

# ND Pipeline Authority

APPENDIX E

## Energy Development & Transmission Committee



**Justin J Kringstad**

*Geological Engineer*

*Director*

*North Dakota Pipeline Authority*

**July 29, 2015**

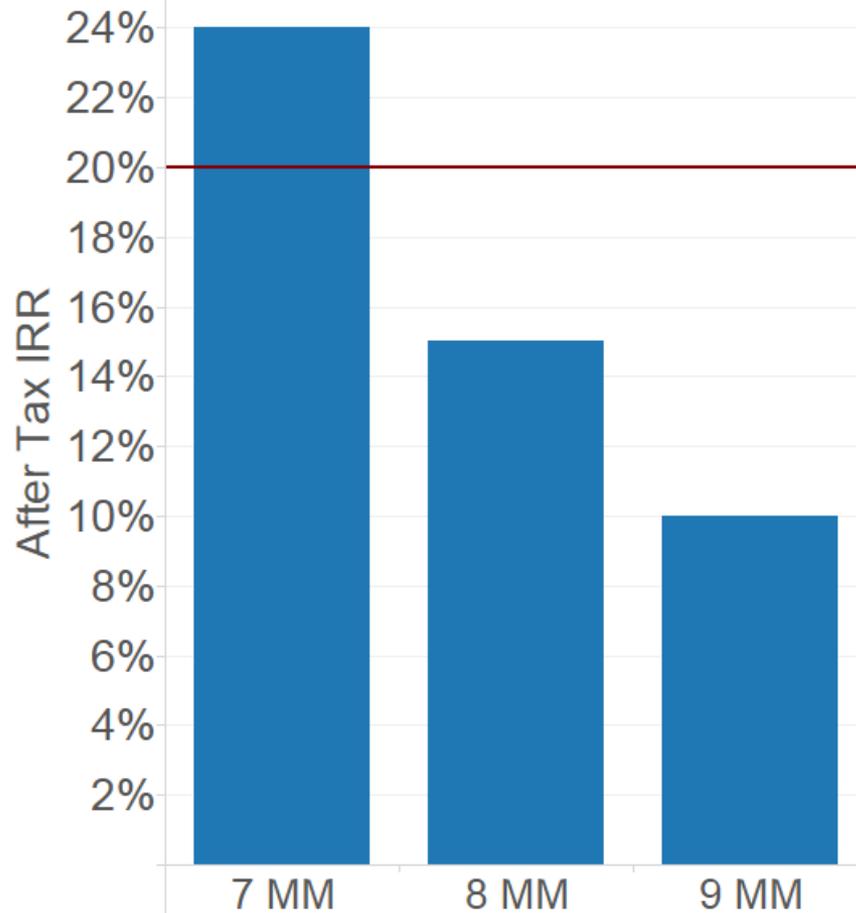


*From Jan-15 PPT*

# Peak Month Minimum 800 BOPD

Peak Month BOPD / Well Cost

800



\$45 Wellhead

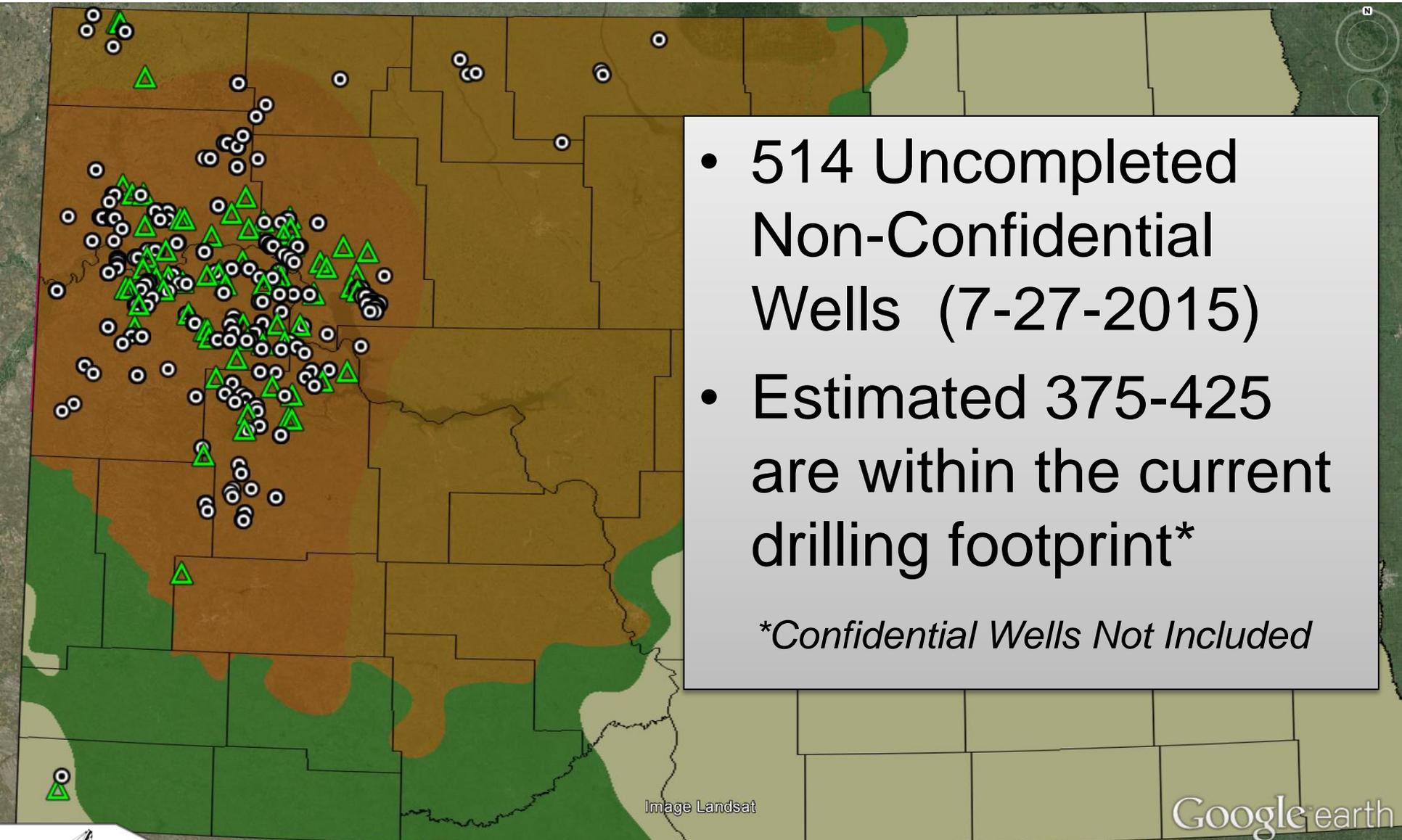
Peak Month Well Production, BOPD



© OpenStreetMap contributors



# Watch List: Rigs & Uncompleted Wells

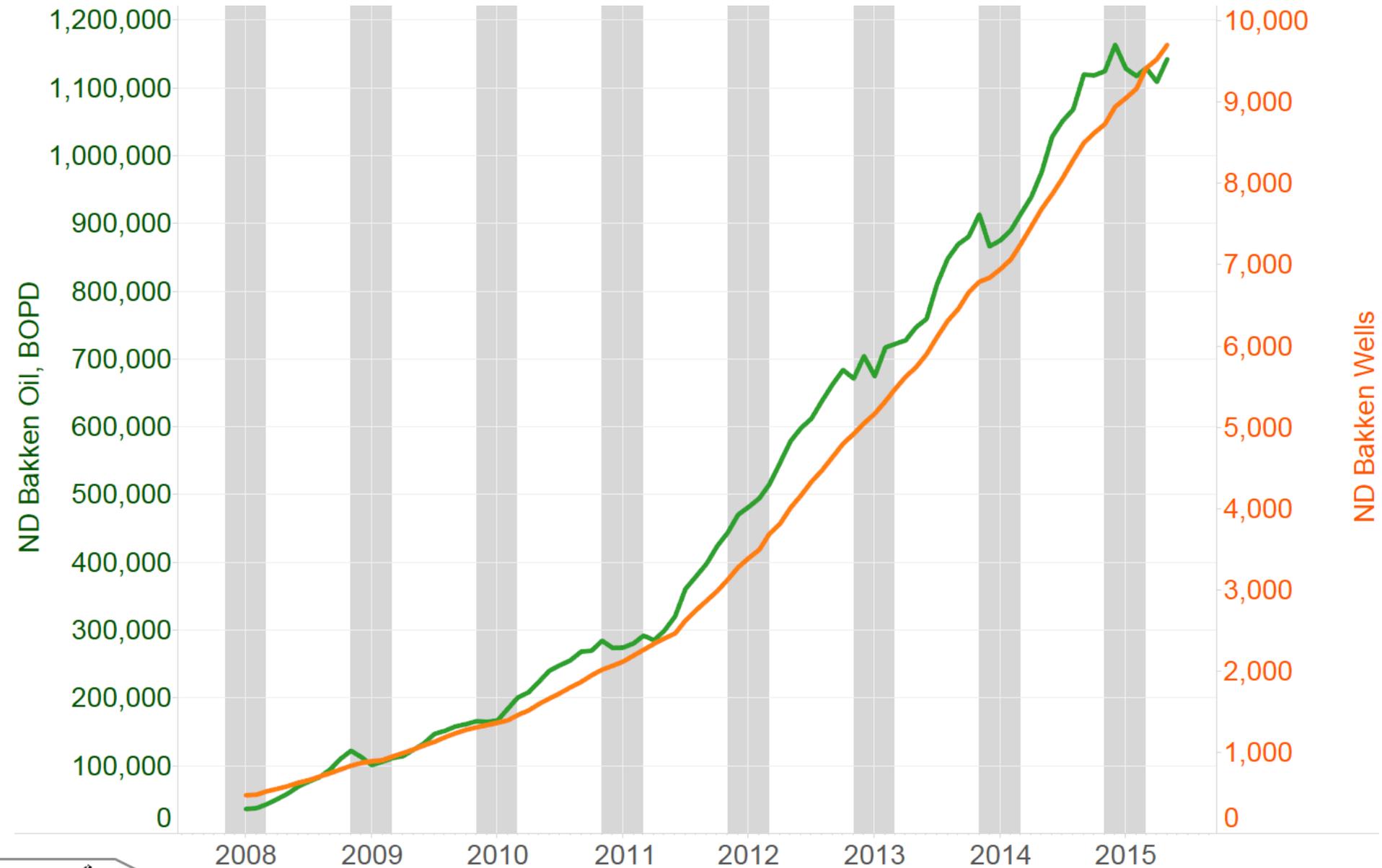


- 514 Uncompleted Non-Confidential Wells (7-27-2015)
- Estimated 375-425 are within the current drilling footprint\*

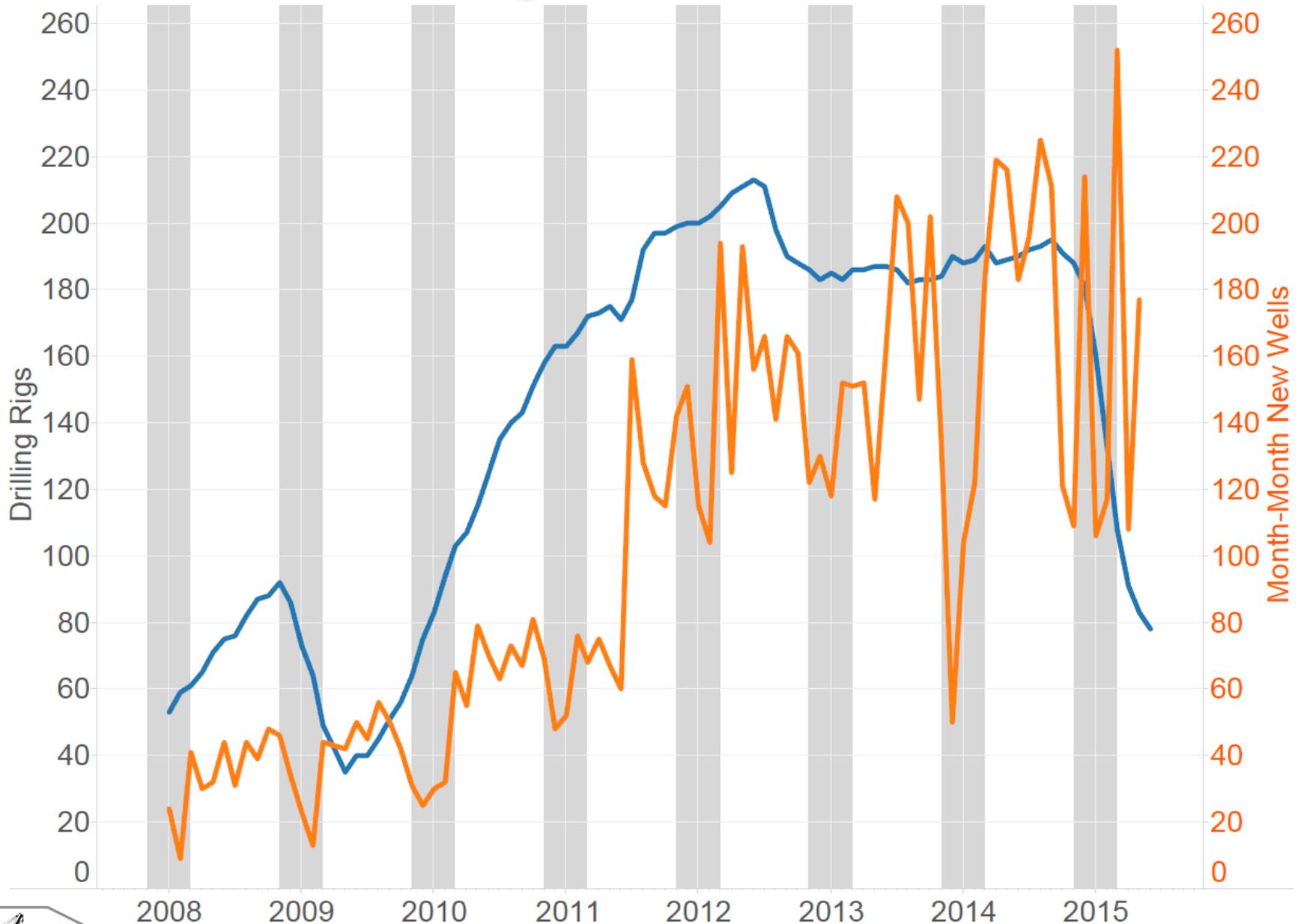
*\*Confidential Wells Not Included*



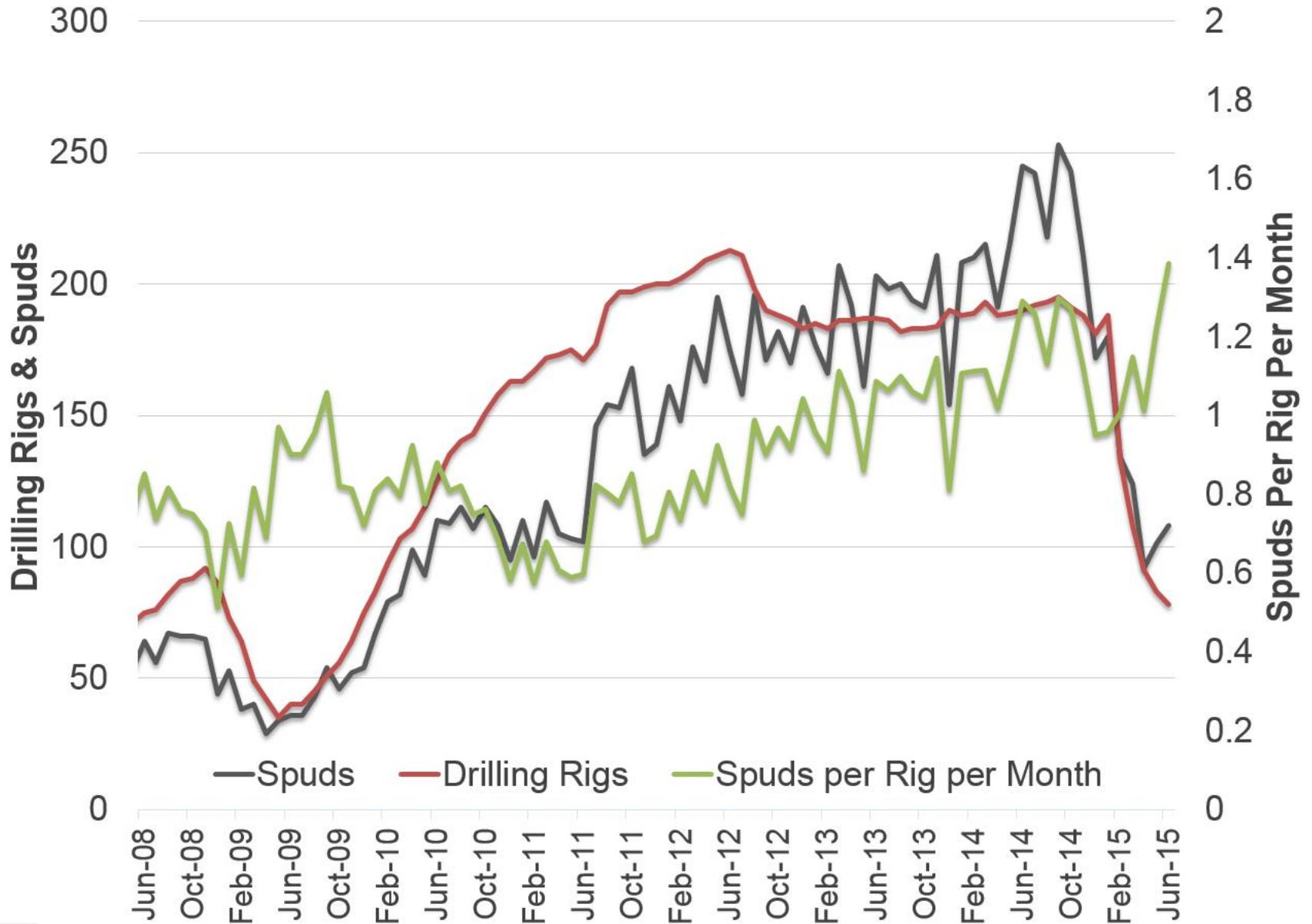
# Understanding the Winter/Spring of 2014-15



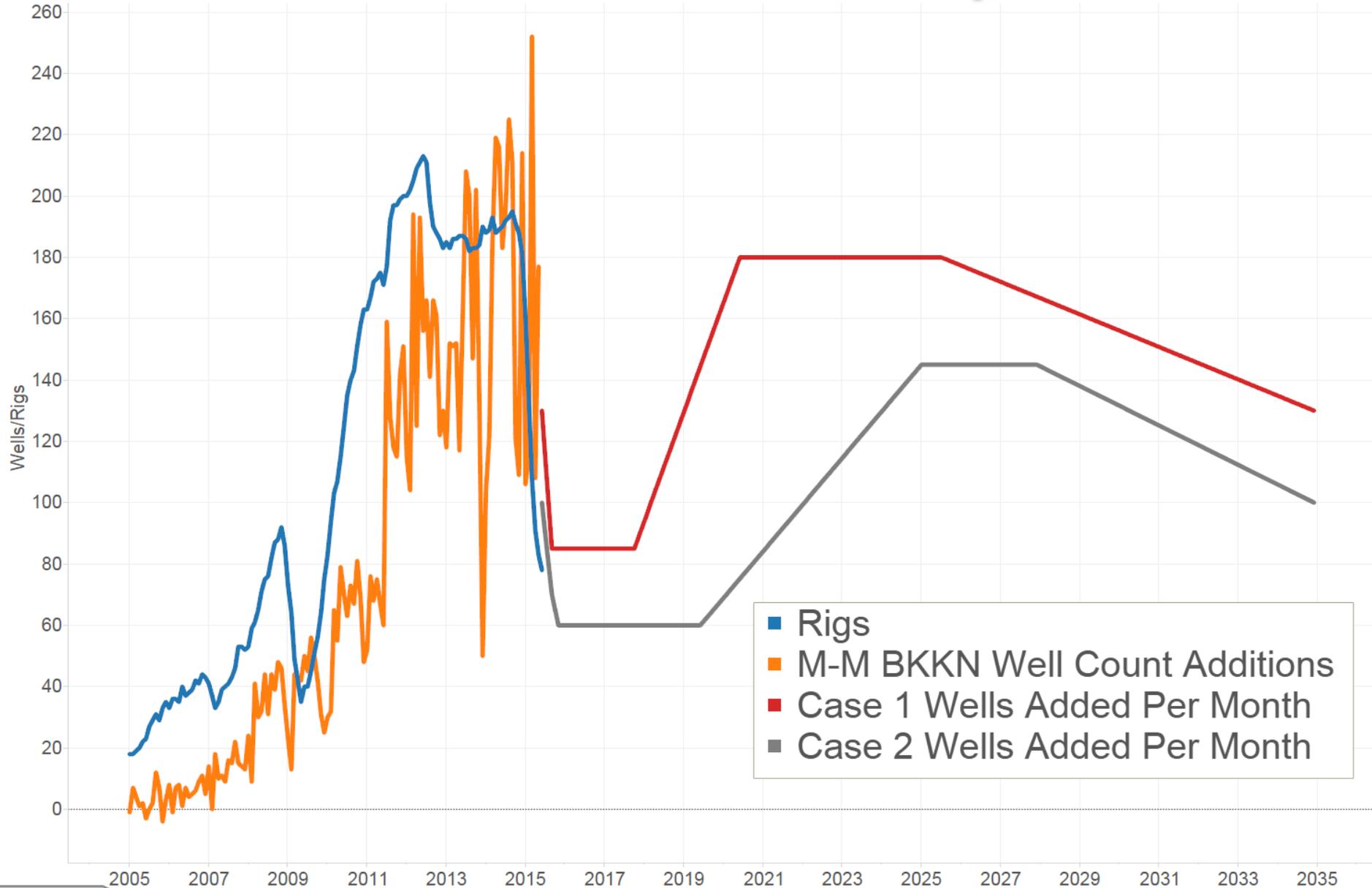
# Understanding the Winter of 2014-15



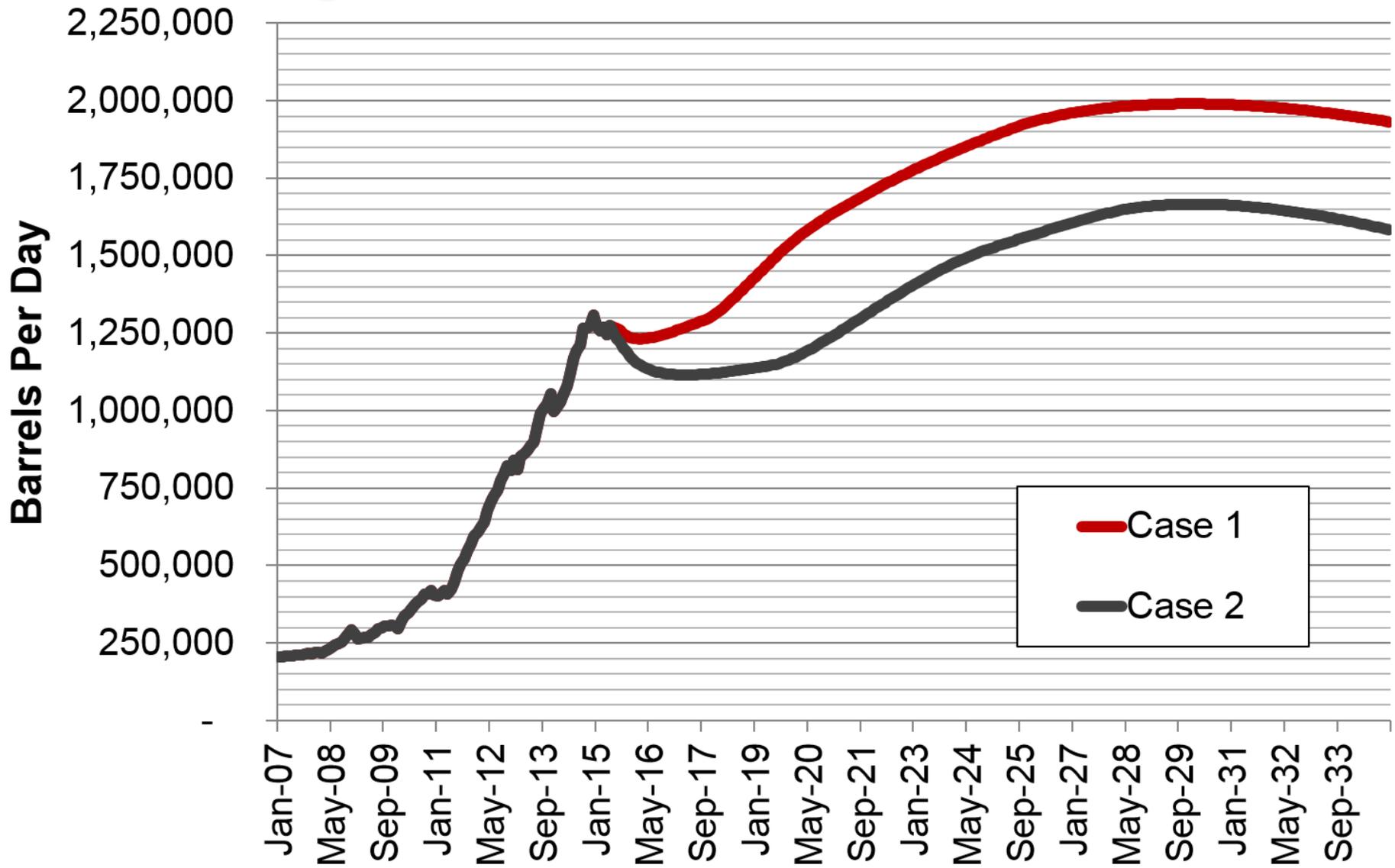
# North Dakota Drilling Efficiency



# Revised Forecast Assumptions



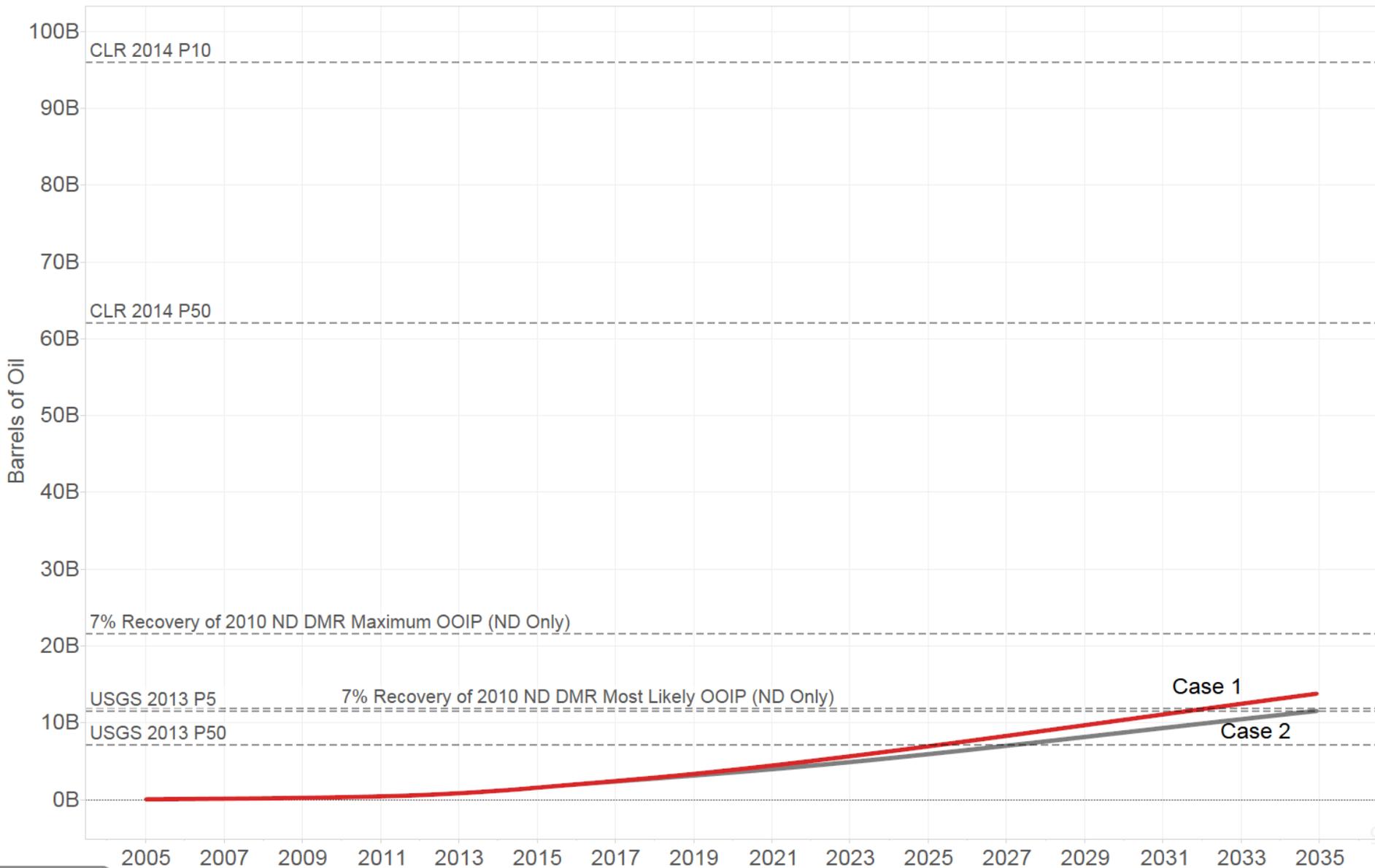
# Forecasting Williston Basin Oil Production, BOPD



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



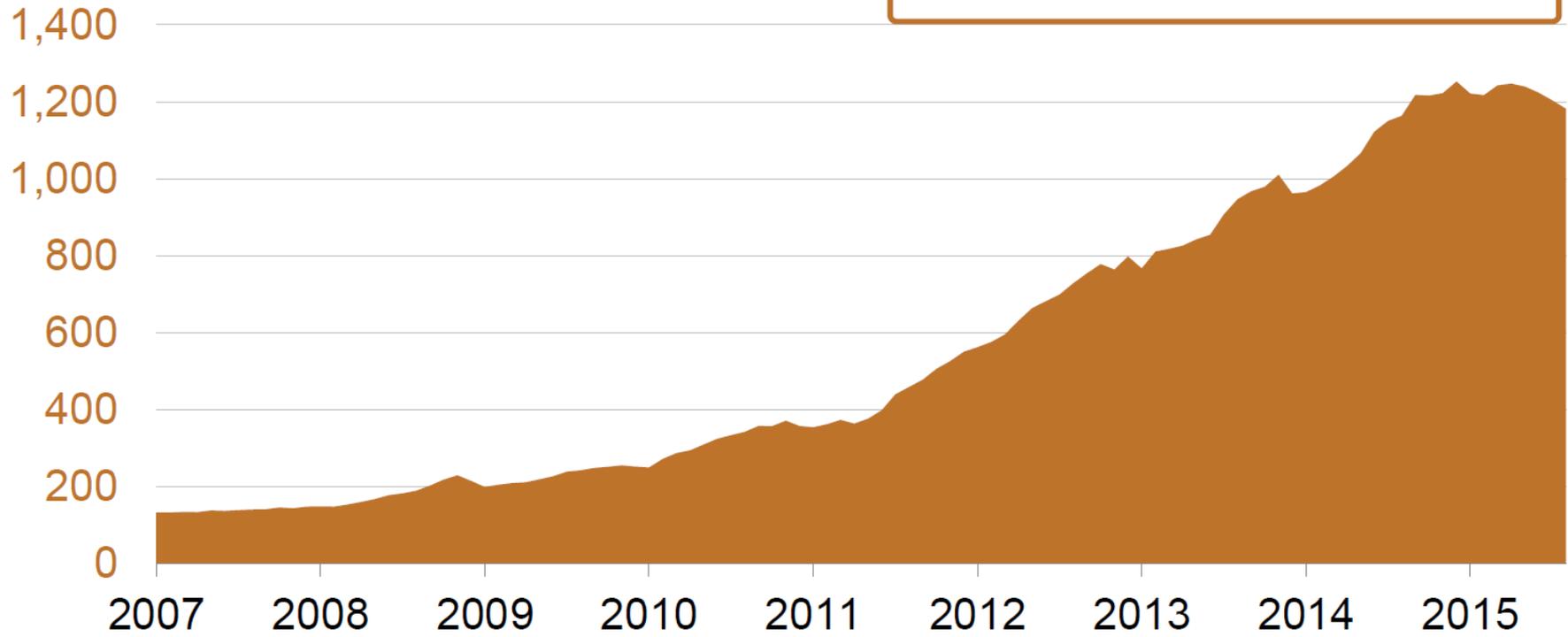
# Forecast Cum. Prod. & EUR Estimates



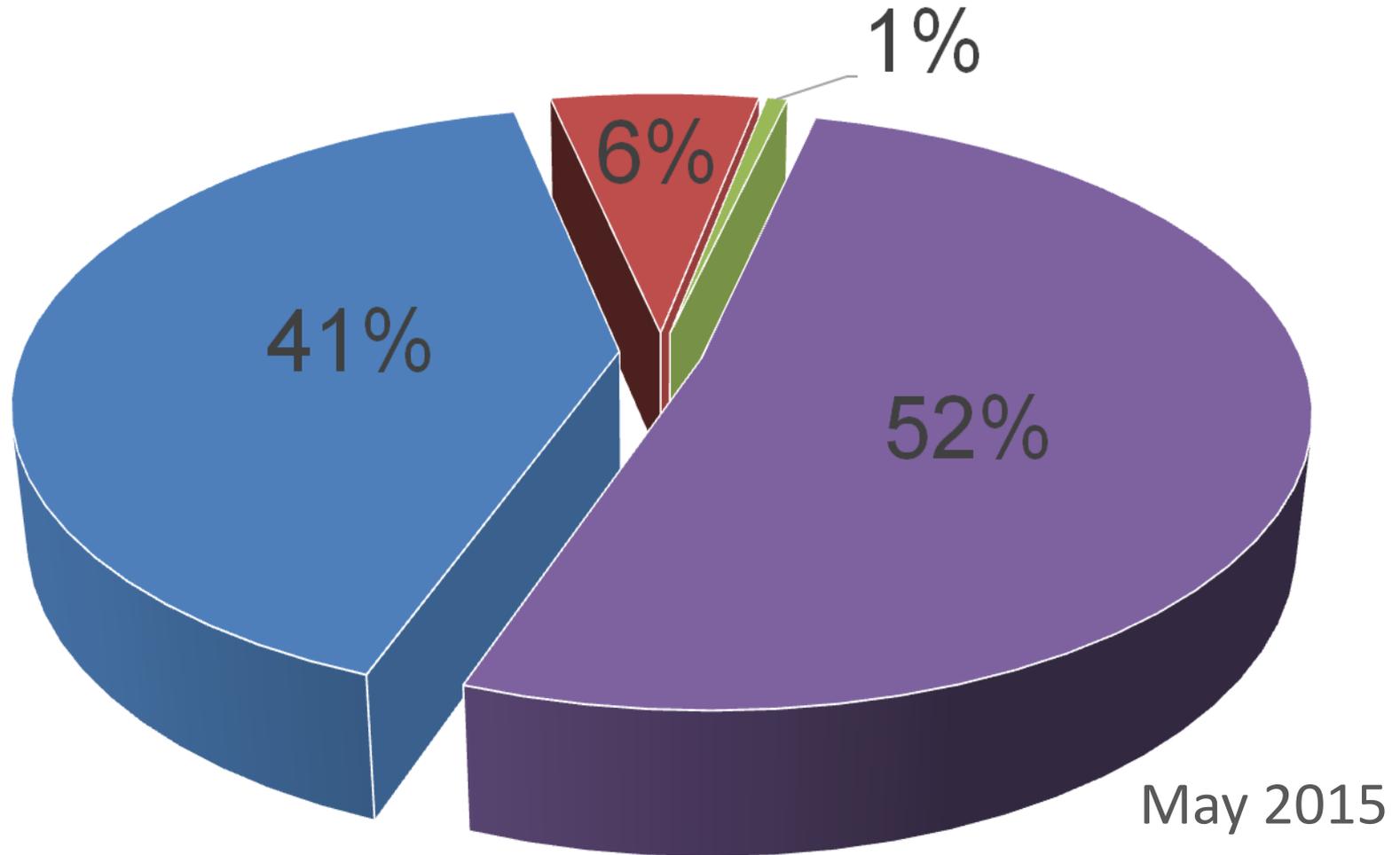
# EIA Short Term Production Forecast Through August 2015 (July 2015 Report)

## Bakken Region Oil production

thousand barrels/day



# Estimated Williston Basin Oil Transportation



■ Pipeline Export

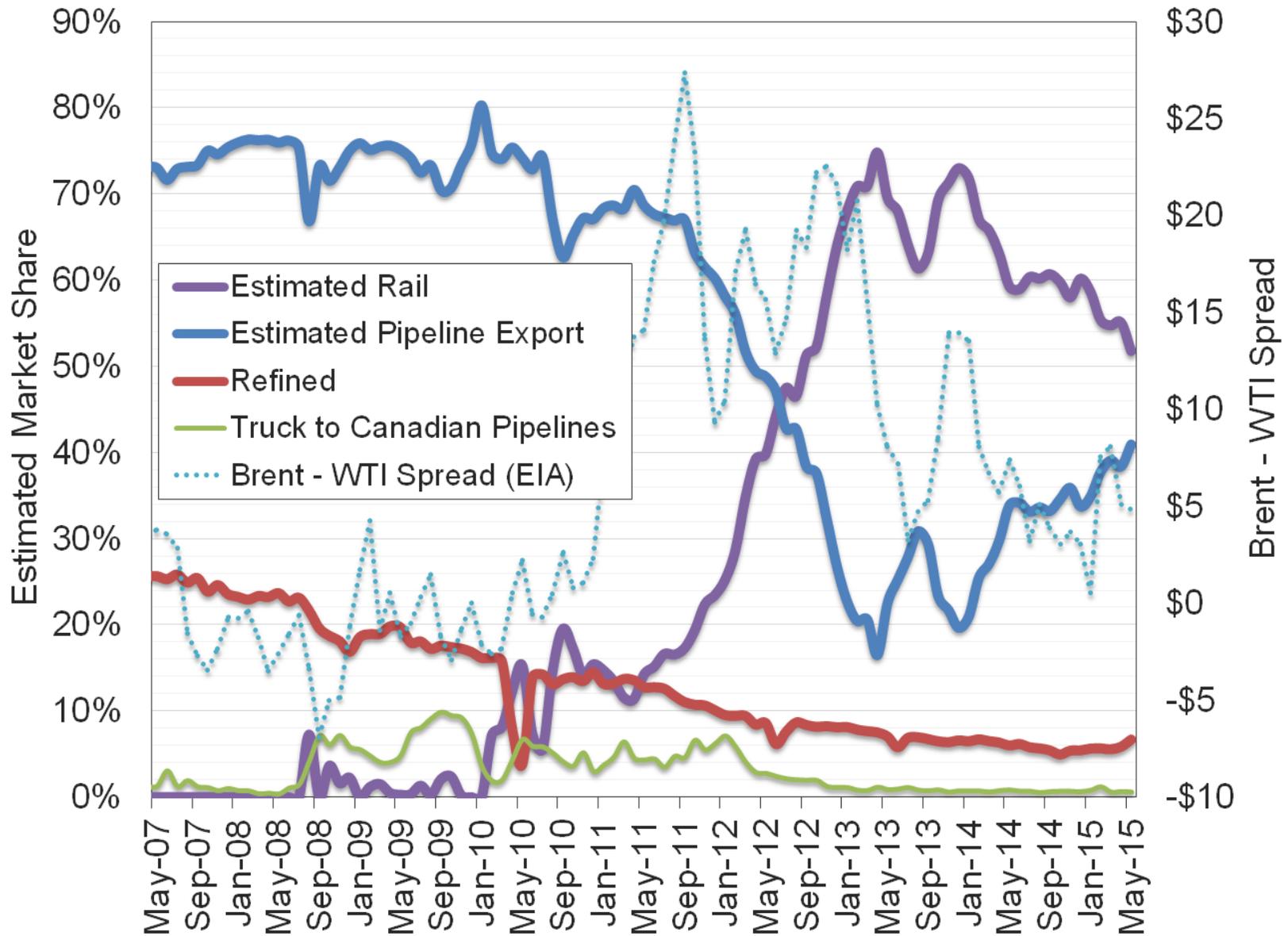
■ Refined

■ Truck to Canadian Pipelines

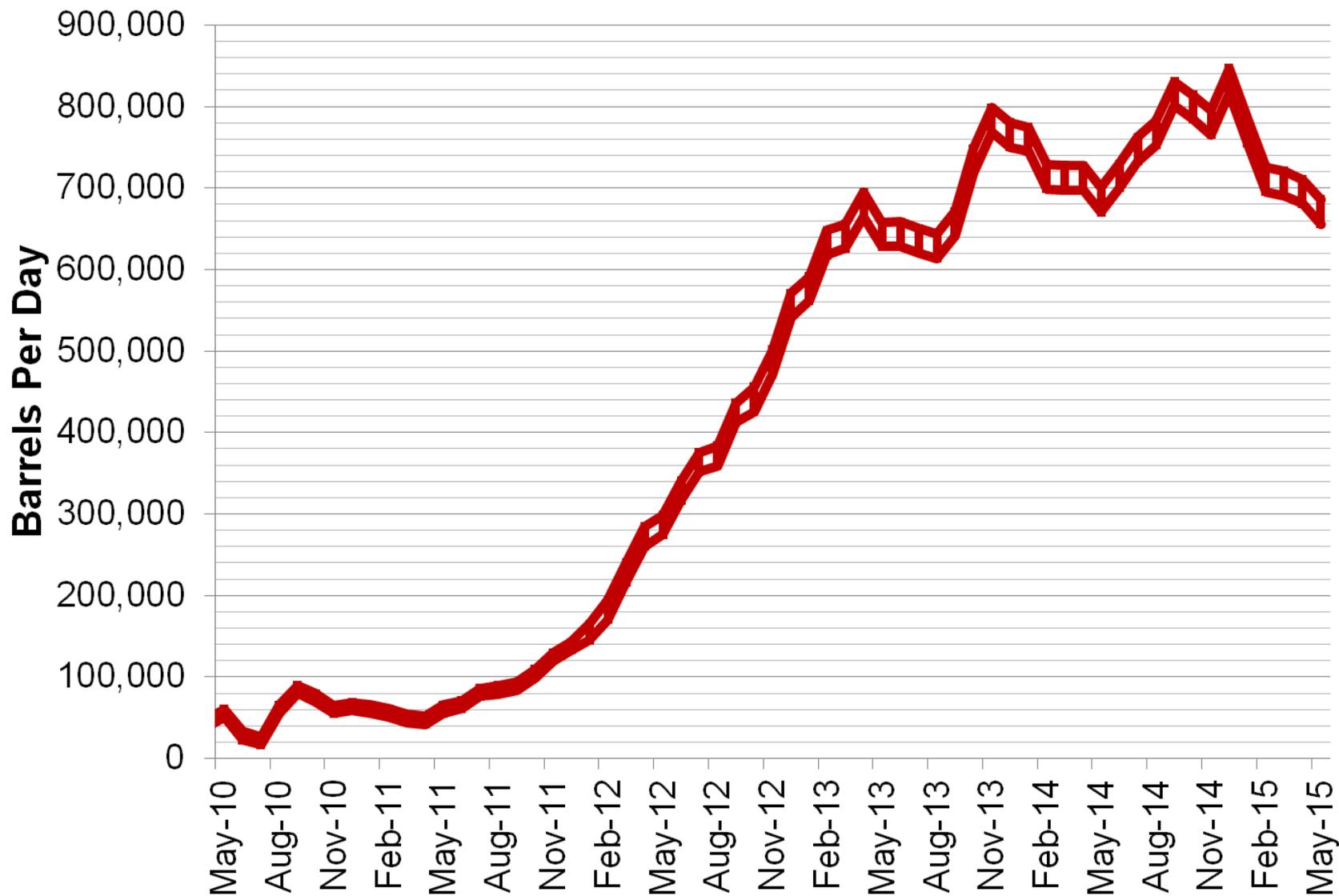
■ Estimated Rail



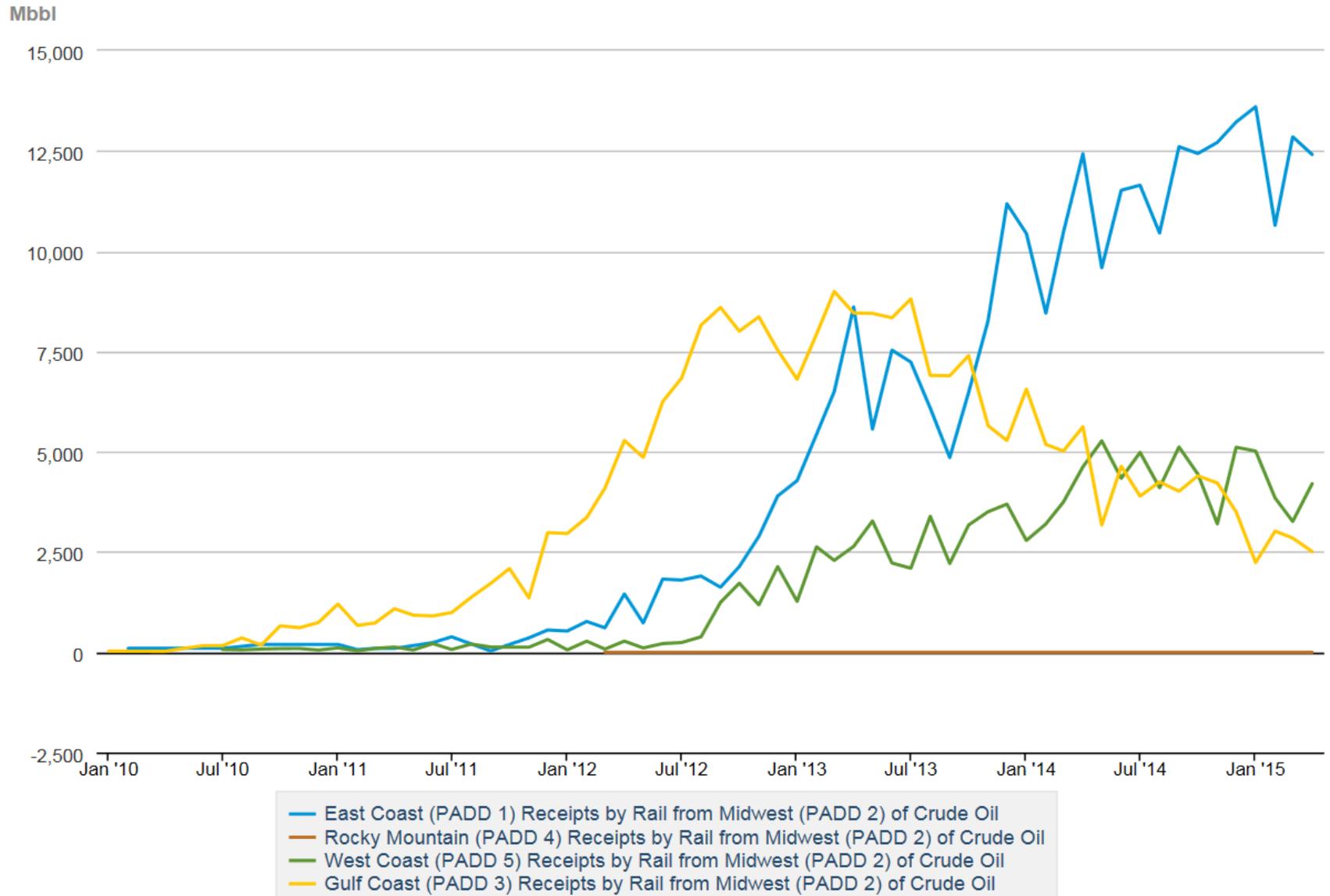
# Estimated Williston Basin Oil Transportation



# Estimated ND Rail Export Volumes



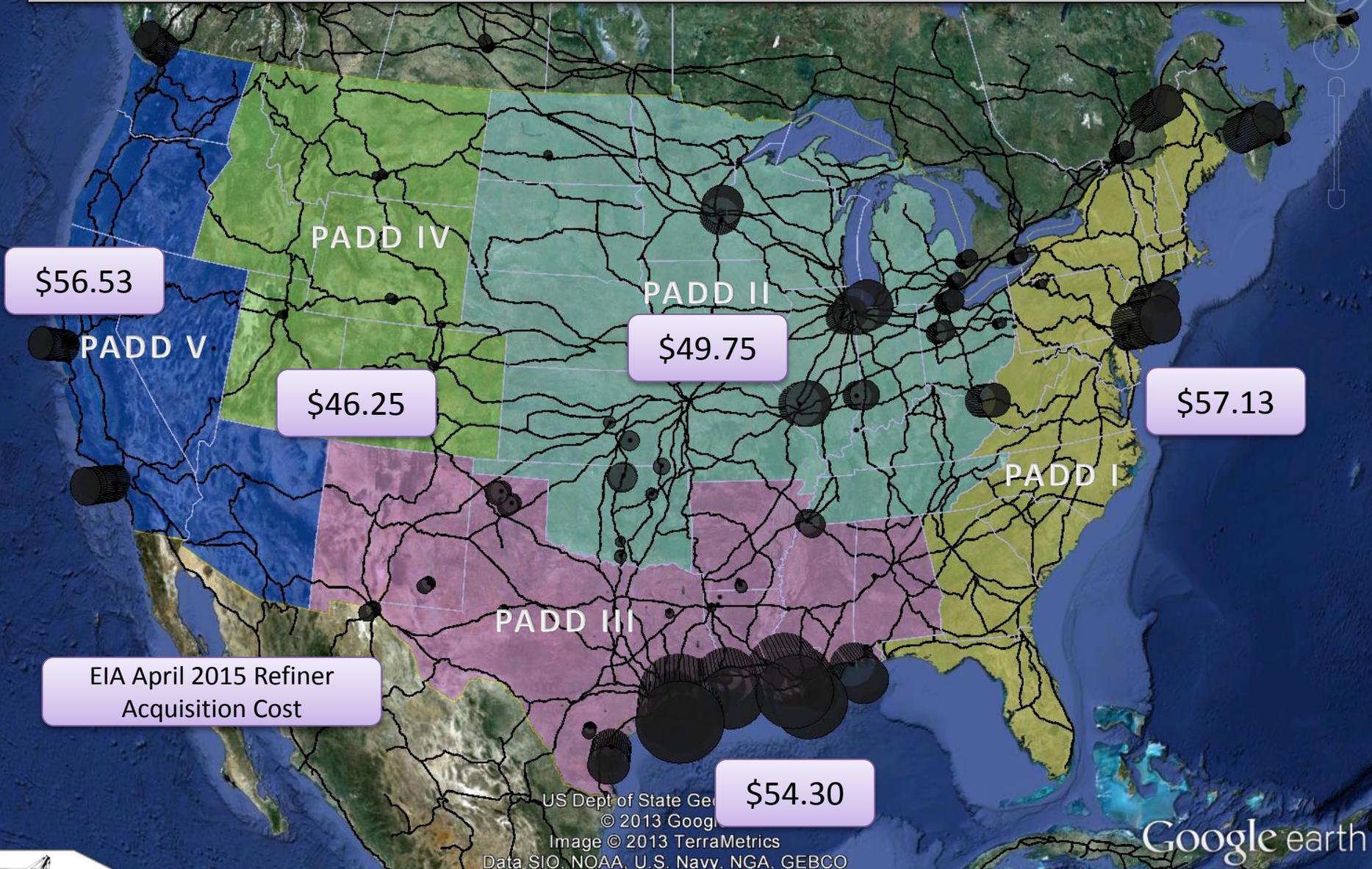
# EIA PADD 2 Rail Transportation Data



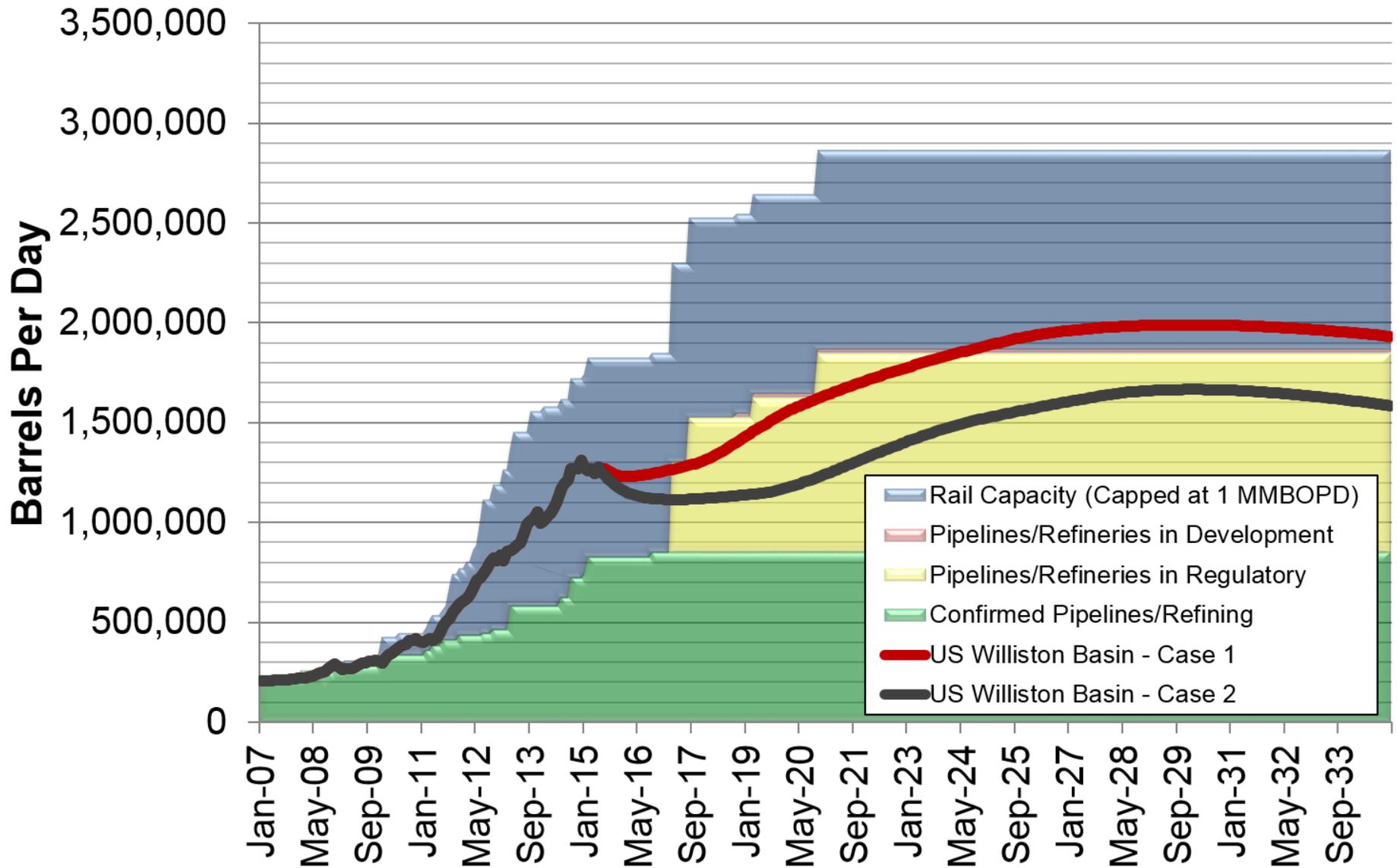
Source: U.S. Energy Information Administration



# Major Rail Lines and Refineries



# Williston Basin Oil Production & Export Capacity, BOPD

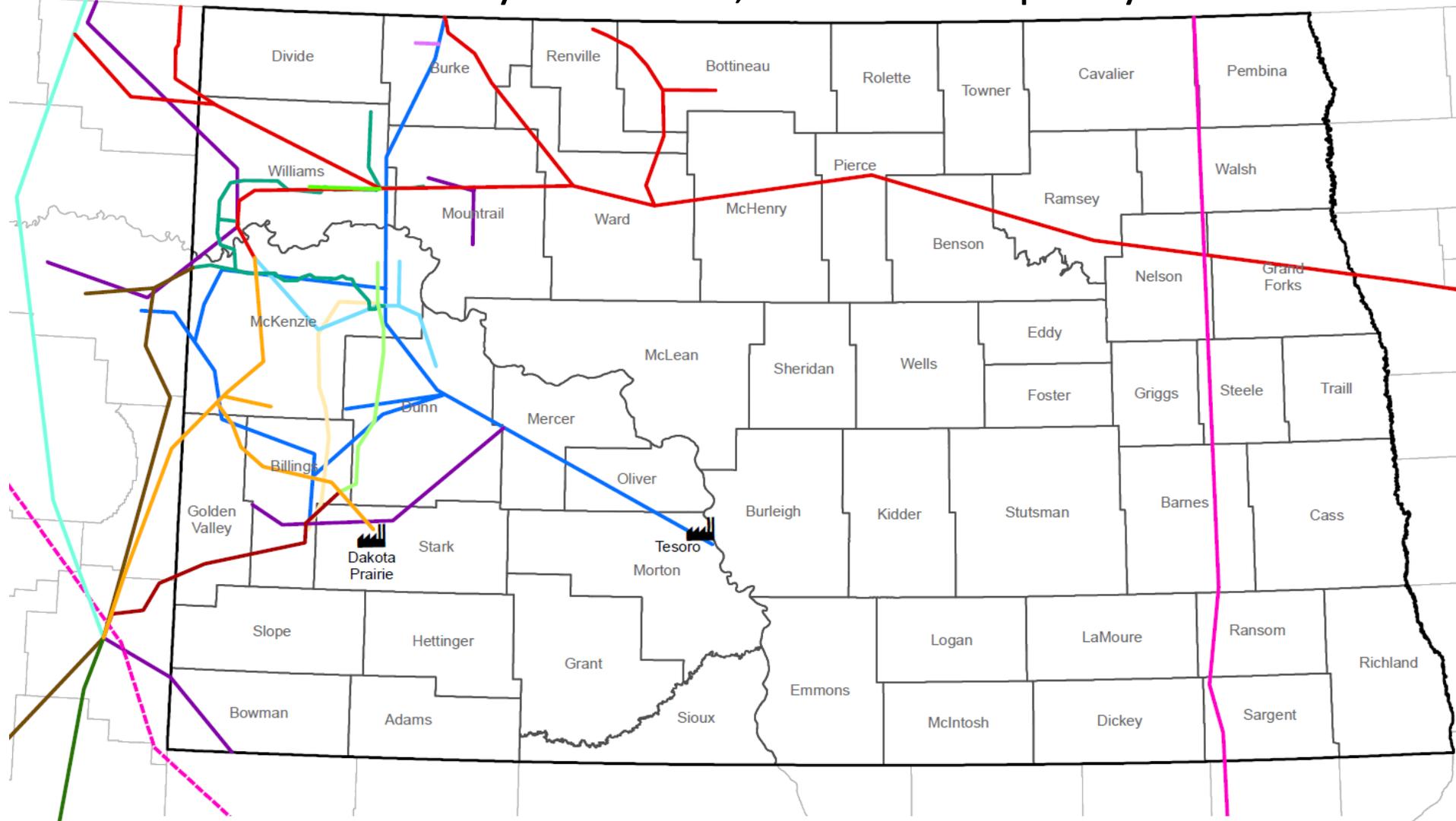


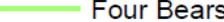
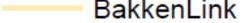
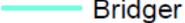
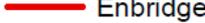
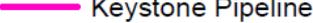
Production forecast is for visual demonstration purposes only and should not be considered accurate for any near or long term planning.



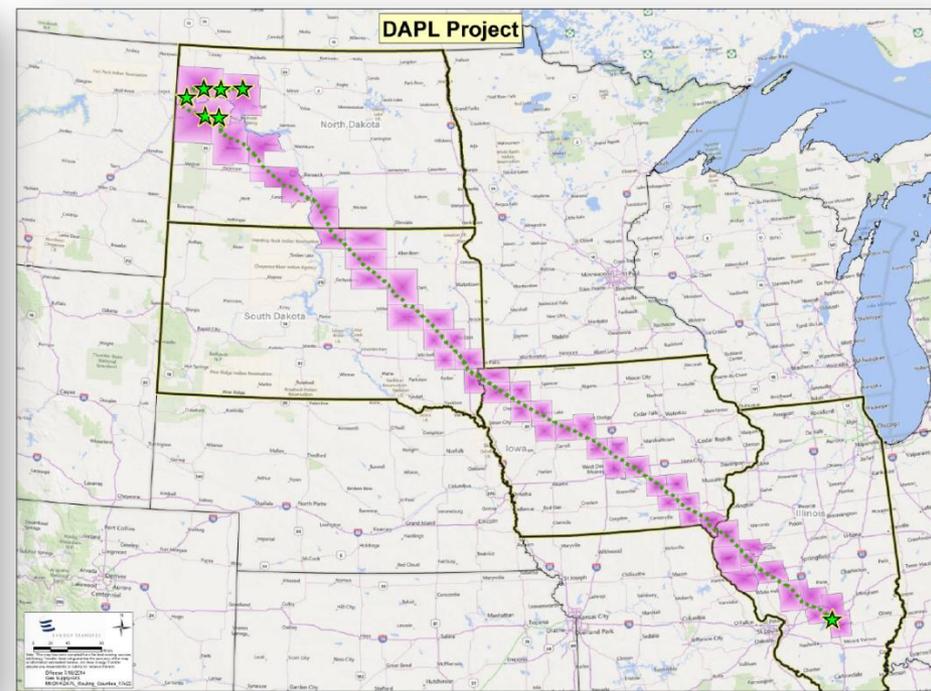
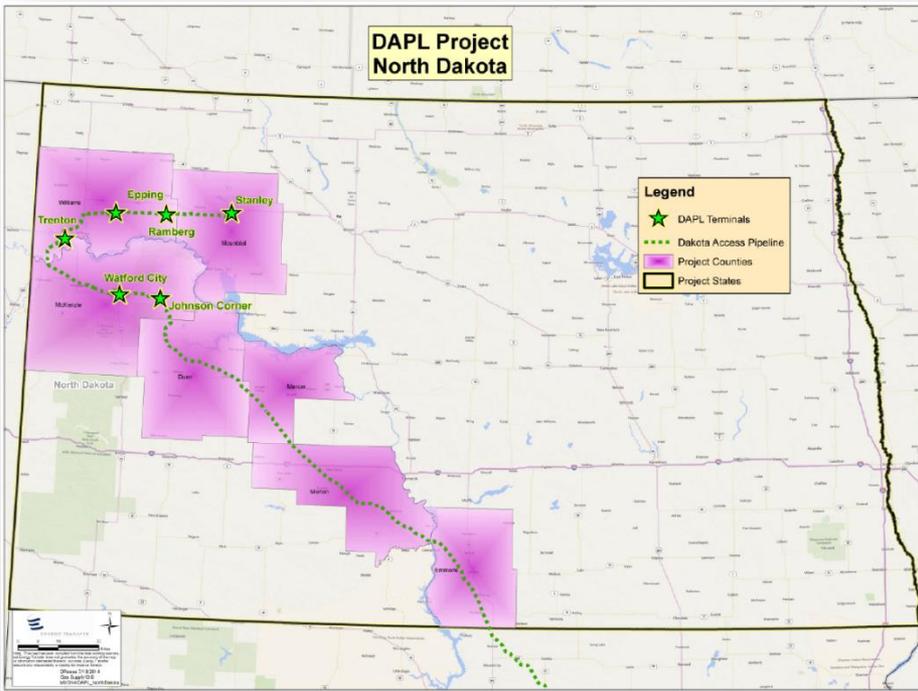
# Williston Basin Crude Oil Transmission

As of July 2015: 827,000 BOPD Capacity



- |   |   |   |  |   |  |
|---|---|---|--|---|--|
|  Refinery        |  Belle Fourche |  Crestwood |  Four Bears        |  Keystone XL     |  Targa  |
|  BakkenLink      |  Bridger       |  Double H  |  Hiland            |  Little Missouri |  Tesoro |
|  Basin Transload |  Butte         |  Enbridge  |  Keystone Pipeline |  Plains          |  |

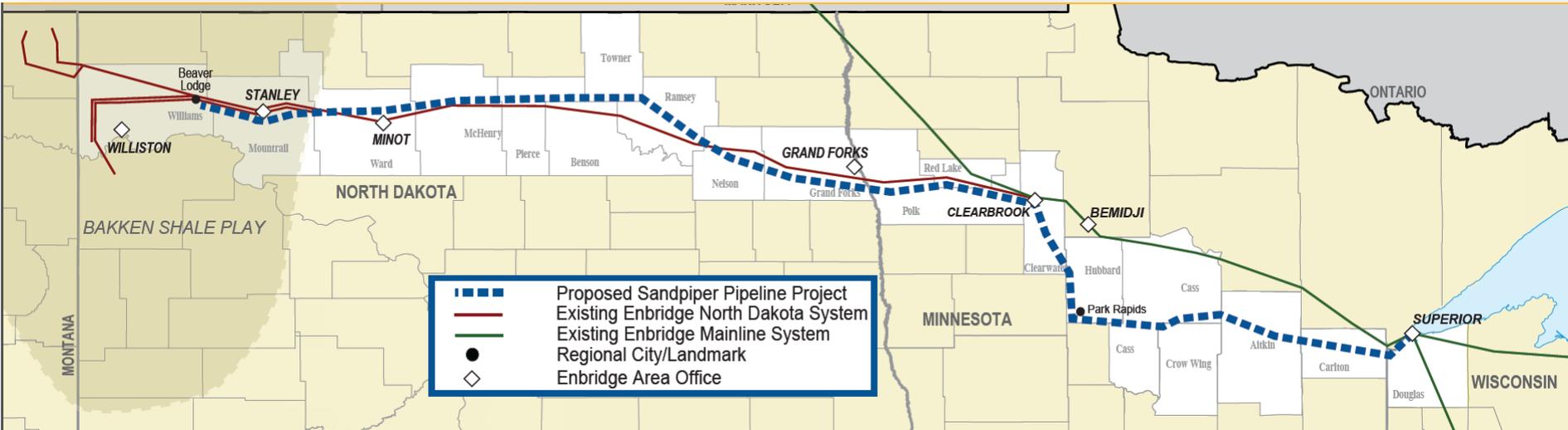
# Energy Transfer Partners: Dakota Access



- Successful Open Season During the First Half of 2014
- 450,000 BOPD Capacity to Patoka, IL (30")
- Expandable Up To 570,000 BOPD if Shipper Demand Exists
- Target In-service Date: Late 2016



# Sandpiper Pipeline



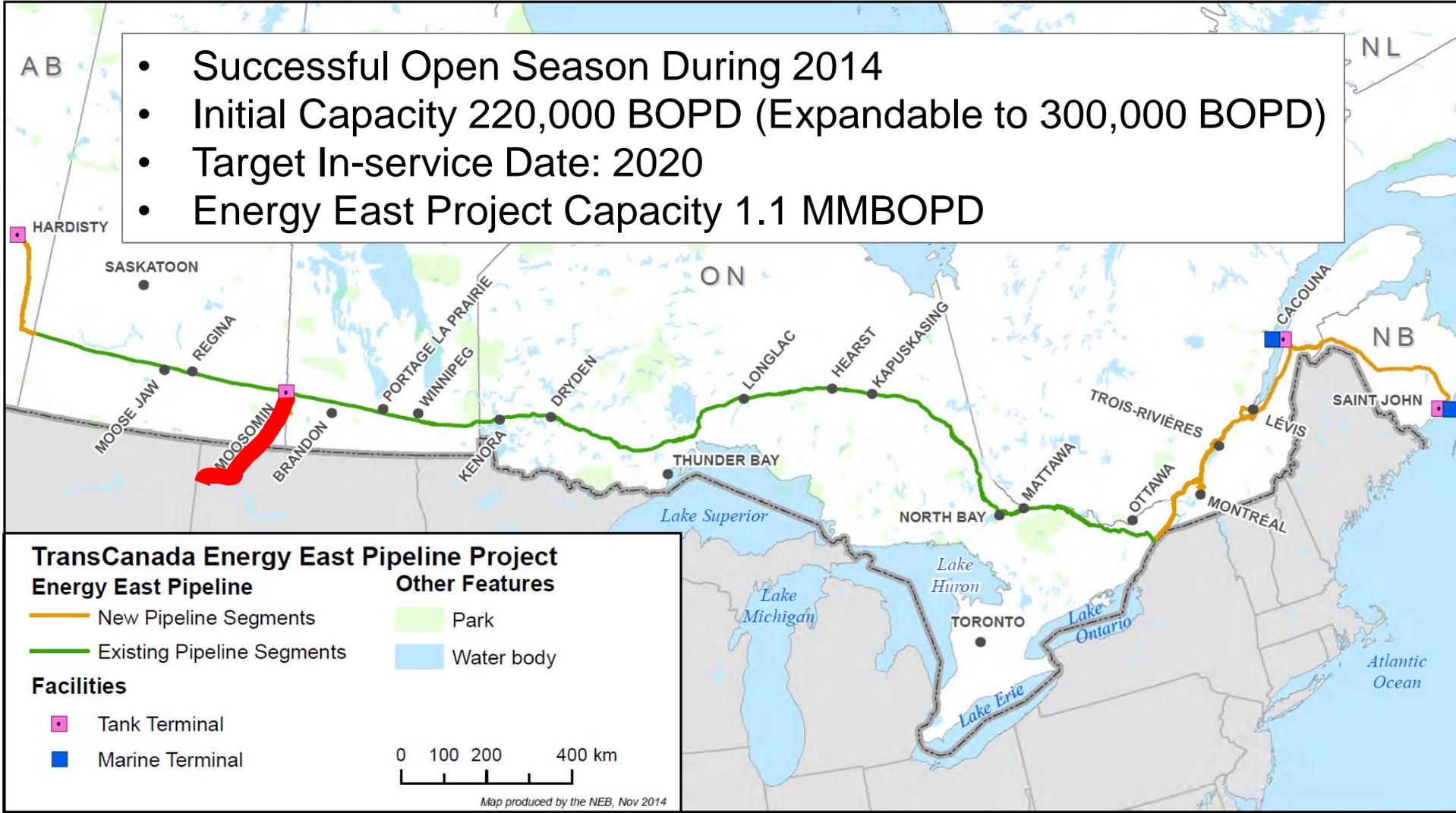
North Dakota Pipeline Company LLC - formerly known as Enbridge Pipelines (North Dakota) LLC

- Open Season Dates: November 26, 2013 – January 24, 2014
- 225,000 BOPD ND Capacity to Clearbrook, MN (24")
- 375,000 BOPD Clearbrook, MN to Superior, WI (30")
- Target In-service Date: 2017



# TransCanada: Upland Pipeline

- Successful Open Season During 2014
- Initial Capacity 220,000 BOPD (Expandable to 300,000 BOPD)
- Target In-service Date: 2020
- Energy East Project Capacity 1.1 MMBOPD



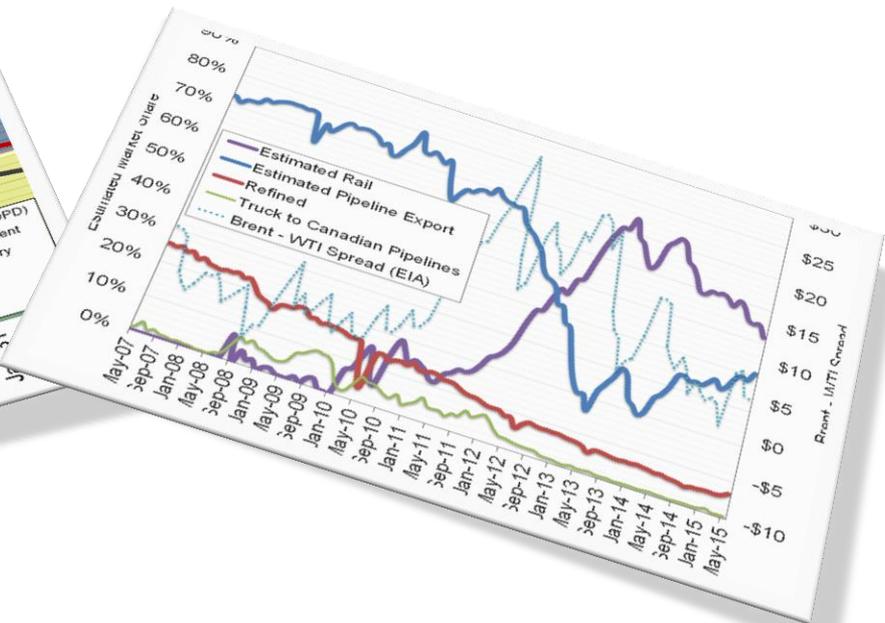
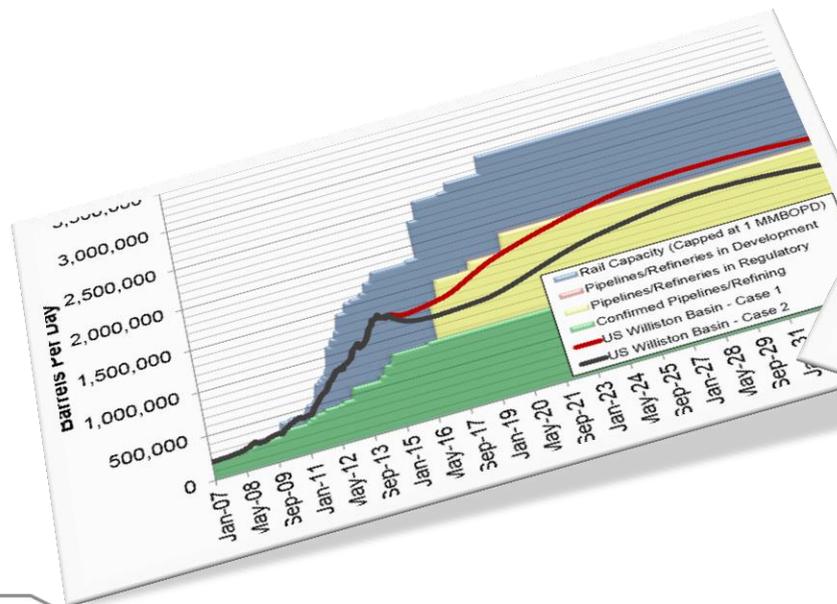
Map: NEB – NDPA Upland Addition



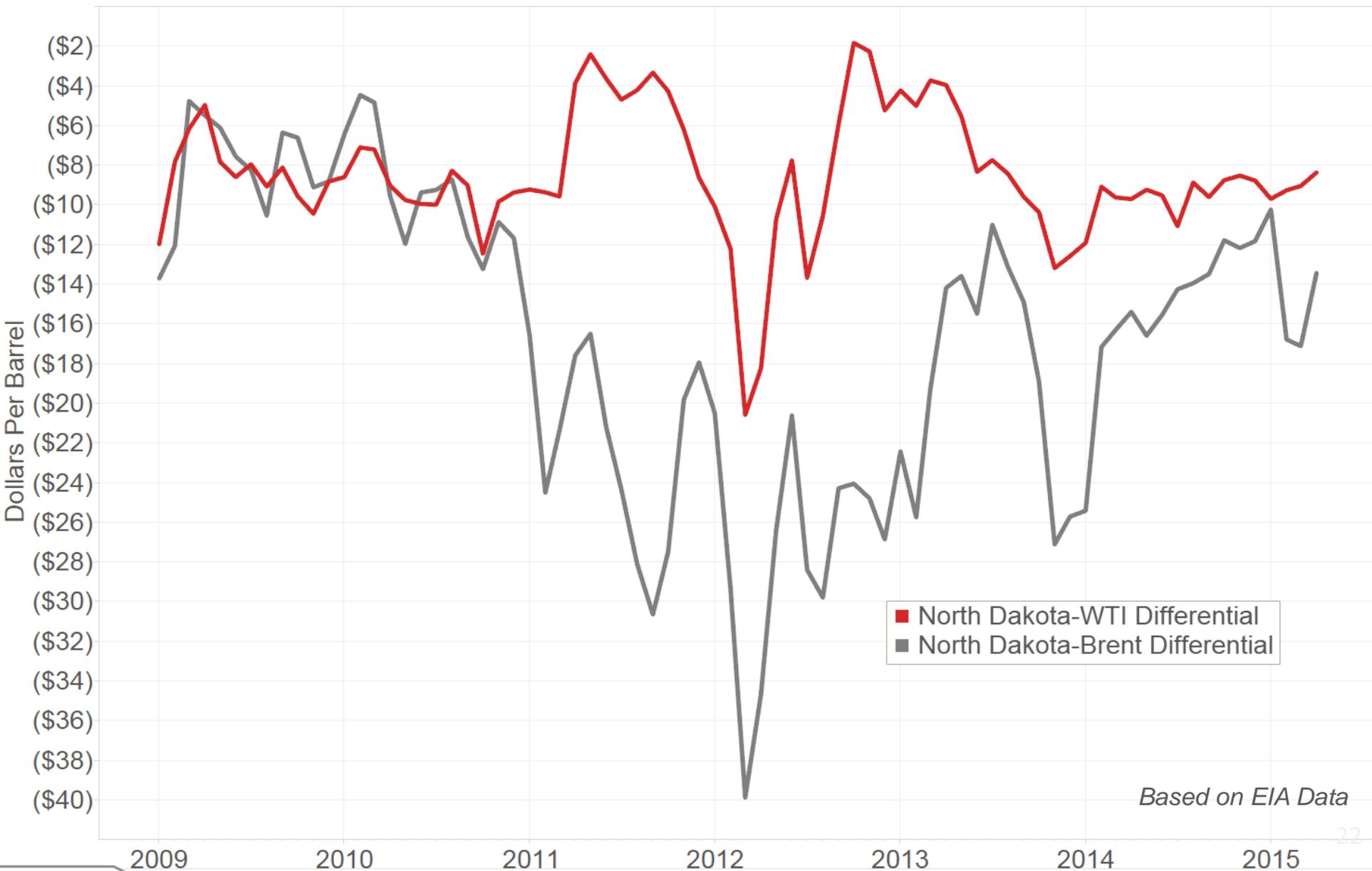
# Forecasting Future Market Share is Difficult

Predicting how future oil production will move with any degree of confidence is difficult/impossible due to:

- Future oil production uncertainty
- Shifting market conditions
- Project commitments are unknown (pipe & rail)
- Regulatory uncertainty (pipe, rail, exports, etc)



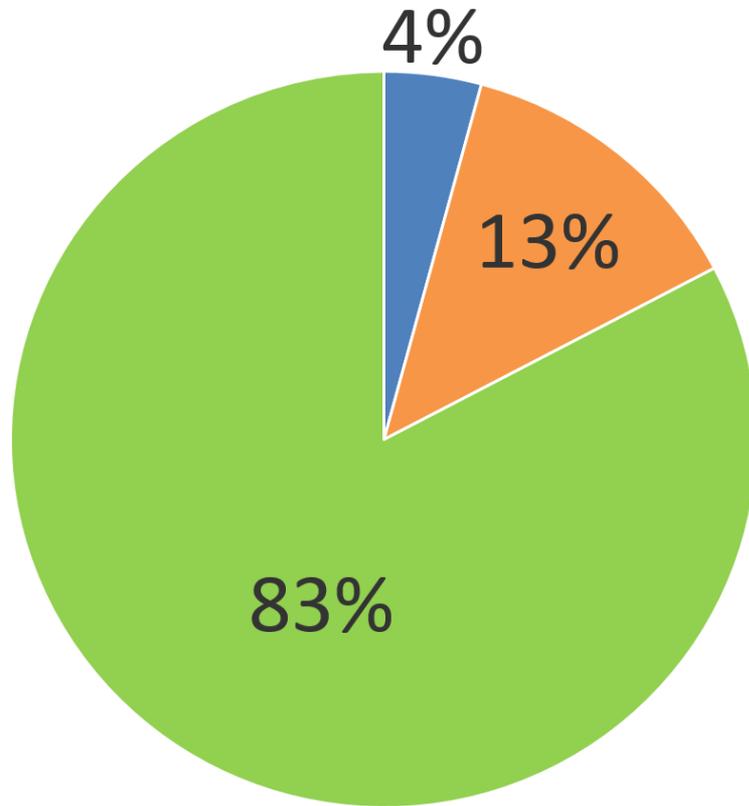
# North Dakota Oil Differential



Based on EIA Data



# Solving the Flaring Challenge



Statewide

**GREEN** – % of gas captured and sold  
**Blue** – % flared from zero sales wells  
**Orange** – % flared from wells with at least one mcf sold.

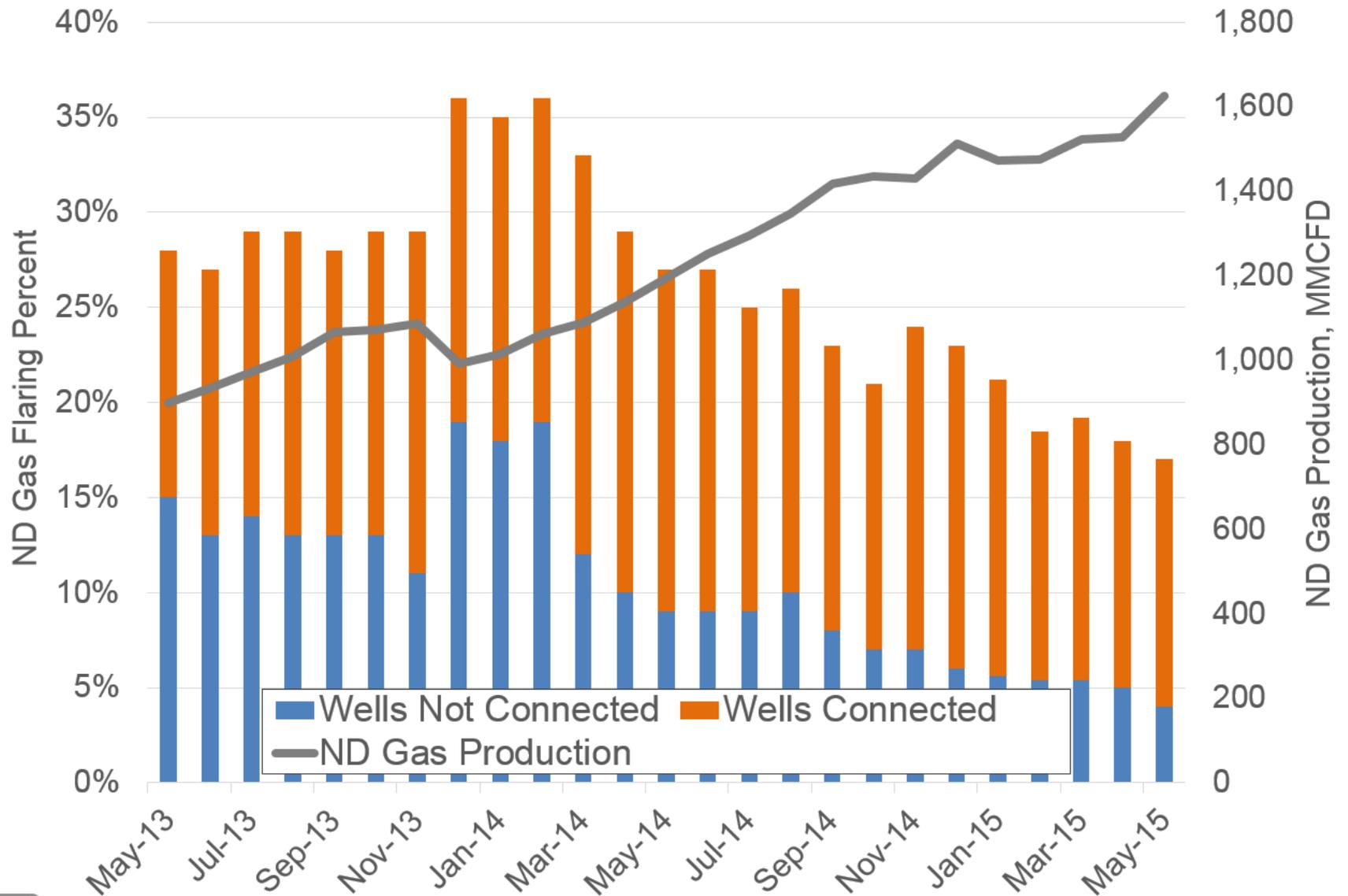
## Simple Terms

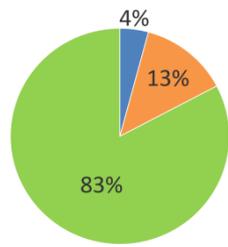
**Blue** – Lack of pipelines  
**Orange** – Challenges on existing infrastructure

May 2015 Data – Non-Confidential Wells

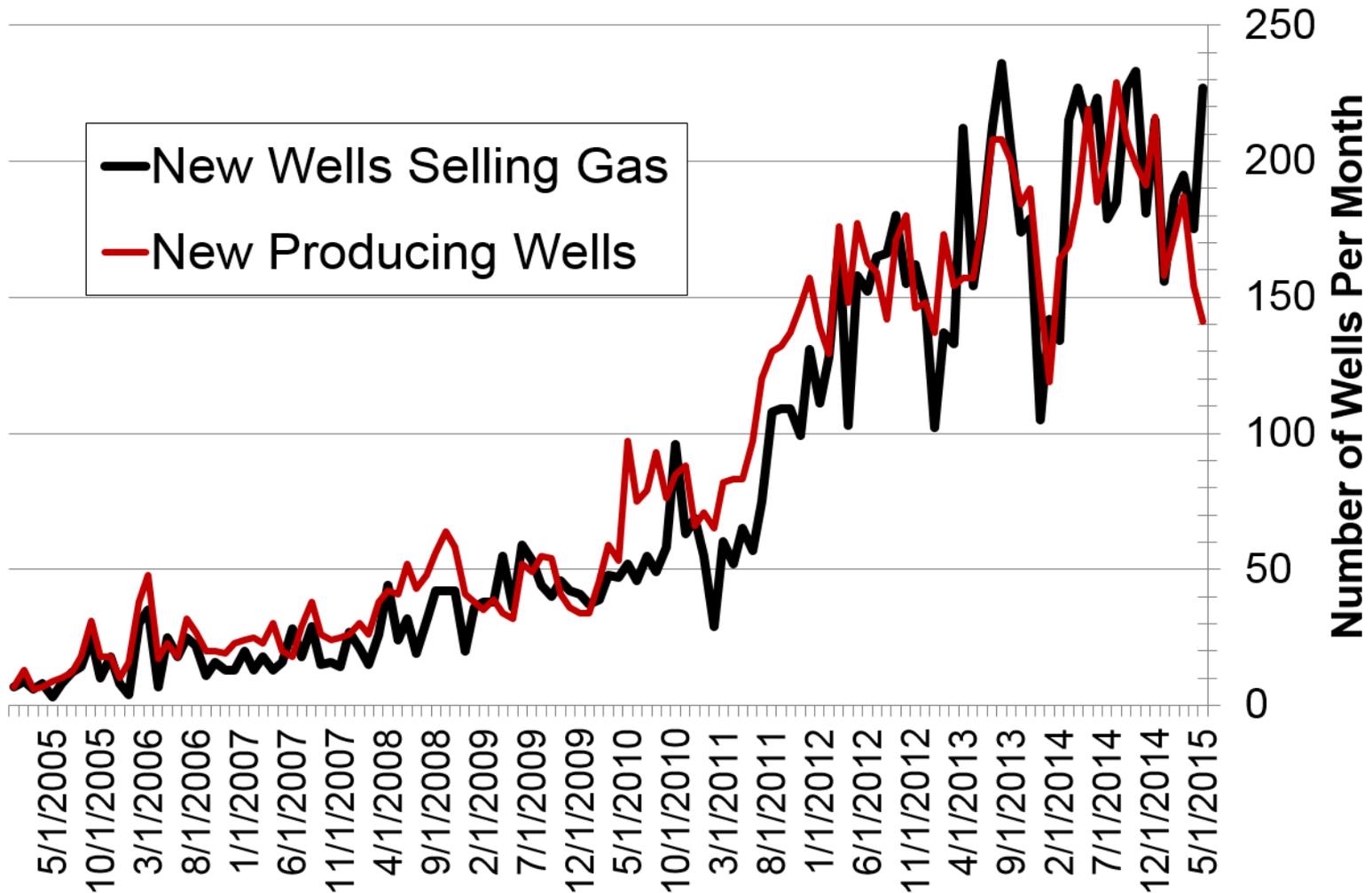


# Solving the Flaring Challenge

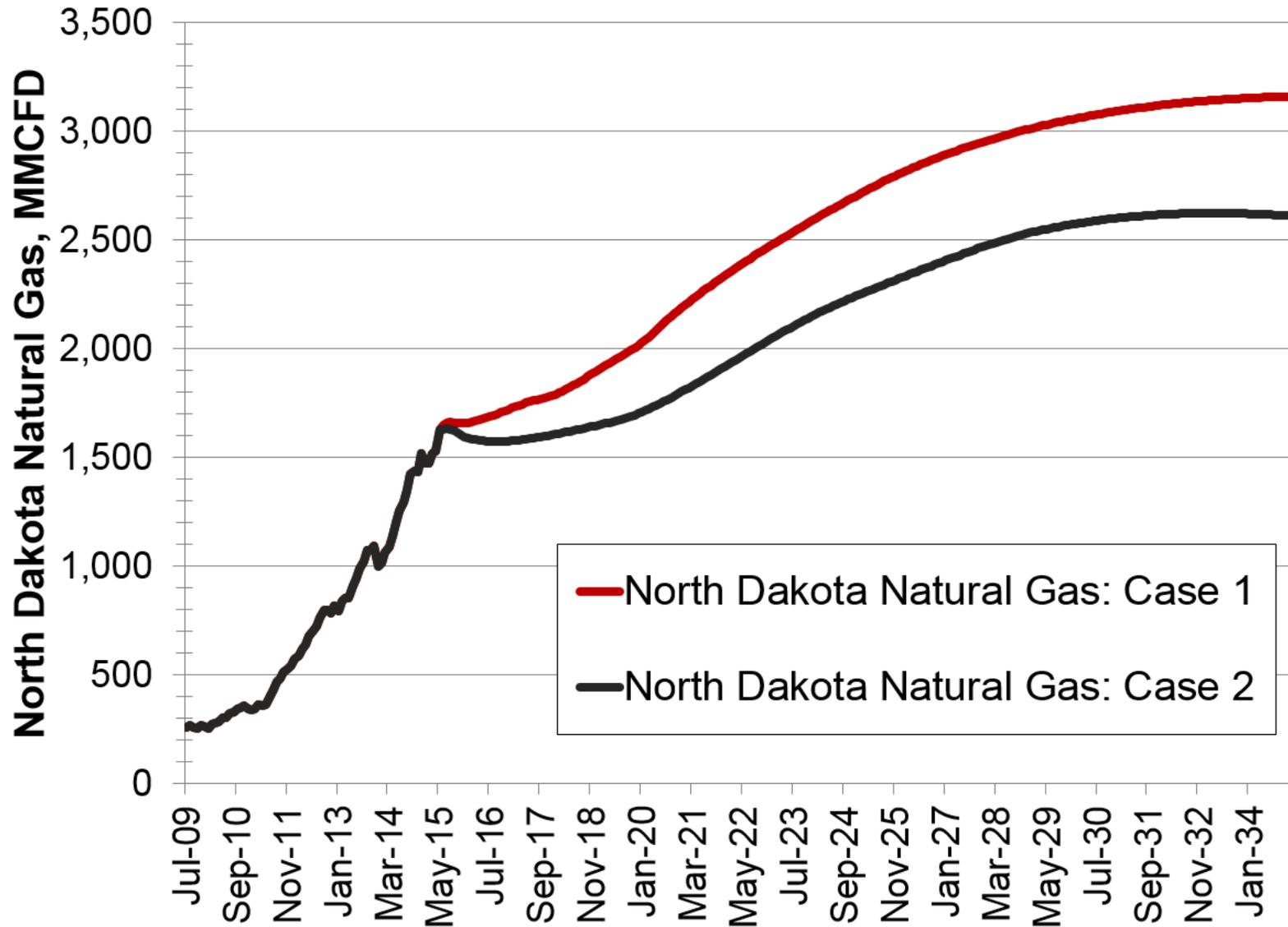




# Capturing the 4% Faster Well Connections



# North Dakota Natural Gas Forecast, MMCFD



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

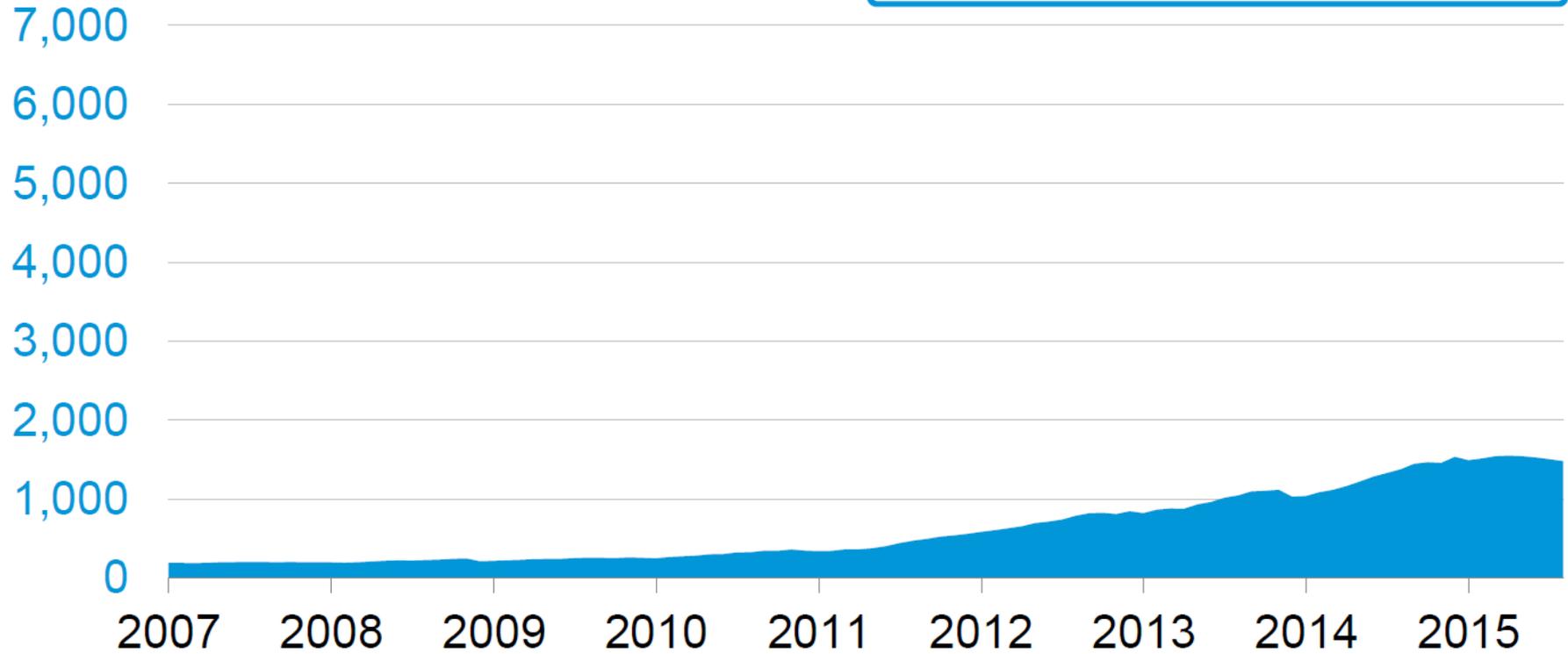


# EIA Short Term Production Forecast Through August 2015 (July 2015 Report)

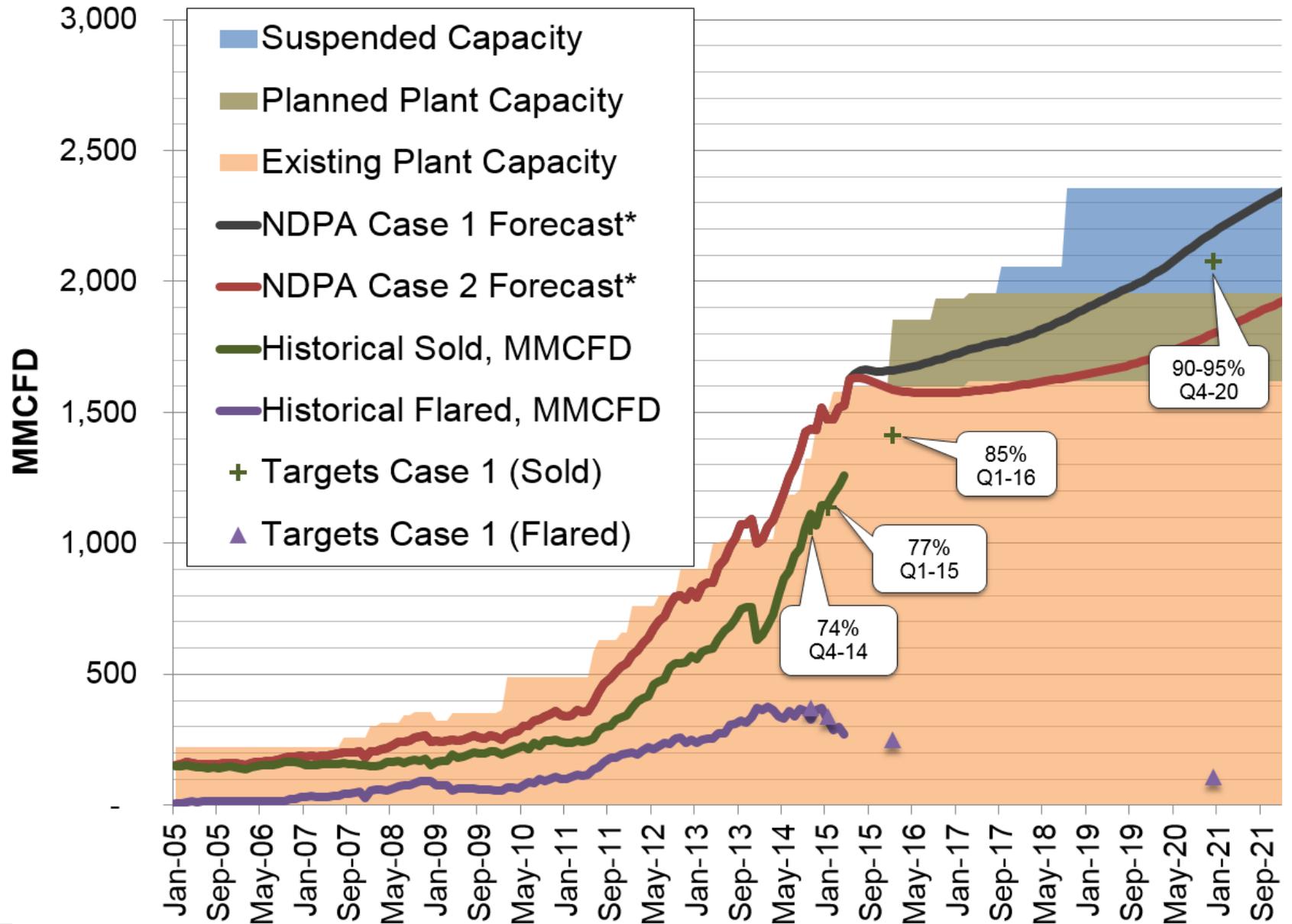
Bakken Region  
**Natural gas production**

million cubic feet/day

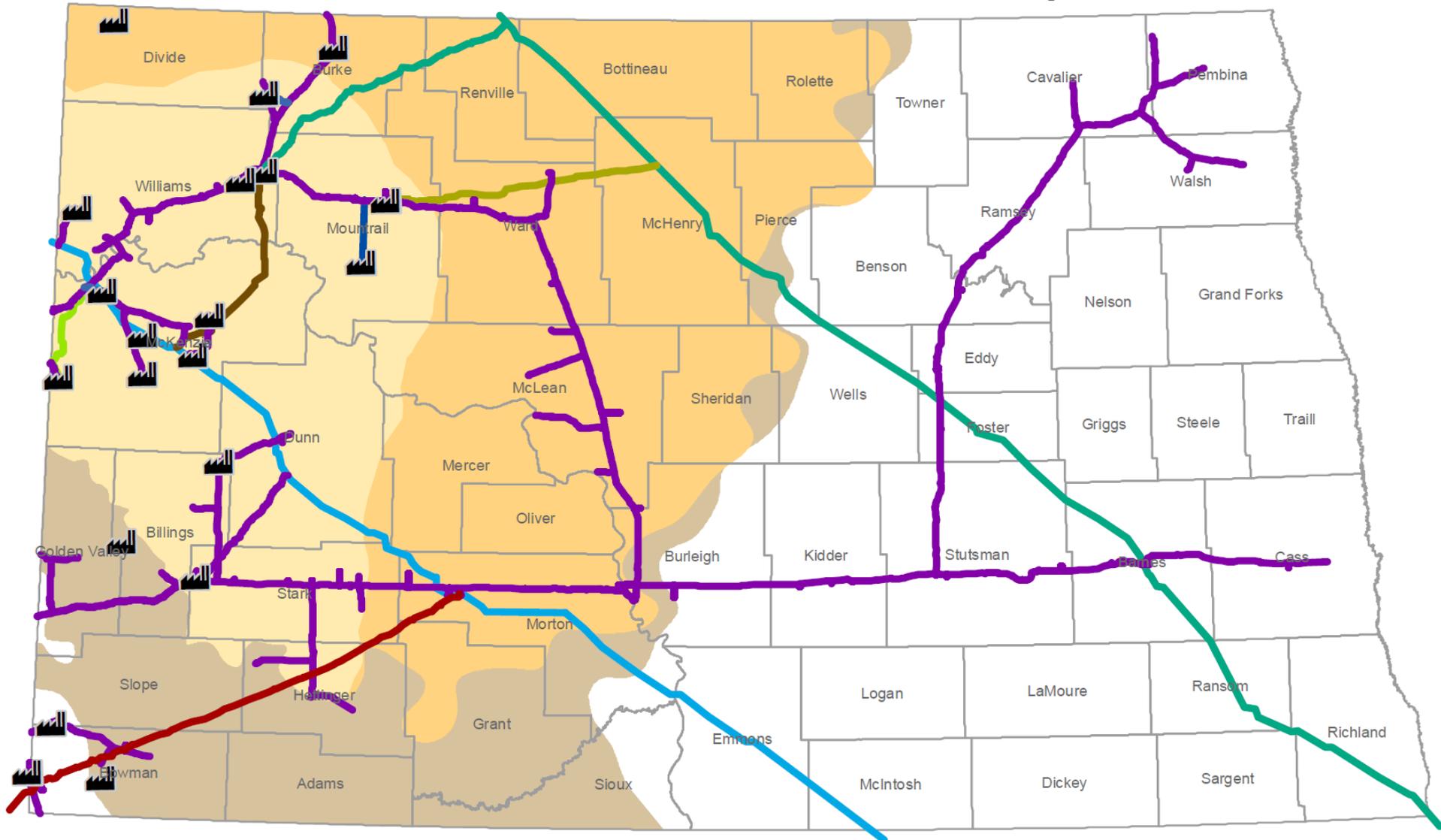
**Gas -24**  
million cubic feet/day  
month over month



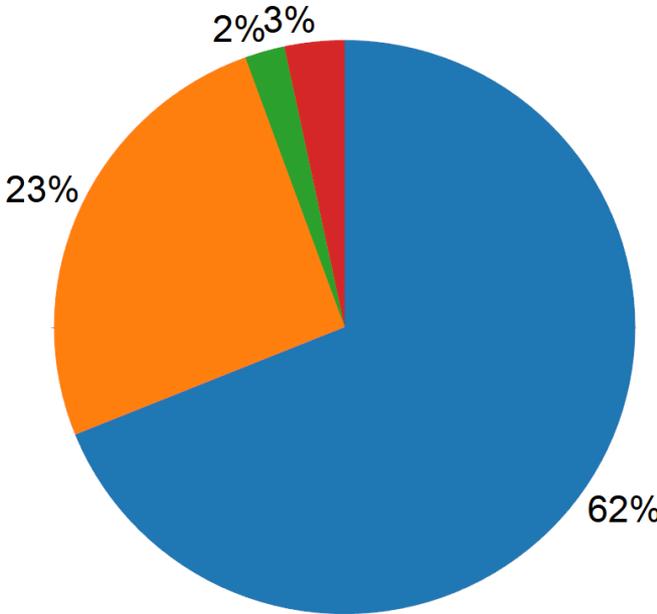
# Solving the Flaring Challenge



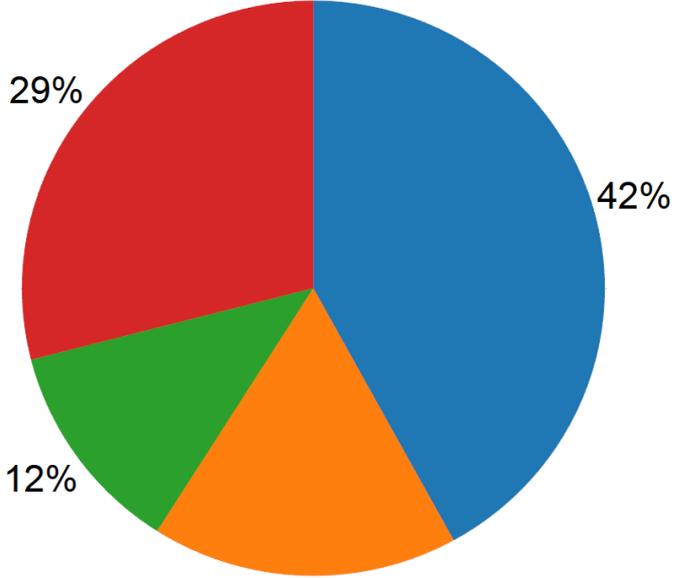
# ND Natural Gas Transmission



# Northern Border Gas Supply



2003



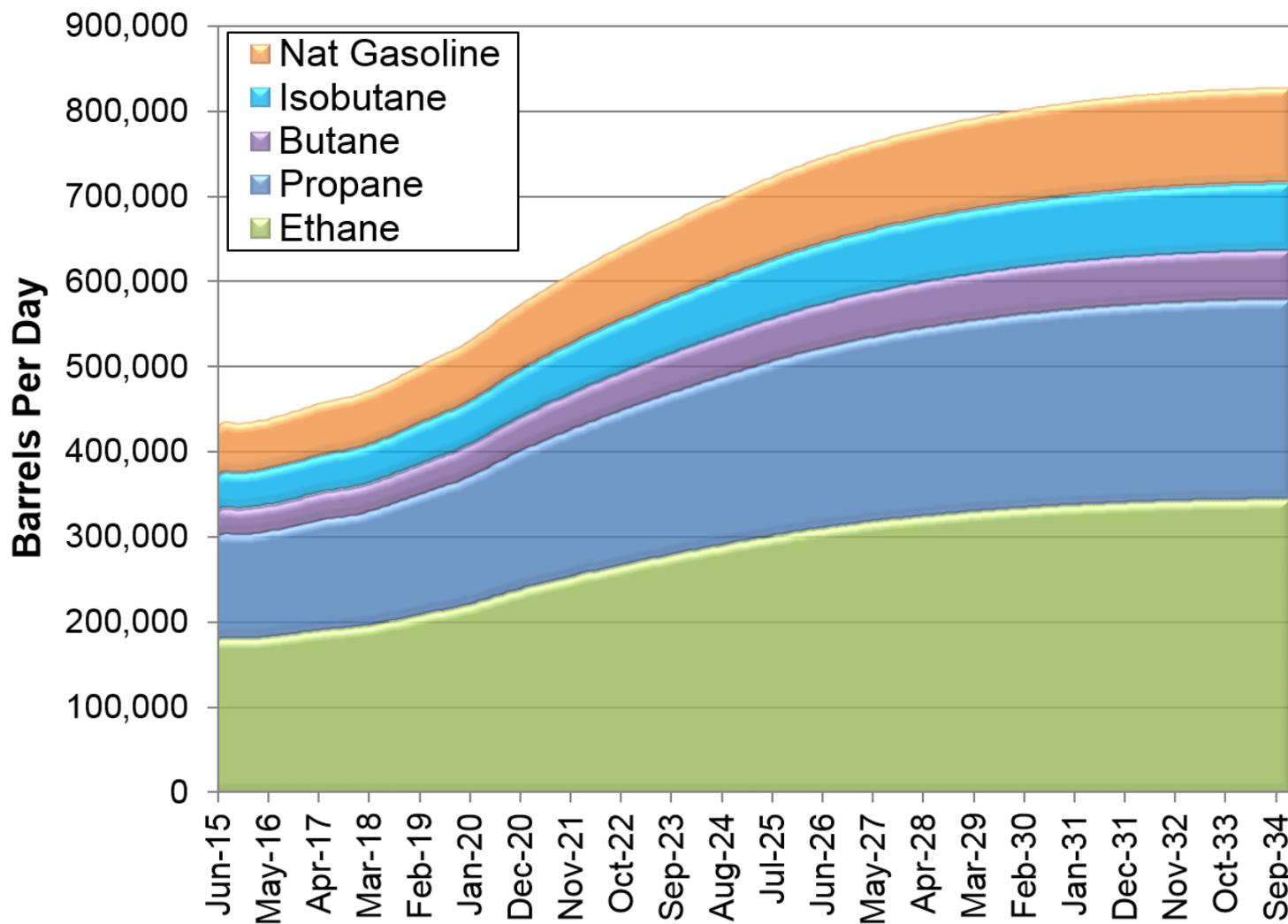
2015

- Source**
- Canada
  - Other
  - Rockies
  - Williston Basin



# North Dakota NGL Production Forecast, BPD

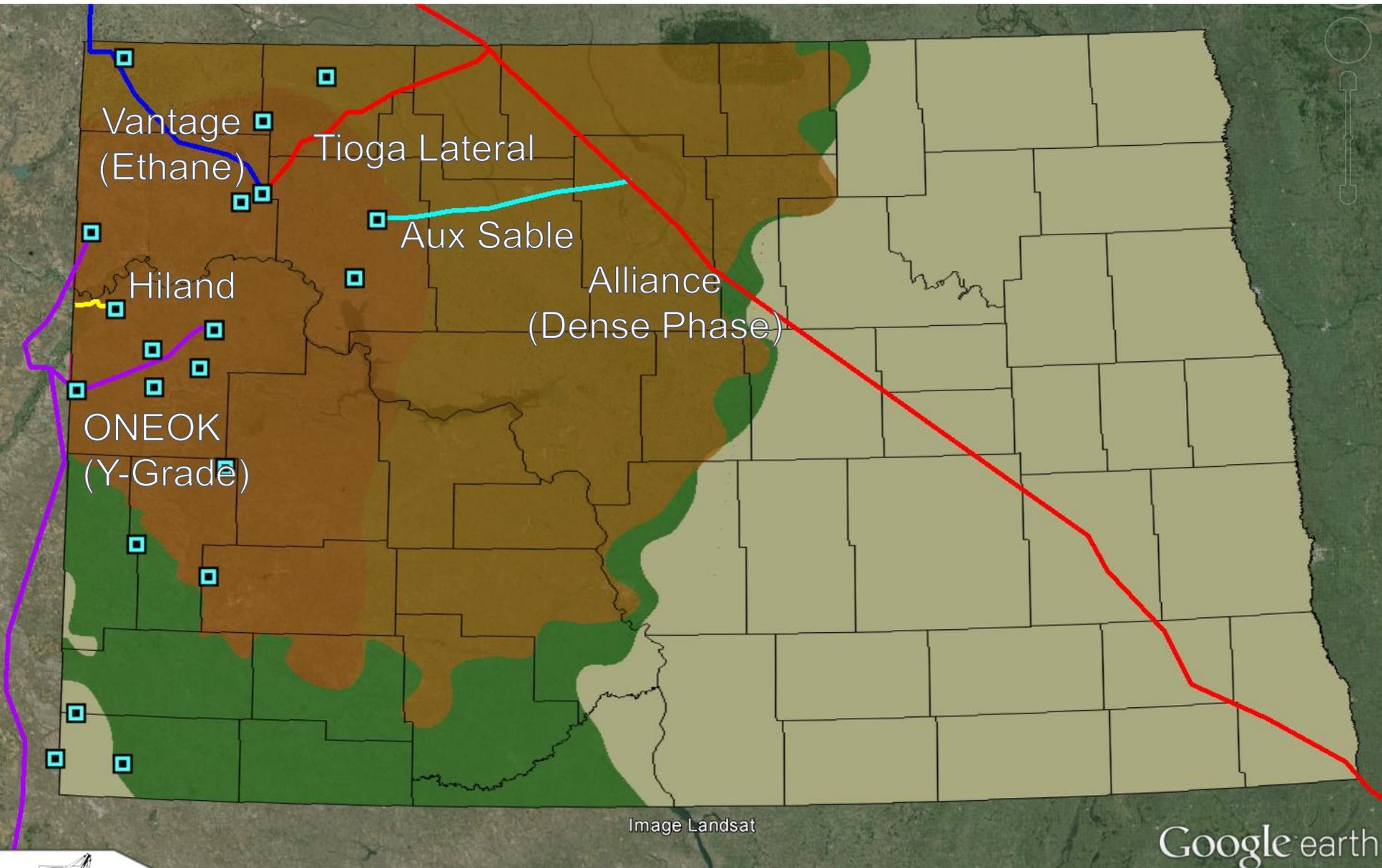
Assumes 11 gpm and Case 1 Natural Gas Production



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



# NGL Pipeline Transportation



# Contact Information

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[www.northdakotapipelines.com](http://www.northdakotapipelines.com)



Know what's below.  
**Call before you dig.**

