

# North Dakota Midstream Update



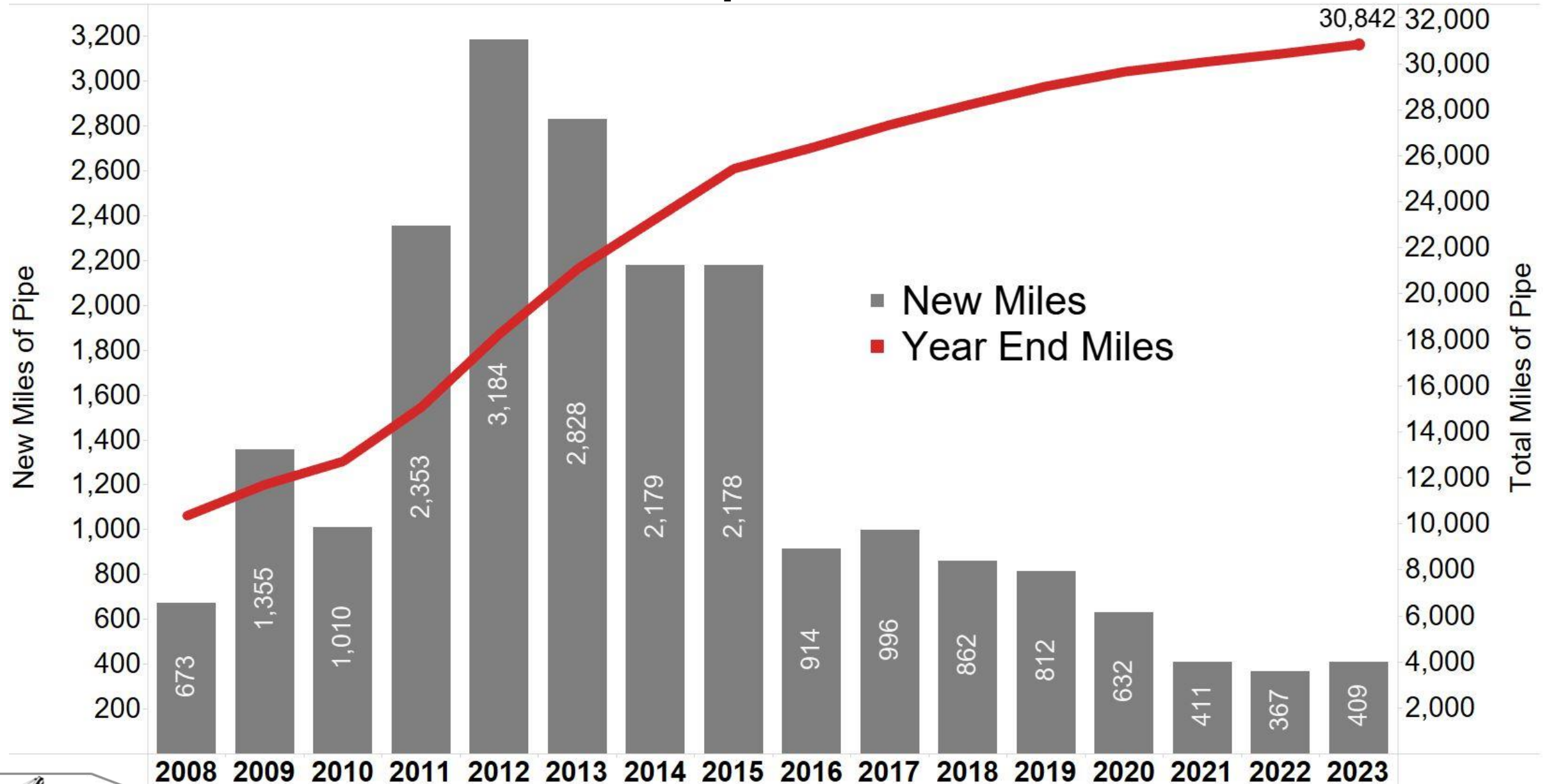
Image: Library of Congress

June 19, 2025

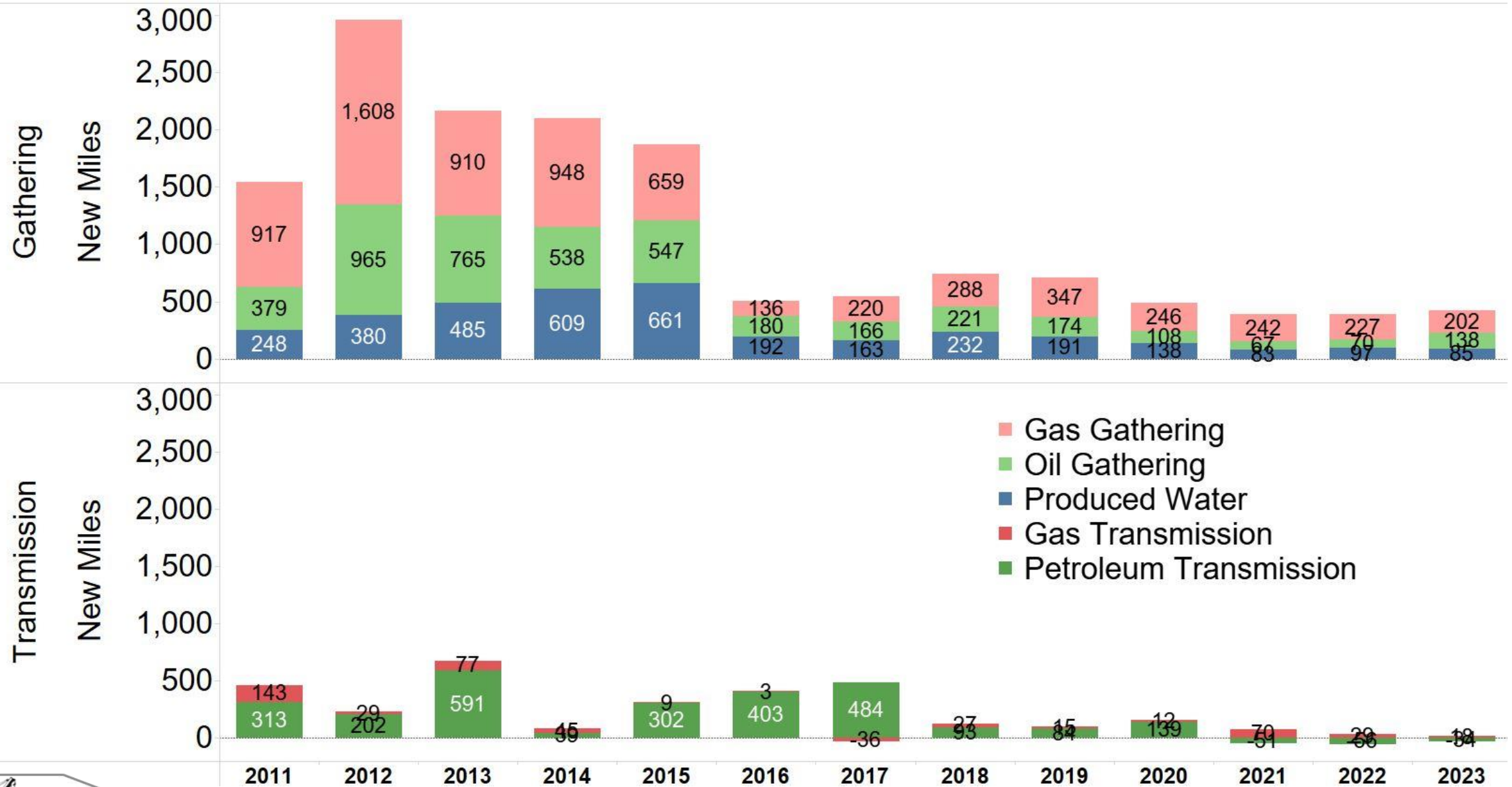


Justin J. Kringstad - North Dakota Pipeline Authority

# North Dakota Pipeline Construction

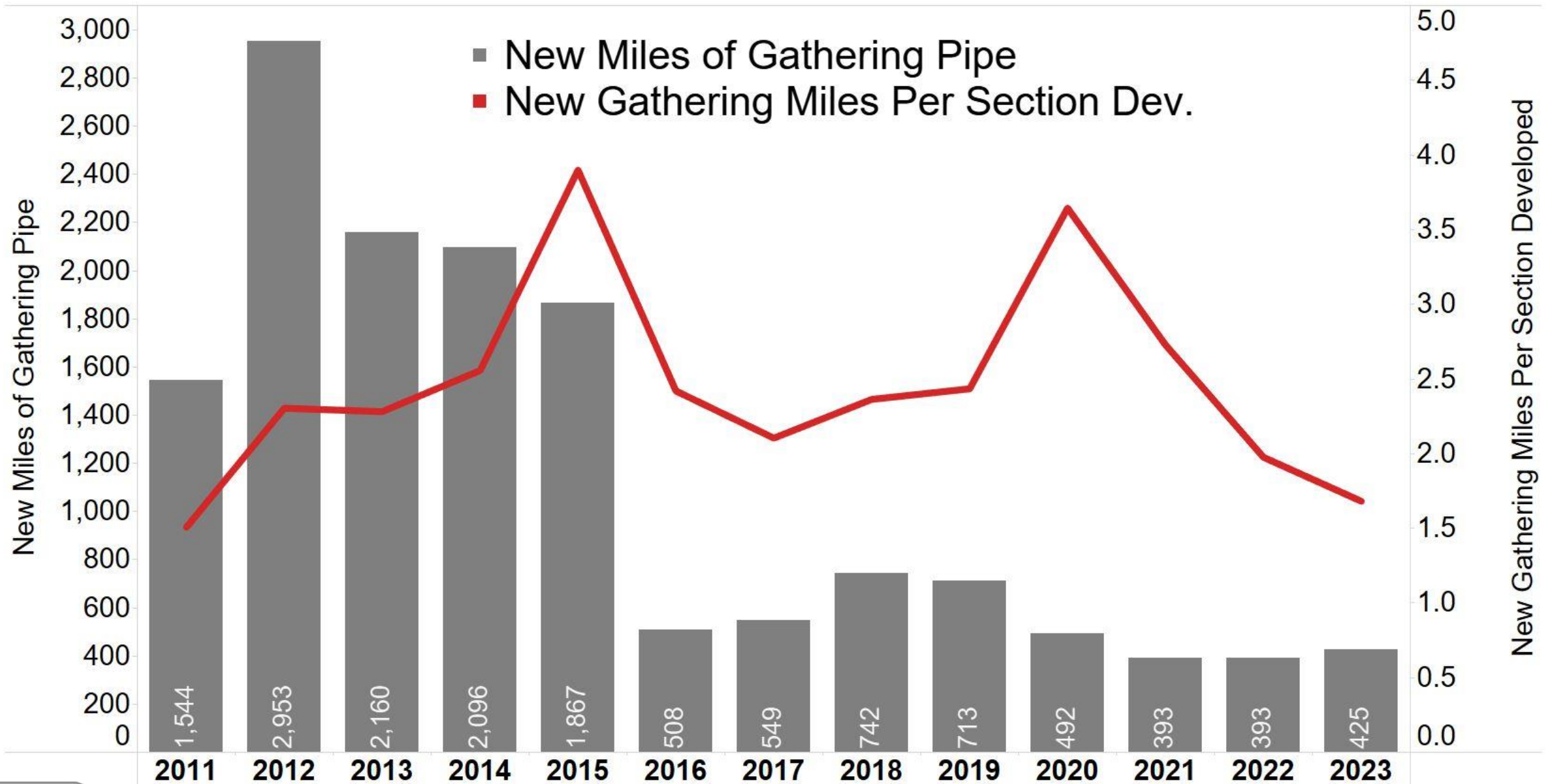


# North Dakota Pipeline Construction



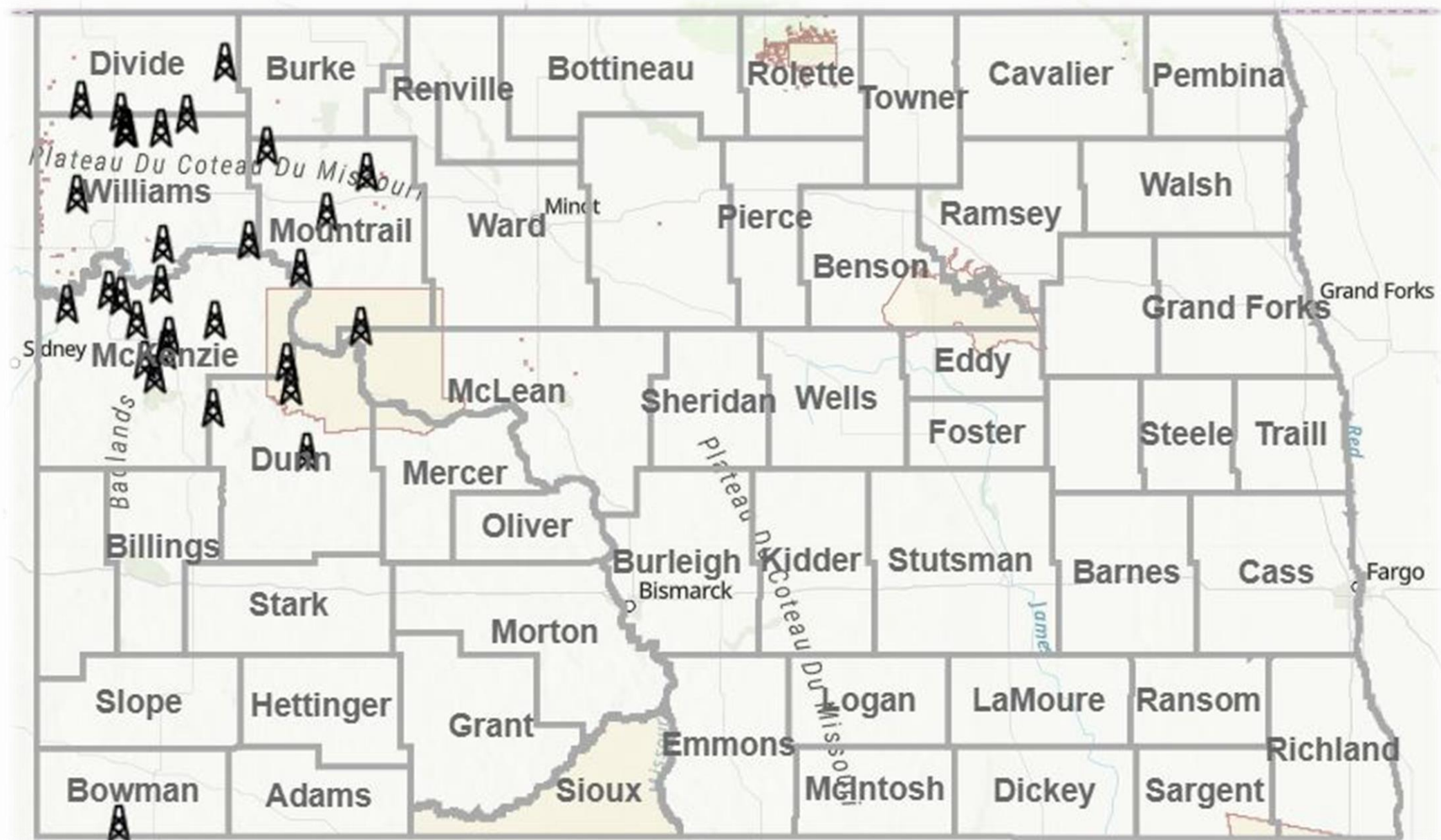


# North Dakota Pipeline Construction

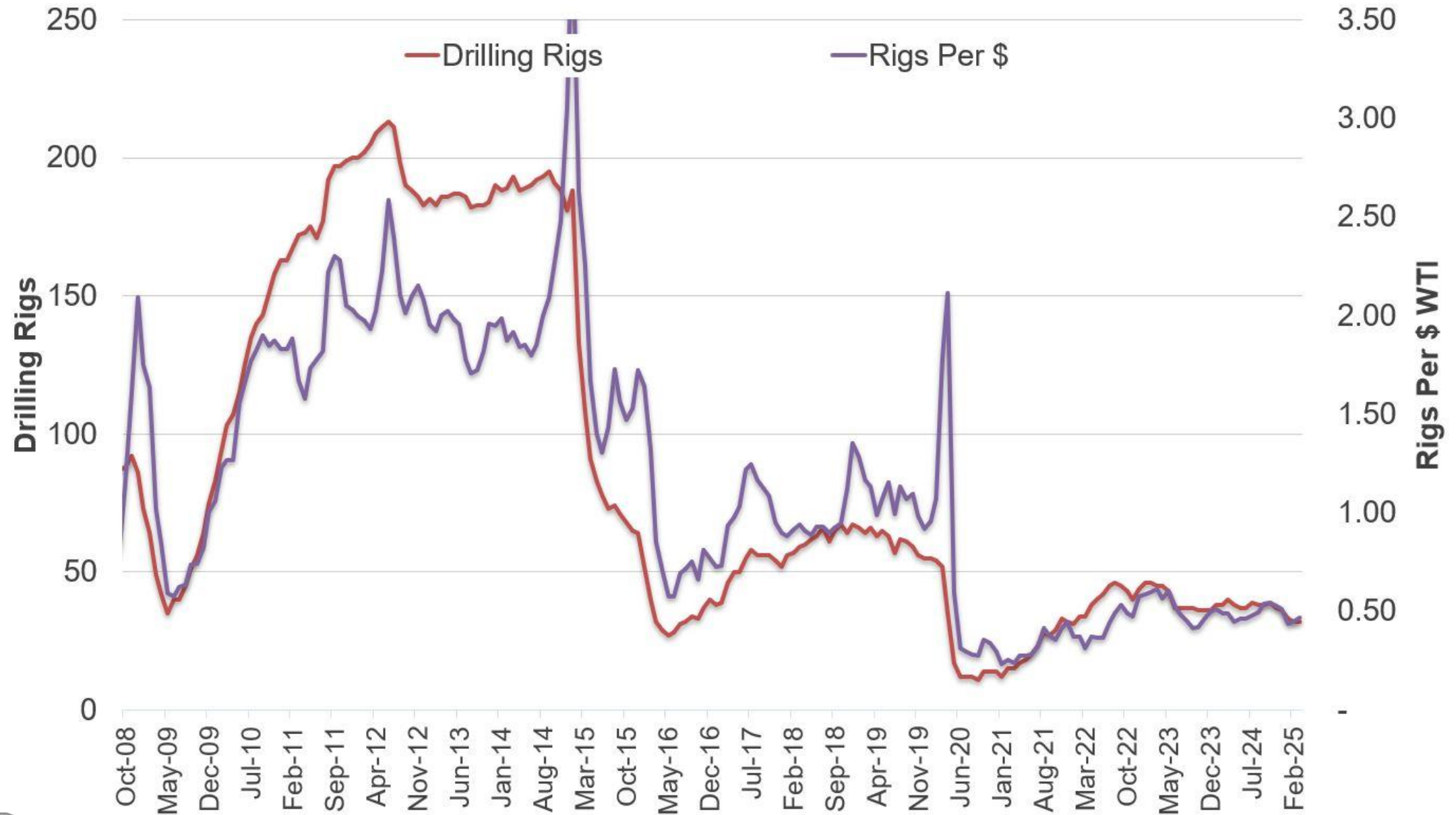




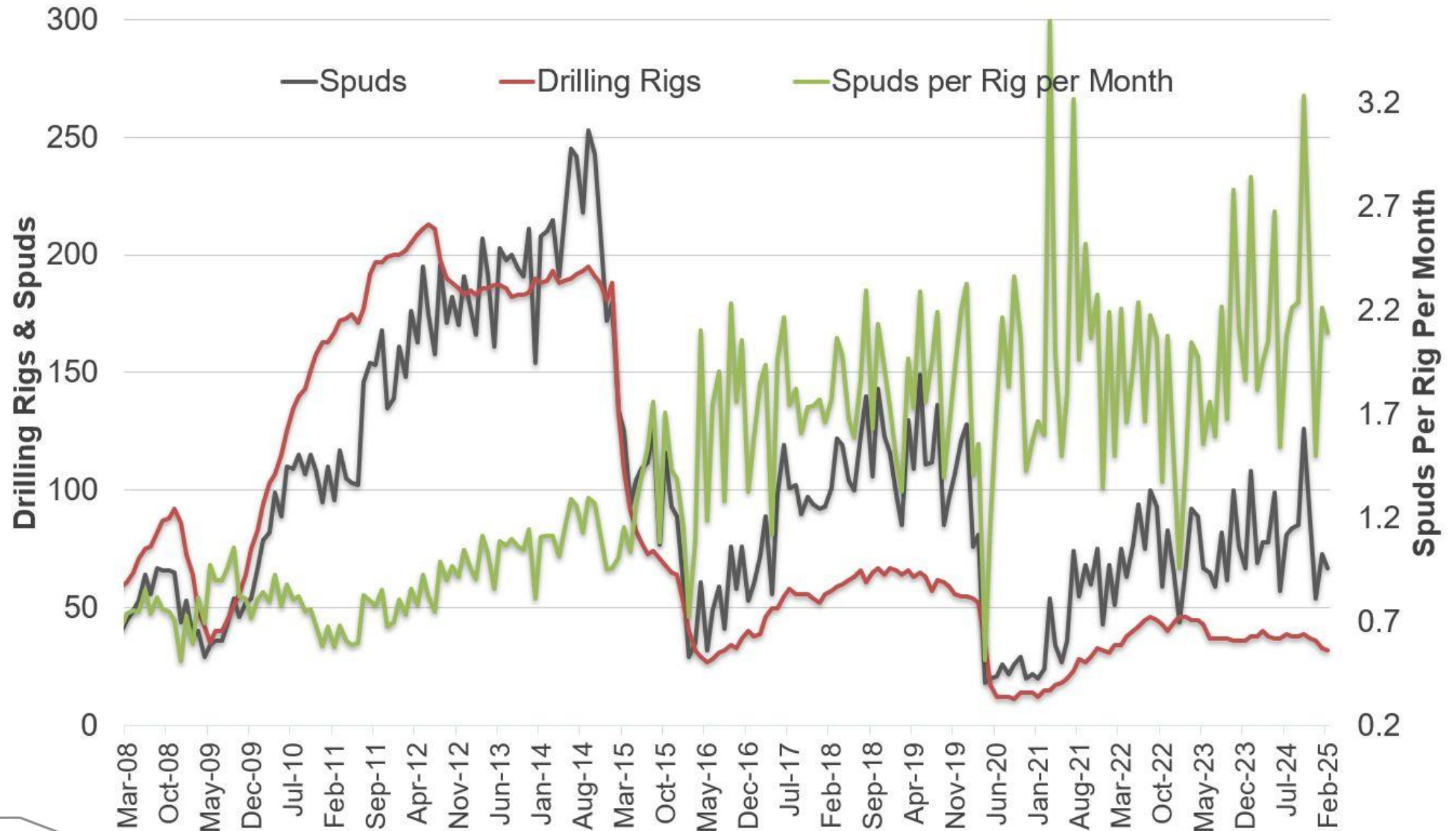
# North Dakota Drilling Rigs: 32 (June 5, 2025)



# North Dakota Drilling Rig Relationship With Oil Price



# North Dakota Drilling Rig Efficiency

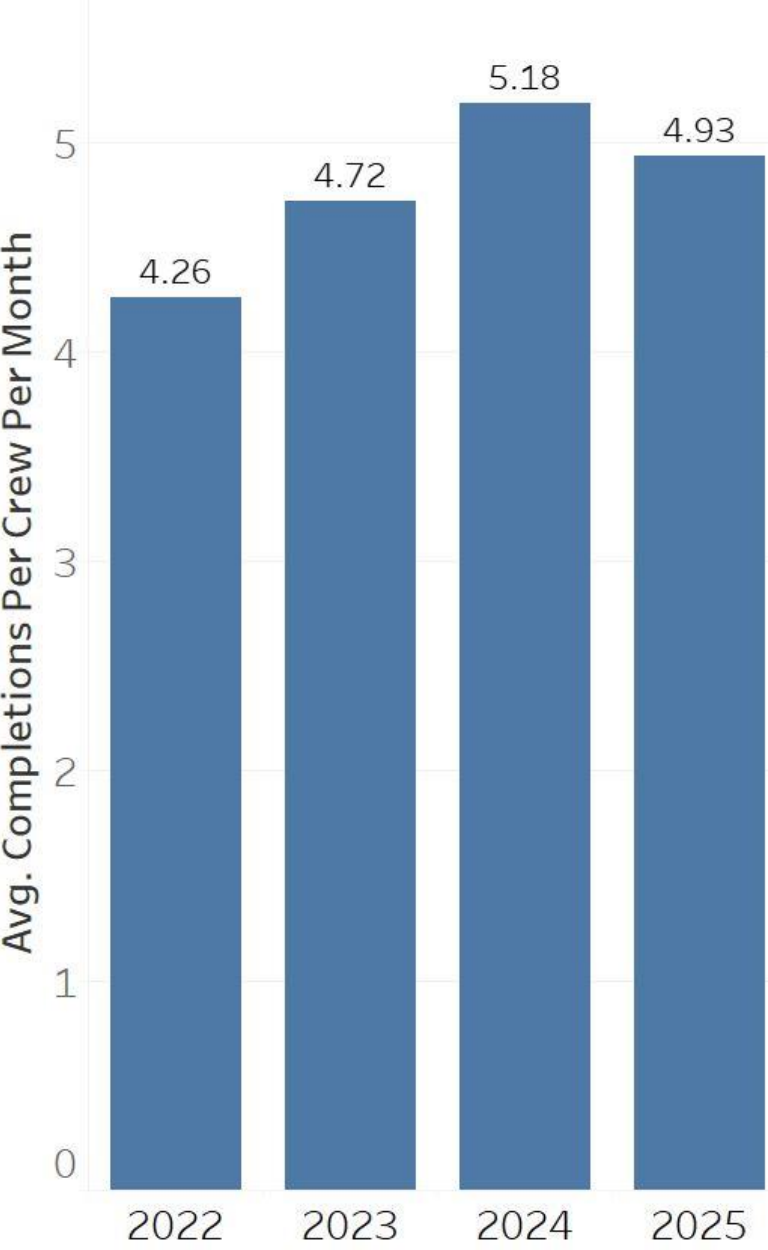
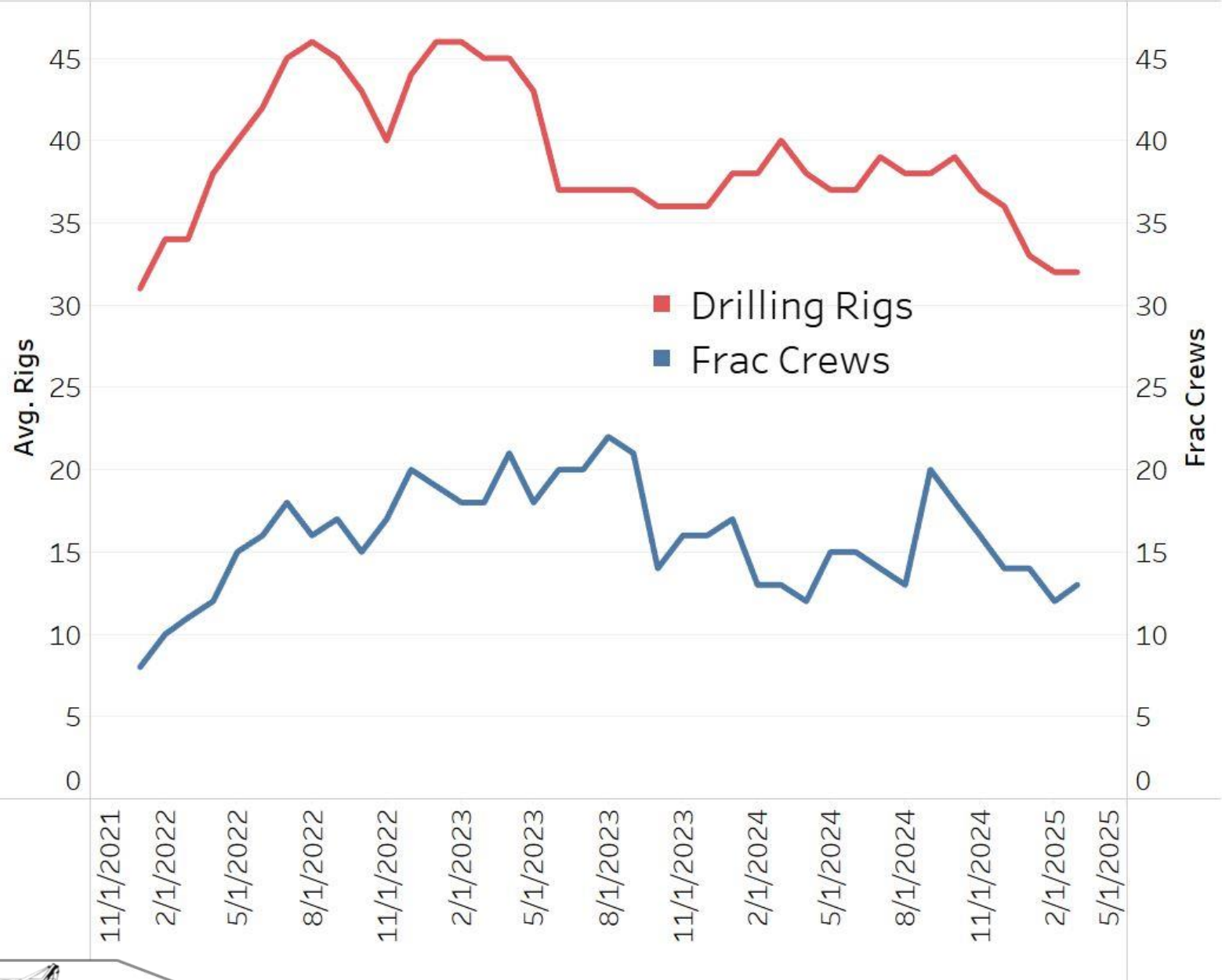




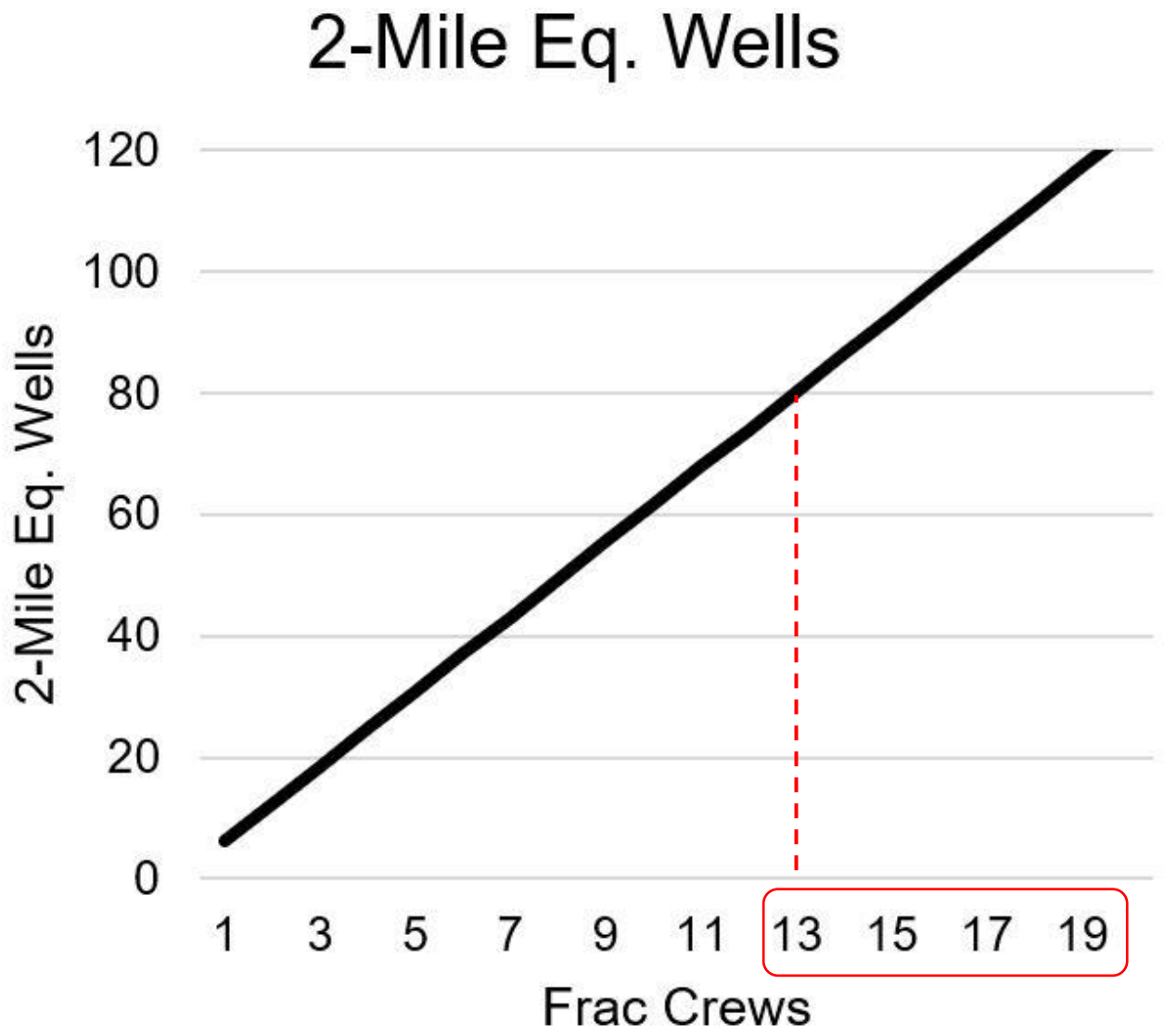
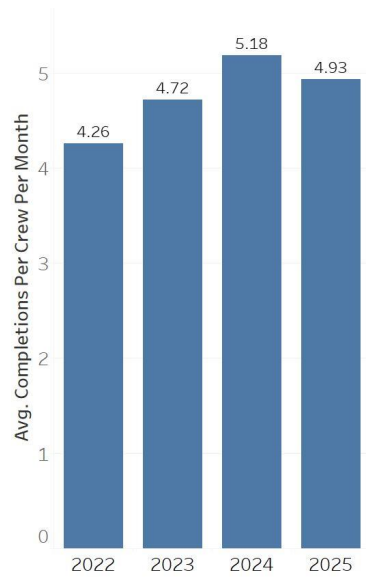
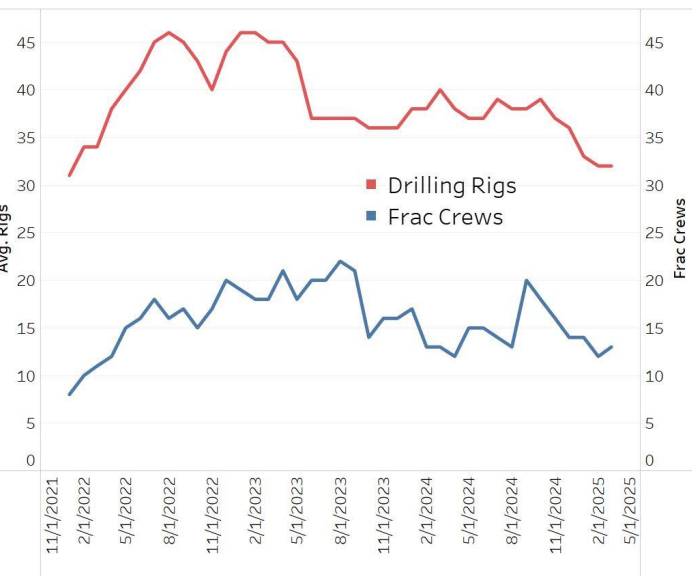
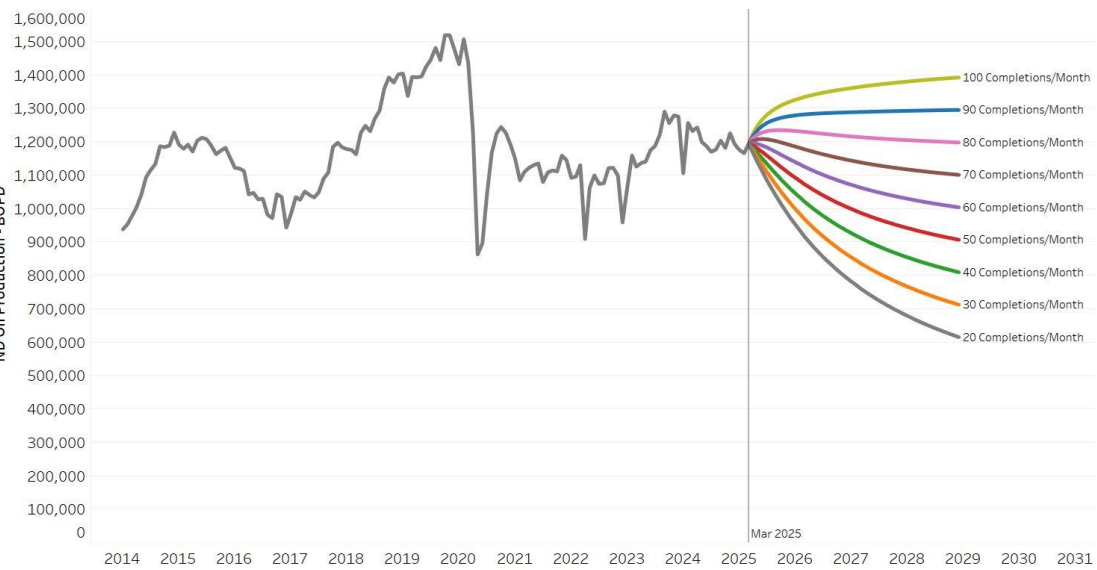
# Monthly Completion\* Scenarios - Oil



# North Dakota Frac Crew Efficiency

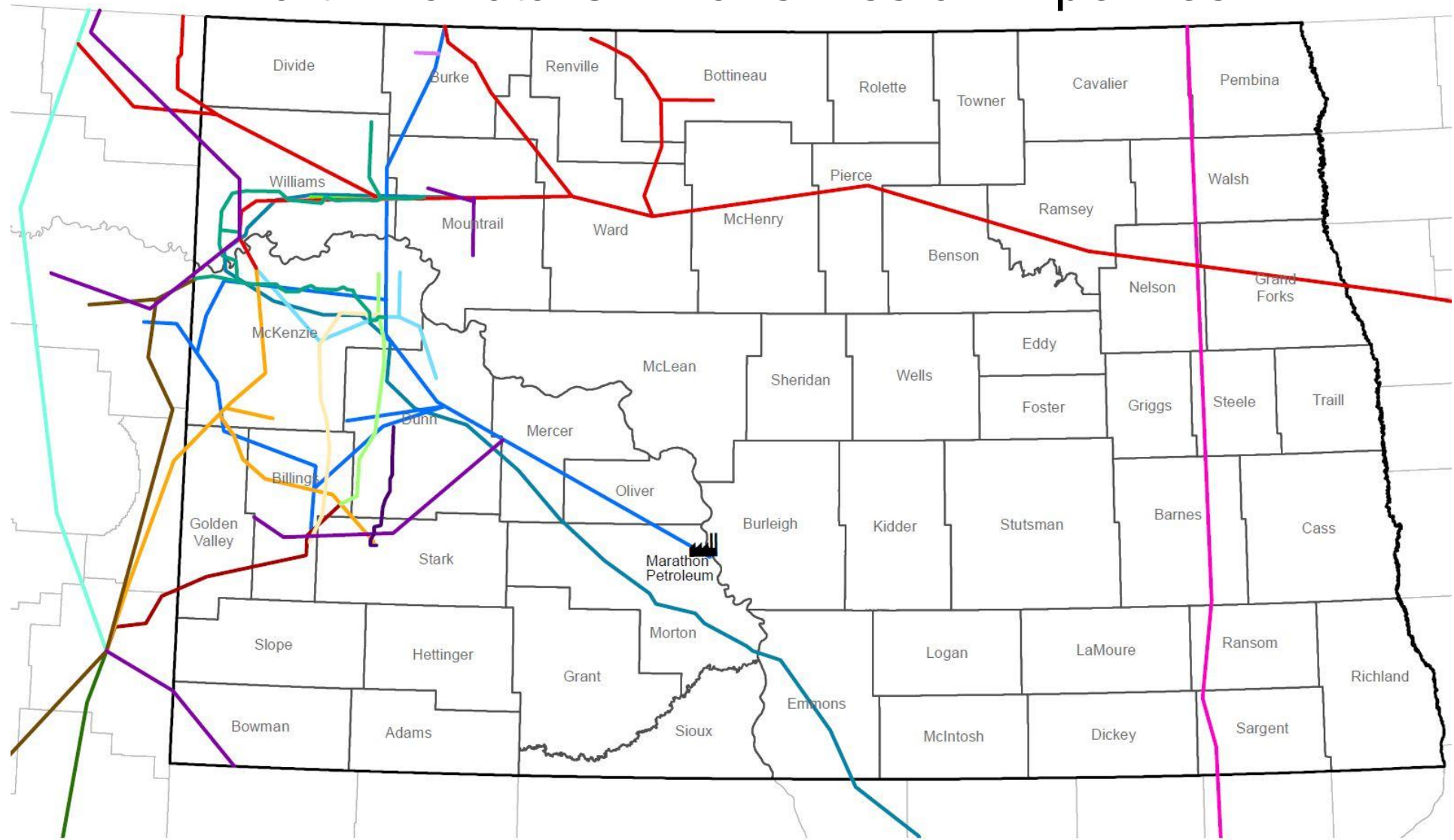


# What is the Optimal Frac Crew Count? (Assuming 30% 3-Mile & 5% 4-Mile)





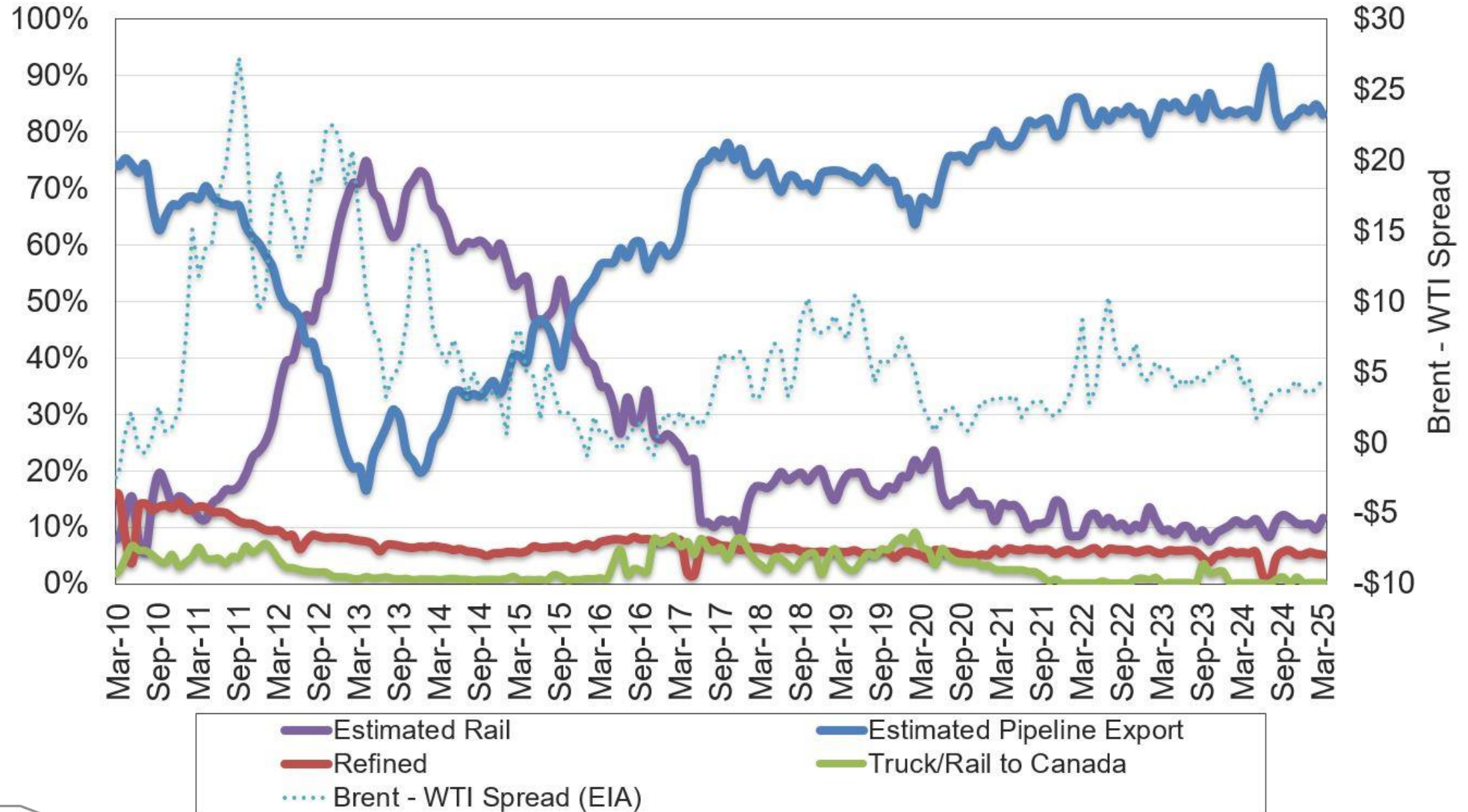
# North Dakota Oil Transmission Pipelines



- |                    |                 |               |            |                   |          |
|--------------------|-----------------|---------------|------------|-------------------|----------|
| Refinery           | Basin Transload | Butte         | Double H   | Hiland            | Bridger  |
| Bakken Oil Express | Belle Fourche   | Crestwood     | Enbridge   | Keystone Pipeline | Targa    |
| BakkenLink         | Bridger         | Dakota Access | Four Bears | Little Missouri   | Marathon |

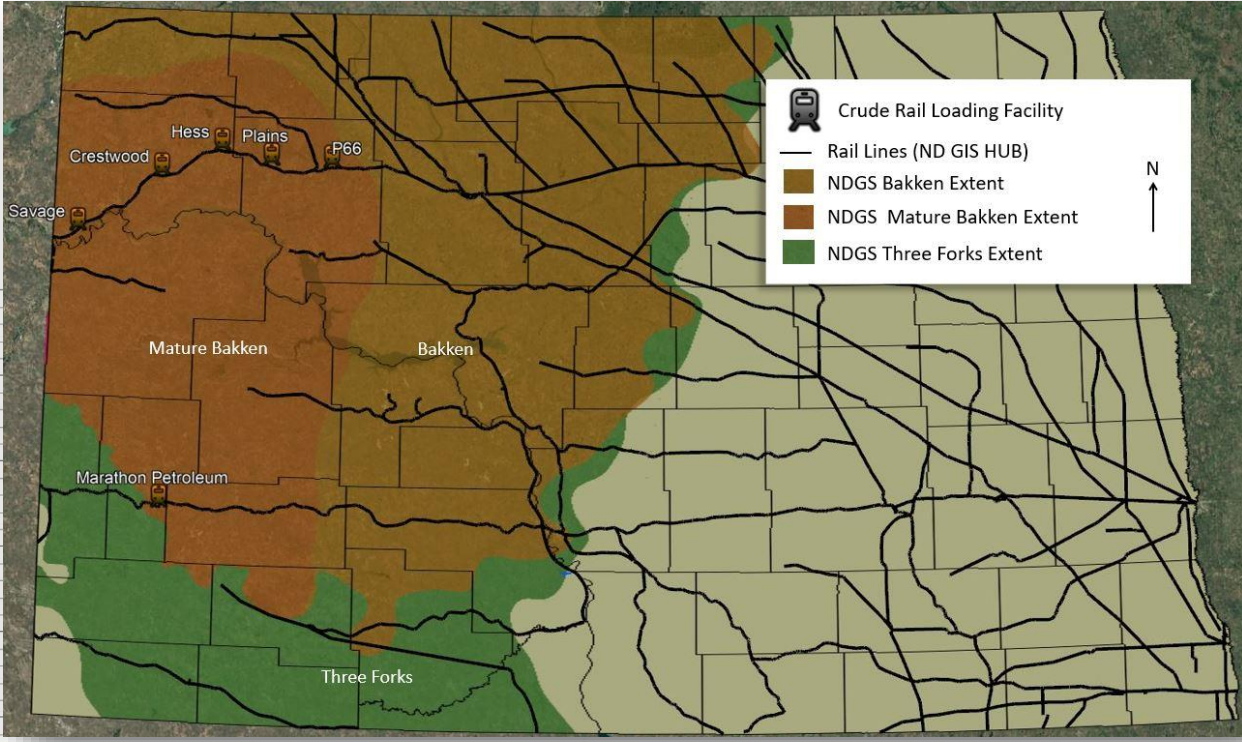
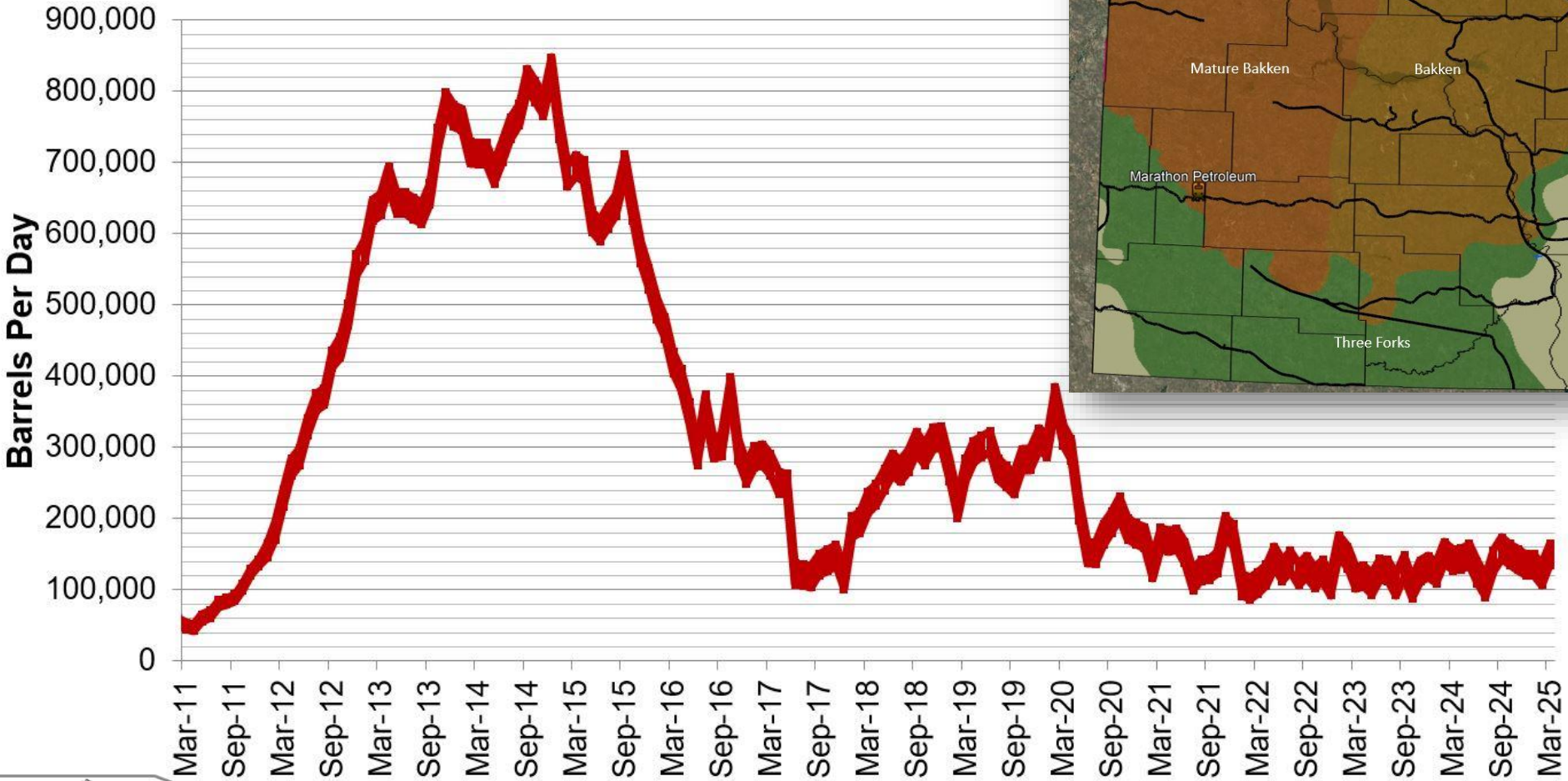


# Estimated Williston Basin Oil Transportation



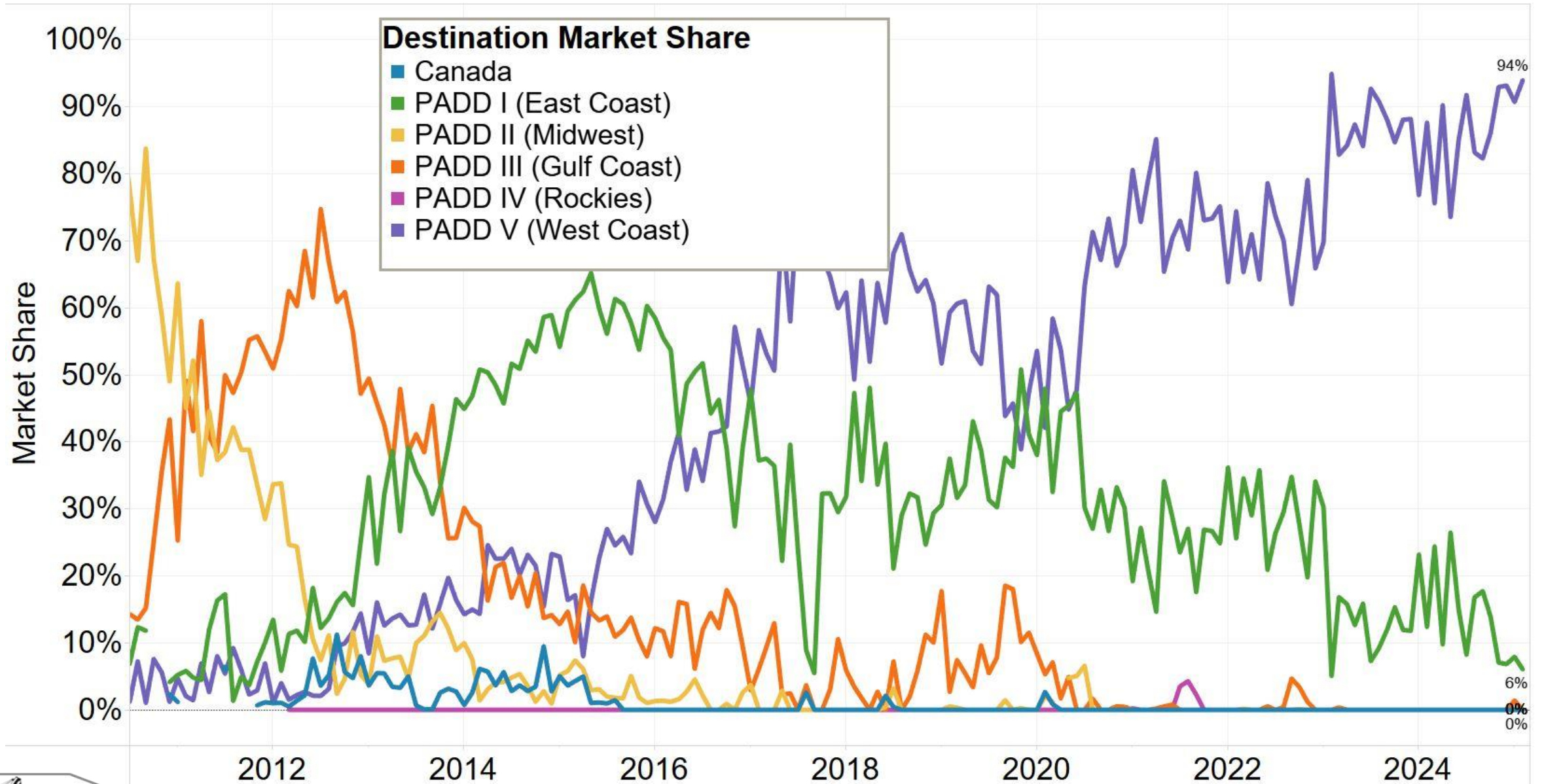


# Estimated ND Rail Export Volumes

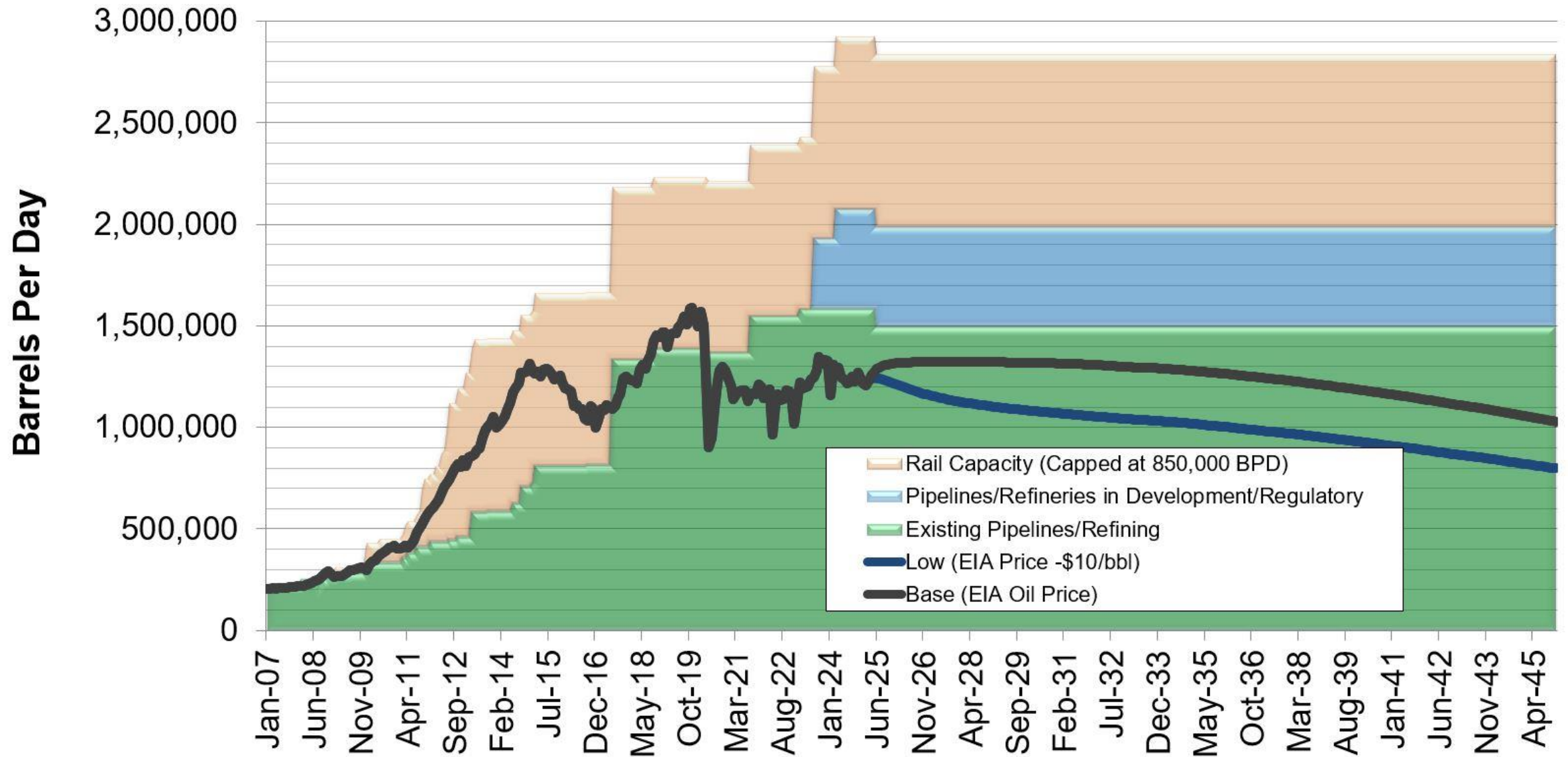




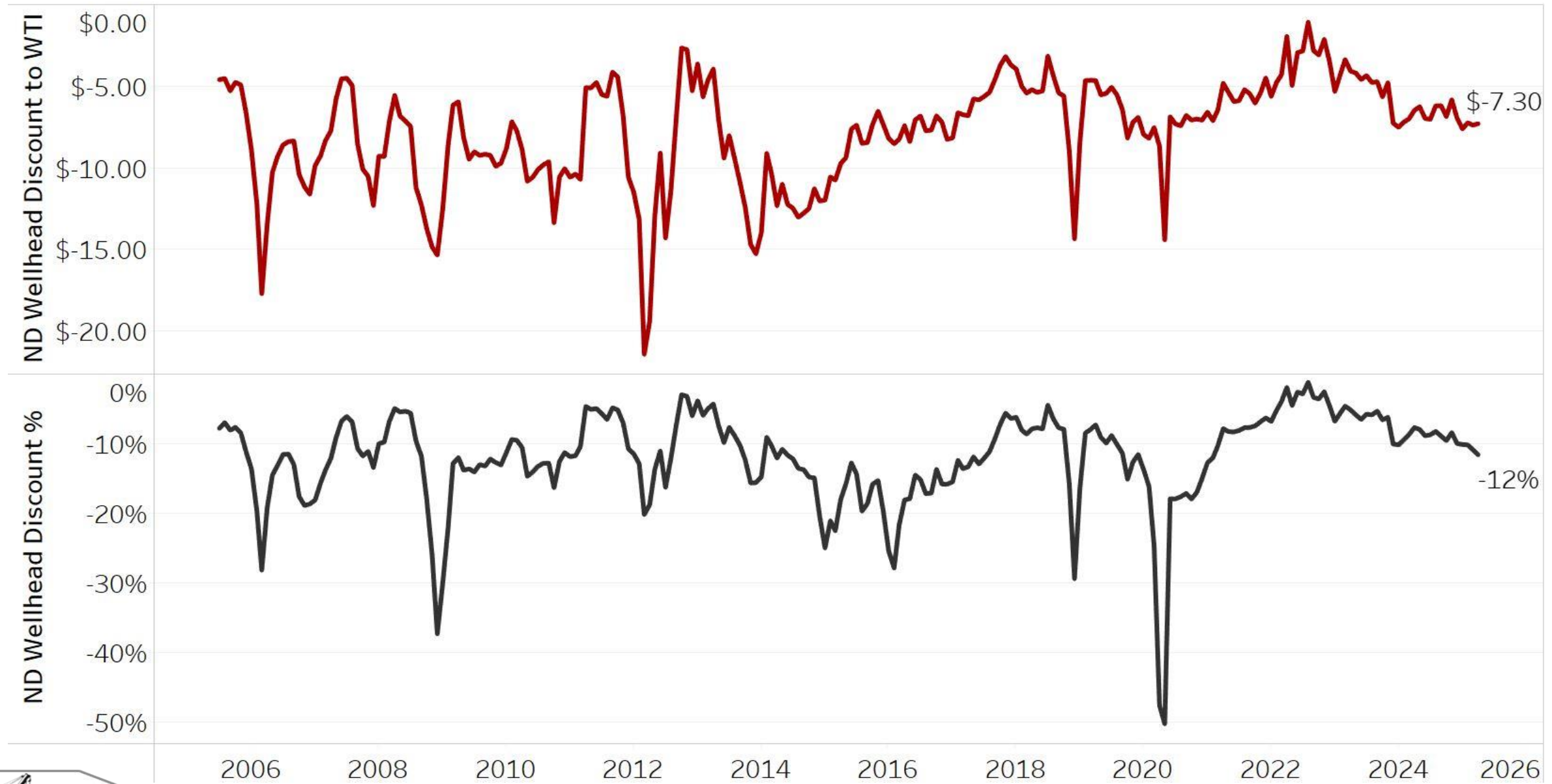
# Rail Destinations Market Share (Feb. 2025)



# Williston Basin Oil Production & Export Capacity, BOPD



# Average North Dakota Oil “Discount” to WTI

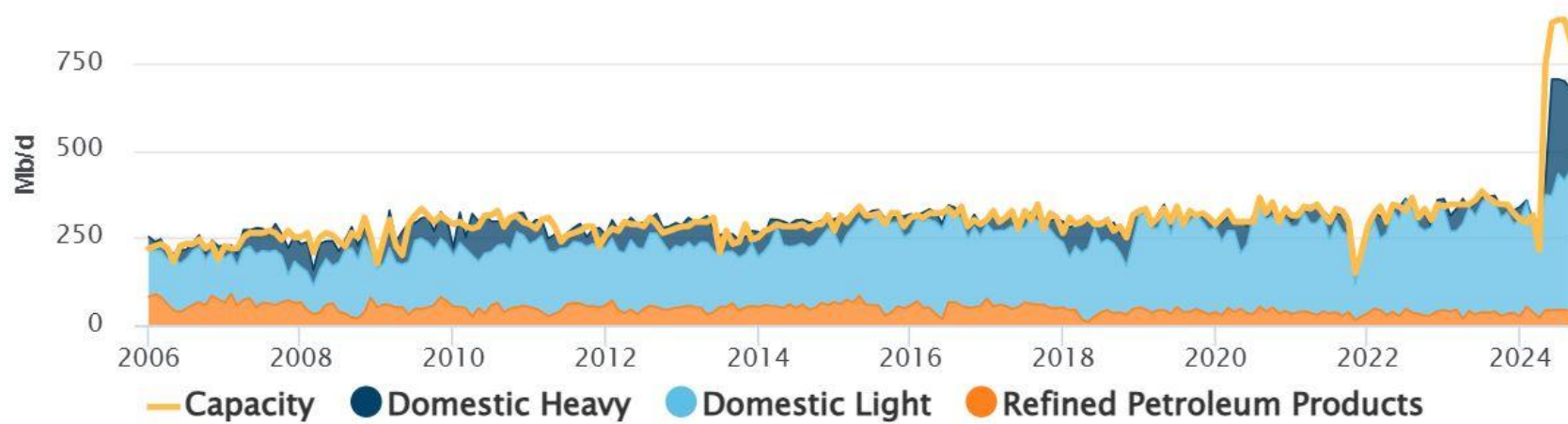




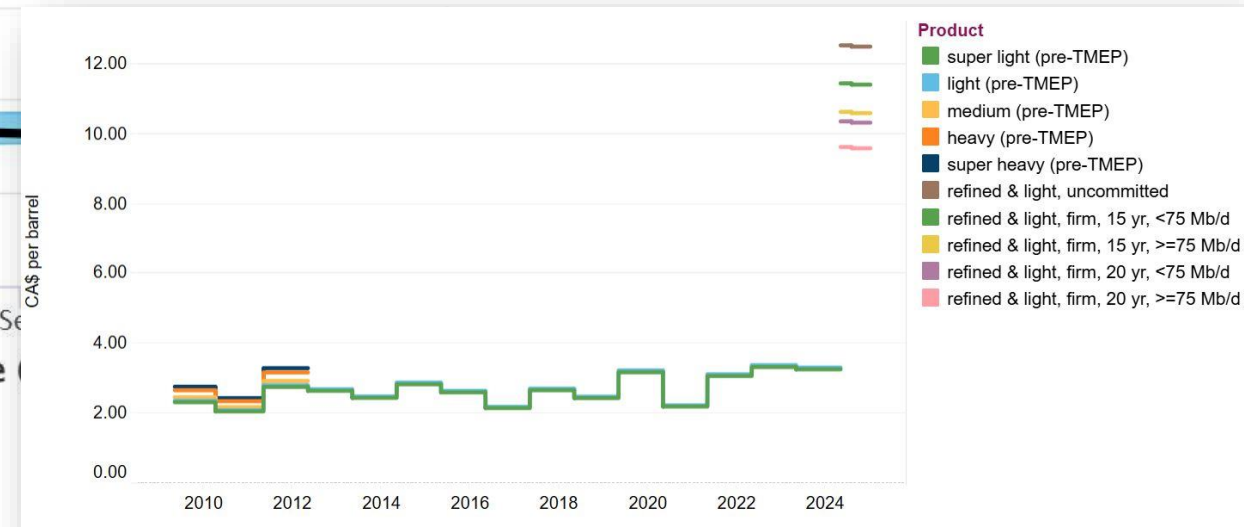
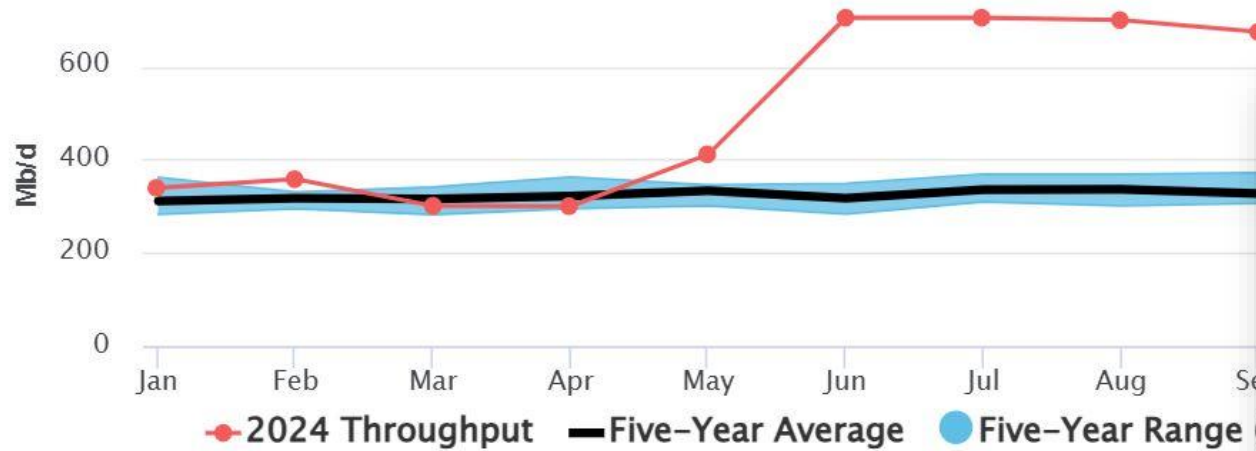


# Trans Mountain Pipeline

Burnaby Westridge Sumas – monthly traffic

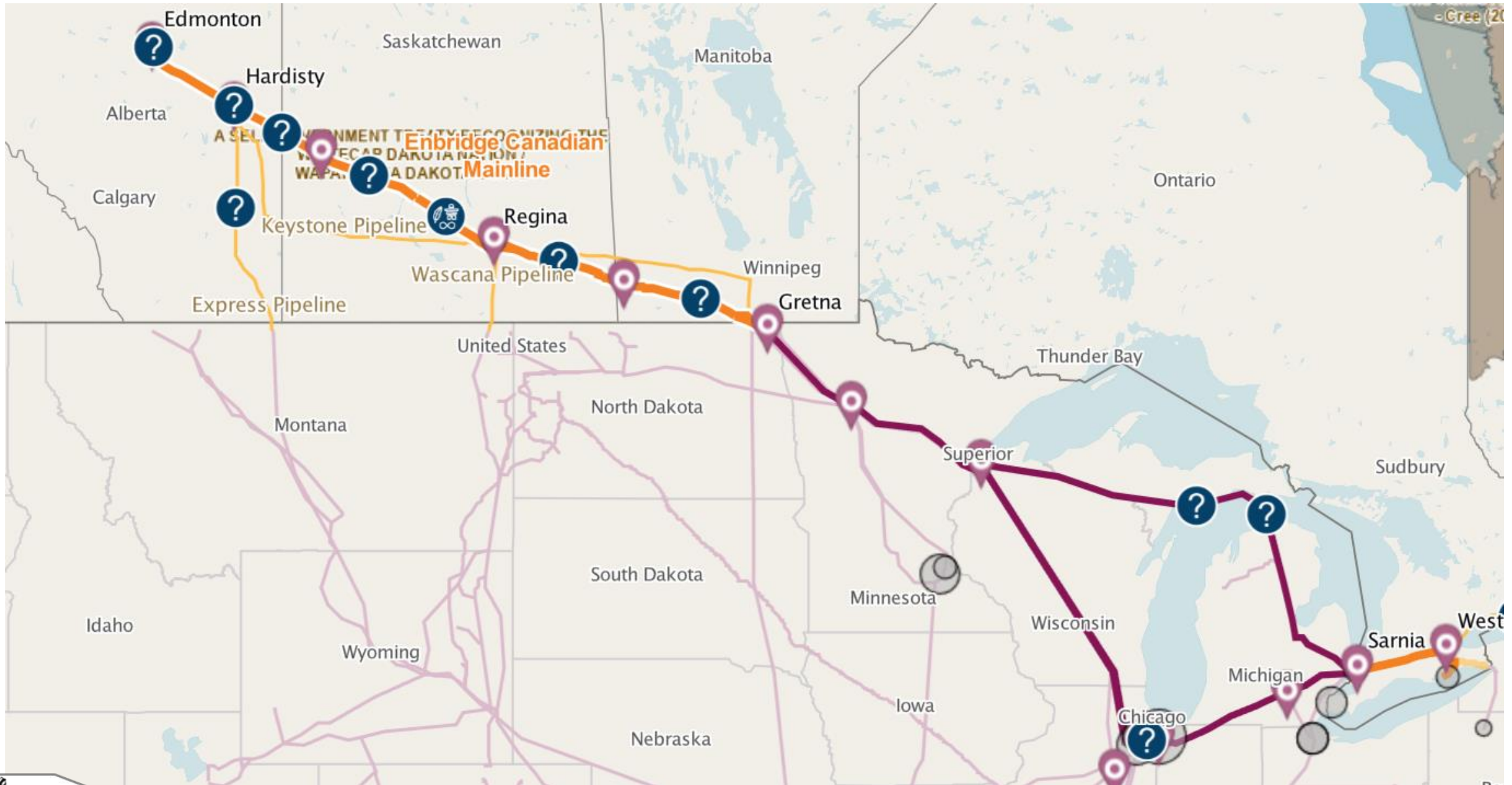


Burnaby Westridge Sumas – five-year average & range





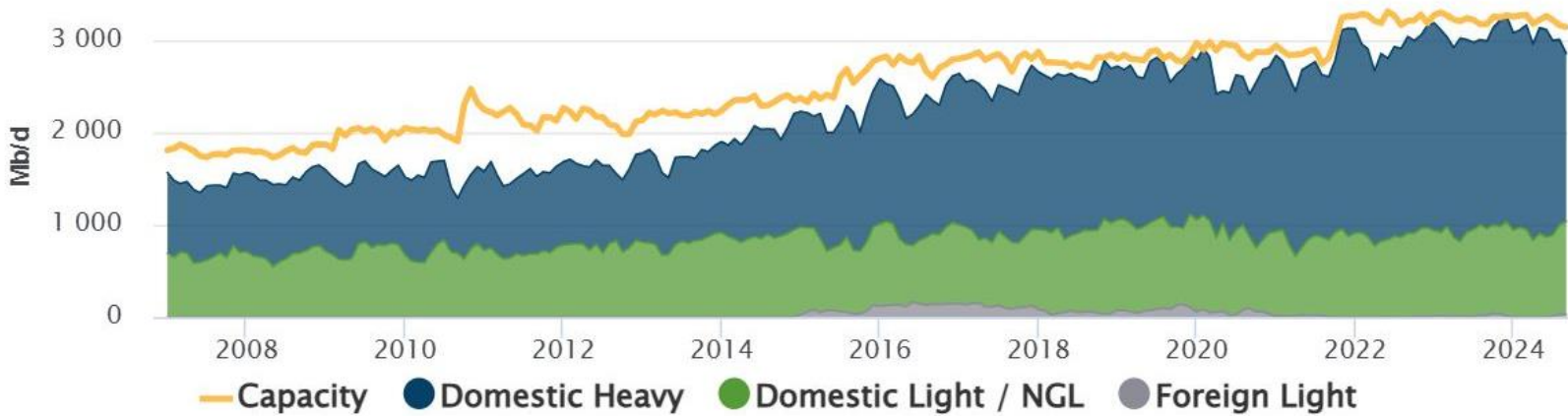
# Enbridge Mainline System



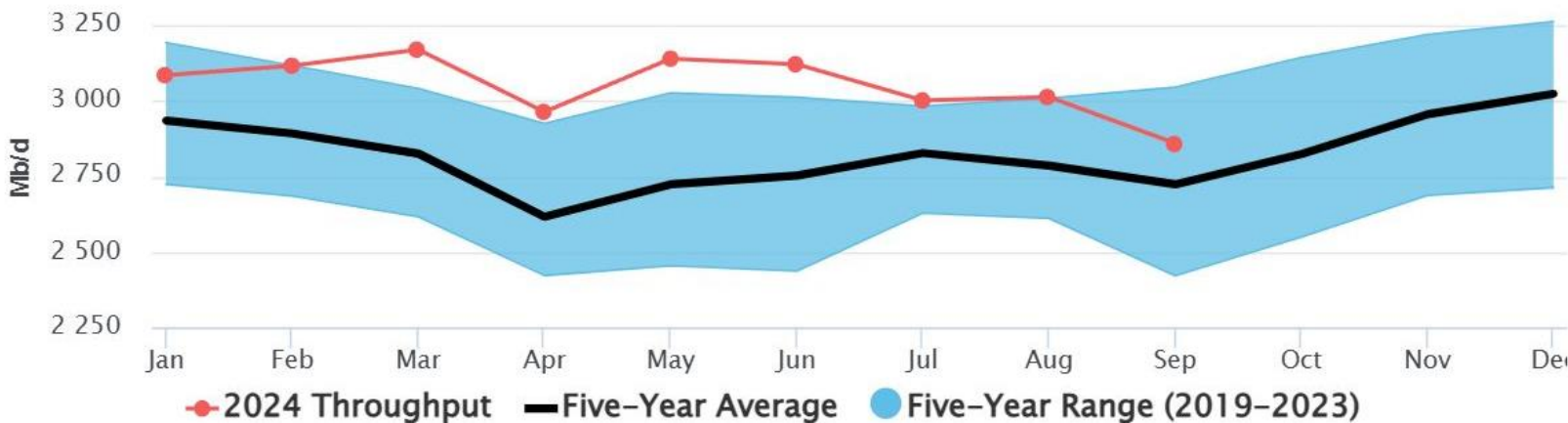


# Enbridge Mainline System

ex-Gretna – monthly traffic (direction of flow: east)



ex-Gretna – five-year average & range



# A Complete Natural Gas Solution



## Production

- Technology
- Markets
- Forecasting



## Gathering

- Capacity
- Connections
- Compression



## Processing

- Capacity
- Location
- Configuration

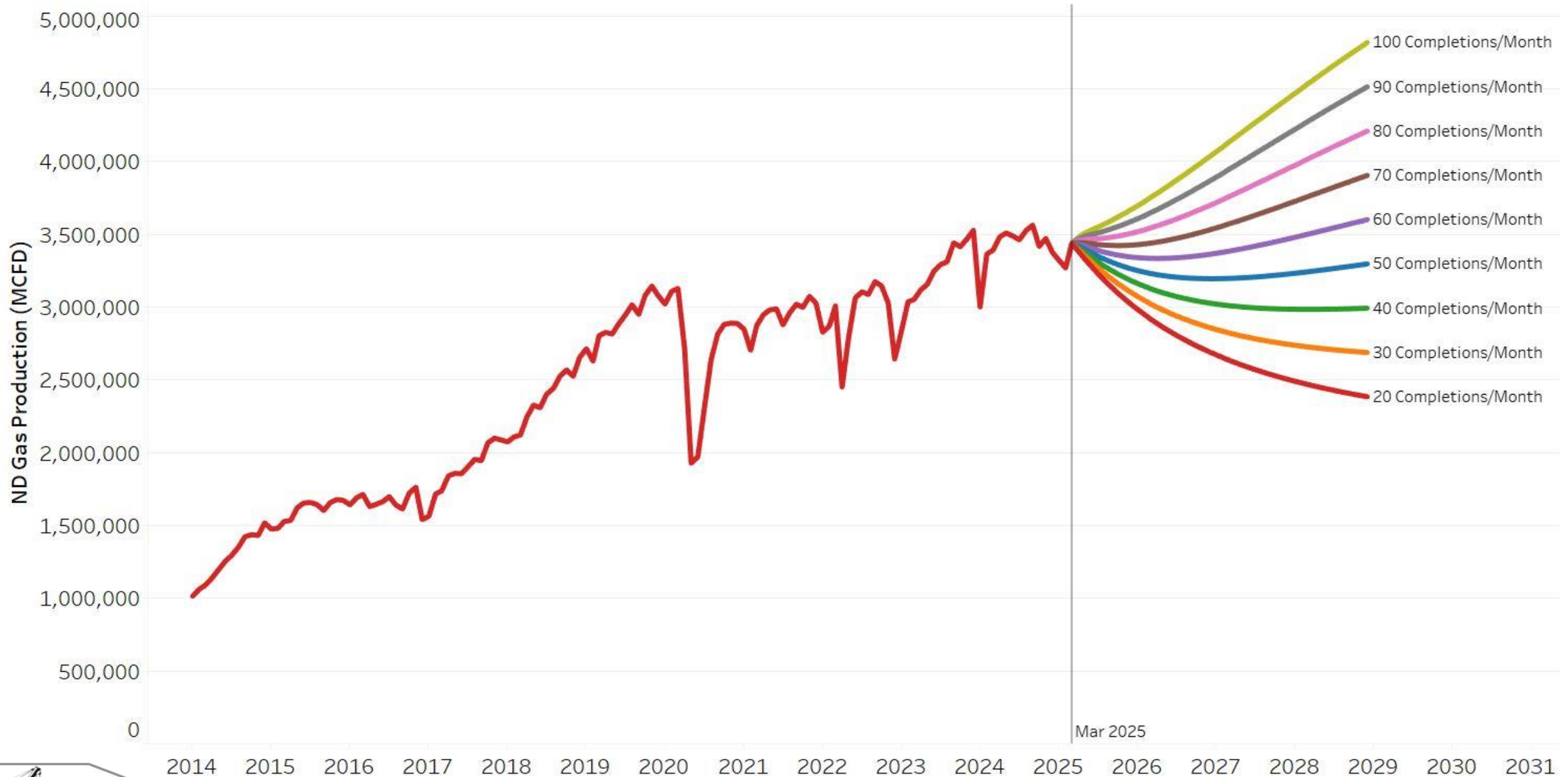


## Transmission

- Dry Gas
- Natural Gas Liquids
- Storage

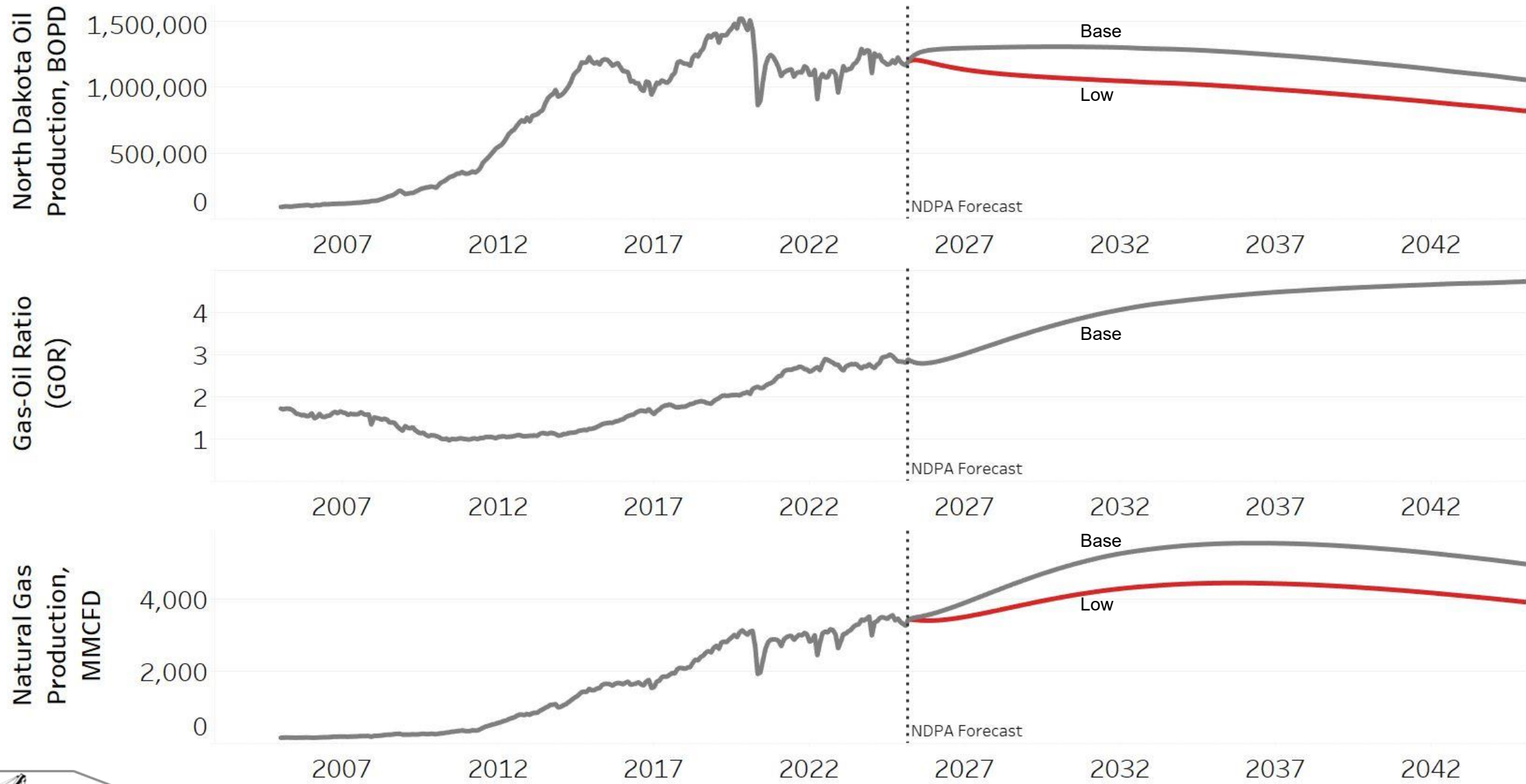


# Monthly Completion\* Scenarios - Gas

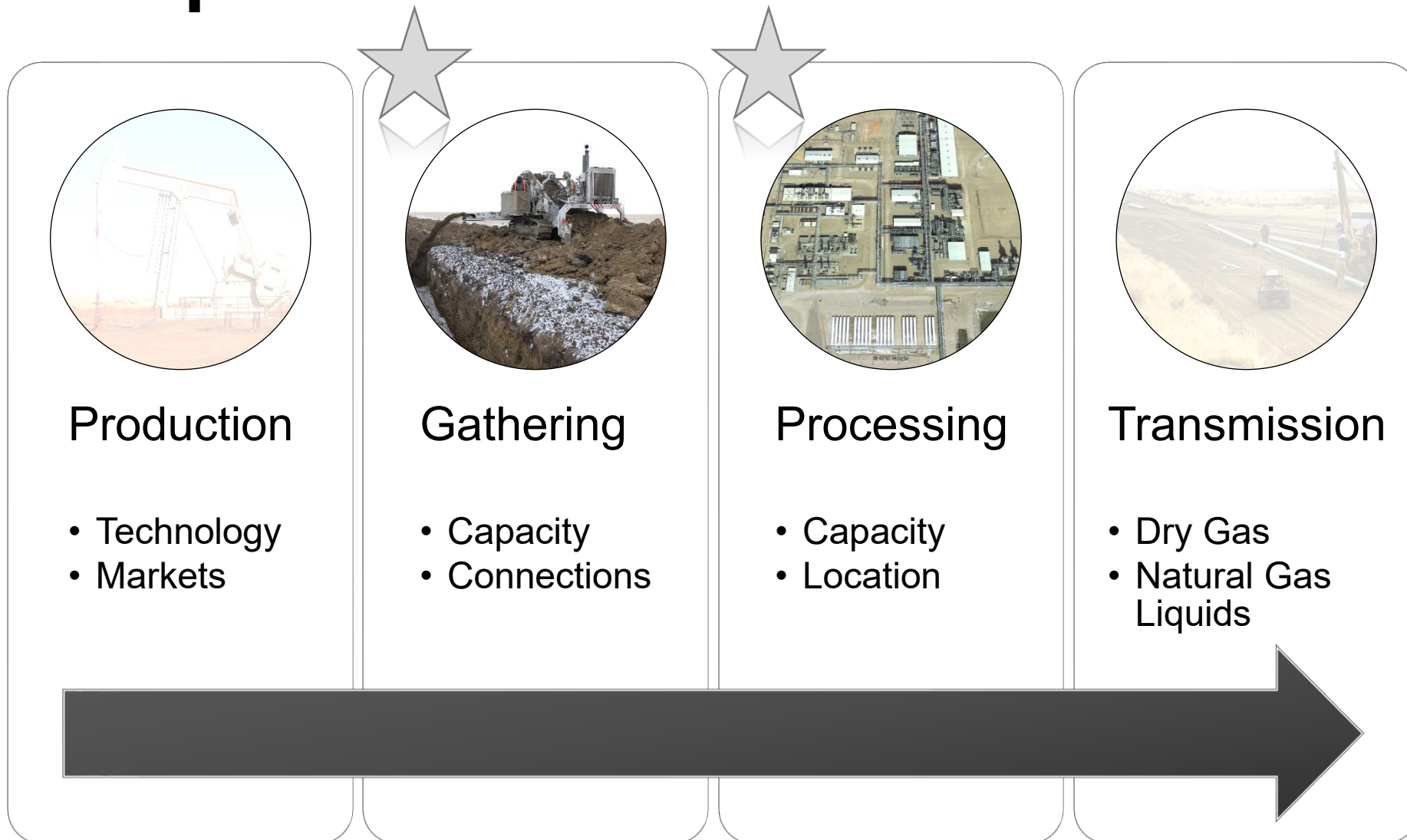




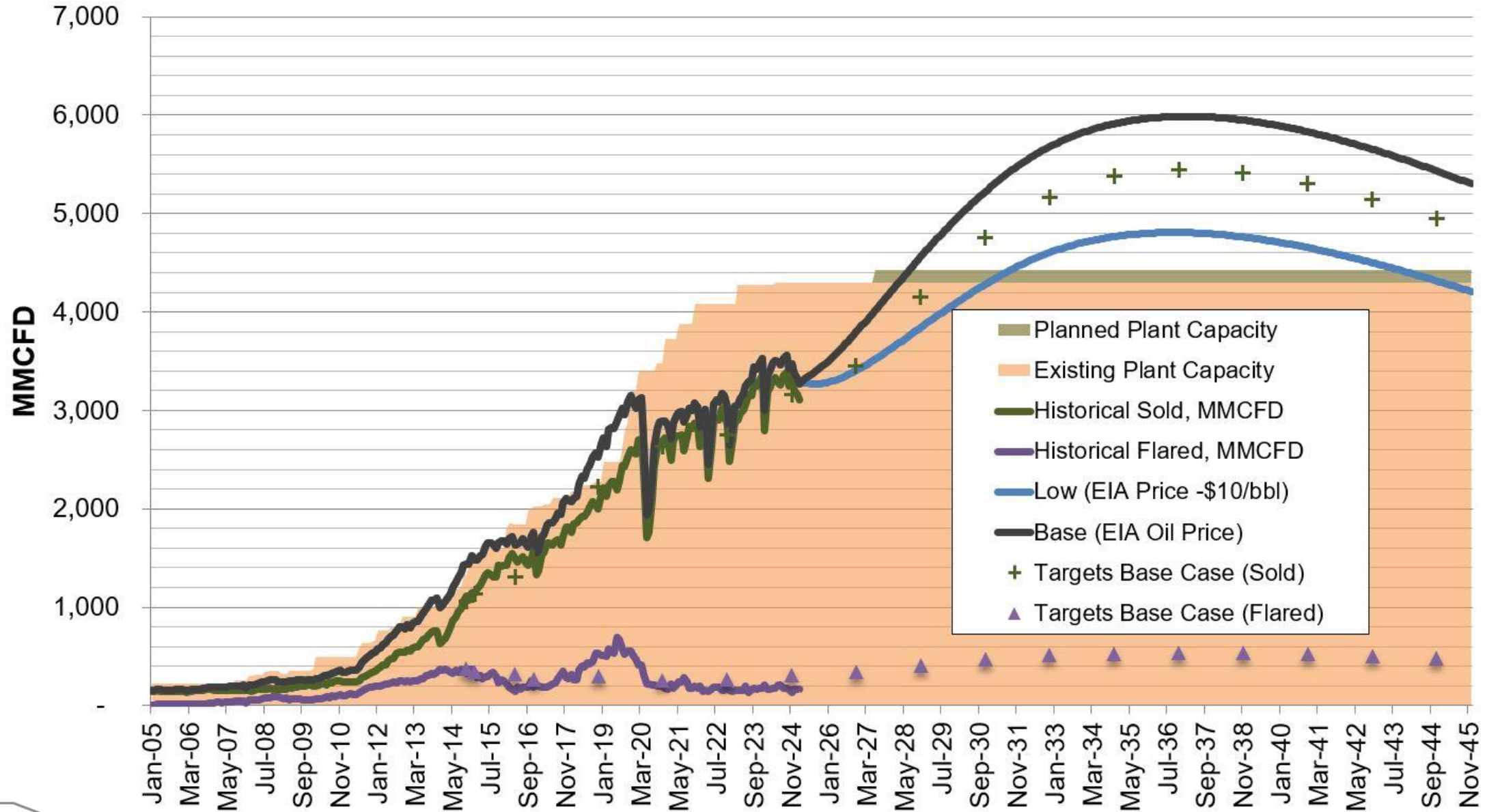
# ND Production Forecast: EIA Price Deck



# A Complete Natural Gas Solution

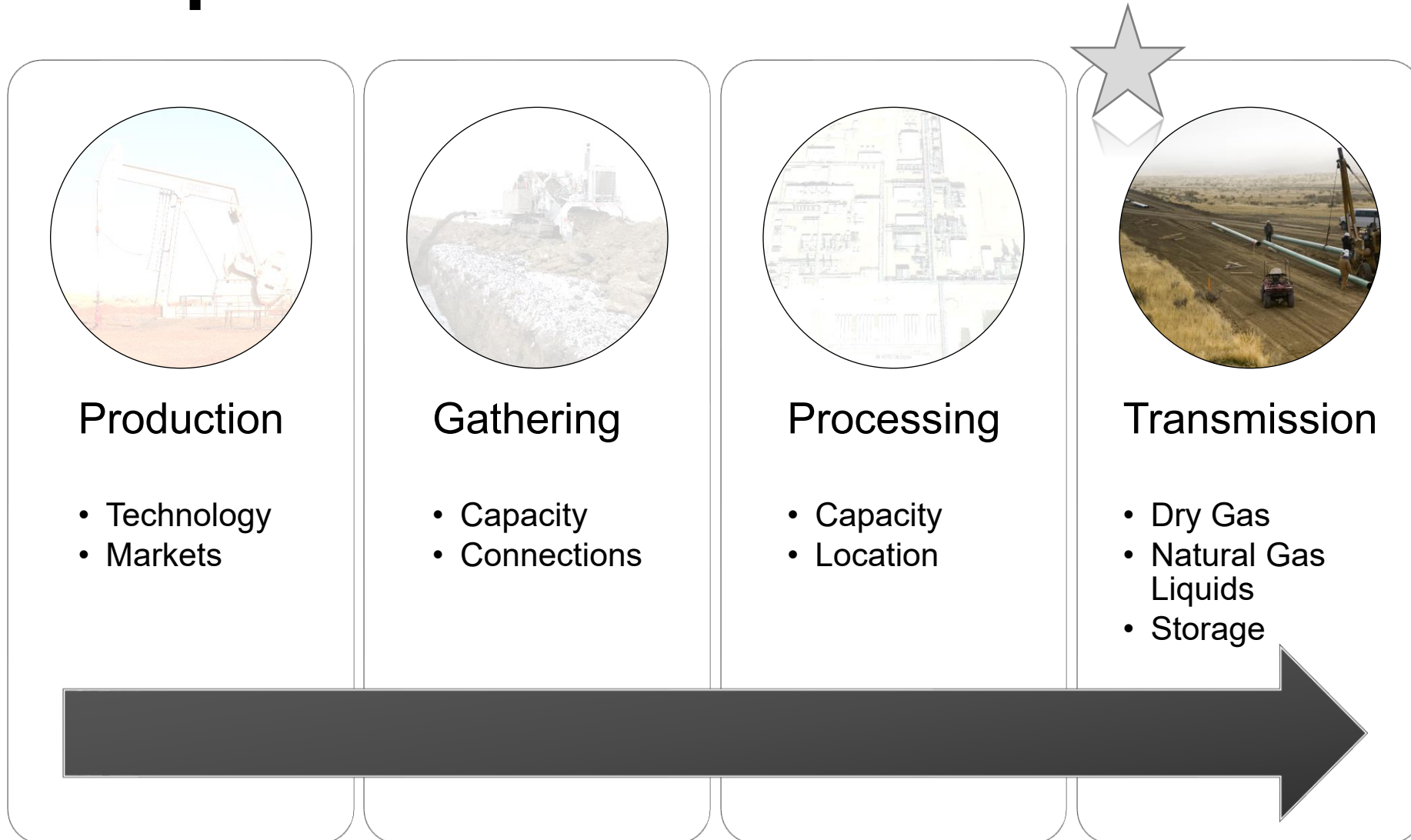


# North Dakota Gas Processing Outlook

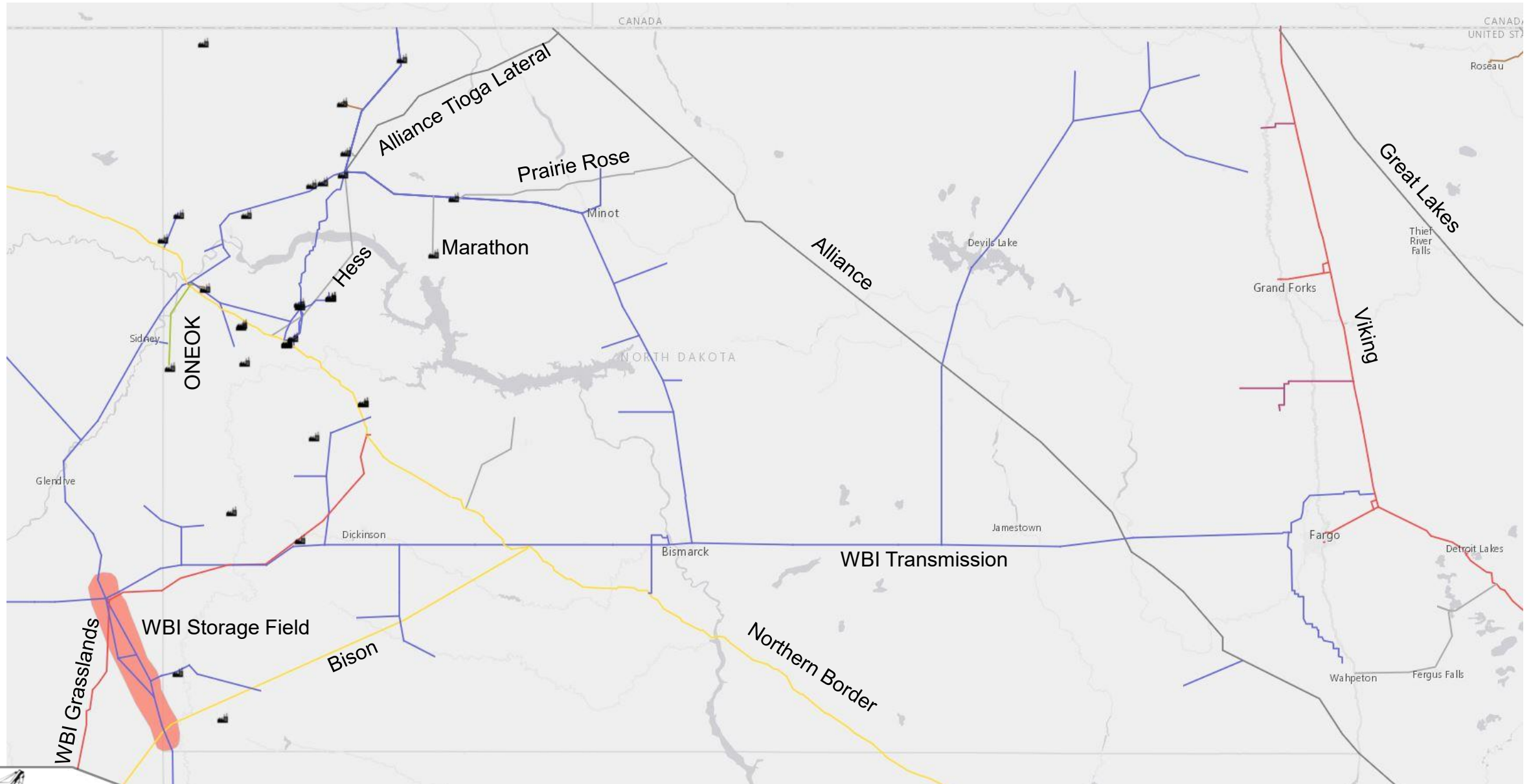




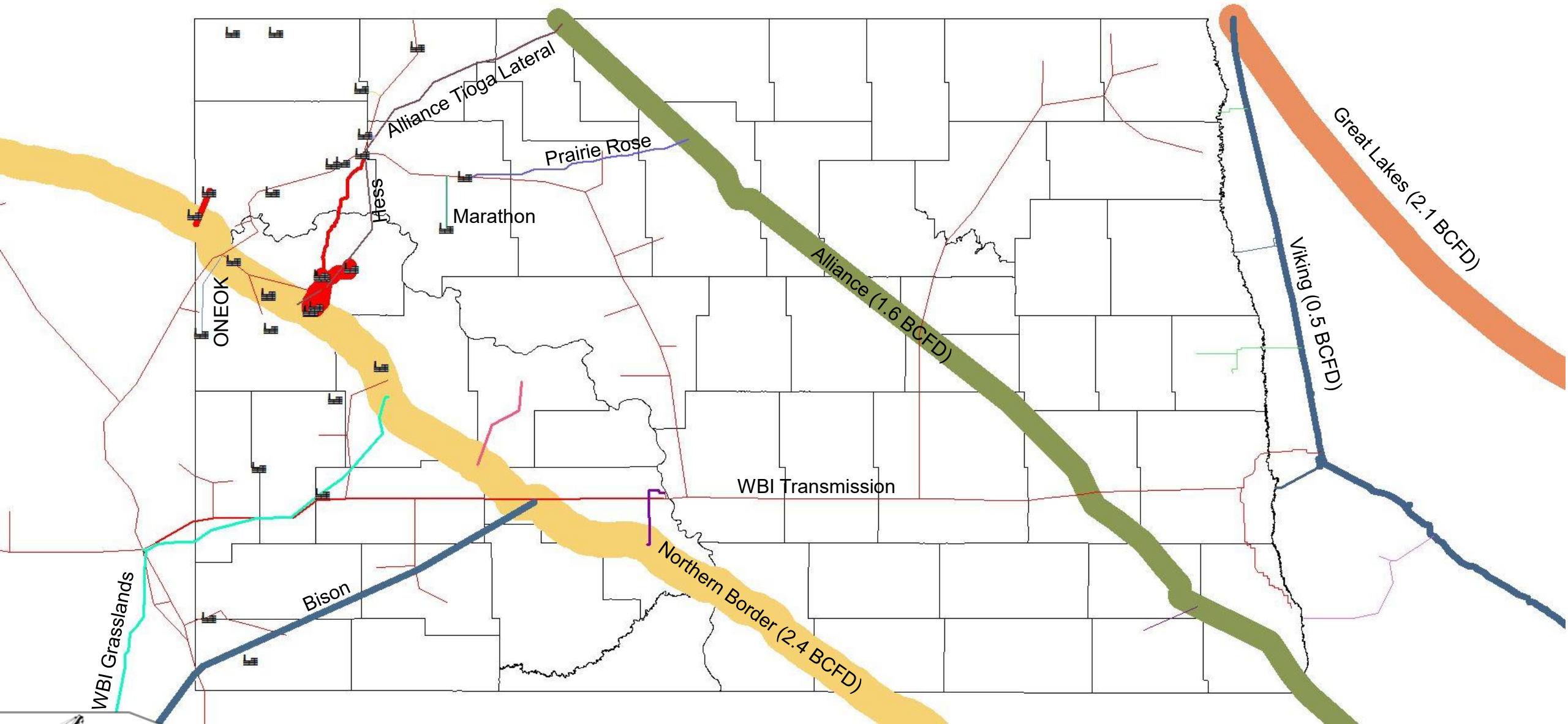
# A Complete Natural Gas Solution



# Major Residue Gas Pipeline Infrastructure

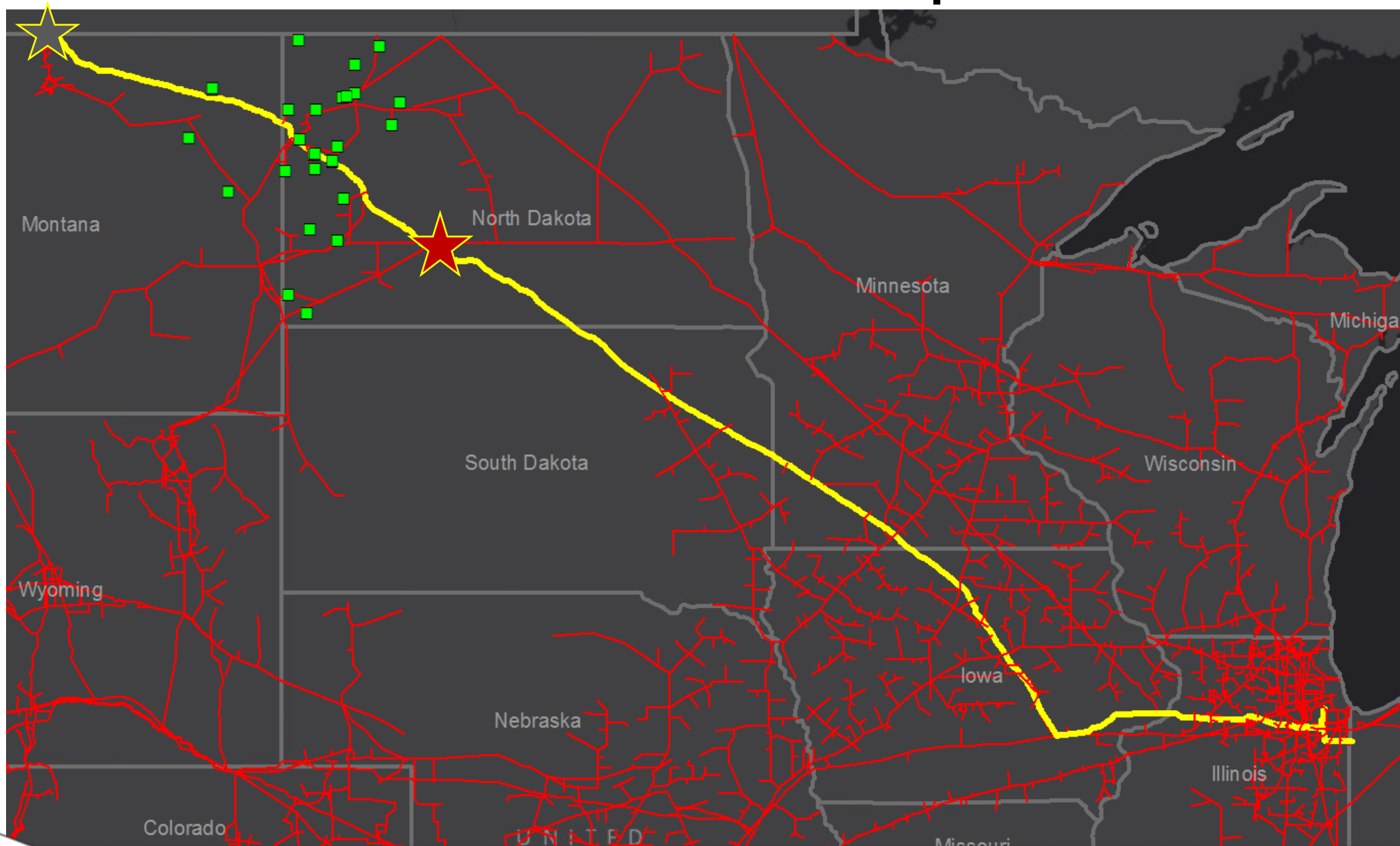


# Residue Gas Pipeline Capacity Visualization

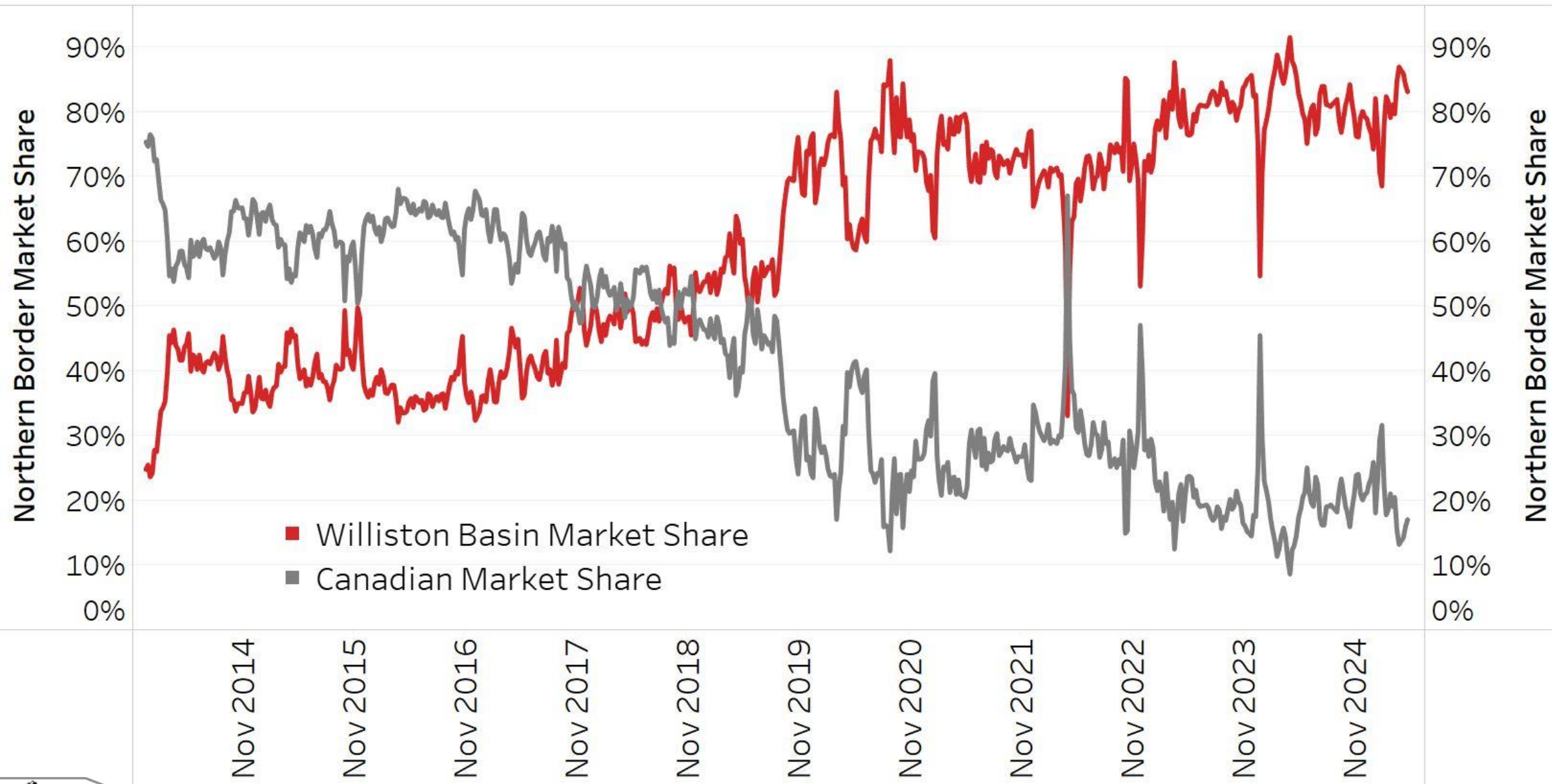




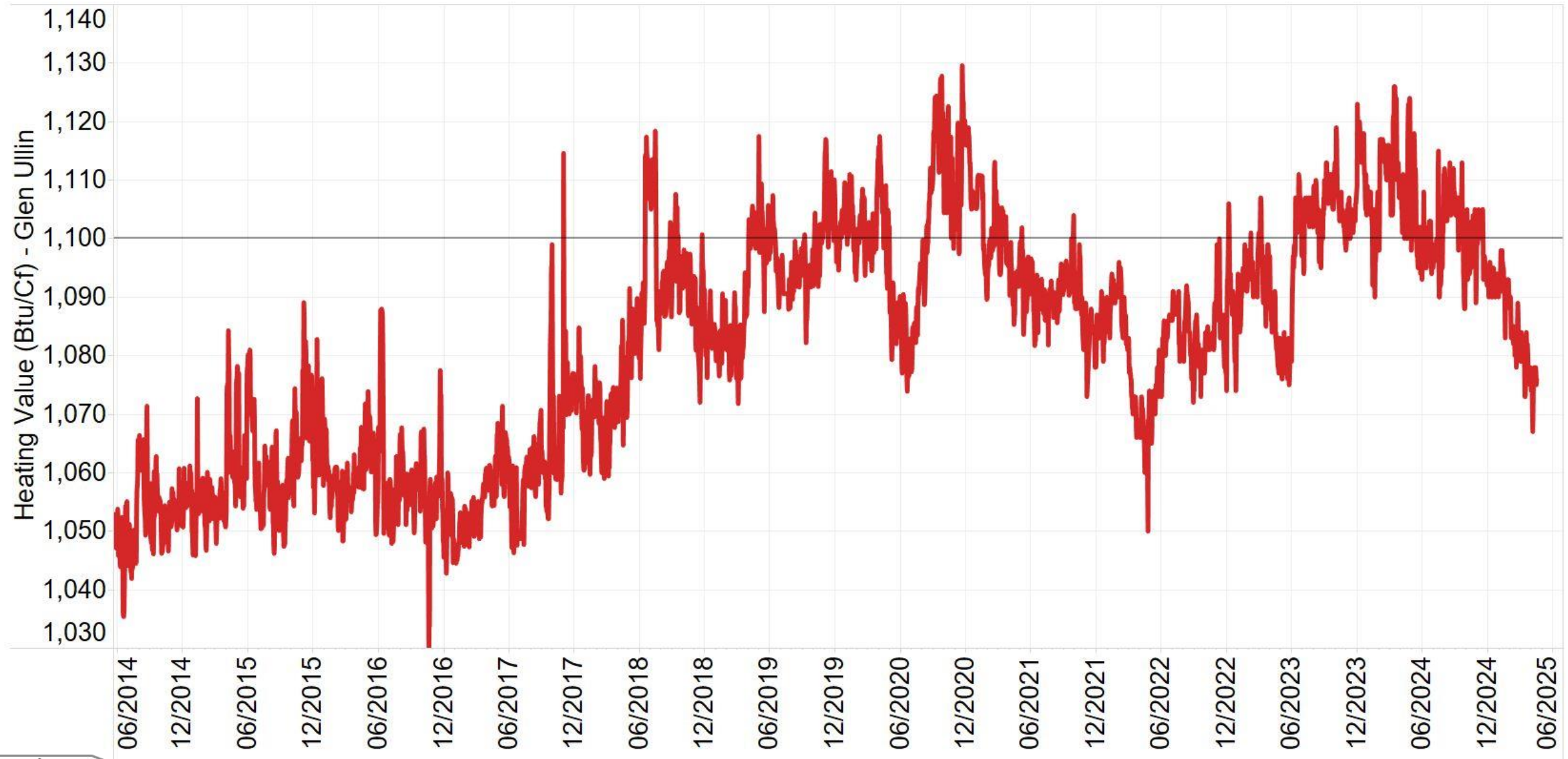
# Northern Border Pipeline



# Northern Border Pipeline Market Share

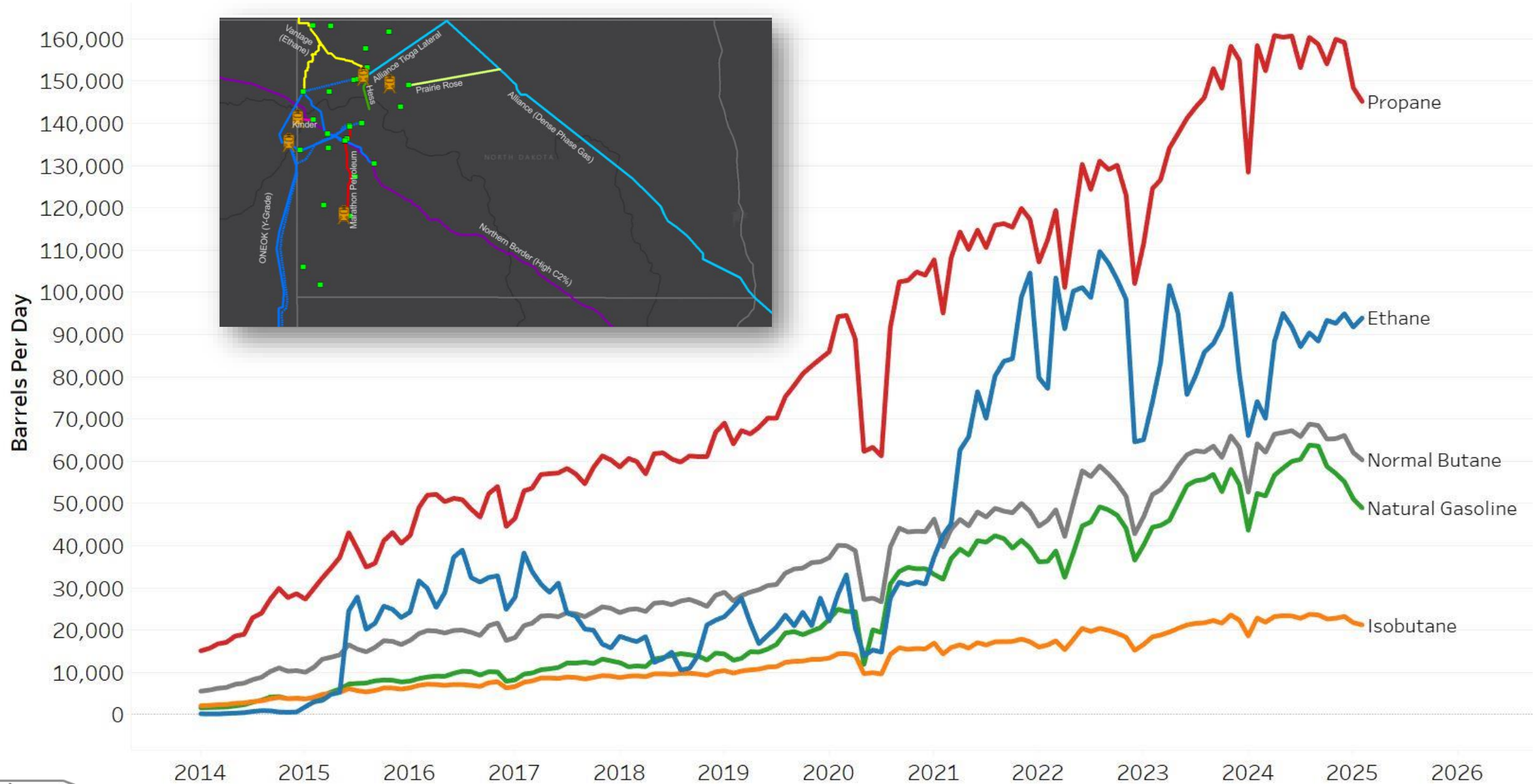


# Northern Border BTU at Glen Ullin, ND

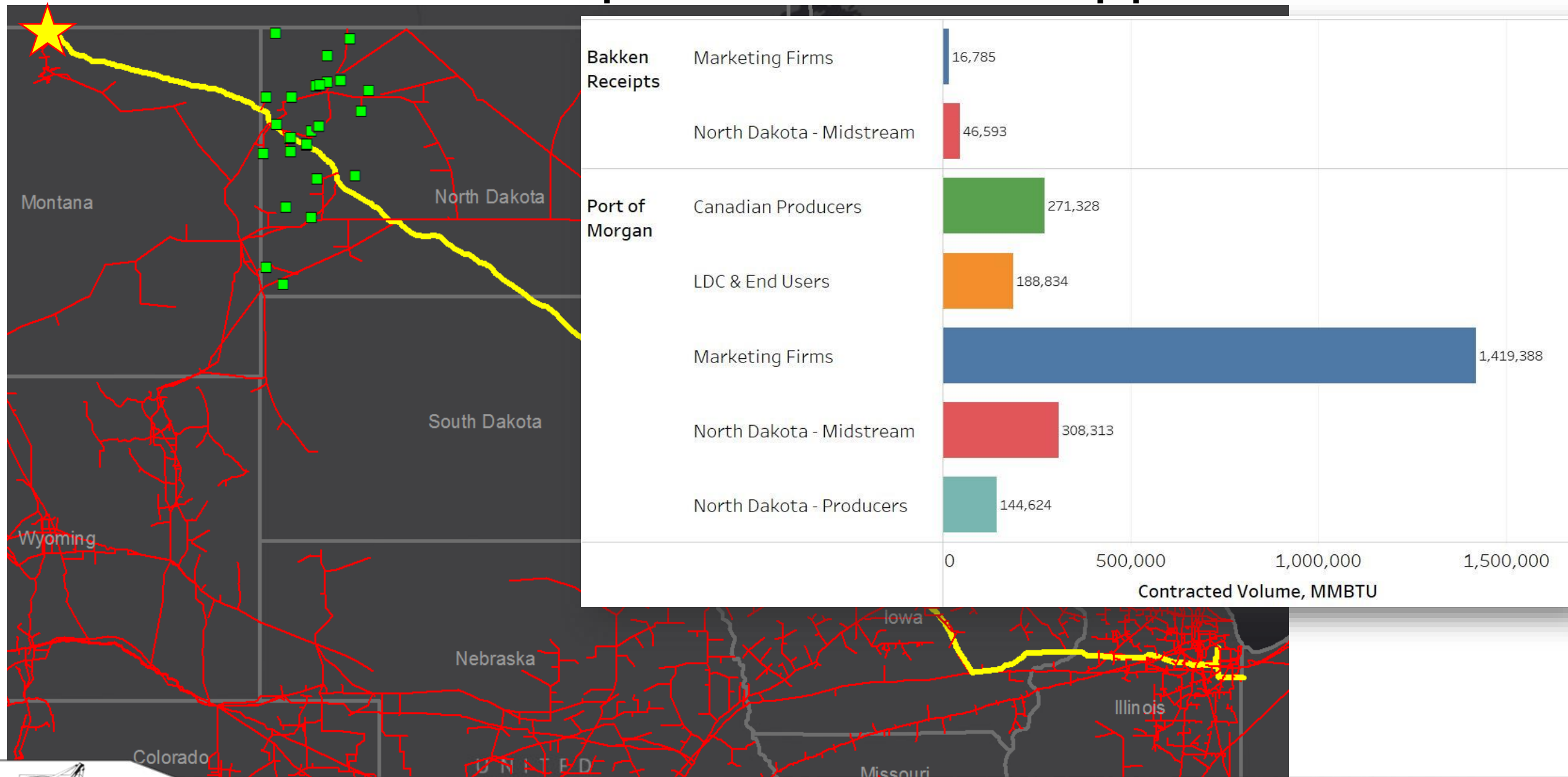




# PADD II to PADD IV NGL Pipeline Flows

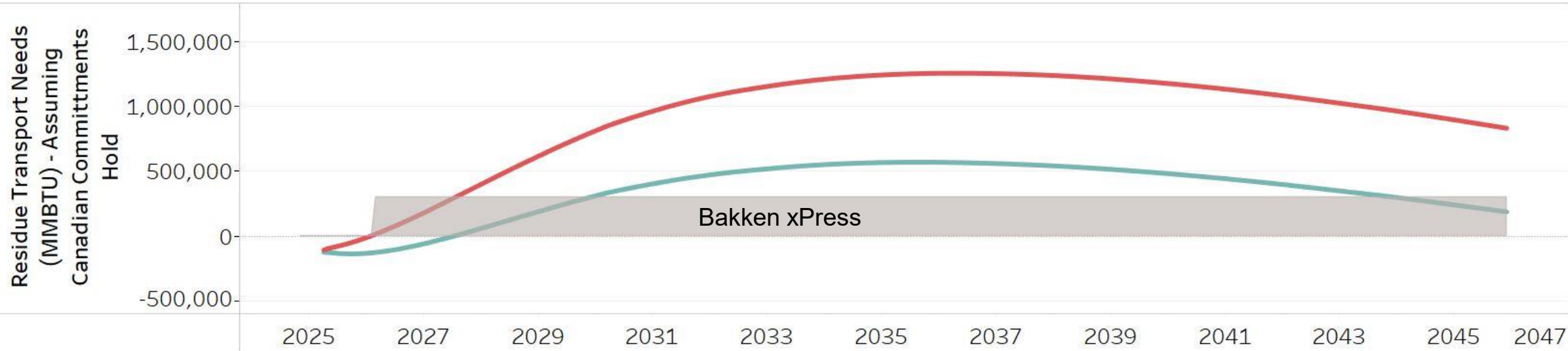


# Northern Border Pipeline P.O.M. Shipper Mix: 2024

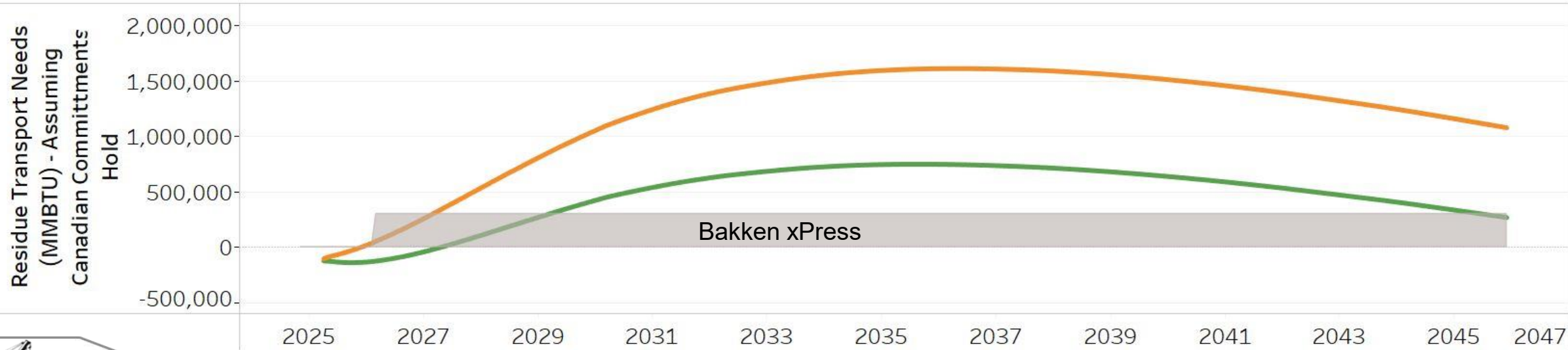


# Residue Capacity Needs : Glen Ullin BTU 1,100 & 1,150

Residue Capacity Need: Port of Morgan at Contract Level: Glen Ullin BTU 1,100



Residue Capacity Need: Port of Morgan at Contract Level: Glen Ullin BTU 1,150





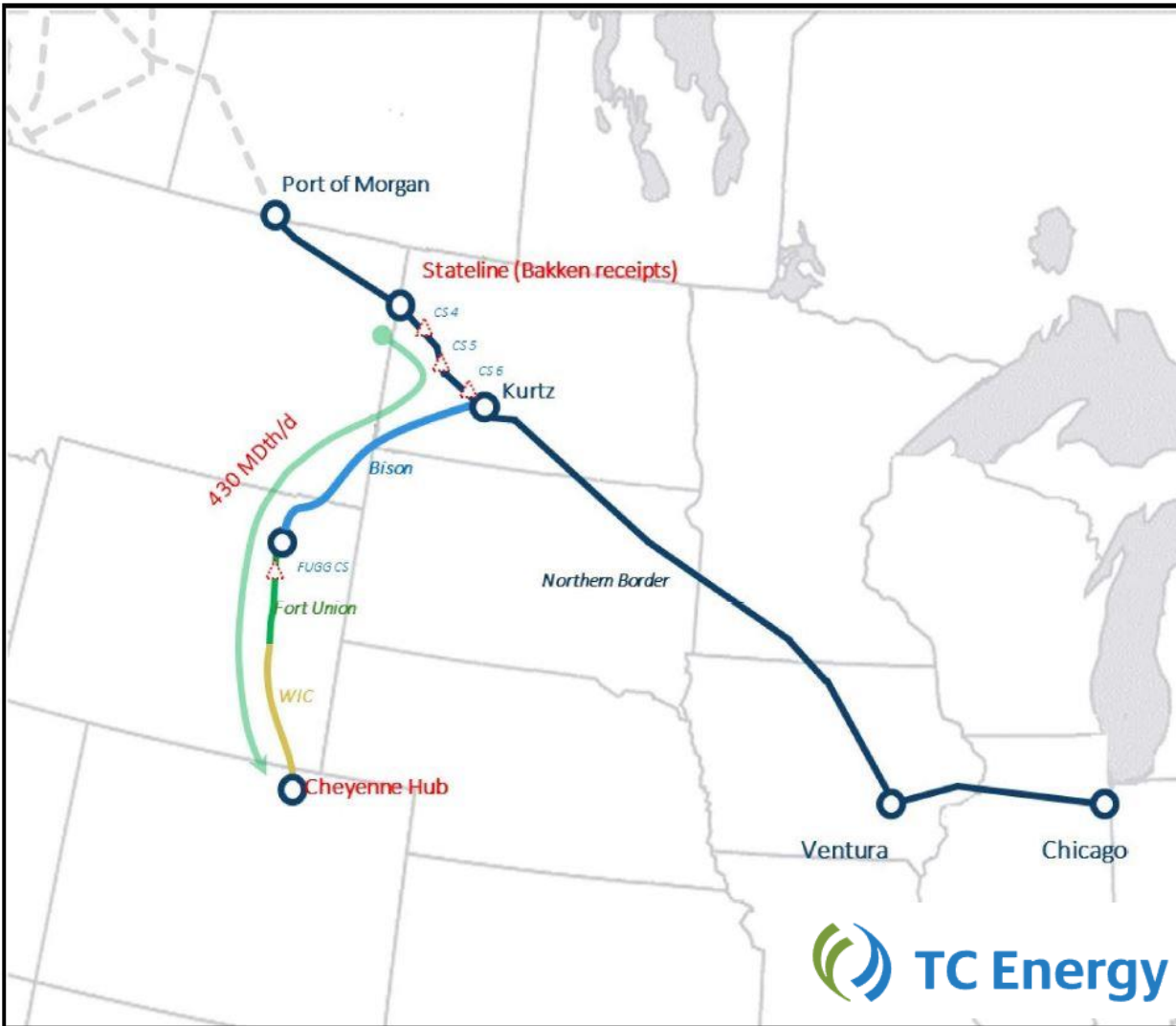
# TC Energy / Kinder Morgan: Bakken xPress Project

## Project Highlights

- Non-binding open season April 4 - May 6, 2022
- Binding Open Season: June 1-30, 2023
- Three compressor upgrades in North Dakota
- Reverse the idle Bison Pipeline (30" – 302 Mile)
- Capacity 300,000 Dth/Day (430,000 Offered)
- March 2026 targeted in-service date
- Fort Union Gas Gathering and Wyoming Interstate Company provide further transport to Cheyenne hub.
- Seeking commitments 10yrs or Longer
- \$555 million: \$347 Replacement/\$208 Expansion

## Proposed Rates

- NBPL/Bison \$0.45/Dth + Fuel/Elec to WIC/FUG Interconnect
- WIC/FUG to Cheyenne \$0.30/Dth + Fuel/Elec
- Anchor Shipper Minimum: 50,000 Dth/Day



# Options Beyond 2026: The 5 “C’s”

## Construction (Interstate)

- Long-haul Pipe to New or Expanded Markets

## Compete

- Price Canadian Volumes to Flow Elsewhere

## Compression

- Increase Capacity on Existing Interstate Systems

## Consumption

- Intra Region Gas Demand Expansion

## Contraction

- Reduce E&P Activity to Meet Limited Gas Options



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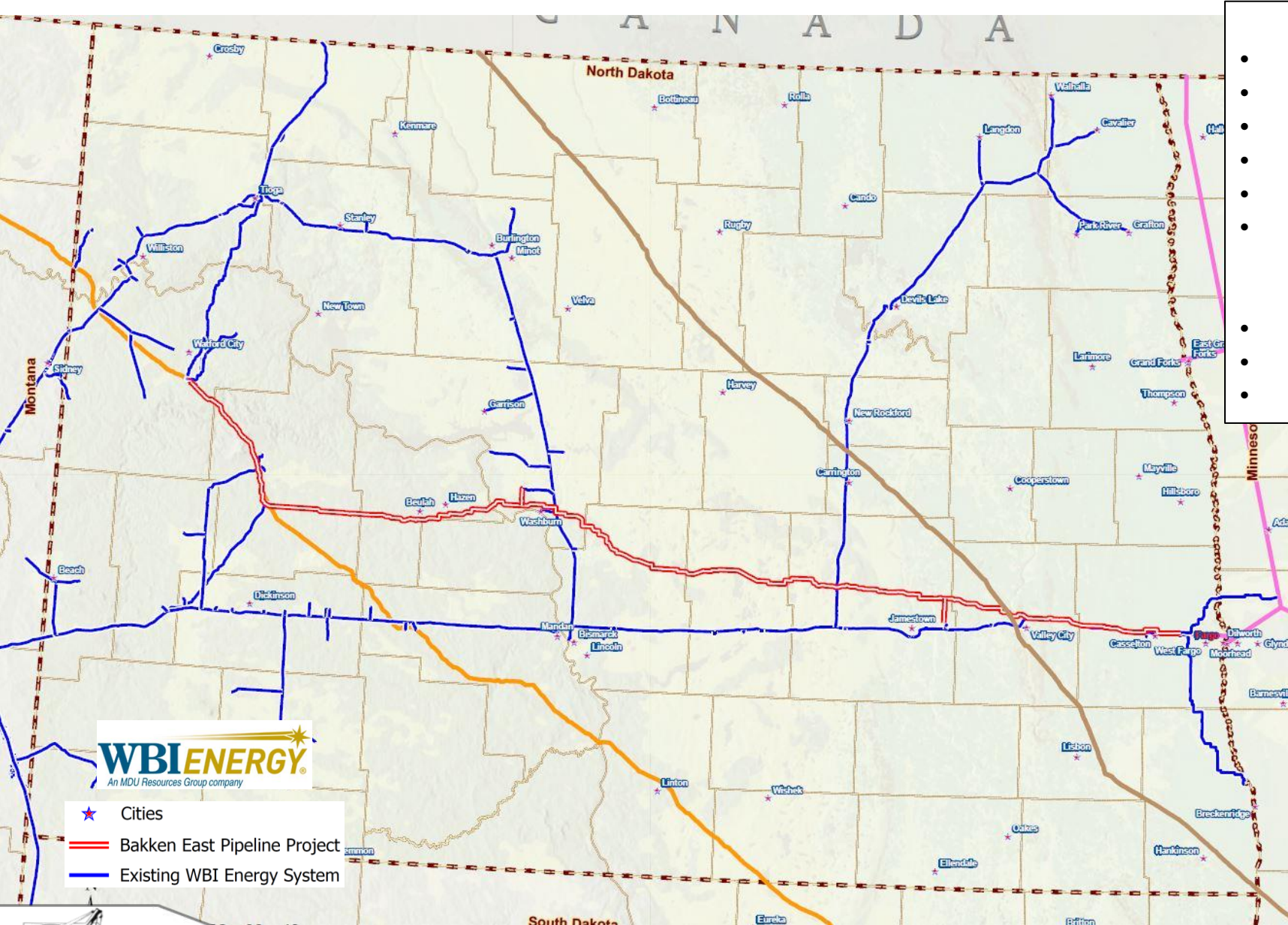
## Contraction

- Reduce E&P Activity to Meet Limited Gas Options





# WBI Energy: Proposed Bakken East Project



## Natural Gas Pipeline Project Highlights

- Non-binding open season Dec 16 – Jan 31, 2025
- 375 Miles: 30" & 24" Pipe
- Proposed Capacity 760,000 Dth/Day
- Phase 1 (West) : Nov 2028 targeted in-service
- Phase 2 (East) : Nov 2029 targeted in-service
- Seeking commitments 20yrs or Longer

## Estimated Rates

- \$0.85 to \$0.90/Dth + Fuel/Electric/Commodity
- Anchor Shipper Minimum: 100,000 Dth/Day
- Foundation Shipper Minimum: 250,000 Dth/Day

# Intensity Infrastructure Partners Proposed Pipeline



## Phase 1 Project Highlights

- Non-binding open season Feb 3 – Mar 7, 2025
- 136 Miles: 42" Pipe
- Proposed Capacity 1,500,000 Dth/Day
- January 2028 targeted in-service
- Seeking commitments 10yrs or Longer

## Phase 1 Estimated Rates

- \$0.50/Dth + Fuel/Electric/Commodity
- Anchor Shipper Minimum: 100,000 Dth/Day
- Foundation Shipper Minimum: 250,000 Dth/Day

## Phase 2 Project Highlights

- Non-binding open season Apr 17 – May 23, 2025
- 208 Miles: 30" Pipe
- Proposed Capacity 430,000 Dth/Day
- January 2030 targeted in-service
- Seeking commitments 10yrs or Longer

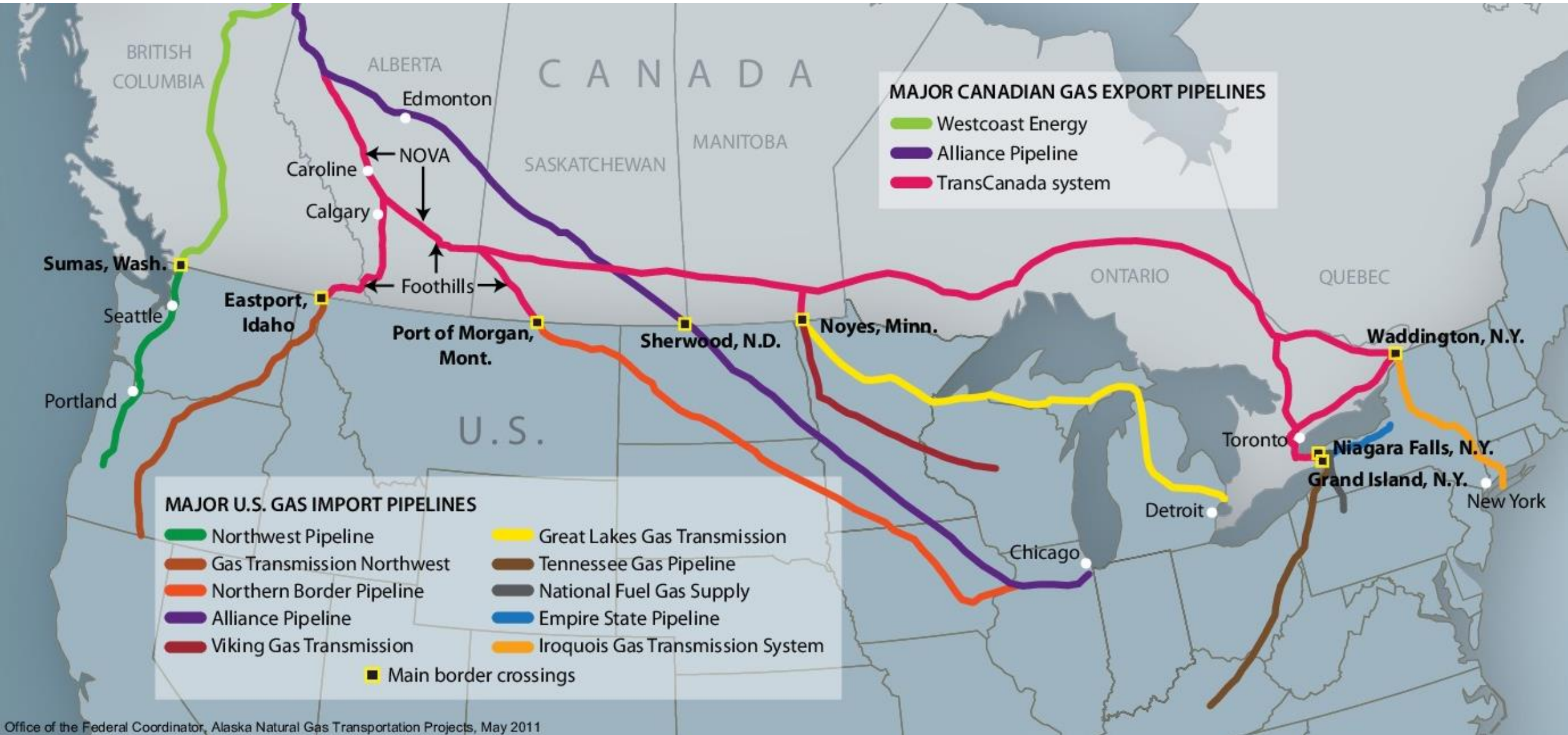
## Phase 2 Estimated Rates

- \$0.80/Dth + Fuel/Electric/Commodity
- Anchor Shipper Minimum: 100,000 Dth/Day
- Foundation Shipper Minimum: 250,000 Dth/Day



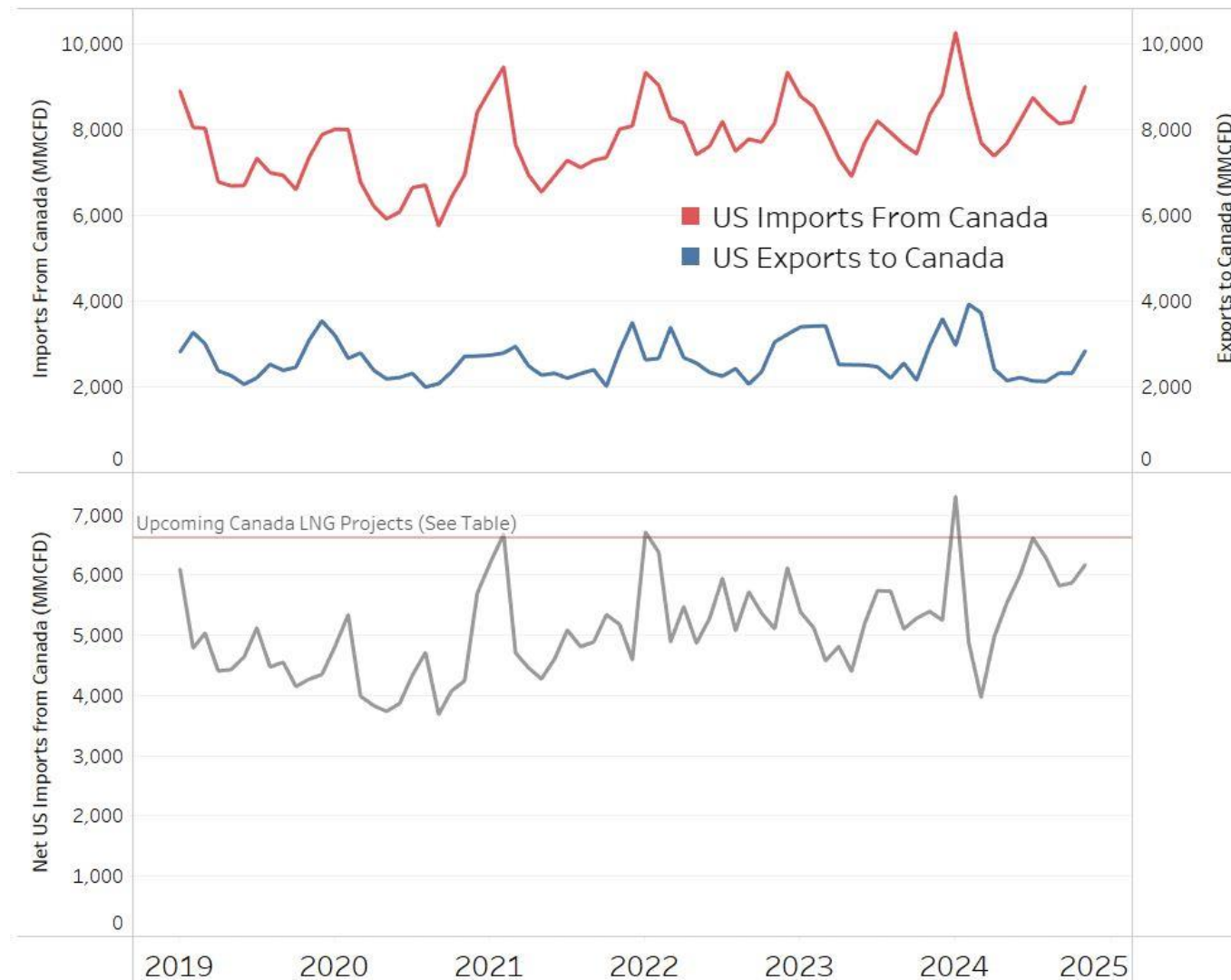


# Canadian Gas Pipeline Connectivity





# United States Canada Gas Movements & LNG



## Projects proposed and under construction

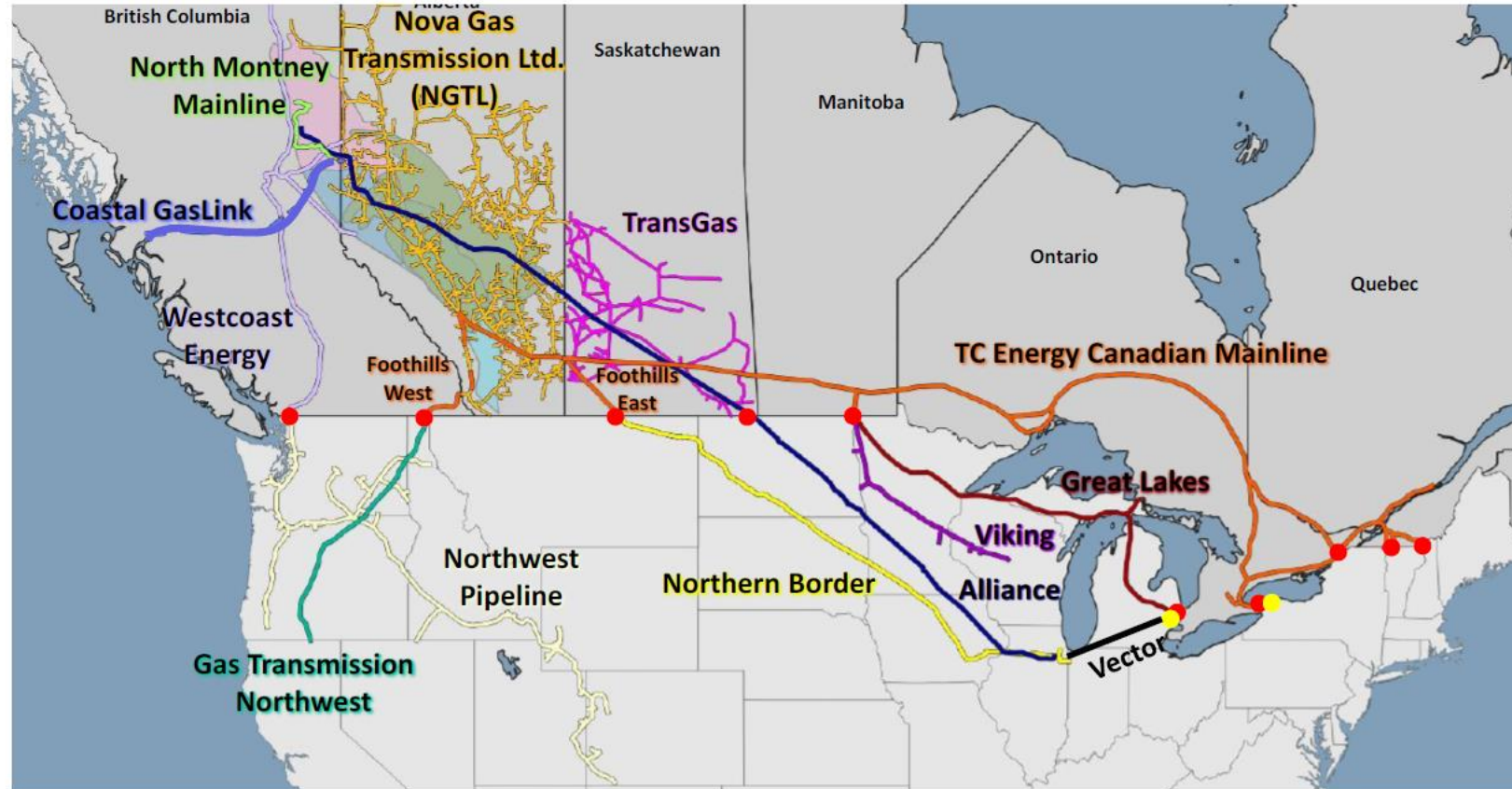
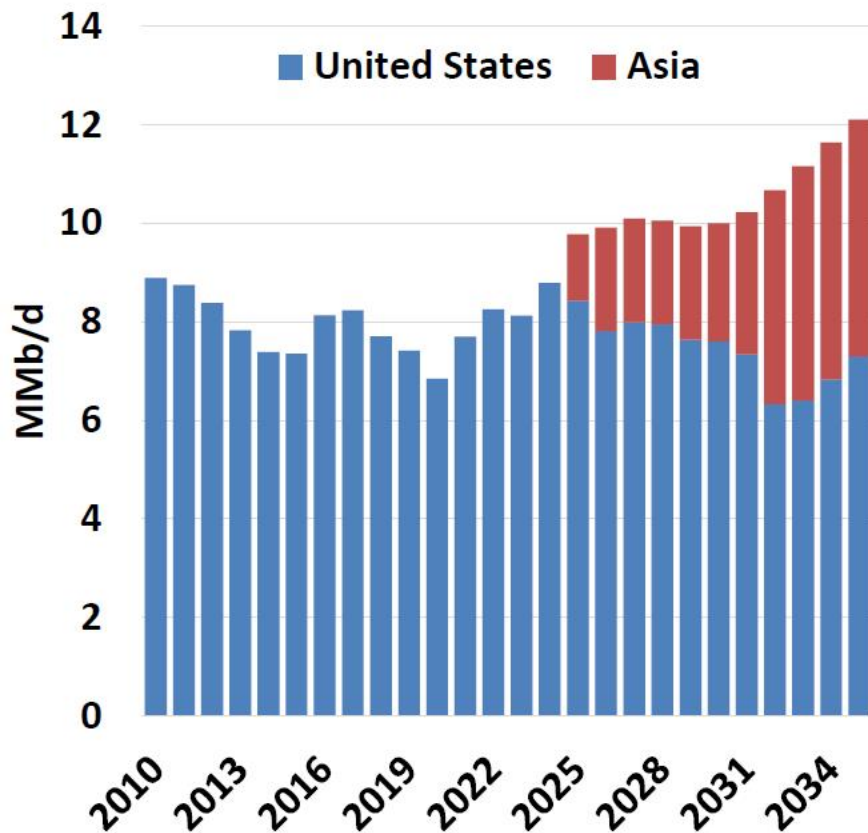
Project	LNG Export Volumes, Million Tonnes per Annum (MTPA)	LNG Export Volumes, Billion Cubic Feet per Day (Bcf/d)
<b>Export Licence - 40 years</b>		
LNG Canada Phase 1 Kitimat, BC	14	1.84
LNG Canada Phase 2 Kitimat, BC	14	1.84
Woodfibre LNG Squamish, BC	2.1	0.28
Ksi Lisims LNG Gingolx, BC	12	1.58
<b>Export Licence - 25 years</b>		
Tilbury LNG Phase 2 Delta, B.C.	2.5	0.33
Cedar LNG Kitimat, BC	3	0.39
<b>Yet to apply for an Export Licence</b>		
Summit Lake PG LNG Prince George, BC	2.7	0.36
<b>Export Licence Not applicable (n/a)</b>		
Tilbury Marine Jetty Delta, BC	n/a	n/a
<b>Total</b>	<b>50.3</b>	<b>6.62</b>



# Natural Gas Exports and Export Options

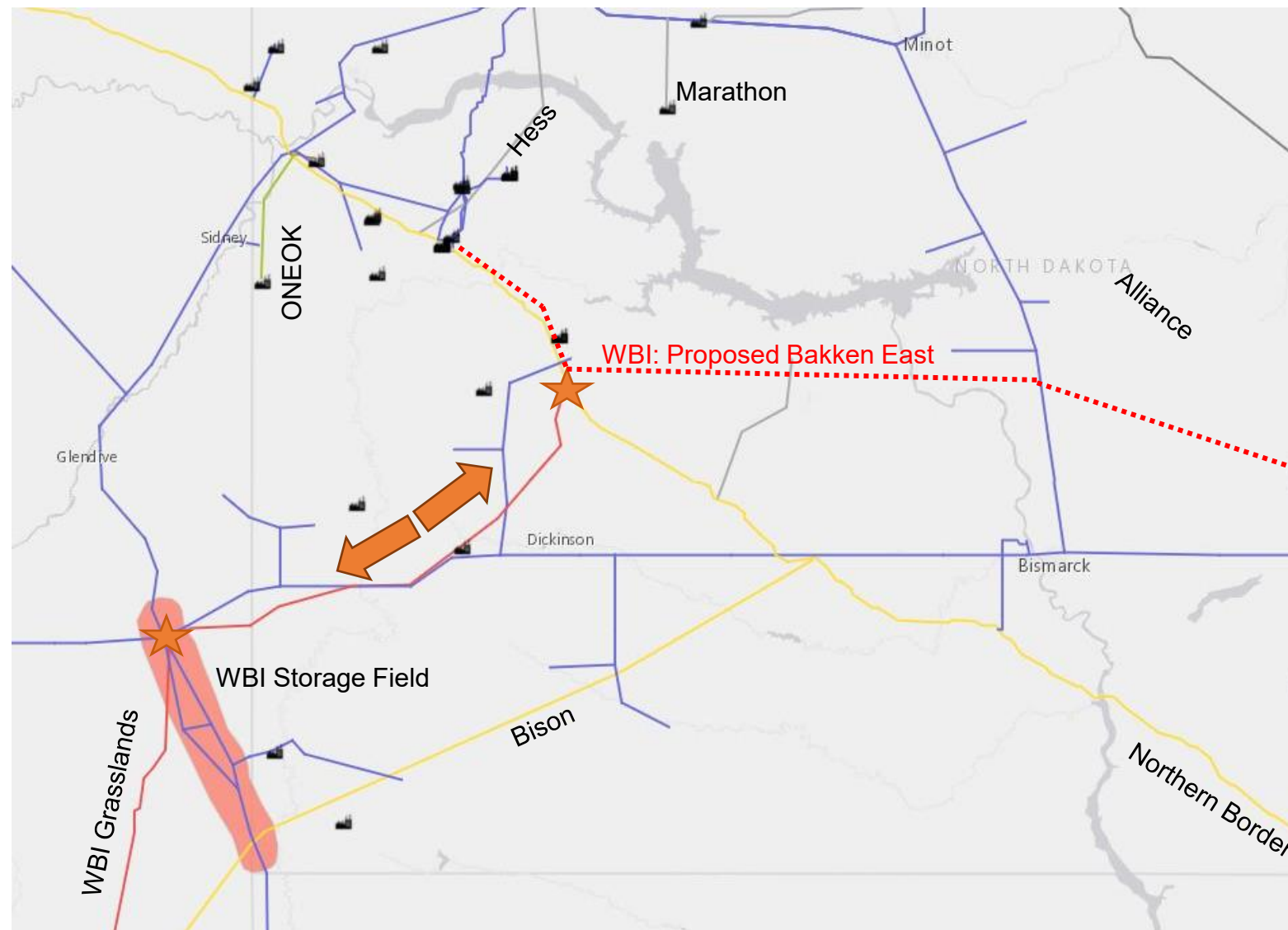
- Gas production growth is insufficient to meet a combination of LNG export needs, Alberta demand growth and sustaining pipeline exports.

NG Exports by Destination



- Potential end result is a reduction in gas pipeline exports to the U.S. as LNG and Alberta demand will take precedence.

# WBI Energy Open Season: Storage/Pipe Enhancement



## Firm Transportation Project Highlights

- Non-binding open season Apr 21 – May 20, 2025
- Pipeline expansion: 72,000 Dth/Day
- Oct 2029 targeted in-service
- Seeking commitments 15yrs or longer
- Pipe looping and new/upgraded compression

## Estimated Rates (+Fuel/Elec/Commodity)

- Capacity reservation: \$0.58156/Dth

## Storage Project Highlights

- Non-binding open season Apr 21 – May 20, 2025
- Deliverability expansion: 72,000 Dth/Day
- Up to ~10 BCF total of new seasonal service
- Oct 2029 targeted in-service
- Seeking commitments 15yrs or longer

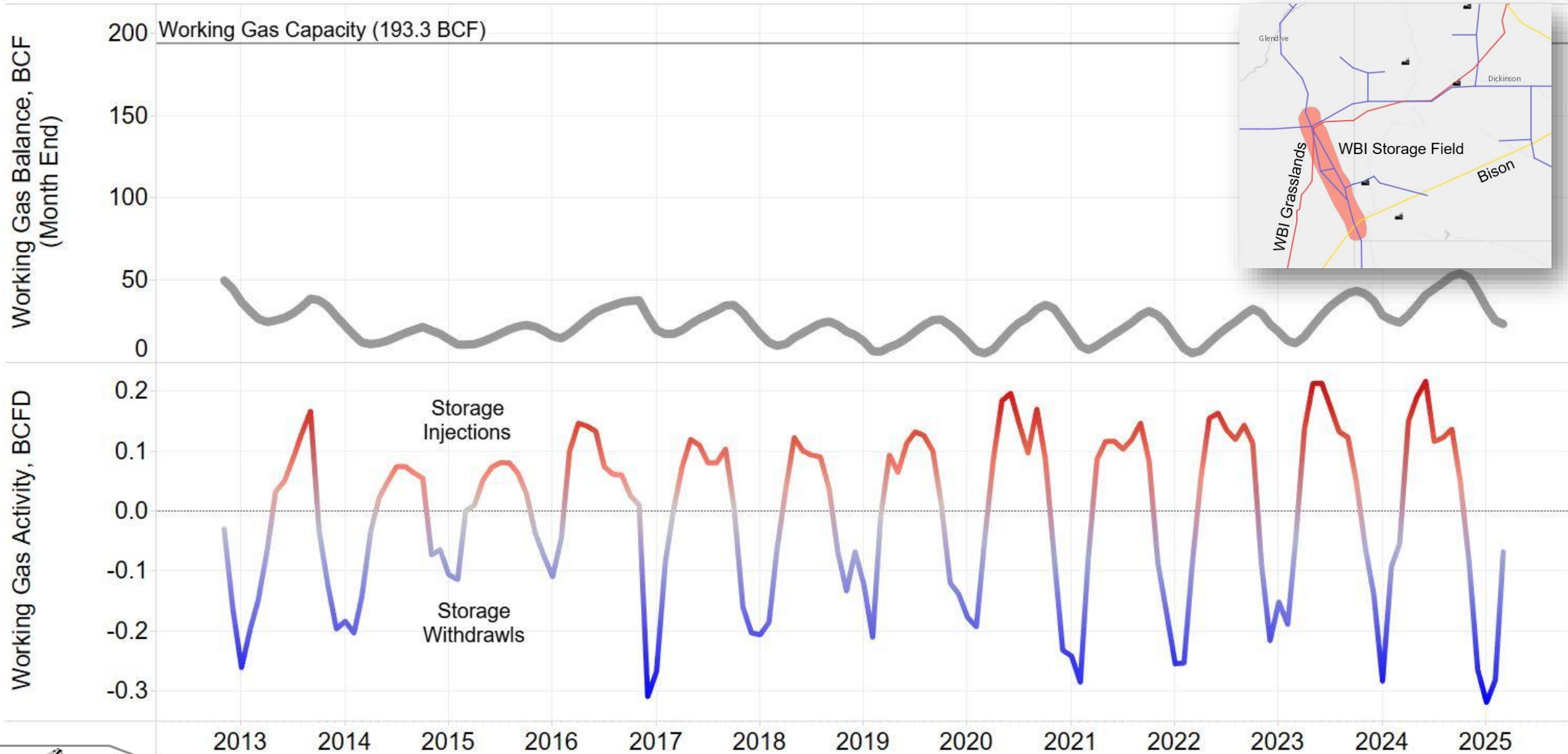
## Estimated Rates (+Fuel/Elec/Commodity)

- Capacity reservation: \$0.002113/Day
- Deliverability reservation: \$0.31901/Day
- Injection charge: \$0.00959/Dth
- Withdrawal charge: \$0.00959/Dth





# Residue Gas Storage – WBI Energy\*



# Driving Forces for New Gas Pipelines



Supply Push



Demand Pull



System  
Reliability/Security



# Who Signs Up For Project Capacity?

Shippers



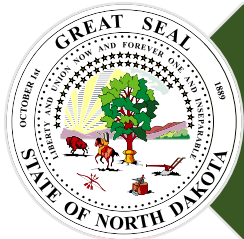
Producers/Midstream



Marketing Firms



Industrial Consumers/LDC

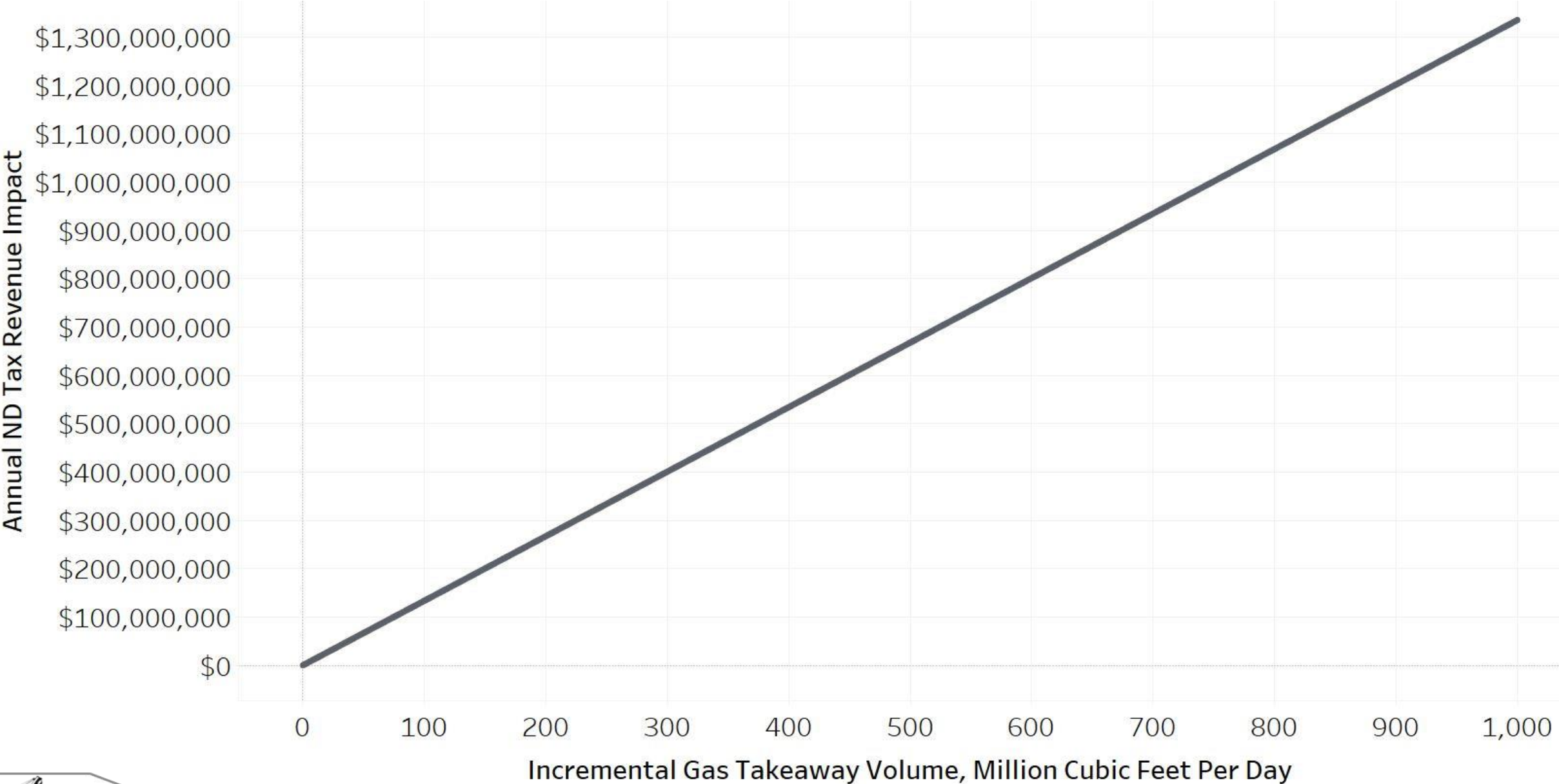


State of North Dakota (PA/IC)

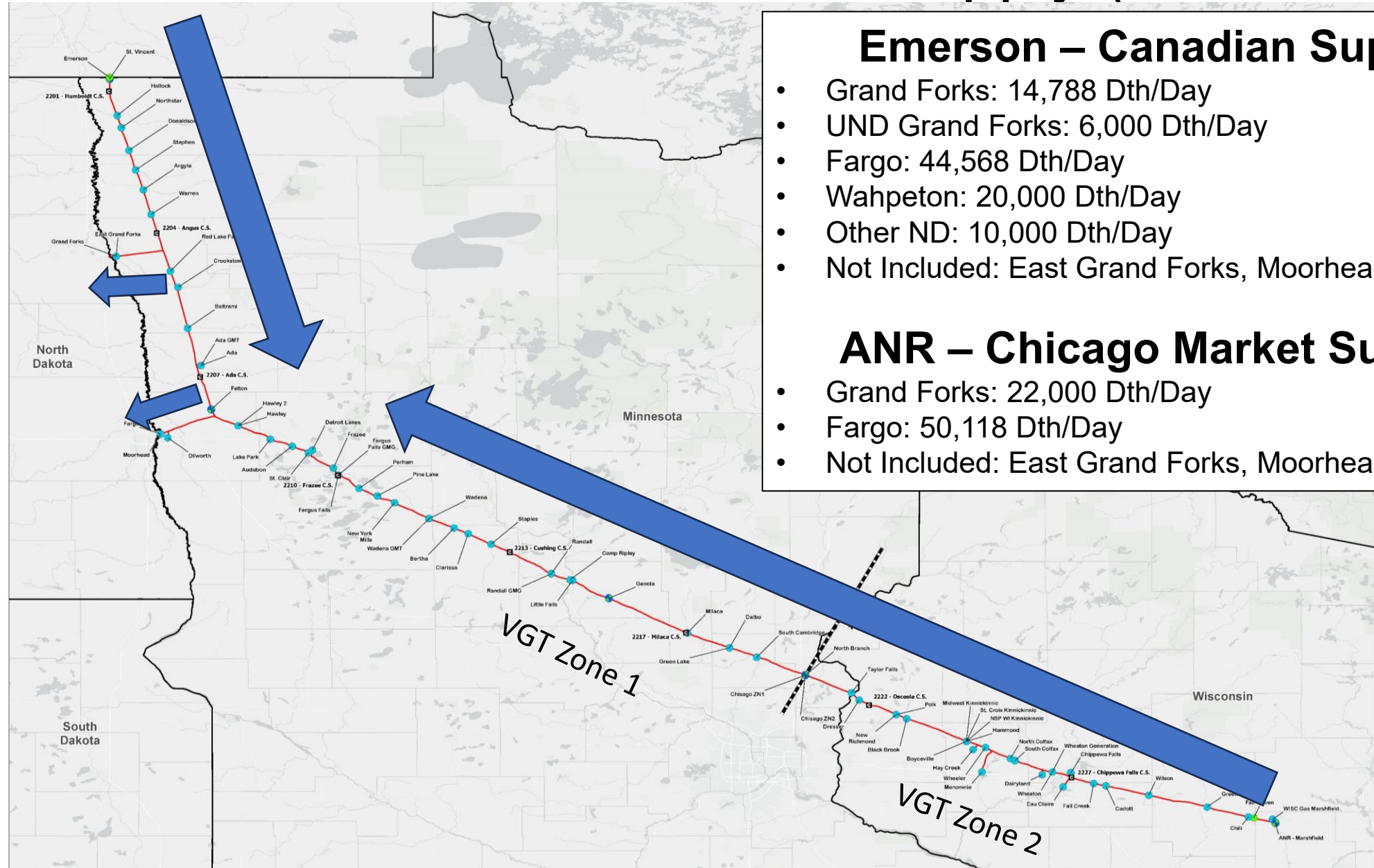




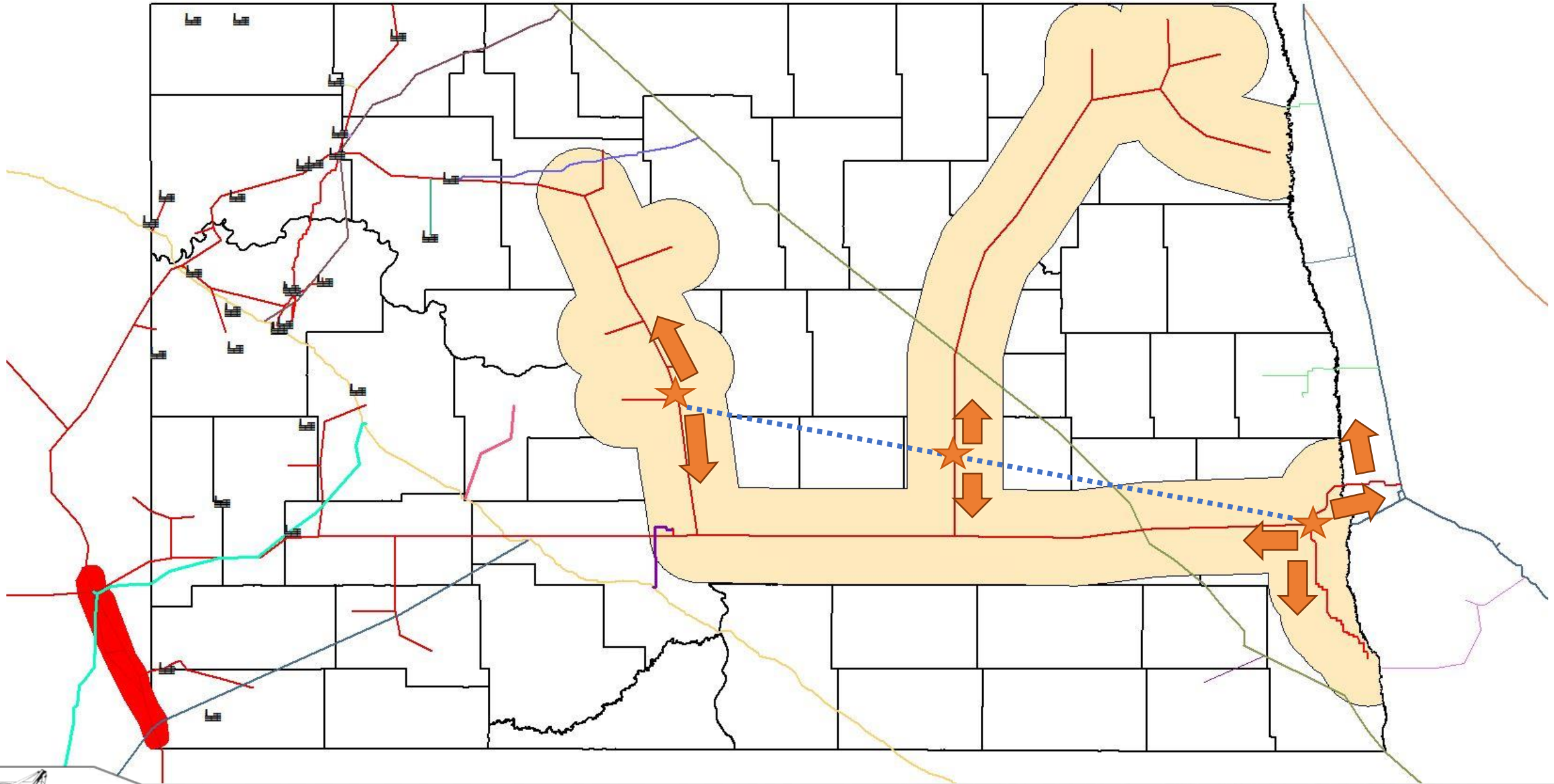
# ND Tax Impact of Incremental Gas Capacity



# Current Eastern North Dakota Gas Supply (\$0.47-\$0.60+)



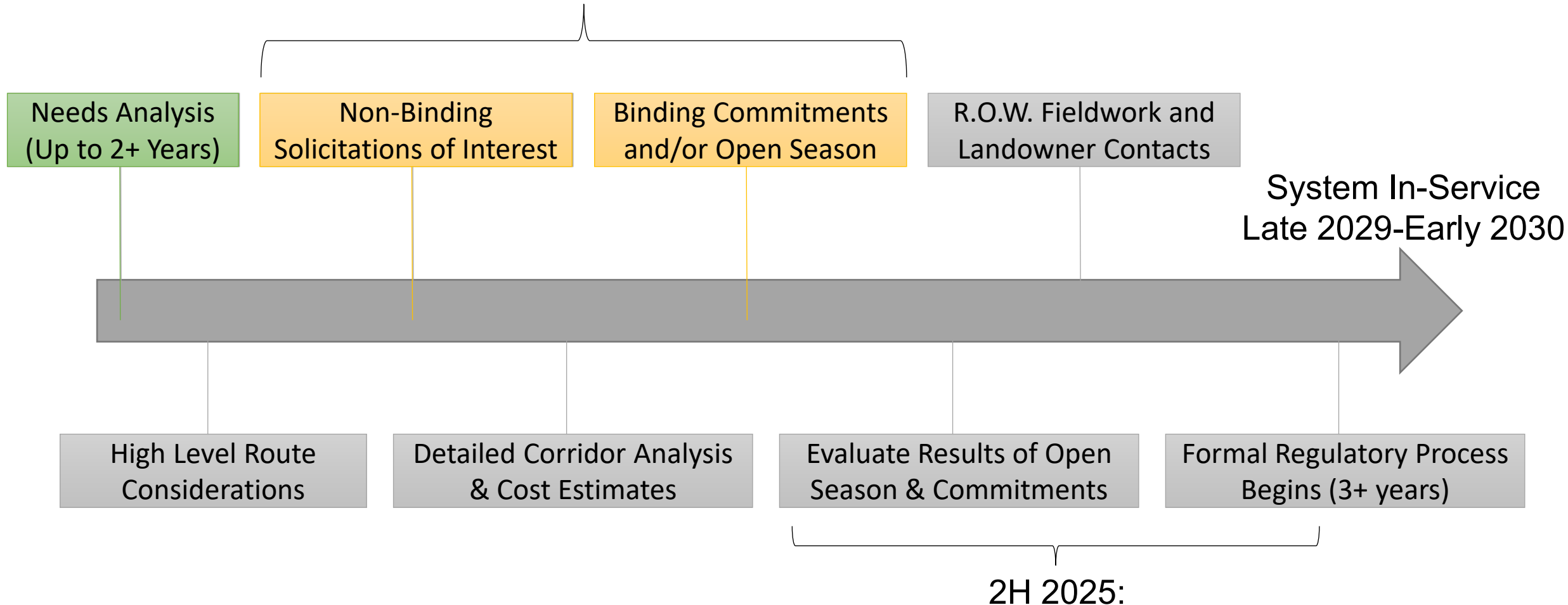
# Going East: Statewide Benefits of Interconnections



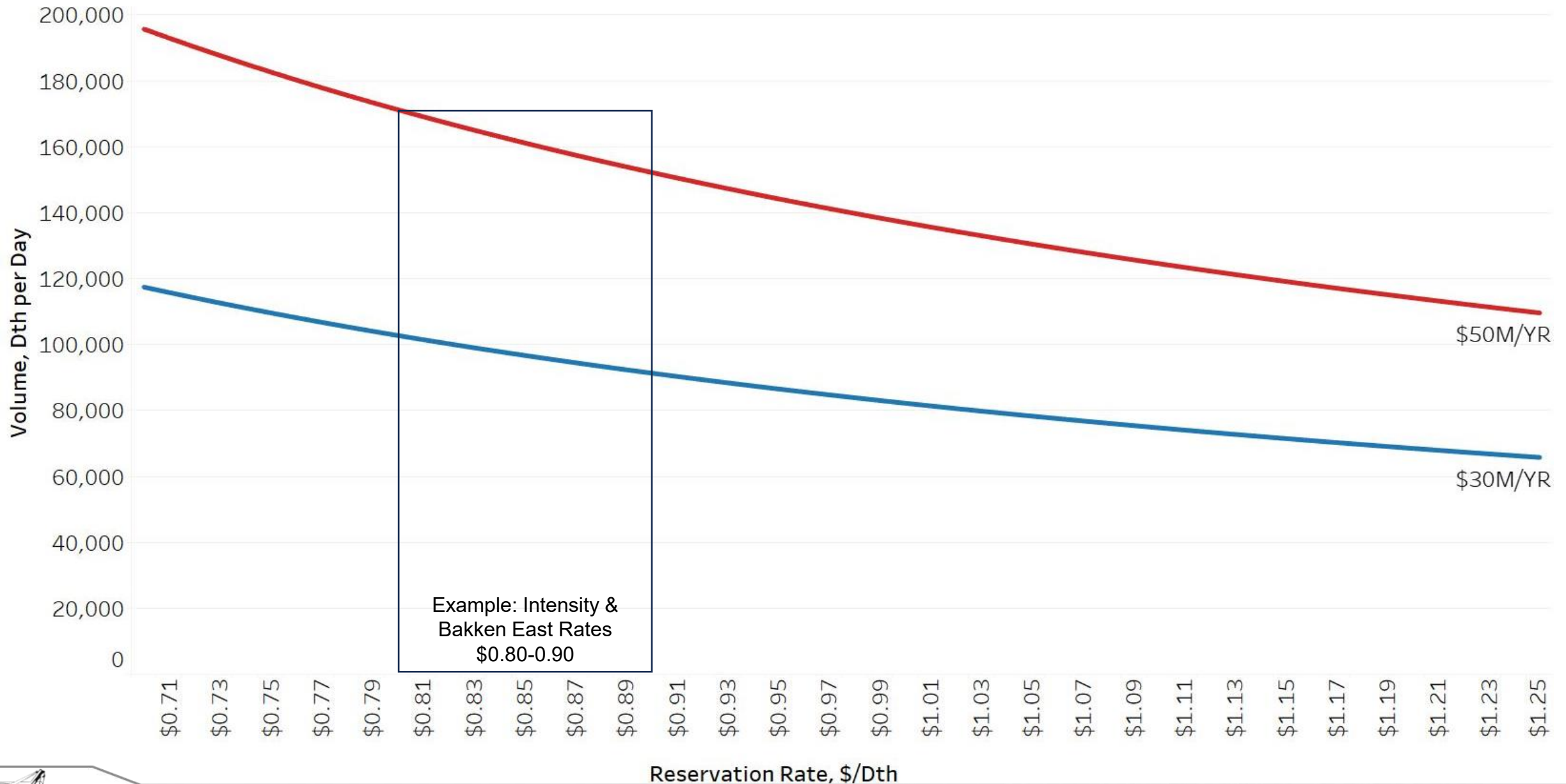


# Stages of Gas Pipeline Development

Current Phase: 1H 2025



# Capacity and Reservation Rate




# How Will NDPA Manage Contracted Capacity?




Most  
Desirable


Release capacity to replacement shipper(s)  
in increments greater than one year at  
FERC required rate structure



Release capacity to replacement shipper(s)  
in increments less than one year at bid  
rates (*Limited by 54-17.7-04 Subsection 3*)



Release of capacity to an asset manager for  
an appropriate term length



Pay obligated precedent agreement rates  
until a release or asset management  
agreement is established



Least  
Desirable





# Options Beyond 2026: The 5 “C’s”

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## Compete

- Price Canadian Volumes to Flow Elsewhere

## Compression

- Increase Capacity on Existing Interstate Systems

## Consumption

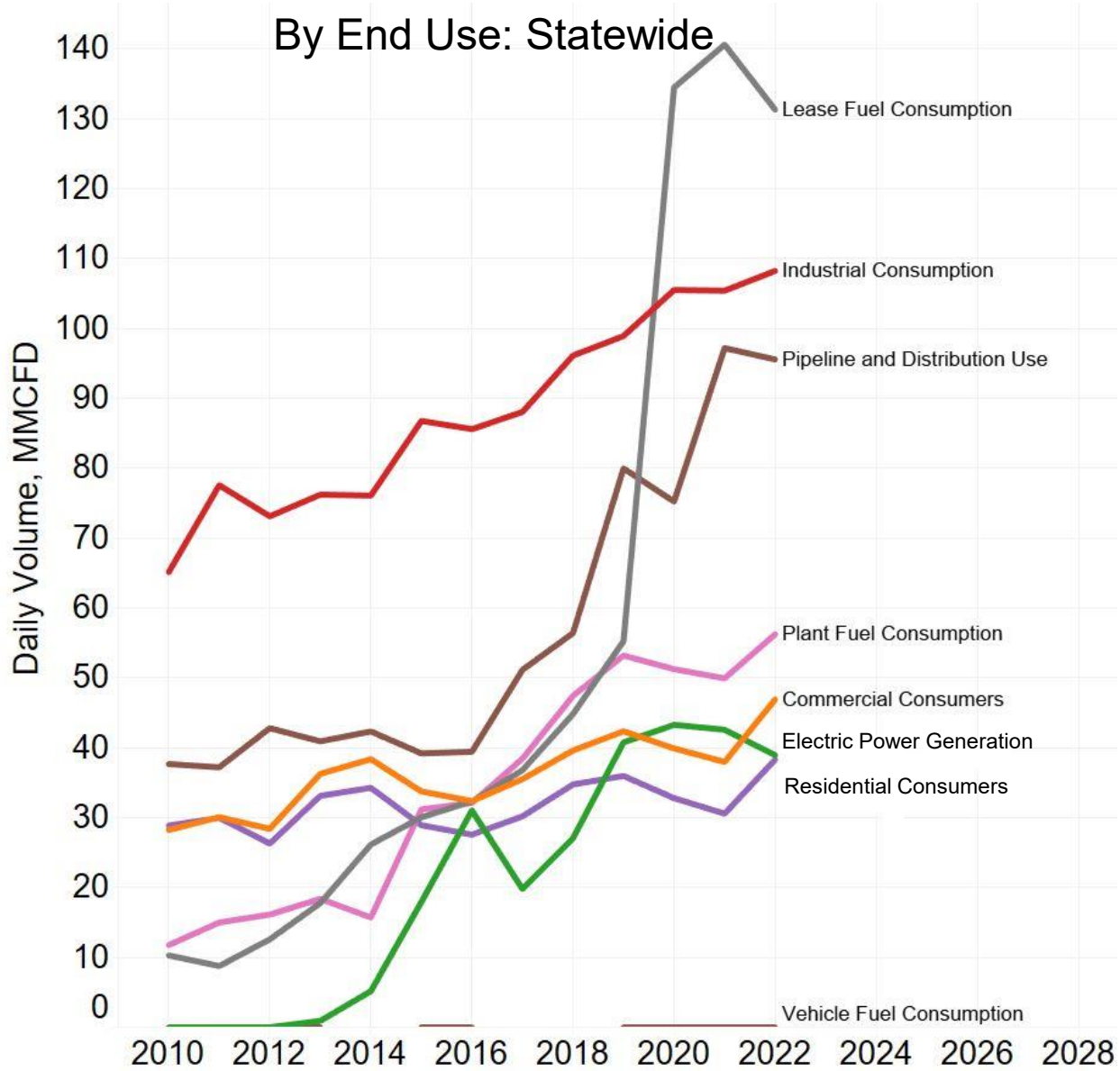
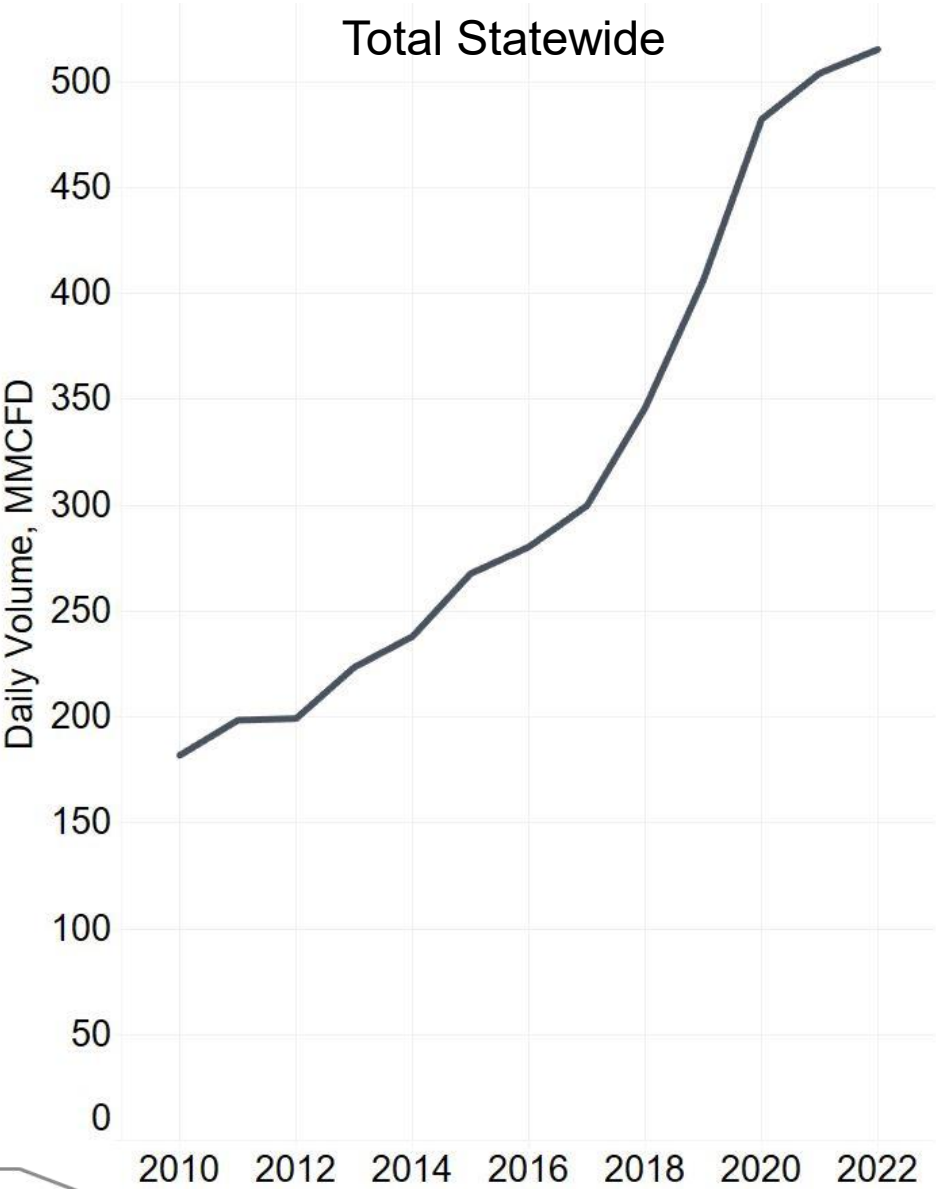
- Intra Region Gas Demand Expansion

## Contraction

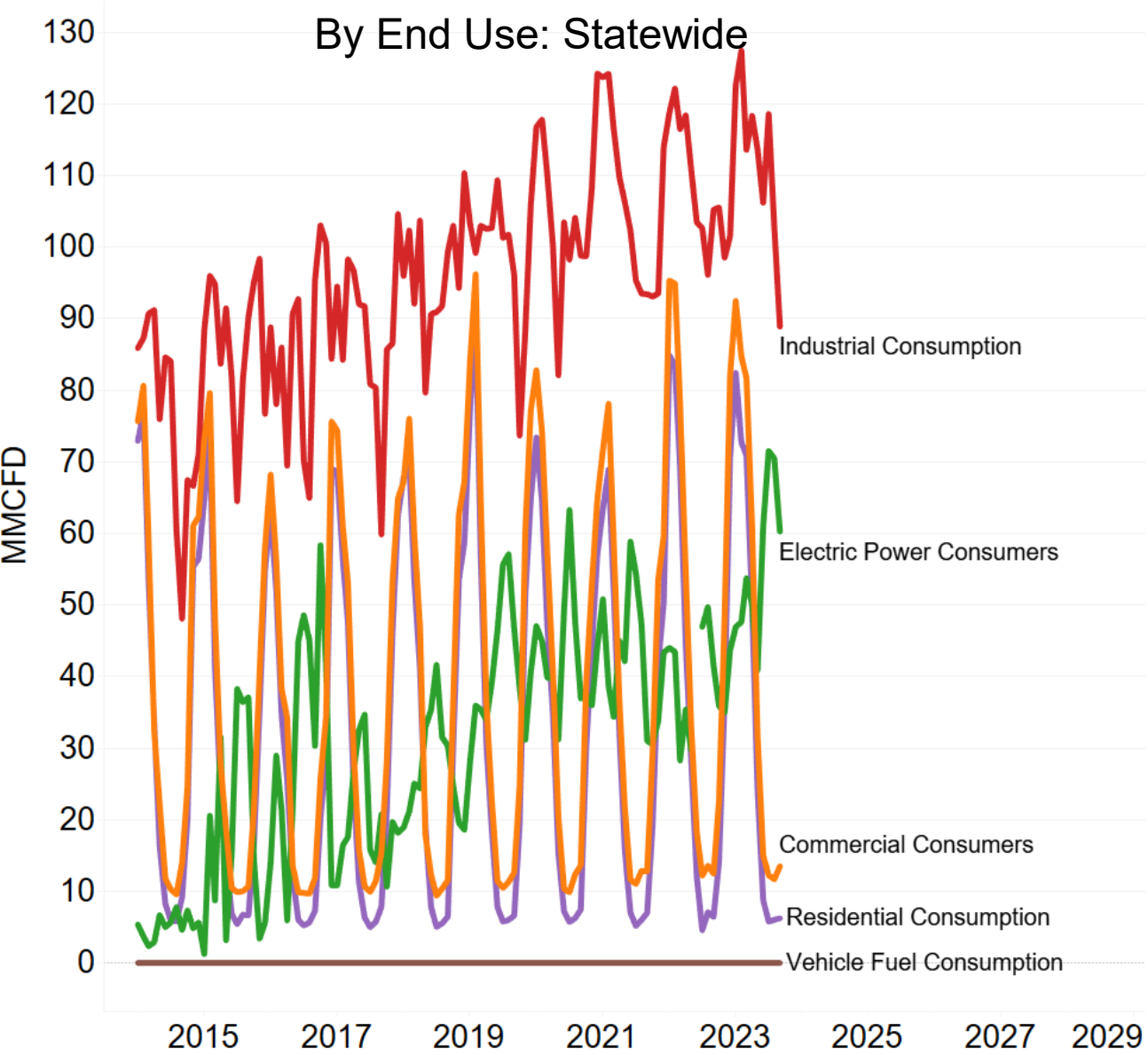
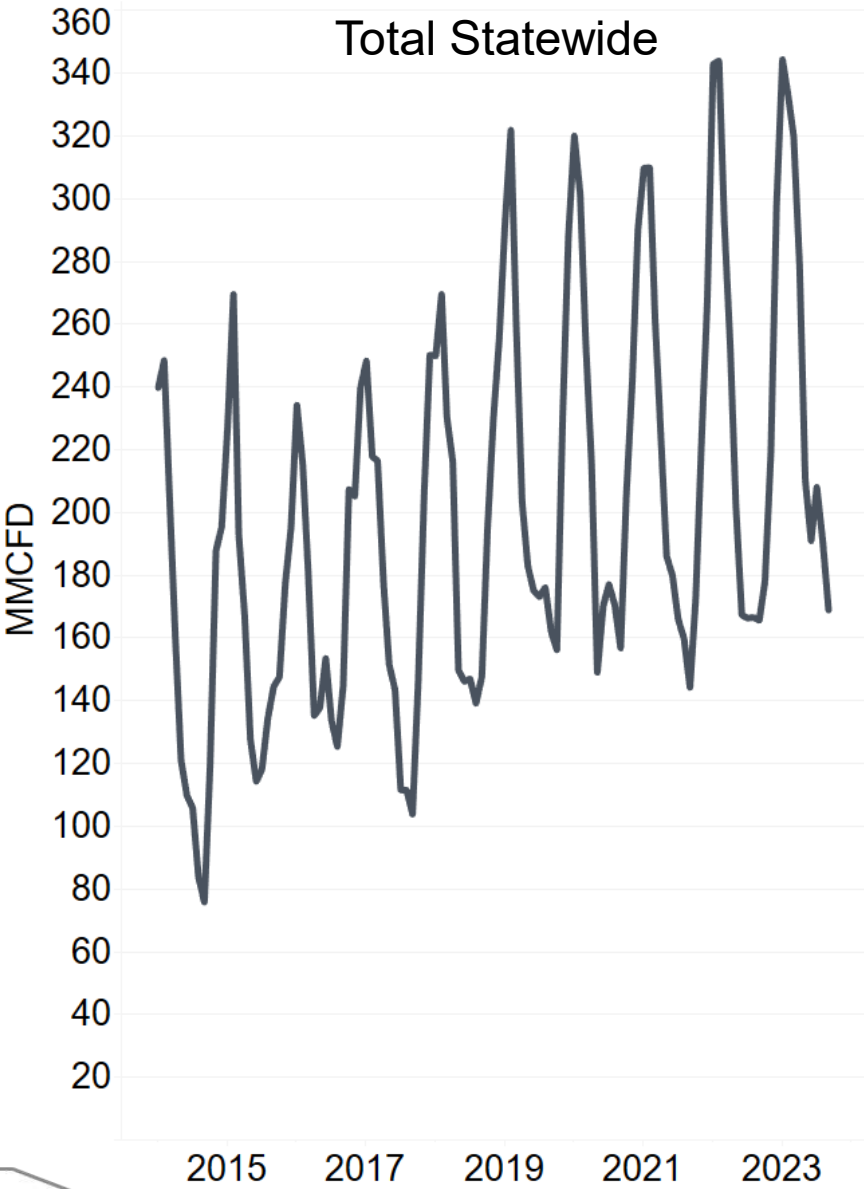
- Reduce E&P Activity to Meet Limited Gas Options



# North Dakota Gas Consumption (Annual)



# Non-Midstream Consumption (Monthly)






# Regional Gas Demand Outlook Changing Rapidly

AI Agenda

Two AI Developers Are Plotting \$125 Billion Supercomputers



By Anissa Gardizy

2024, 7:00am

The Information

Developers of artificial intelligence say they need bigger and bigger data centers to concentrate processing power so that it produces better versions of the technology.

The companies are notoriously secretive about the details of those plans, though, which is

Utility plans another gas-fired power plant for North Dakota

BY JEFF BEACH - MAY 15, 2024 6:48 PM



North Dakota Monitor

Company proposes to upcycle Minnesota iron mine waste in central North Dakota

\$10M in state funding awarded to effort to produce low-carbon pig iron

BY JEFF BEACH - FEBRUARY 8, 2024 5:00 AM



North Dakota Monitor

Natural gas conversion project near Williston also includes carbon capture

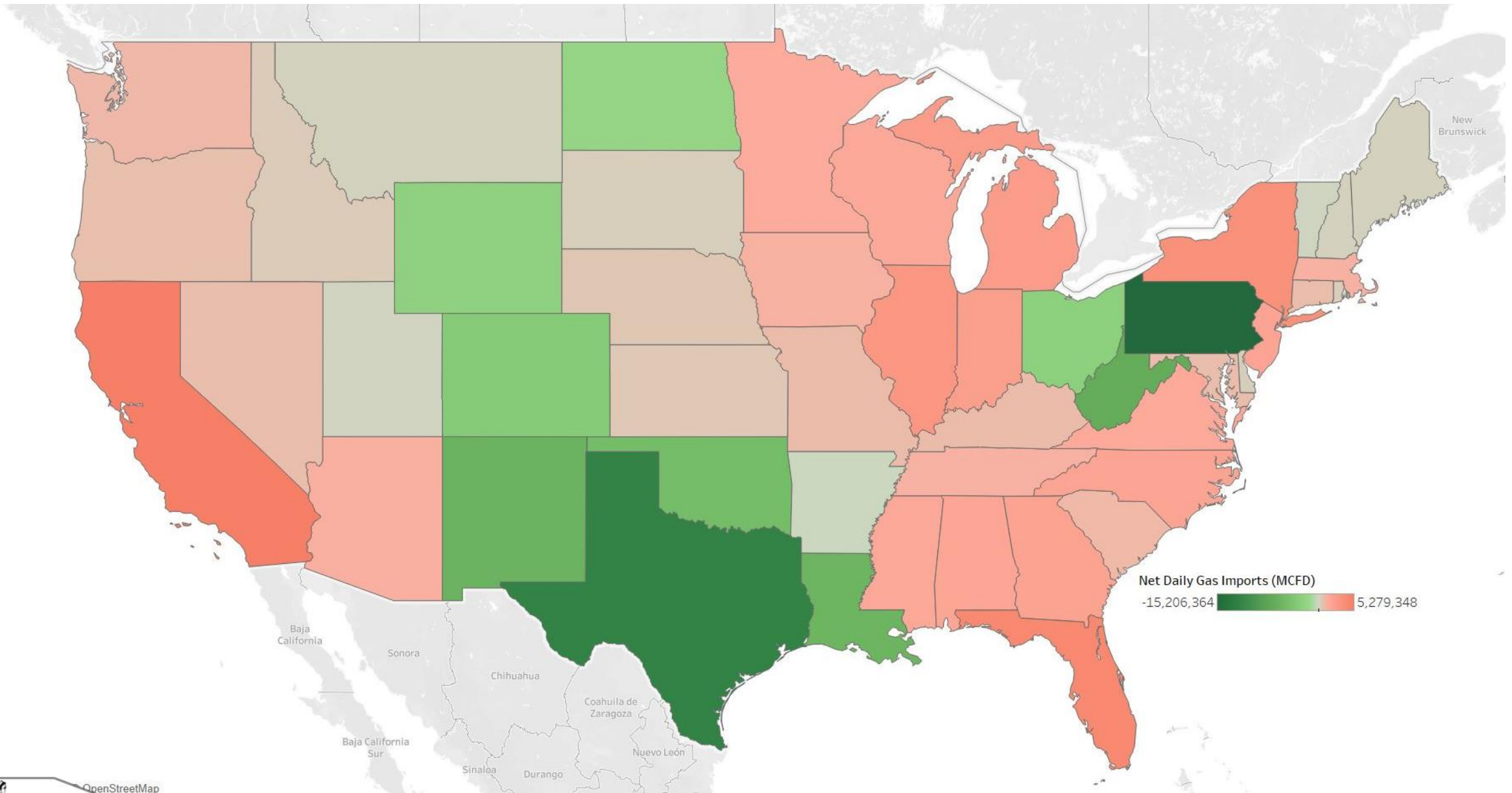
BY JEFF BEACH - JUNE 17, 2024 5:00 AM



North Dakota Monitor

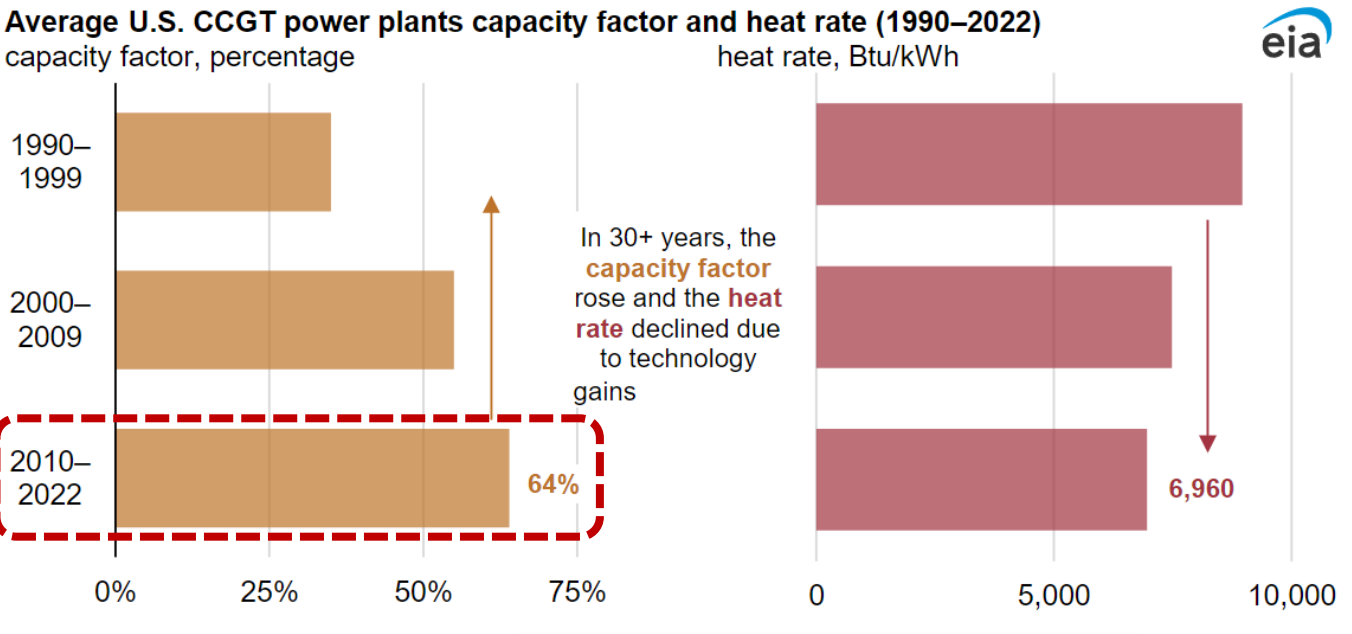


# Natural Gas Production/Consumption

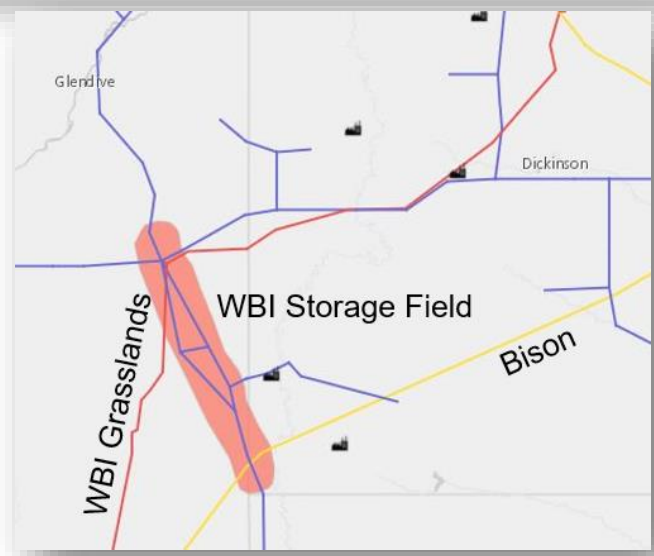
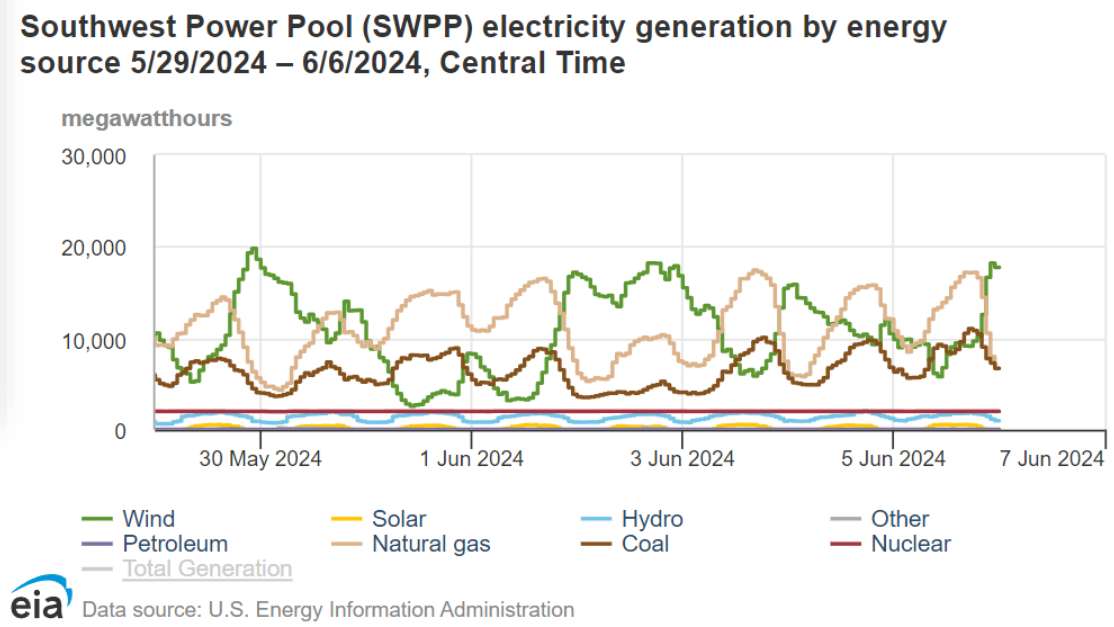




# Intermittent Gas-Fired Generation Challenging to Match Oilfield Output



Gas-fired demand can fluctuate hourly, daily, and weekly, depending on system load, weather, etc.



Regional gas storage could provide a balancing solution for intermittent generation, but who pays for the required expansion?





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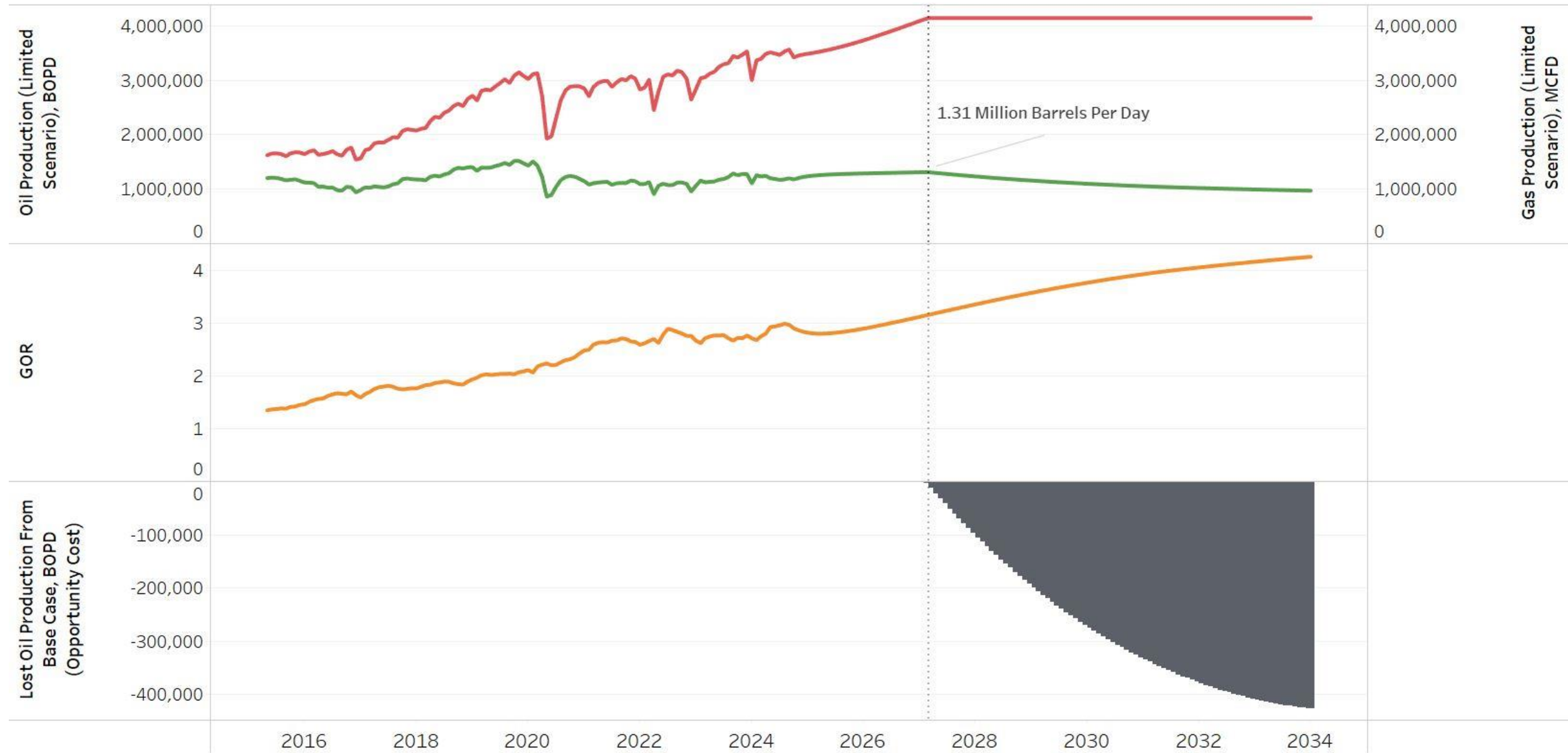
- Intra Region Gas Demand Expansion

## Contraction

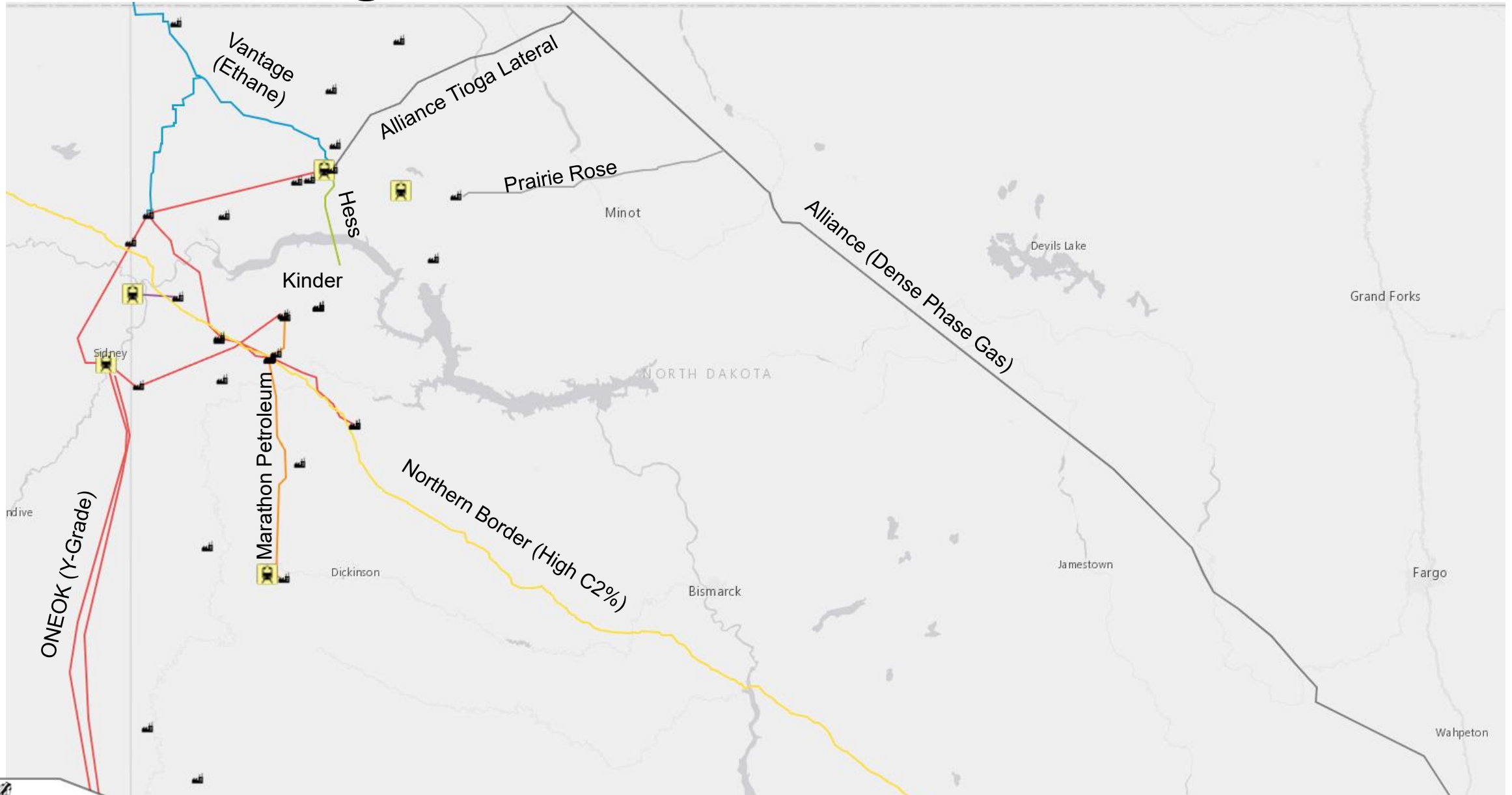
- Reduce E&P Activity to Meet Limited Gas Options



# Gas Limitations Could Force Oil Production Down As GOR Rises



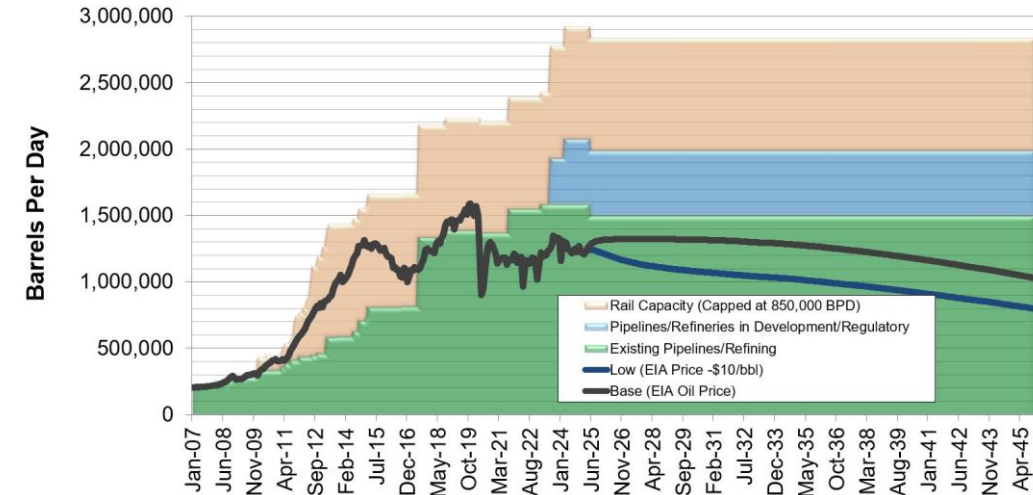
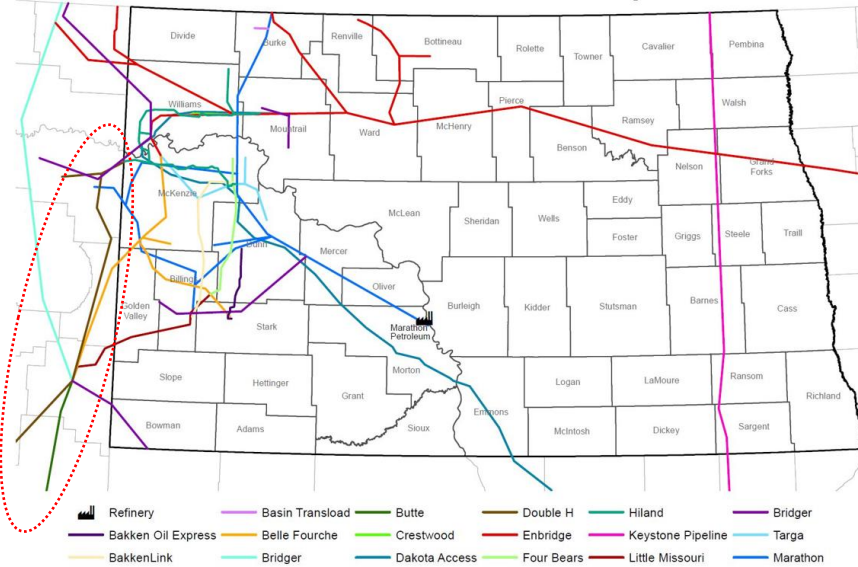
# Regional NGL Infrastructure



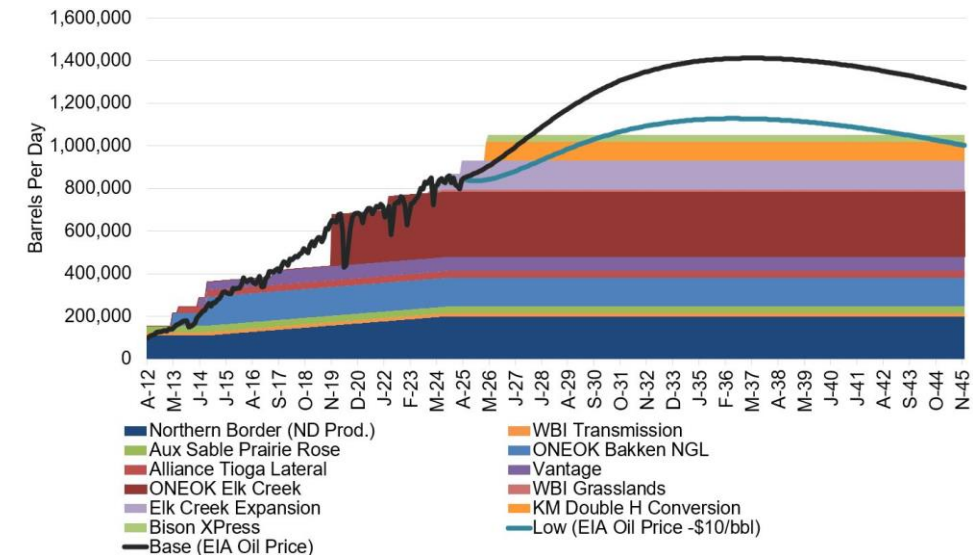
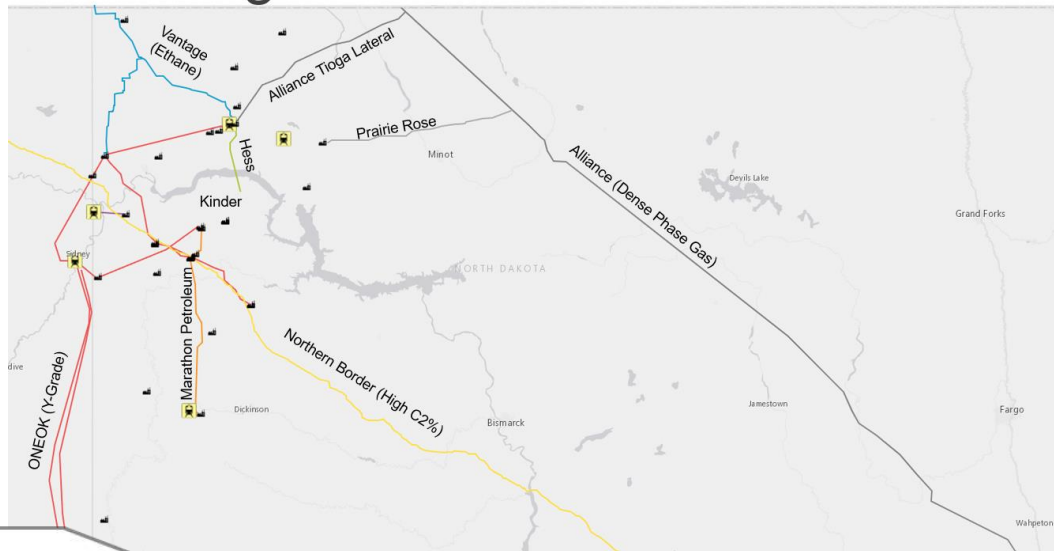


# Kinder Morgan Double H Pipeline Conversion

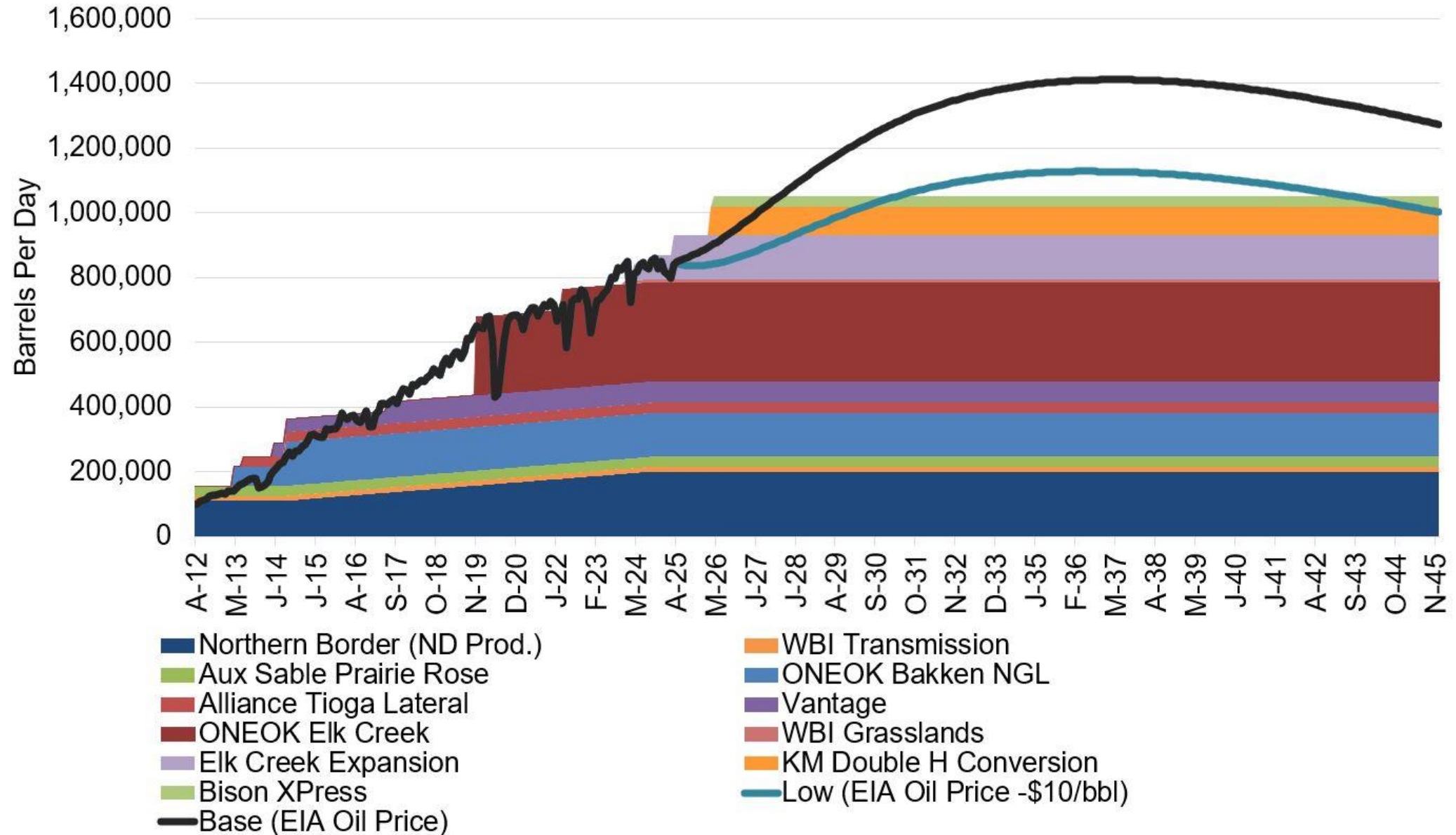
North Dakota Oil Transmission Pipelines



Regional NGL Infrastructure



# NGL Transport Needs\* – With New Cheyenne Pipes



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