**2021 HOUSE APPROPRIATIONS**

**HB 1149**

# 2021 HOUSE STANDING COMMITTEE MINUTES

**Appropriations Committee**
Brynhild Haugland Room, State Capitol

HB 1149
1/26/2021

A BILL for an Act to provide an appropriation to the industrial commission for liquefied natural gas pilot project grants; and to provide a statement of legislative intent.

9:00 Chairman Delzer Called the meeting to order

| Representatives | |
|---|---|
| Representative Jeff Delzer | P |
| Representative Keith Kempenich | P |
| Representative Bert Anderson | P |
| Representative Larry Bellew | P |
| Representative Tracy Boe | A |
| Representative Mike Brandenburg | P |
| Representative Michael Howe | P |
| Representative Gary Kreidt | P |
| Representative Bob Martinson | P |
| Representative Lisa Meier | P |
| Representative Alisa Mitskog | P |
| Representative Corey Mock | P |
| Representative David Monson | P |
| Representative Mike Nathe | P |
| Representative Jon O. Nelson | P |
| Representative Mark Sanford | P |
| Representative Mike Schatz | P |
| Representative Jim Schmidt | P |
| Representative Randy A. Schobinger | P |
| Representative Michelle Strinden | P |
| Representative Don Vigesaa | P |

**Discussion Topics:**

- Northern Border Pipelines for natural gas
- Conversion Formula

9:00 Representative Brandenburg introduced the bill. (Testimony 3520)

9:12 Chairman Delzer closes hearing for HB 1149

9:15 Chairman Delzer Calls meeting back to order to further discuss HB 1149

**Additional written testimony:** # 3236 testimony submitted in favor of but not addressed, #3327 submitted in opposition but not addressed.

**9:25 Chairman Delzer Closed the hearing**

*Risa Berube,*

*House Appropriations Committee Clerk*

## Brandenburg, Michael D.

**From:** Mathiak, Adam
**Sent:** Wednesday, January 13, 2021 8:35 AM
**To:** Brandenburg, Michael D.
**Cc:** Knudson, Allen H.
**Subject:** Bill Comparison

Representative Brandenburg:

As requested, below is a comparison of House Bill Nos. 1149 and 1159.

| Description | House Bill No. 1149 | House Bill No. 1159 |
|---|---|---|
| Appropriation amount | $100 million | $100 million |
| Funding source | General fund – Derived from **2021-23** legacy fund earnings | General fund – Derived from **2019-21** legacy fund earnings |
| Agency | Industrial Commission – Recommendations from the Oil and Gas Research Council | Industrial Commission |
| Grant purpose | Liquified natural gas pilot projects, including projects in progress or in the planning stage | Natural gas infrastructure development |

Please let us know if you have any questions. Thank you.

**Adam Mathiak**
ND Legislative Council
701-328-2936
amathiak@nd.gov

# CONVERSION FORMULA

Converting the 1.5 Bcf/day of Bakken natural gas flowing on Northern Border Pipeline to megawatts (MW) is done by taking the energy value of the gas (Btu), the efficiency of the natural gas combined cycle (NGCC) and the capacity factor of the NGCC.

The base assumptions are:

- Energy value of natural gas is 1,050 Btu/cubic foot
- NGCC efficiency of 6,800-7,200 Btu/kWh (average of 7,000 Btu/kWh)
- NGCC capacity factor of 60%

$$\text{NGCC} = \frac{(1{,}500{,}000{,}000 \text{ cubic feet/day} \times 1{,}050 \text{ Btu/cubic foot})}{(24 \text{ hours/day} \times 0.60 \times 7{,}000 \text{ Btu/kWh} \times 1{,}000 \text{ kW/MW})}$$

$$= 15{,}625 \text{ MW}$$

To simplify, you can take the billions of cubic feet (Bcf) of natural gas flow on a daily basis and multiply by 10,400.

MW = Bcf x 10,400

For example;

- 1.5 Bcf = 15,600 MW or a range of (15,000-16,000 MW)
- 2.0 Bcf = 20,800 MW or a range of (20,000-21,000 MW)
- 2.5 Bcf = 26,000 MW or a range of (25,000-26,000 MW to be conservative).

The range of 15,000-16,000 MW that was initially provided takes into account the variability in the (1) **heat content of natural gas**, and (2) **efficiency of the natural gas combined cycle** (NGCC)

1. The heat content of natural gas, or the amount of energy released when a volume of gas is burned, varies according to the extent that gases with higher heat content than methane are included in delivered gas. The primary constituent of natural gas is methane, which has a heat content of 1,010 British thermal units per cubic foot (Btu/cf) at standard temperature and pressure (https://www.eia.gov/todayinenergy/detail.php?id=18371#:~:text=The%20primary%20constituent%20of%20natural,at%20standard%20temperature%20and%20pressure.). The higher ethane content of ND Bakken gas leads to a higher heat content.

2. The efficiency of a NGCC works somewhat like the efficiency of cars – newer car models have the latest technology and get higher gas mileage (more fuel efficient) just like new NGCC's have the latest technology and are more fuel efficient (requires fewer Btu of natural gas to make 1 kWh of electricity). Older cars work fine, and can cost less to buy than a new car, but the gas mileage for an older model is typically worse than for a new one.

North Dakota Legislative Council

Prepared for Representative Brandenburg
LC# 21.9408.02000
September 2020

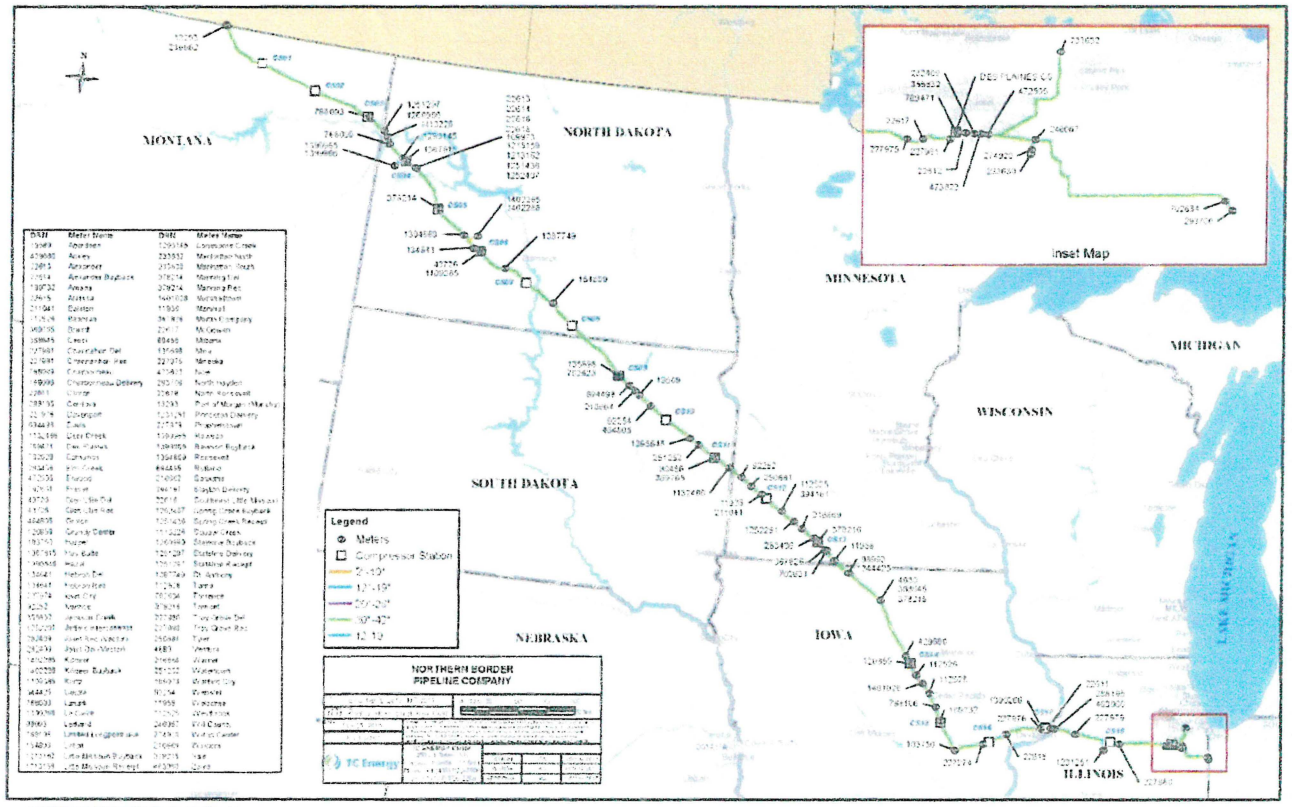
# MEGAWATTS OF ELECTRICITY FROM THE NATURAL GAS PRODUCED IN NORTH DAKOTA

This memorandum provides information on megawatts of electricity from the natural gas produced in North Dakota and replacing or converting coal-fired plants to natural gas-fired combined-cycle (NGCC) plants.

## MEGAWATTS OF ELECTRICITY

The Northern Border Pipeline (NBPL) is a joint venture owned by ONEOK, Inc. (50%) and TC PipeLines LP (50%) and is a 1,412 mile pipeline transporting Canadian, Bakken, and Rockies natural gas from connections with Foothills and Bison to United States Midwest markets including Chicago (see Figures 1.1 & 1.2). In addition to transporting Canadian sourced supply, the NBPL receives and transports natural gas produced in the Williston and Powder River Basins in the United States and synthetic natural gas produced at the Dakota Gasification plant in North Dakota.[1]

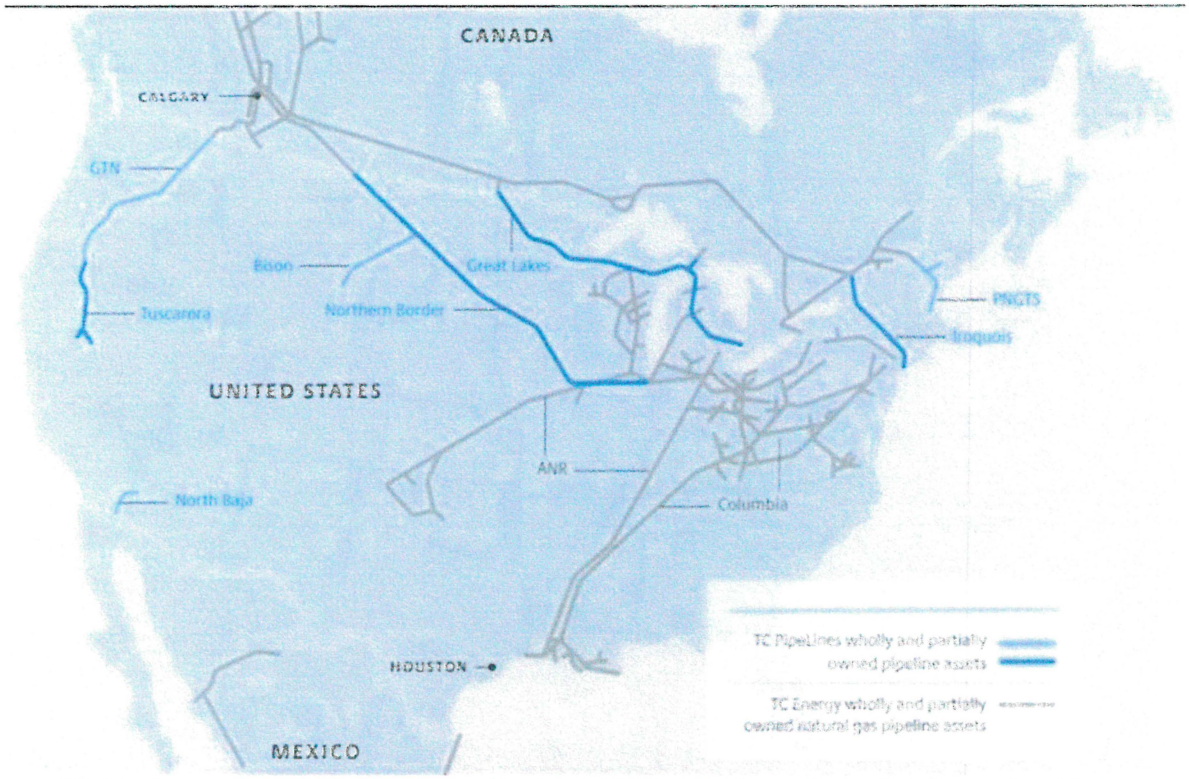
**Figure 1.1**




Source: Northern Border Pipeline Company, http://www.northernborder.com/docs/nbpl_sys_map.pdf

[1] Northern Border Pipeline Company; http://www.northernborder.com/.

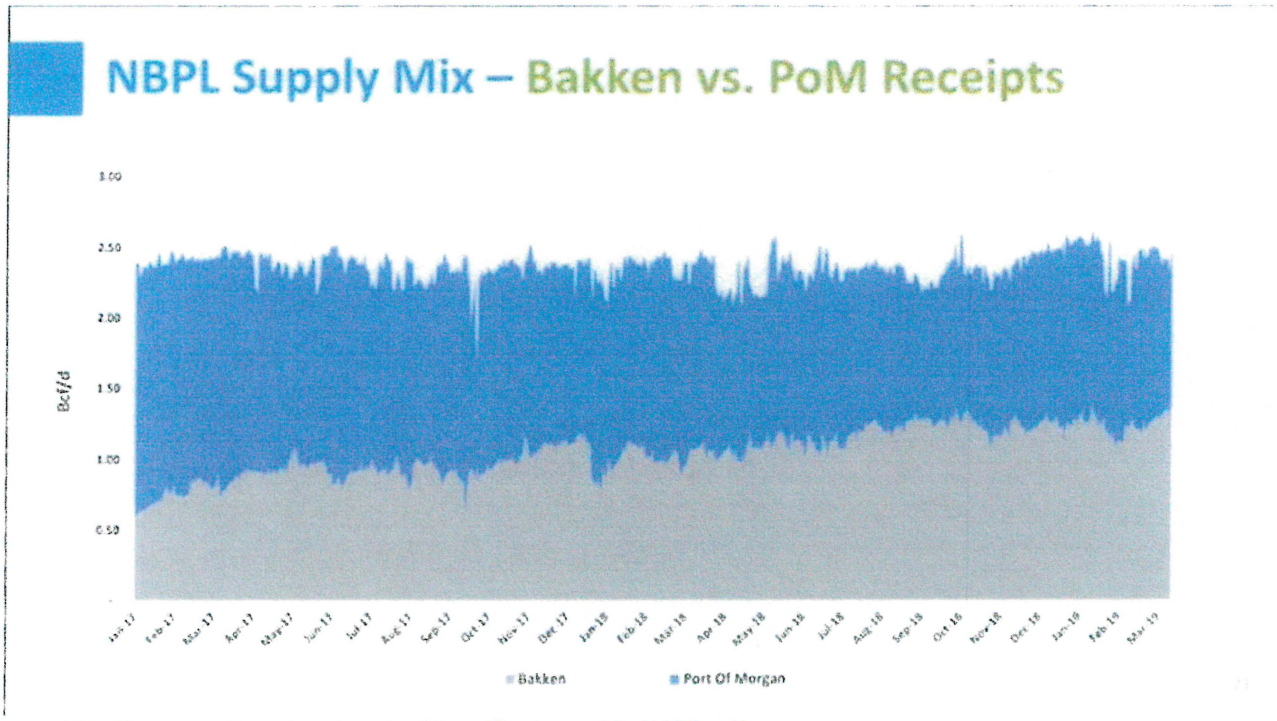
**Figure 1.2**




Source: TC Pipelines, LP., Gas Transmission Northwest LLP., http://www.tcpipelineslp.com/gtn.html

The Northern Border Pipeline has a capacity of approximately 2.5 billion cubic feet (Bcf) per day of natural gas with about fifty-five to sixty percent coming from the Bakken, or about 1.5 Bcf per day[2] (see Figure 2).

**Figure 2**




Source: http://www.northernborder.com/docs/CustomerMtgWEB.pdf

[2] Northern Border Pipeline Company; http://www.northernborder.com/docs/CustomerMtgWEB.pdf.

Northern Border Pipeline is fed by numerous gas processing plants in North Dakota (see Figure 3). Gas processing plants or "gas plants" take associated gas from the wellhead and separate it into natural gas liquids (NGL) and pipeline quality natural gas.[3] The pipeline quality natural gas is compressed and injected into interstate gas pipelines including Northern Border Pipeline, Bison and WBI Energy.[4] A map of ND gas pipelines and gas plants is shown below (see Figure 4). Some of the gas plants (north of the Missouri River) send rich gas stream to Alliance Pipeline.

A volume of 1.5 Bcf per day of Bakken natural gas could supply 15,000 to 16,000 megawatts (MW) of new modern efficient natural gas combined-cycle generation. This is about twice the electric generation capacity of North Dakota, and also is roughly equivalent to the coal generation that was replaced with natural gas combined-cycle plants between 2011 and 2019 (see Figure 5).

**Figure 3**

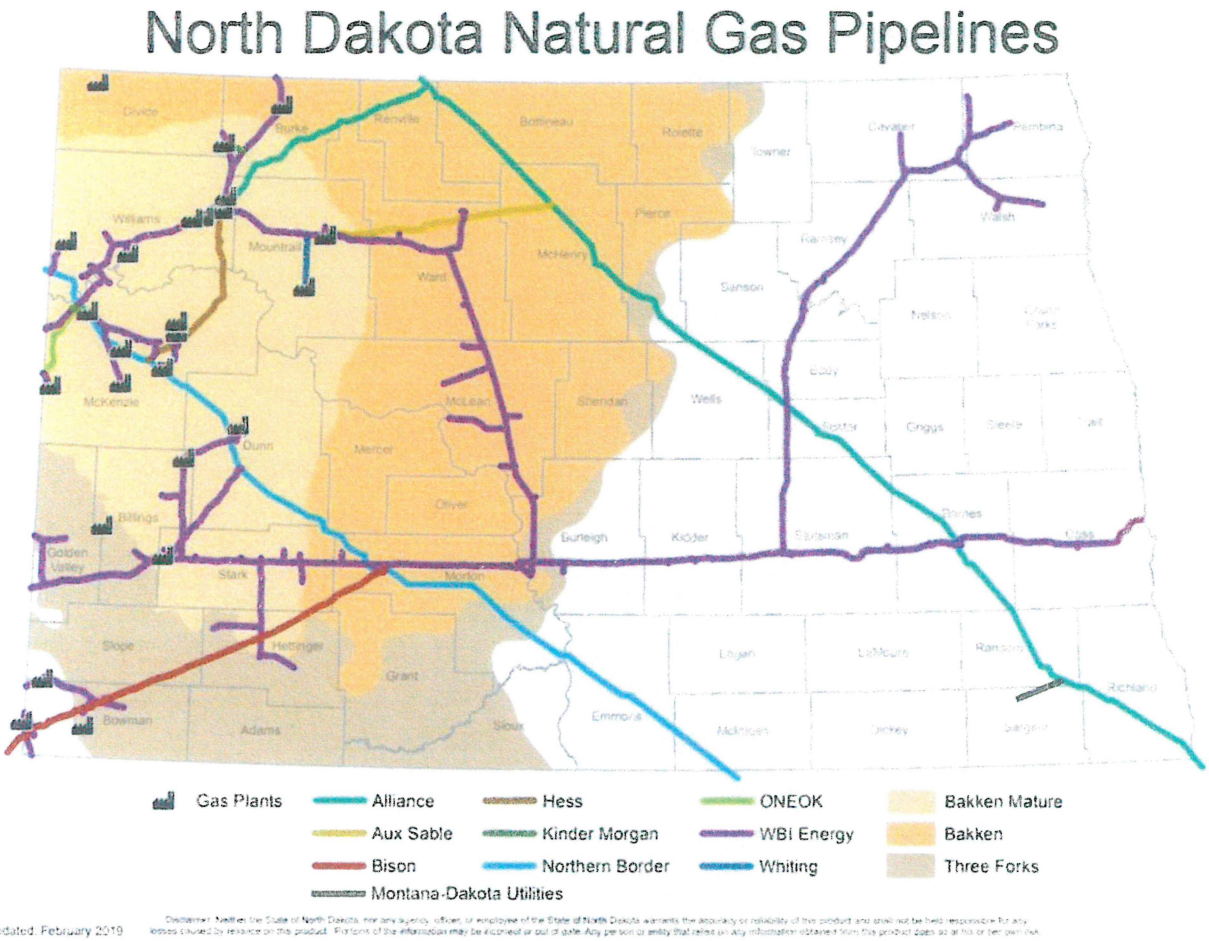
**Natural Gas Processing Capacity, Million Cubic Feet Per Day**

| Owner Company | Facility | County | 2006 | 2008 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| North Dakota | | | | | | | | | | | | | | | | |
| Steel Reef | Lignite | Burke | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| ONEOK | Marmarth | Slope | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | NA | NA | NA | NA | NA |
| ONEOK | Grasslands | McKenzie | 63 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| ONEOK | Stateline I | Williams | NA | NA | NA | NA | 100 | 100 | 100 | 100 | 100 | 120 | 120 | 120 | 120 | 120 |
| ONEOK | Stateline II | Williams | NA | NA | NA | NA | NA | 100 | 100 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| ONEOK | Garden Creek I | McKenzie | NA | NA | NA | NA | 100 | 100 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| ONEOK | Garden Creek II | McKenzie | NA | NA | NA | NA | NA | NA | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| ONEOK | Garden Creek III | McKenzie | NA | NA | NA | NA | NA | NA | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 |
| ONEOK | Lonesome Creek | McKenzie | NA | NA | NA | NA | NA | NA | NA | NA | 200 | 200 | 240 | 240 | 240 | 240 |
| ONEOK | Demicks Lake | McKenzie | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 200 | 200 | 200 |
| ONEOK | Demicks Lake II | McKenzie | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 200 | 200 |
| ONEOK | Demicks Lake III | McKenzie | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | Sus. |
| ONEOK | Bear Creek | Dunn | NA | NA | NA | NA | NA | NA | NA | NA | 80 | 80 | 130 | 130 | 130 | 130 |
| ONEOK | Bear Creek II | Dunn | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 200 |
| Petro Hunt | Little Knife | Billings | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| True Oil | Red Wing Creek | McKenzie | 4 | 4 | 4 | 4 | 4 | 10 | 10 | 10 | 10 | 10 | 15 | 15 | 15 | 15 |
| Sterling Energy | Ambrose | Divide | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | NA | NA | NA | NA | NA | NA | NA | NA |
| EOG Resources | Stanley | Mountrail | NA | 20 | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |
| Whiting Oil & Gas | Ray | Williams | NA | 10 | NA | NA | NA | NA | NA | 10 | 10 | 10 | 15 | 25 | 25 | 25 |
| Andeavor | Robinson Lake | Mountrail | NA | 30 | 45 | 90 | 90 | 90 | 110 | 130 | 130 | 130 | 130 | 150 | 150 | 150 |
| Andeavor | Belfield | Stark | NA | NA | NA | 30 | 30 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 |
| XTO - Nesson | Ray | Williams | NA | 10 | 10 | 10 | 10 | 10 | 10 | 25 | 25 | 25 | 25 | 25 | 25 | 100 |
| Hess | Tioga | Williams | 110 | 110 | 110 | 110 | 110 | 110 | 250 | 250 | 250 | 250 | 265 | 265 | 265 | 415 |
| Targa/Hess JV | LM4 | McKenzie | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 200 | 200 | 200 |
| Kinder Morgan | Badlands | Bowman | 4 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Kinder Morgan | Norse | Divide | NA | NA | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Kinder Morgan | Watford City | McKenzie | NA | NA | NA | 50 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Kinder Morgan | Roosevelt | McKenzie | NA | NA | NA | NA | NA | NA | NA | NA | 50 | 50 | 50 | 200 | 200 | 200 |
| Liberty Midstream Solutions | County Line | Williams | NA | NA | NA | NA | NA | NA | NA | NA | 20 | 20 | 30 | 30 | 30 | 30 |
| Summit Resources | Knutson | Billings | NA** | NA** | NA** | NA** | NA** | NA** | NA** | NA** | NA** | NA** | NA** | NA** | NA** | NA** |
| Targa Resources | Badlands | McKenzie | NA | NA | NA | 45 | 45 | 45 | 45 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| USG Midstream Bakken | DeWitt | Divide | NA | NA | NA | NA | NA | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1804 Ltd | Spring Brook | Williams | NA | NA | NA | NA | NA | NA | NA | 45 | 45 | 45 | 60 | 70 | 70 | 70 |
| Oasis | Wild Basin | McKenzie | NA | NA | NA | NA | NA | NA | NA | NA | 80 | 145 | 320 | 320 | 320 | 320 |
| Arrow Field Services | Arrow | McKenzie | NA | NA | NA | NA | NA | NA | NA | NA | NA | 30 | 30 | 150 | 150 | 150 |
| Caliber Midstream | Hay Butte | McKenzie | NA | NA | NA | NA | NA | NA | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Outrigger Energy II | N/A | Williams | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 250 |
| Aux Sable - Chicago, IL | | | | | | | | | | | | | | | | |
| Aux Sable | Prairie Rose | Mountrail | NA | NA | 126 | 126 | 126 | 126 | 126 | 126 | 126 | 126 | 126 | 126 | 126 | 126 |
| | | Total, MMCFD | 222.0 | 355.0 | 491.0 | 661.0 | 901.0 | 1,015.0 | 1,444.5 | 1,599.5 | 2,029.5 | 2,137.0 | 2,452.0 | 3,162.0 | 3,362.0 | 4,037.0 |

Source: *Infrastructure Constraints in the Bakken*, U.S. Department of Energy, August 2014.

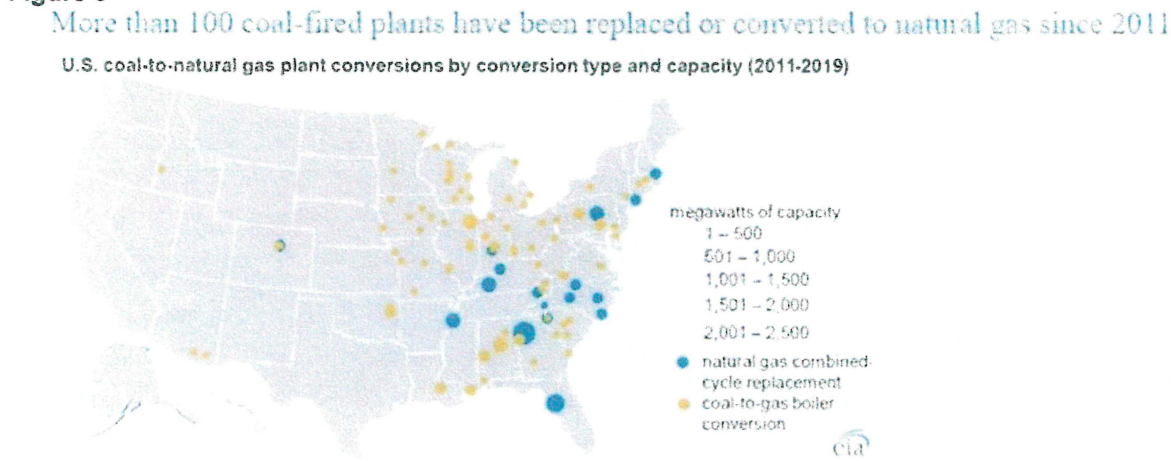
[3] Northern Border Pipeline Company; http://www.northernborder.com/.
[4] *Id.*

**Figure 4**




Source: https://www.ndstudies.gov/energy/level2/module-2-petroleum-natural-gas/transporting-and-processing

**Figure 5**




Source: U.S. Energy Information Administration, *Annual Electric Generator Report* and *Preliminary Monthly Electric Generator Inventory*.

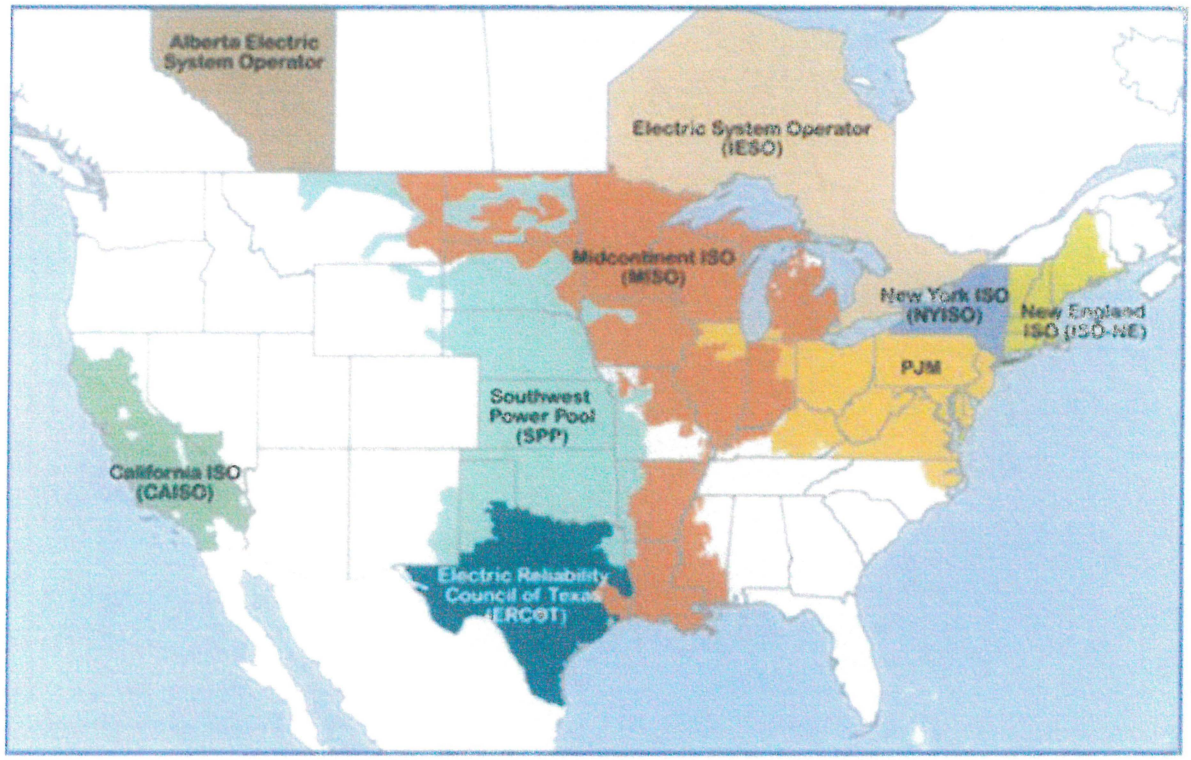
Between 2011 and 2019, 17 coal-fired plant owners replaced old coal-fired power plants with new NGCC plants with a total generating capacity of 15,300 MW, 94 percent more than the 7,900 MW capacity of the coal-fired power plants they replaced.[5]

[5] *More than 100 coal-fired plants have been replaced or converted to natural gas since 2011*, U.S. Energy Information Administration, August 2020.

Below are some statistics for North Dakota and several regional transmission organizations (see Figure 6) for comparison:

- North Dakota:
  - Installed capacity = 8,400 MW.
    - Natural gas combined cycle = 0 MW.
    - Natural gas simple cycle peaking = 520 MW.
  - Peak load = 3,900 MW.
- Southwest Power Pool (SPP) [6]:
  - Installed capacity = 89,500 MW.
    - Natural gas combined cycle = 13,500 MW.
    - Natural gas simple cycle peaking = 23,300 MW.
  - Peak load = 51,230 MW.
- Midcontinent Independent System Operator (MISO)[7]:
  - Installed capacity = 137,300 MW.
    - Natural gas combined cycle = 18,000 MW.
    - Natural gas simple cycle peaking = 27,100 MW.
  - Peak load = 124,200 MW.
- PJM[8]:
  - Installed capacity = 184,600 MW.
    - Natural gas combined cycle = 33,500 MW.
    - Natural gas simple cycle peaking = 44,100 MW.
  - Peak load = 148,200 MW.

**Figure 6**




Source: RTO map, Federal Energy Regulatory Commission, https://www.ferc.gov/sites/default/files/2020-05/elec-ovr-rto-map.pdf

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[6] *Power Plant Summary; SPP Region.* S&P Global, 2019.
[7] *Power Plant Summary; MISO Region.* S&P Global, 2019.
[8] *Power Plant Summary; PJM Region.* S&P Global, 2019.

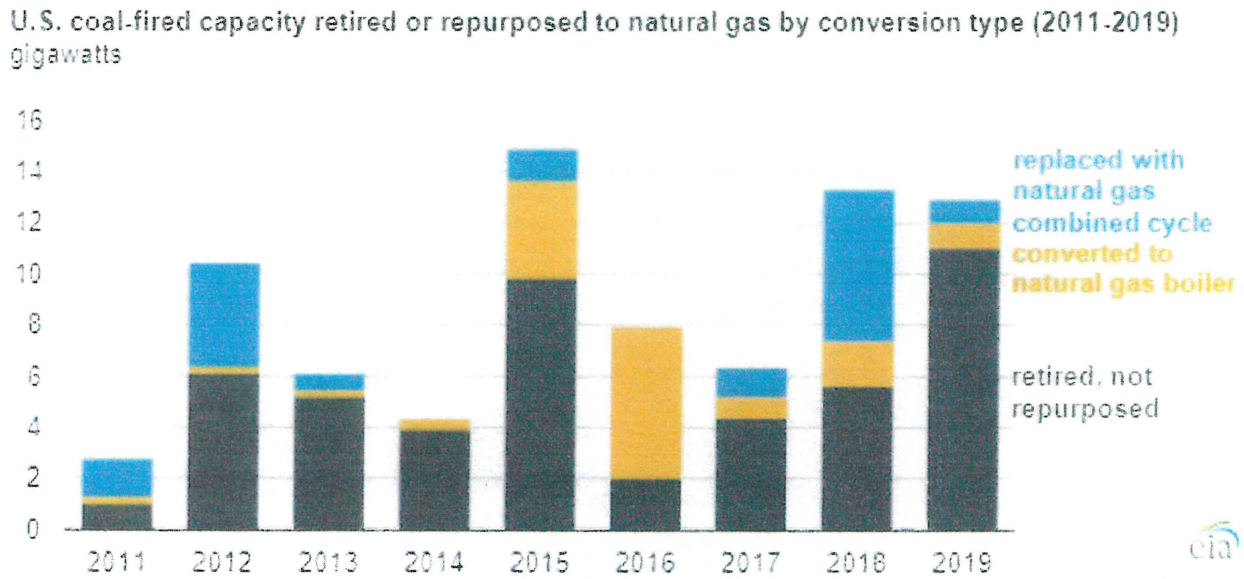
## REPURPOSING COAL-FIRED POWER PLANTS

One hundred twenty-one United States coal-fired power plants were repurposed to burn other types of fuels between 2011 and 2019, 103 of which were converted to or replaced by natural gas-fired plants.[9] At the end of 2010, 316.8 gigawatts (GW) of coal-fired capacity existed in the United States, but by the end of 2019, 49.2 GW of that amount was retired, 14.3 GW had the boiler converted to burn natural gas, and 15.3 GW was replaced with natural gas combined cycle.[10] The decision for plants to switch from coal to natural gas was driven by stricter emission standards, low natural gas prices, and more efficient new natural gas turbine technology.[11]

Two different methods are used to switch coal-fired plants to natural gas.[12] The first method is to retire the coal-fired plant and replace it with a new NGCC plant.[13] The second method is to convert the boiler of a coal-fired steam plant to burn other types of fuel, such as natural gas.[14]

Between 2011 and 2019,17 coal-fired plant owners adopted the first method, replacing old coal-fired power plants with new NGCC plants.[15] The new NGCC plants have a total generating capacity of 15.3 GW, 94 percent more than the 7.9 GW capacity of the coal-fired power plants they replaced. The increase in capacity is largely a result of the advanced turbine technology installed in NGCC plants (see Figure 7).[16]

**Figure 7**




Source: U.S. Energy Information Administration, *Annual Electric Generator Report* and *Preliminary Monthly Electric Generator Inventory*, August 2020.

Between 2011 and 2019, 104 coal-fired plants adopted the second approach, converting the steam boiler to burn other fuels, most commonly natural gas, although some were configured to burn petroleum coke (a refinery by-product), waste materials from paper and pulp production, or wood waste solids.[17]

Coal-fired plants in the eastern half of the country have been good candidates for conversion because the plants tend to be smaller-capacity units and are mostly over 50 years old.[18] Of the 104 coal-fired plants in this age range, 86 have converted boilers to burn natural gas, representing 14.3 GW of capacity.[19] Although most plants

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[9] *More than 100 coal-fired plants have been replaced or converted to natural gas since 2011*, U.S. Energy Information Administration, August 2020.
[10] *Id.*
[11] *Id.*
[12] *Id.*
[13] *Id.*
[14] *Id.*
[15] *Id.*
[16] *Id.*
[17] *Id.*
[18] *Id.*
[19] *Id.*

transitioned entirely to natural gas, a few maintained coal burning capabilities, allowing the plants to burn whichever fuel is most economically efficient.[20]

The utility with the most conversions between 2011 and 2019 was Alabama Power Co., which converted 10 generators located at four coal plants in Alabama, totaling 1.9 GW of capacity.[21] These conversions took place between 2015 and 2016, largely to comply with the Mercury and Air Toxics Standards required by the United States Environmental Protection Agency.[22]

Plant owners intend to retire another 17 GW of coal-fired capacity by 2025 (see Figure 8).[23] After a coal unit retires, the power plant site goes through a complex, multiyear process that includes decommissioning, remediation, and redevelopment.

**Figure 8**

Source: U.S. Energy Information Administration, *Annual Electric Generator Report* and *Preliminary Monthly Electric Generator Inventory*, July 2019.

Coal-fired power plants in the United States remain under significant economic pressure. Many plant owners have retired coal-fired units because of relatively flat electricity demand growth and increased competition from natural gas and renewables.[24] In 2018, plant owners retired more than 13 GW of coal-fired generation capacity, which is the second-highest annual total for United States coal retirements. The highest total for coal retirements, at 15 GW, occurred in 2015.[25]

## CONCLUSION

Repowering a former coal-fired plant with natural gas-fired elements is a viable option for power providers because much of the critical infrastructure is in place, including transmission lines, substations, and water. As the United States coal-fired electric generation fleet continues to manage challenges from emission standards and low prices for natural gas, the expectation is that more of these conversions will take place, particularly in the Midwest and Southeast.

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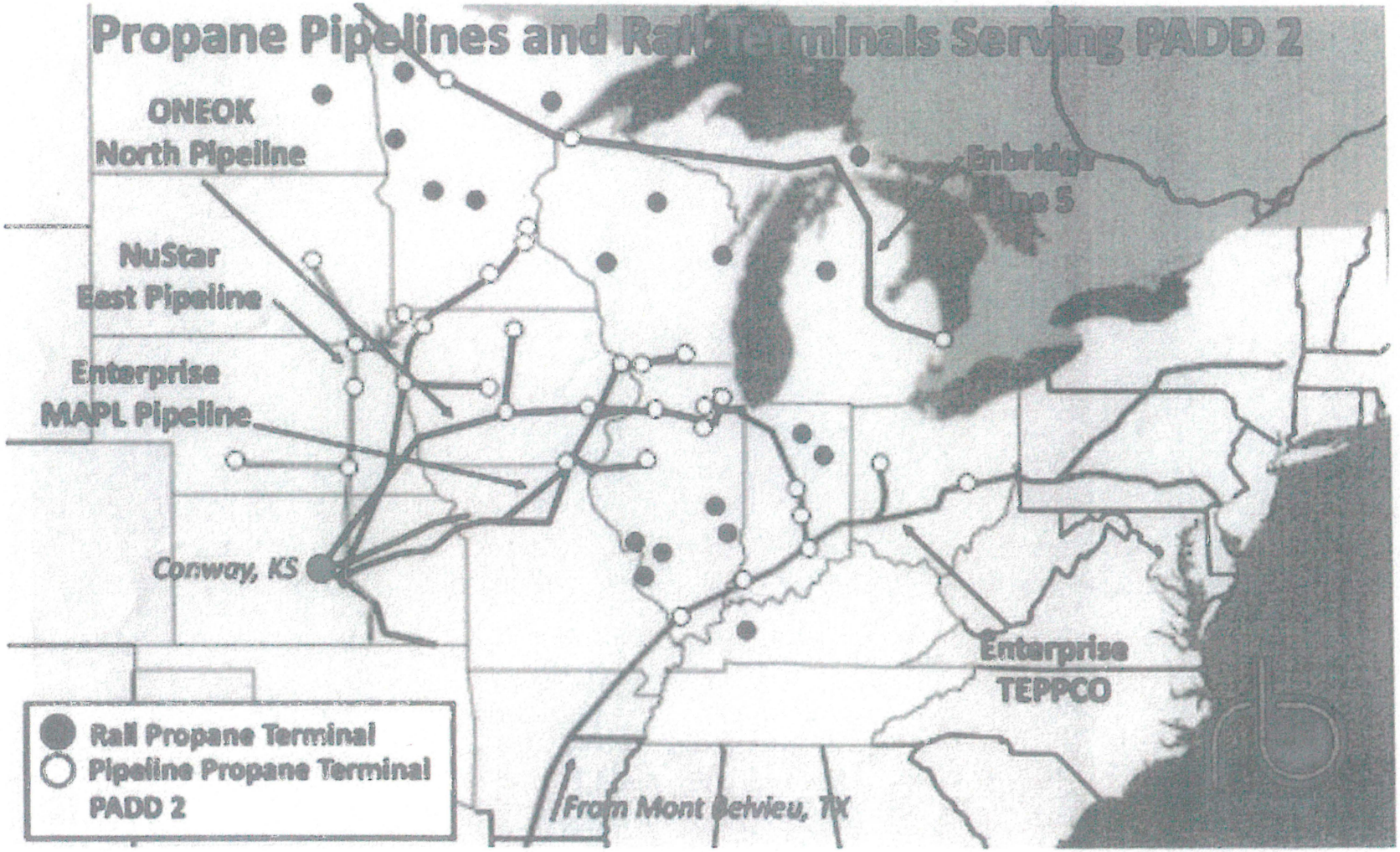
[20] *Id.*
[21] *Id.*
[22] *Id.*
[23] *Preliminary Monthly Electric Generator Inventory*, U.S. Energy Information Administration, August 2020.
[24] *More U.S. coal-fired power plants are decommissioning as retirements continue*, U.S. Energy Information Administration. July 2019.
[25] *Id.*

# Propane Pipelines and Rail Terminals Serving PADD 2



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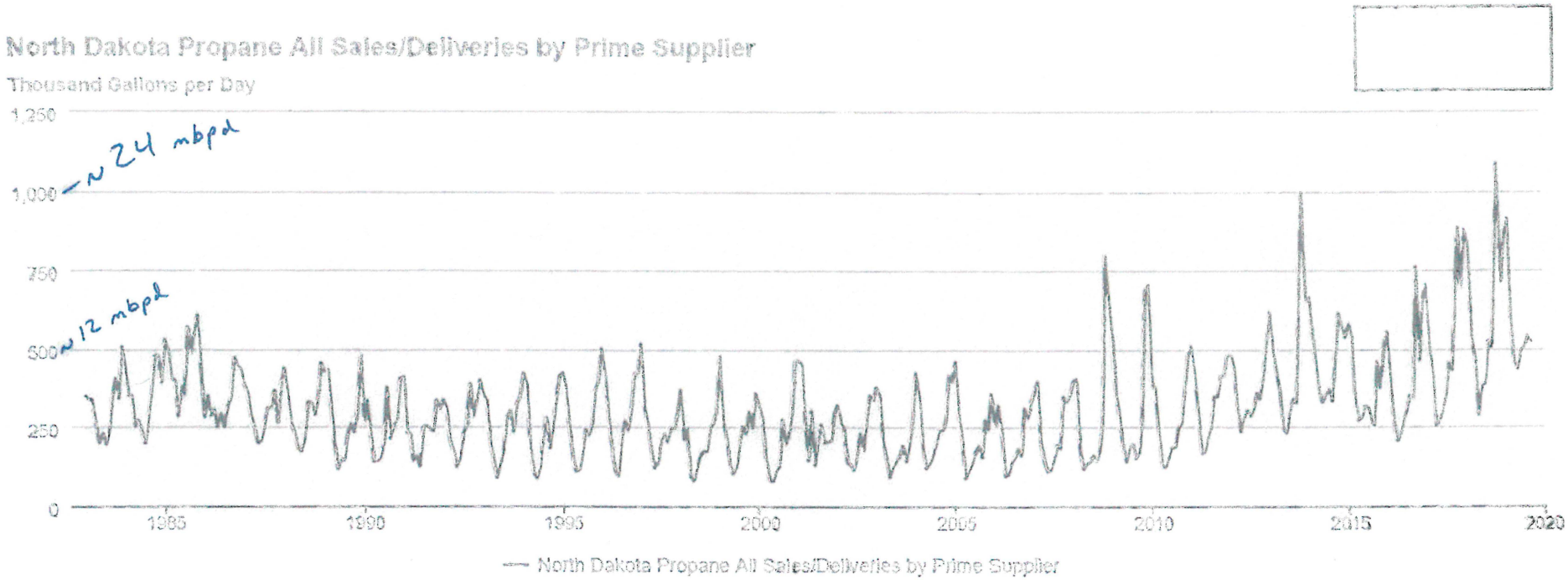
# North Dakota Propane Consumption




eia Source: U.S. Energy Information Administration

# North Dakota Propane Production

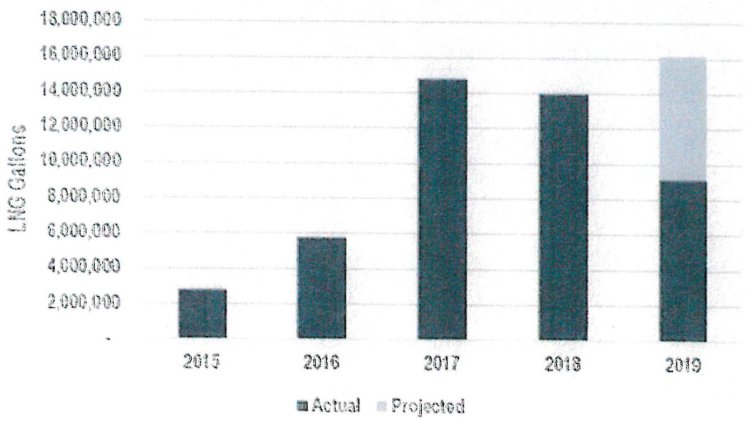
ALKANE
MIDSTREAM

# MDU
# WAHPETON

DECEMBER 2019

# Background

Founded in 2014 as North Dakota LNG, we are a pioneer in alternative fuels delivering nearly 50 million gallons of Liquefied Natural Gas (LNG) through July 2019



# About Us

Virtual pipeline solutions for natural gas in the Williston Basin. We provide turn-key alternative fuel, power, and stranded gas solutions helping customers save money and increase production while reducing their environmental impact.

ALKANE MIDSTREAM

# Virtual Pipeline Solutions For Upstream and Downstream

### Flare Capture

Year-round applications

Full utilitzation of flare stream. 4mmCFD of Flare produces 25,000 gallons per day of LNG and >30,000 gallons per day of NGLs

### Drilling & Completions

Year-round LNG applications

Consumption averages 2,150 gallons per day on drilling rigs to 12,000 gallons per day on frac spreads

### Water Heating & Recycling

Water heating is a Winter application only.

Water Recycling was piloted in August and is year-round.

Consumption averages 5,000 gallons per day

### Remote Power

Short-term project based applications

Applications can range from 5,000 gallons per day to 40,000 gallons per day of LNG

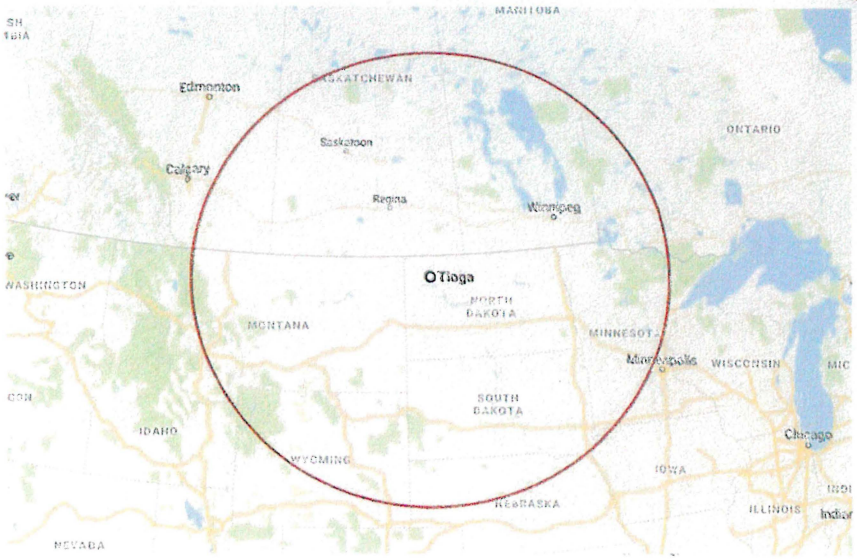
### Off-Grid Commercial

Permanent LNG applications

Consumption typically between 2,000-5,000 LNG gallons per day

# Service Area

We competitively deliver to applications 500 miles away and are approved to transport into Canada



# Market Isolated from Supply

Current LNG supply for the Williston Basin involves significant transportation planning and cost. We are over 600 miles away from next closest plant.

We have significant first-mover advantage; building a similar sized LNG plant with storage and field equipment takes significant capital ($50MM) and lead-times for equipment exceed 50 weeks.

ALKANE MIDSTREAM

# LNG Production Capabilities

Tioga facility built for redundancy with three production trains

## Plant 1

- 2-Train turbo expander plant with production capacity of 10,000 gallons per day
  - Train-A: 5,000 gallons per day
  - Train-B: 5,000 gallons per day

## Plant 2

- Single train ANGLE mixed refrigerant plant with production capacity of 80,000 gallons per day
  - Train-C: 80,000 gallons per day
  - Expansion to 100,000 gallons per day possible

## Storage

- 2-fixed storage 55,000 gallon horizontal bullet tanks at the Tioga facility
  - Transportation trailer fleet with 70,000 gallons of storage capacity
  - On-site customer storage vessels with 300,000 gallons of storage capacity

# We work with the biggest names in the Bakken and Beyond:

## Oil & Gas

Sinclair
Continental Resources
Oasis Petroleum
Marathon Oil Corporation
Whiting
Slawson
XTO Energy
Bruin E&P Partners, LLC
PetroShale
enerPLUS We Add Energy
HP Inc
Frac Shack™
CWS CalFrac
Patterson-UTI Drilling Company LLC
Nabors
Hydrus Energy Solutions

## Wholesale

Ogden Polar Group
Stabilis Energy
Prometheus energy Bringing energy where you need it®
Terra energy group
ferus
Blue Flame Propane Inc
PLUM energy
CryoPeak LNG Solutions

## Remote Power

DairiConcepts
Minn Dak Farmers Cooperative
Marathon
BitFury
blockchain

# INSTALLATION
# APPLICATIONS
# MONITORING
# DELIVERY

- ON-SITE STORAGE
- REMOTE MONITORING
- COMPANY DRIVERS
- DRIVER TRACKING
- INSTALLATION EXAMPLES

# On-Site Storage with Vaporization

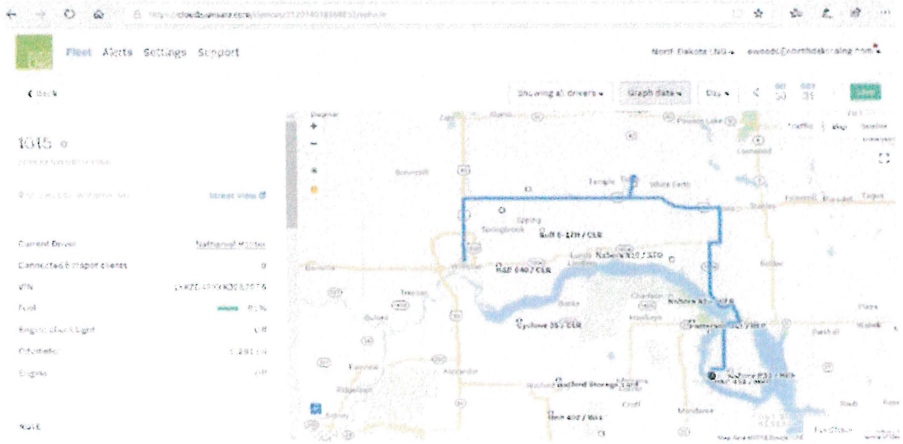
**Ambient Vaporization**

**Electric Vaporization**

**Remote Monitoring**

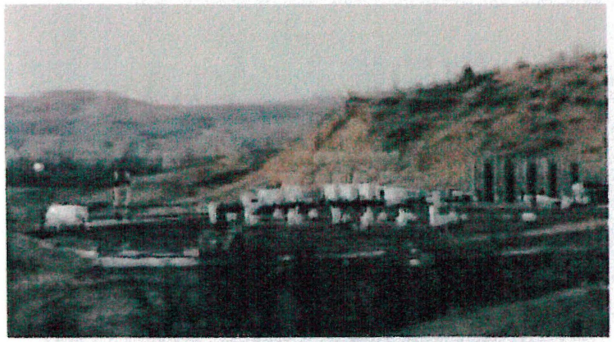
ALKANE MIDSTREAM

# LNG Delivery with Real-time Tracking

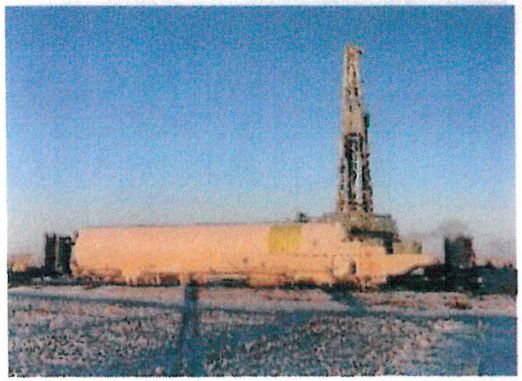



ALKANE
MIDSTREAM

# LNG In Use



**Well Pads**



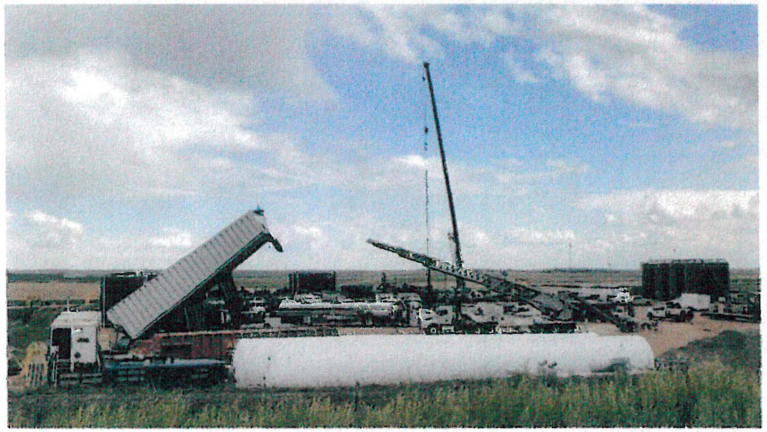
**Drill Rigs**

**Water Heating**

ALKANE MIDSTREAM

# LNG In Use

## Dual-fuel Frac Spread



- Up to 70% diesel displacement
- Up to 20,000 LNG gpd
- Year-around operation

## Water Recycling

IGF+
- 10,000 BBL/d
- 98% Suspended Solids, Iron, Oil removal

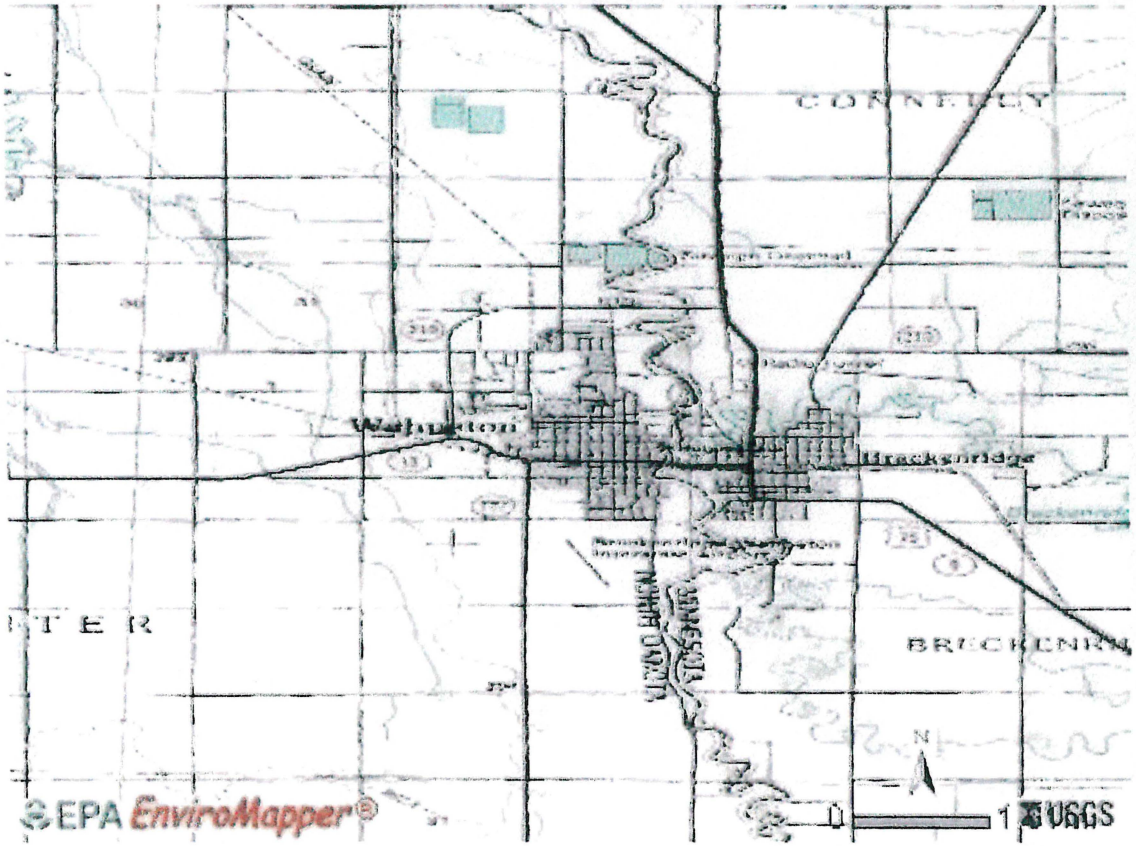
FLASH
- Up to 400BBL/d Evaporation

ALKANE MIDSTREAM

# THE WAHPETON COMMUNITY

- 63 MILE GAS LATERAL LINE
- INCREASED DEMAND ON GAS LINE
- TIME REQUIRED TO EXPAND
- INDUSTRIAL CUSTOMERS ARE EXPANDING OPERATIONS ELSEWHERE
- SOLUTION NEEDED FOR INTERIM

# 63 Mile Gas Distribution Line




Wahpeton Community

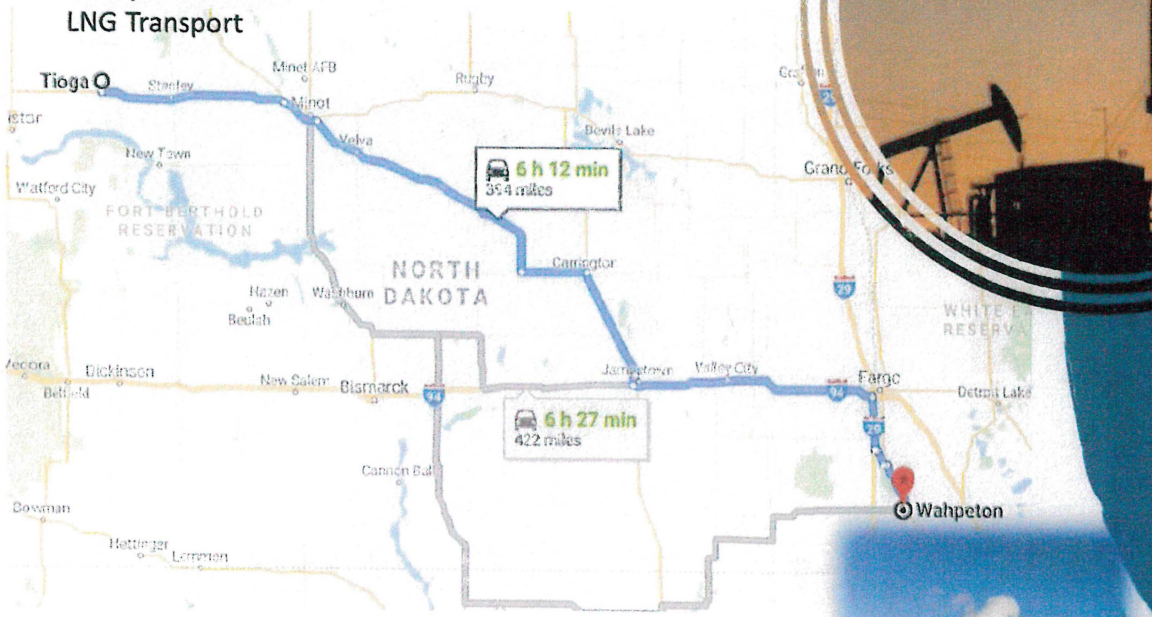
- 7,753 Population (2018 est.)
- Industrial Consumers: Woodcraft, WCCO, Minn-Dak, Cargill, ComDel, Heartland, Doosan/Bobcat, Masonite, Wil-Rich
- Numerous Commercial Customers
- ND State College of Science
- K-12 Schools

Previous Alkane (ND LNG) Support

- Minn-Dak (via TexPar)
- Cargill (proposals)

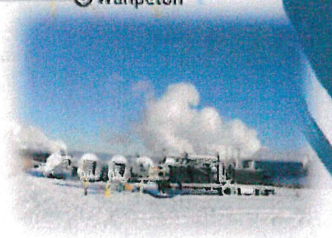
ALKANE MIDSTREAM

Bakken Liquefaction and LNG Transport



# Proposal

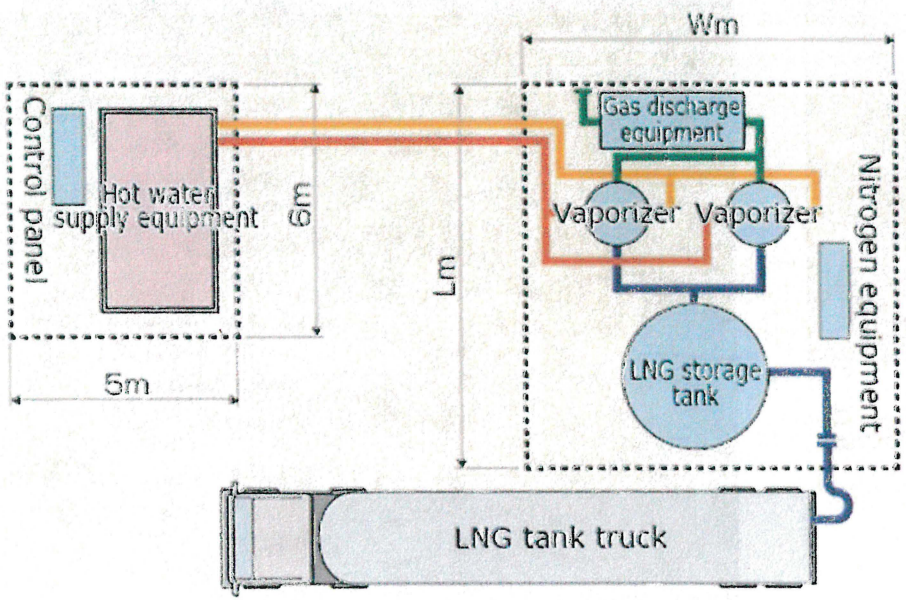
- Utilization of Bakken Flare Gas
- Liquefied in Tioga, transport to Wahpeton
- Stored at Metering Point
- Injected as needed to support gas line pressure
- Short-term and Longer-term solutions



Interim LNG Storage at Wahpeton Injection Point

ALKANE MIDSTREAM

# Short-Term: Temporary Storage and Vaporization




<u>Temporary Storage</u>

- 16,000 gallon mobile Queen Storage Trailers
- Quantity based on calculated need
- Remote Monitoring for level and gas flow

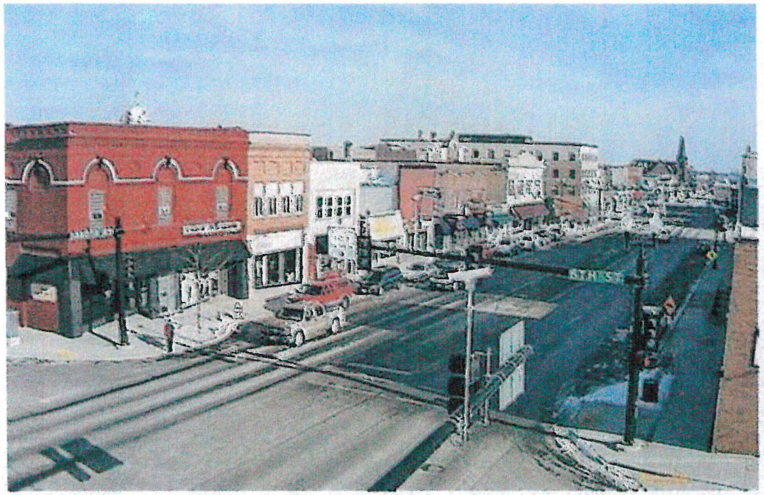
<u>Water Bath Vaporization</u>

- Mobile / Trailer Mounted
- 150,000 scf/h capable
- Efficient Boilers
- Scalable / Quantity based on need
- Remote Monitoring

<u>Metering / Injection Point.</u>

- Vaporized LNG connected to Flange at Metering / Injection point

ALKANE MIDSTREAM



Wahpeton
- Stable gas supply. Ability to retain / grow Industry.

MDU
- Ability to strategically expand gas distribution network.
- Maintain / Increase user base.

Operators
- Additional outlet for flare gas

North Dakota
- Retention / Expansion of business in the state

# Beneficiaries of Solution

Wahpeton | MDU | Operators | North Dakota

# THANK YOU

Ryan Blazei / Ed Woods

(612) 466-0006 / (701) 300-3219

Blazei@AlkaneNRG.com / Woods@AlkaneNRG.com

www.AlkaneNRG.com

# Targa Resources Corp.
# January 2020

# Community Connected Through Sustainability and ESG

**Safety, Environmental, Social and Governance**

- As an energy infrastructure company focused on the transportation and storage of energy products, our operations are essential to the delivery of energy efficiently, safely, and reliably across the United States. At Targa Resources, we invest hundreds of millions of dollars each year to build new and expanded assets to deliver energy products that sustain and enhance the quality of life of our citizenry.
- We strive to conduct our business safely and with integrity, creating lasting benefits to our stakeholders, including our investors, lenders, customers, employees, business partners, regulators and the communities in which we live and work.

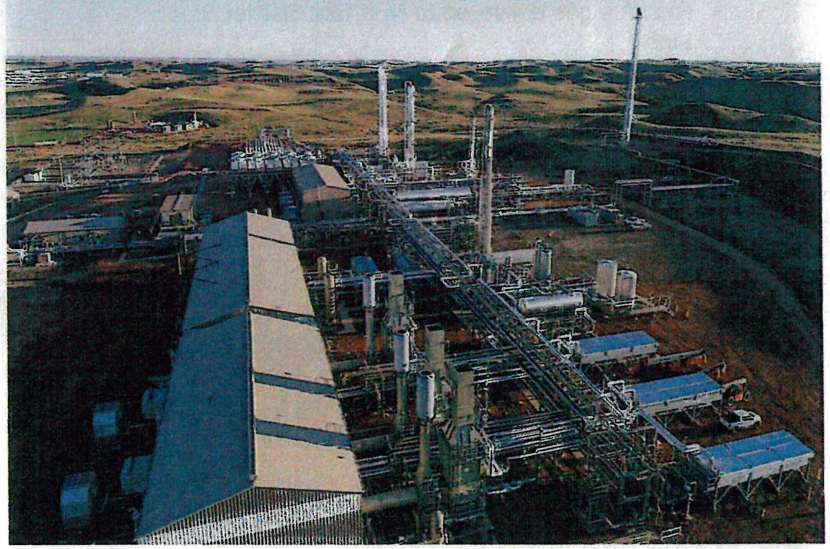
✓ **Safety and operational excellence**

✓ **Environmental stewardship**

✓ **Strong alignment with shareholders**

TARGA

# North Dakota Badlands



## Key Issues For Discussion

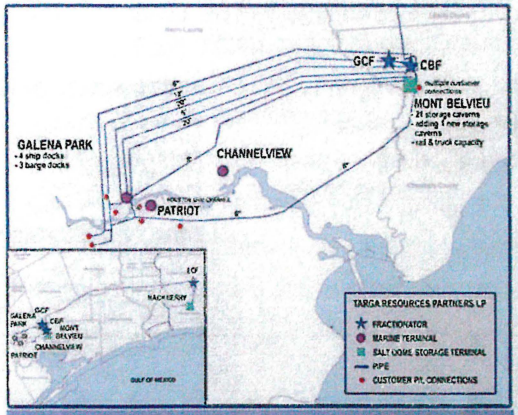
- Landfarming for crude oil impacted soil
- Processing Investments and gas capture
- Targa's assets as a global player- National Security through energy independence and trade balance and cleaner air globally through lpg exports and fuel replacement
- Targa's value to the growing domestic petrochemical industry

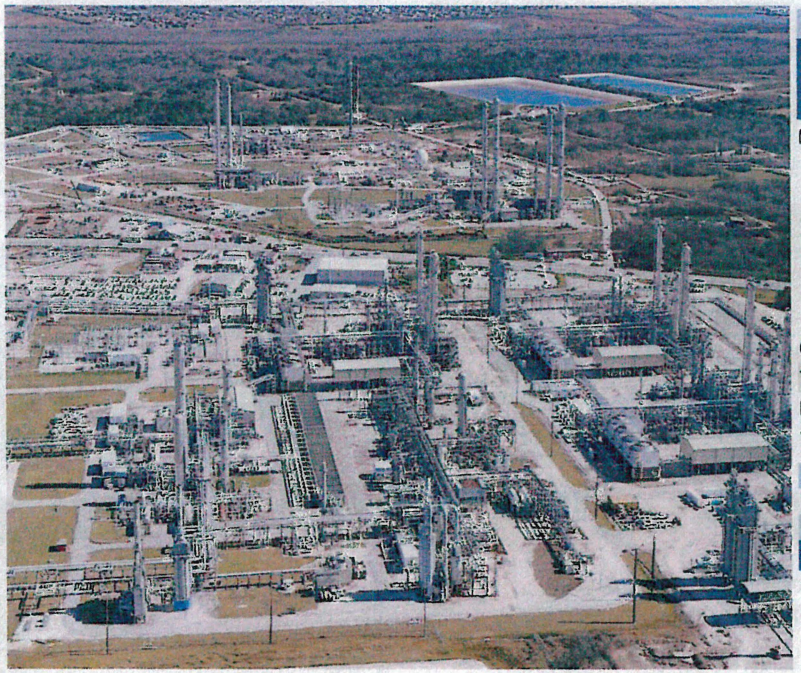
**Building Today for Better Bakken Tomorrow**

TARGA

# Downstream Segment

# Logistics Assets Exceedingly Difficult to Duplicate





| Galena Park Marine Terminal | | |
|---|---|---|
| | Products | MMBbl/ Month |
| Export Capacity | LEP / HD5 / NC4 | ~10.0 |
| **Other Assets** | | |
| 700 MBbls in Above Ground Storage Tanks | | |
| 4 Ship Docks | | |

| Fractionators | | Gross Capacity (MBbl/d) | Net Capacity (MBbl/d)[1] |
|---|---|---|---|
| Mont Belvieu[1] | CBF - Trains 1-3 | 253 | 223 |
| | CBF - Backend Capacity | 40 | 35 |
| | CBF - Train 4 | 100 | 88 |
| | CBF - Train 5 | 100 | 88 |
| | Train 6 | 100 | 100 |
| | Train 7[2] | 110 | 110 |
| | Train 8[2] | 110 | 110 |
| GCF - Mont Belvieu | | 125 | 49 |
| Total - Mont Belvieu | | 938 | 802 |
| LCF - Lake Charles | | 55 | 55 |
| **Total** | | **993** | **857** |

**Potential Fractionation Expansions**

Permit received for Train 9 incremental fractionation

**Other Assets**

**Mont Belvieu**

35 MBbl/d Low Sulfur/Benzene Treating Natural Gasoline Unit

23 Underground Storage Wells

Pipeline Connectivity to Petchems/Refineries/LCF/etc.

7 Pipelines Connecting Mont Belvieu to Galena Park

Rail and Truck Loading/Unloading Capabilities

**Other Gulf Coast Logistics Assets**

Channelview Terminal (Harris County, TX)

Patriot Terminal (Harris County, TX)

Hackberry Underground Storage (Cameron Parish, LA)

*(1) Based on Targa's effective ownership interest*
*(2) Expansion underway to increase fractionation capacity by 220 MBbl/d in Mont Belvieu; Train 7 expected to be complete late Q1 2020 and Train 8 expected to be complete late Q3 2020*

# Targa Long Term Strategic Outlook is Excellent

**Focus in recent years has been to transform into a fully integrated midstream company with scale and asset diversity**

- Transformation of asset footprint from growth capital investments largely complete

**Targa's Grand Prix NGL Pipeline was the missing piece of the integrated platform advantage**

- ~$2 billion project and largest capital investment in Targa's history
- In-service and flowing significant volumes that are expected to grow over time

**Heavily invested in supply aggregation through our premier G&P footprint with connectivity to downstream demand**

- Since 2015, ~$8.5 billion in capital invested across the Targa value chain
- Supply aggregation – Gathering & Processing
  - Added 15 new plants with an aggregate 2.7 Bcf/d of incremental processing capacity
- Demand markets – Downstream (Fractionation and Exports)
  - Added frac trains 5, 6, 7 and 8 with an aggregate 420 MBbl/d incremental fractionation capacity in Mont Belvieu, the premier U.S. NGL market hub
  - LPG export debottlenecking and expansions that will bring capacity from 7 MMBbl/month to 11 – 15 MMBbl/month[1]

(1) *Capacity range based on product demand and vessel size*

#3236

# North Dakota Grain Growers Association
# Testimony in Support of HB 1149
# House Appropriations Committee
# January 26, 2021

Chairman Delzer, members of the House Appropriations Committee, for the record my name is Dan Wogsland, Executive Director of the North Dakota Grain Growers Association (NDGGA). Through our contracts with the North Dakota Wheat Commission and the North Dakota Barley Council NDGGA engages in domestic policy issues on the state and federal levels on behalf of North Dakota wheat and barley farmers. I appear before you today in support of HB 1149.

Mr. Chairman, members of the Committee, all of you are well aware that agriculture is one of the principle consumers of energy at all levels. NDGGA has engaged with the liquified natural gas industry to look for ways to expand agricultural energy sources to benefit farmers. Liquified natural gas is another energy source that can allow for greater energy access which can diversify the energy base that agriculture utilizes. HB 1149 provides the seed money necessary to aid in this energy diversification.

NDGGA is well aware of the "price tag" contained in the legislation; nonetheless NDGGA is confident that the North Dakota legislature will find the suitable funding level to move forward with these very important liquified natural gas pilot projects. With North Dakota's abundance of natural gas resources, it would seem to be prudent energy management to harness this resource for the benefit of the state.

Therefore, the North Dakota Grain Growers Association respectfully requests the House Appropriations Committee give HB 1149 its favorable consideration and we would ask for the full House to concur.

**HB 1149 – Testimony by Dustin Gawrylow (Lobbyist #266) North Dakota Watchdog Network**

HB 1149 has the appearance of being a very substantial subsidy to the natural gas industry.

It is the long-standing position of the North Dakota Watchdog Network that the role of the state should be in financing not funding such projects.

We support using the Bank of North Dakota to provide loans for such projects, which are deemed worthy through a Due Diligence process.

We oppose straight-out grants for such projects.

We also encourage the legislature to ease the regulatory climate, up to and including lobbying the federal government, to make such projects more viable.

# 2021 HOUSE STANDING COMMITTEE MINUTES

**Appropriations Committee**
Brynhild Haugland Room, State Capitol

HB 1149
1/29/2021

| |
|---|
| A BILL for an Act to provide an appropriation to the industrial commission for liquefied natural gas pilot project grants; and to provide a statement of legislative intent. |

**10:05 Chairman Delzer –** Called the meeting to order, roll call was taken;

| Representatives | P/A |
|---|---|
| Representative Jeff Delzer | P |
| Representative Keith Kempenich | P |
| Representative Bert Anderson | P |
| Representative Larry Bellew | P |
| Representative Tracy Boe | P |
| Representative Mike Brandenburg | P |
| Representative Michael Howe | P |
| Representative Gary Kreidt | P |
| Representative Bob Martinson | P |
| Representative Lisa Meier | P |
| Representative Alisa Mitskog | P |
| Representative Corey Mock | P |
| Representative David Monson | P |
| Representative Mike Nathe | P |
| Representative Jon O. Nelson | P |
| Representative Mark Sanford | P |
| Representative Mike Schatz | P |
| Representative Jim Schmidt | P |
| Representative Randy A. Schobinger | P |
| Representative Michelle Strinden | P |
| Representative Don Vigesaa | P |

**Discussion Topics:**

- Duplicate Bill

**10:06 Representative Brandenburg Makes a Motion for a Do Not Pass**

**Representative Meier –Second's the motion**

| Representatives | Vote |
|---|---|
| Representative Jeff Delzer | Y |
| Representative Keith Kempenich | Y |
| Representative Bert Anderson | Y |
| Representative Larry Bellew | Y |

| | |
|---|---|
| Representative Tracy Boe | Y |
| Representative Mike Brandenburg | Y |
| Representative Michael Howe | Y |
| Representative Gary Kreidt | Y |
| Representative Bob Martinson | Y |
| Representative Lisa Meier | Y |
| Representative Alisa Mitskog | Y |
| Representative Corey Mock | Y |
| Representative David Monson | Y |
| Representative Mike Nathe | Y |
| Representative Jon O. Nelson | Y |
| Representative Mark Sanford | Y |
| Representative Mike Schatz | Y |
| Representative Jim Schmidt | A |
| Representative Randy A. Schobinger | Y |
| Representative Michelle Strinden | Y |
| Representative Don Vigesaa | Y |

**10:08 Motion Carries 20-0-1 Representative Brandenburg will carry the bill**

**Additional written testimony:** No written testimony

**10:09 Chairman Delzer- closes the hearing for HB 1149**

*Risa Bergquist,*

*House Appropriations Committee Clerk*

**REPORT OF STANDING COMMITTEE**

**HB 1149: Appropriations Committee (Rep. Delzer, Chairman)** recommends **DO NOT PASS** (20 YEAS, 0 NAYS, 1 ABSENT AND NOT VOTING). HB 1149 was placed on the Eleventh order on the calendar.