

Western Dakota Energy Association Annual Meeting

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A Complete Gas Capture Solution



Production

- Technology
- Markets
- Forecasting



Gathering

- Capacity
- Connections
- Compression



Processing

- Capacity
- Location
- Configuration



Transmission

- Dry Gas
- Natural Gas Liquids



Natural Gas Update



Production

- Technology
- Markets



Gathering

- Capacity
- Connections



Processing

- Capacity
- Location

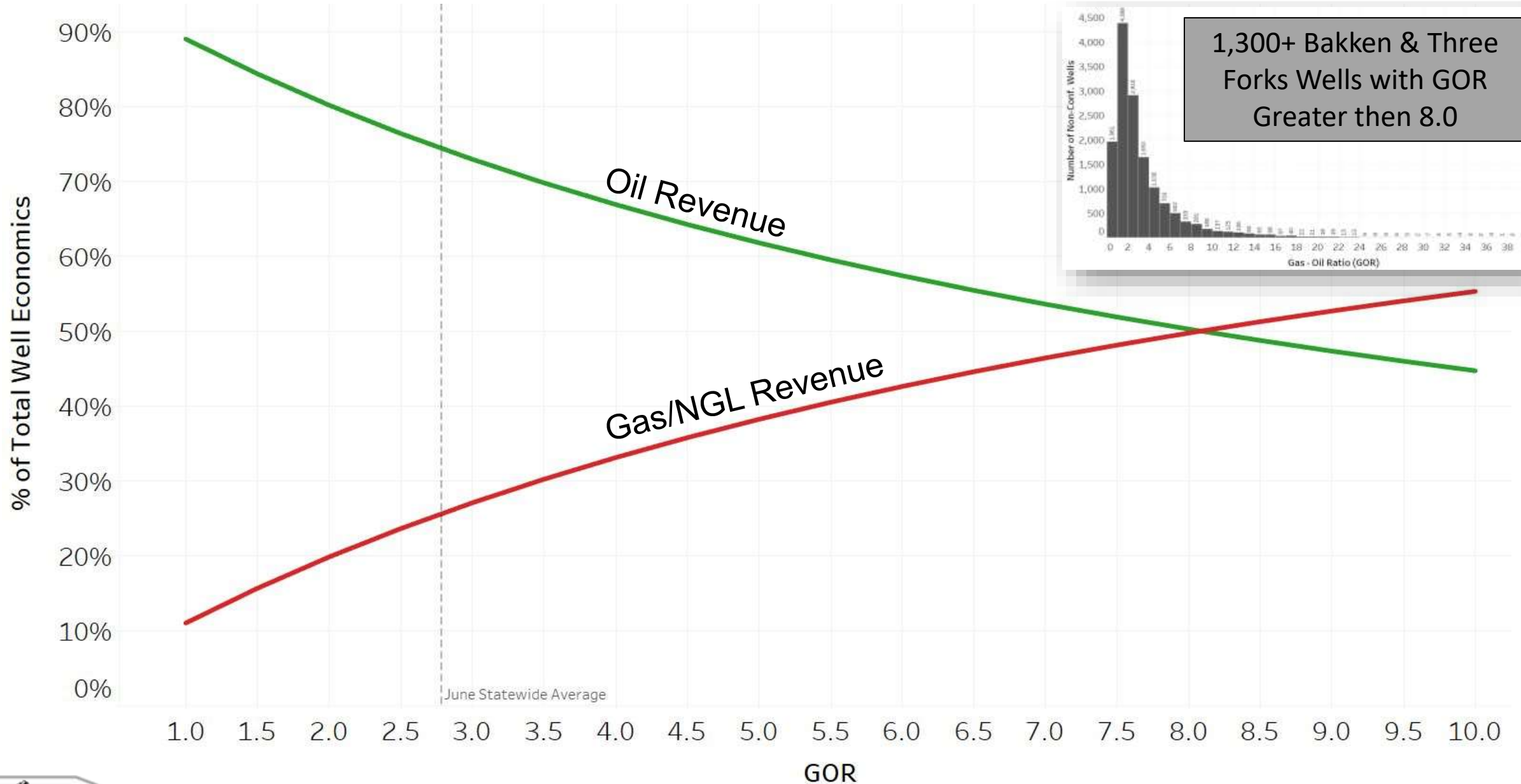


Transmission

- Dry Gas
- Natural Gas Liquids



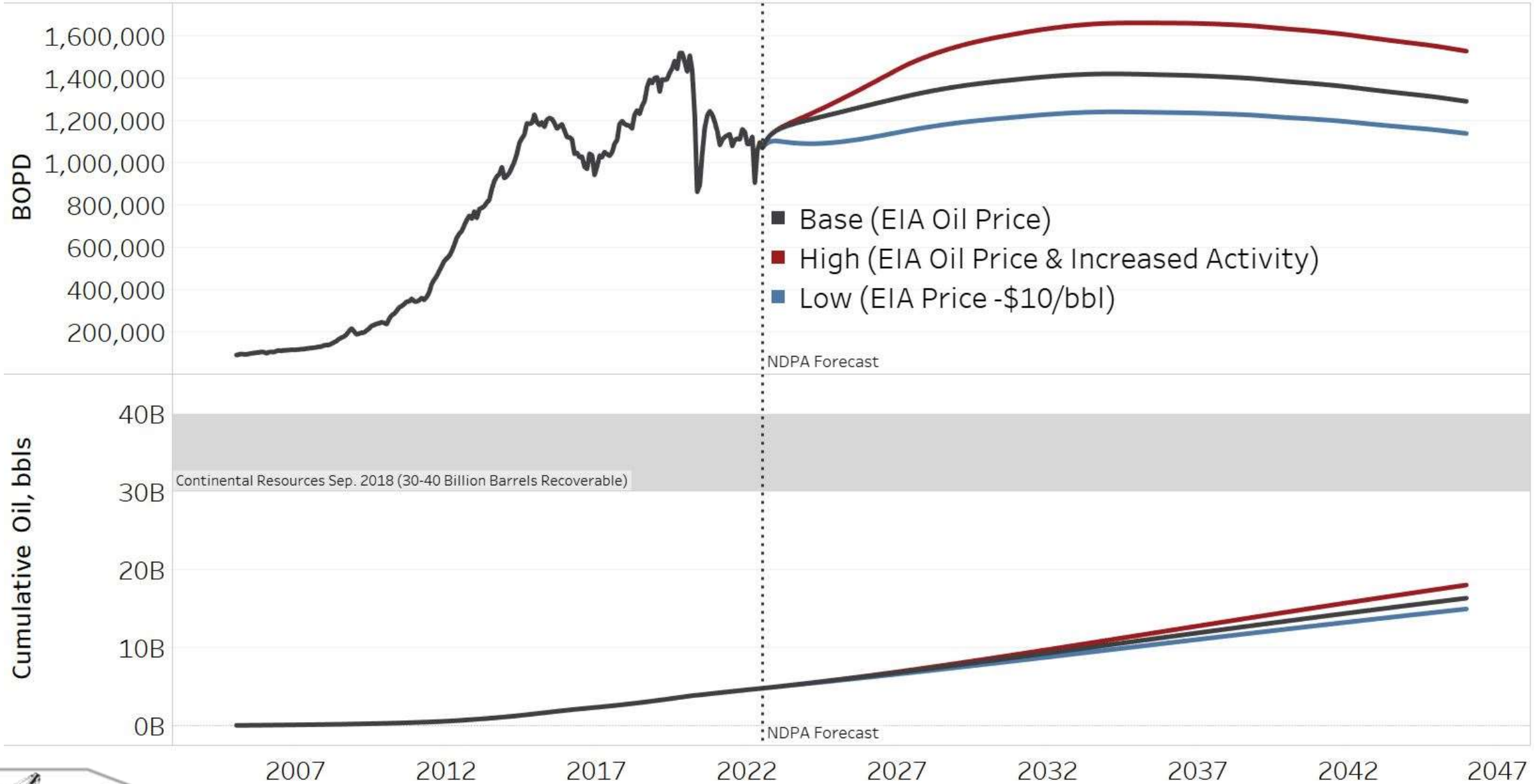
Current Bakken Wellhead Economics



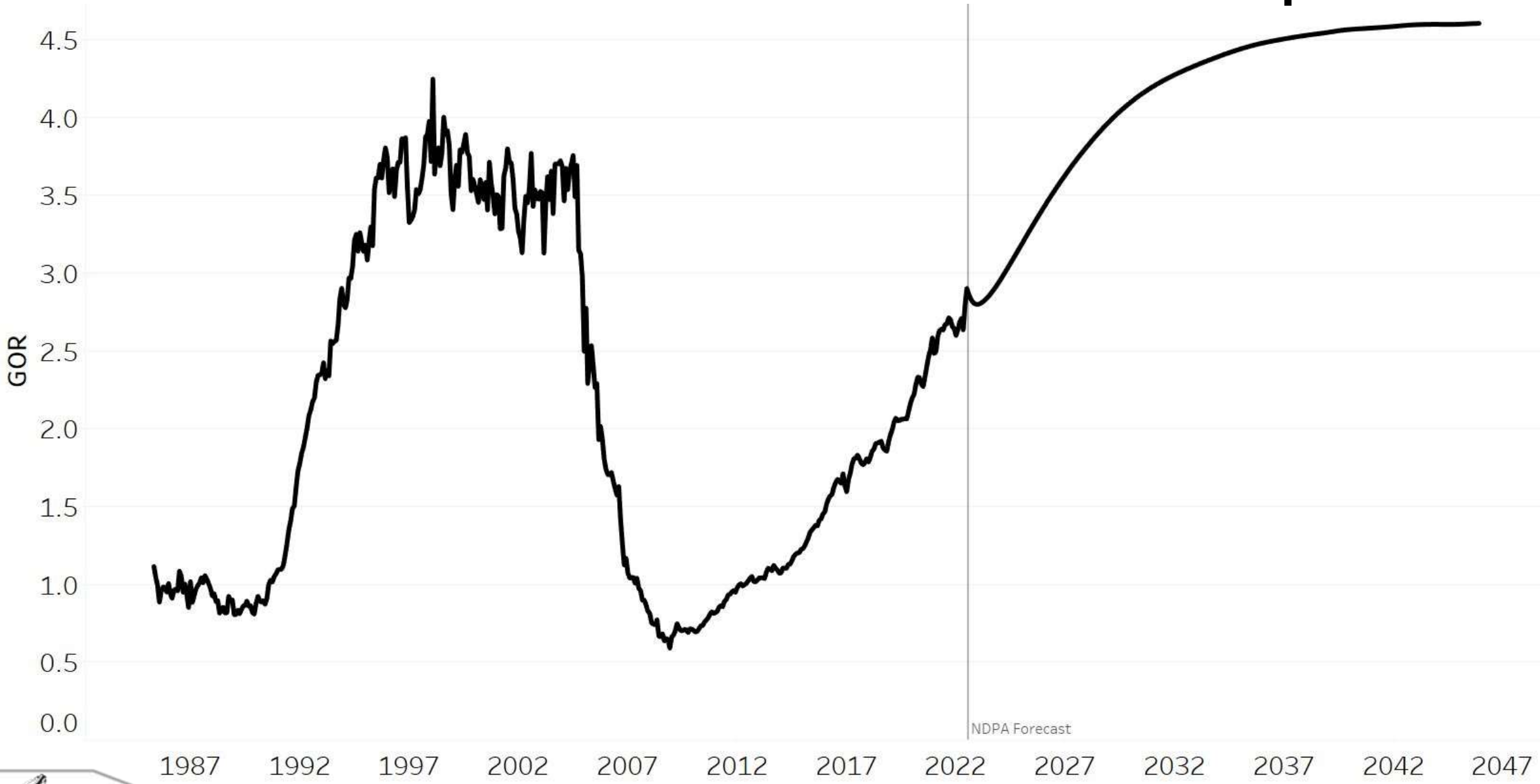
1,300+ Bakken & Three Forks Wells with GOR Greater than 8.0



ND Oil Production: EIA Price Deck



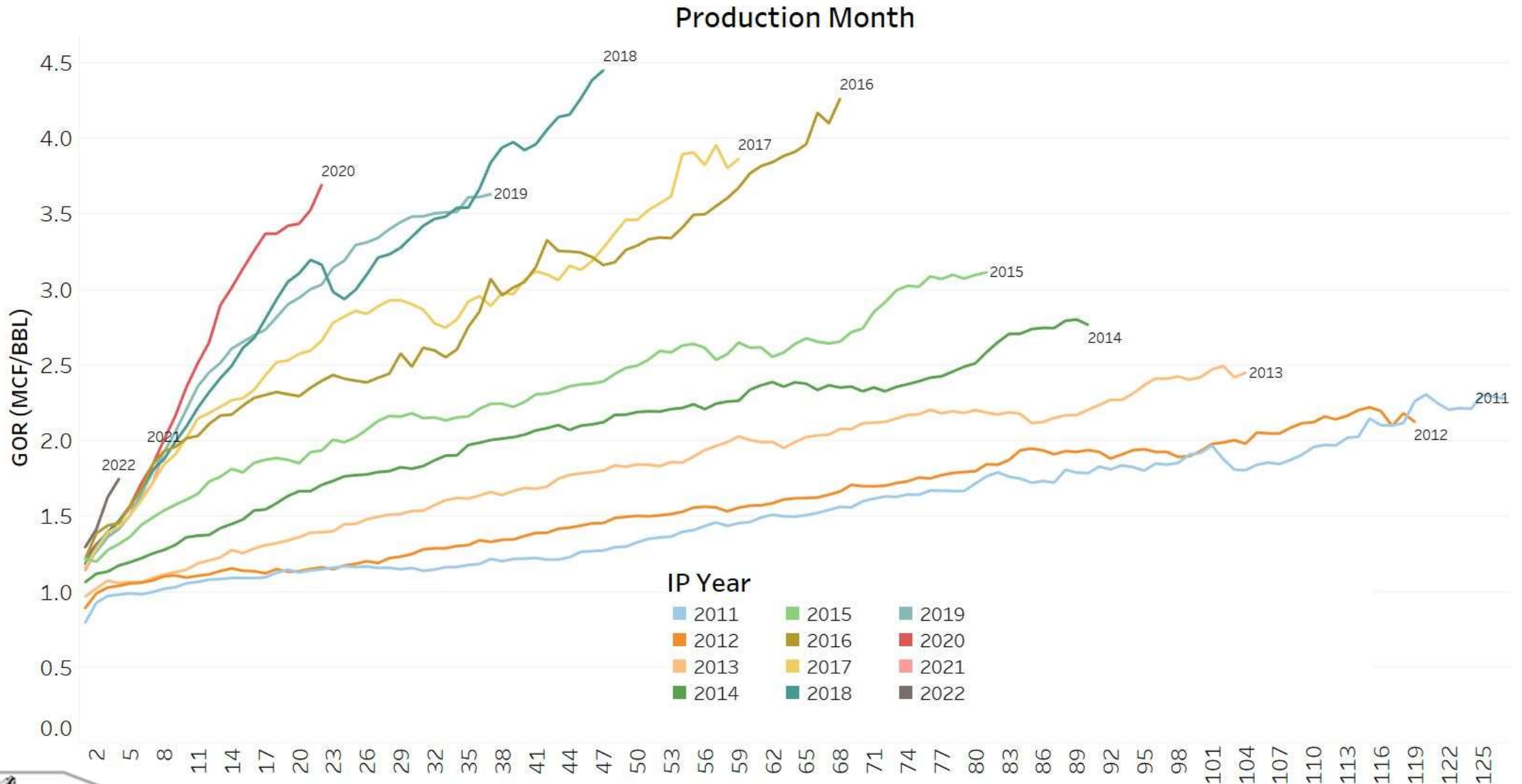
ND Gas Production: GOR Assumption



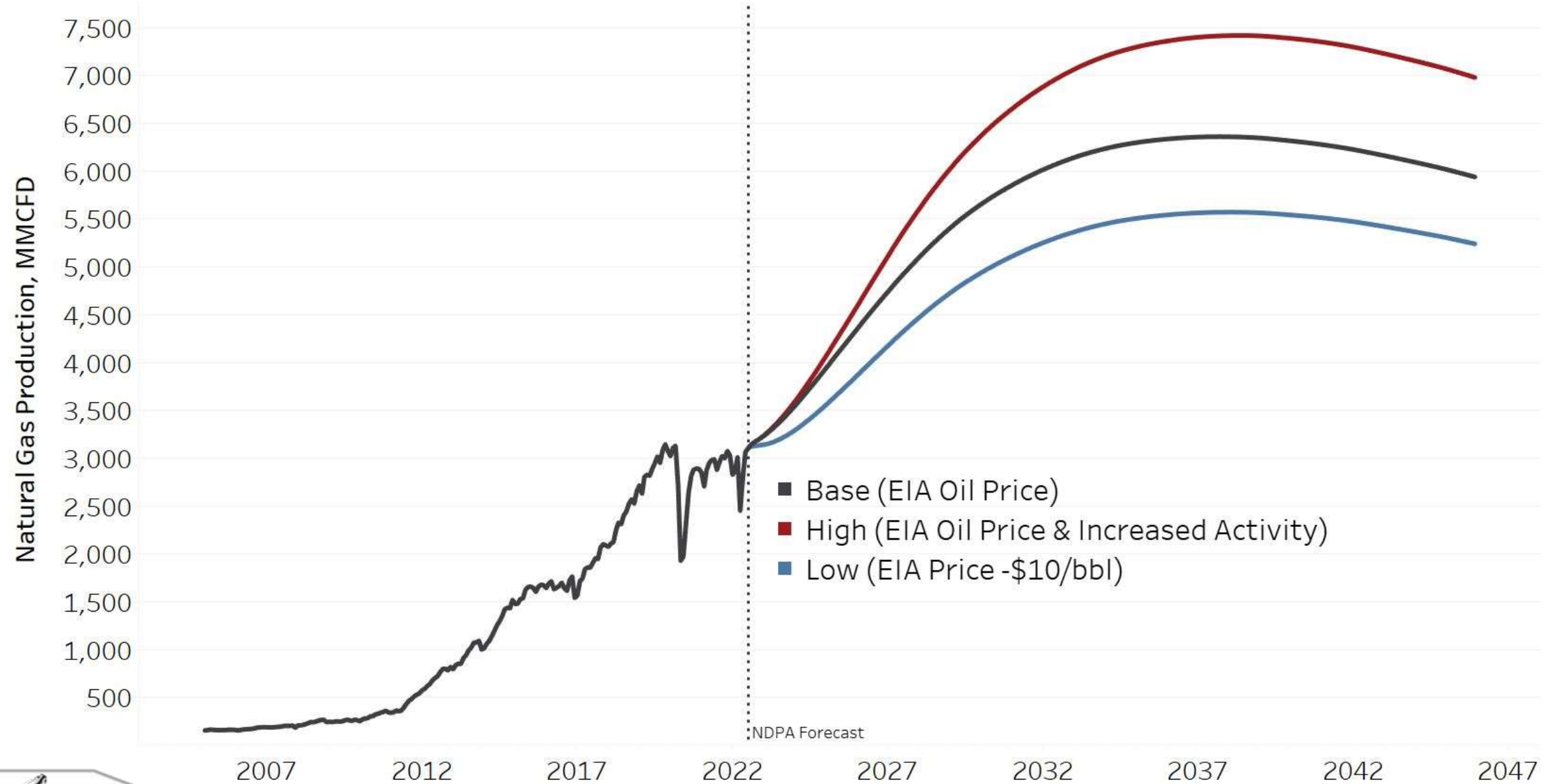
NDPA Forecast



Statewide Bakken Gas/Oil Ratios



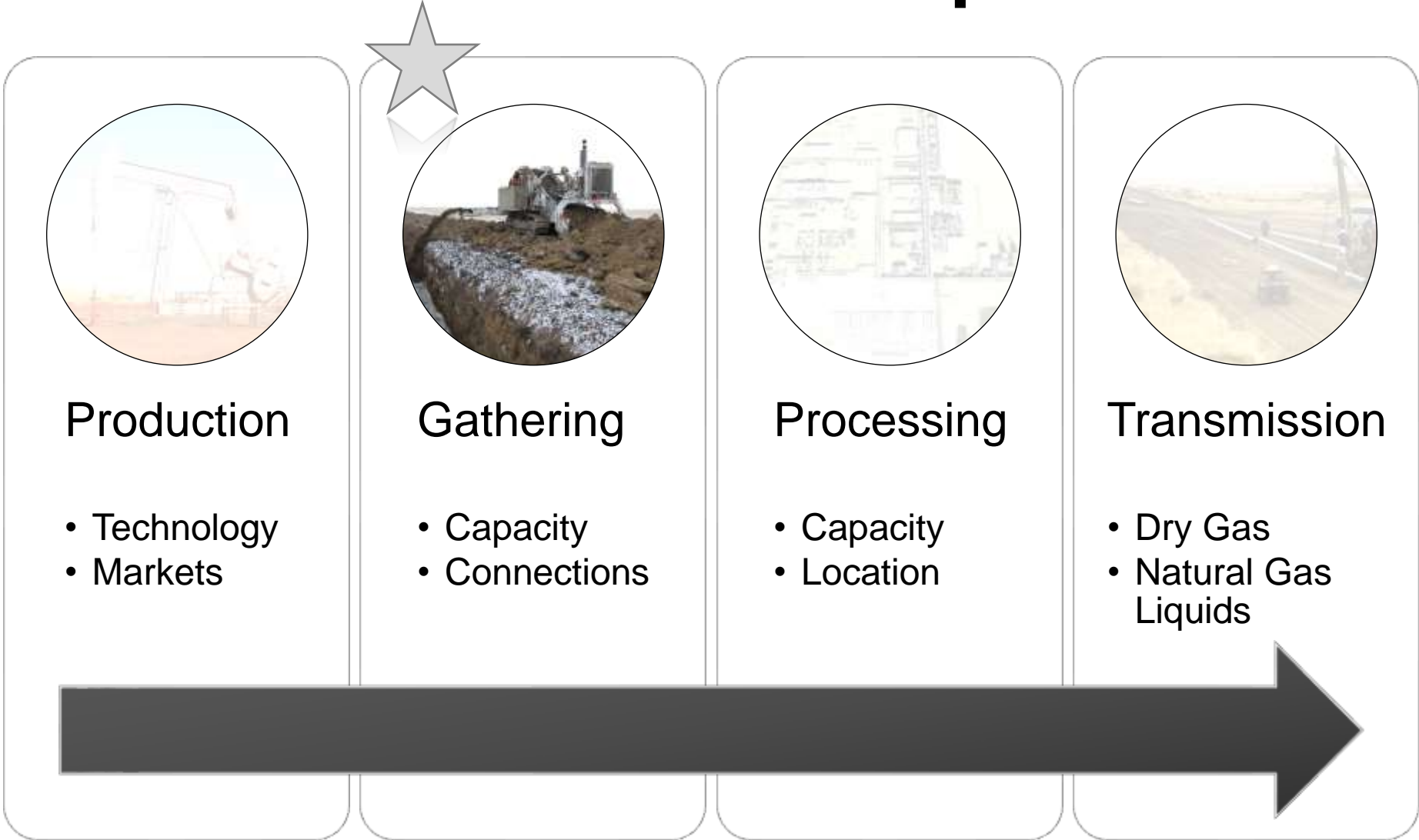
ND Gas Production: EIA Price Deck



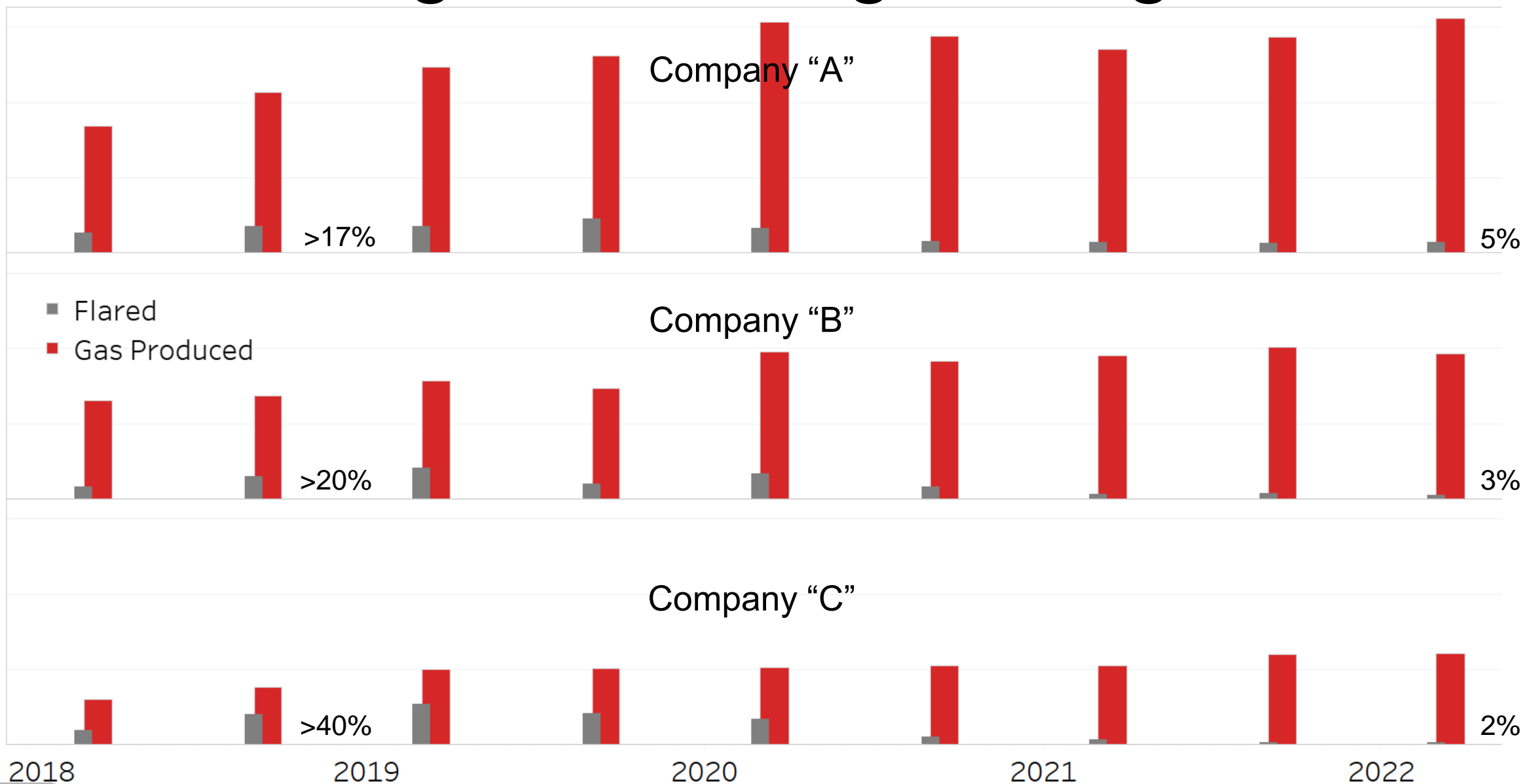
What if Oil Production Growth is Flat?



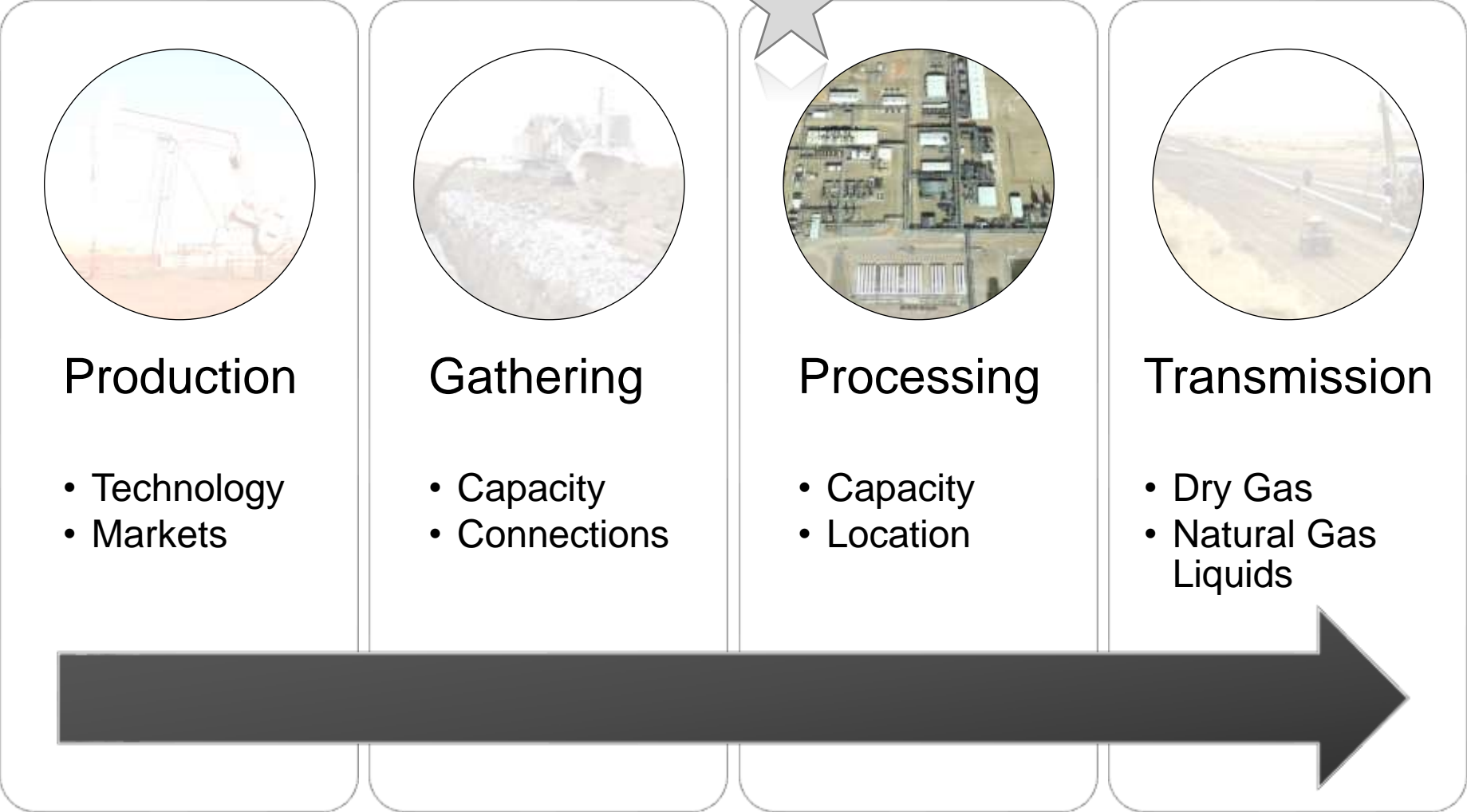
Natural Gas Update



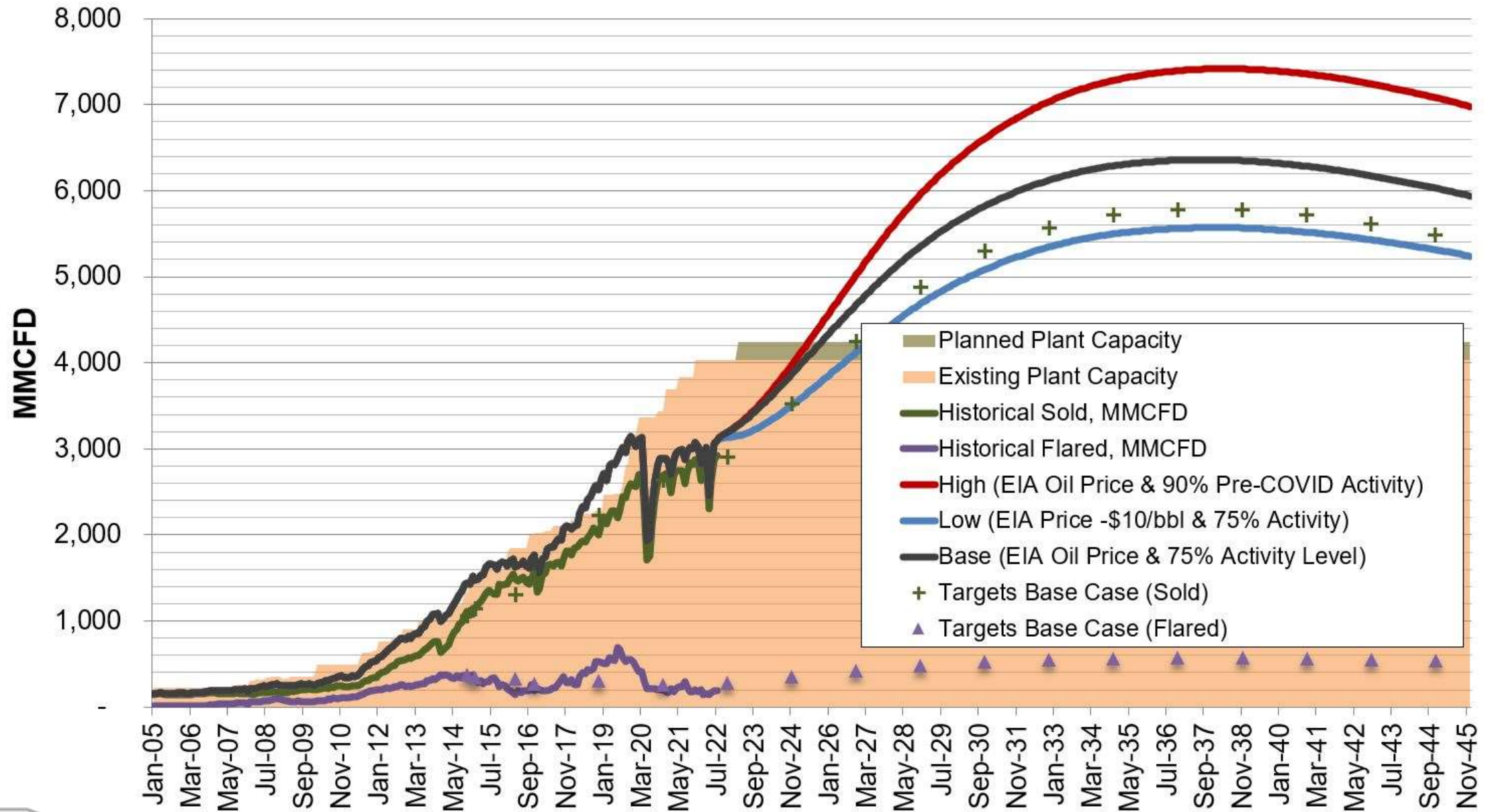
ESG Targets Pushing Flaring Down



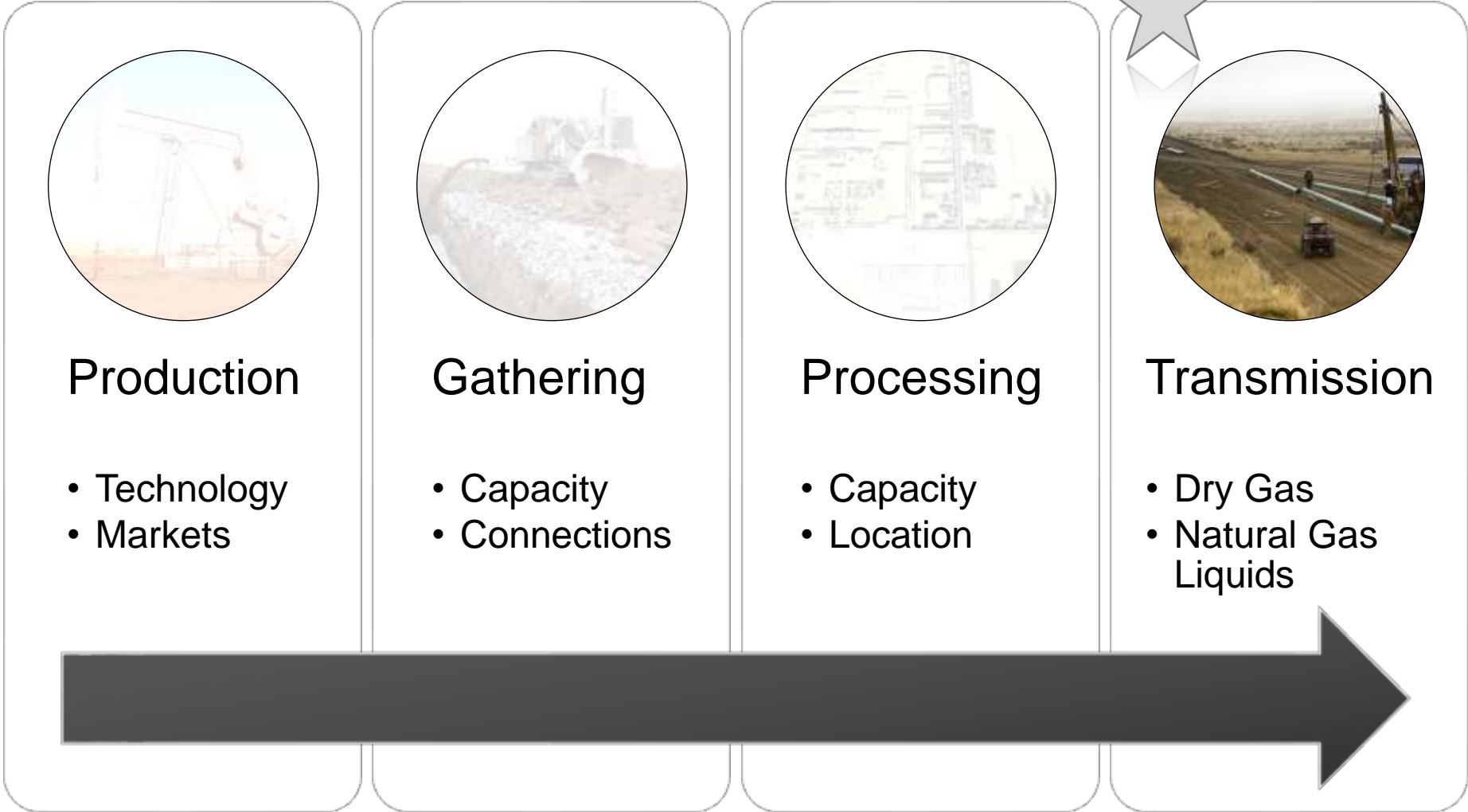
Natural Gas Update



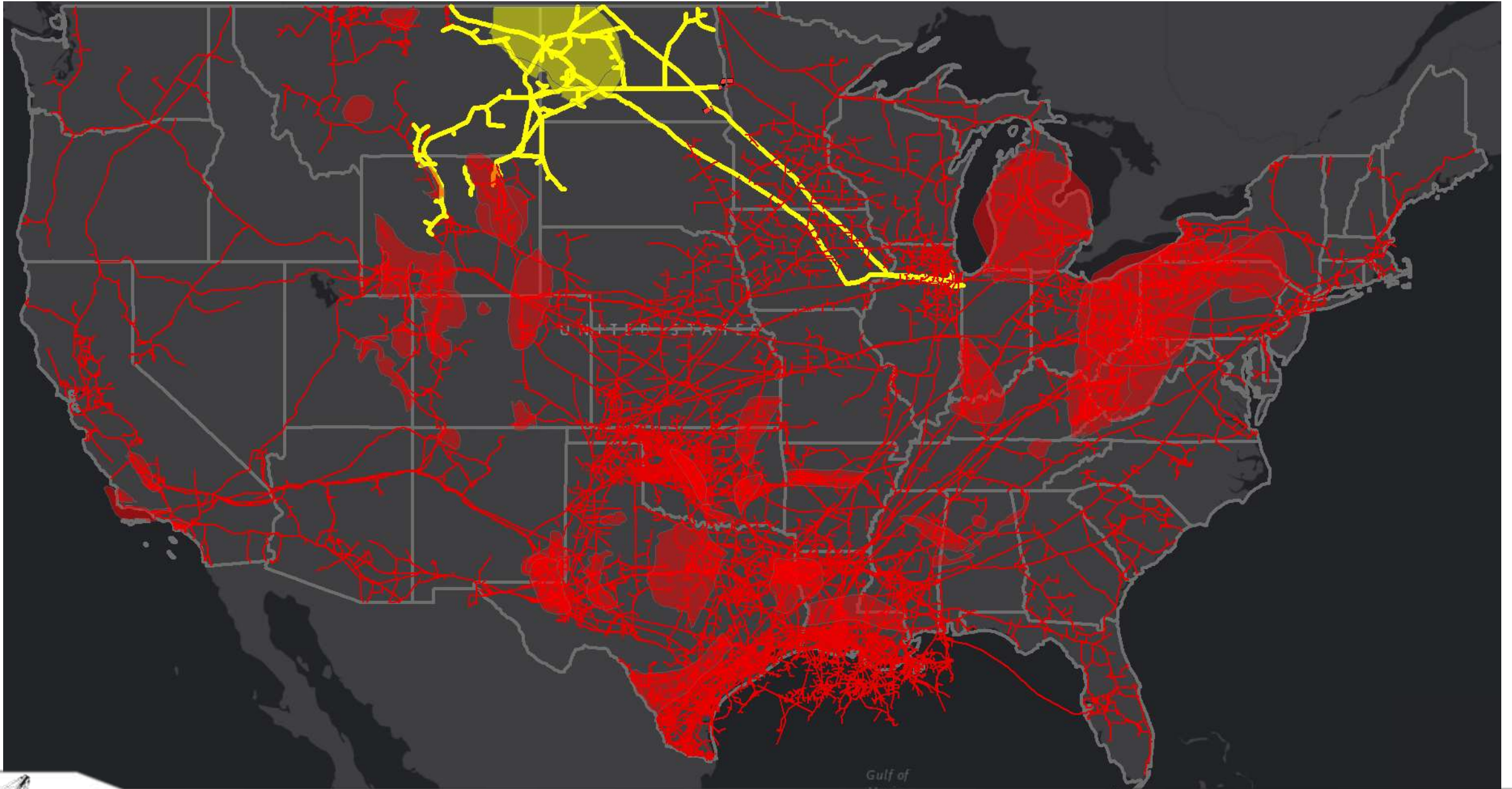
Solving the Flaring Challenge



Natural Gas Update



Bakken Natural Gas Infrastructure



Driving Forces for New Gas Pipelines



Supply Push



Demand Pull



System Reliability



Who Signs Up For Capacity?

Shippers



Producers



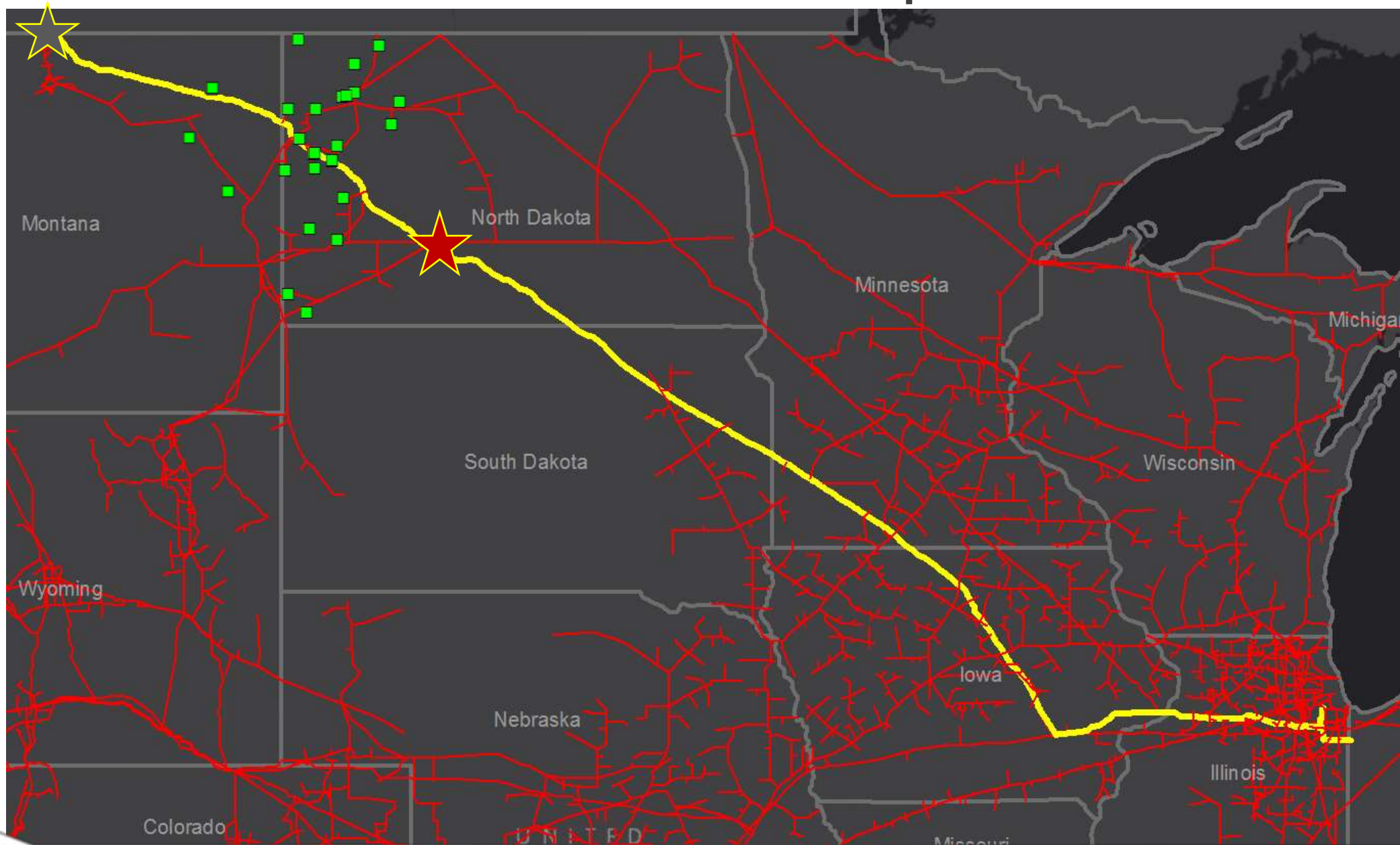
Marketing Firms



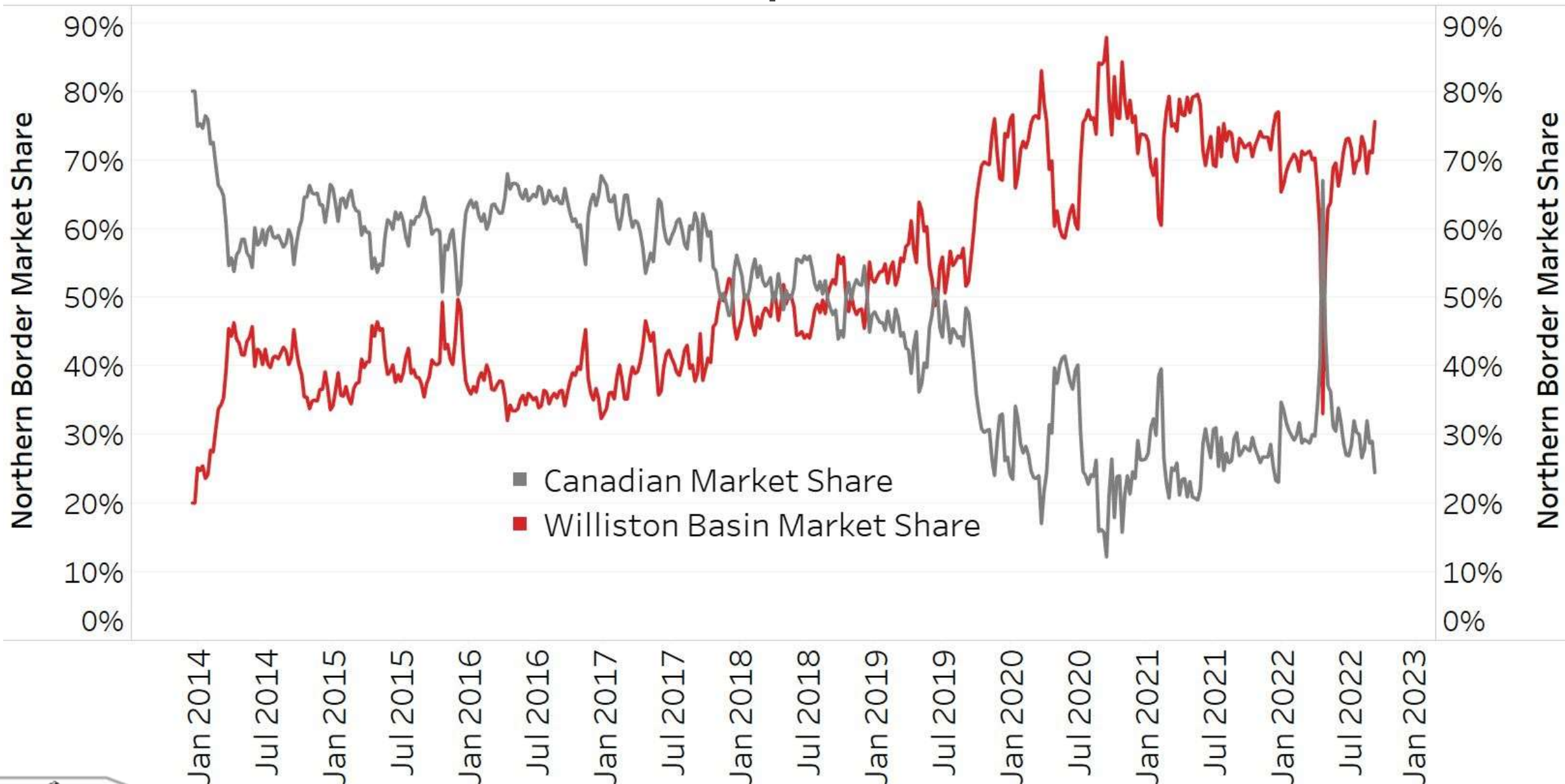
Consumers/LDC



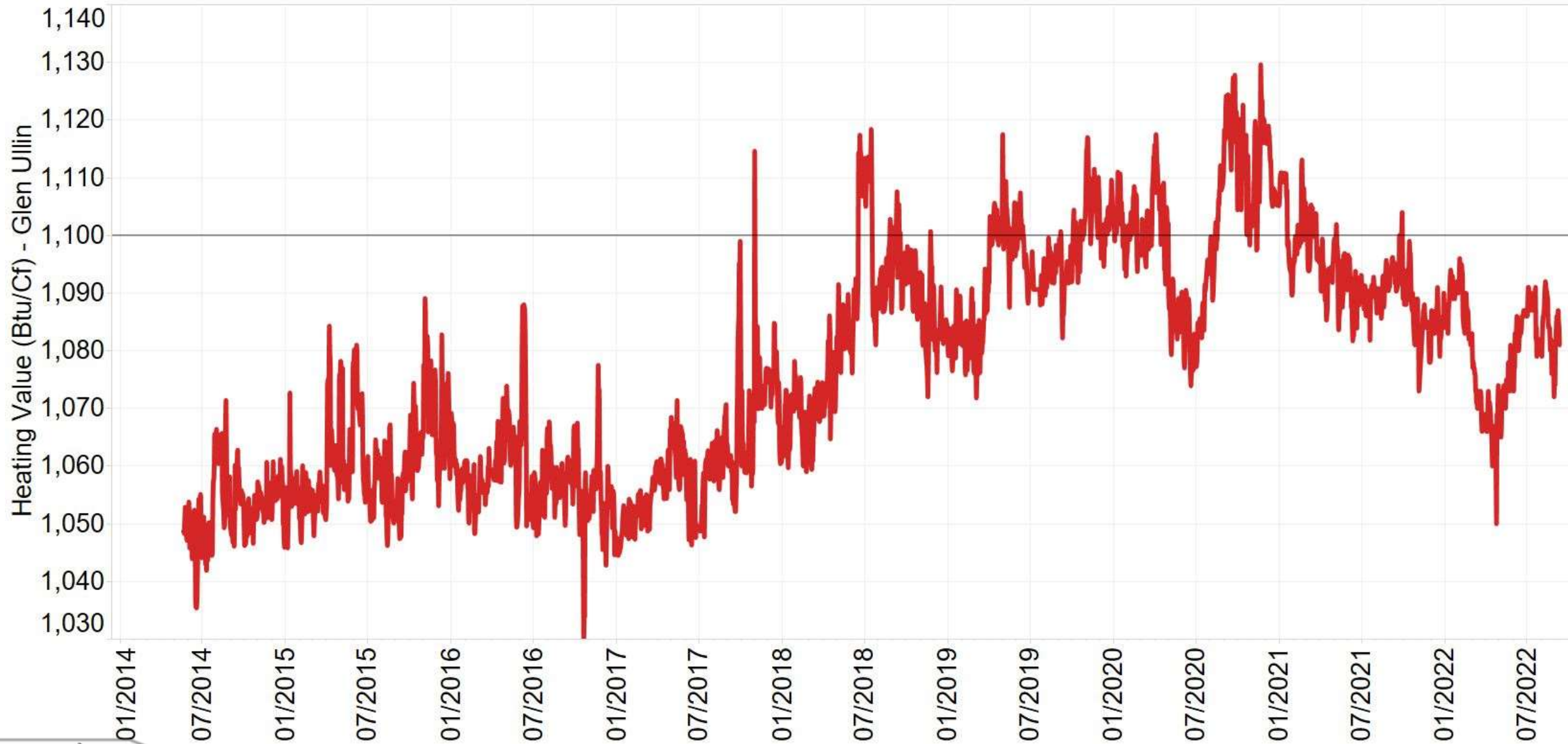
Northern Border Pipeline



Northern Border Pipeline Market Share



Northern Border BTU at Glen Ullin, ND



Northern Border Pipeline P.O.M. Shipper Mix



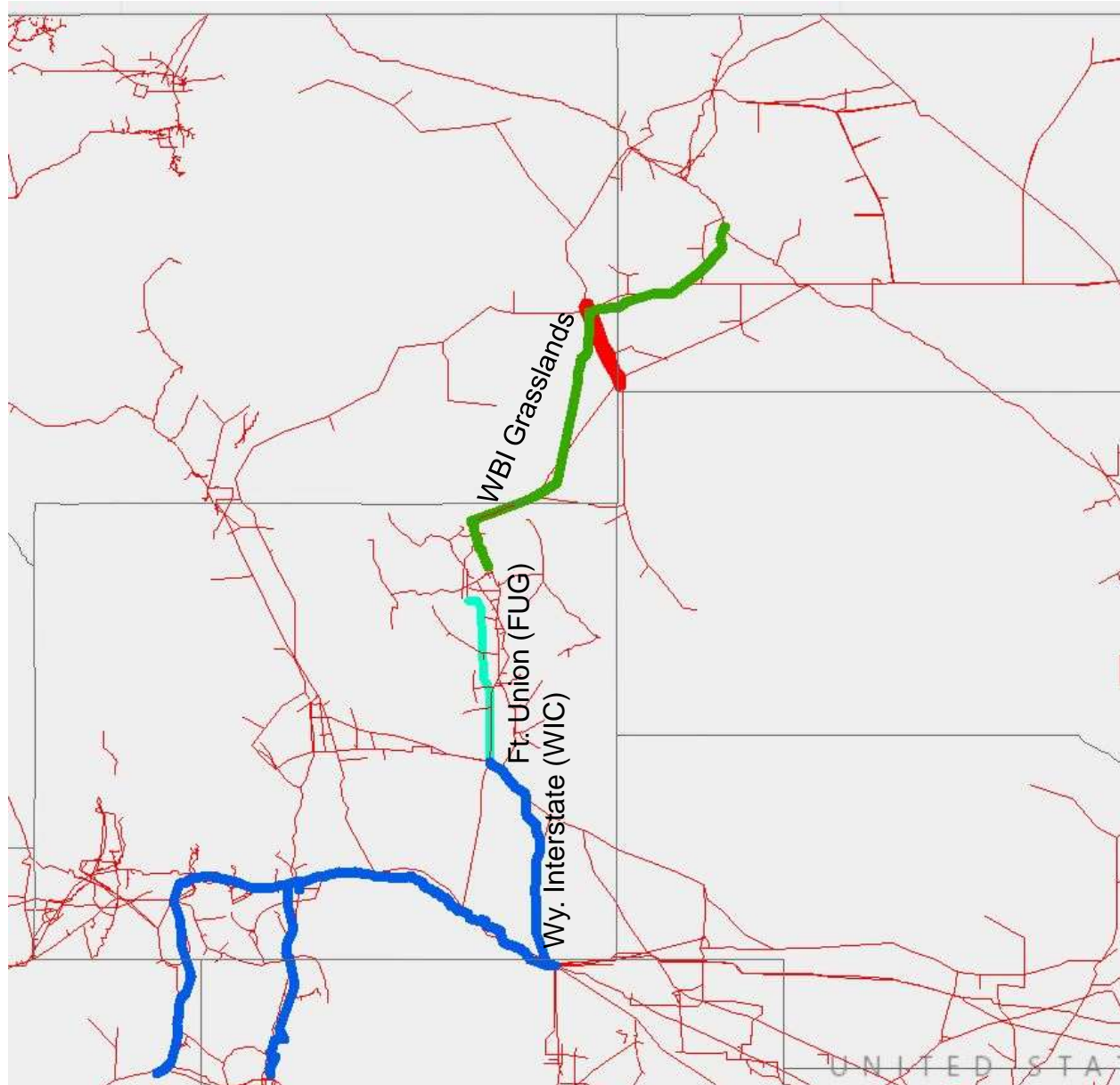
WBI Energy – Grasslands South Project

Project Highlights

- Binding open season Jan 10 – Feb 25, 2022
- Repurpose Grasslands Pipeline (16")
- Proposed Capacity 94,000 Dth/Day
- Access to Baker storage field
- Q3 2023 proposed completion
- Seeking commitments 10yrs or Longer
- Fort Union Gas Gathering and Wyoming Interstate Company provide further transport to Cheyenne hub.

Proposed Tariff Rates

- WBI \$0.32356/Dth + Fuel/Elec to WIC/FUG Interconnect
- FUG/WIC to Cheyenne \$0.2899/Dth + Fuel/Elec



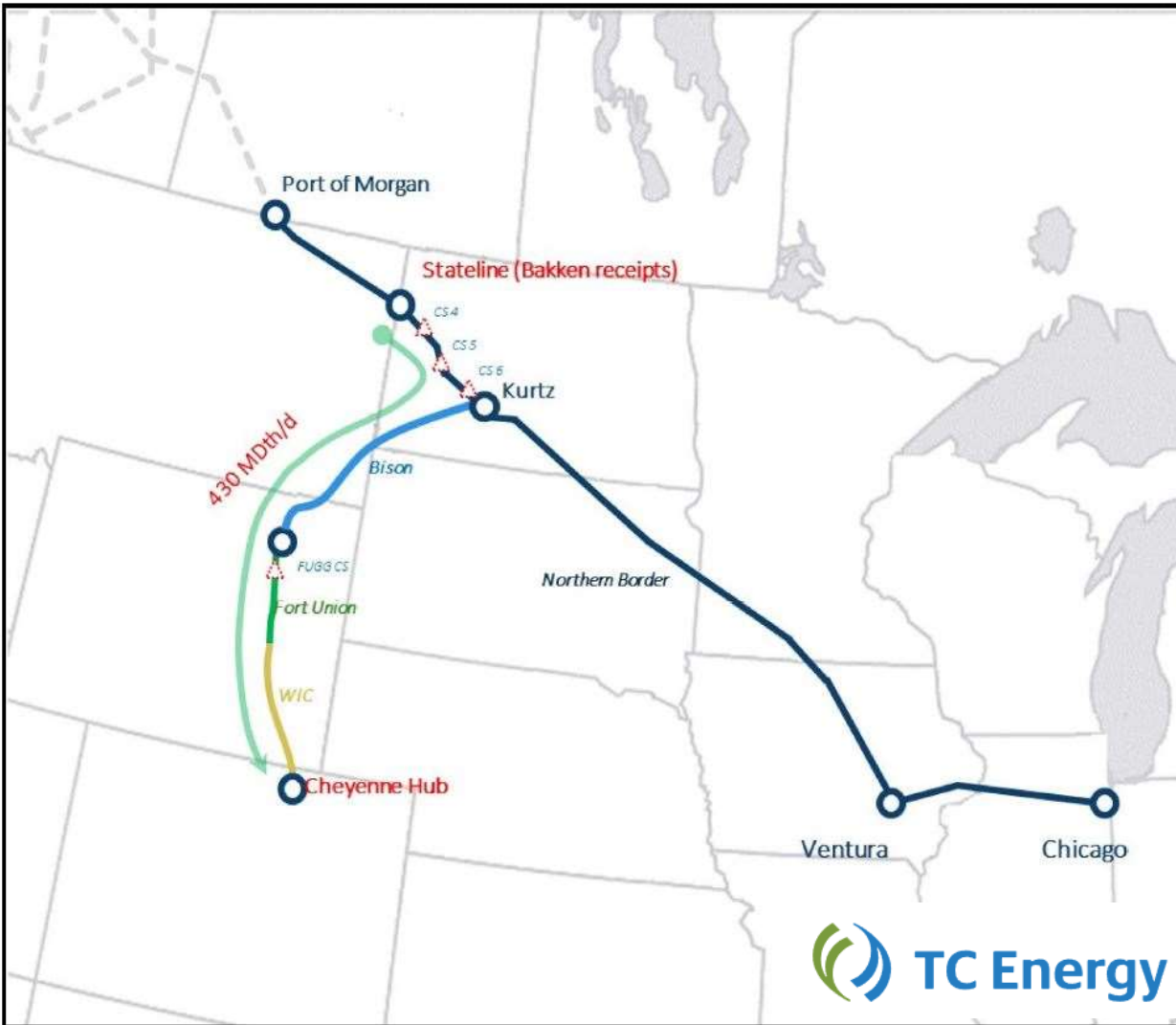
TC Energy – Proposed Bison XPress Project

Project Highlights

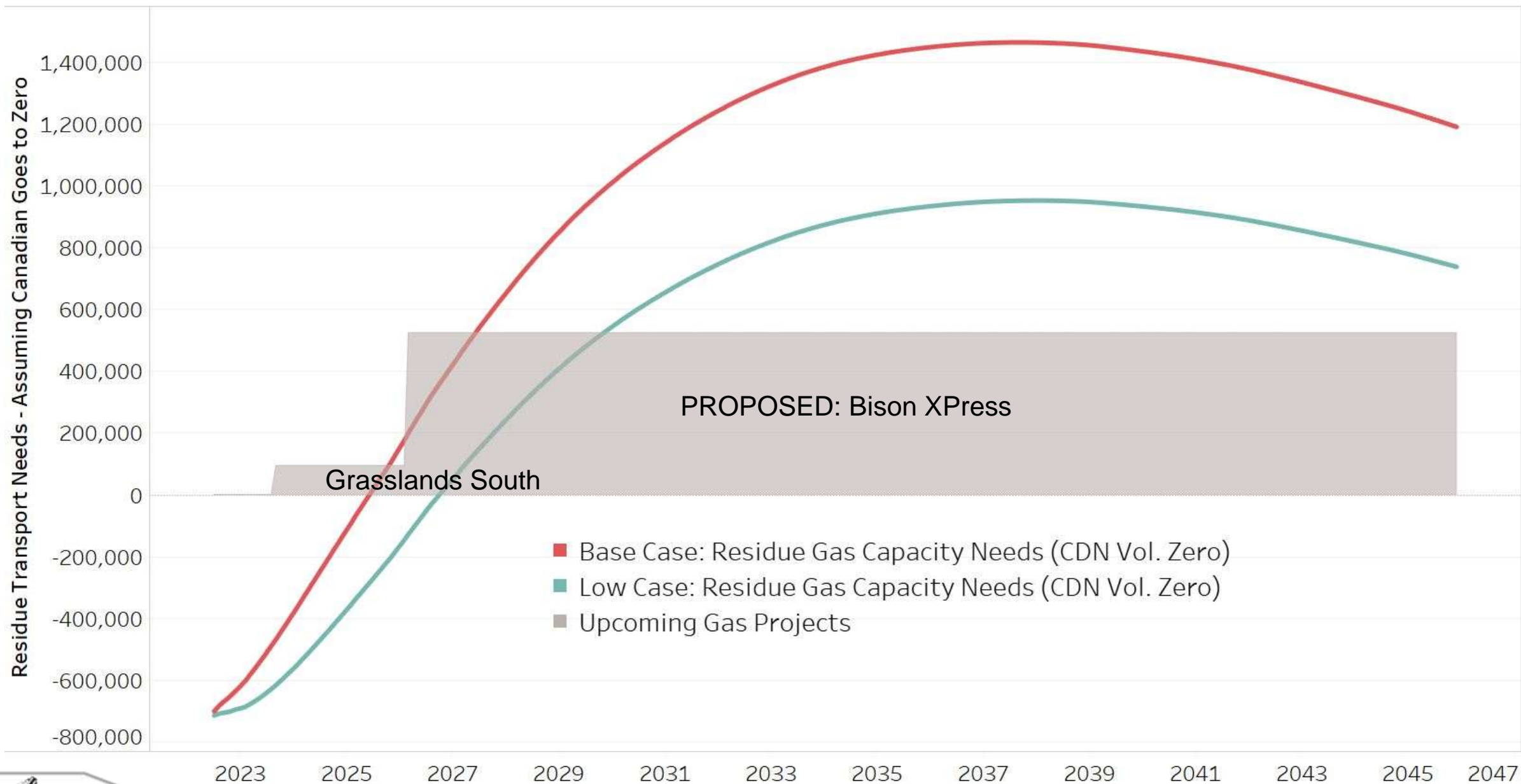
- Non-binding open season April 4 - May 6, 2022
- Three compressor upgrades in North Dakota
- Reverse the idle Bison Pipeline (30" – 302 Mile)
- Proposed capacity 430,000 Dth/Day
- Q1 2026 targeted in-service date
- Fort Union Gas Gathering and Wyoming Interstate Company provide further transport to Cheyenne hub.
- Seeking commitments 10yrs or Longer

Proposed Tariff Rates

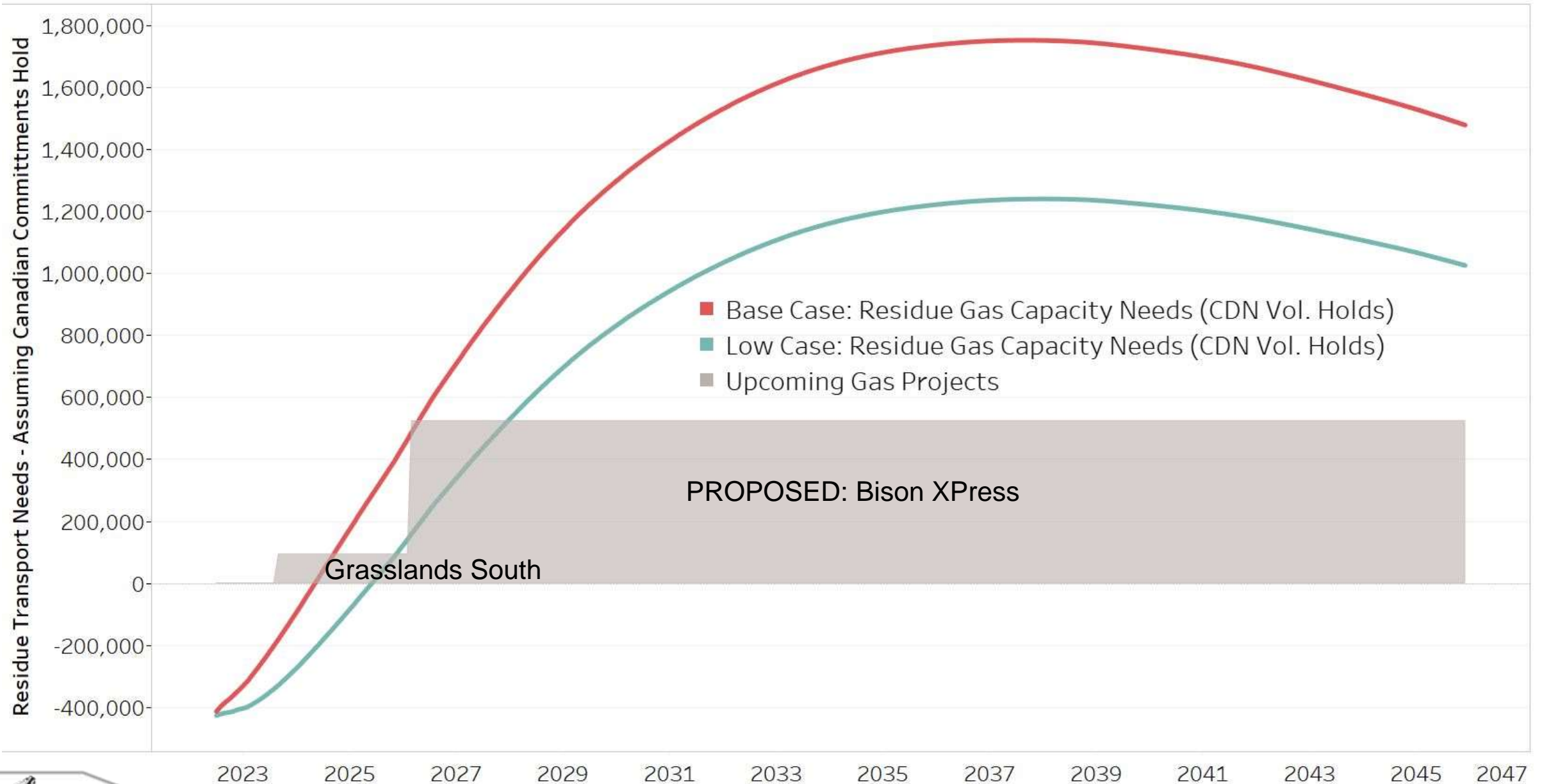
- NBPL/Bison \$0.45/Dth + Fuel/Elec to WIC/FUG Interconnect
- WIC/FUG to Cheyenne \$0.30/Dth + Fuel/Elec
- Anchor Shipper Minimum: 50,000 Dth/Day



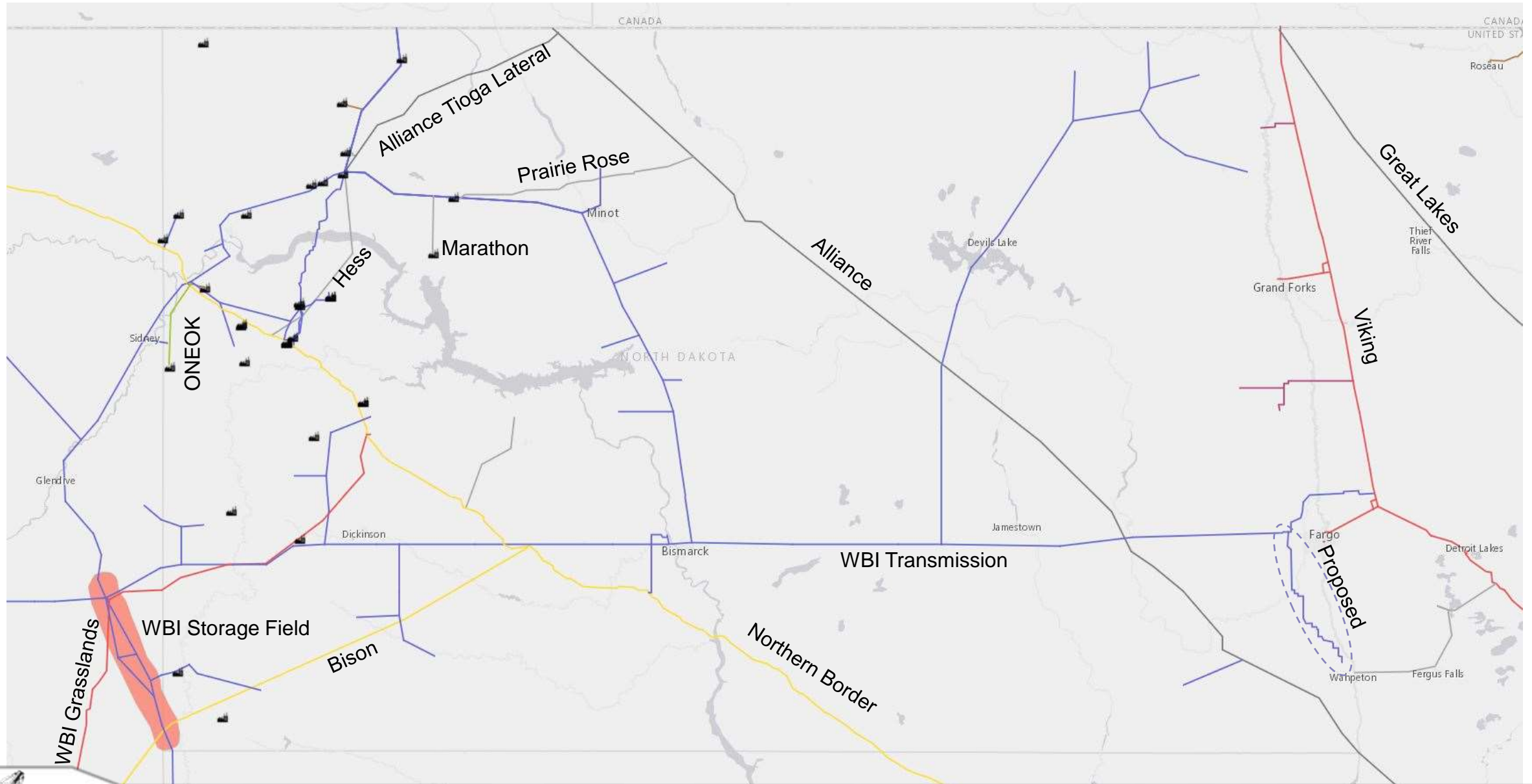
Residue Capacity Needs : ZERO CANADIAN



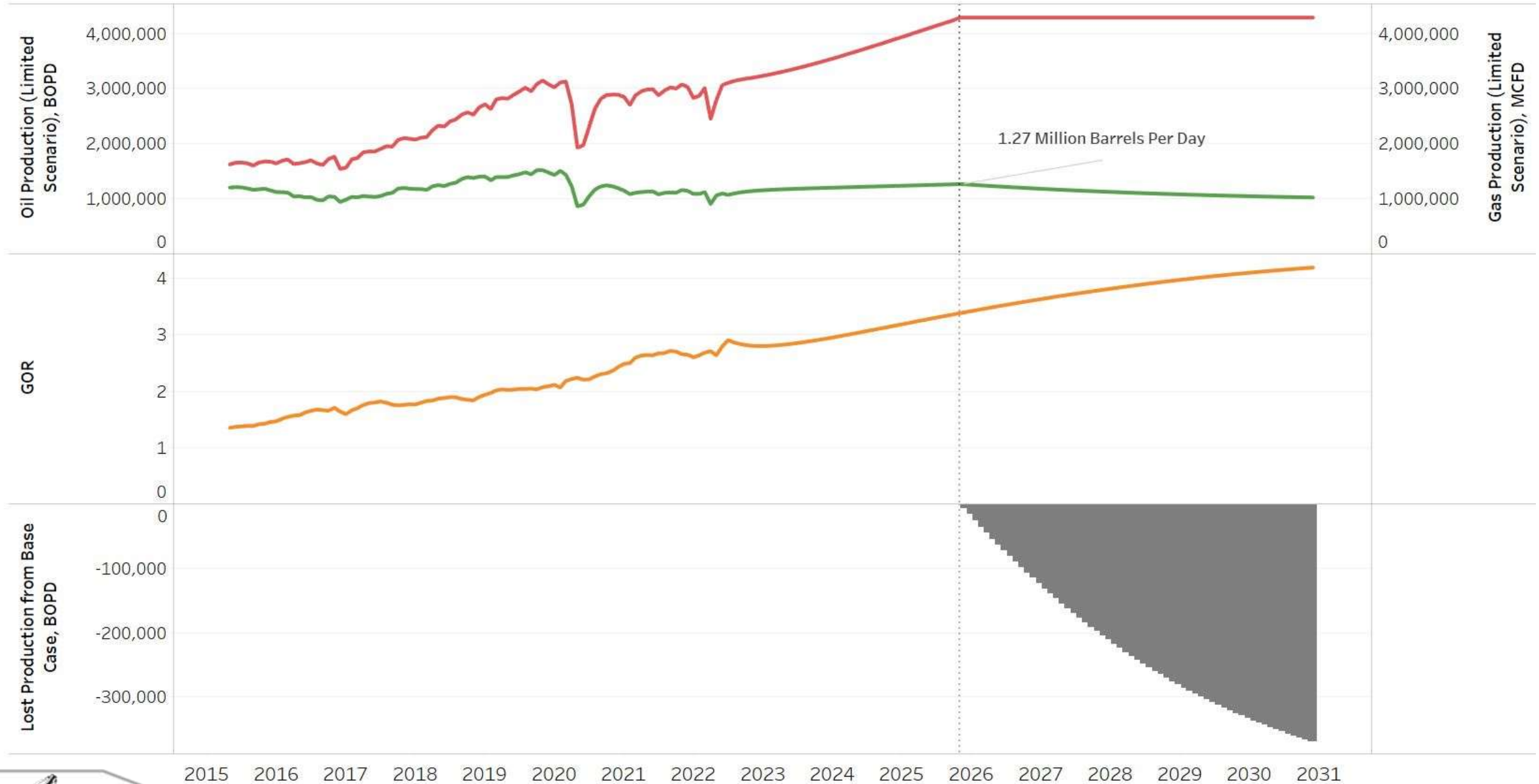
Residue Capacity Needs: ~288,000 MMBTU CDN



Major Residue Gas Pipeline Infrastructure



Gas Limitations Would Force Oil Production Down As GOR Rises



Value of a Dekatherm (MMBTU)

Key Assumptions

- Current North Dakota GOR = 2.79
- Gas Plant Shrink = 30% (NGL removal)
- Residue Gas BTU ~ 1,140
- Flaring ~6%
- ND Tax Rate 9.5% (without price trigger)
- ND Wellhead Oil Price \$80

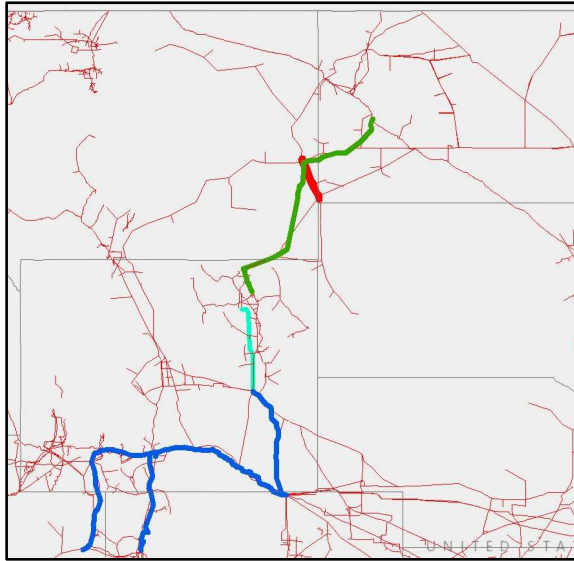
Resulting Oil and Natural Gas Tax Value

- 1 MCF plant tailgate = 1.14 Dekatherms
- 1 MCF plant tailgate = 1.43 MCF plant inlet
- 1 MCF plant tailgate = 0.54 Barrels in the field (assuming flaring rate of 6%)
- 0.54 Barrels = \$4.14 in state oil tax revenue
- 1 MCF plant tailgate = 1.14 Dekatherms = \$4.14 + ~\$0.13 in natural gas tax revenue
- 1 Dekatherm = \$3.63 in oil tax revenue + ~\$0.11 in natural gas tax revenue
- **1 Dekatherm = \$3.74 in combined oil and natural gas taxes to the State of North Dakota**

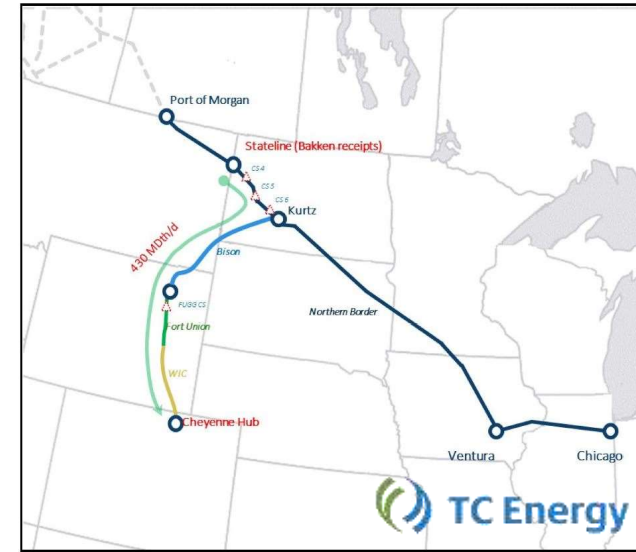


Value of a Dekatherm (MMBTU)

WBI Grasslands
94,000 Dekatherms
Per Day



Bison XPress
430,000 Dekatherms
Per Day

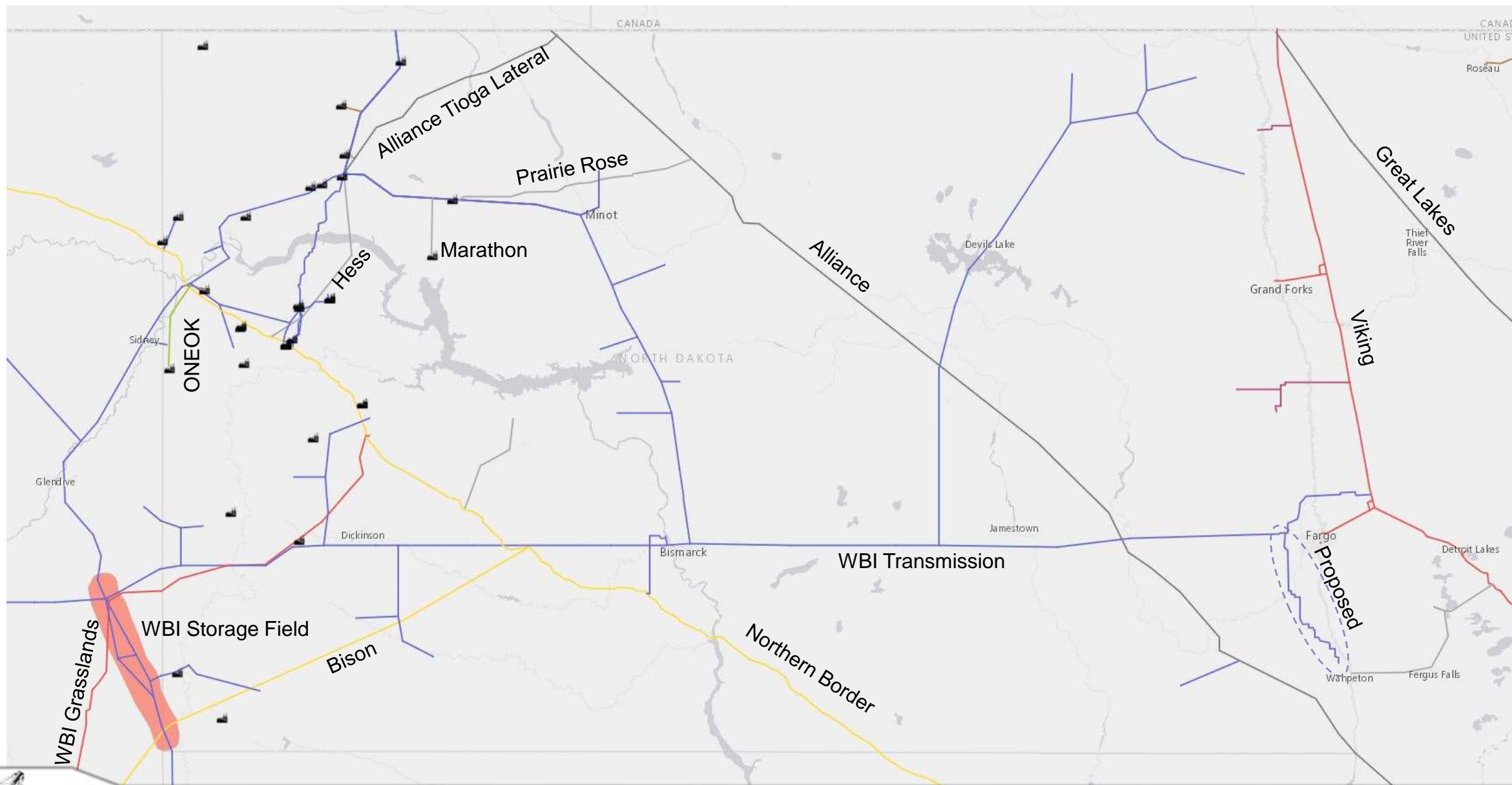


Combined Oil and Natural Gas Tax Value

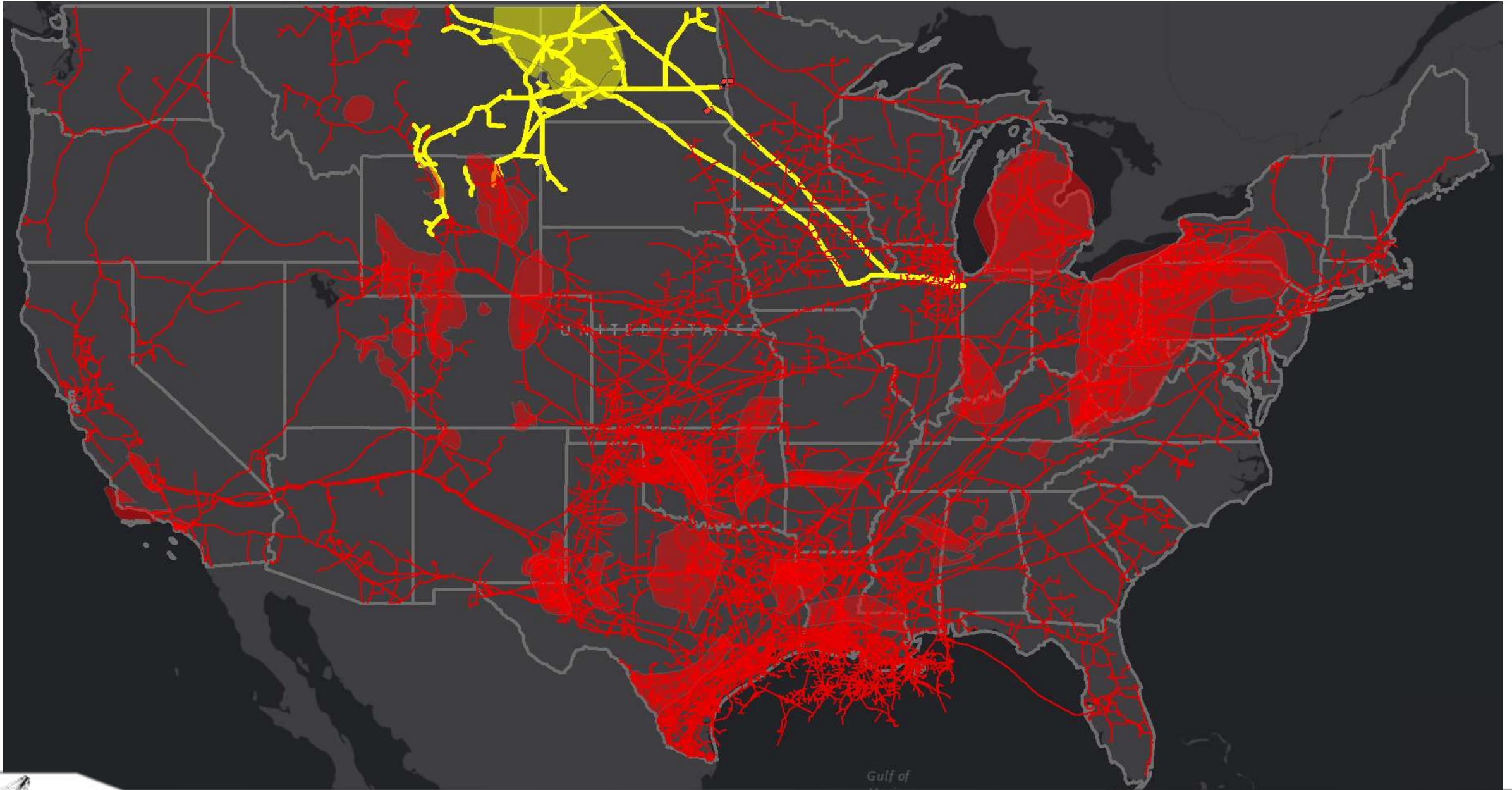
- Combined 524,000 Dekatherms per day of needed capacity
- $\$3.74 \times 524,000$ Dekatherms = $\$1,959,760$ per day
- **\$715+ Million per year in oil and natural gas taxes to the State of North Dakota**
- *At 570,000 BOPD, DAPL's impact to reduce oil discount vs rail ~\$60 million per year in oil taxes*



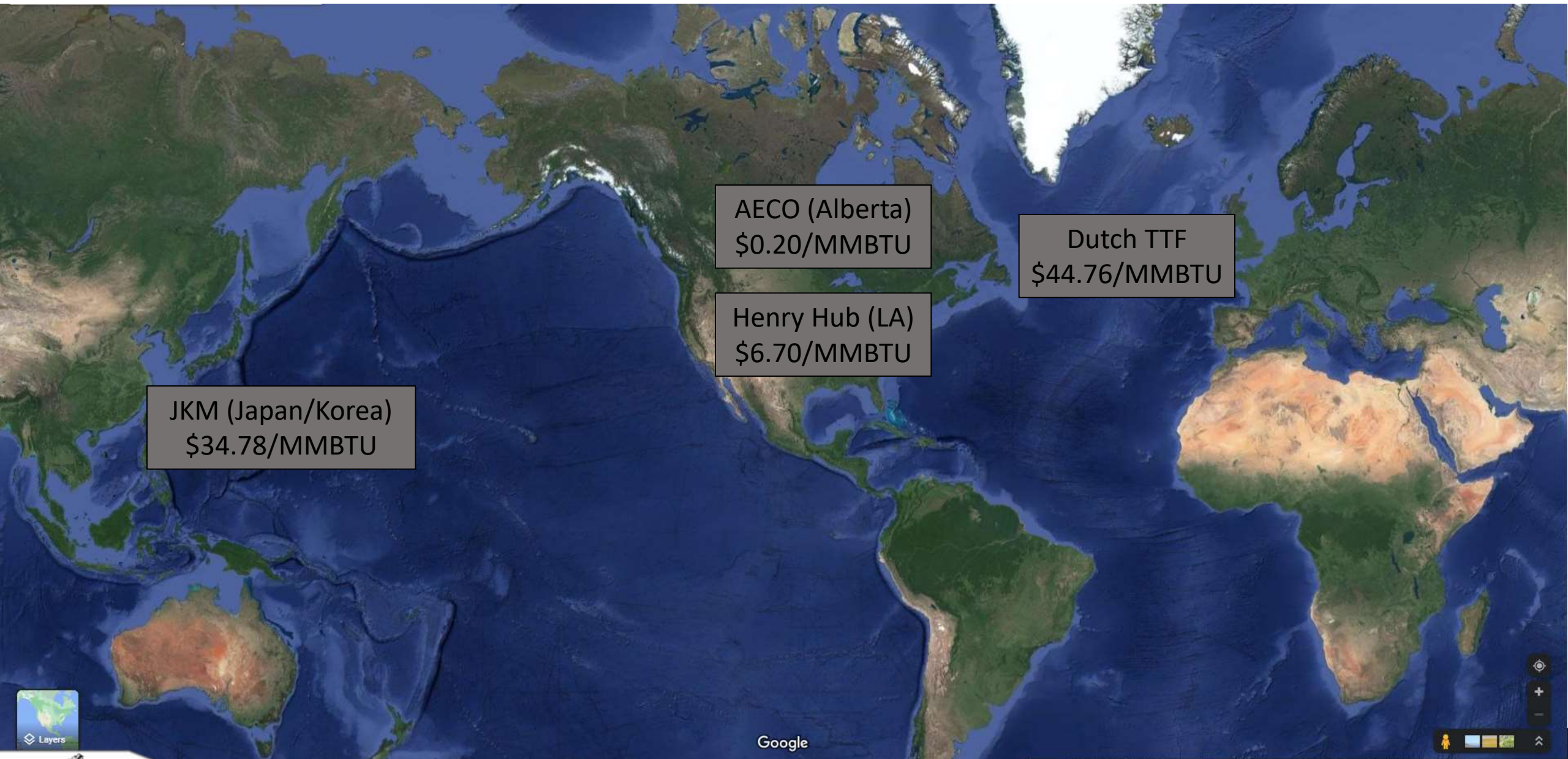
Natural Gas Pipeline Grant Program



Bakken Natural Gas Infrastructure



Global Natural Gas Prices



JKM (Japan/Korea)
\$34.78/MMBTU

AECO (Alberta)
\$0.20/MMBTU

Henry Hub (LA)
\$6.70/MMBTU

Dutch TTF
\$44.76/MMBTU



Google

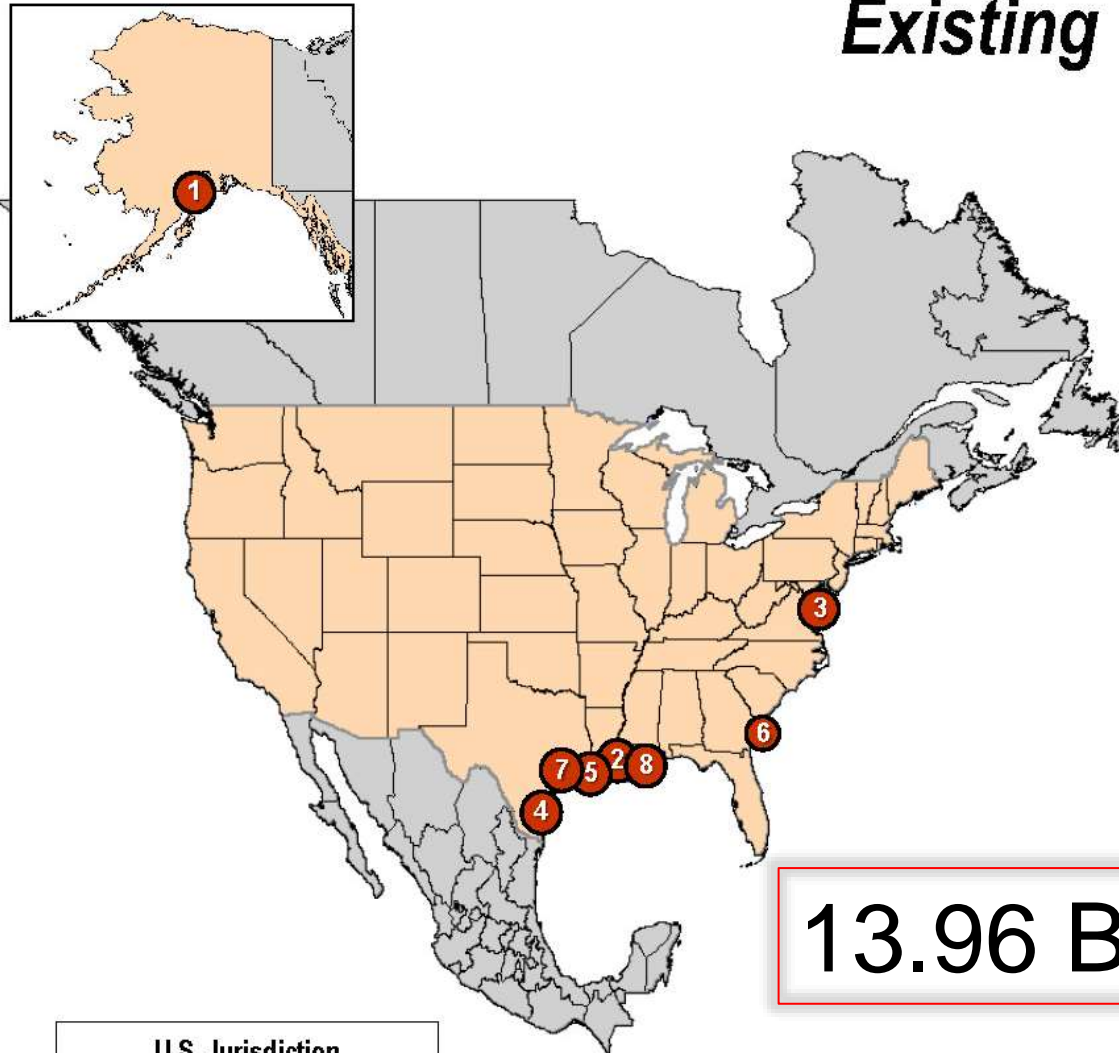
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North American LNG Export Terminals

Existing



Export Terminals

UNITED STATES

1. Kenai, AK: 0.20 Bcfd (Trans-Foreland)
2. Sabine, LA: 4.55 Bcfd (Cheniere/Sabine Pass LNG – Trains 1-6)
3. Cove Point, MD: 0.82 Bcfd (Dominion–Cove Point LNG)
4. Corpus Christi, TX: 2.40 Bcfd (Cheniere – Corpus Christi LNG Trains 1-3)
5. Hackberry, LA: 2.15 Bcfd (Sempra–Cameron LNG, Trains 1-3)
6. Elba Island, GA: 0.35 Bcd (Southern LNG Company Units 1-10)
7. Freeport, TX: 2.38 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction Trains 1-3)
8. Cameron Parish, LA: 1.11 Bcfd (Venture Global Calcasieu Pass Units 1-6)

13.96 Bcfd Existing

U.S. Jurisdiction

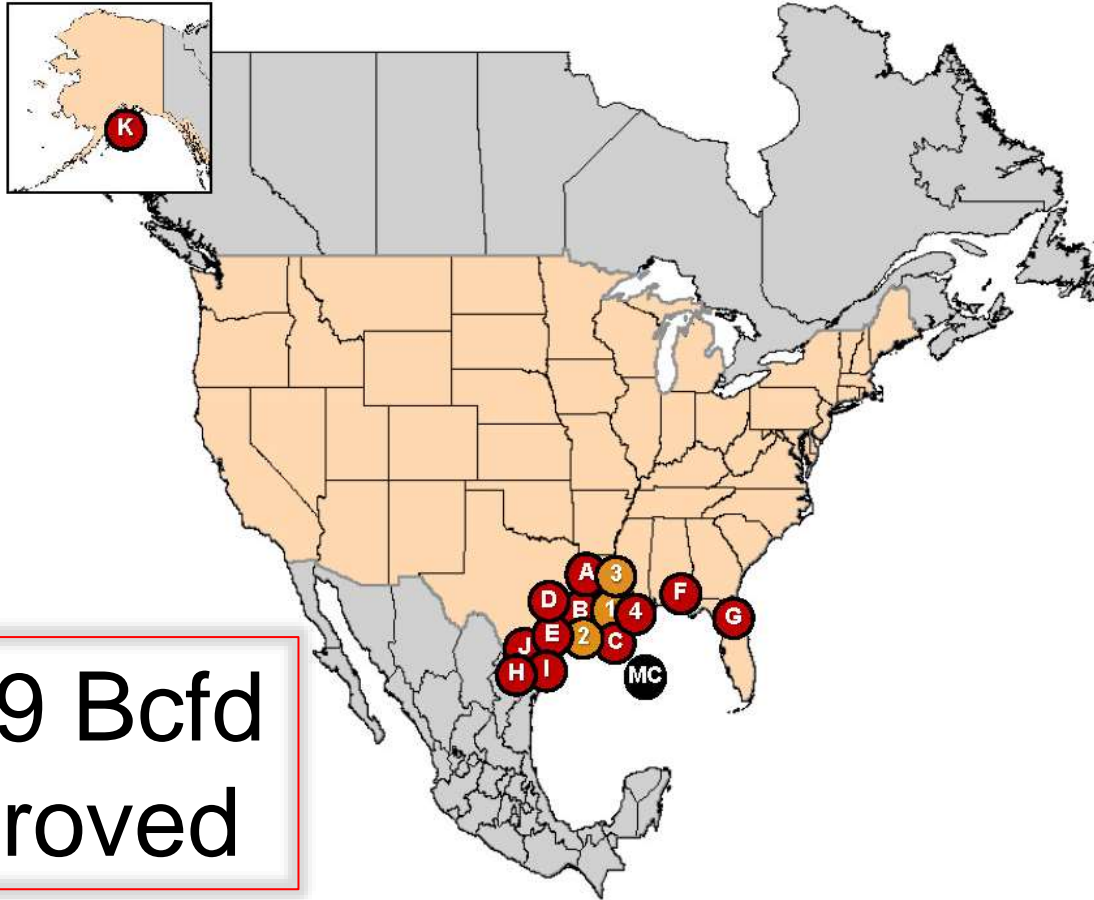
- FERC
- MARAD / U.S. Coast Guard

**As of August 16, 2022
No updates since previous issuance**



North American LNG Export Terminals

Approved, Not Yet Built



**29.59 Bcfd
Approved**

U.S. Jurisdiction & Status

- FERC - Approved, Under Construction
- FERC - Approved, Not Under Construction
- MARAD / U.S. Coast Guard

Export Terminals

UNITED STATES

FERC – APPROVED, UNDER CONSTRUCTION

1. Cameron Parish, LA: 0.55 Bcfd (Venture Global Calcasieu Pass Units 7-9) (CP15-550)
2. Sabine Pass, TX: 2.57 Bcfd (ExxonMobil – Golden Pass) (CP14-517, CP20-459)
3. Plaquemines Parish, LA: 3.40 Bcfd (Venture Global Plaquemines) (CP17-66)
4. Calcasieu Parish, LA: 3.81 Bcfd (Driftwood LNG) (CP17-117)

FERC – APPROVED, NOT UNDER CONSTRUCTION

- A. Lake Charles, LA: 2.27 Bcfd (Lake Charles LNG) (CP14-120)
- B. Lake Charles, LA: 1.19 Bcfd (Magnolia LNG) (CP14-347)
- C. Hackberry, LA: 1.41 Bcfd (Sempra - Cameron LNG Trains 4 & 5) (CP15-560)
- D. Port Arthur, TX: 1.86 Bcfd (Sempra - Port Arthur LNG Trains 1 & 2) (CP17-20)
- E. Freeport, TX: 0.74 Bcfd (Freeport LNG Dev Train 4) (CP17-470)
- F. Pascagoula, MS: 1.50 Bcfd (Gulf LNG Liquefaction) (CP15-521)
- G. Jacksonville, FL: 0.13 Bcfd (Eagle LNG Partners) (CP17-41)
- H. Brownsville, TX: 0.55 Bcfd (Texas LNG Brownsville) (CP16-116)
- I. Brownsville, TX: 3.6 Bcfd (Rio Grande LNG – NextDecade) (CP16-454)
- J. Corpus Christi, TX: 1.58 Bcfd (Cheniere Corpus Christi Stage III) (CP18-512)
- K. Nikiski, AK: 2.63 Bcfd (Alaska Gasline) (CP17-178)

MARAD/USCG – APPROVED, NOT UNDER CONSTRUCTION

- MC. Gulf of Mexico: 1.8 Bcfd (Delfin LNG)

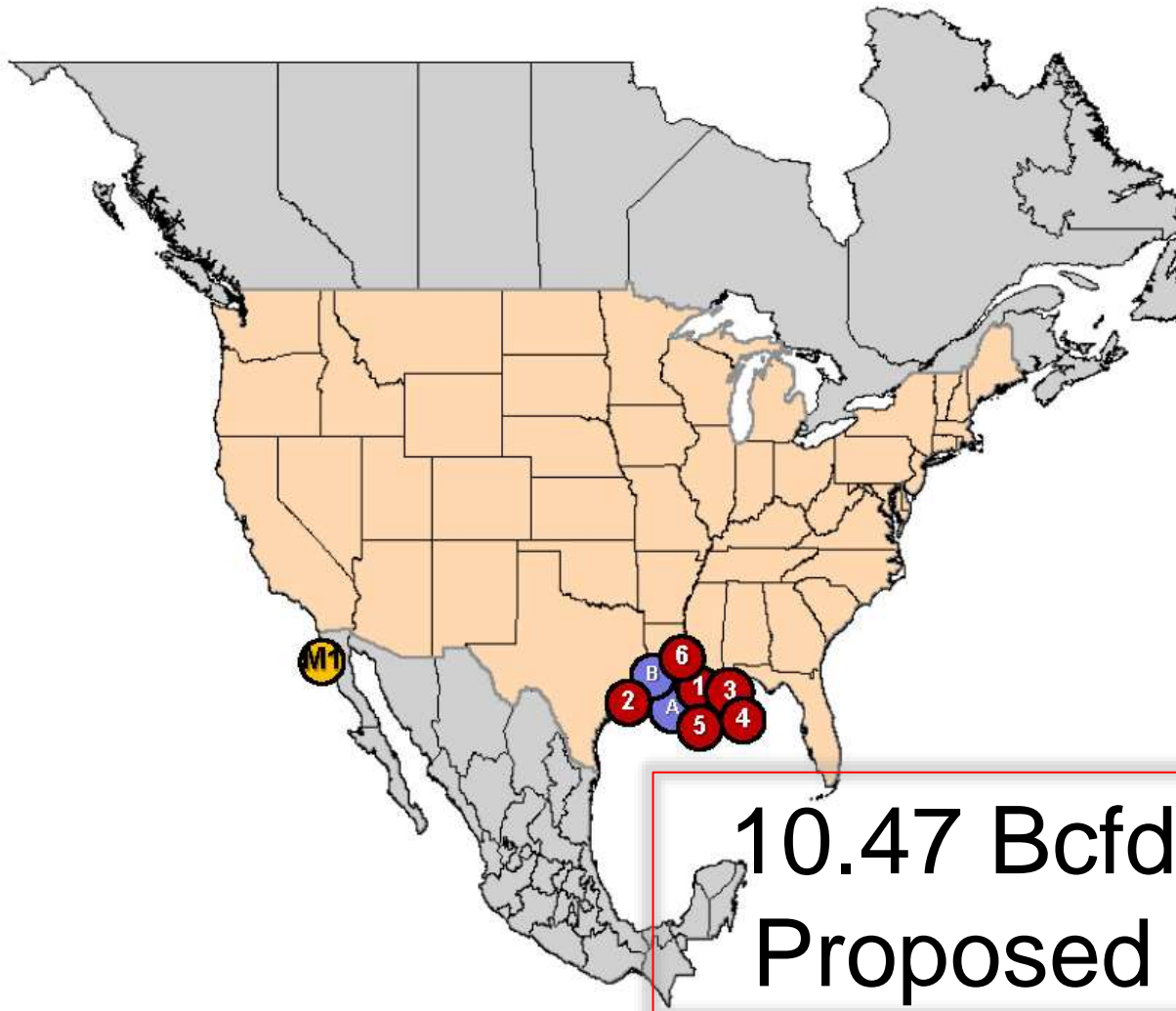
CANADA - LNG IMPORT AND PROPOSED EXPORT FACILITIES

<https://www.nrcan.gc.ca/energy/natural-gas/5683>

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No updates since previous issuance**



North American LNG Export Terminals Proposed



UNITED STATES

PROPOSED TO FERC

Pending Applications:

1. Cameron Parish, LA: 1.18 Bcfd (Commonwealth, LNG) (CP19-502)
2. Port Arthur, TX: 1.86 Bcfd (Sempra - Port Arthur LNG Trains 3 & 4) (CP20-55)
3. Cameron Parish, LA: 3.96 Bcfd (Venture Global CP2 Blocks 1-18) (CP22-21)
4. Cameron Parish, LA: .06 Bcfd (Venture Global Calcasieu Pass) (CP22-25)
5. Hackberry, LA: -.045 Bcfd (Sempra - Cameron LNG Vacate T5 & modify T4) (CP22-41)
6. Plaquemines Parish, LA: 0.45 Bcfd (Venture Global Plaquemines) (CP22-92)

Projects in Pre-filing:

- A. LaFourche Parish, LA: 0.65 Bcfd (Port Fourchon LNG) (PF17-9)
- B. Plaquemines Parish, LA: 2.76 Bcfd (Delta LNG - Venture Global) (PF19-4)

CANADA

For Canadian LNG Import and Proposed Export Facilities:

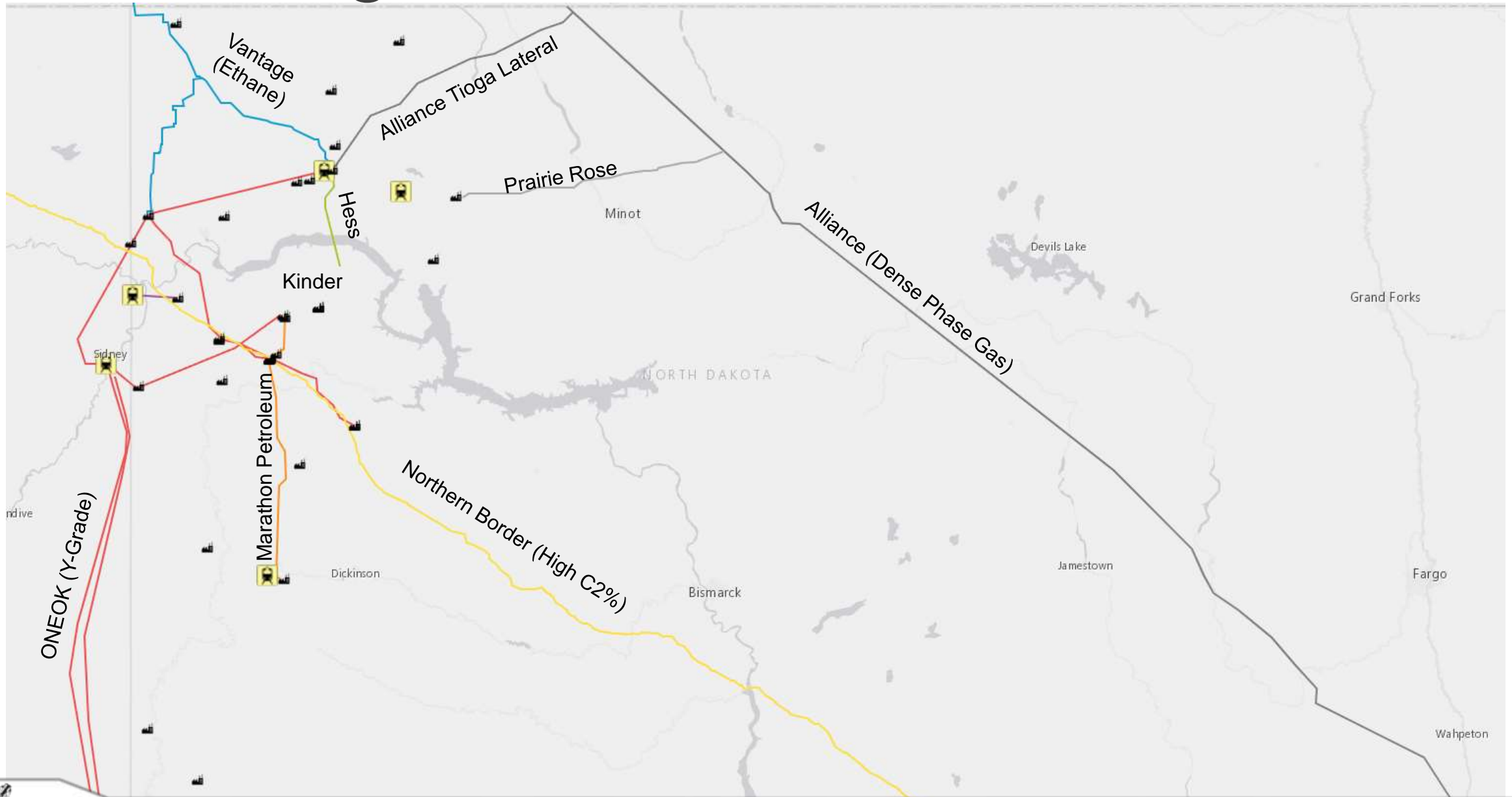
<https://www.nrcan.gc.ca/energy/natural-gas/5683>

MEXICO (Projects in advanced planning/development stages)

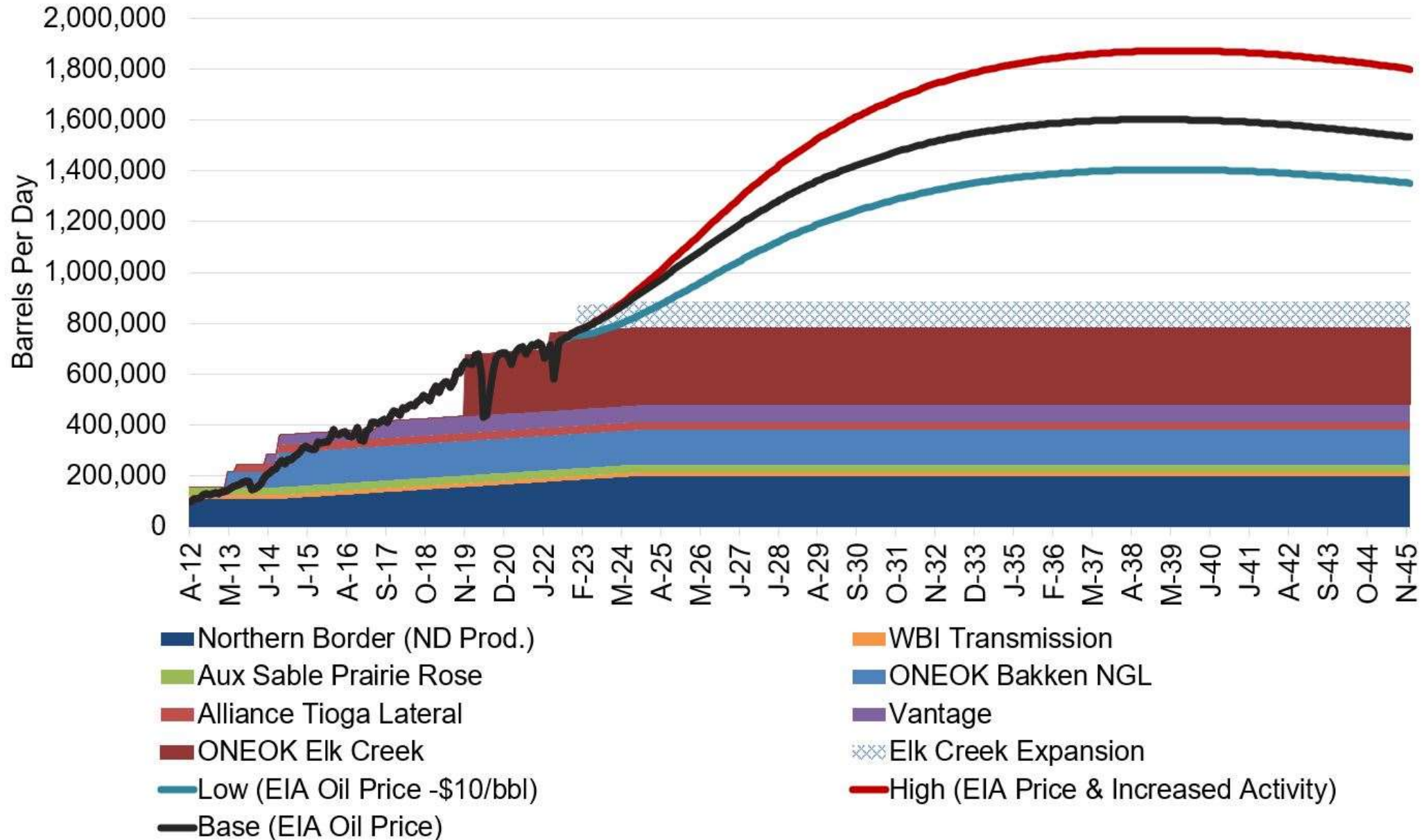
- M1. Baja California, MX: 0.4 Bcfd (Sempra – Energia Costa Azul Phase 1)

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Regional NGL Infrastructure



NGL Pipeline Takeaway Options



Contact Information

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