North Dakota
Oil & Gas Research Council

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Geological Engineer
Director
North Dakota Pipeline Authority

February 23, 2022

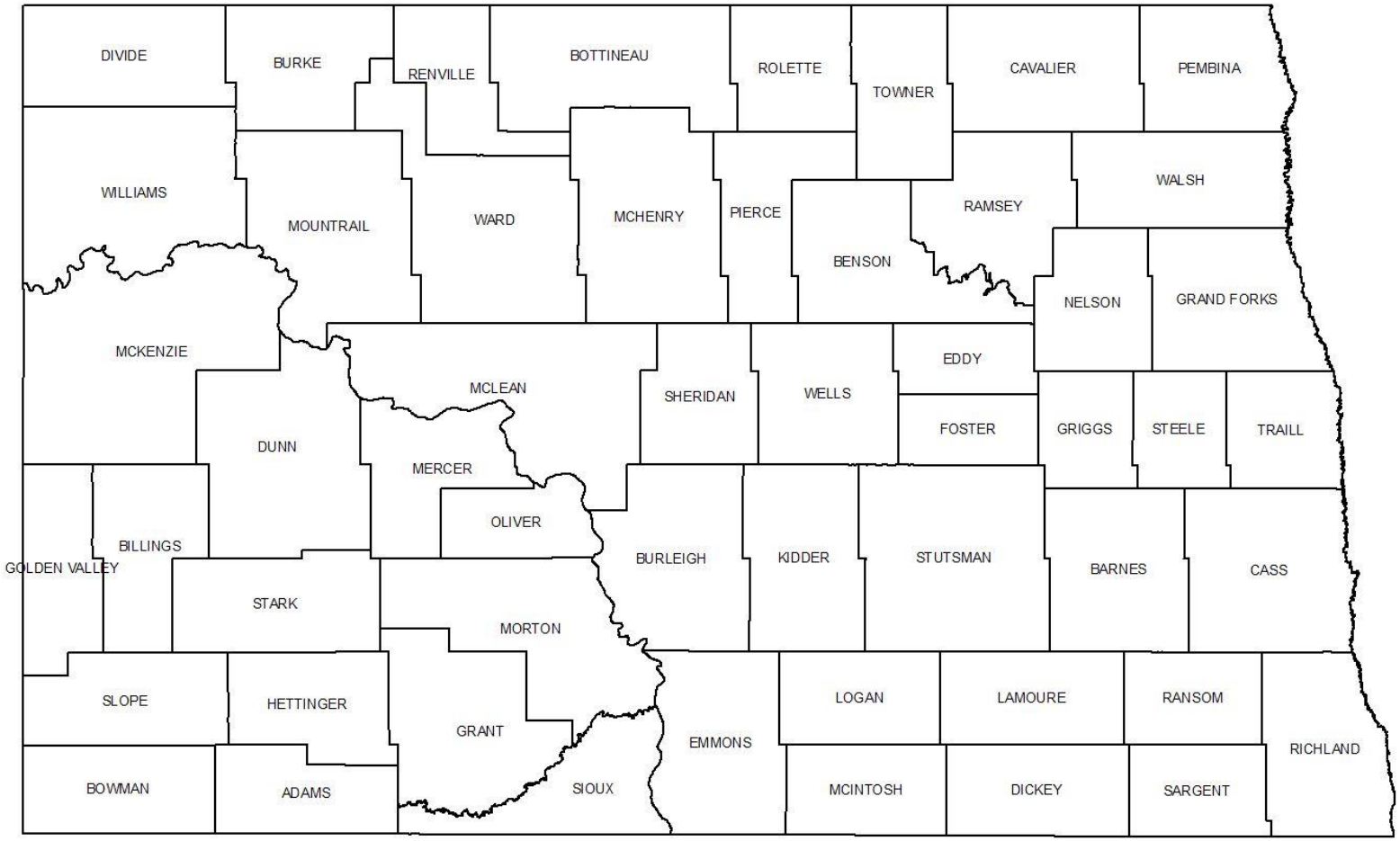
Bakken “Core” Inventory Map from 2000

In the year 2000…

“Core” Bakken Inventory: **0**

“Core” Three Forks Inventory: **0**

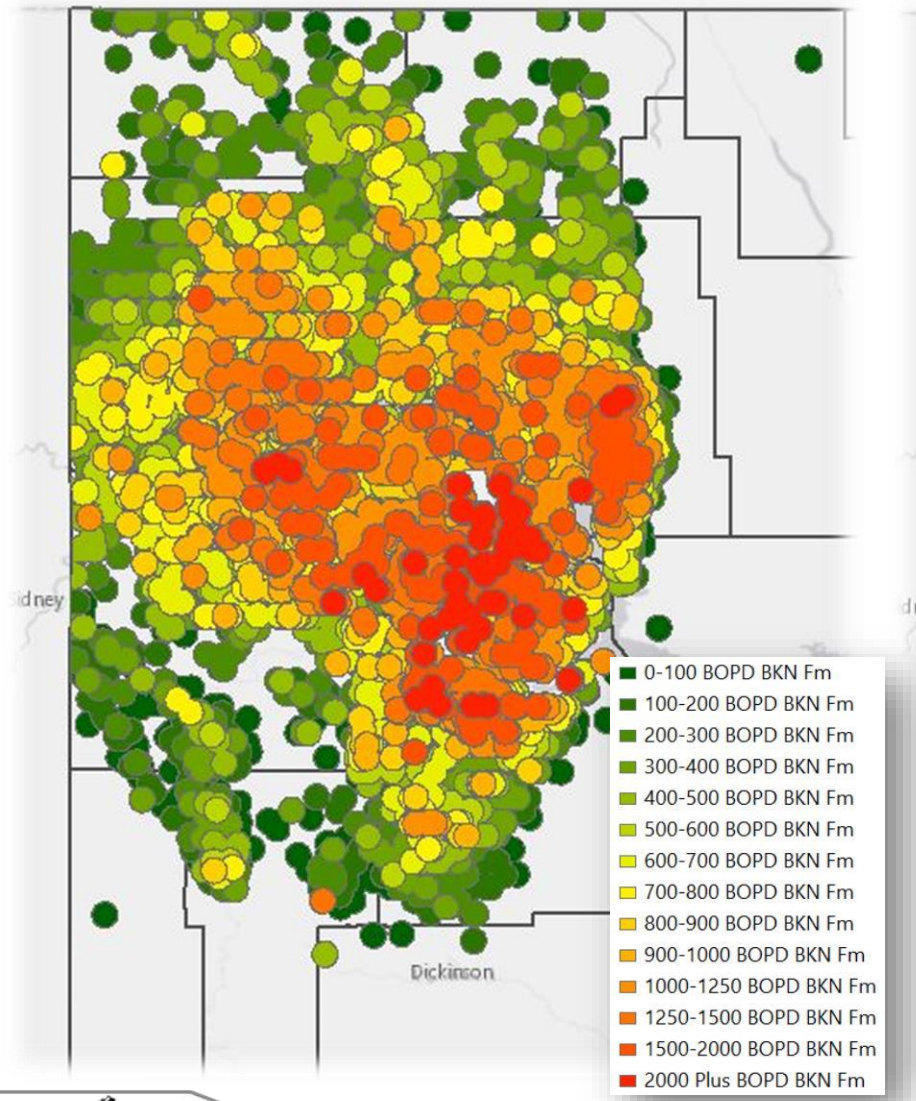
Years of “Core” Drilling Remaining: **0**



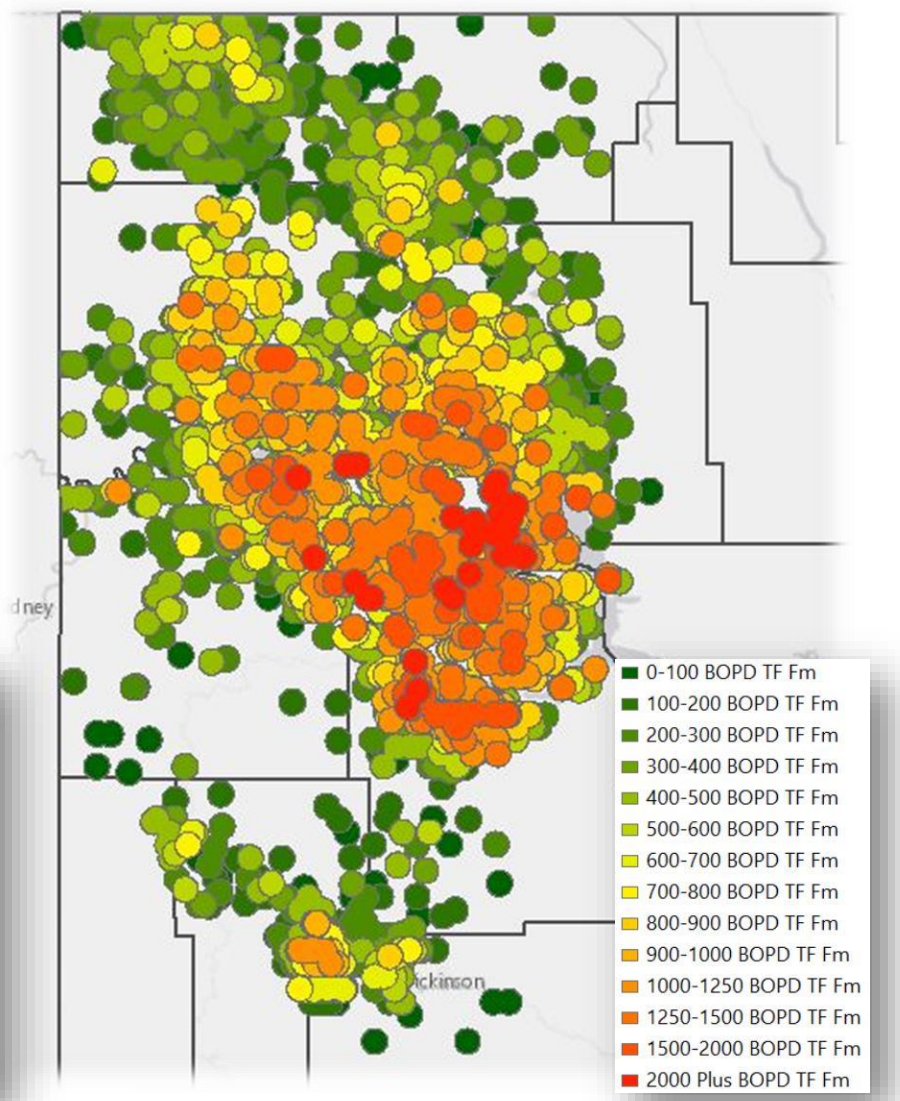
What is now proved was once only imagined – William Blake

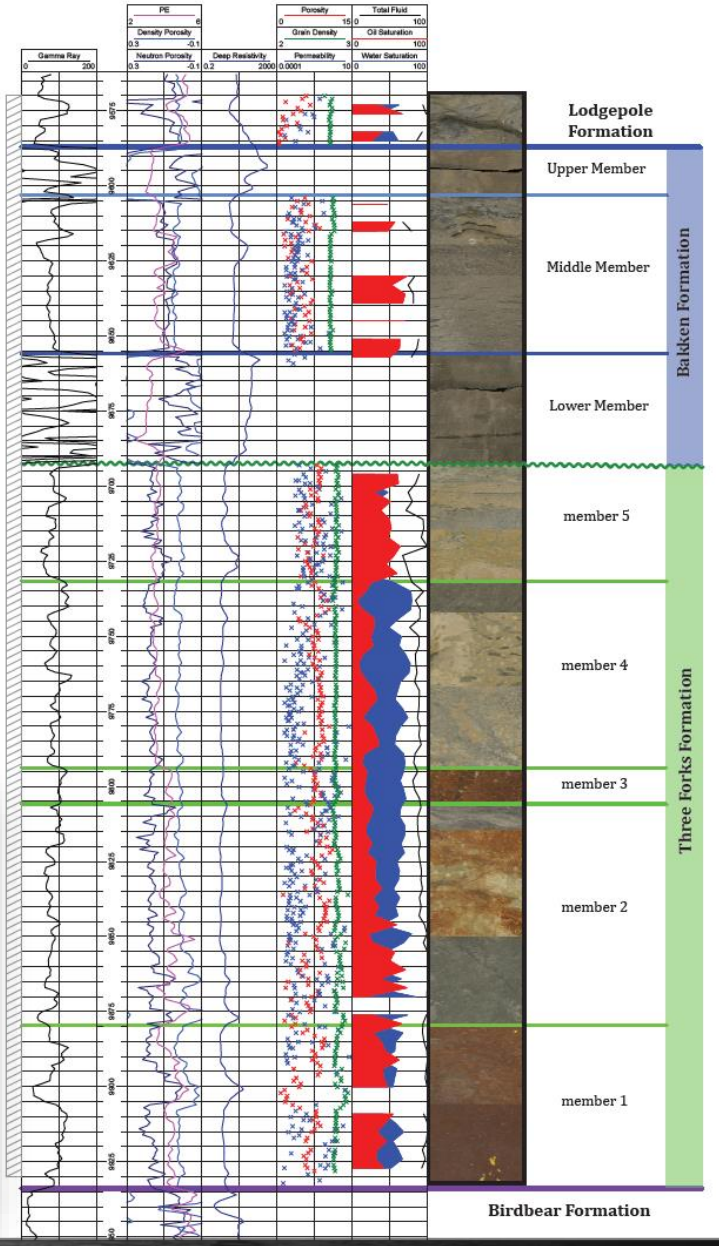
Bakken & Three Forks Formations – Feb. 2022

Bakken Formation

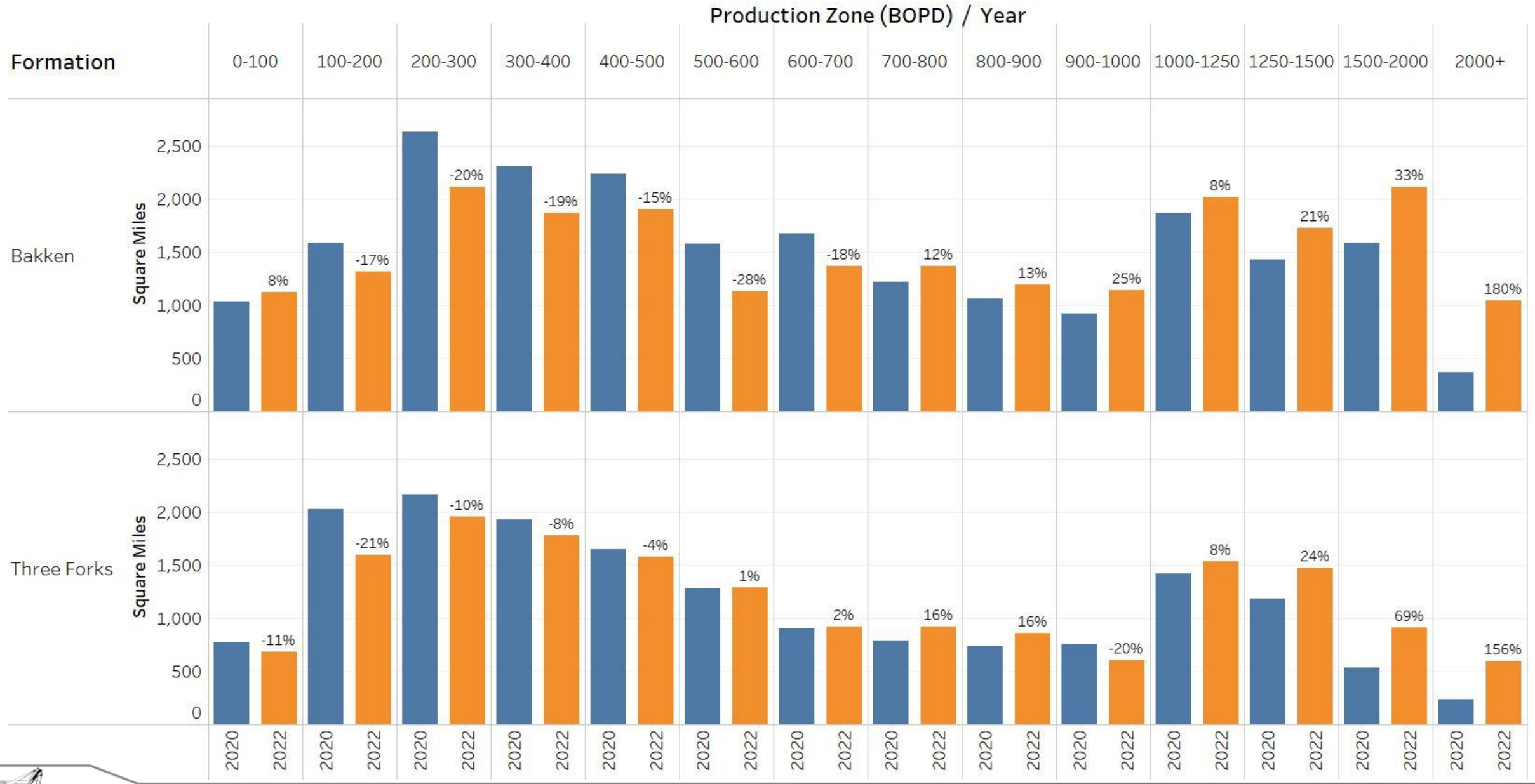


Three Forks Formation





The “Core” is Expanding…



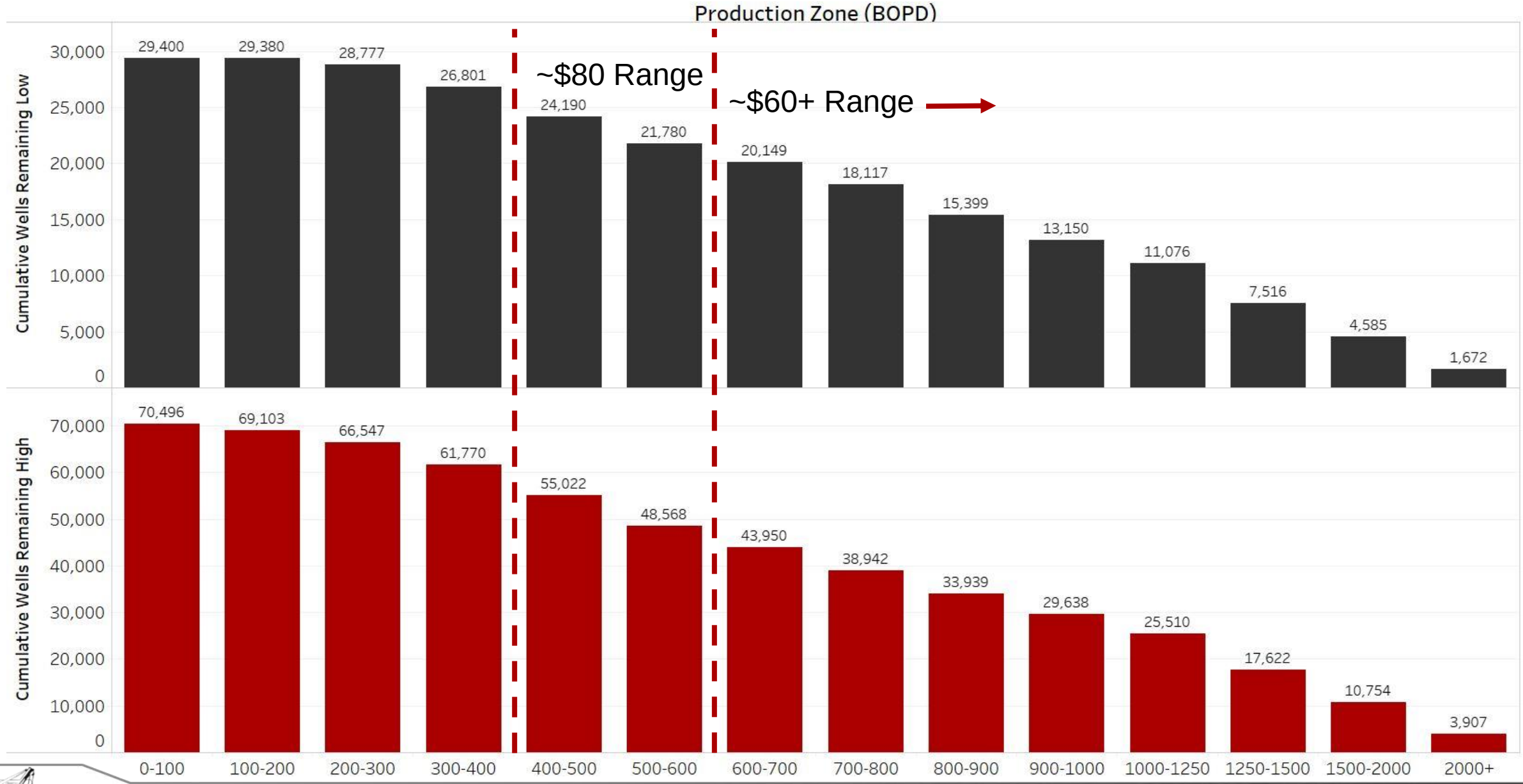
~$60 Locations Being Added Quickly

In Two Years…

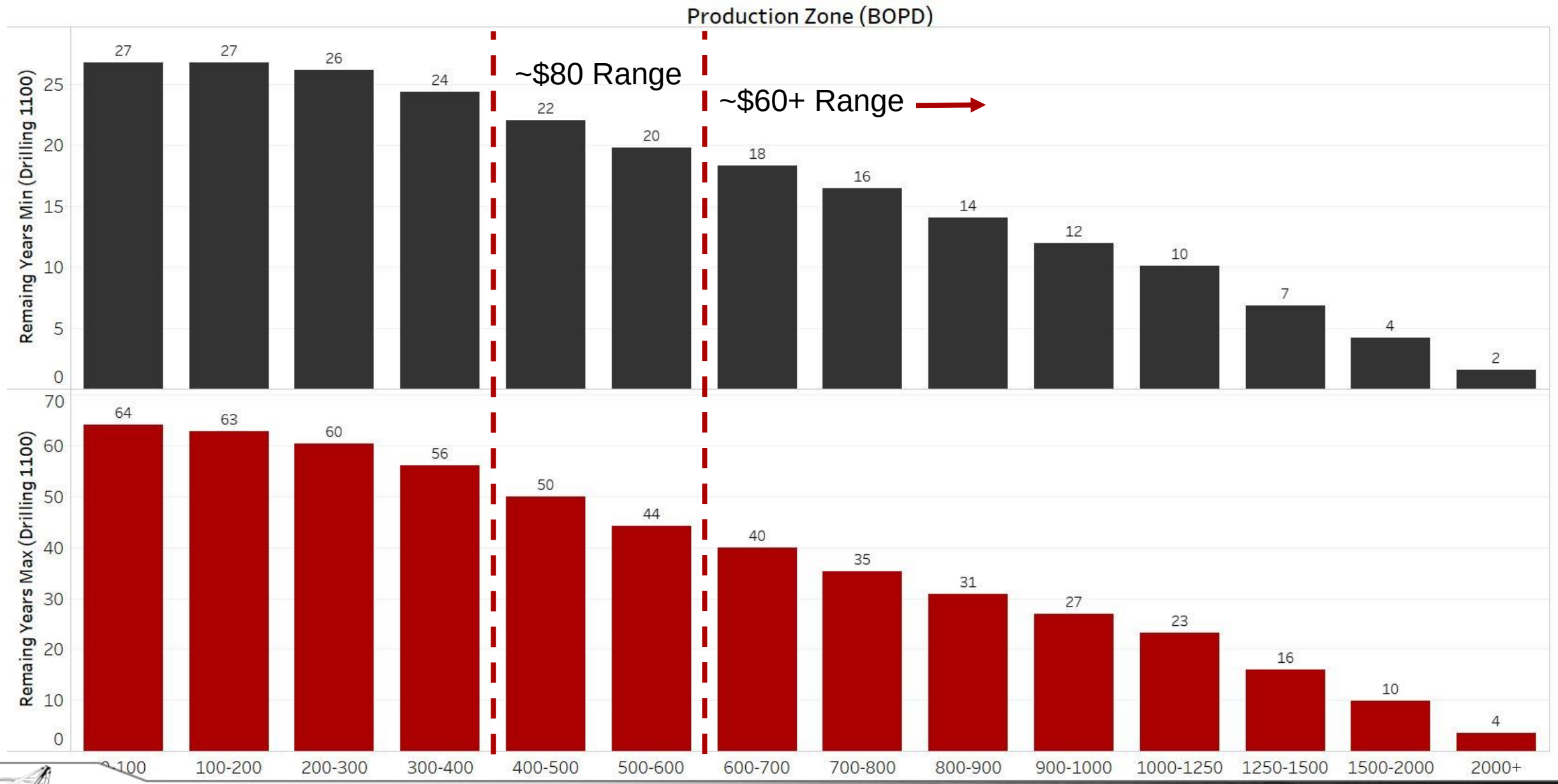
- ~1,800+ Square miles of new $60 Acreage in the Bakken
- ~1,200+ Square miles of new $60 Acreage in the Three Forks
- **7,000+ new $60 well locations added in two years**

- **Only ~1,265 wells completed in the last two years…**

Remaining Drilling Inventory (Bakken/Three Forks)

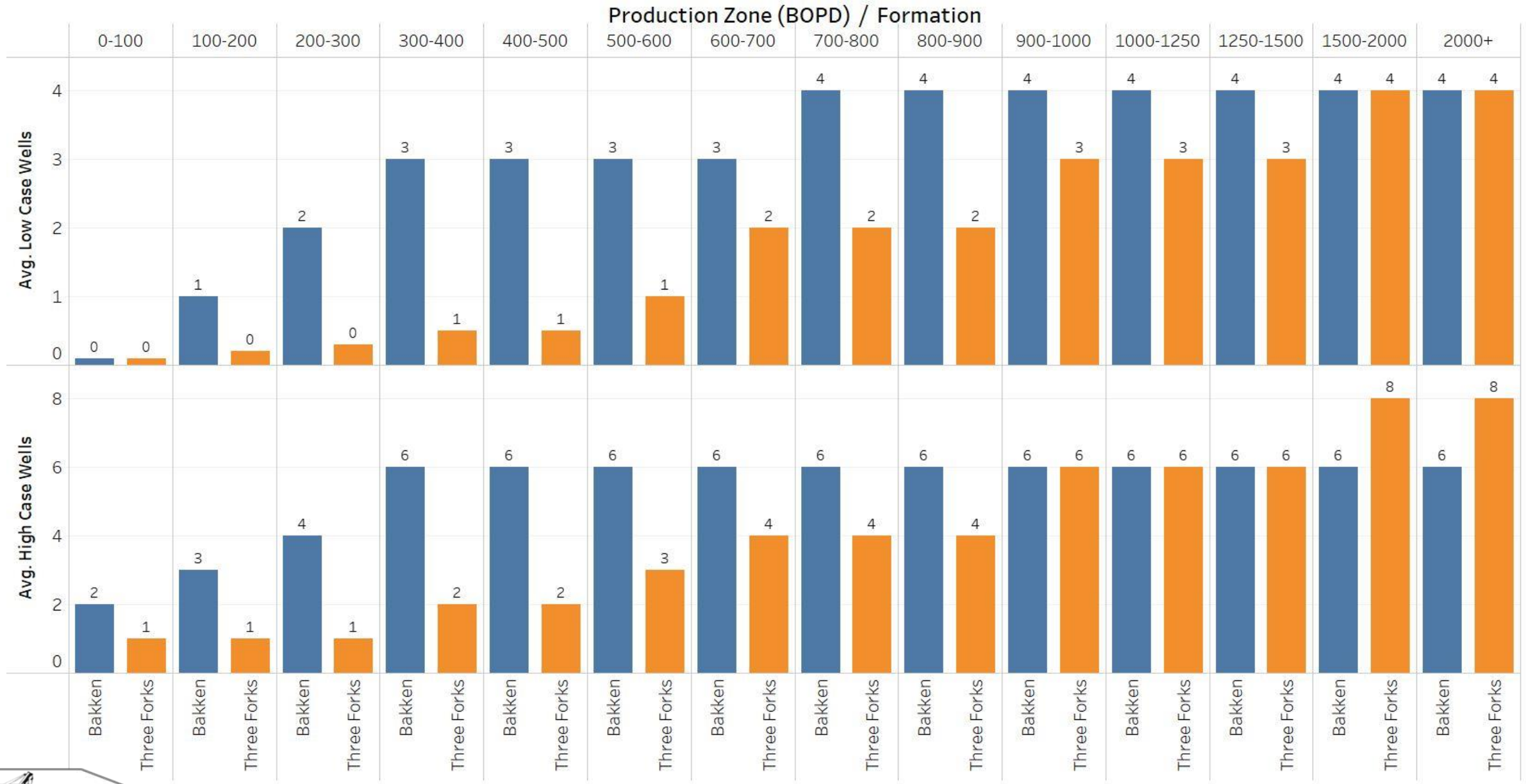


Years of Inventory at 1,100 Wells/Year



*Assumes 1,280ac Spacing Units

Drilling Assumptions – Laterals Per Formation



HESS CORPORATION

January 26, 2022

Fourth Quarter 2021 Conference Call Remarks

In the Bakken, both fourth quarter and full year 2021 net production were in line with our guidance, averaging 159 thousand and 156 thousand barrels of oil equivalent per day respectively.

We have a robust inventory of approximately 2,100 drilling locations in the Bakken that can generate attractive returns at $60 WTI, representing approximately 70 rig years of activity. In 2022, we plan to operate three rigs and expect to drill approximately 90 gross operated wells and bring approximately 85 new wells online. In the first quarter of 2022, we plan to drill approximately 22 wells and bring 10 new wells online. For the balance of the year, we expect to bring online an average of 25 wells per quarter.

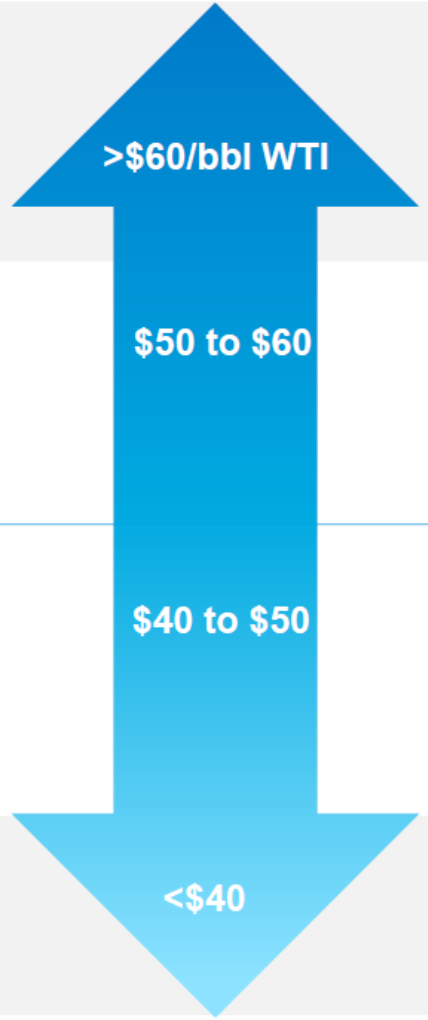
In 2021, our drilling and completion cost per Bakken well averaged $5.8 million, which was $400,000 or 6 percent lower than 2020. In 2022, we expect to fully offset anticipated inflation through lean manufacturing and technology driven efficiency gains, and therefore D&C costs are expected to be flat with last year at approximately $5.8 million per well.

For the full year 2022, we forecast Bakken net production to average between 165 thousand and 170 thousand barrels of oil equivalent per day, a 6 to 9 percent increase over 2021. First quarter net production is forecast to average between 155 thousand and 160 thousand barrels of oil equivalent per day.

Beginning in the second quarter we expect to benefit from the addition of the third rig, which we added last September, and improving weather conditions. Net Bakken production is forecast to steadily ramp over the course of 2022 and to average between 175 thousand and 180 thousand barrels of oil equivalent per day in the fourth quarter.

Clear Priorities for Capital Allocation

Percentage of CFO framework provides shareholders first call on cash flow



Significant Price Support

- Return at least 40% of CFO to equity investors; >$1B of capital return annually
- Retire future debt at maturity
- Production growth cap of 5% underscores commitment to discipline and sustainable FCF

Modest Price Support

- Return at least 30% of CFO to equity investors; >$600MM of capital return annually
- Retire future debt at maturity
- Production growth cap of 5% underscores commitment to discipline and sustainable FCF

Conservative Planning Basis

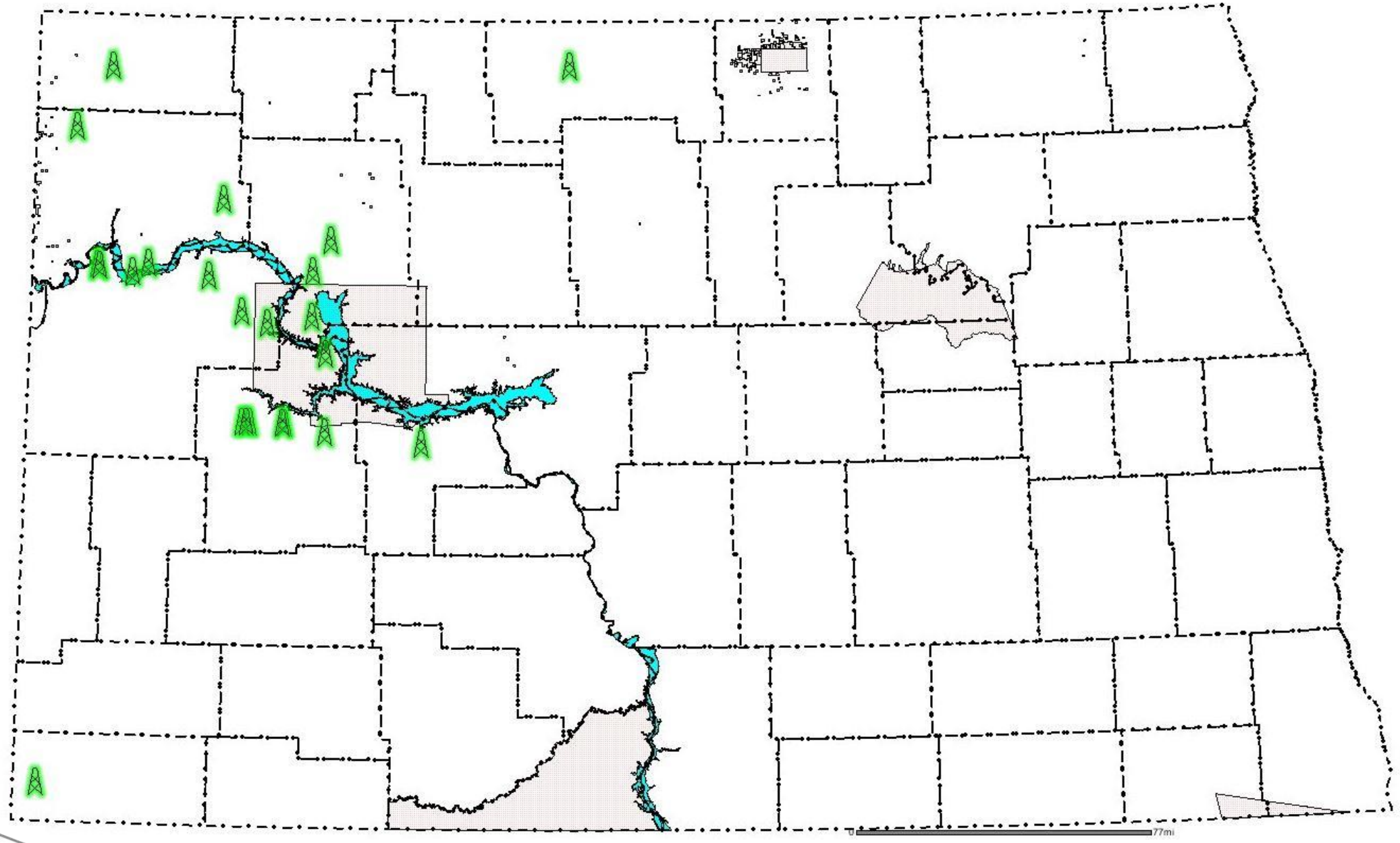
- Reinvestment rate of ~70% or less at $45/bbl+ WTI
- Return at least 30% of CFO to equity investors at $45/bbl+ WTI and retire future debt at maturity
- Maintain sub 1.5x net debt to EBITDAX assuming this price environment
- Competitive and sustainable base dividend (~10% of CFO assuming this price environment)

Lower Price Environment

- Corporate FCF breakeven below $35/bbl WTI solidifies resilience
- Competitive and sustainable base dividend

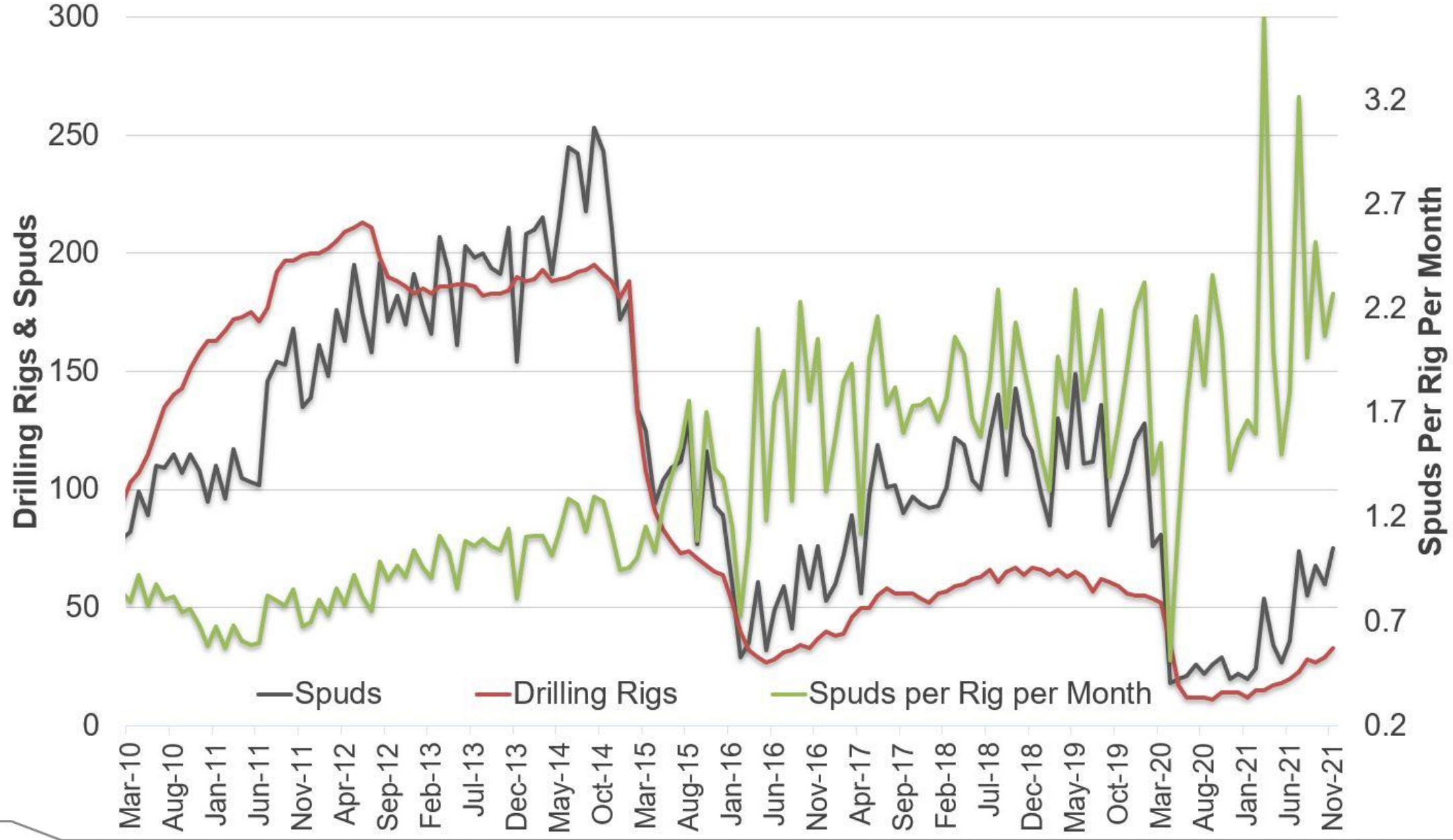
Marathon Oil

North Dakota Drilling – 34 Active Rigs (Feb. 18, 2022)

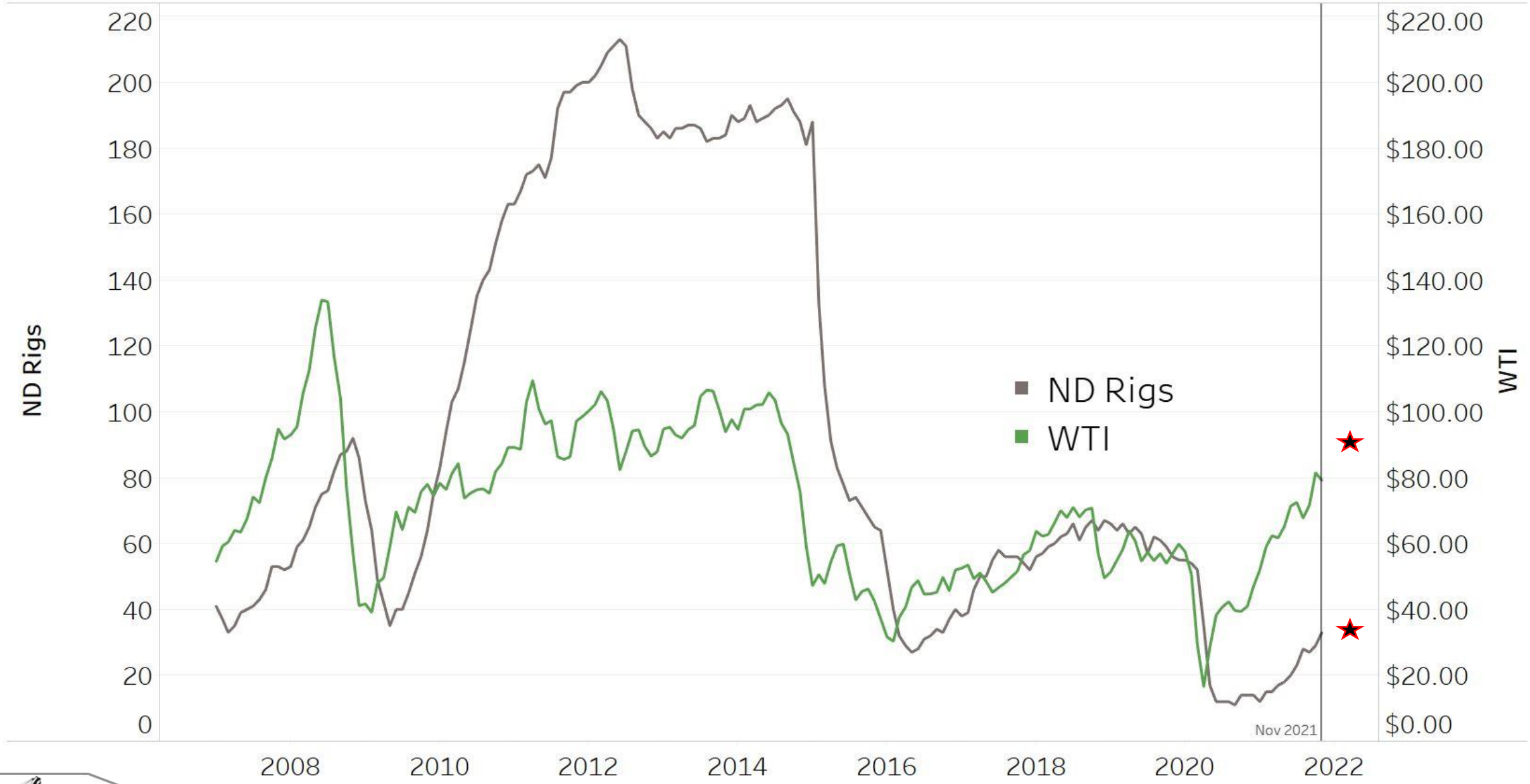


Drilling Rig Breakdown

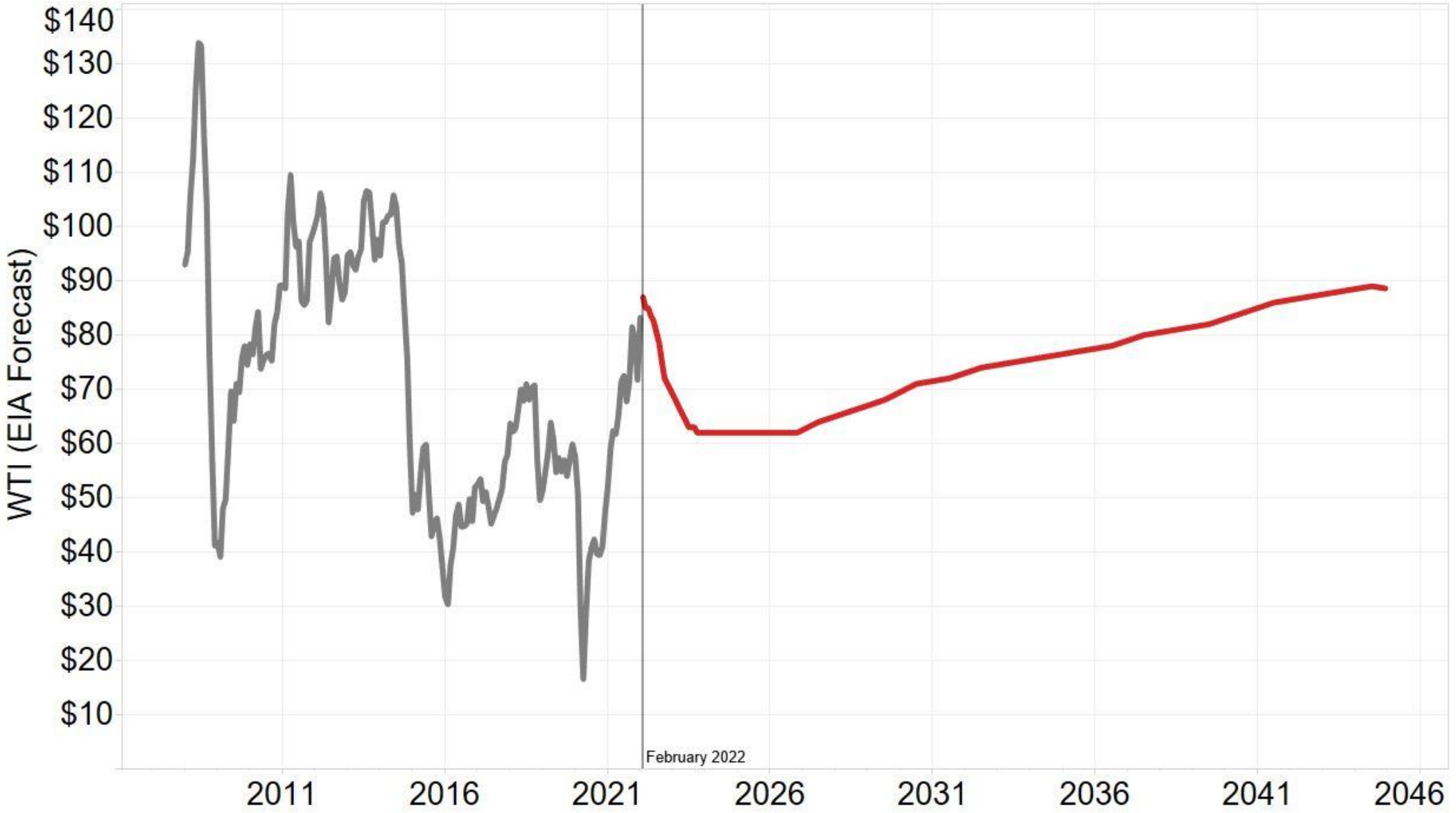
North Dakota Drilling Rig Efficiency



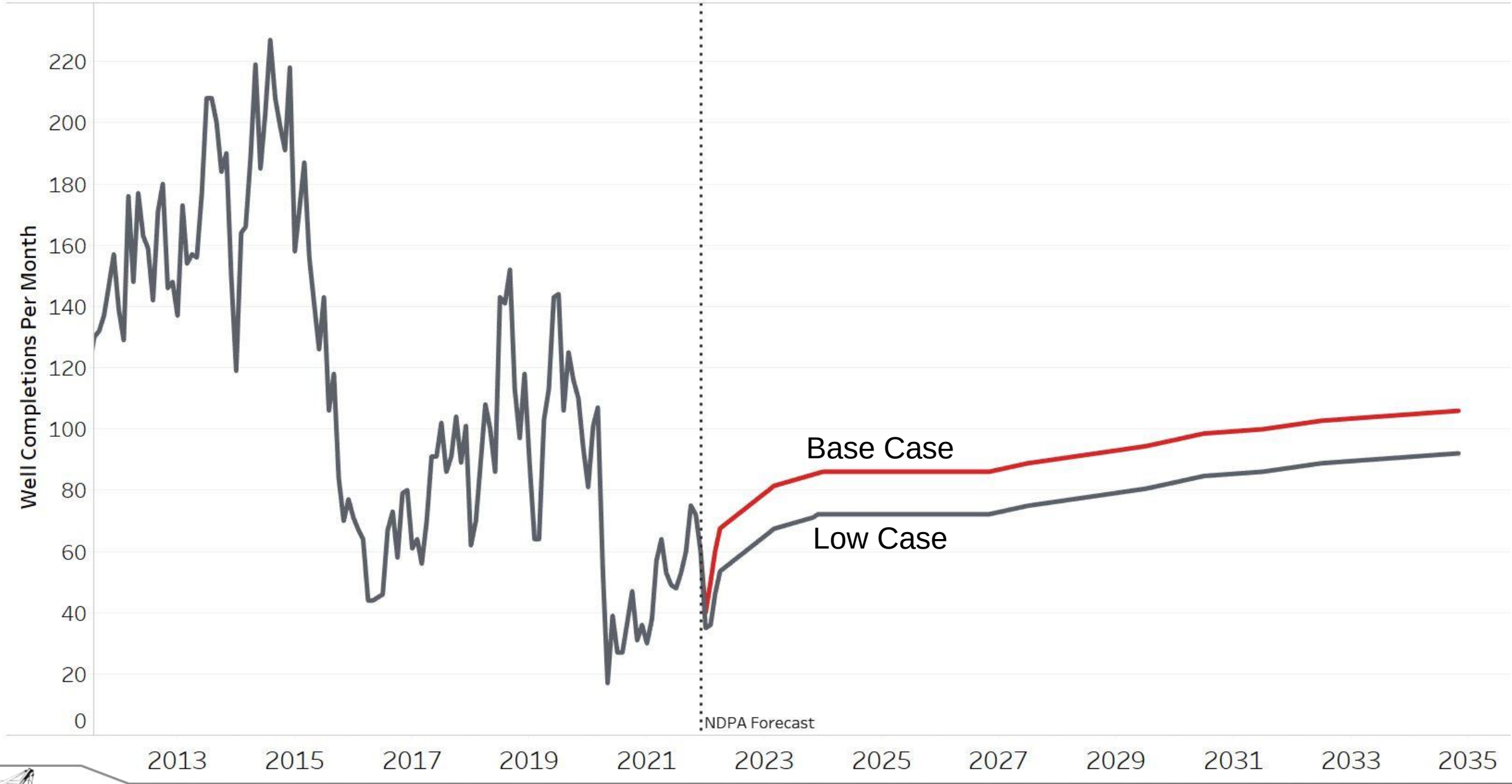
North Dakota Drilling Activity History



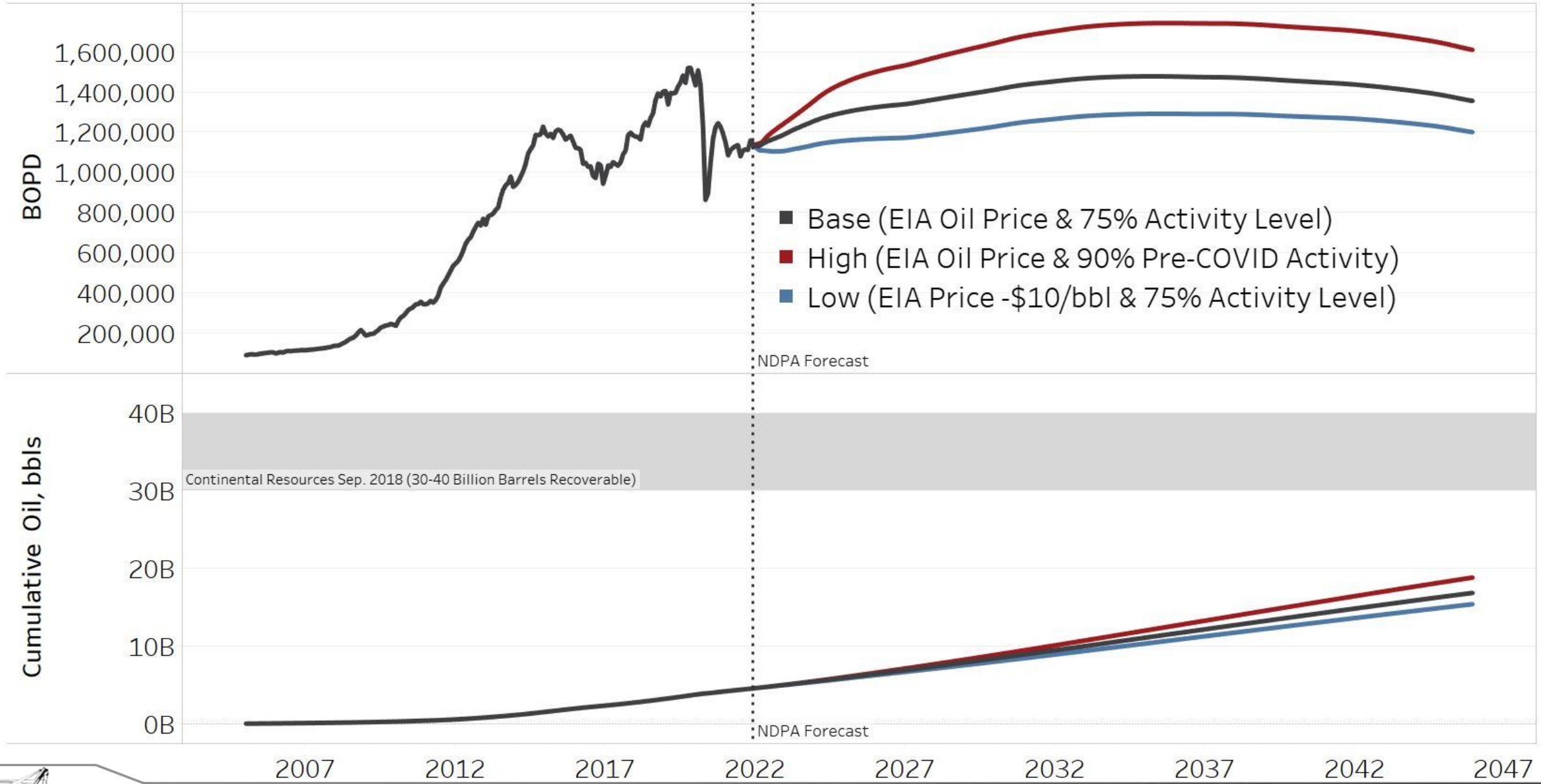
EIA Oil Price Outlook



Well Completion Forecast at EIA Price Deck



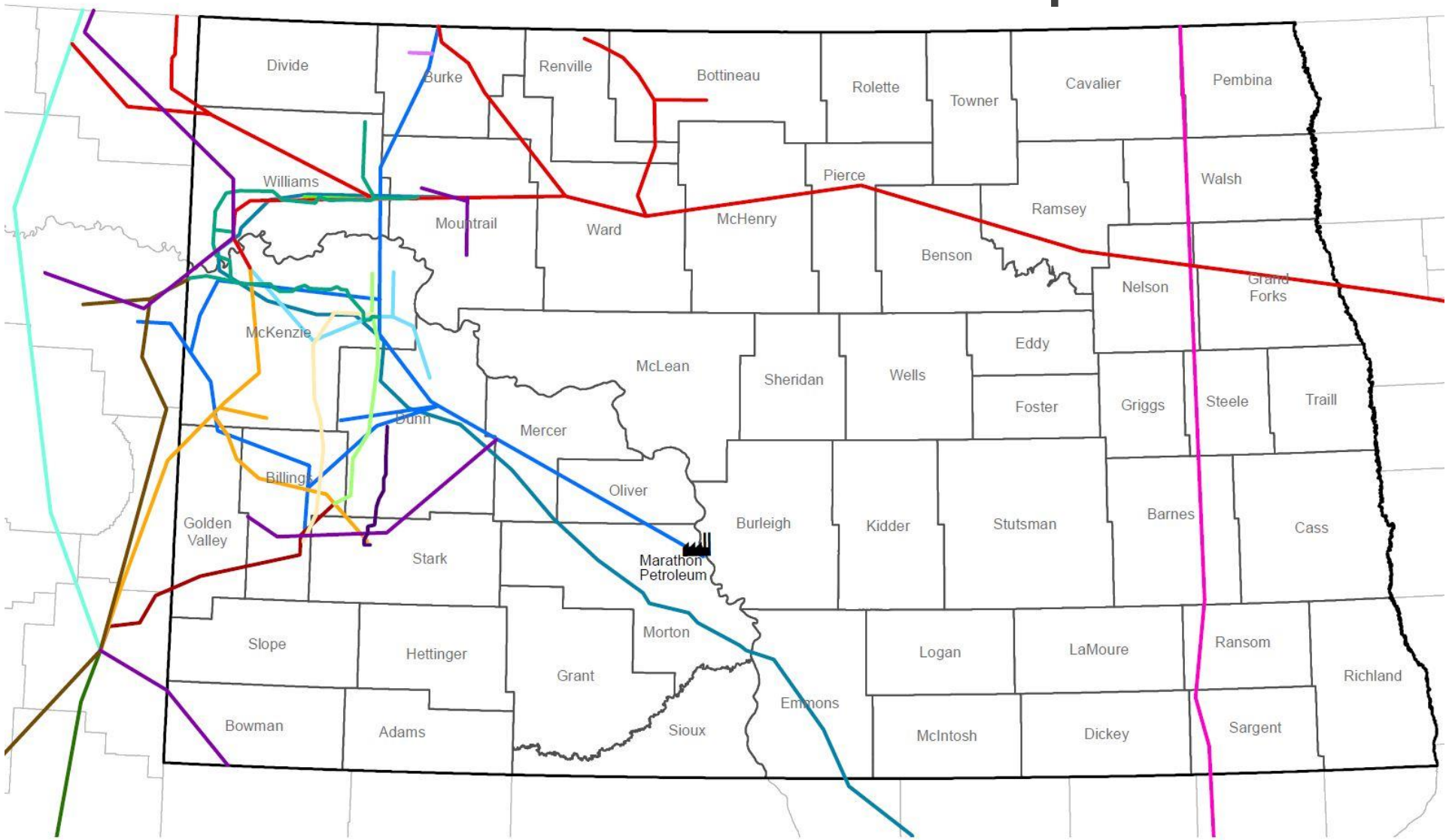
ND Oil Production: EIA Price Deck



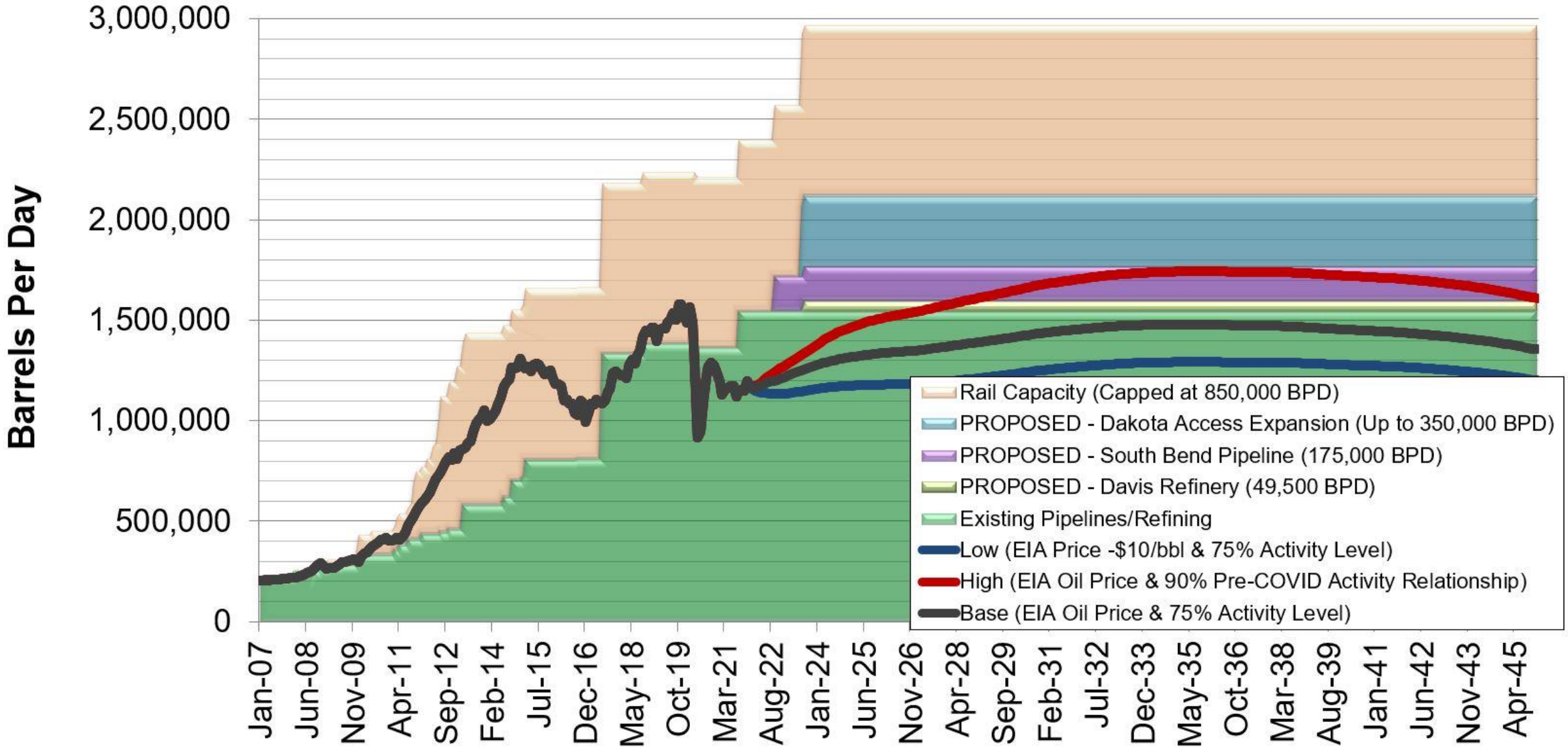
Yearly Production Change, %

Yearly Production Change, %

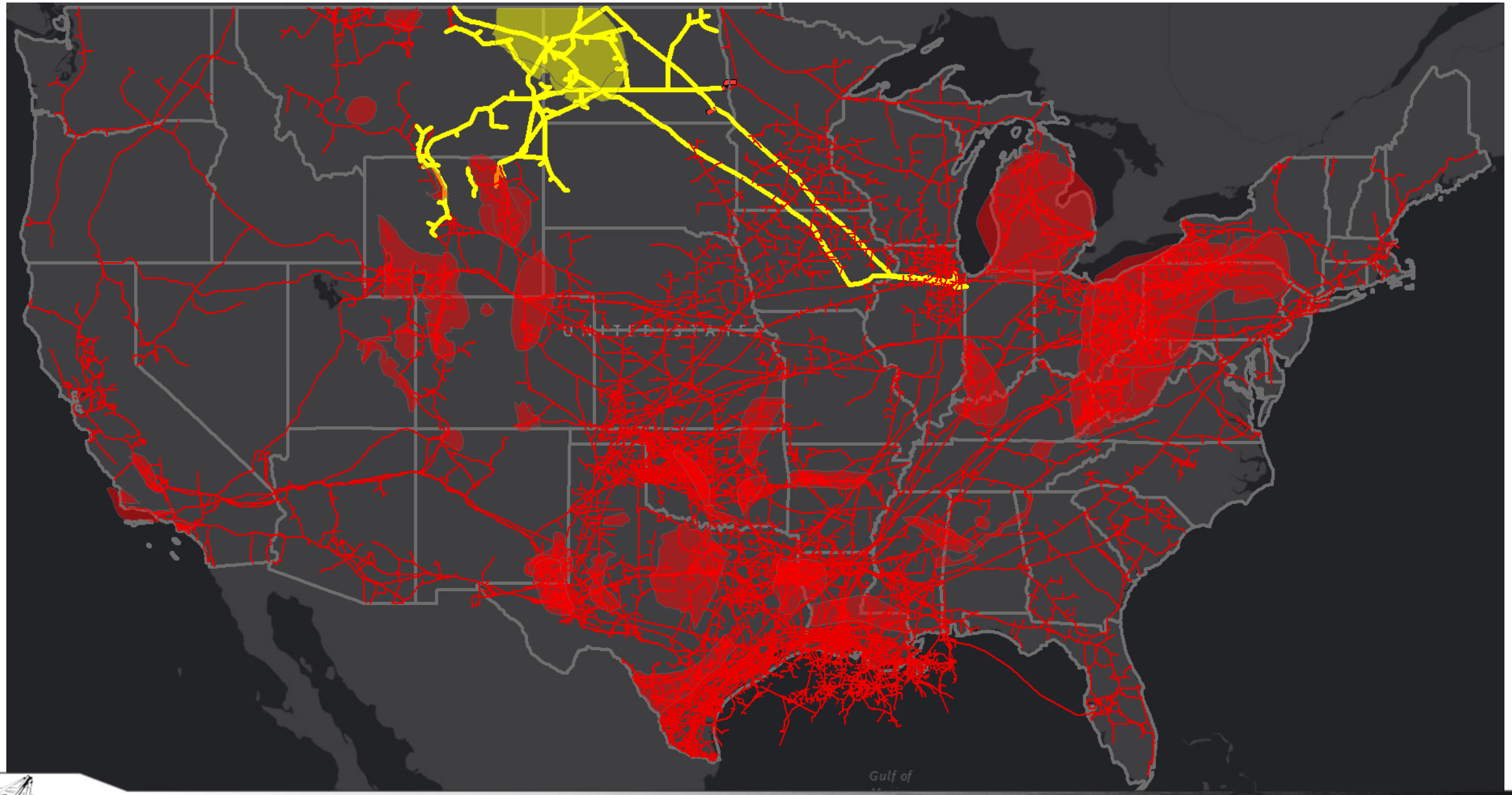
North Dakota Oil Transmission Pipelines



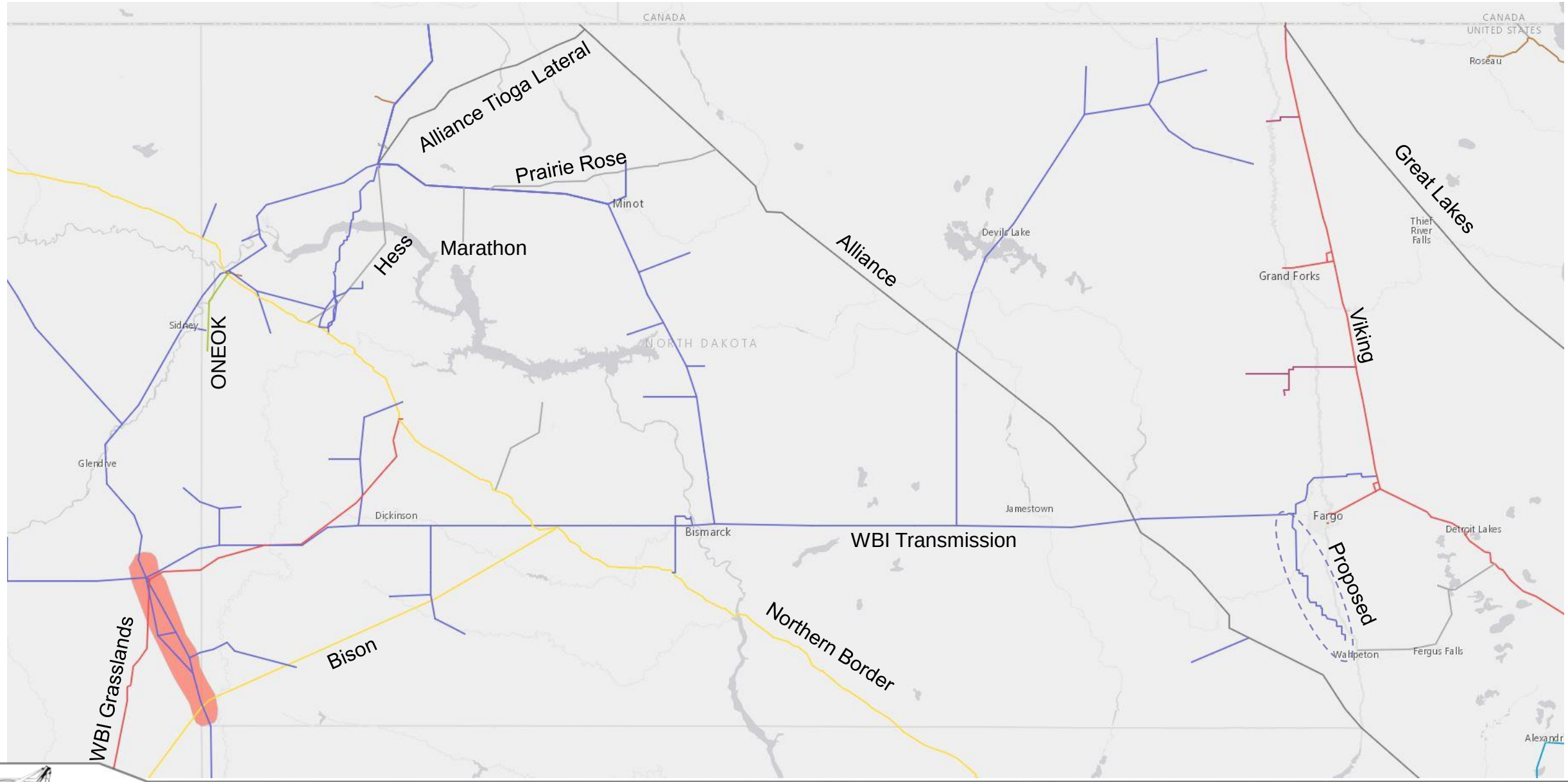
Williston Basin Oil Production & Export Capacity, BOPD



Bakken Natural Gas Infrastructure



Major Residue Gas Pipeline Infrastructure



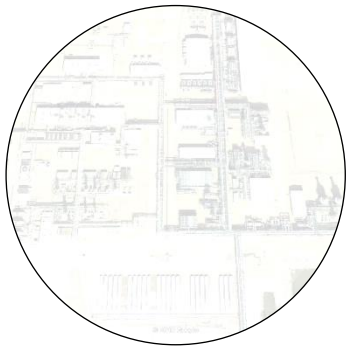
Natural Gas Update

Production

- Technology
- Markets

Gathering

- Capacity
- Connections



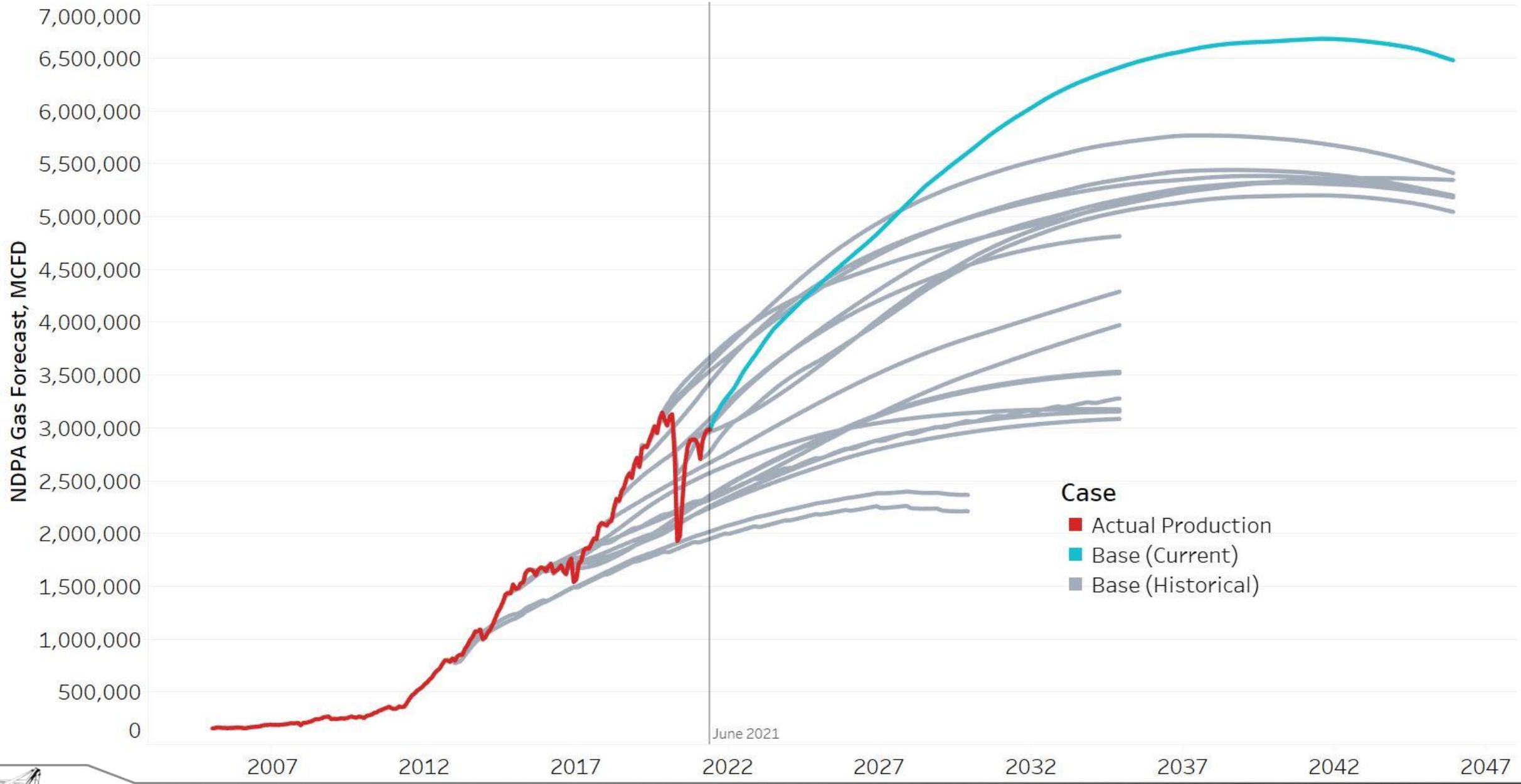
Processing

- Capacity
- Location

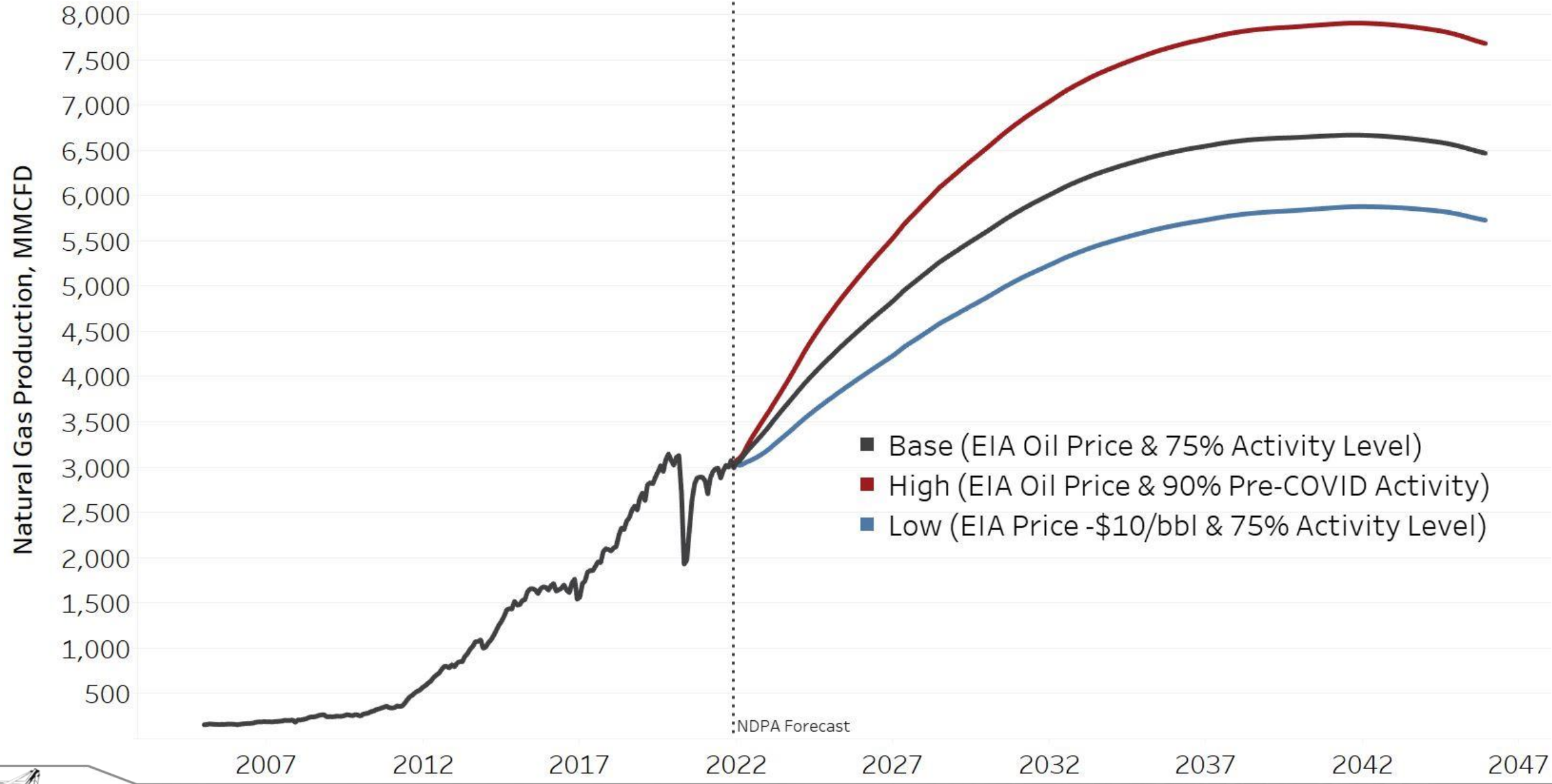
Transmission

- Dry Gas
- Natural Gas Liquids

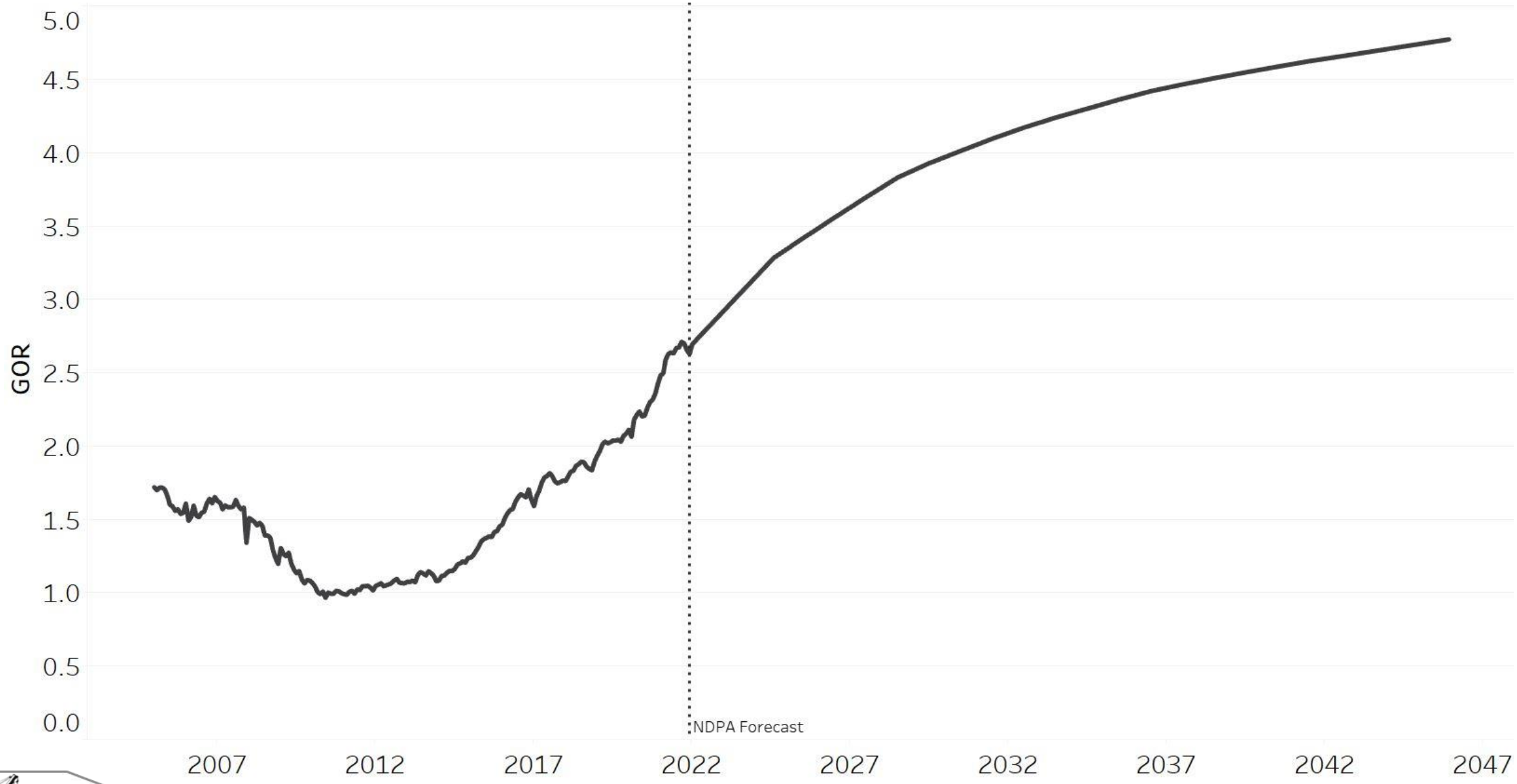
Where Did We(I) Go Wrong on Gas Forecasting?



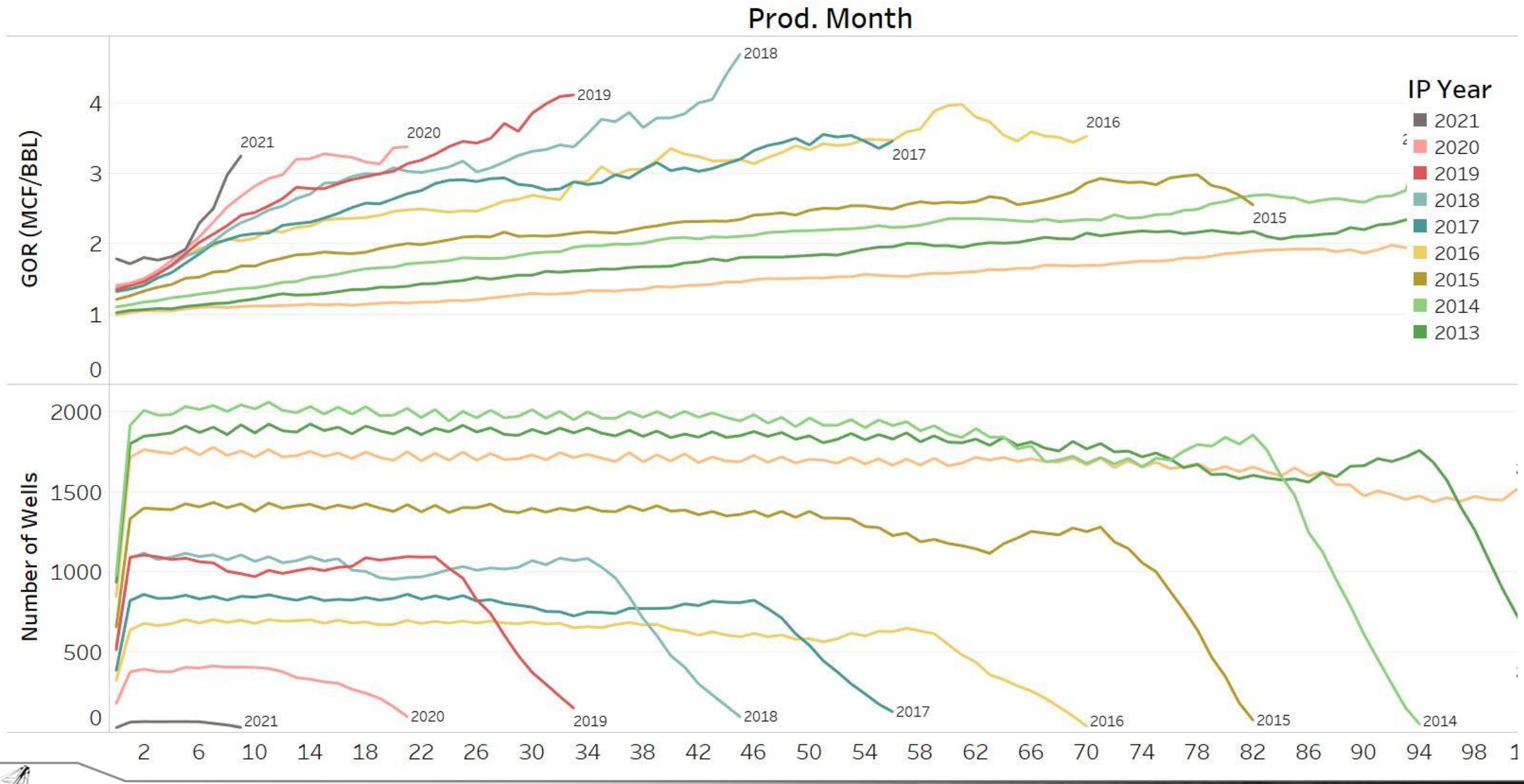
ND Gas Production: EIA Price Deck



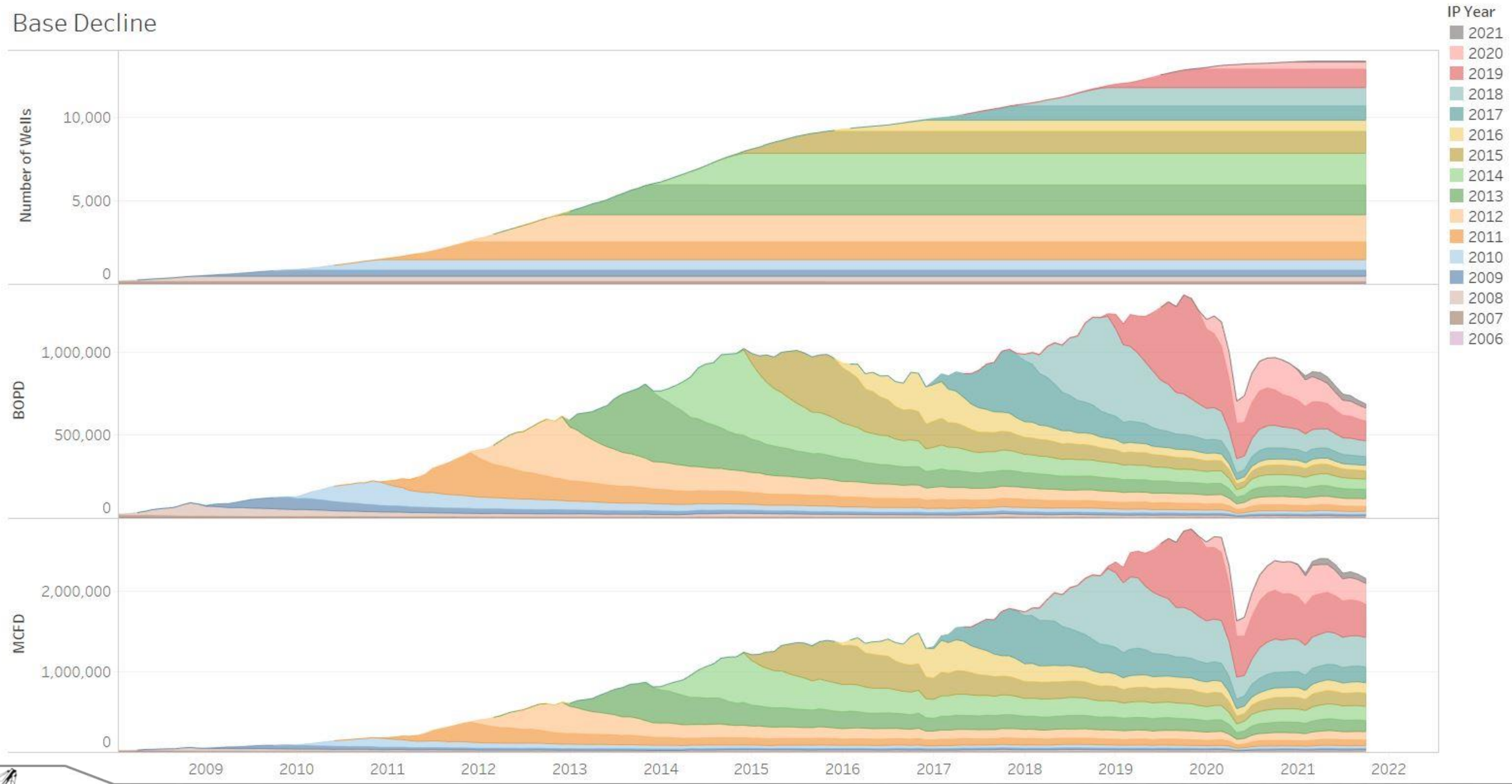
ND Gas Production: GOR Assumption



Statewide Bakken Gas/Oil Ratios



Terminal Gas Decline?



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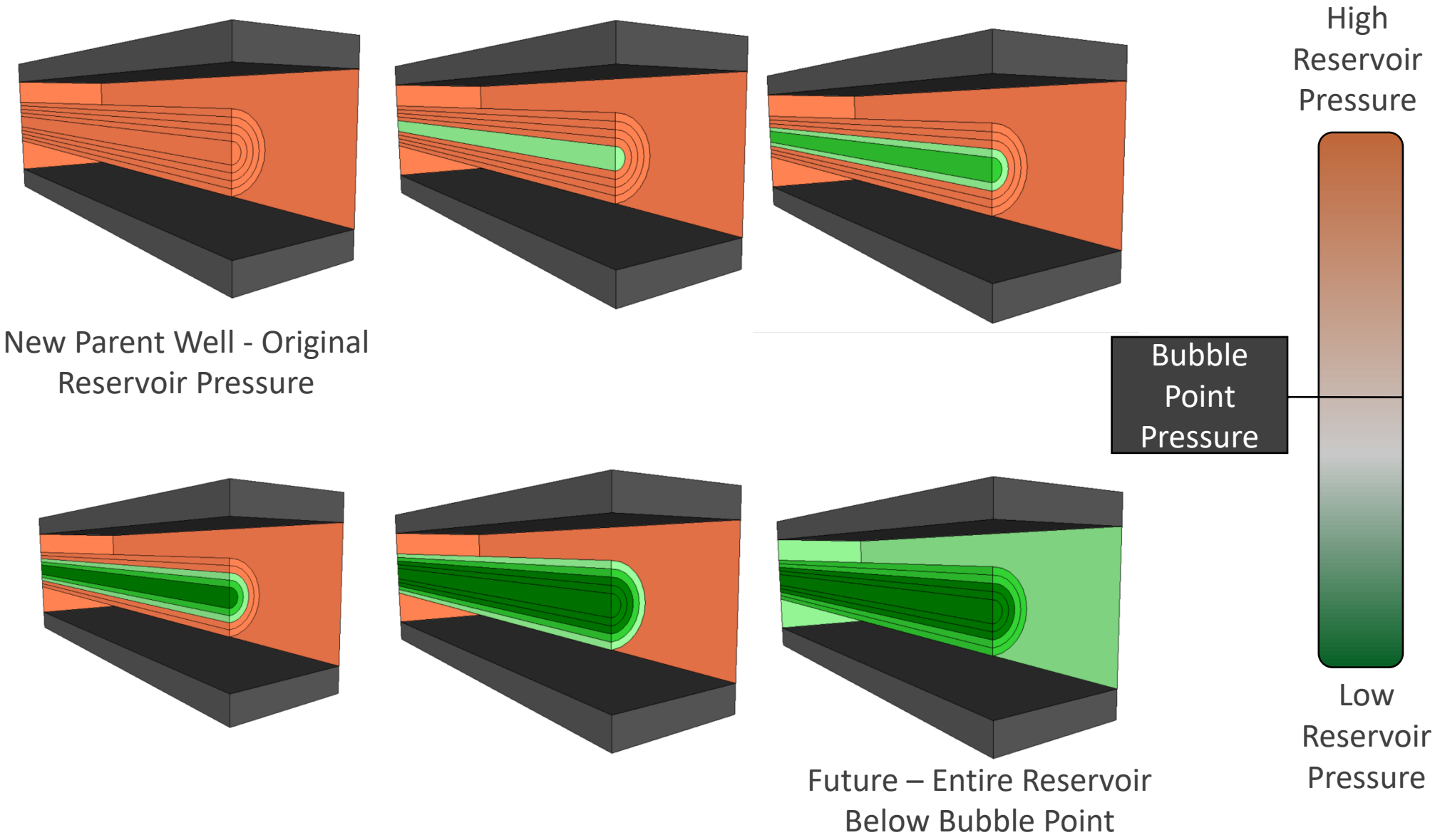


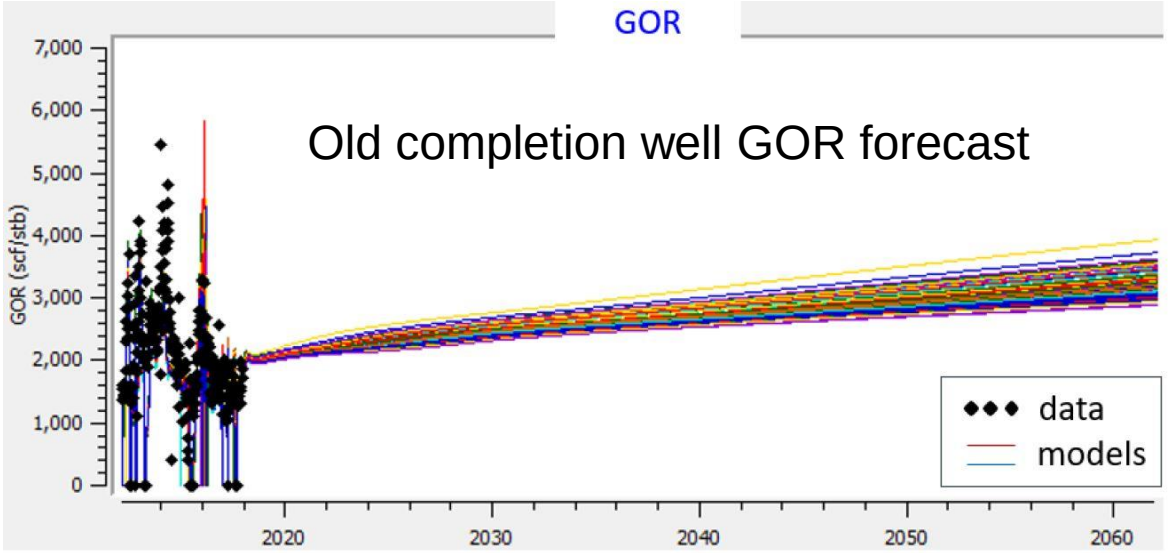
New GOR Research Released: July 2021

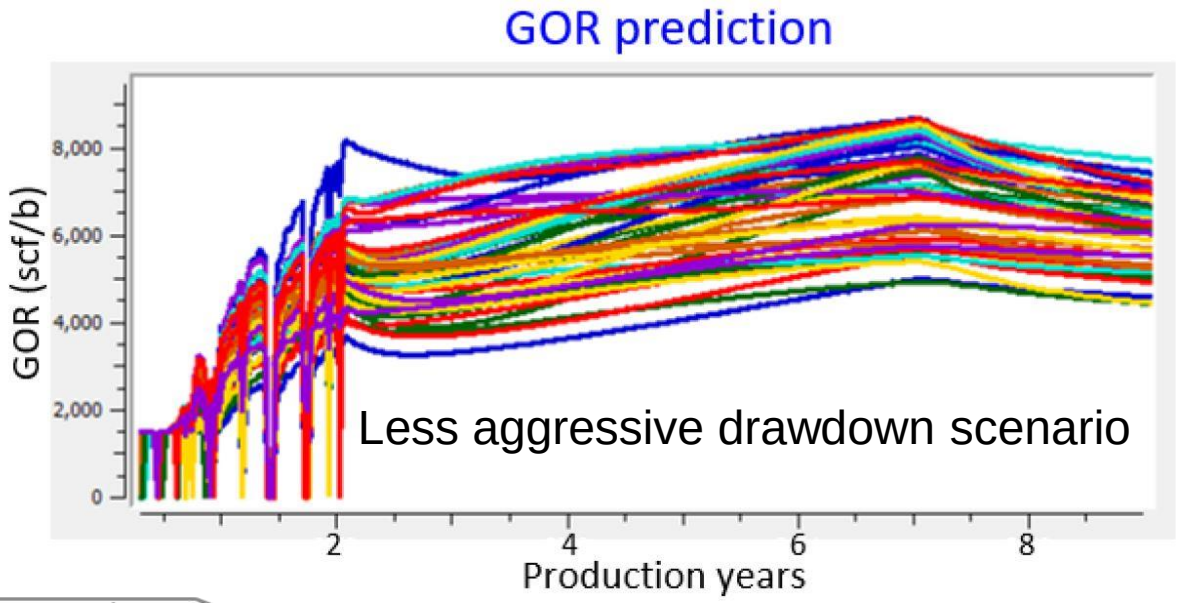
UNCONVENTIONAL RESOURCES TECHNOLOGY CONFERENCE
FUELED BY SPE • AAPG • SEG

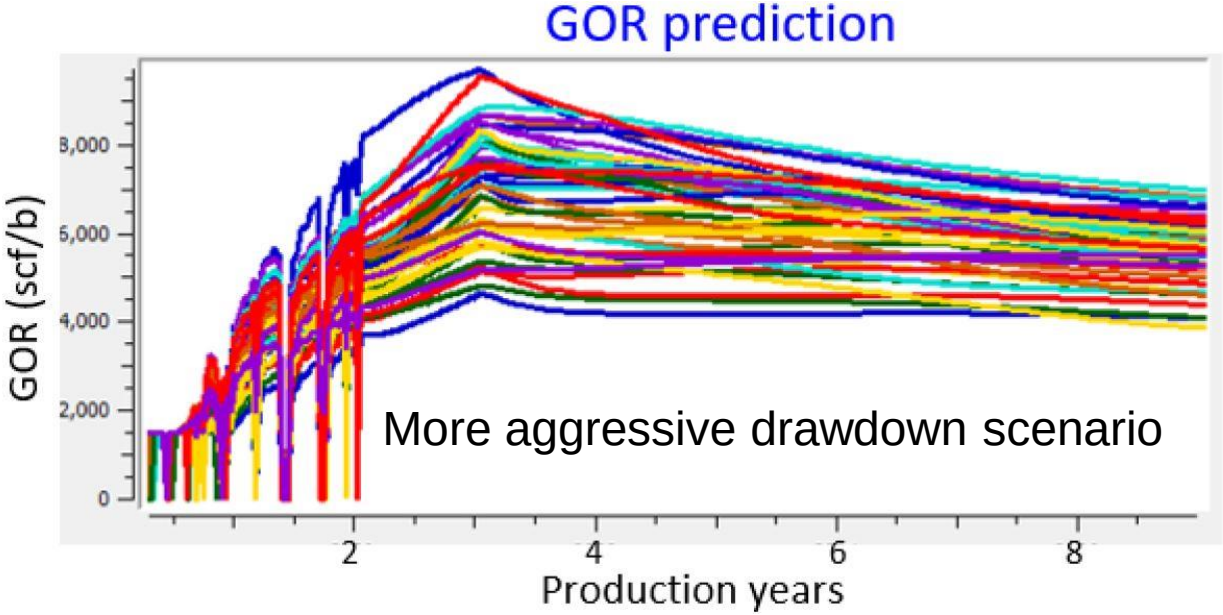
URTeC: 5358

Bakken Unconventional Well Gas-Oil Ratio (GOR) Behavior Characterization

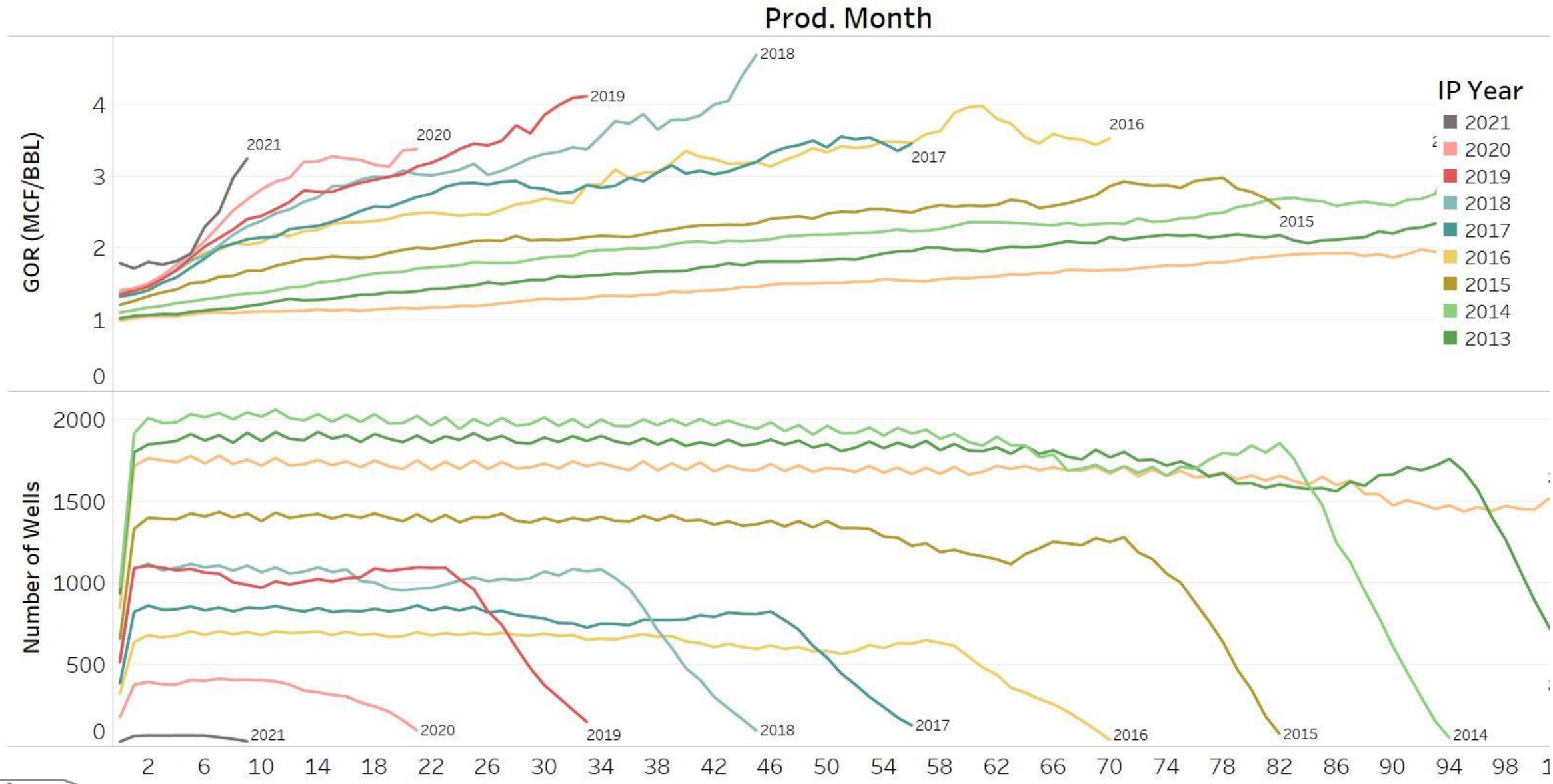
Yongshe Liu*, Brian Coffman, Nathan McMahan, Alisdair Farthing, ConocoPhillips.



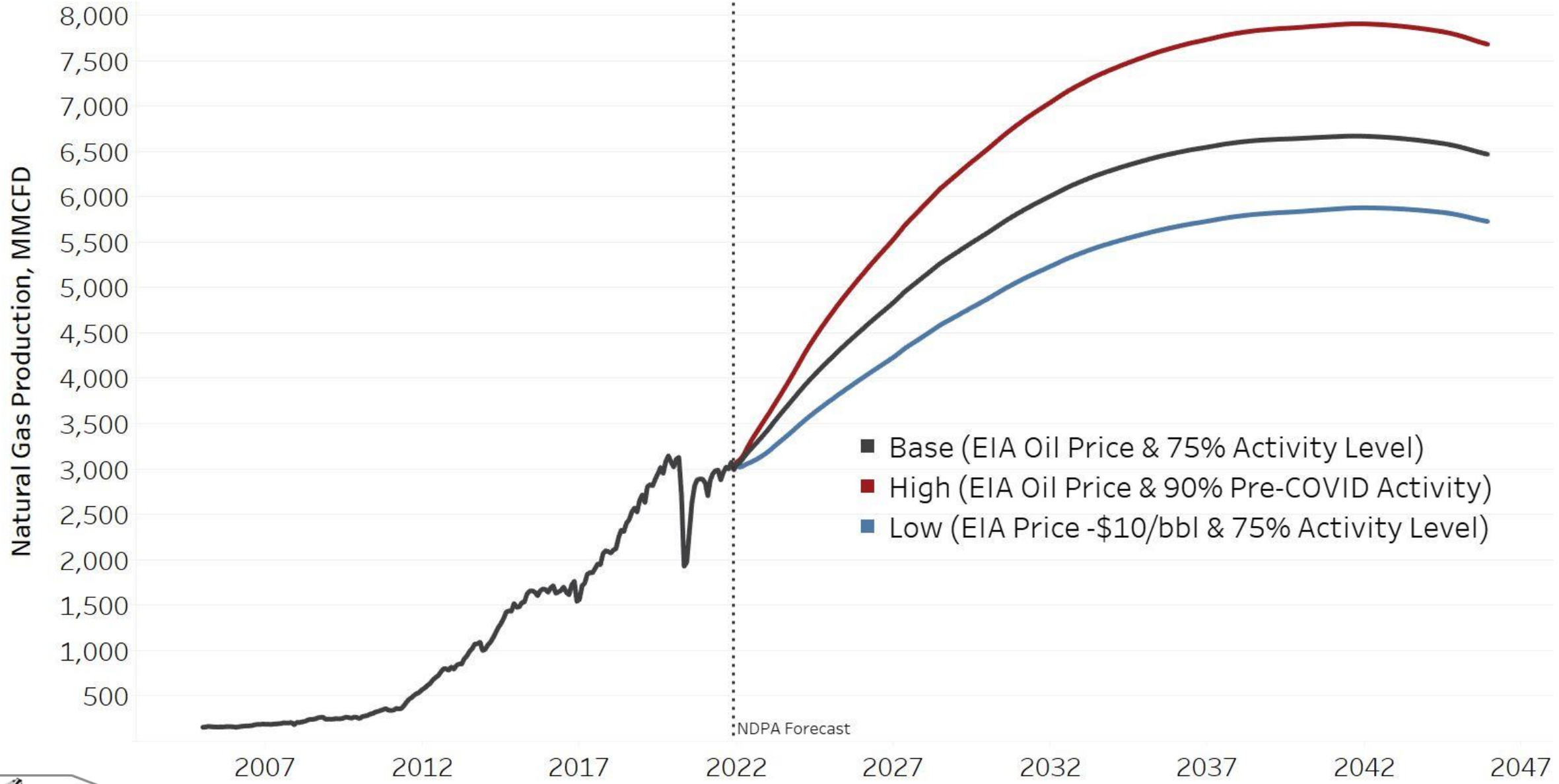




Gas-Oil Ratio Update



ND Gas Production: EIA Price Deck



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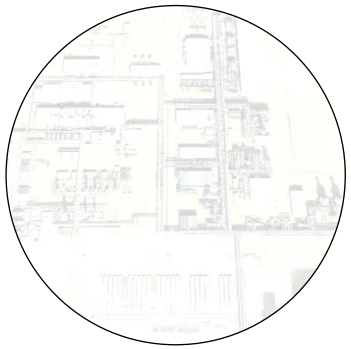

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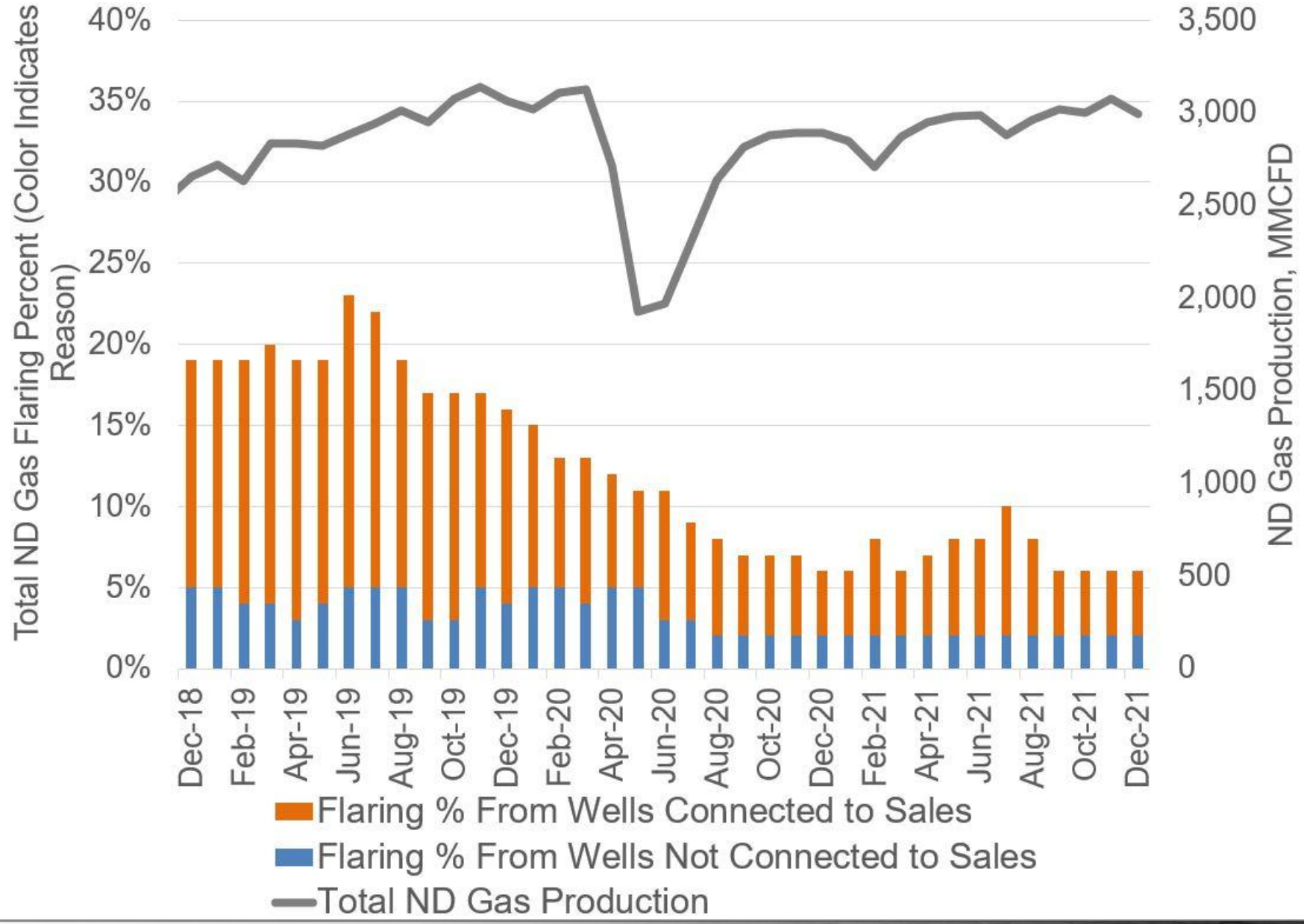
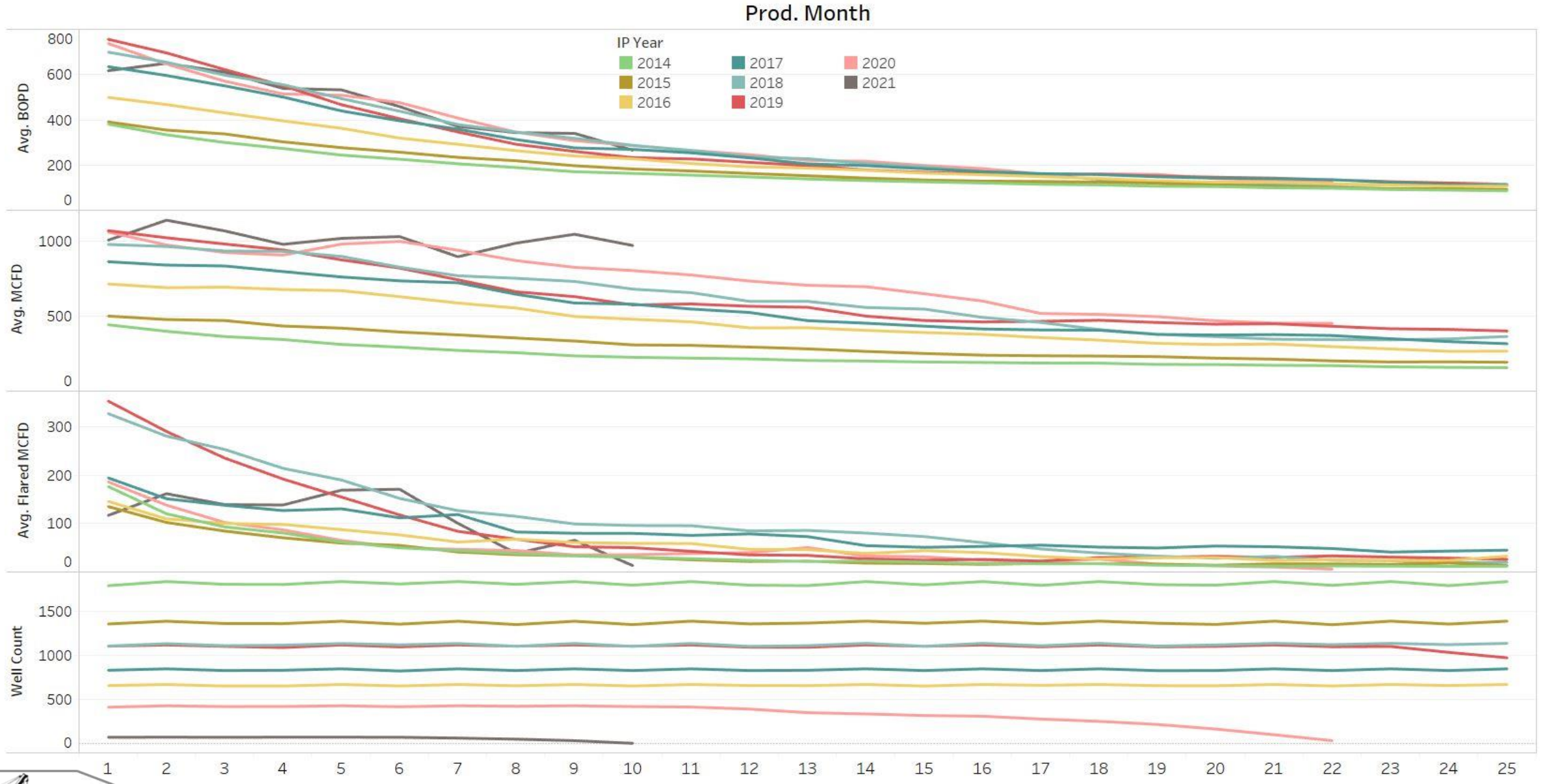
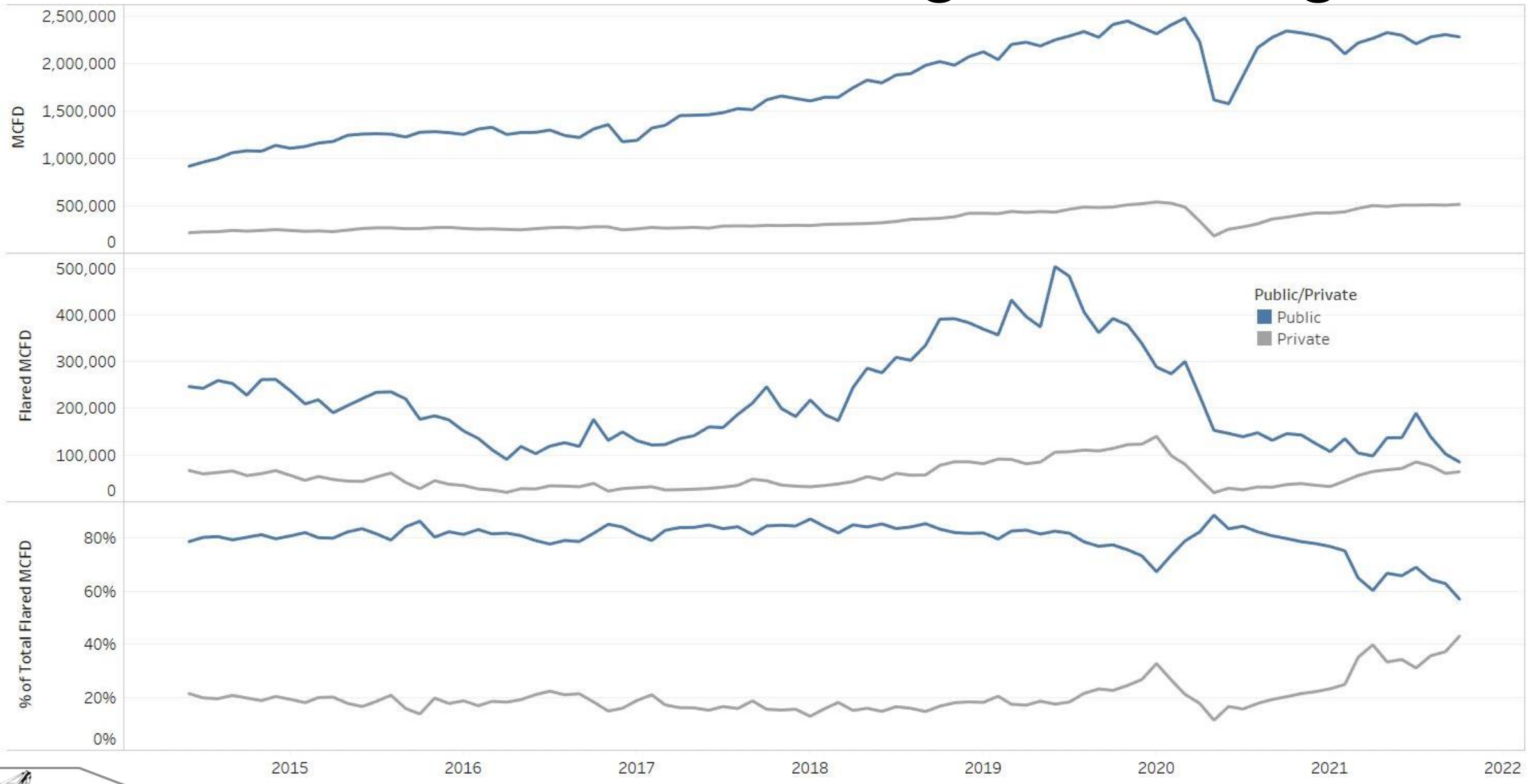
Solving the Flaring Challenge



Shifting Early Production Strategies



Public/Private Flaring is Shifting



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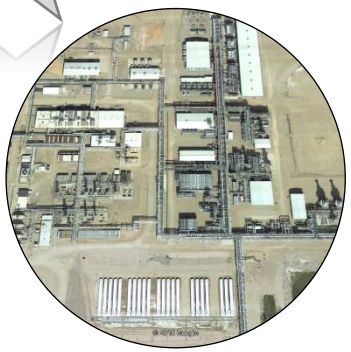

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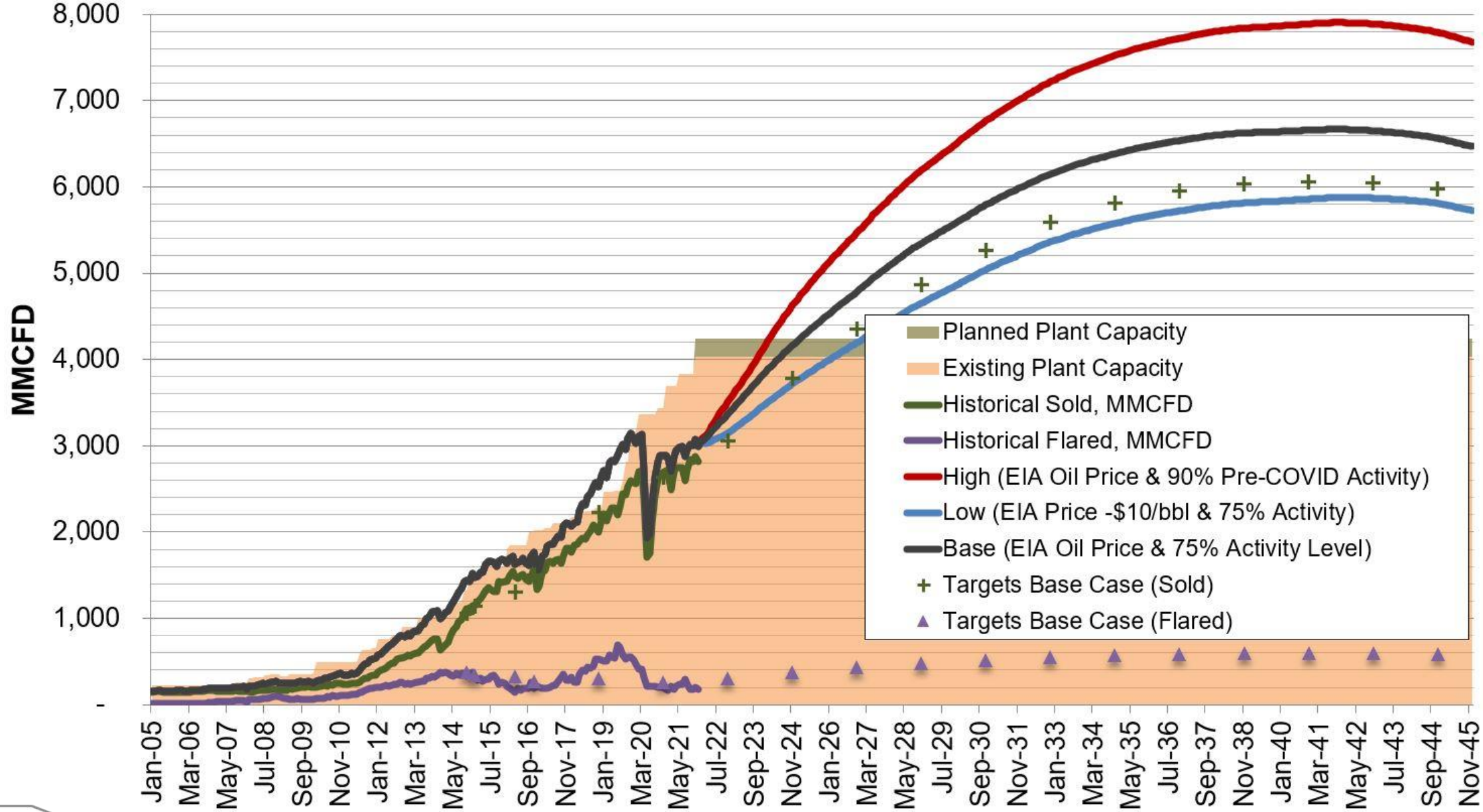

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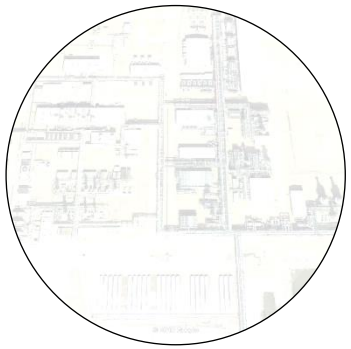

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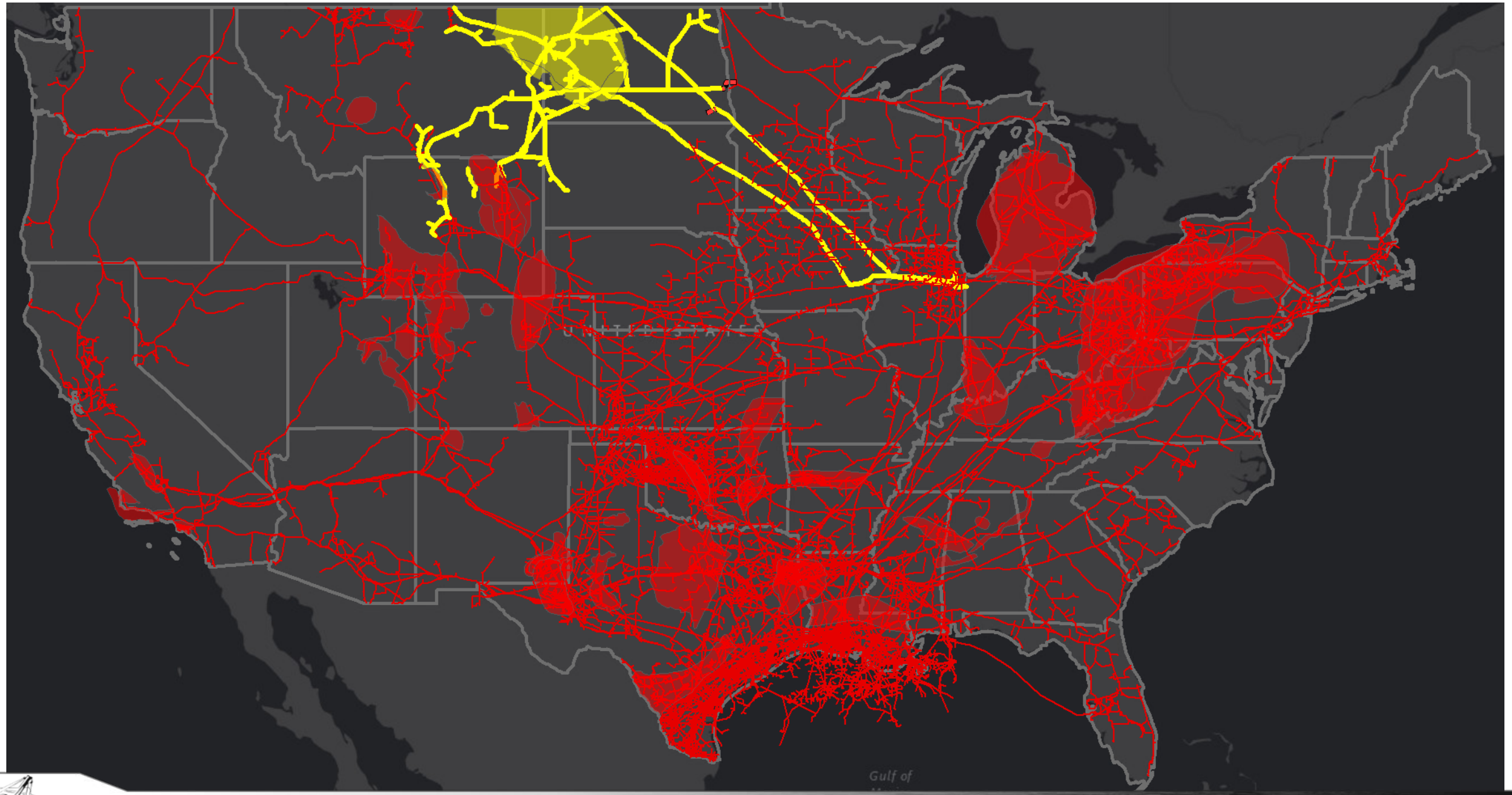
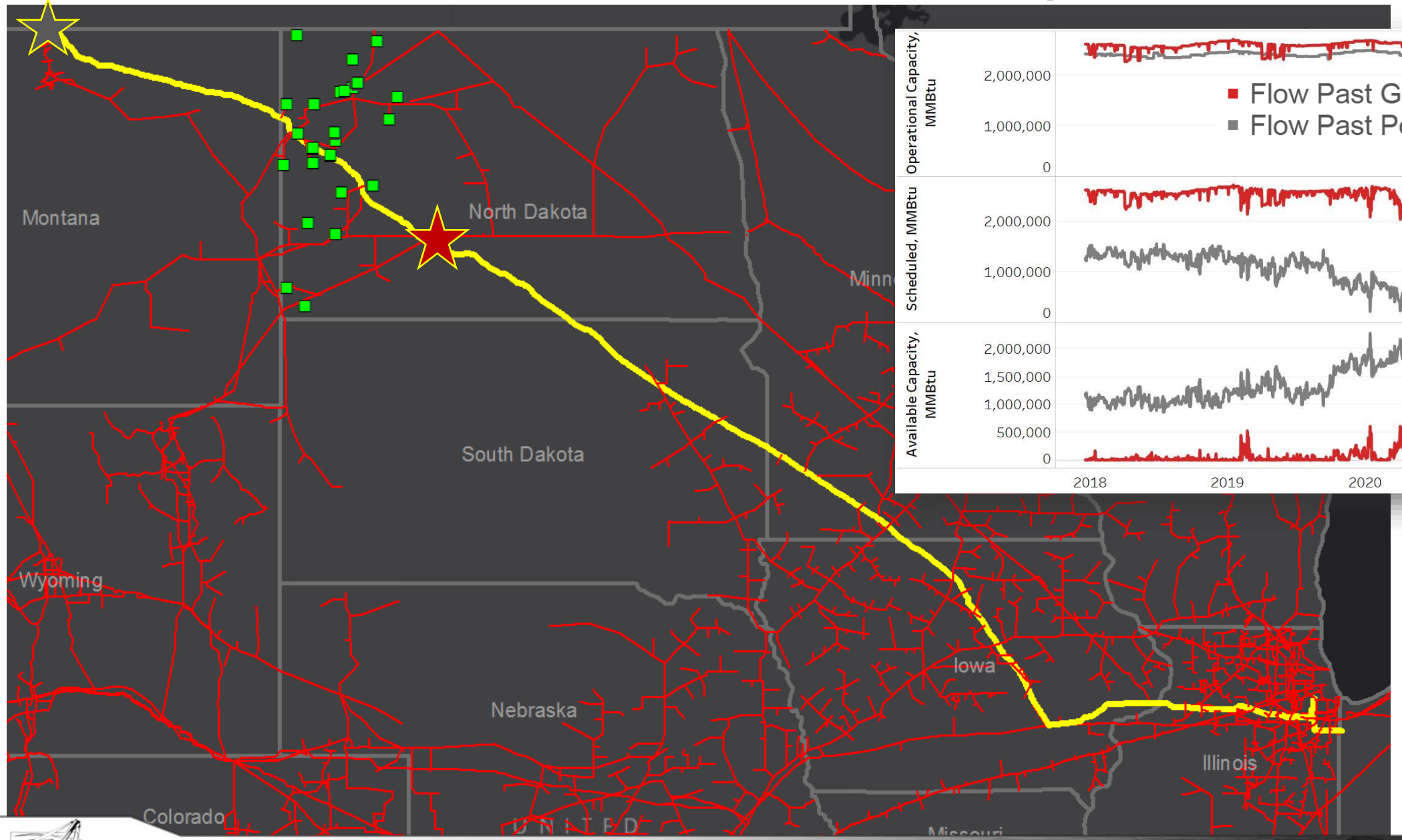
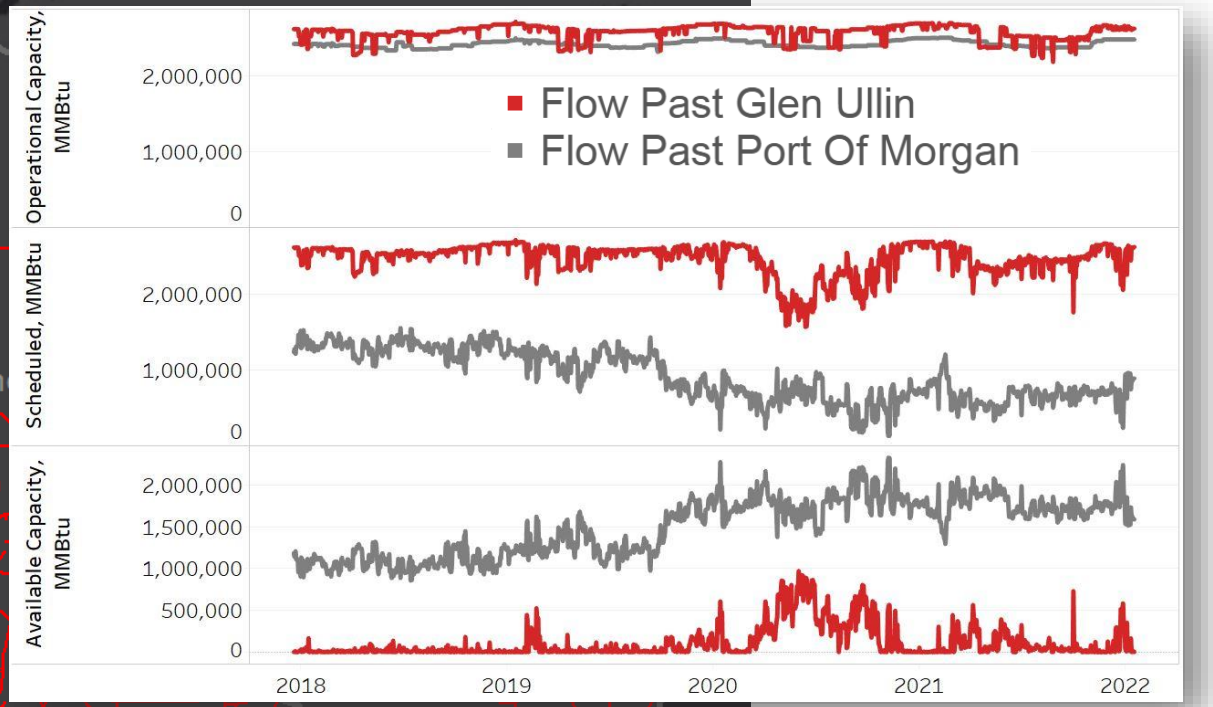
Bakken Natural Gas Infrastructure



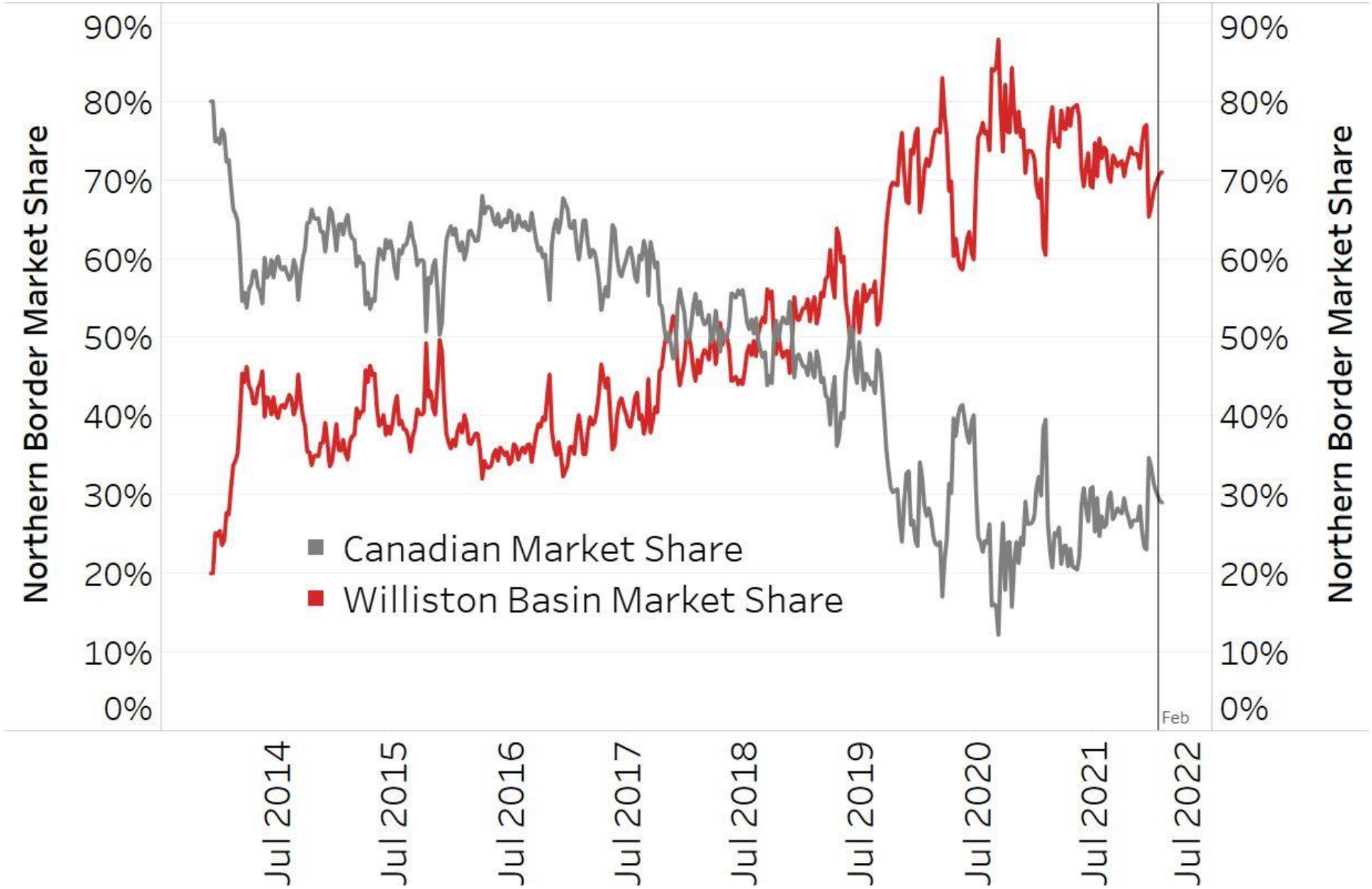
Northern Border Pipeline



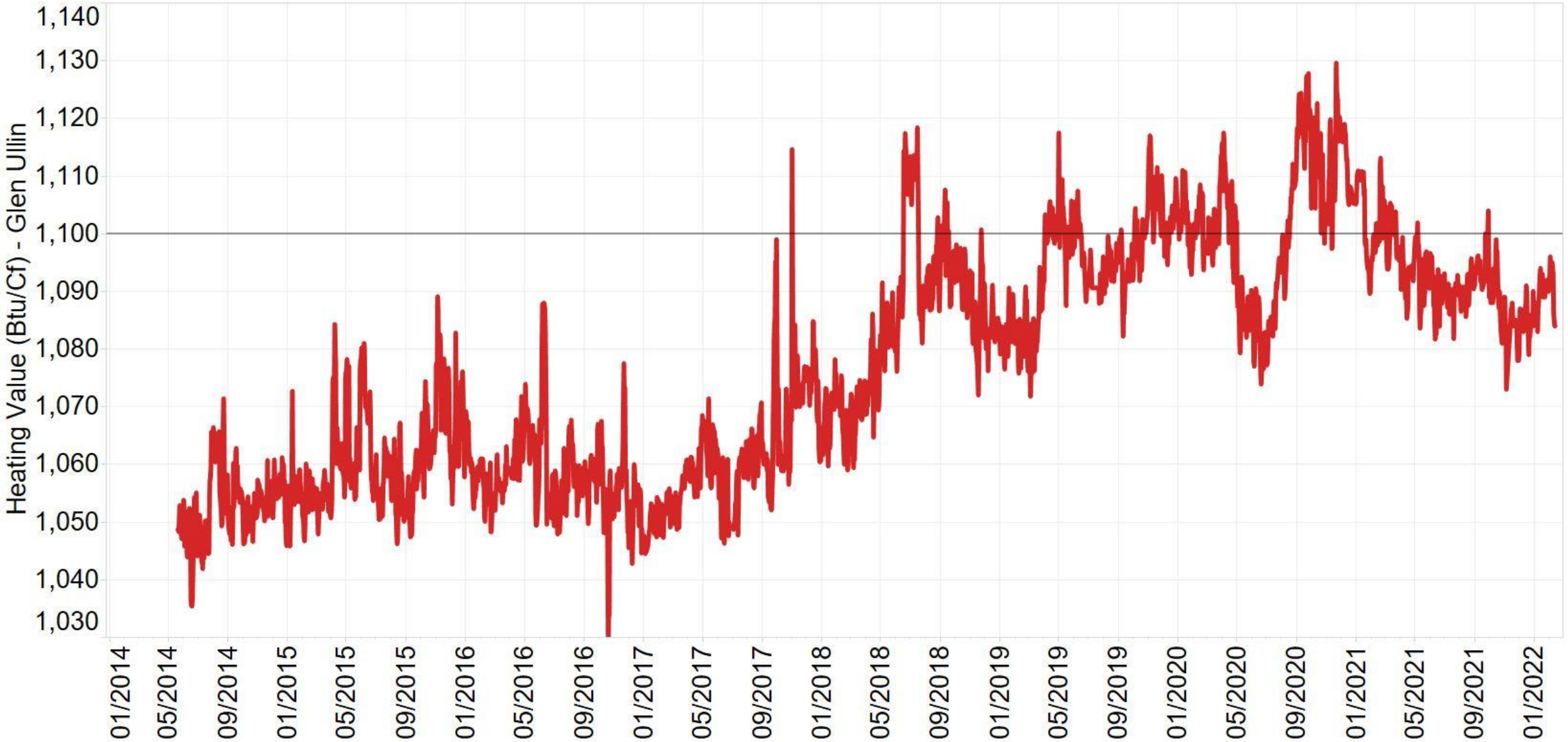


*Data Source: Northern Border

Northern Border Pipeline Market Share

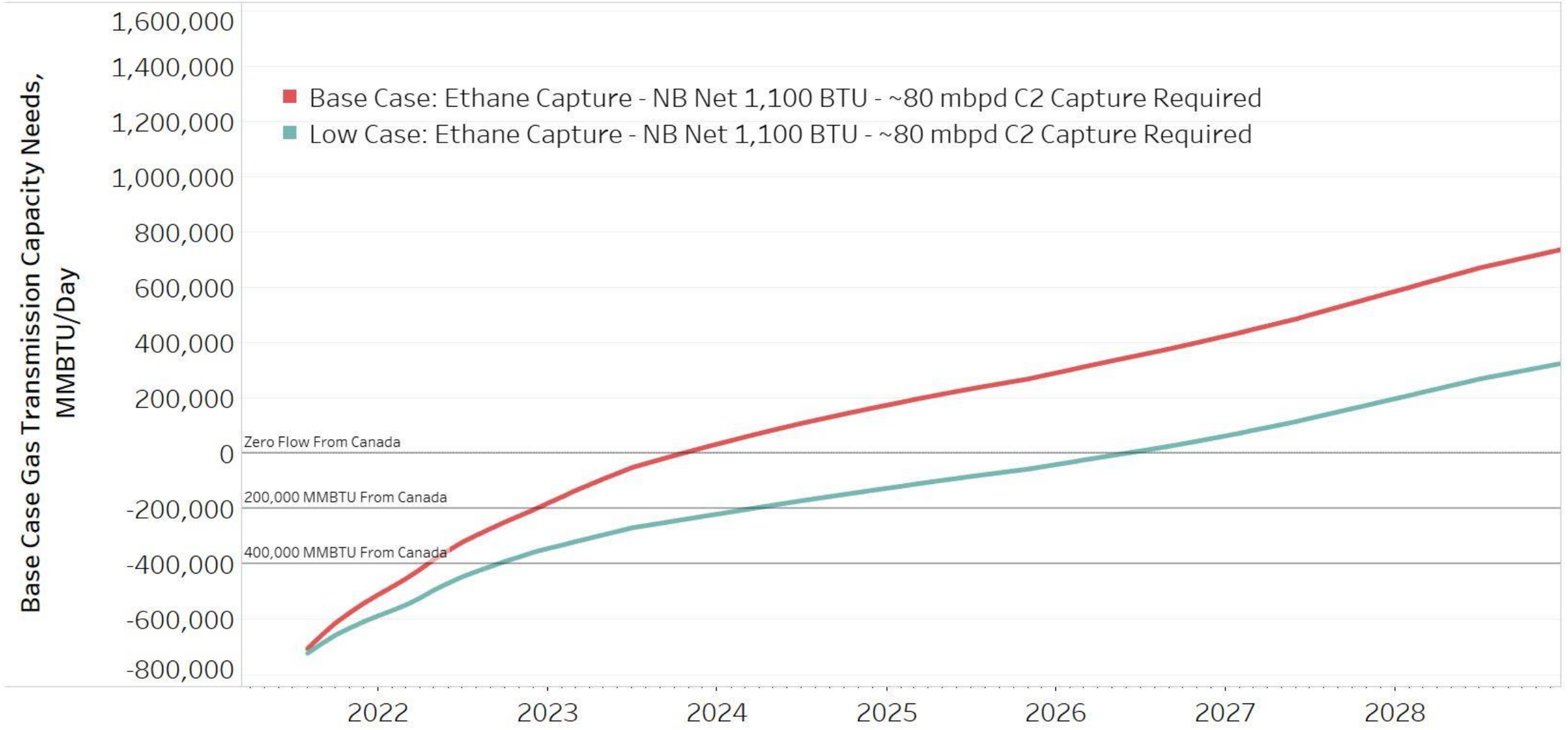


Northern Border BTU at Glen Ullin, ND



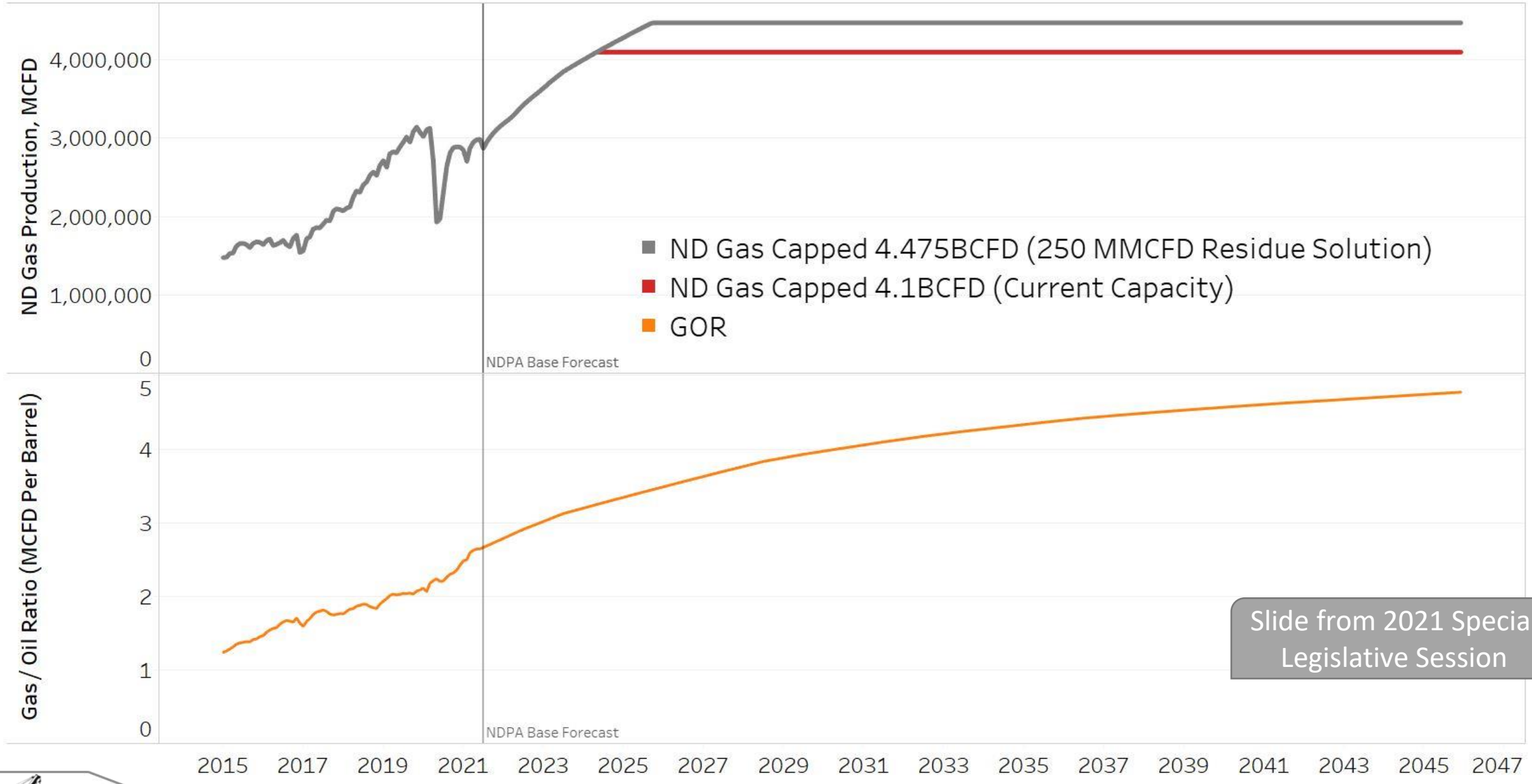
*Data Source: Northern Border

Northern Border – BTU Calculations*



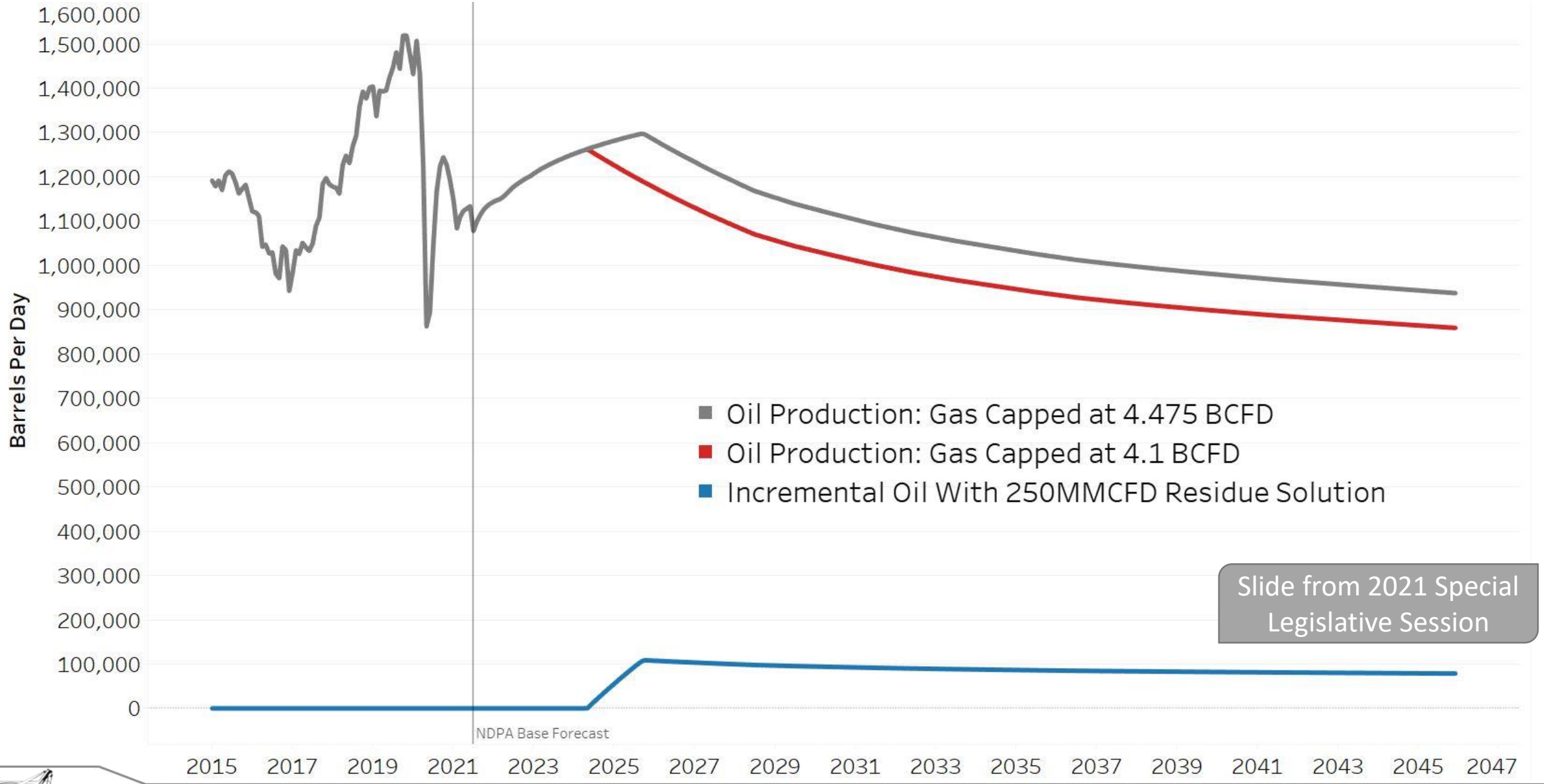
*Includes Proposed 2020 Tariff Timeline to 1,100

Gas Transmission Expected to Limit Oil Production



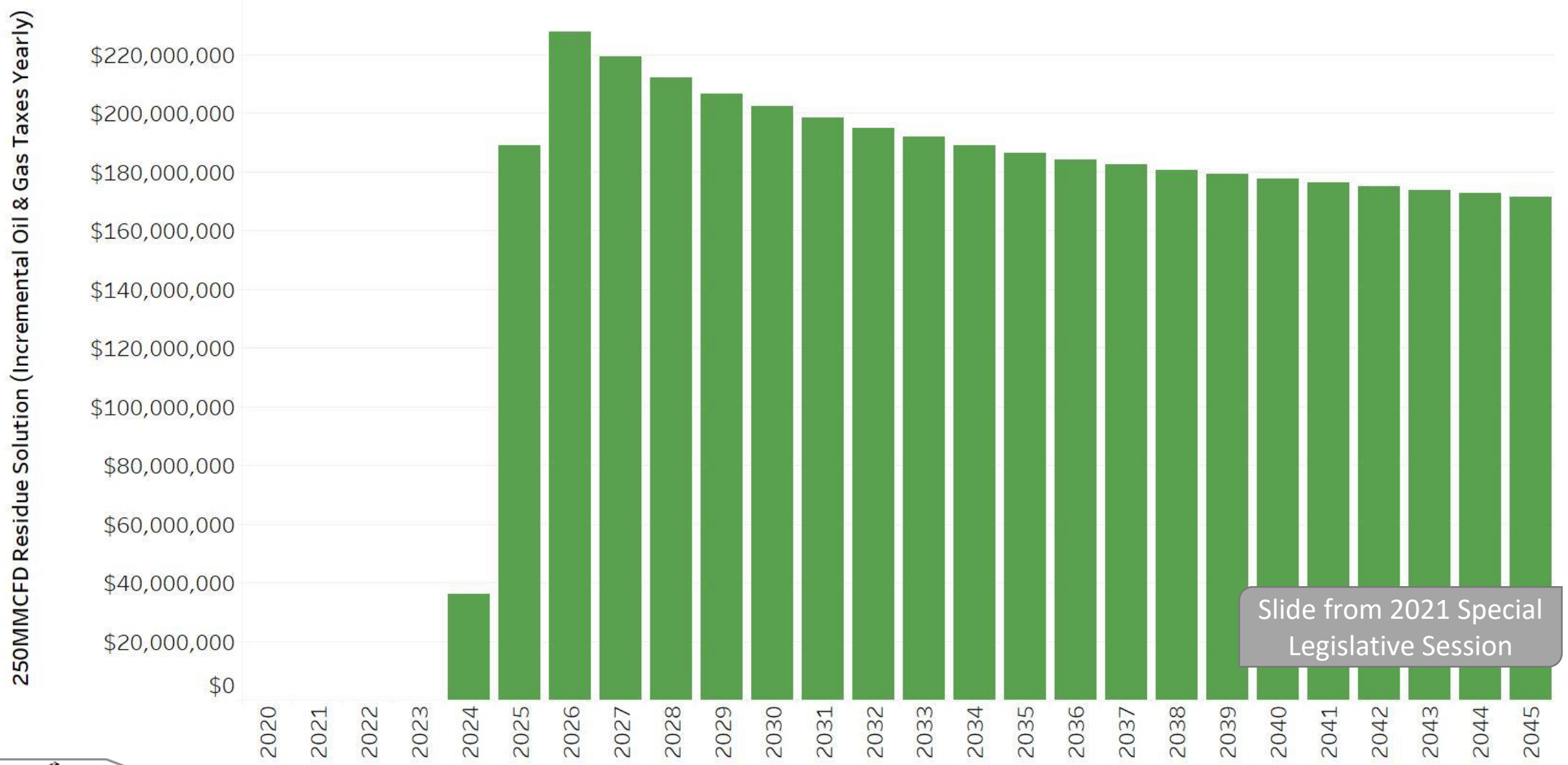
Slide from 2021 Special Legislative Session

Gas Transmission Expected to Limit Oil Production



Slide from 2021 Special Legislative Session

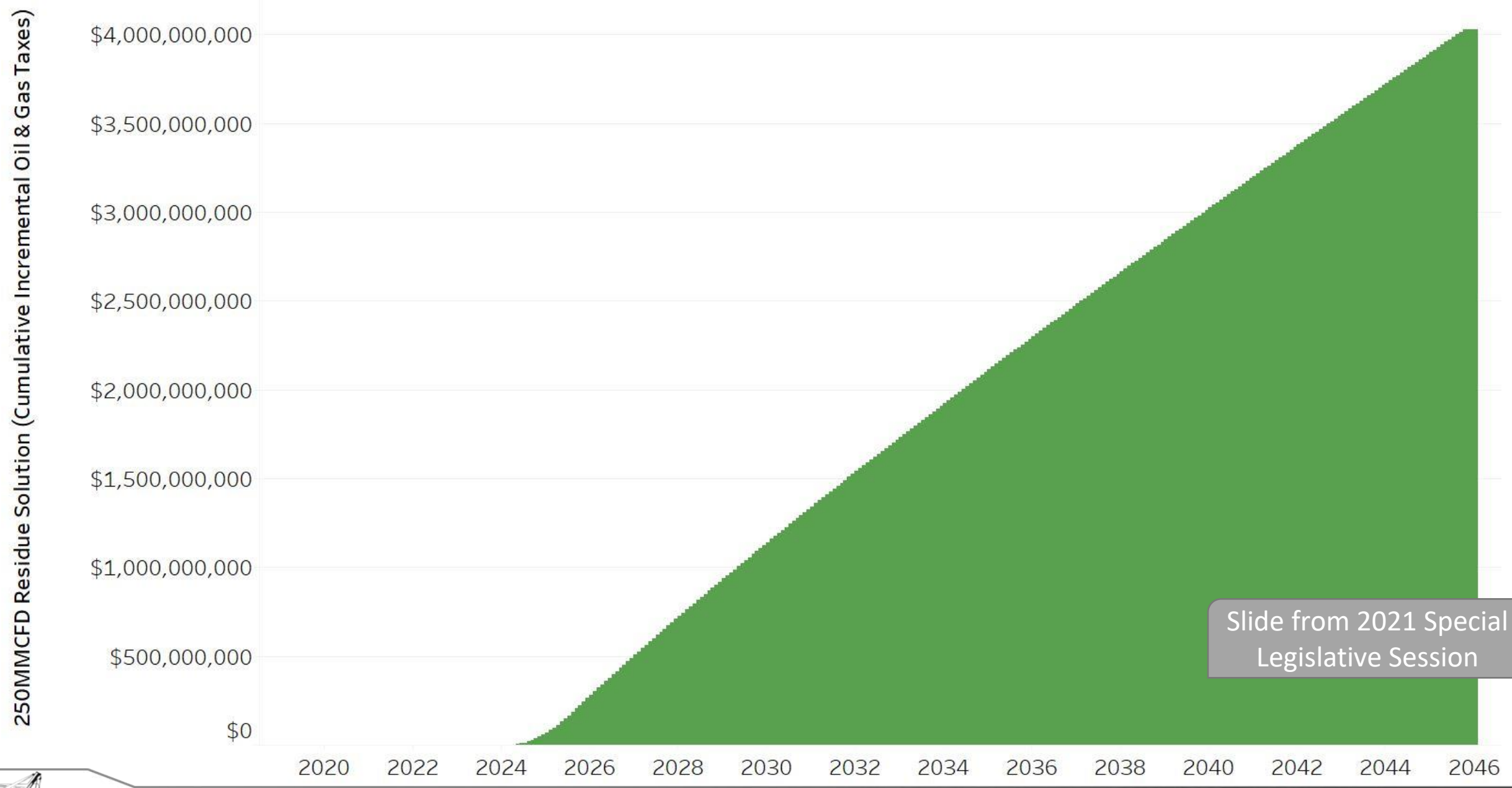
Incremental Oil & Gas Taxes*: 250 MMCFD Residue Gas Solution



Slide from 2021 Special Legislative Session

*NDPA Calculation at $65 Wellhead Oil

Incremental Oil & Gas Taxes*: 250 MMCFD Residue Gas Solution



Slide from 2021 Special Legislative Session

*NDPA Calculation at $65 Wellhead Oil

NGP – 1.01 Purpose Statement

The Industrial Commission was directed by the Sixty-seventh Legislative Assembly of North Dakota to establish a natural gas pipeline grant program to allow for the transportation of natural gas for utilization in eastern North Dakota thereby expanding the North Dakota economy, increasing employment, stimulating economic activity, augmenting sources of tax revenue, and fostering economic stability.

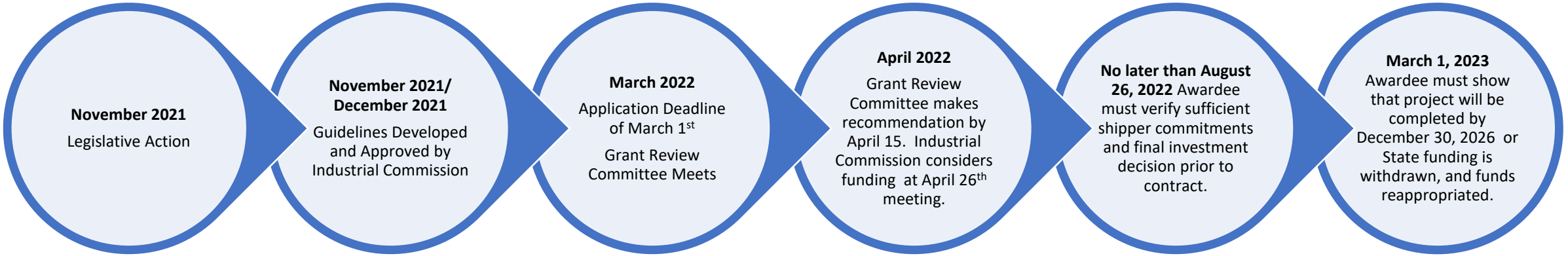
Legislative Appropriation: Senate Bill 2345 Section 1, subsection 1

There is appropriated from federal funds derived from the state fiscal recovery fund, not otherwise appropriated, the sum of $150,000,000, or so much of the sum as may be necessary, to the Industrial Commission for the purpose of pipeline infrastructure grants to allow for the transportation of natural gas to eastern North Dakota for the period beginning December 1, 2021 and ending June 30, 2023. Of the funds appropriated in this subsection, at least $10,000,000 must be used for a project to transport natural gas to areas in Grand Forks County.

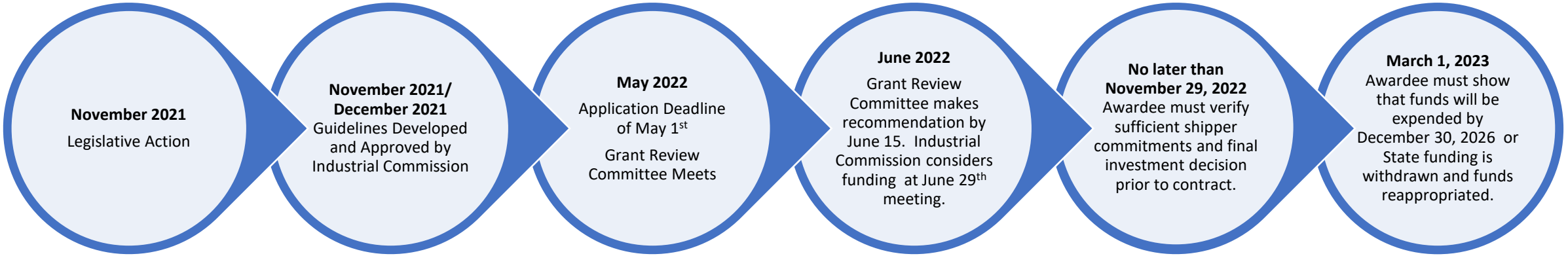
Legislative Intent Statement: Senate Bill 2345 Section 9

It is the intent of the Sixty-seventh Legislative Assembly that the Sixty-Eighth Legislative Assembly consider providing additional funding for continuing the development of high-pressure transmission pipeline infrastructure for the transportation and competitive selling of natural gas to eastern North Dakota.

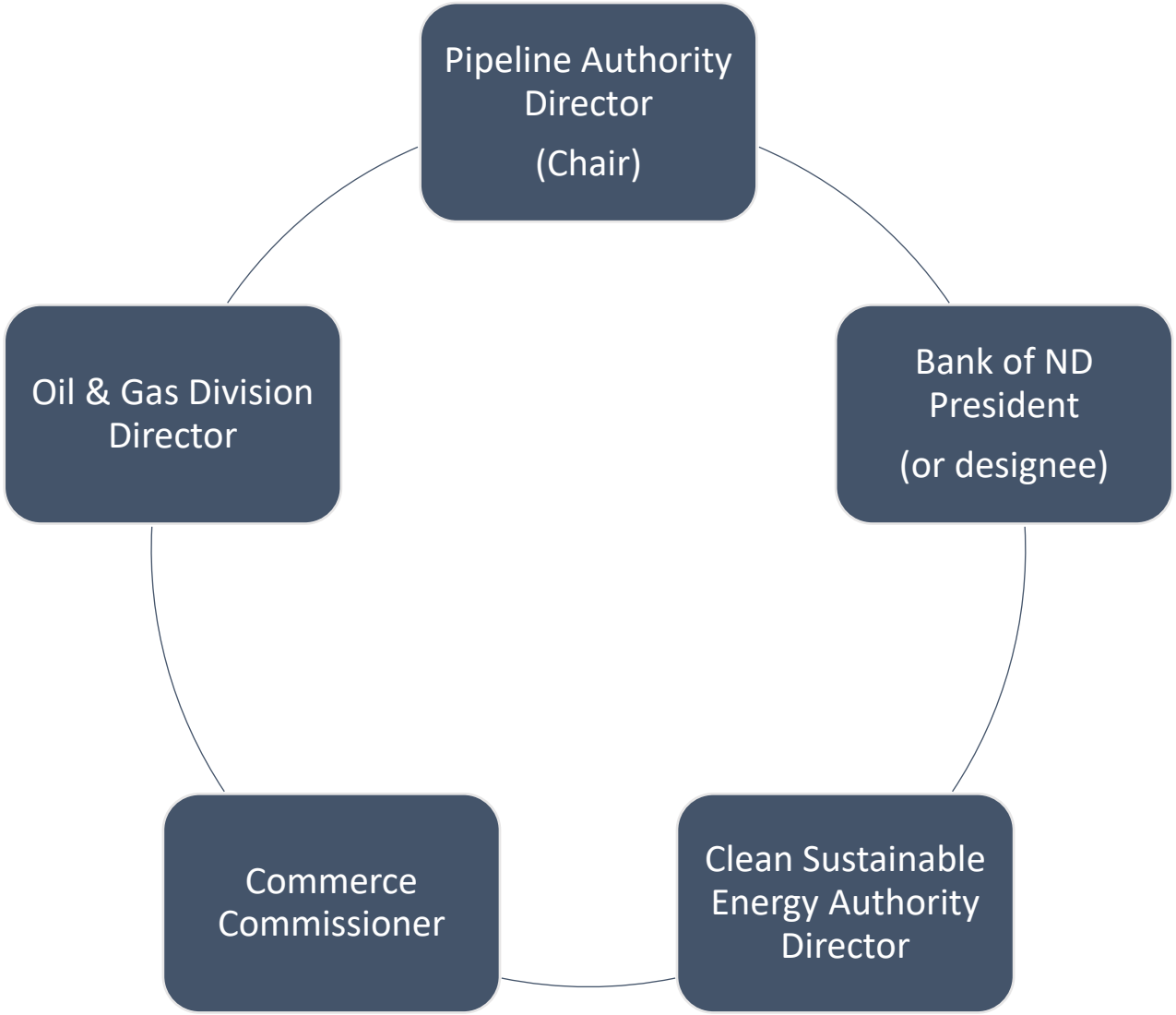
Timeline for $10 Million: Grand Forks County



Timeline for $140 Million



Application Review Committee



NGP – 1.02 Definitions

1. *“Commission” means the North Dakota Industrial Commission.*

2. *"Natural gas" means residue natural gas for end use consumption.*

3. *“Natural Gas Pipeline Grant Program” or “NGP Program “means a grant program to expand the North Dakota economy by facilitating the development of pipeline facilities to support the transportation of natural gas for utilization in eastern North Dakota, thereby increasing employment, stimulating economic activity, augmenting sources of tax revenue, fostering economic stability, and improving the state's economy.*

4. *“Natural Gas Pipeline Grant Review Committee” or “Review Committee” means the Department of Mineral Resources Director, Pipeline Authority Director, Bank of North Dakota President or his designee, Clean Sustainable Energy Authority Director, Department of Commerce Commissioner. The Pipeline Authority Director shall serve as Chair of the Review Committee.*

5. *"Pipeline facilities" means pipelines, pumps, compressors, storage, and all other facilities, structures, and properties incidental and necessary or useful in the interconnection of high-pressure pipelines or the transportation of natural gas commodities to points of transfer located within and outside the state. “Pipeline facilities” do not include local distribution infrastructure.*

6. *“Transportation Rate Buy Down” means all grant funding shall be used exclusively for the purpose of offsetting project capital expenditures resulting in a lower natural gas transportation rate while not increasing the rate of return on equity for the recipient.*

NGP – 2.02 Eligibility Criteria

1. *Be recommended by the Natural Gas Pipeline Grant Review Committee.*
2. *Upon grant award approval, the recipient must demonstrate within five months that sufficient shipper commitments on the pipeline have been obtained.*
3. *Have a **minimum** 60% private sector funding.*
4. *Achieve the priorities and purposes of the NGP Program.*
5. *Operate as a common carrier pipeline.*
6. *Certify funds be used exclusively to lower or "buy down" the transport rate through a fixed return on equity basis.*

NGP – 4.01 Application Evaluation – Criteria

- ***Degree to which the application meets the Program objectives:***
  - *Expanding the North Dakota economy by facilitating the development of pipeline facilities to support the transportation of natural gas for utilization in eastern North Dakota.*
  - *Increasing employment.*
  - *Stimulating economic activity.*
  - *Augmenting sources of tax revenue.*
  - *Fostering economic stability.*

- ***Priority will be given to applications that:***
  - *Clearly define how grant funds will lower or "buy down" the transport rate through a fixed return on equity basis.*
  - *Have a higher proposed match ratio.*
  - *Have a higher level of potential customer support.*

Review Committee Scoring Form

Name:_____ Application Number:_____

Natural Gas Pipelines Grant Program

Review Committee Scoring Form

1. How well does the proposed project meet the grant program objectives?

Limited	1	2	3	4	5	Extremely Well

2. How well does the proposed project meet required timelines of producers, customers, and funding requirements?

Limited	1	2	3	4	5	Extremely Well

3. Rate the ability of the applicant to execute on the proposed project timeline.

Limited	1	2	3	4	5	Extremely Well

4. Rate the ability of the applicant to execute on the proposed project budget.

Limited	1	2	3	4	5	Extremely Well

5. Rate the experience level of the applicant's project management team.

Limited	1	2	3	4	5	Significant

6. The level of applicant's matching funds.

Limited	2	4	6	8	10	Significant

7. The short-term and long-term benefits to the State, including the diversification and growth of the State's economy.

Limited	1	2	3	4	5	Significant

This is a public document.

8. The short-term and long-term benefits to the oil and natural gas producing sector of the State's economy.

Limited	2	4	6	8	10	Significant

9. Rate the level of industry and customer support for the proposed project.

Limited	2	4	6	8	10	Significant

10. Rate the applicant's approach to use matching funds to lower the project's transportation fees through a fixed return on equity model.

Limited	1	2	3	4	5	Significant

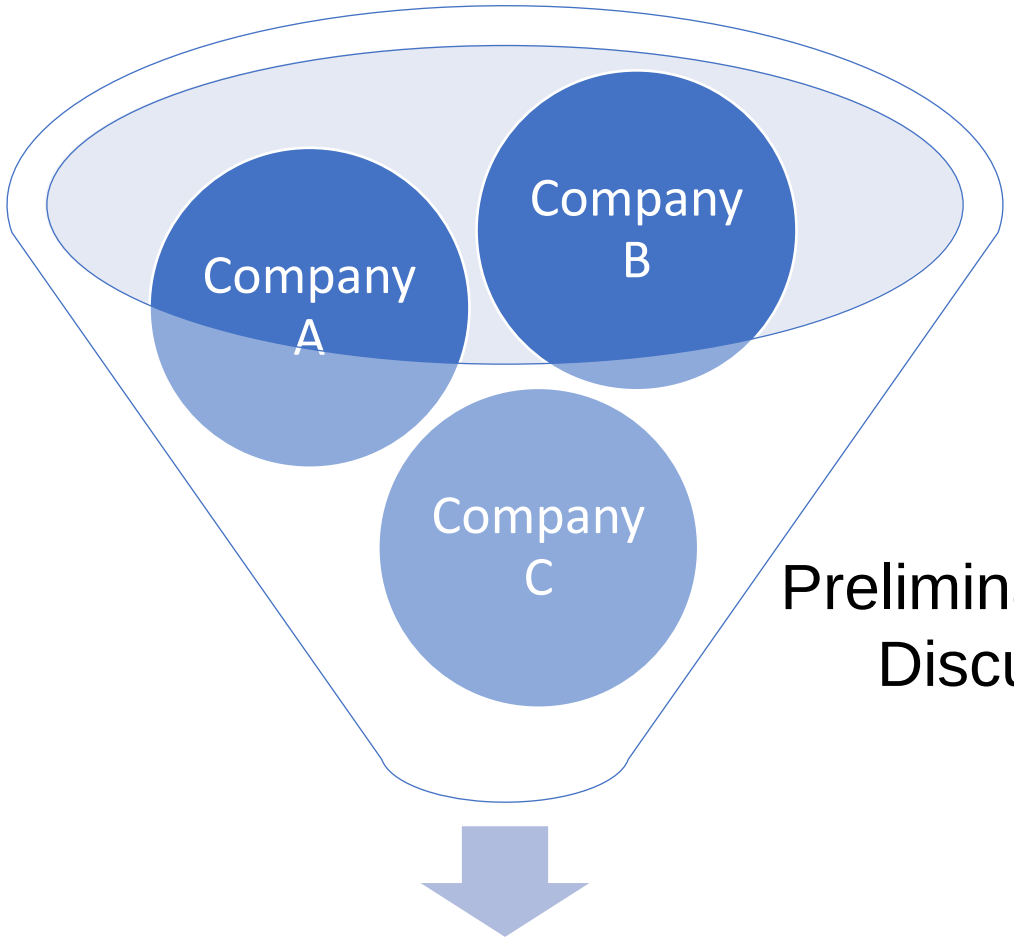
Total Points Awarded = _____ (maximum 65)

Recommendation	Mark Selection/Score
Do Not Fund	
Consider Funding W/Conditions	
Consider Funding	

This is a public document.

Marketplace is Expected to Naturally Narrow Applicants

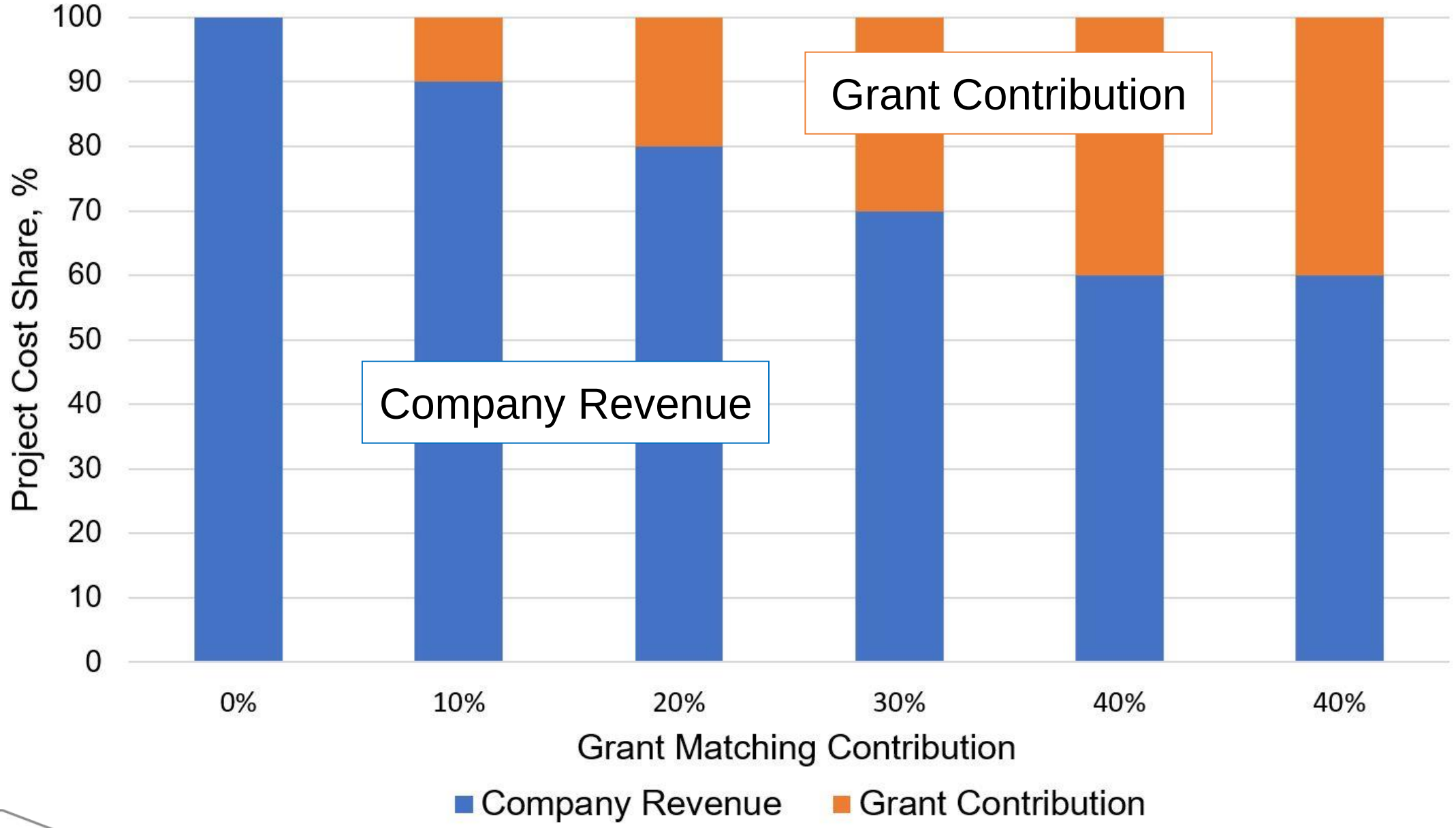
Multiple Companies Approaching Potential Customers



Preliminary Market Discussions

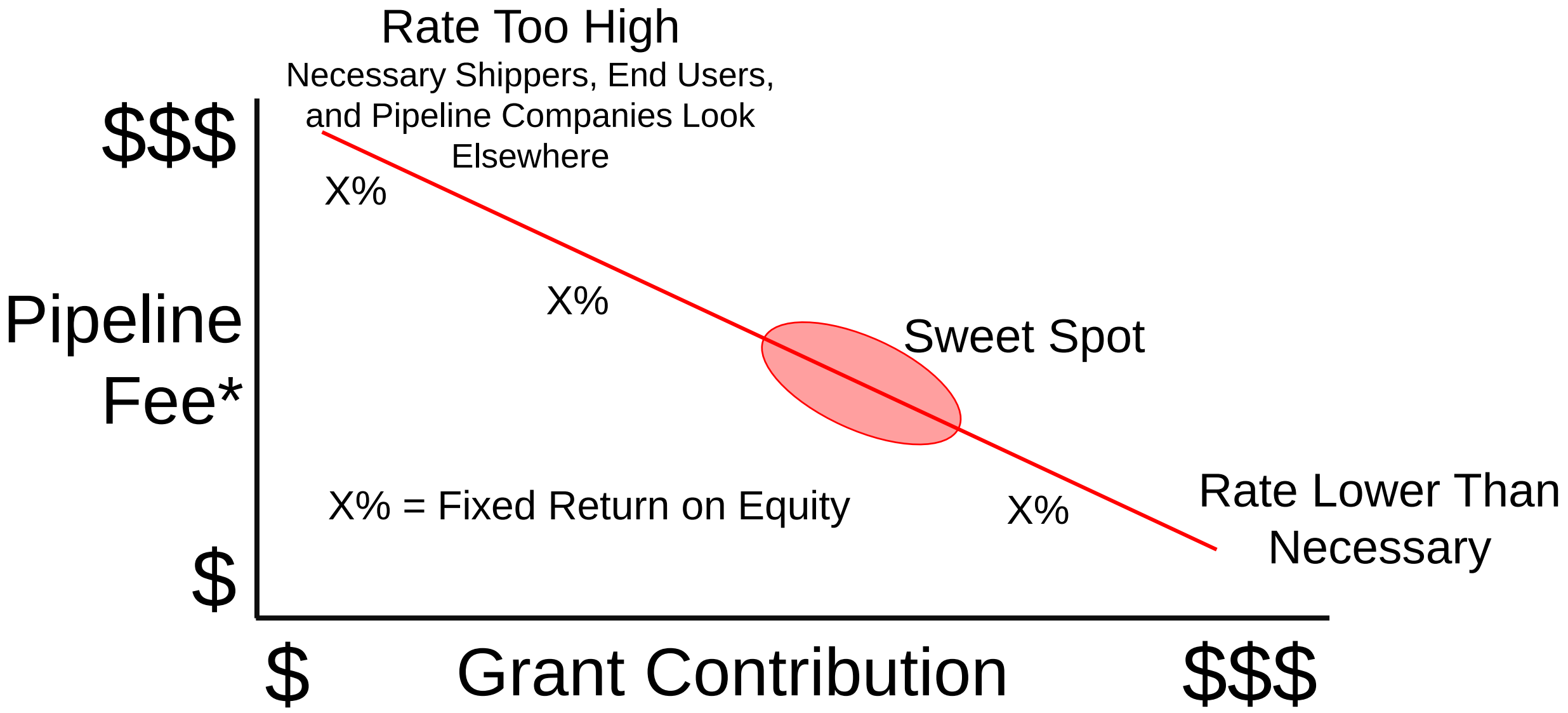
Applicants to NGPGP

Company Revenue* and Grant Contribution



*Assumes Fixed Return on Equity

Grant Contribution Vs. Transport Fee



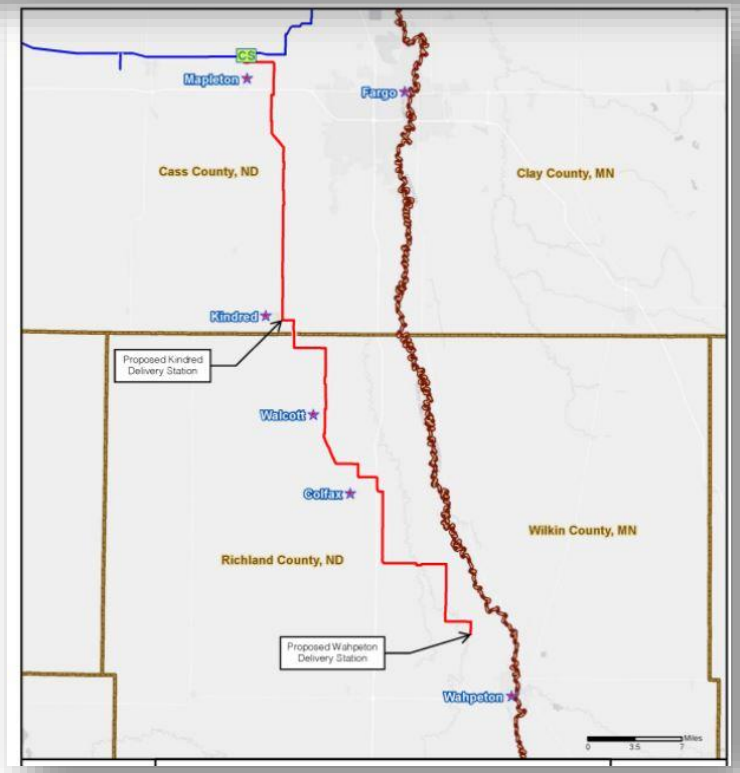
*Assumes Fixed Return on Equity

Open Season Example*

WBI Energy Transmission, Inc.
Wahpeton Expansion Project
Sale of Firm Capacity
Commencing September 1, 2021

Binding Open Season

WBI Energy Transmission, Inc. announces a Binding Open Season for the sale of long term, firm natural gas transportation capacity to new delivery locations in southeastern North Dakota.



Length of Open Season

The Open Season will commence on September 1, 2021 and conclude at 4:00 PM Central Time on September 15, 2021. The Open Season is available to any party. All related Precedent Agreements must be executed no later than September 30, 2021, unless WBI Transmission agrees, in its sole discretion, to extend such deadline.

Bids

To properly respond to this Open Season, bidders must complete an Open Season Bid Sheet that includes the delivery location, quantity requested, length of term and desired rate (attached). Completed Open Season Bid Sheets can be e-mailed to mark.anderson@wbienergy.com or mailed (to ensure receipt by WBI Transmission prior to the end of the bid period) to WBI Energy Transmission, Inc., Market Services Department, P.O. Box 5601, Bismarck, ND 58506-5601.

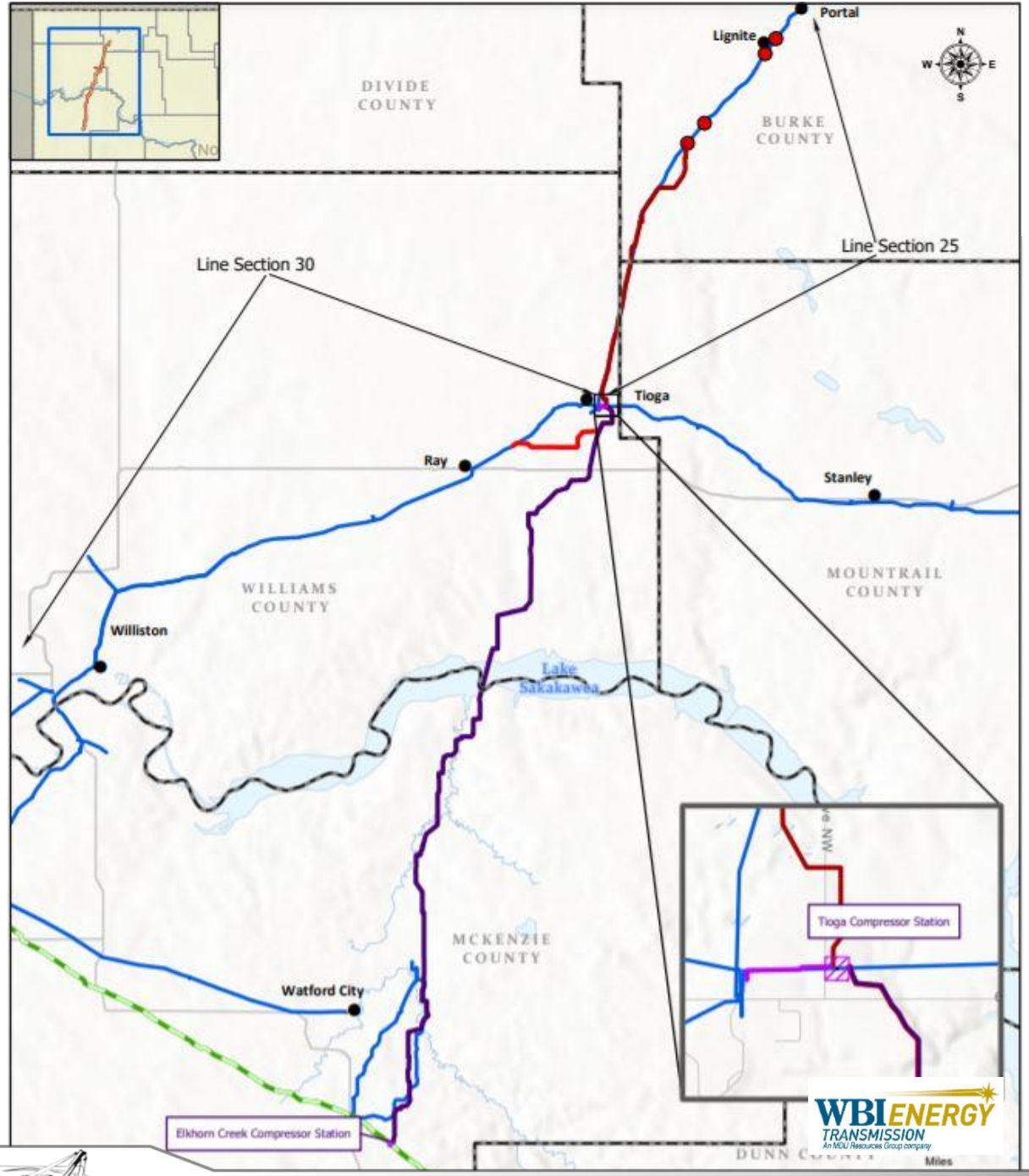
Shippers have the option of requesting the Rate Schedule FT-1 project recourse rate or a mutually agreeable negotiated rate for the firm transportation capacity associated with this Open Season. The project recourse rate is estimated to be $1.53584 per dekatherm on a 100% load factor basis based on the current project cost estimate and a project design capacity of 20,600 dkt/d. It is estimated that the project recourse commodity rate will be equal to the maximum Rate Schedule FT-1 Commodity Rate as set forth in WBI Transmission's Tariff, as such may be in effect from time to time.

The project recourse rate and negotiated rate options will be subject to all applicable surcharges, fuel use, lost and unaccounted for gas and electric power charges as set forth in WBI Transmission's Tariff, as such may be in effect from time to time.

During this Open Season, both the contract term and rates are negotiable. It is projected that a minimum term of ten (10) years from commencement of service may be necessary to support the capital expenditures required to construct the facilities associated with the Project.

Full Open Season Document Available: www.wbienergy.com

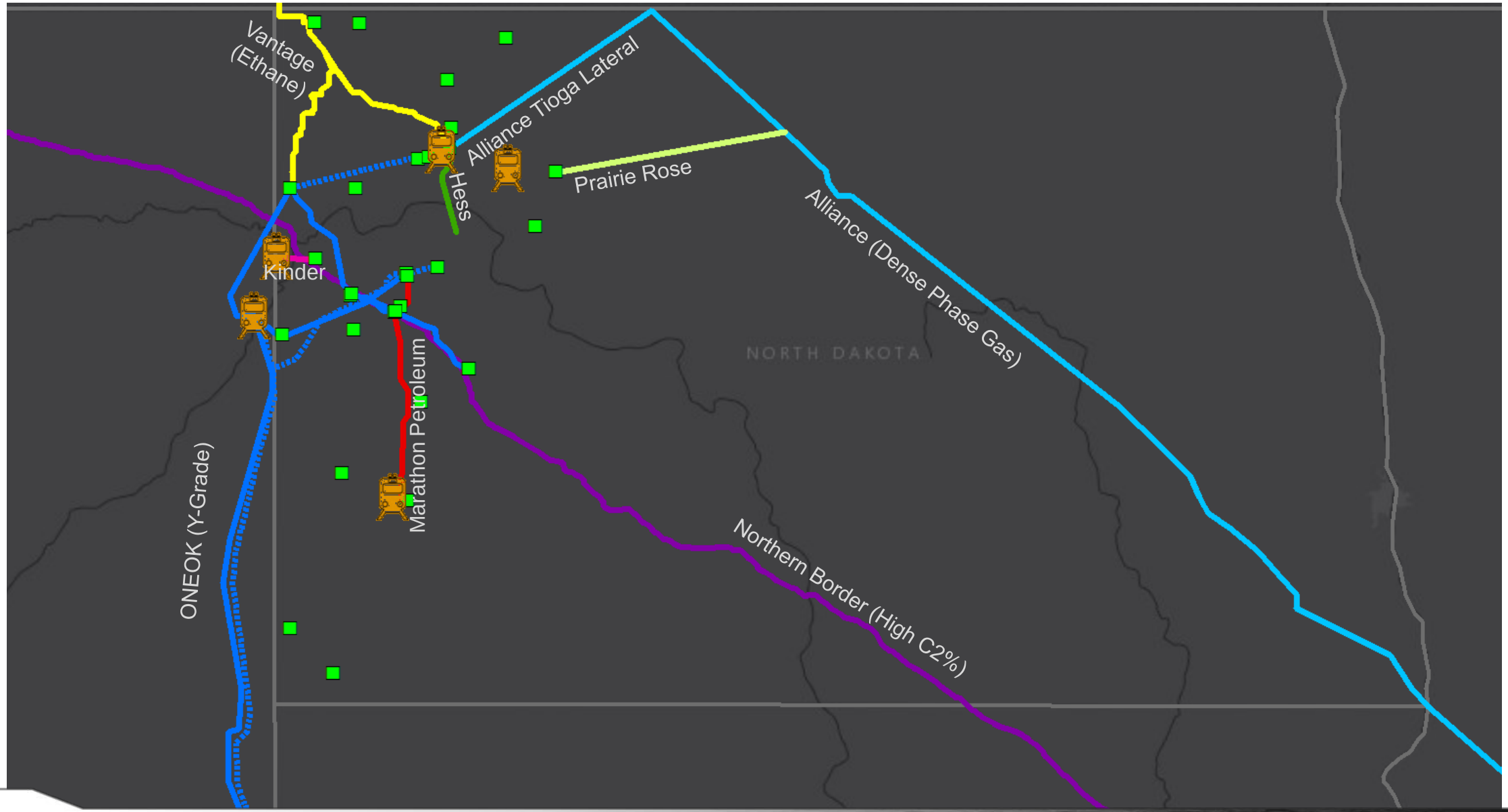
WBI Energy – North Bakken Expansion Project



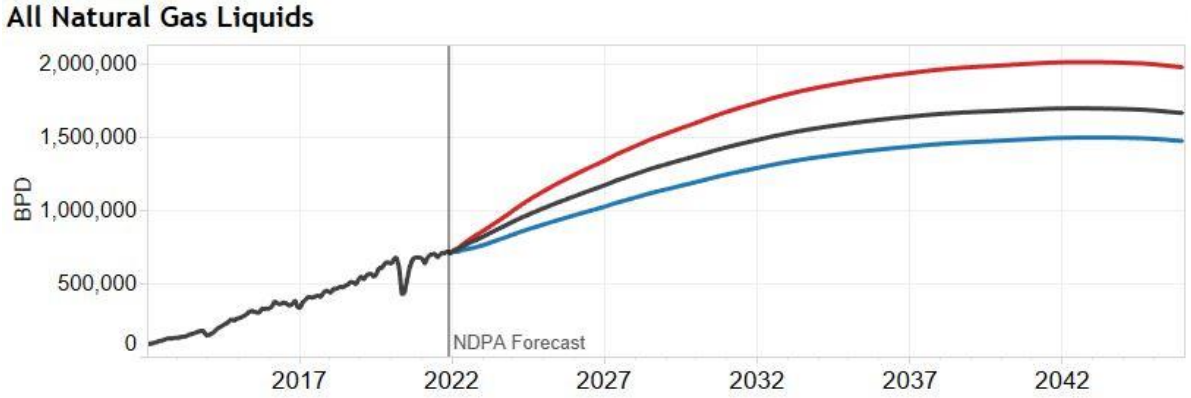
Project Highlights

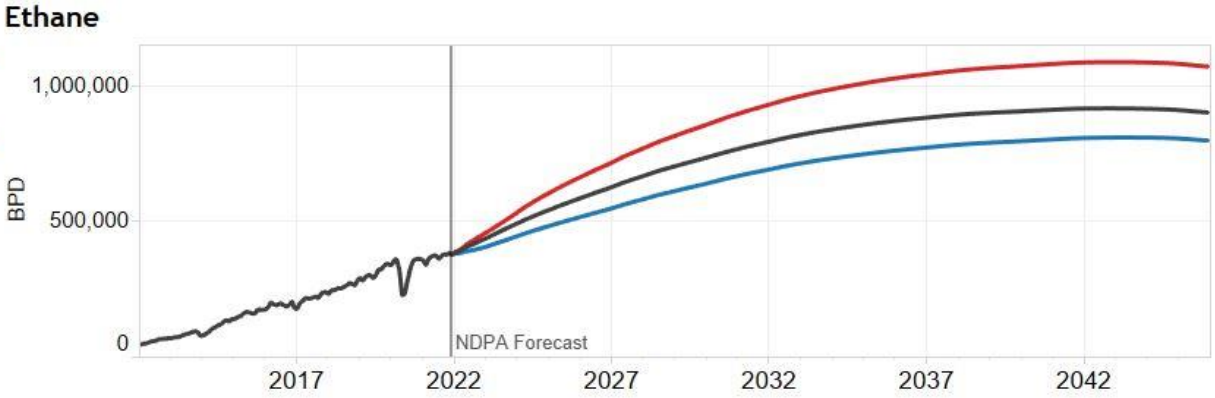
- ~60 Miles - 24” Pipeline
- ~30 Miles - 12” Pipeline
- $260+ Million
- Preliminary Capacity 250,000 MCFD
- Expandable to 600,000 MCFD
- Q4 2021 Proposed Completion
- Residue Gas Service From North of Lake Sakakawea to Northern Border Pipeline in McKenzie County

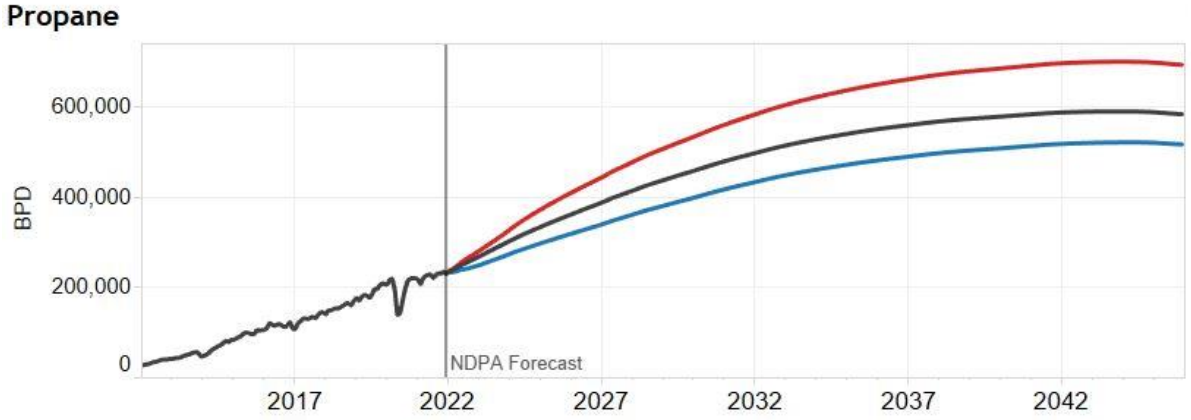
Regional NGL Infrastructure

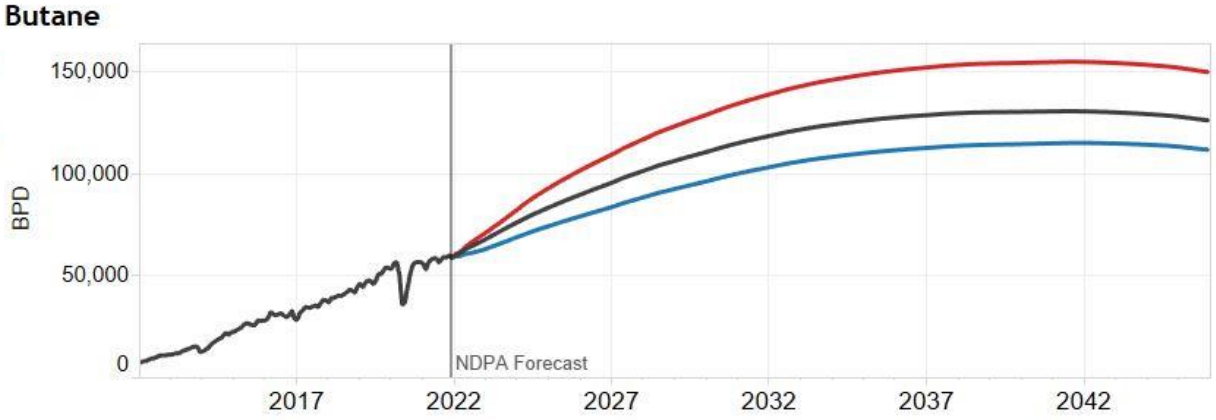


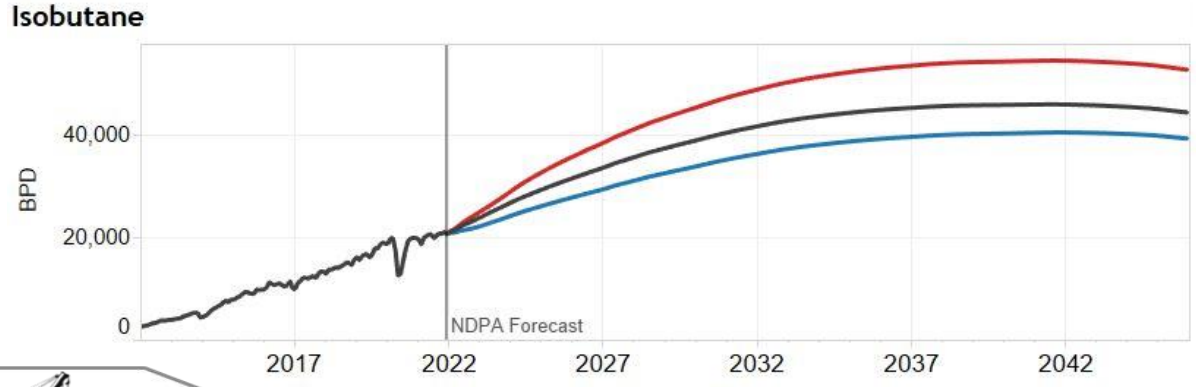
North Dakota Captured* NGL's

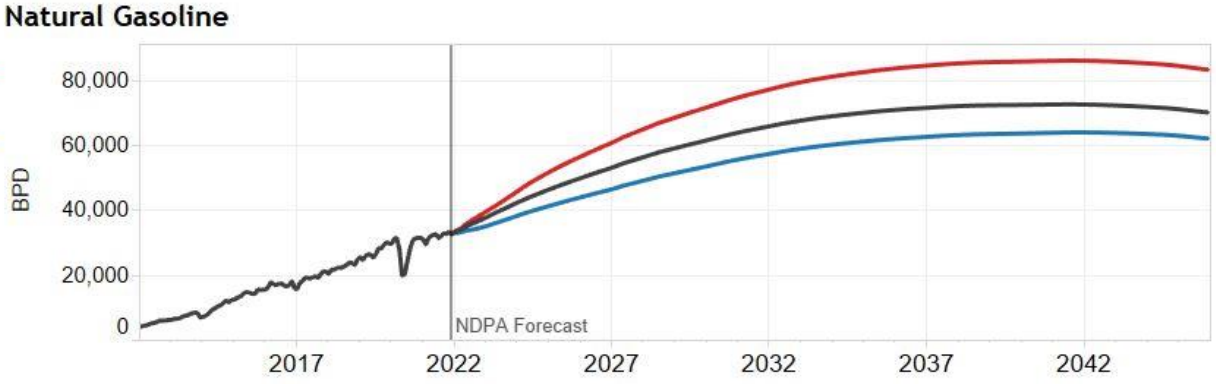




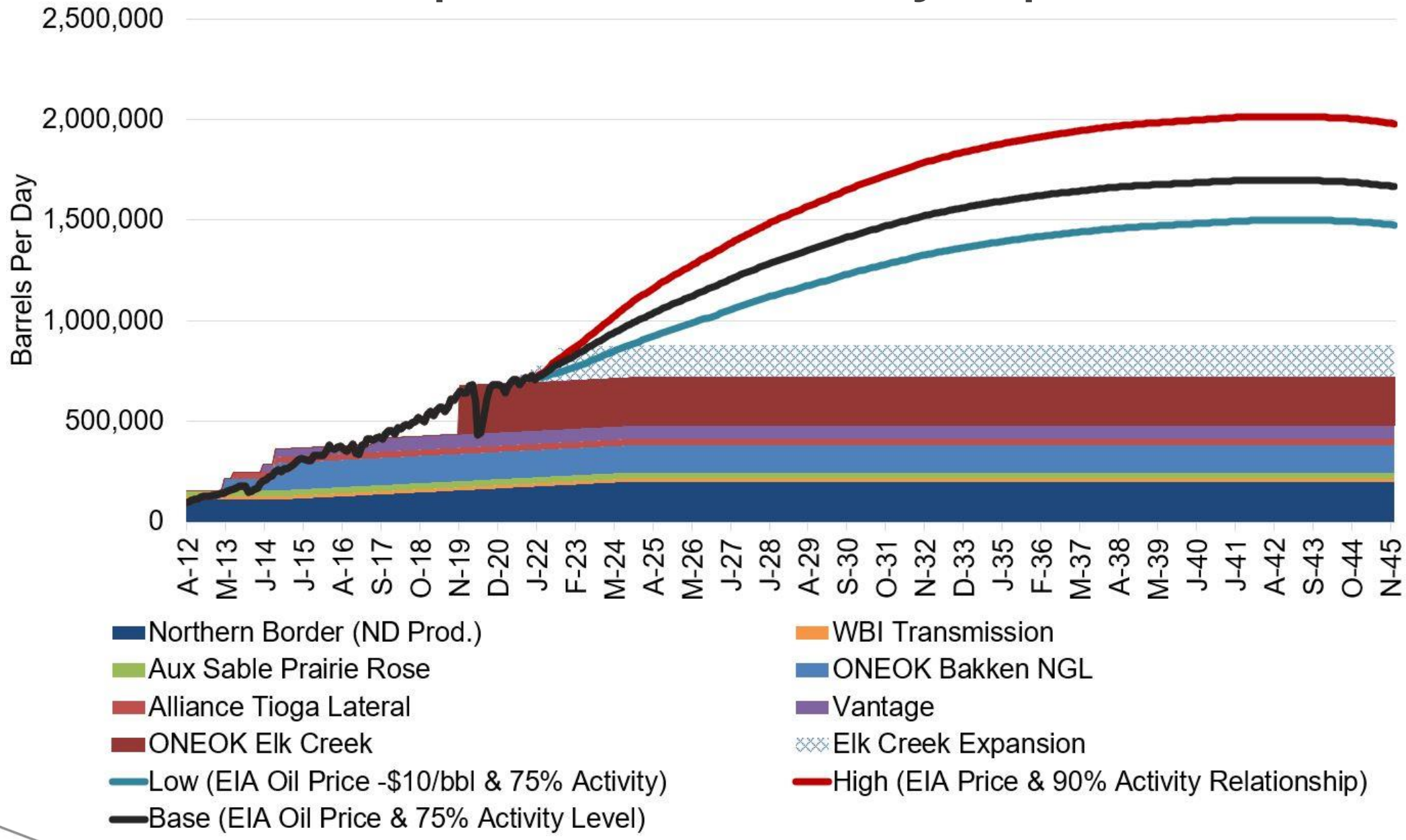




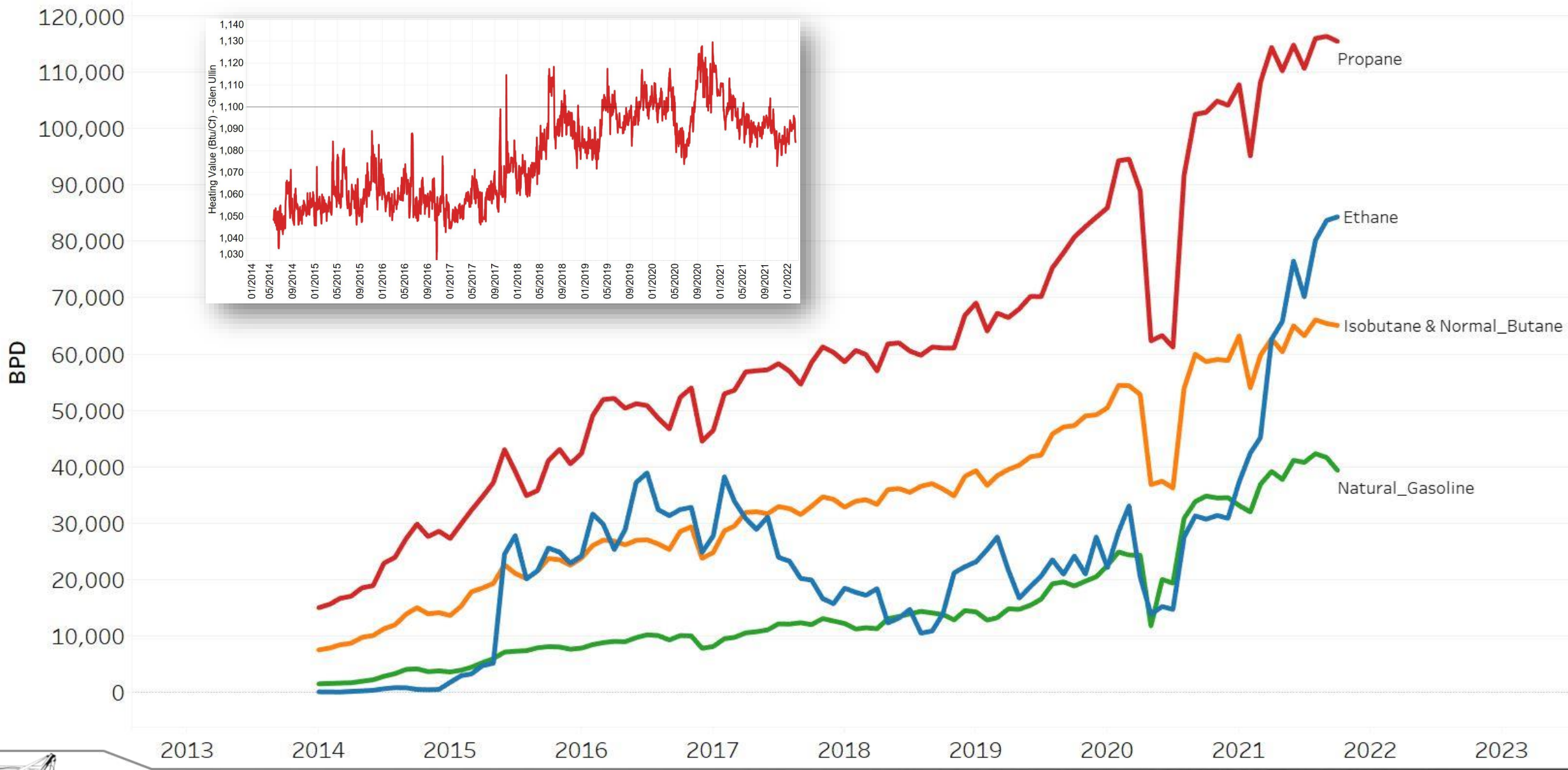




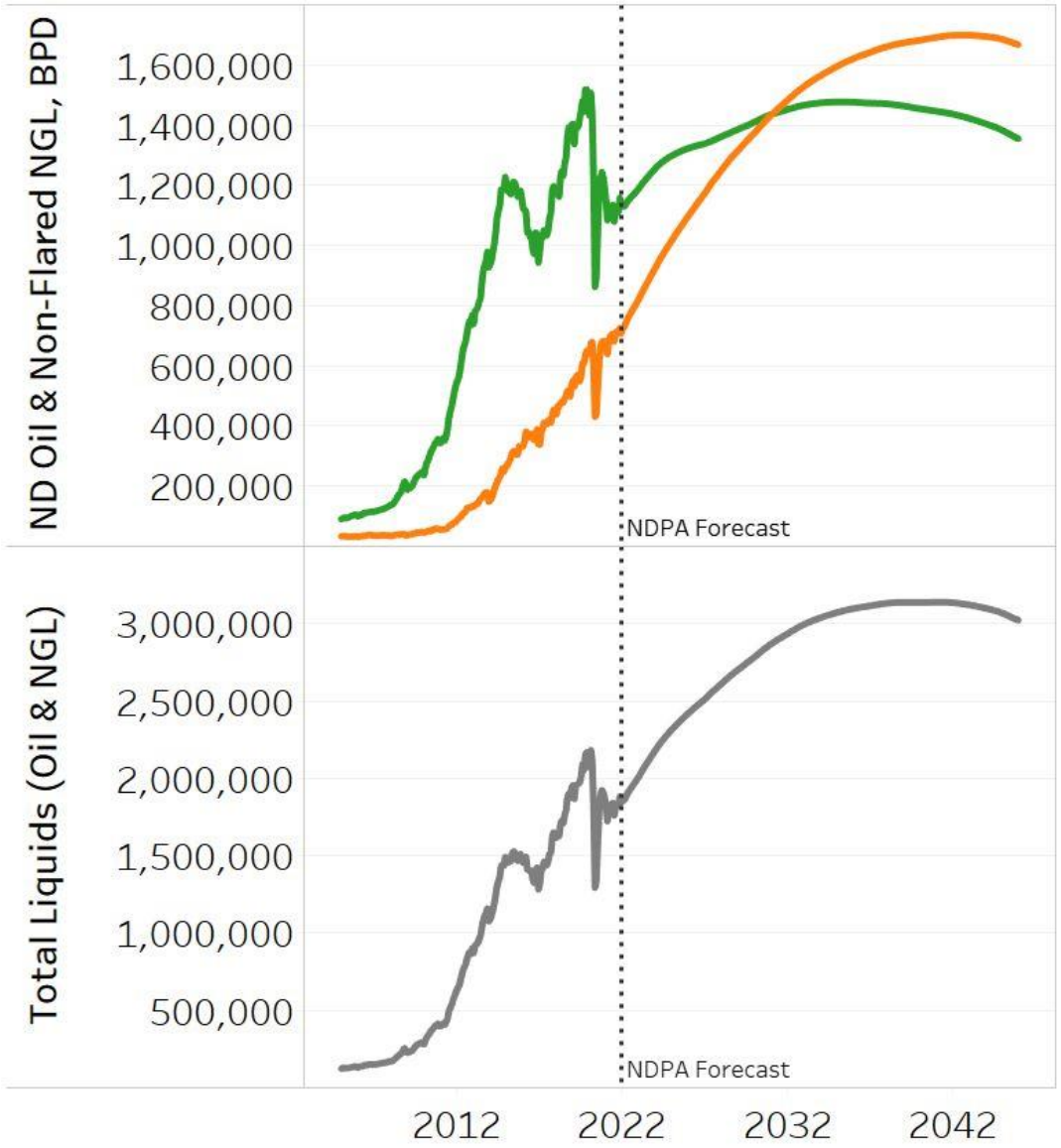
NGL Pipeline Takeaway Options



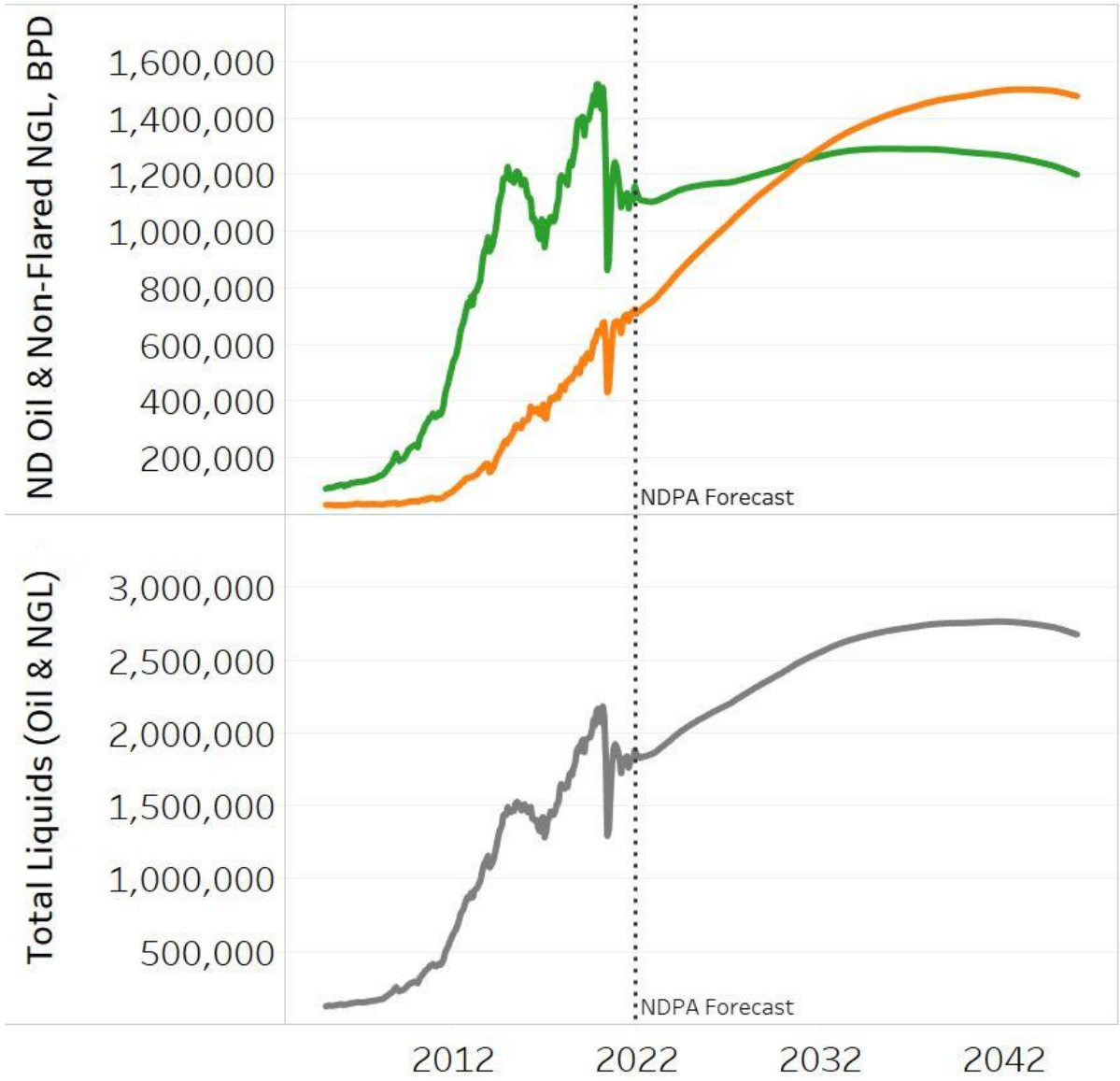
ND Ethane Capture Driving Northern Border BTU Lower



Total Liquids Production (Oil & Non-flared NGL)



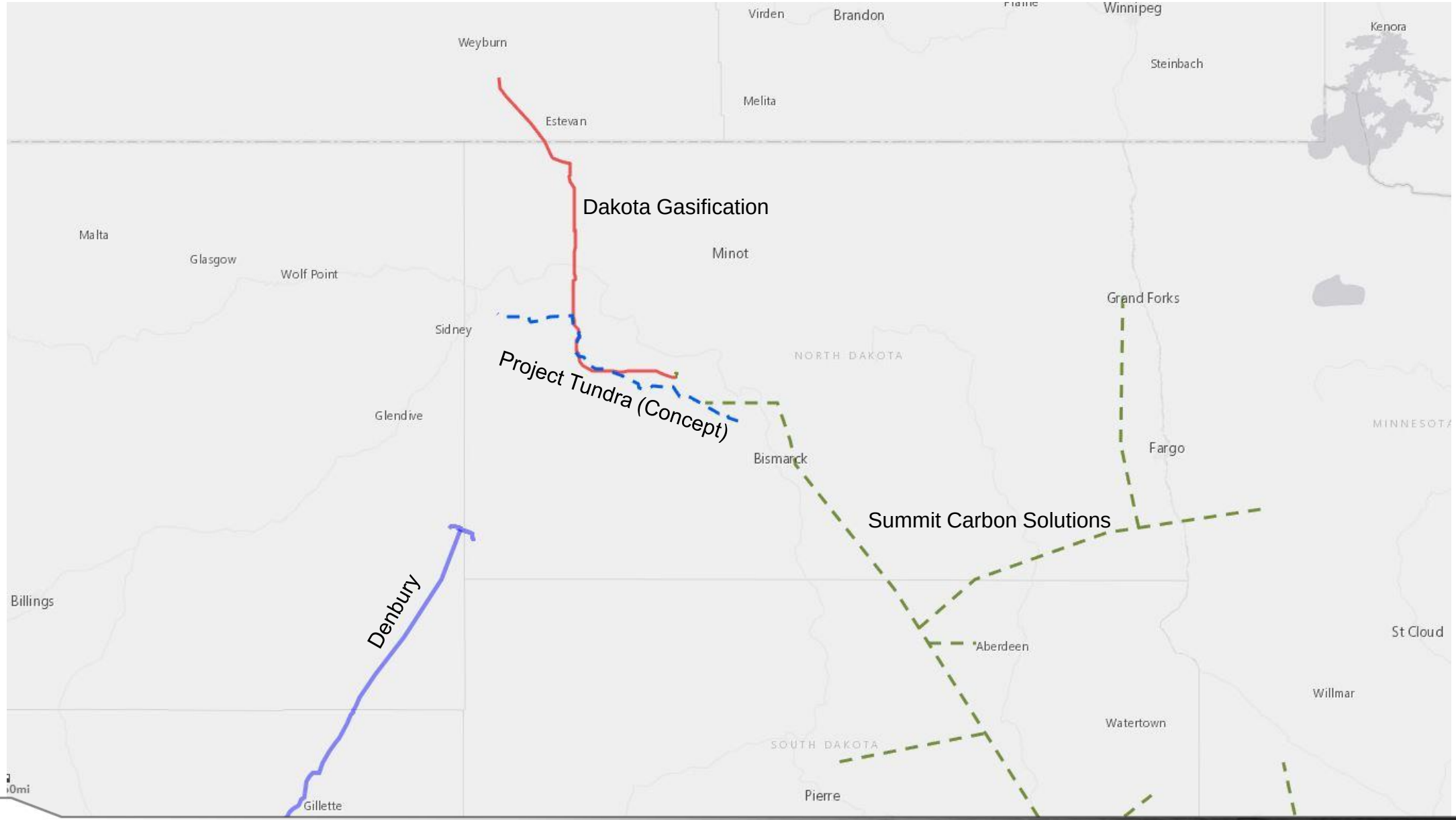
Base Case



Low Case

Hydrogen/Residue Gas Blending

Carbon Dioxide Pipeline Infrastructure



Contact Information

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Bismarck, ND 58505-0840

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Websites:

www.pipeline.nd.gov

www.northdakotapipelines.com