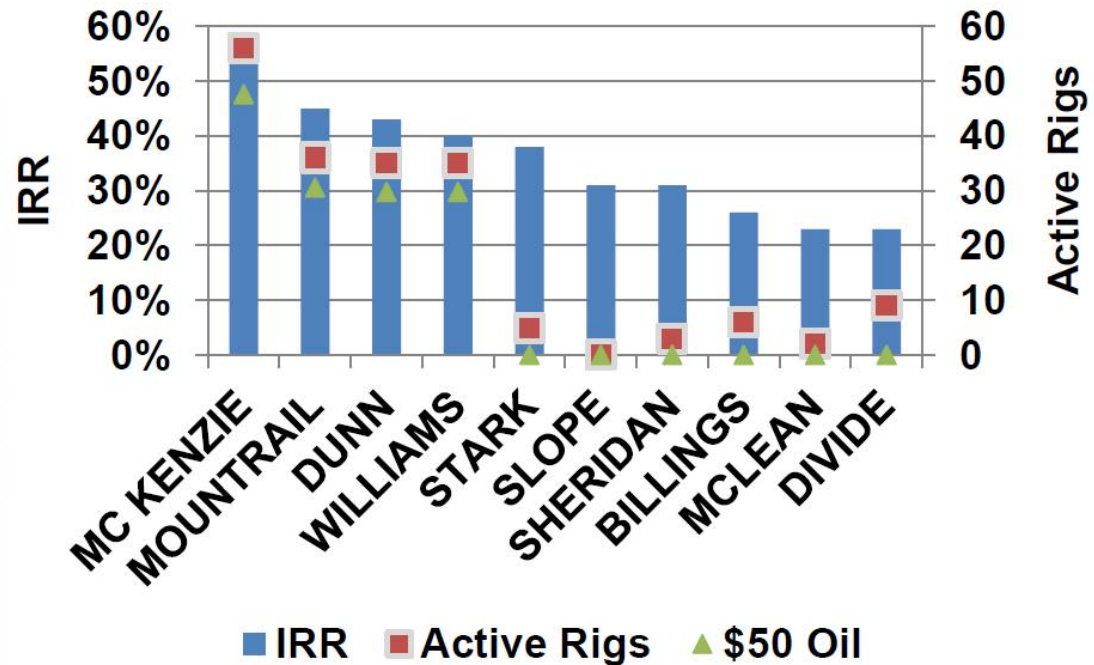
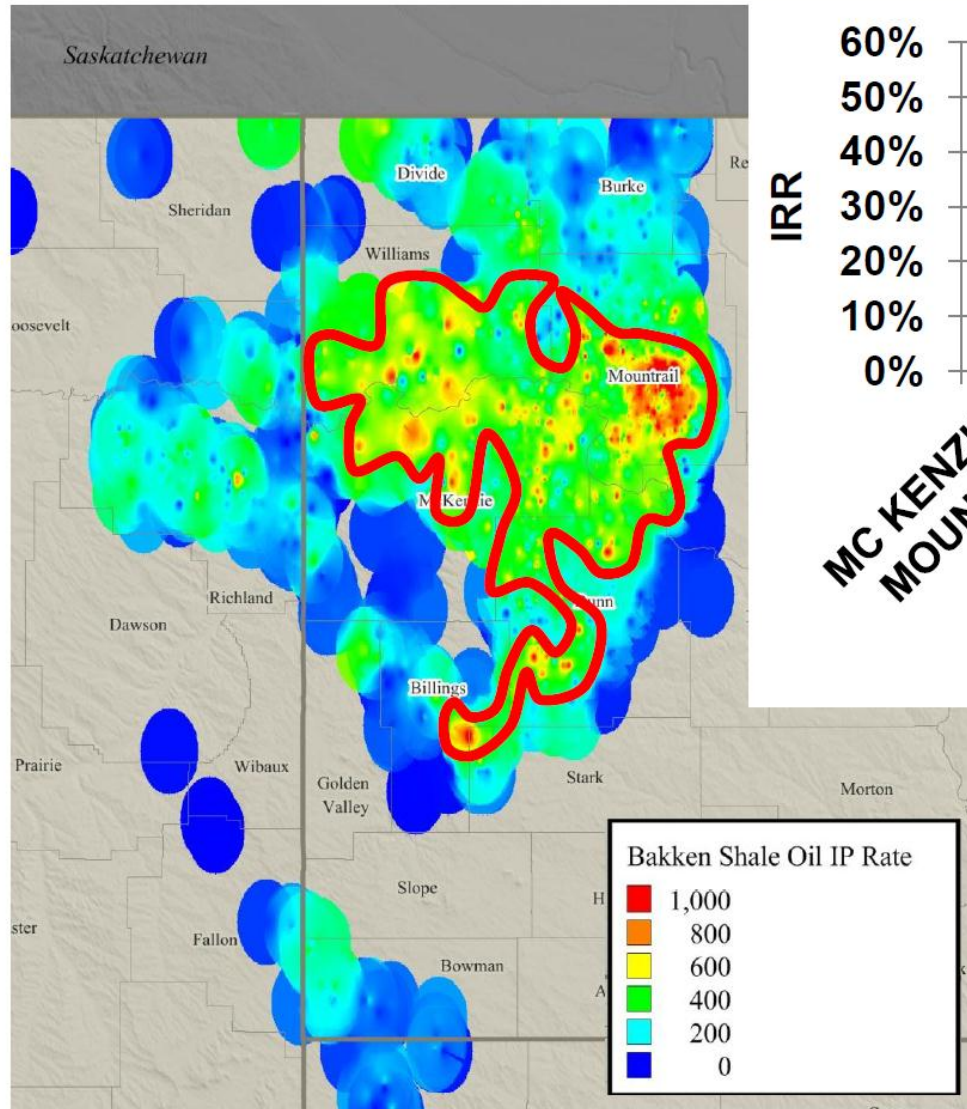
Price Assumptions: Gas = 12 month forward average curve for each regional pricing point as of June, 2012 (price range \$2.45-\$2.86/Mcf)  
 Oil = 6 month average WTI +/- differential as of June, 2012 (price range \$84.40-\$100.43/barrel)  
 NGLs = weighted average \$/barrel based on current Mt. Belvieu prices and the typical composition in each region (range \$23.79-\$45.22/barrel)



# Plays With High Returns Attract Drilling Rigs



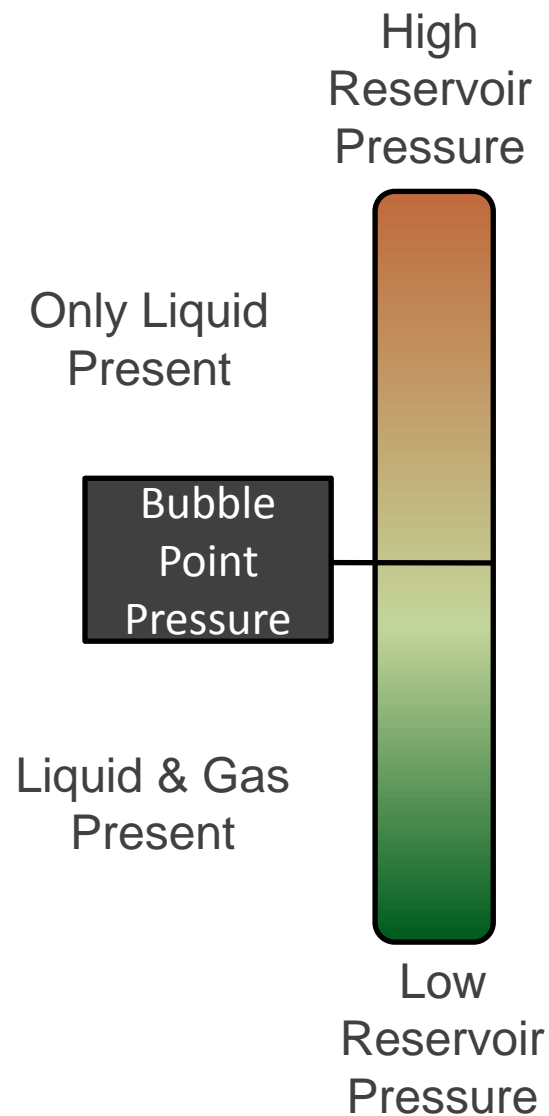
# \$50 Oil Challenges Fringe Economics



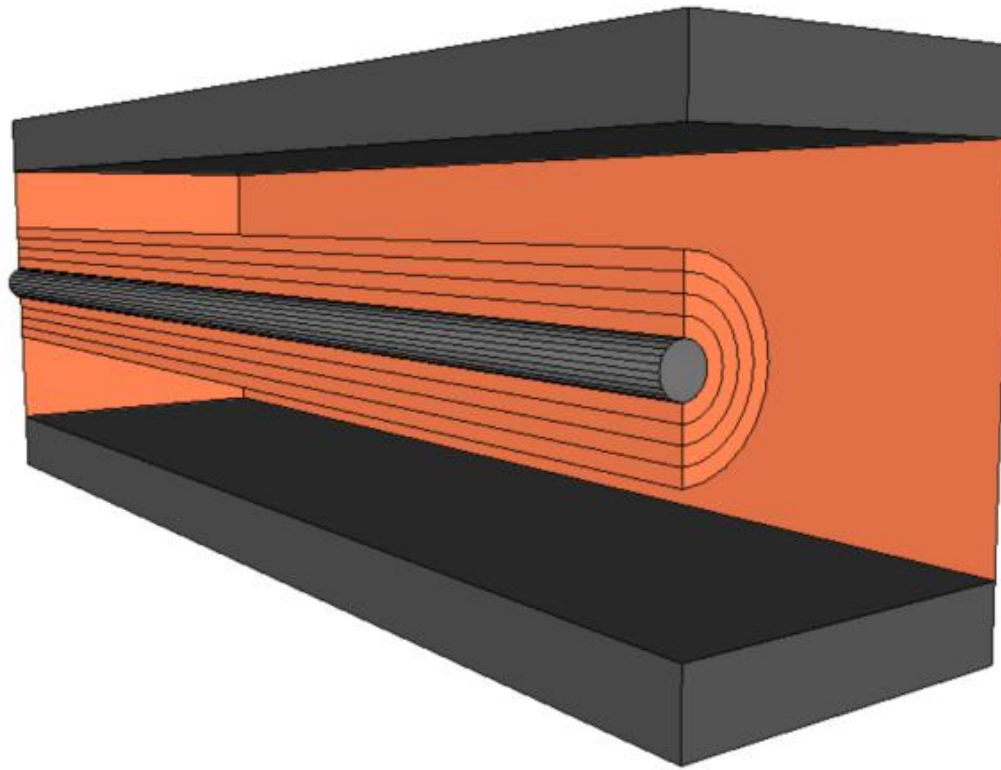
Other counties with active rigs that see reduced activity include: Bowman, Roosevelt, Richland, Golden Valley, Burke



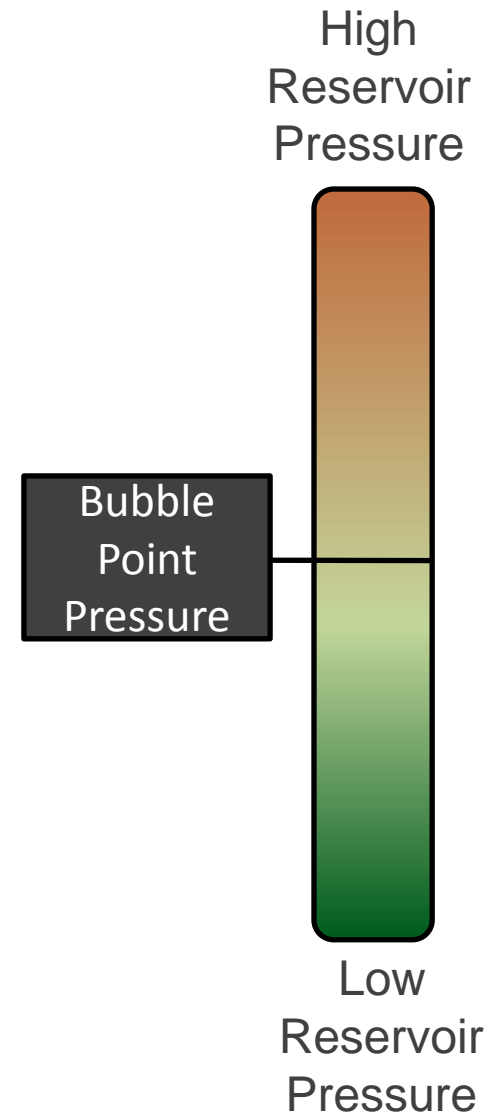
# Bubble Point



# Gas – Oil Ratio (GOR) Increasing Over Time

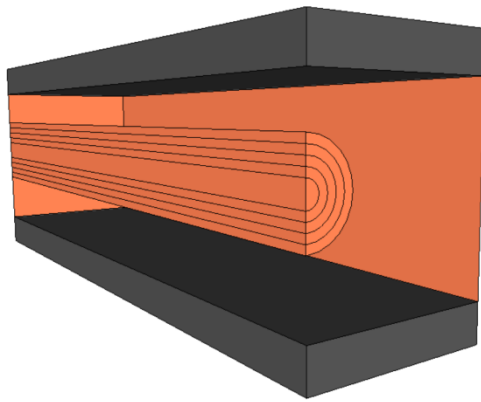


Horizontal Well Completed  
in Target Reservoir

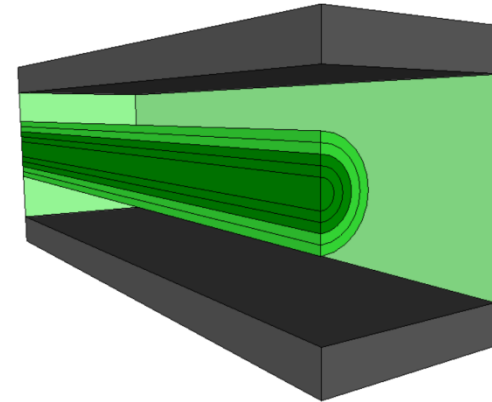
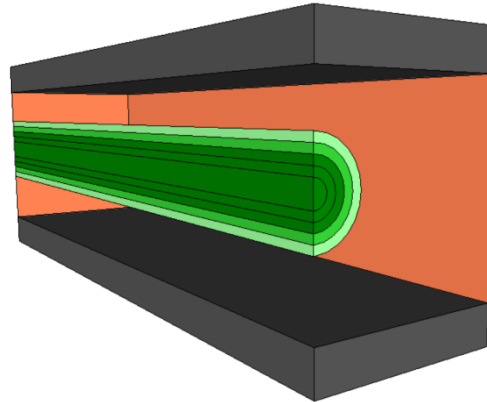
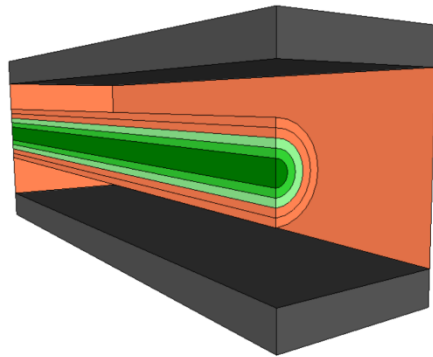
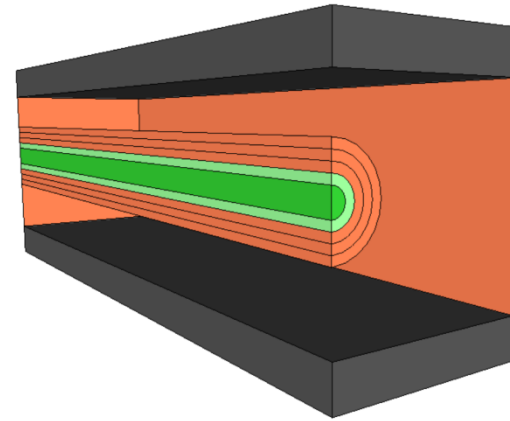
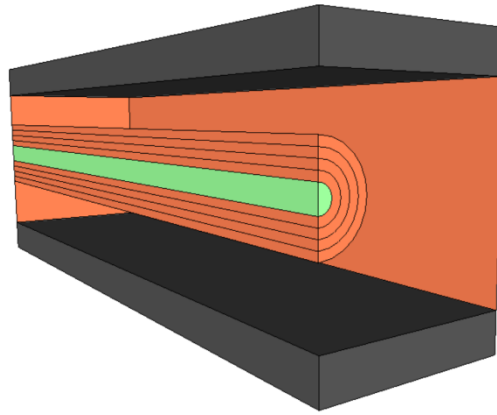




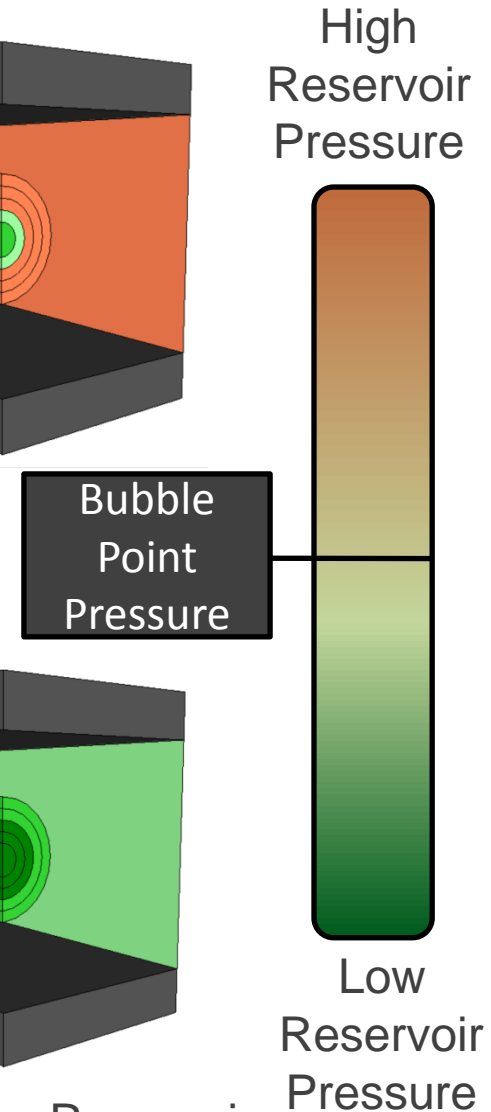
# Gas – Oil Ratio (GOR) Increasing Over Time

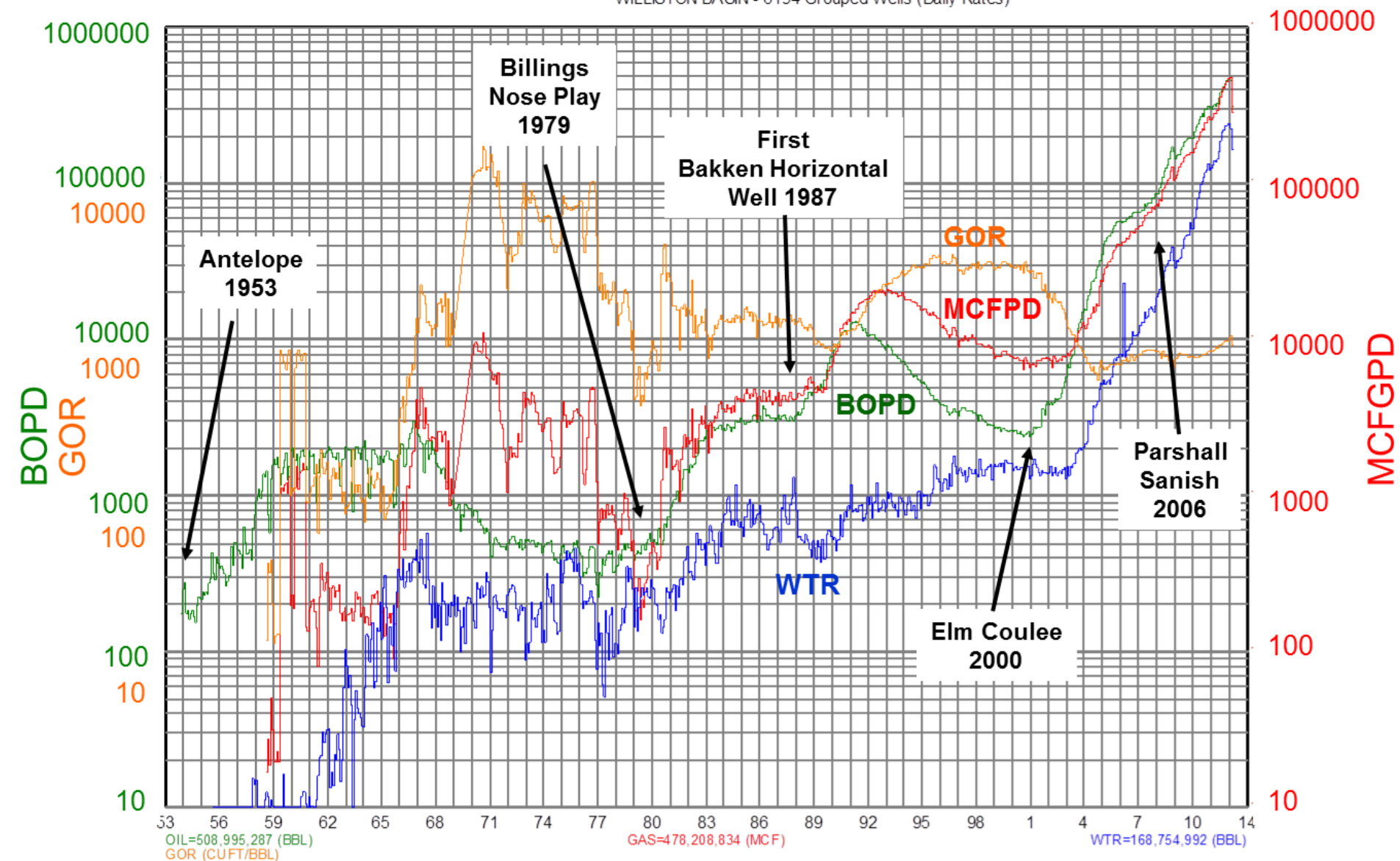


Youngest - Original Reservoir Pressure



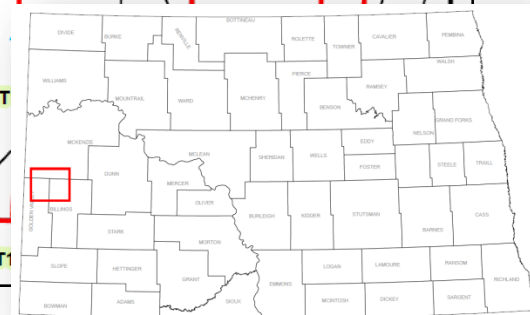
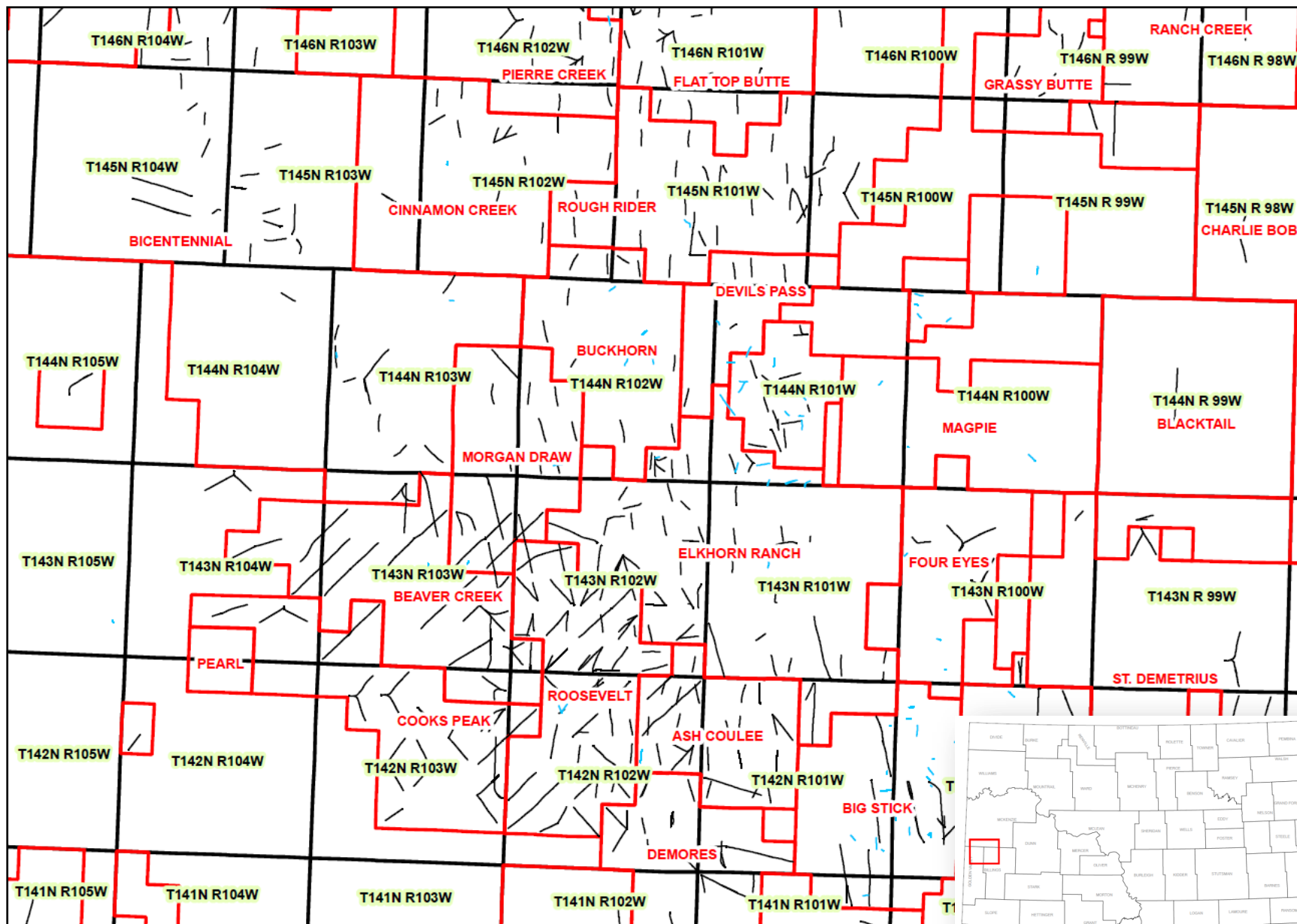
Oldest – Entire Reservoir Below Bubble Point





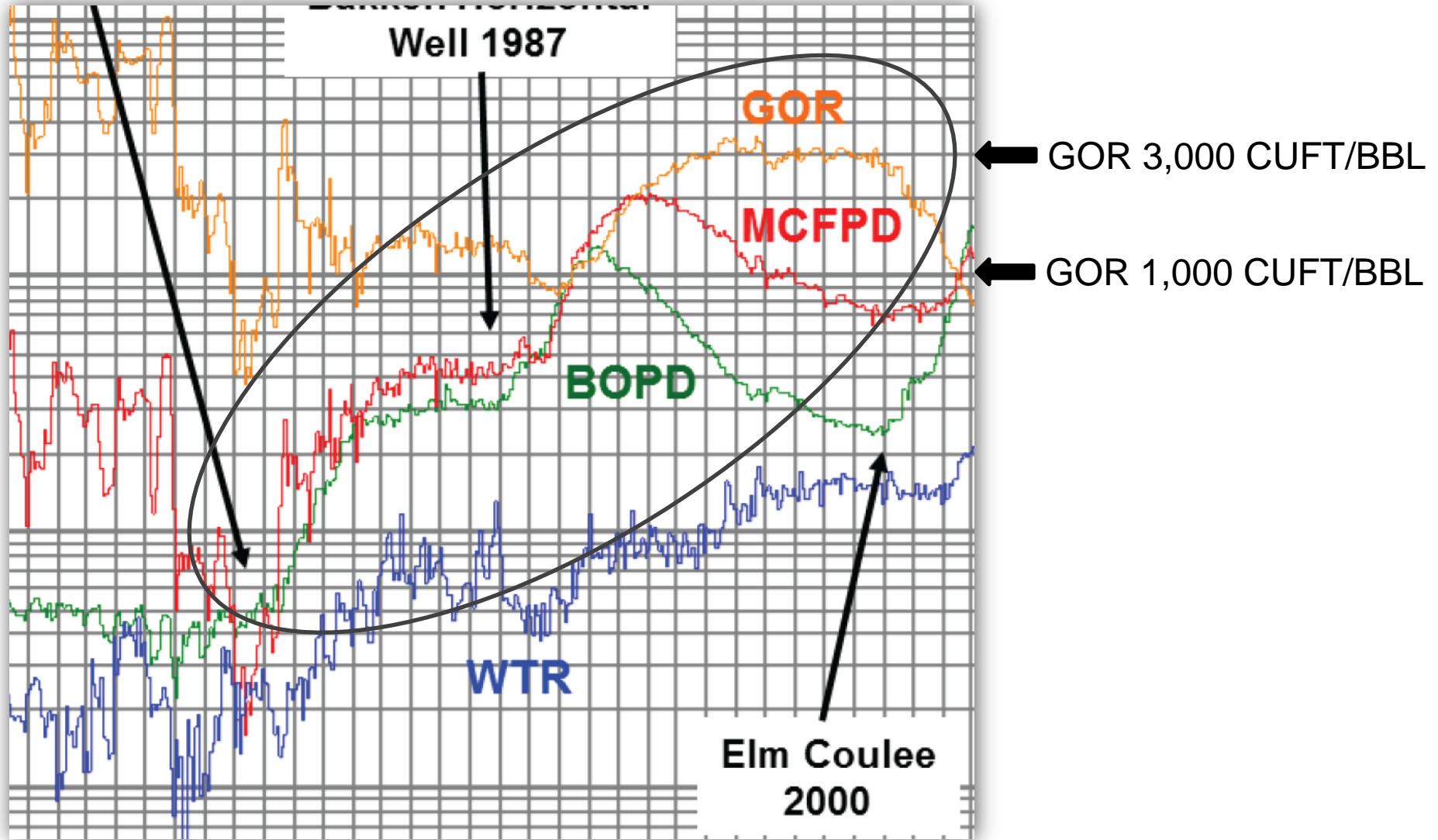
*Production curve for the Bakken and Three Forks, US Williston Basin.*

*Source: BENTEK Energy July 2012 Report*



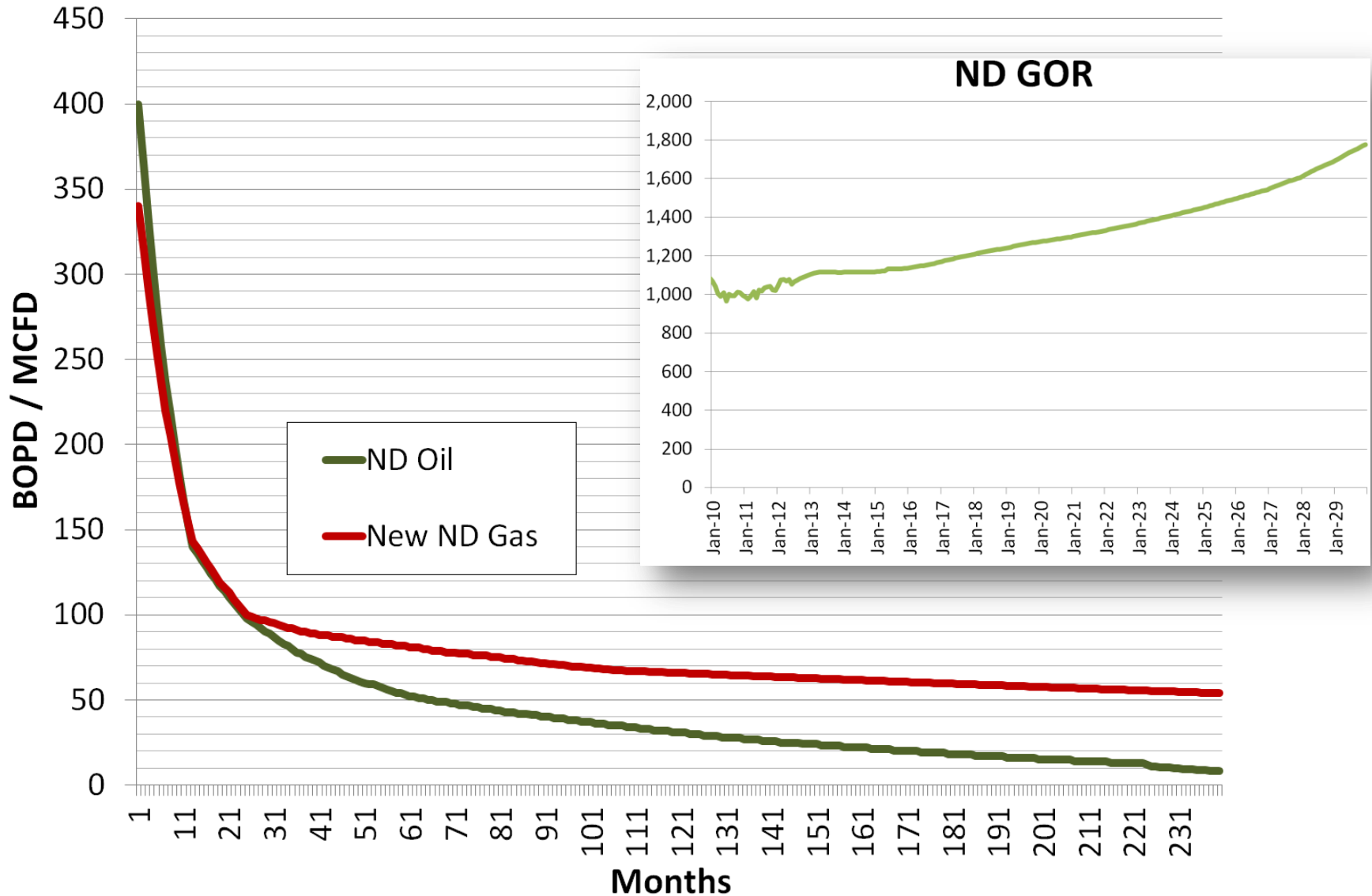
*Only horizontal wells shown on map*

# 1980's-90's Bakken Development



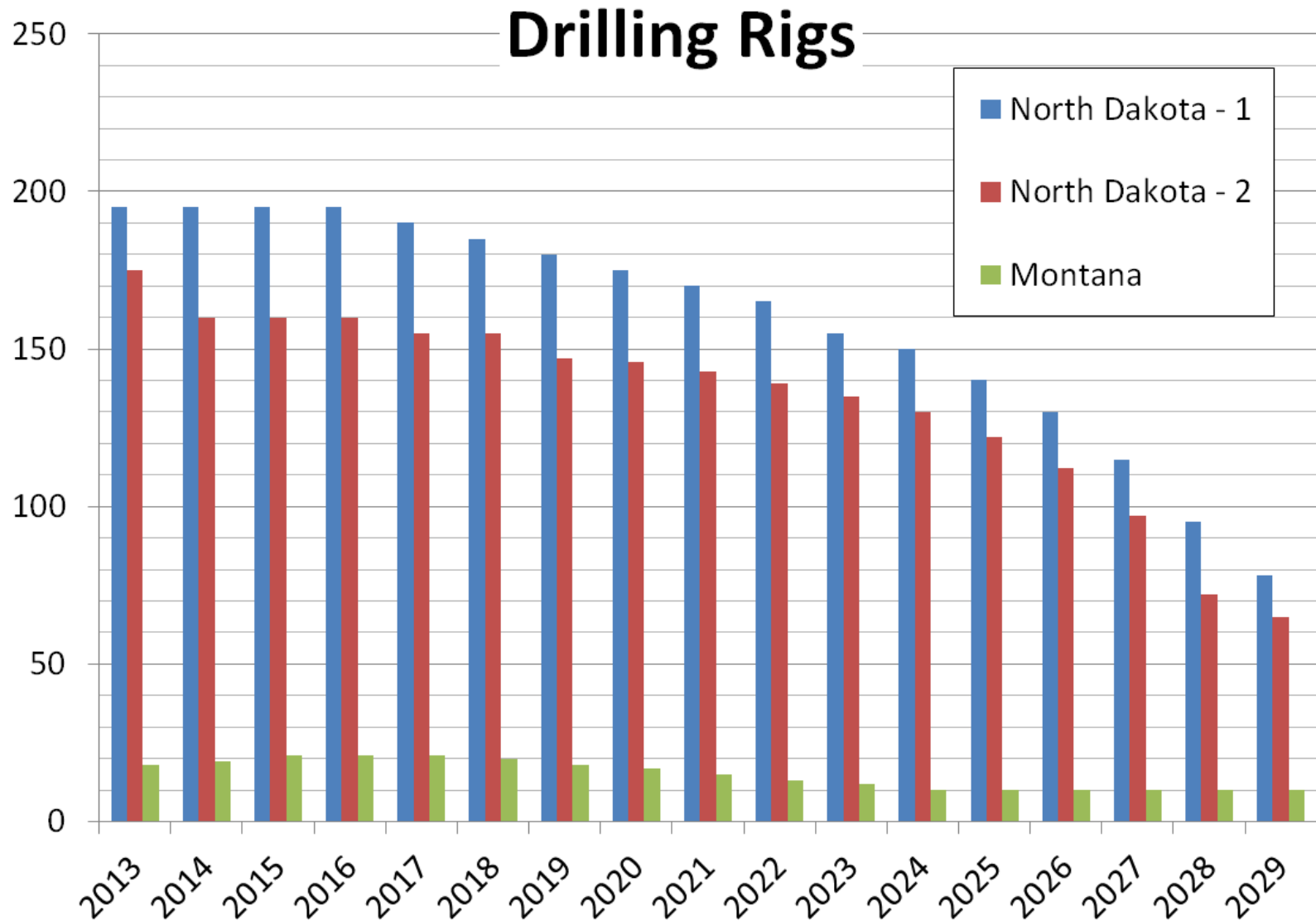


# North Dakota Type Curves\*

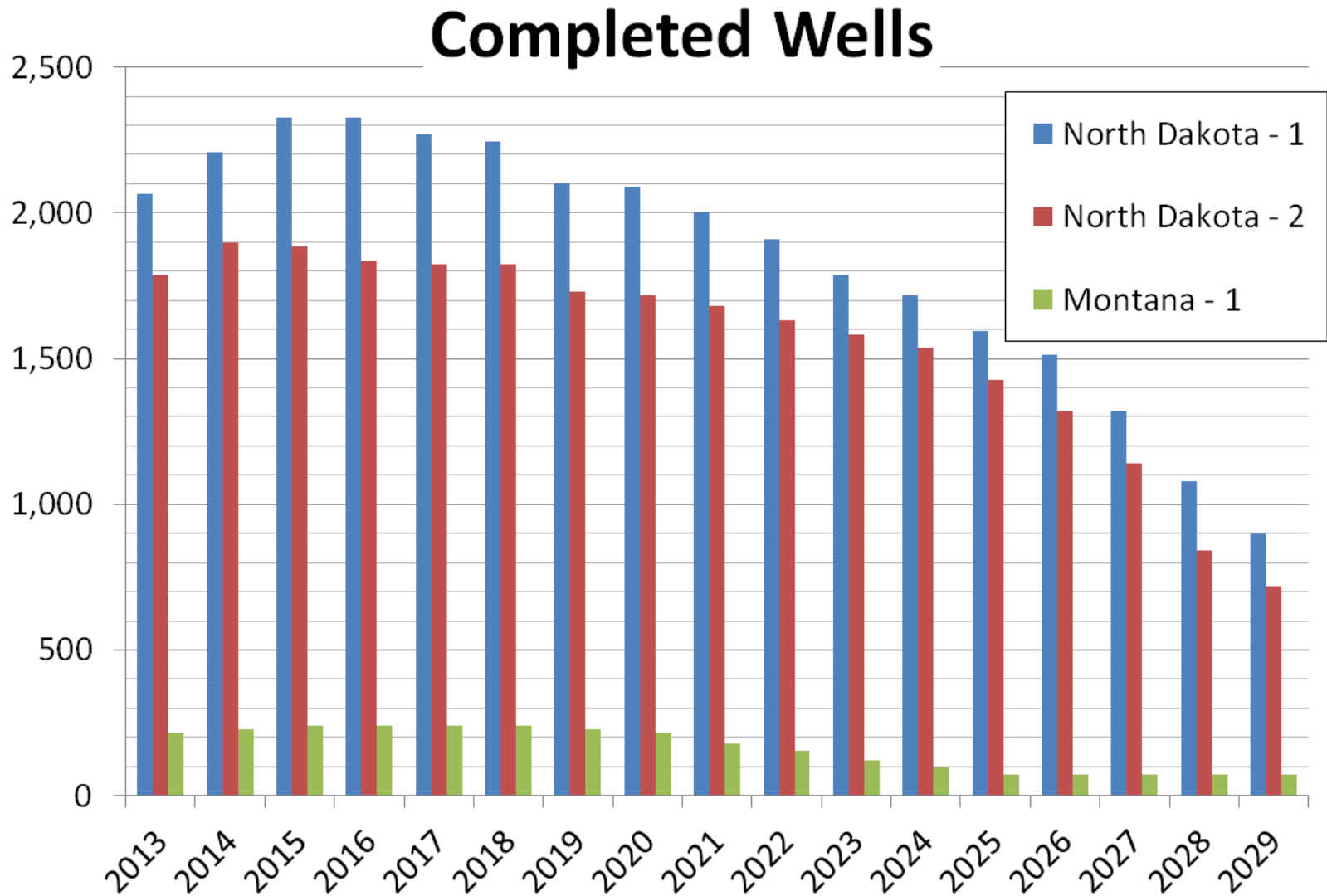


\*Based on the July 2012 BENTEK Natural Gas Study

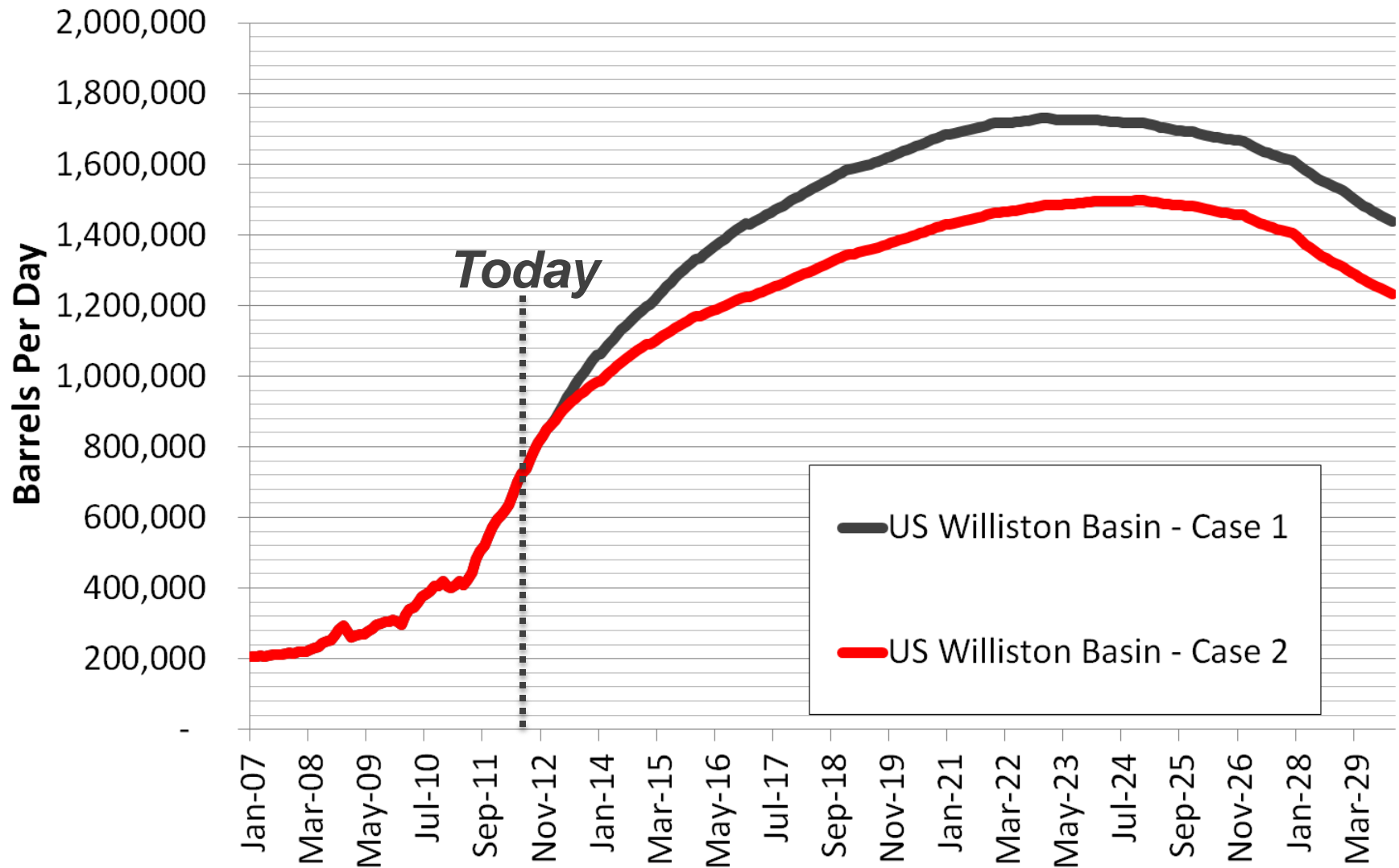
# September 2012 Forecast Assumptions



# September 2012 Forecast Assumptions



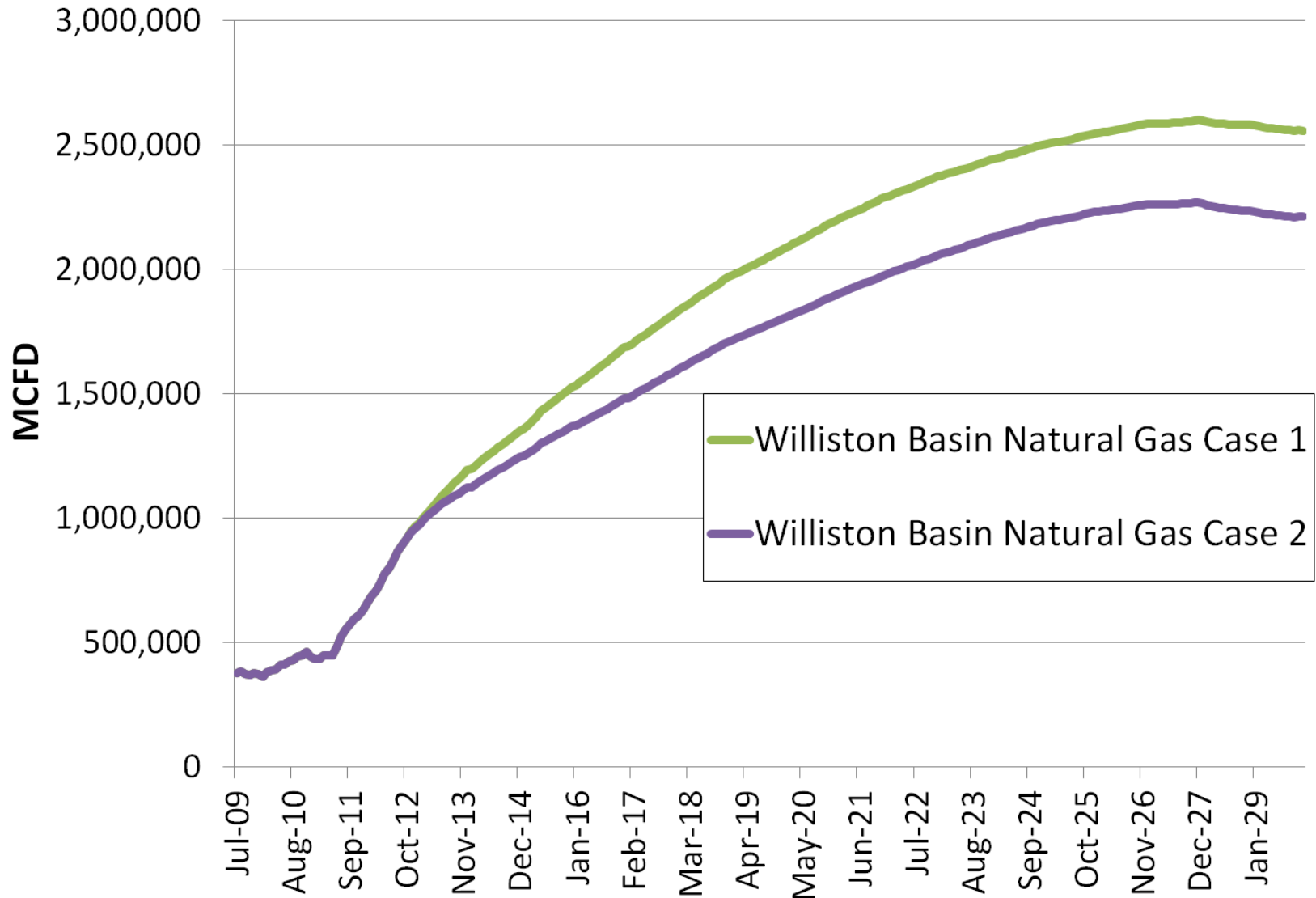
# Forecasting Williston Basin Oil Production, BOPD



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

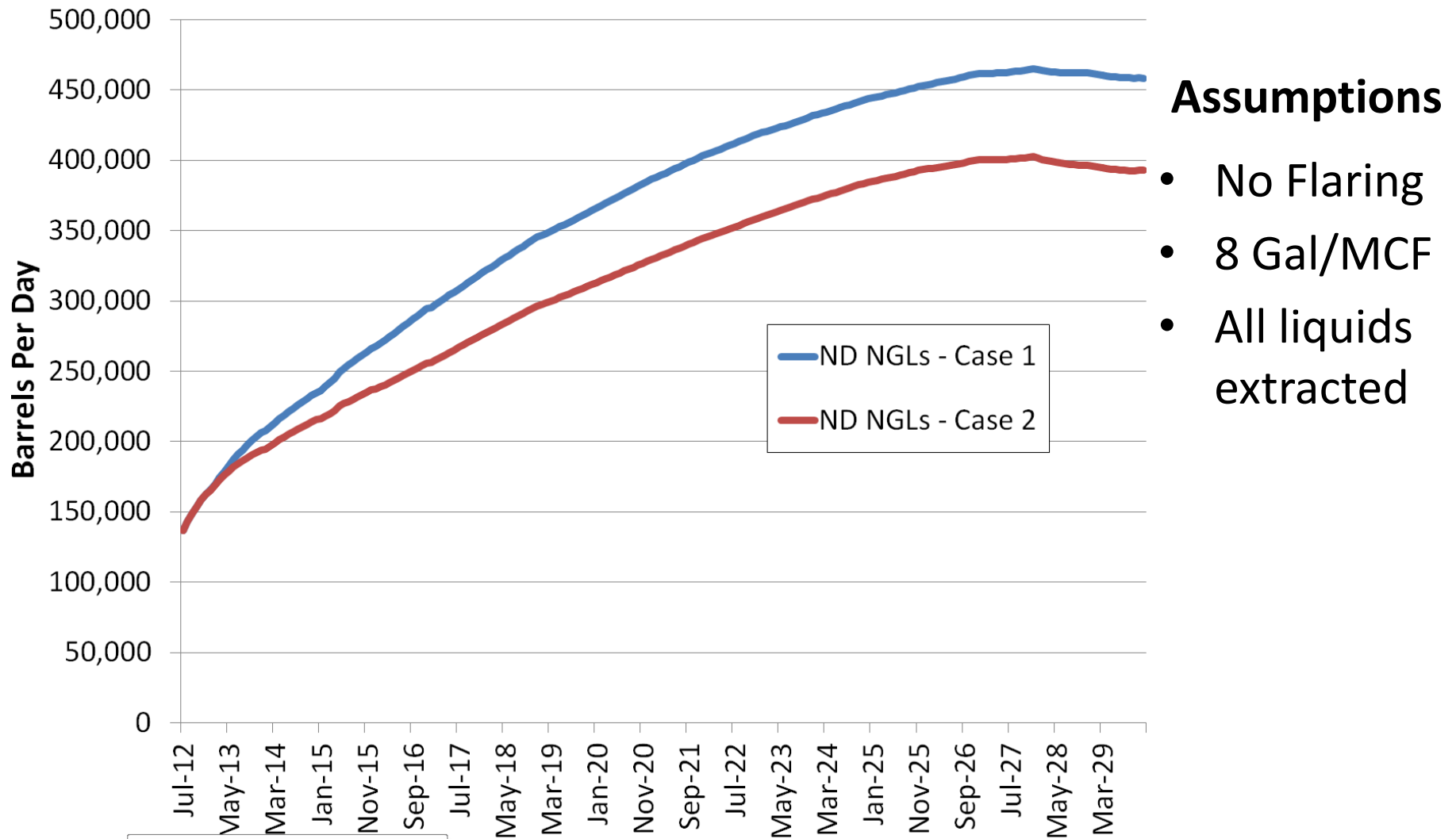


# Williston Basin Gas Production



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

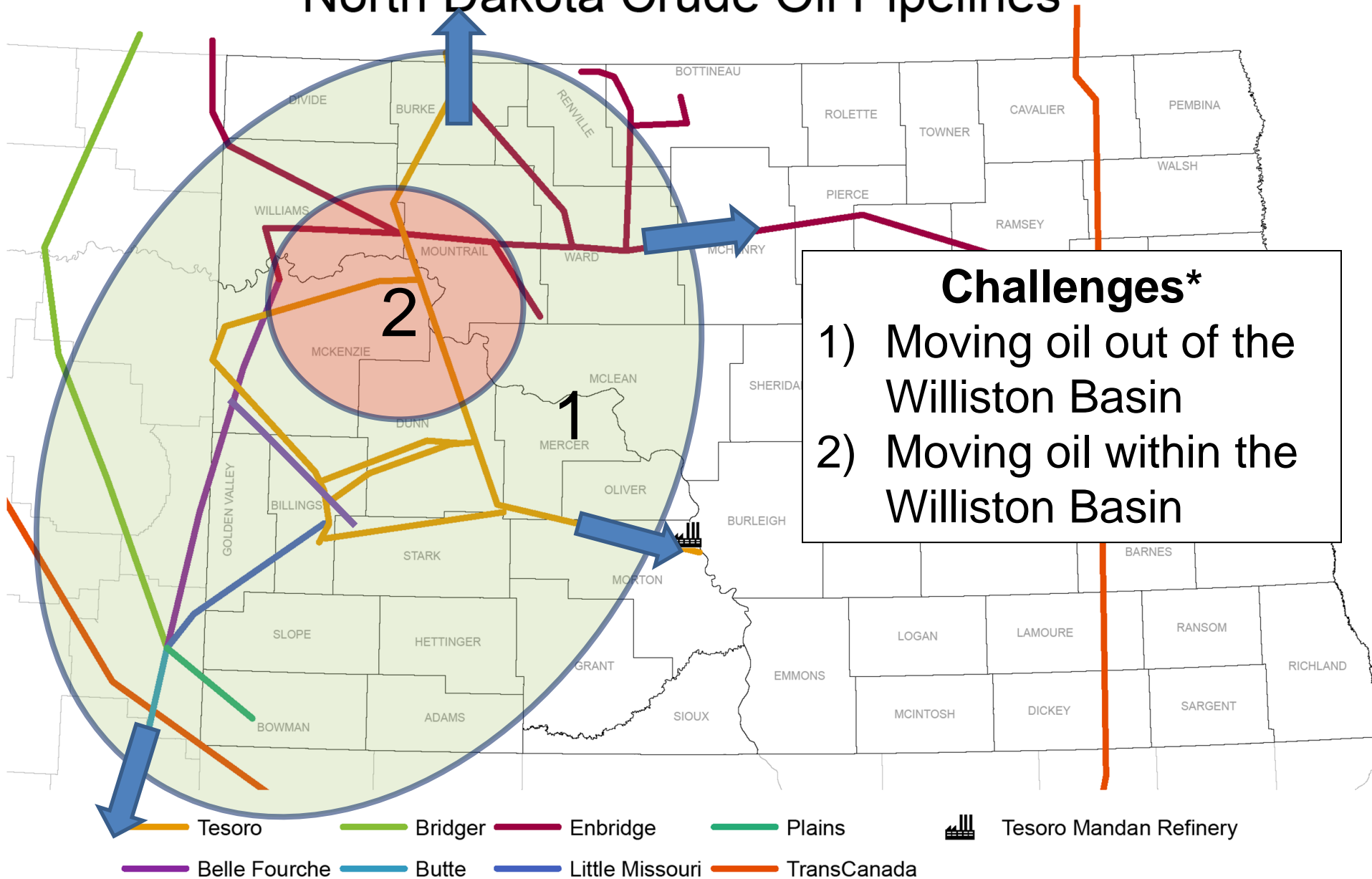
# North Dakota NGL Potential



# Oil Transportation



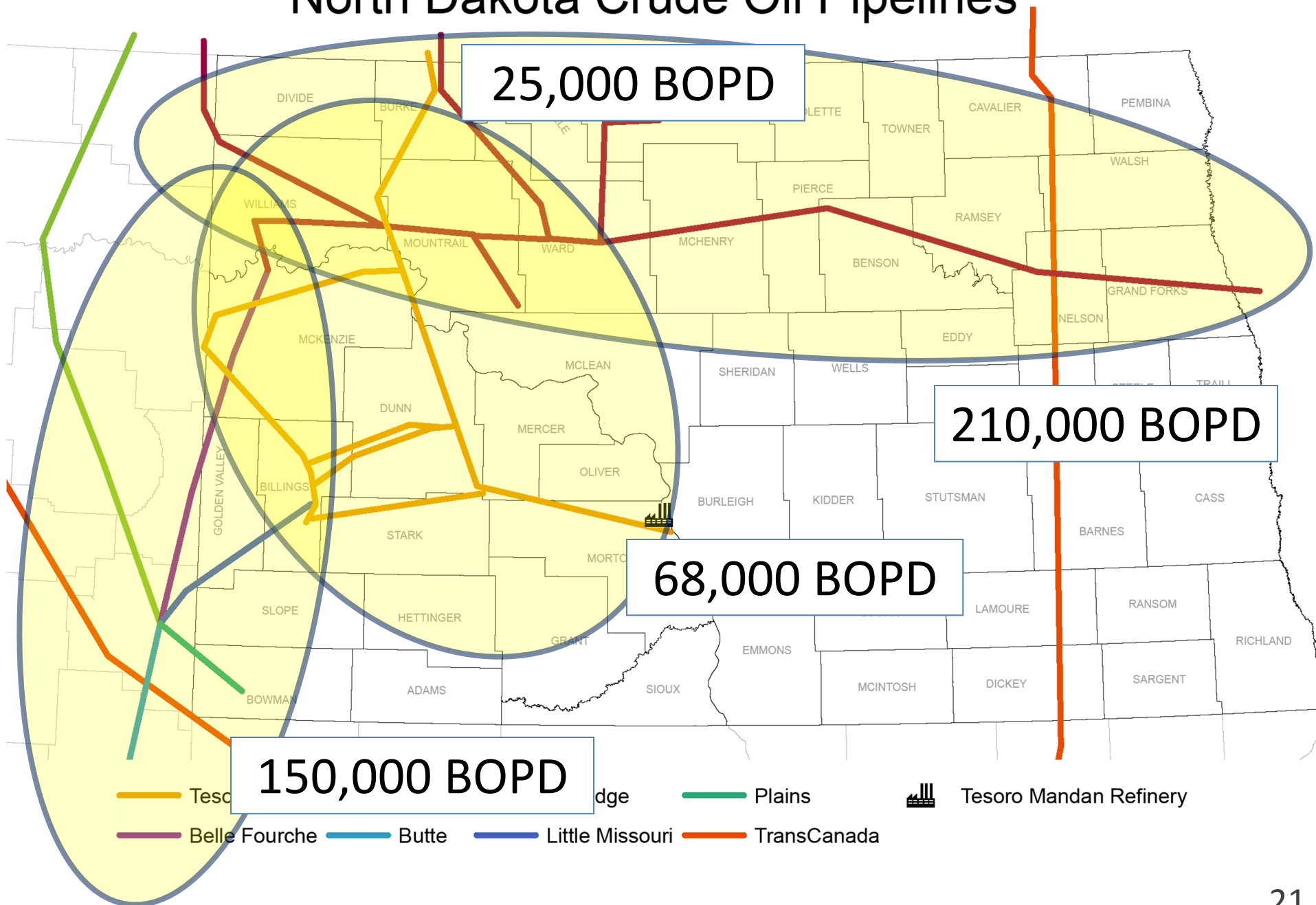
# North Dakota Crude Oil Pipelines



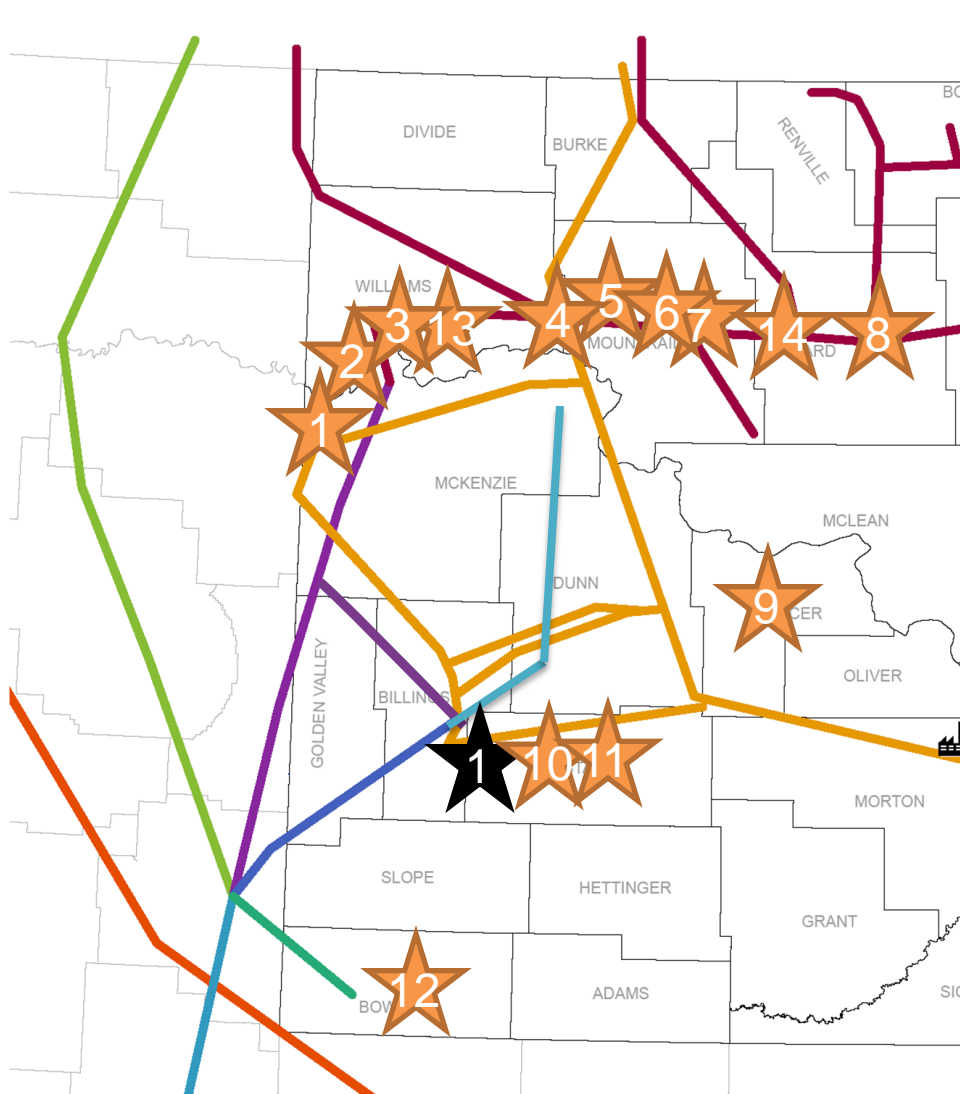
\*Modified from Bridger and Belle Fourche Pipelines



# North Dakota Crude Oil Pipelines



# BNSF Crude Rail Locations



## Existing

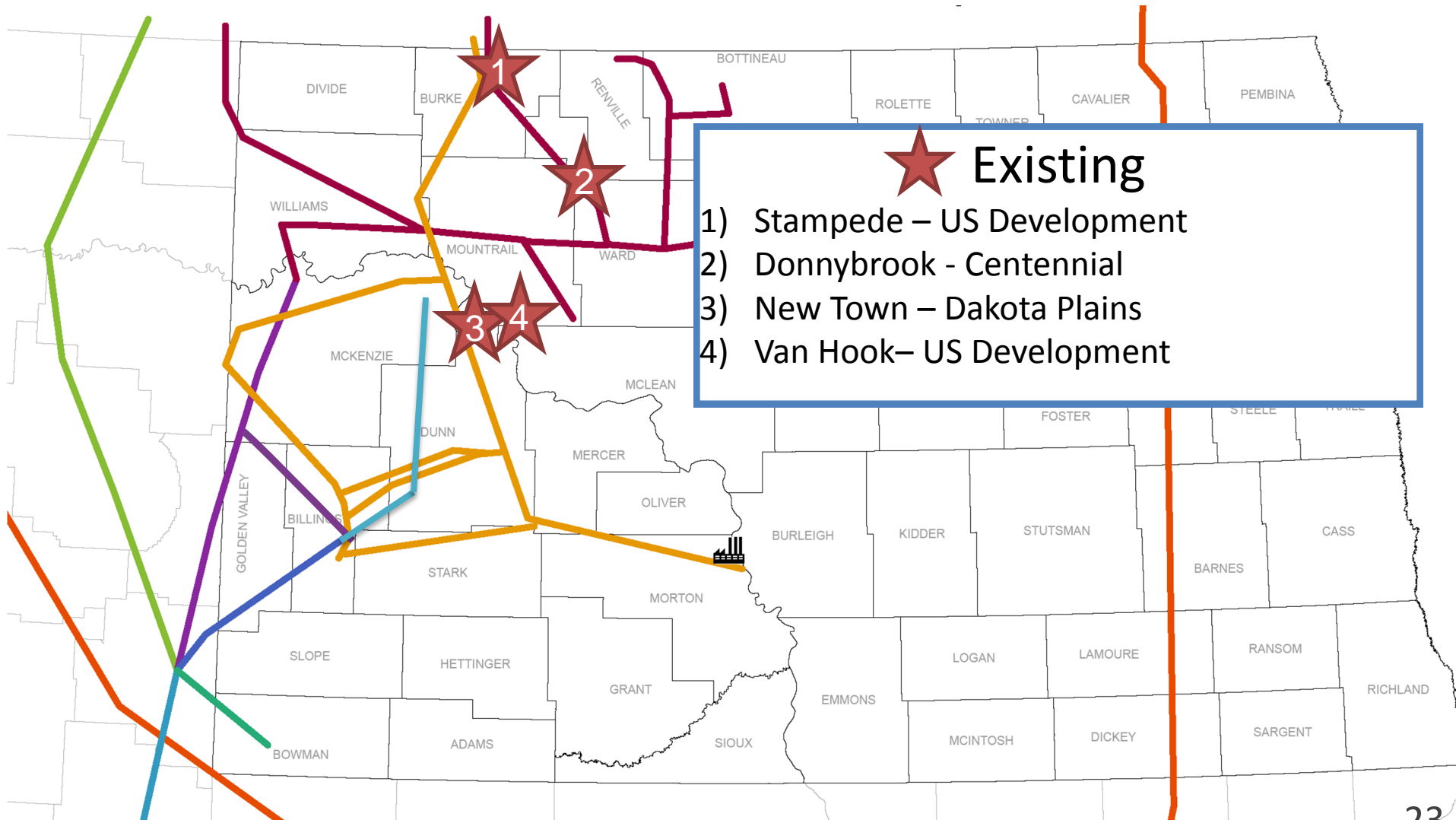
- 1) Dore – Musket - Unit
- 2) Trenton – Savage – Manifest/Unit
- 3) Williston – Red River Supply - Manifest
- 4) Tioga – Hess - Unit
- 5) Manitou – Plains - Unit
- 6) Ross – Bakken Transload - Manifest
- 7) Stanley – EOG - Unit
- 8) Minot – ND Port Services- Manifest
- 9) Zap/Republic – Basin Transload - Unit
- 10) Eland – BOE - Unit
- 11) Dickinson – Centennial - Manifest
- 12) Gascoyne – Enserco – Manifest/Unit
- 13) Epping – Rangeland – Unit
- 14) Berthold – Enbridge – Unit (Full Serv Q1/13)



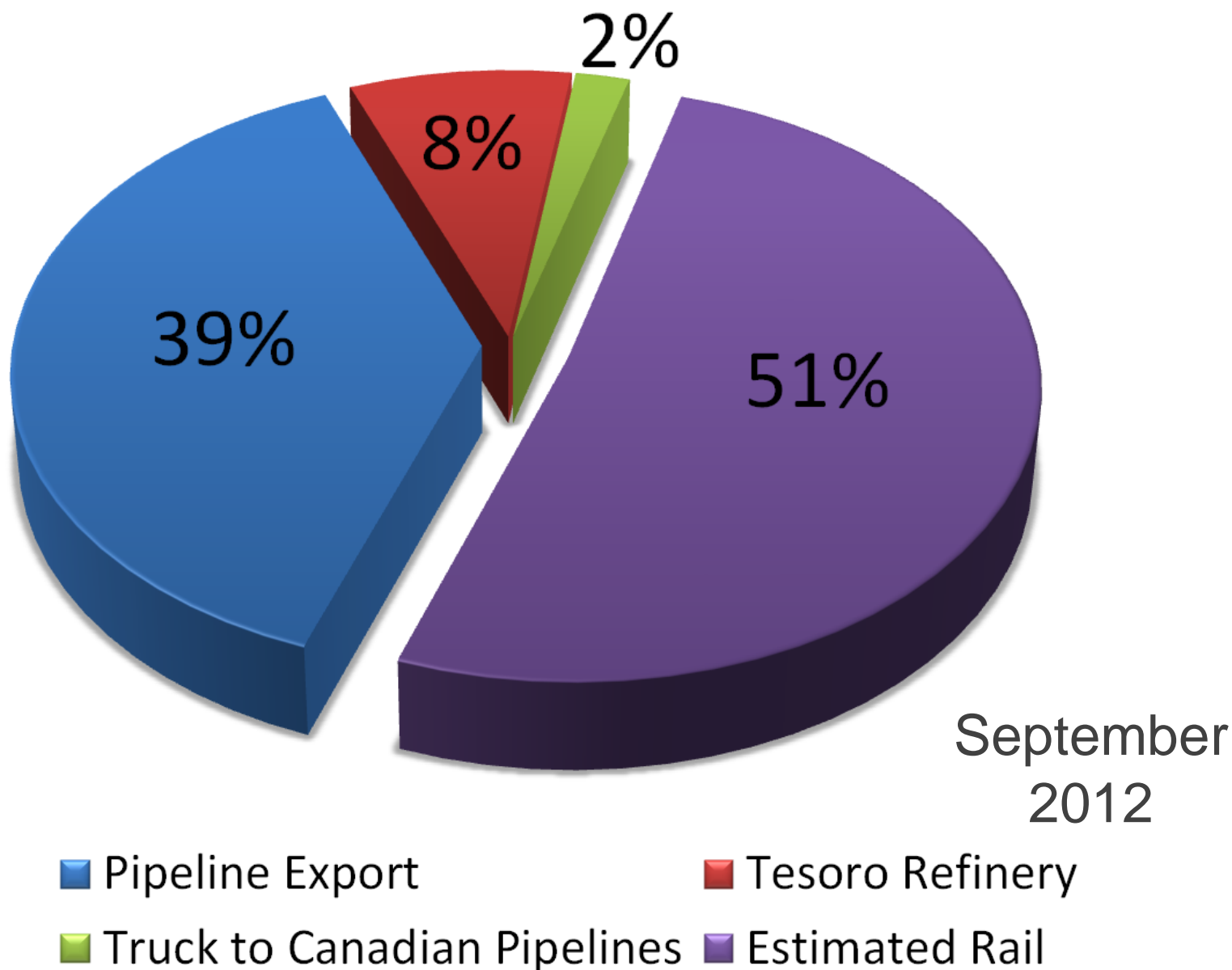
## Planned

- 1) Fryburg – Great Northern - Unit

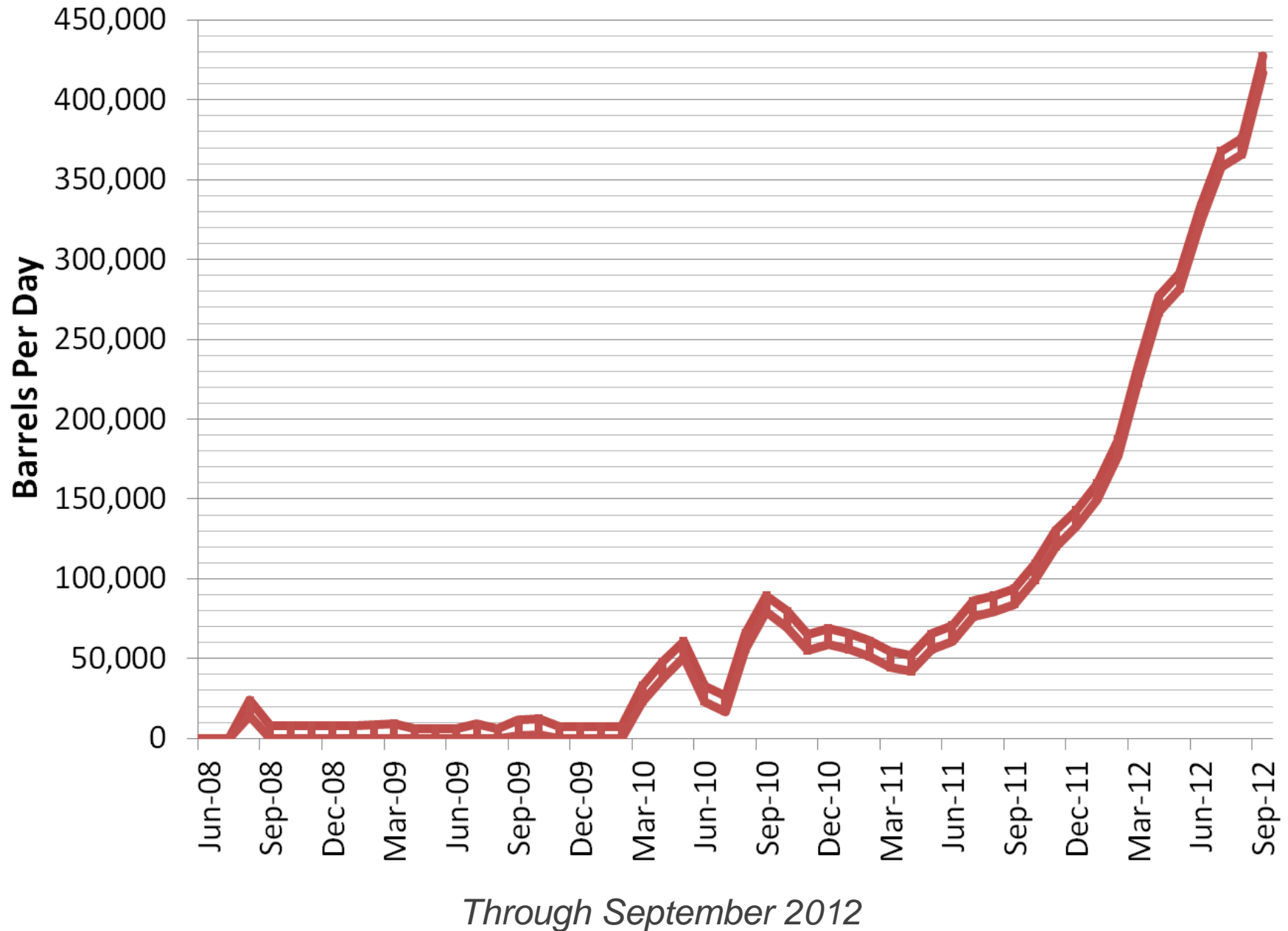
# CP Crude Rail Locations



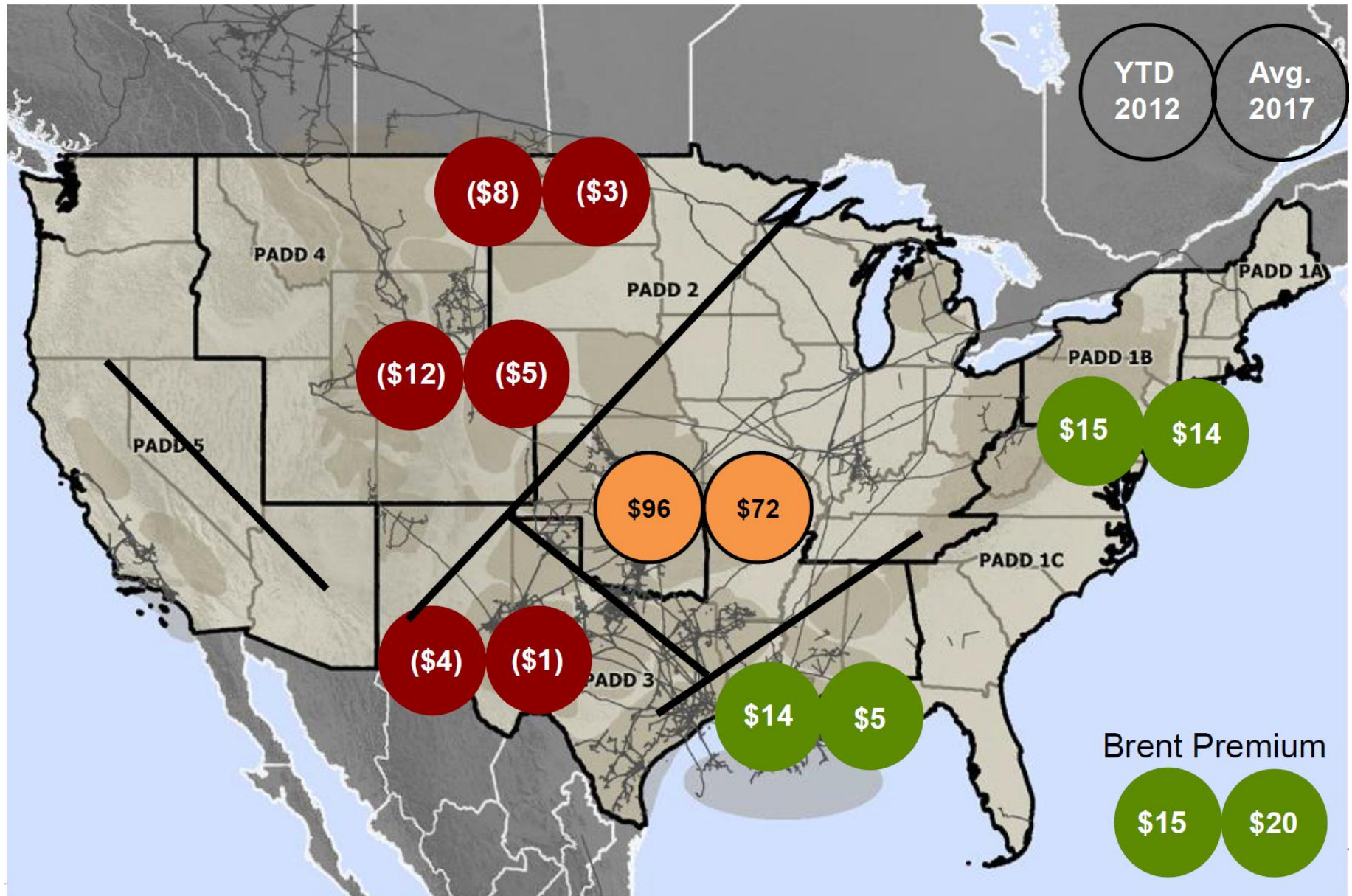
# Williston Basin Oil Transportation



# Estimated ND Rail Export Volumes

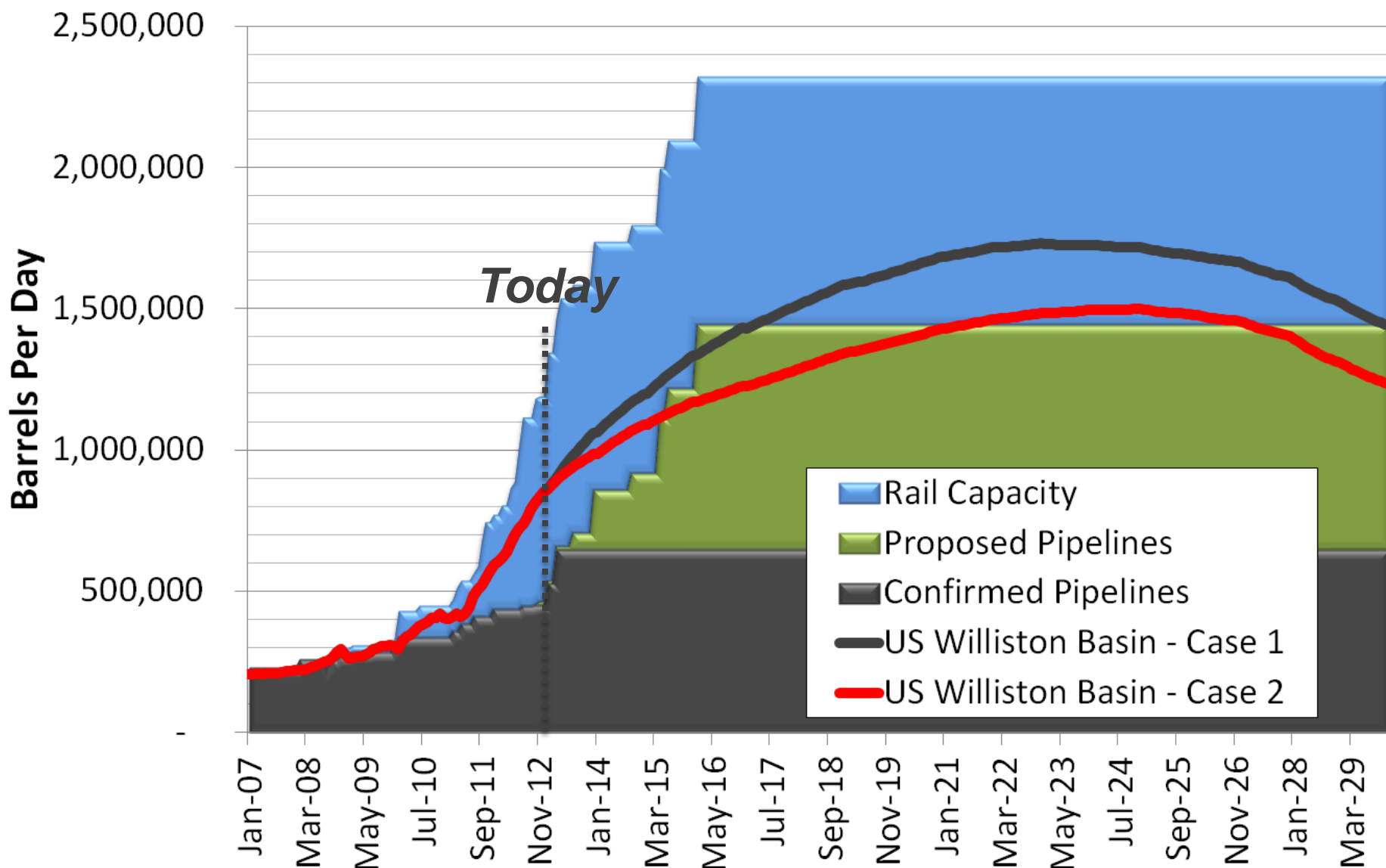






Source: Jodi Quinnell, BENTEK Energy - Sept 12, 2012 "Crude Awakening"

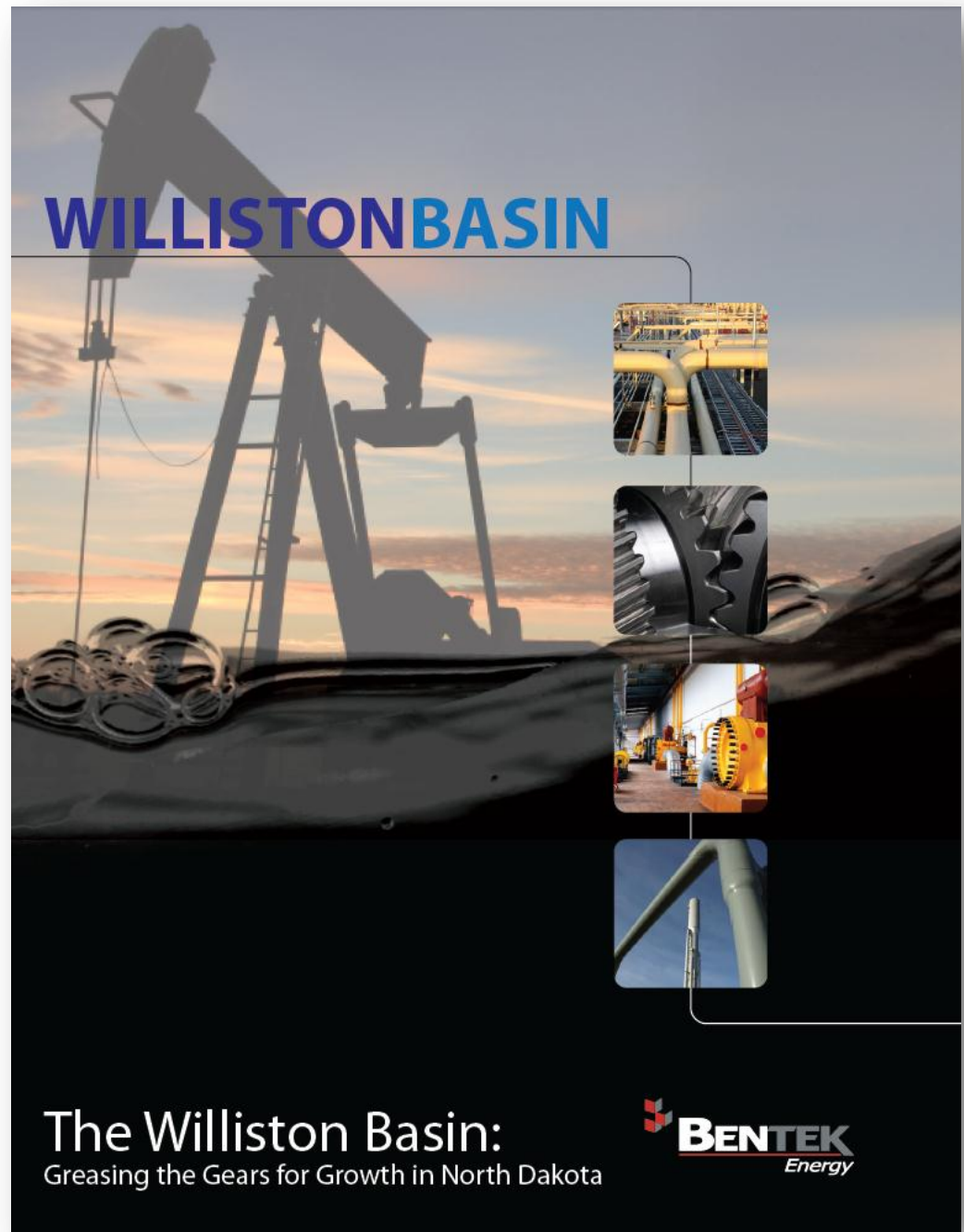
# Williston Basin Oil Production & Export Capacity, BOPD



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

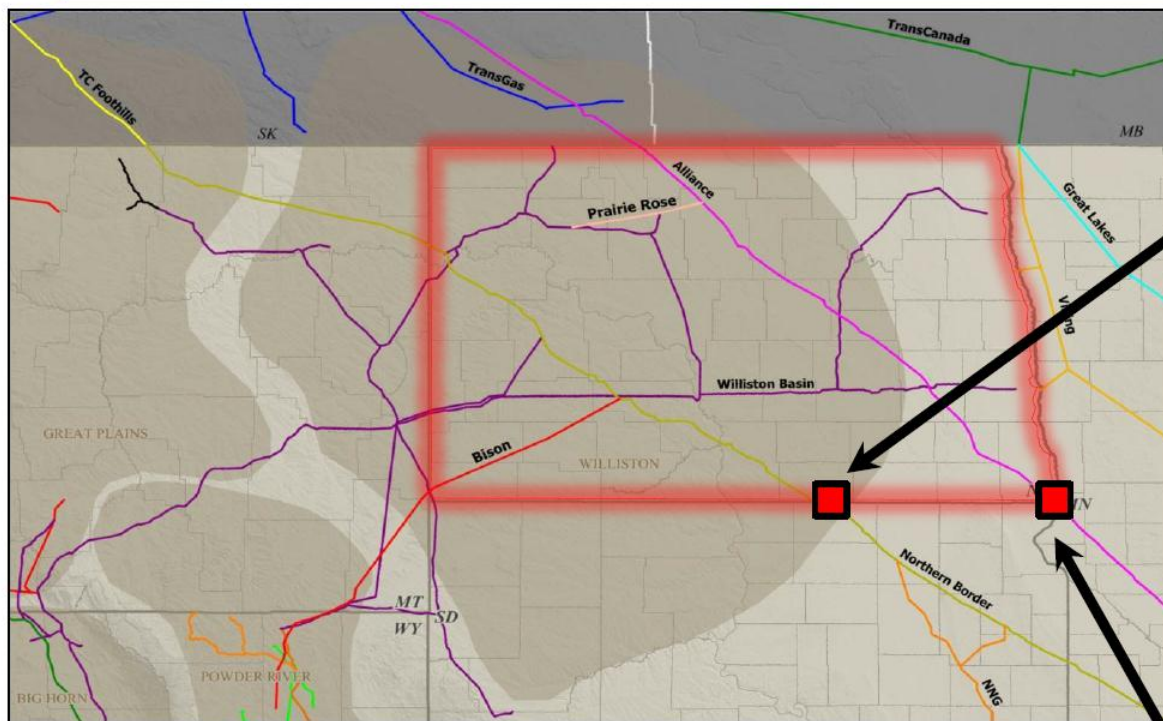
# Natural Gas Study

## Transmission Future

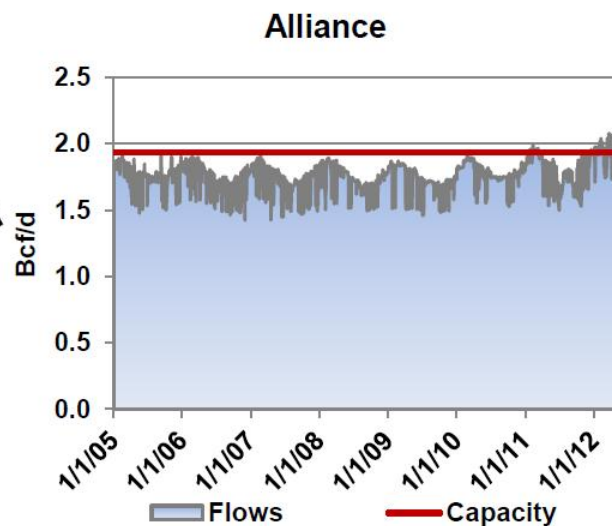
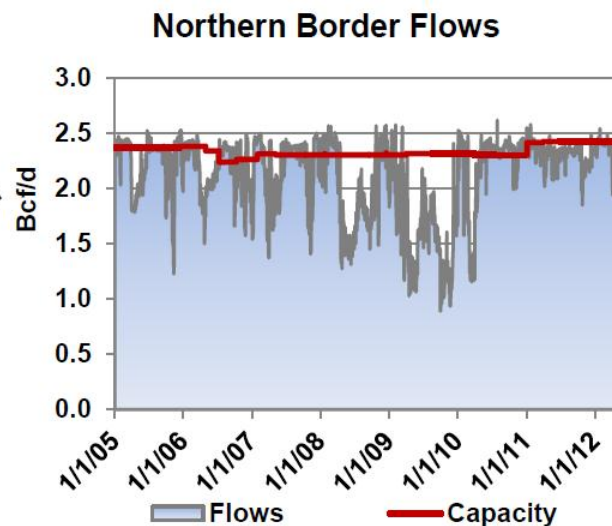


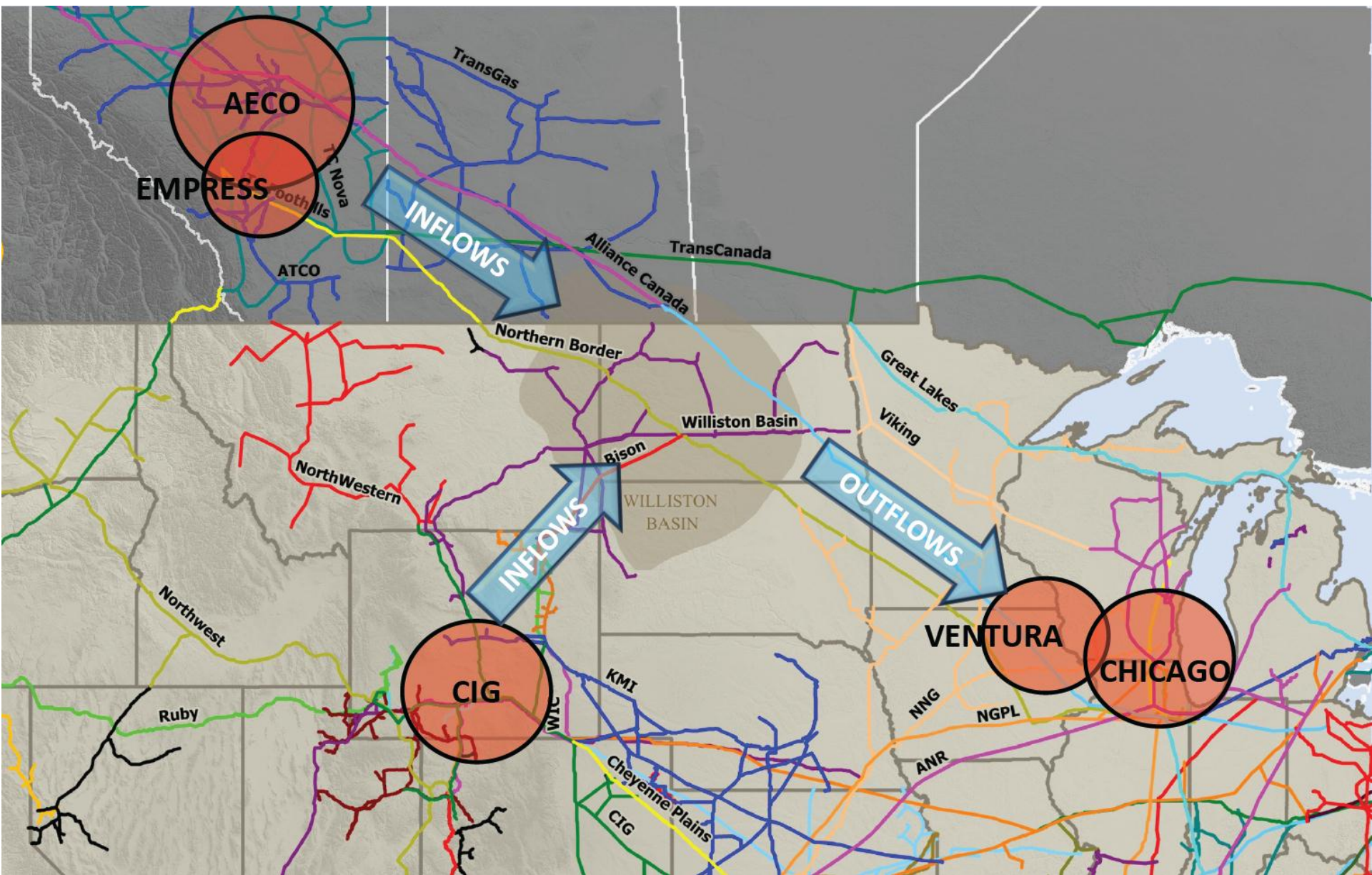


# Open Capacity Leaving N. Dakota Is Tight



- 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.

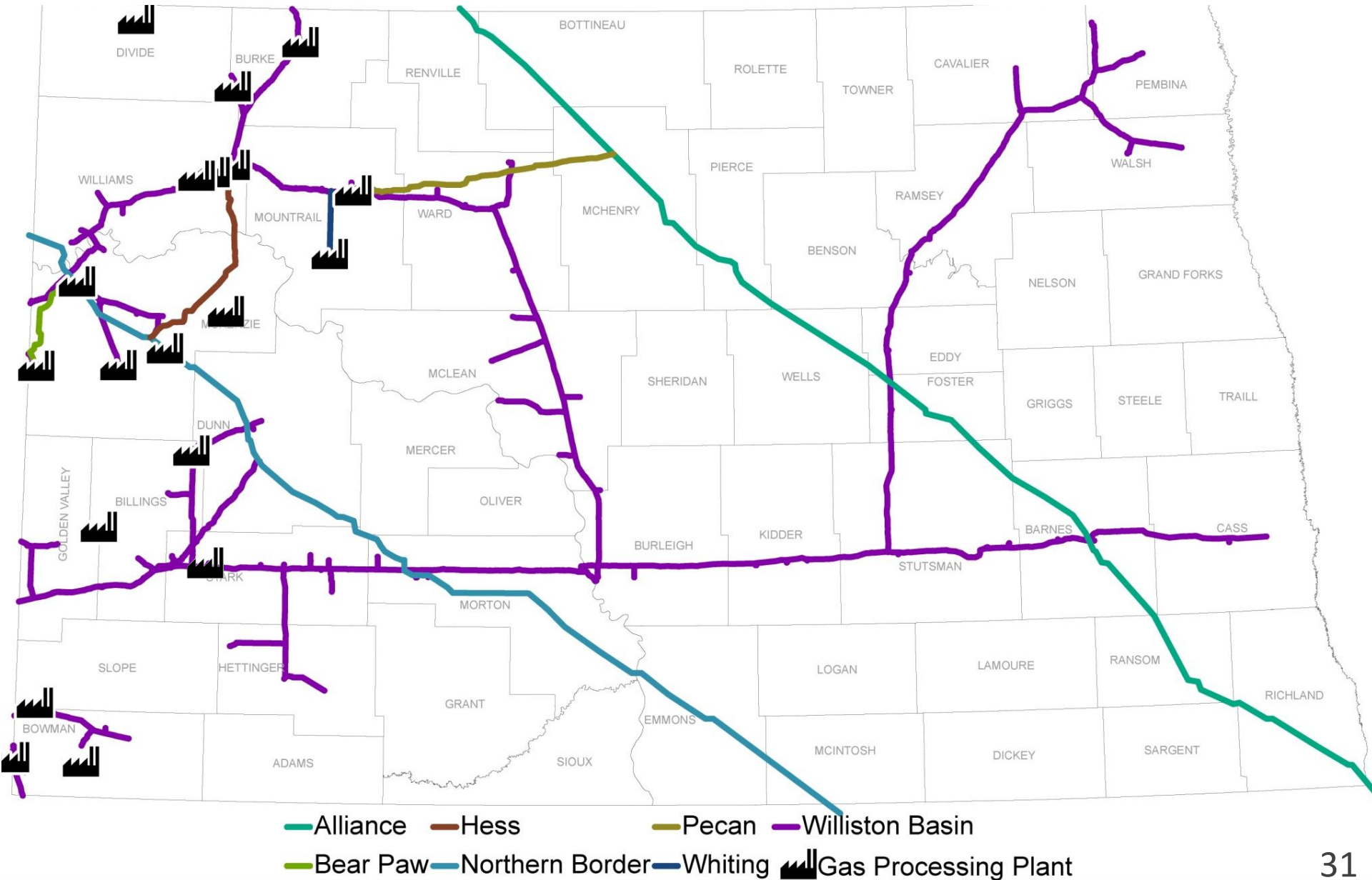




Source: BENTEK Energy July 2012 Report

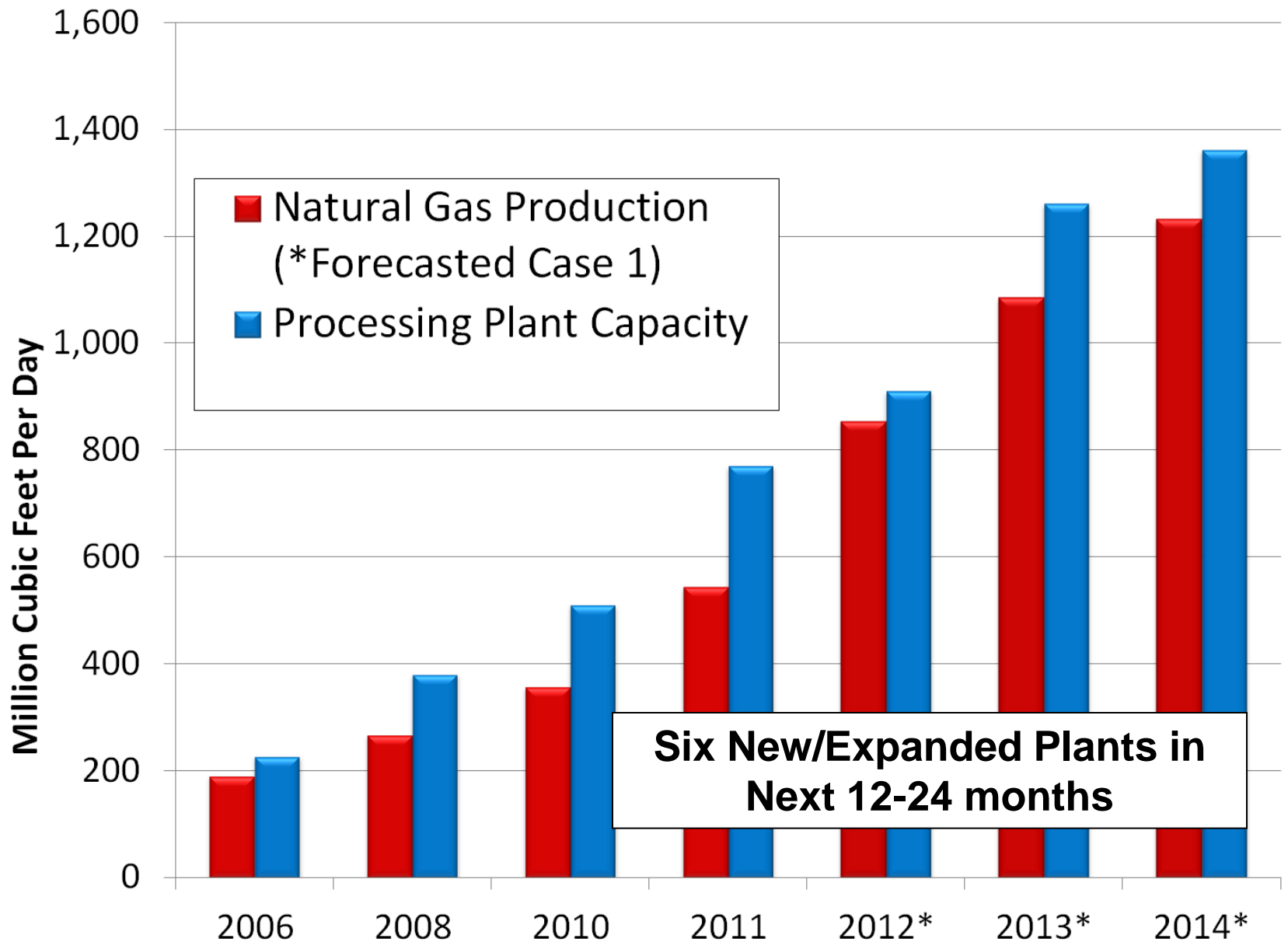


# ND Natural Gas Pipelines

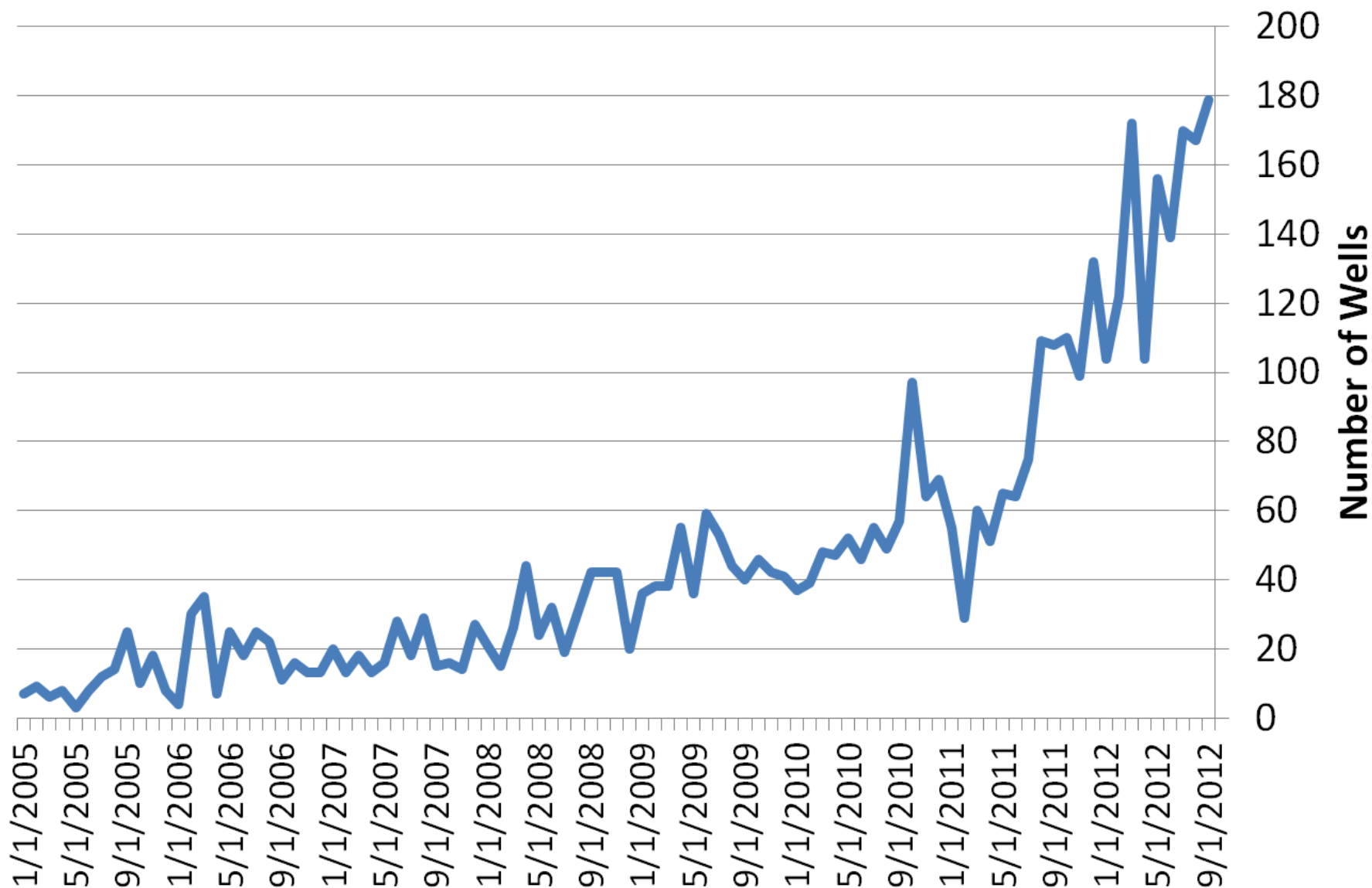




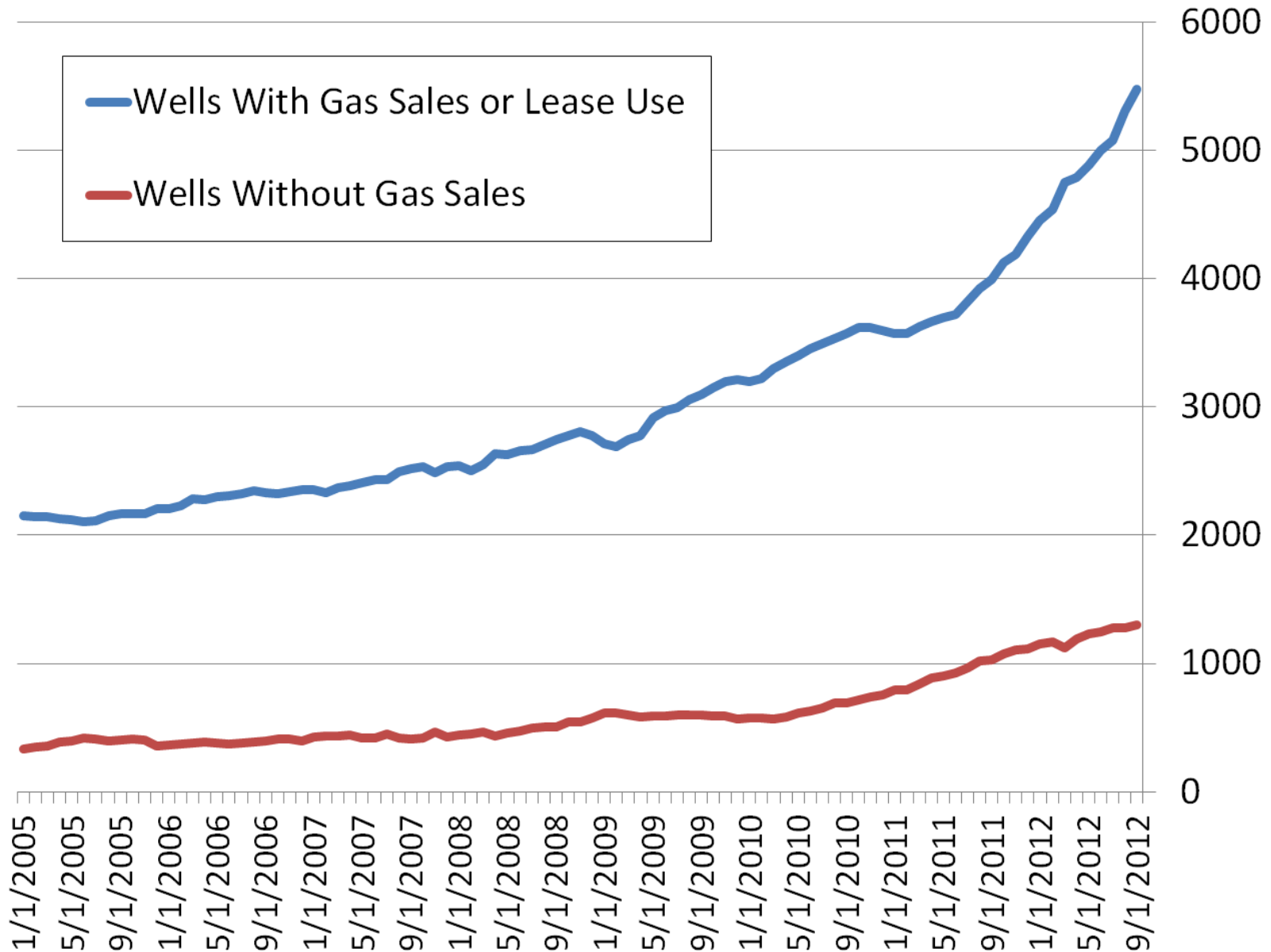
# ND Gas Plant Capacity



# First Time Gas Sales Per Month



# ND Gas Gathering Statistics



# Contact Information

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Bismarck, ND 58505-0840

Phone: (701)220-6227

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E-mail: [jjkringstad@ndpipelines.com](mailto:jjkringstad@ndpipelines.com)

Websites:

[www.pipeline.nd.gov](http://www.pipeline.nd.gov)

[www.ndpipelines.wordpress.com](http://www.ndpipelines.wordpress.com)



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