PART C

Direct Testimony Summary - Bernadette Johnson

Enverus, Inc. was engaged by the Staff of the Virginia State Corporation Commission and my key findings include:

1) DEV has opted to use observable market forward prices for near term commodity price forecasts. Enverus agrees that this is the most reliable approach.
2) The overall size of the portfolio of transportation assets is reasonable for the operation of the DEV fleet.
3) Flows to the generating stations did exceed DEV's firm transport capacity on numerous occasions (most notably on TCO, DTI, and DCP).
4) However, a portfolio for this purpose that never exceeded its total capacity would be deemed over-sized. The reservation fees spent on transport that often goes unutilized would be wasteful.
5) Most of DEVs generating units are exposed to Transco Zone 5 pricing. Volatility in Transco Zone 5 has been minimal in the last two winter seasons due to expansion projects like Transco's Atlantic Sunrise. However, as demand in the region continues to grow, a return to volatile pricing is always a risk. Strict attention should be paid to rightly sizing the portfolio for future growth.
6) DEV also appears to be conducting best efforts to maximize the value of the portfolio on behalf of its customers. DEV monetizes its unused portion of the portfolio according to best industry practices.

PRE-FILED TESTIMONY

OF

BERNADETTE JOHNSON

BEFORE THE

STATE CORPORATION COMMISSION OF VIRGINIA

Case No. PUR-2020-00031

MAY 13, 2020

Q1. PLEASE STATE YOUR NAME AND OCCUPATION.

A1. My name is Bernadette Johnson, and I am Vice President, Strategy and Analytics for Enverus, Inc.

Q2. PLEASE DESCRIBE YOUR BACKGROUND AND QUALIFICATIONS.

A2. I lead the Strategy and Analytics Group at Enverus, including all related consulting engagements and research efforts. Over my career in the energy industry, I have accrued extensive experience providing crude and natural gas fundamentals analysis and advisory services to various players in North American and global energy markets. My specific market experience spans: financial trading, production forecast and reserve analysis, infrastructure analysis, processing/gathering/refining analysis, storage valuation, and regional and benchmark price forecasting. My research and analysis has been utilized by numerous entities in the energy space for evaluating investments and specific transactions. Our client list includes several Fortune 500 companies, and our research was referenced and cited in the EIA Quadrennial Energy Review. I joined Enverus

through the acquisition of products and services from Ponderosa Advisors in November 2016. As a founding partner at Ponderosa Advisors, I led the Energy Analytics team and was responsible for all related consulting engagements and market research efforts. Prior to joining Ponderosa Advisors, I was a Senior Research Analyst for Sasco Energy Partners in Westport, CT. In this role, I provided and managed fundamentals research for a team of financial traders active in natural gas, power, and oil futures markets. I began my career at Bentek Energy, as a 'Senior Energy Analyst, Natural Gas Market Fundamentals' and consulting project team lead. I hold a MS Degree in International Political Economy of Resources, and a BS Degree in Economics from the Colorado School of Mines.

Q3. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A3. Enverus was engaged by the Staff of the Virginia State Corporation Commission to:

1) Review the initial data and the Application of Dominion Energy Virginia ("DEV") to revise its fuel factor.
2) Review DEV's monthly commodity prices forecasts contained in the Application on Schedule 1 of Company Witness Thomas; and compare and contrast Enverus' commodity price forecasts with DEV's.
3) Perform an analysis of whether the level of upstream gas pipeline capacity procured by DEV is justified based on its existing natural gas-fired generating fleet.
4) Evaluate DEV's procedures for monetizing the unused portion of its natural gas pipeline capacity portfolio on days when the system is not constrained.

Q4. PLEASE PROVIDE A SUMMARY OF YOUR FINDINGS.

A4. Enverus' conclusions include the following:

1) DEV has opted to use observable market forward prices for near term commodity price forecasts. Enverus agrees that this is the most reliable approach.
2) The overall size of the portfolio of transportation assets is reasonable for the operation of the DEV fleet.
3) Flows to the generating stations did exceed DEV's firm transport capacity on numerous occasions (most notably on TCO, DTI, and DCP).
4) However, a portfolio for this purpose that never exceeded its total capacity would be deemed over-sized. The reservation fees spent on transport that often goes unutilized would be wasteful.
5) Most of DEVs generating units are exposed to Transco Zone 5 pricing. Volatility in Transco Zone 5 has been minimal in the last two winter seasons due to expansion projects like Transco's Atlantic Sunrise. However, as demand in the region continues to grow, a return to volatile pricing is always a risk. Strict attention should be paid to rightly sizing the portfolio for future growth.
6) DEV also appears to be conducting best efforts to maximize the value of the portfolio on behalf of its customers. DEV monetizes its unused portion of the portfolio according to best industry practices.

Q5. PLEASE IDENTIFY THE SCHEDULES ATTACHED TO YOUR TESTIMONY.

A5. The following schedule is attached to my testimony as Attachment BJ-1 in both public and confidential versions:

- SUMMARY REPORT & FINDINGS - Case No. PUR-2020-00031 – Virginia Electric and Power Company Fuel Factor

My testimony will sponsor and support the report in its entirety.

Q6. DOES THIS CONCLUDE YOUR TESTIMONY?

A6. Yes.

PUBLIC VERSION

SUMMARY REPORT & FINDINGS Case No. PUR-2020-00031 – Virginia Electric and Power Company Fuel Factor

Written for: VA SCC | May 2020

Prepared by: Bernadette Johnson,
VP Strategy and Analytics

Introduction 02

Macro View of Infrastructure 04

Commodity Price Forecasts 14

Summary of DEV Generation Assets 32

Assessment of Transportation Portfolio 37

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Introduction

The findings contained in this report are presented in accordance with the Statement of Work (SOW) #SCC-20-008-PUR, between the State Corporation Commission ("SCC") and Enverus (formerly DrillingInfo, Inc.)

Enverus performed the following (but not limited to):

- Review the initial data and the Application of Dominion Energy Virginia ("DEV" or the "Company") to revise its fuel factor.
- Review DEV's monthly commodity prices forecasts contained in the Application on Schedule 1 of Company Witness Thomas; and compare and contrast Enverus' commodity price forecasts with DEV's.
- Perform an analysis of whether the level of upstream gas pipeline capacity procured by DEV is justified based on its existing natural gas-fired generating fleet.
- Evaluate DEV's procedures for monetizing the unused portion of its natural gas pipeline capacity portfolio on days when the system is not constrained.

The findings of this report are the result of thoroughly analyzing publicly available data as well as review of the various discovery inquiries submitted to DEV by Staff and Environmental Respondents.

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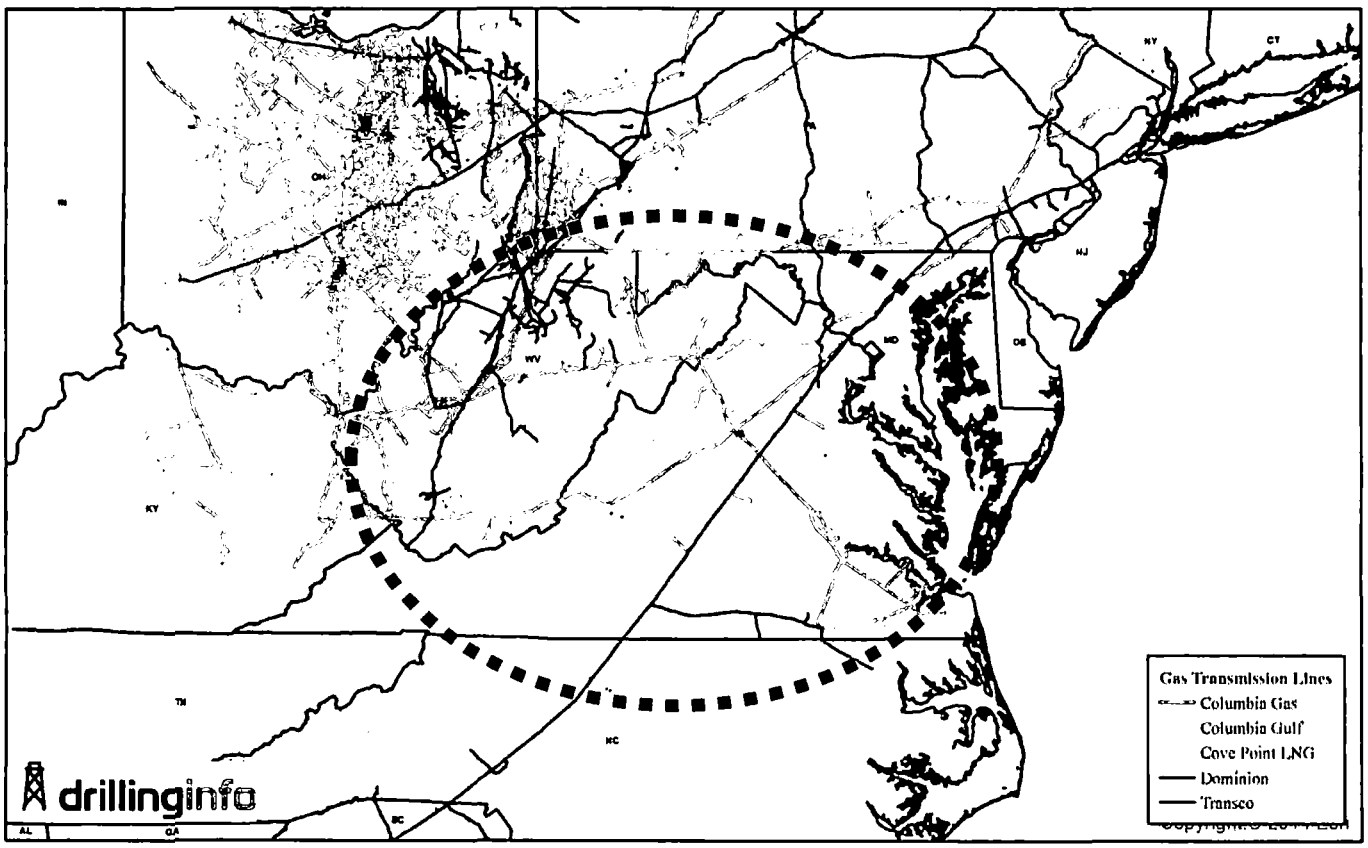
Macro View of Infrastructure

This section of the report is presented in order to offer contextual understanding of the physical infrastructure in and around DEV's service territory.

Natural Gas Pipelines

Four (4) interstate pipelines serve DEV's territory in the state of Virginia

- Transcontinental Pipeline (Transco)
- Dominion Transmission (DTI)
- Columbia Gas Transmission (TCO)
- Dominion Cove Point Pipeline (DCP)

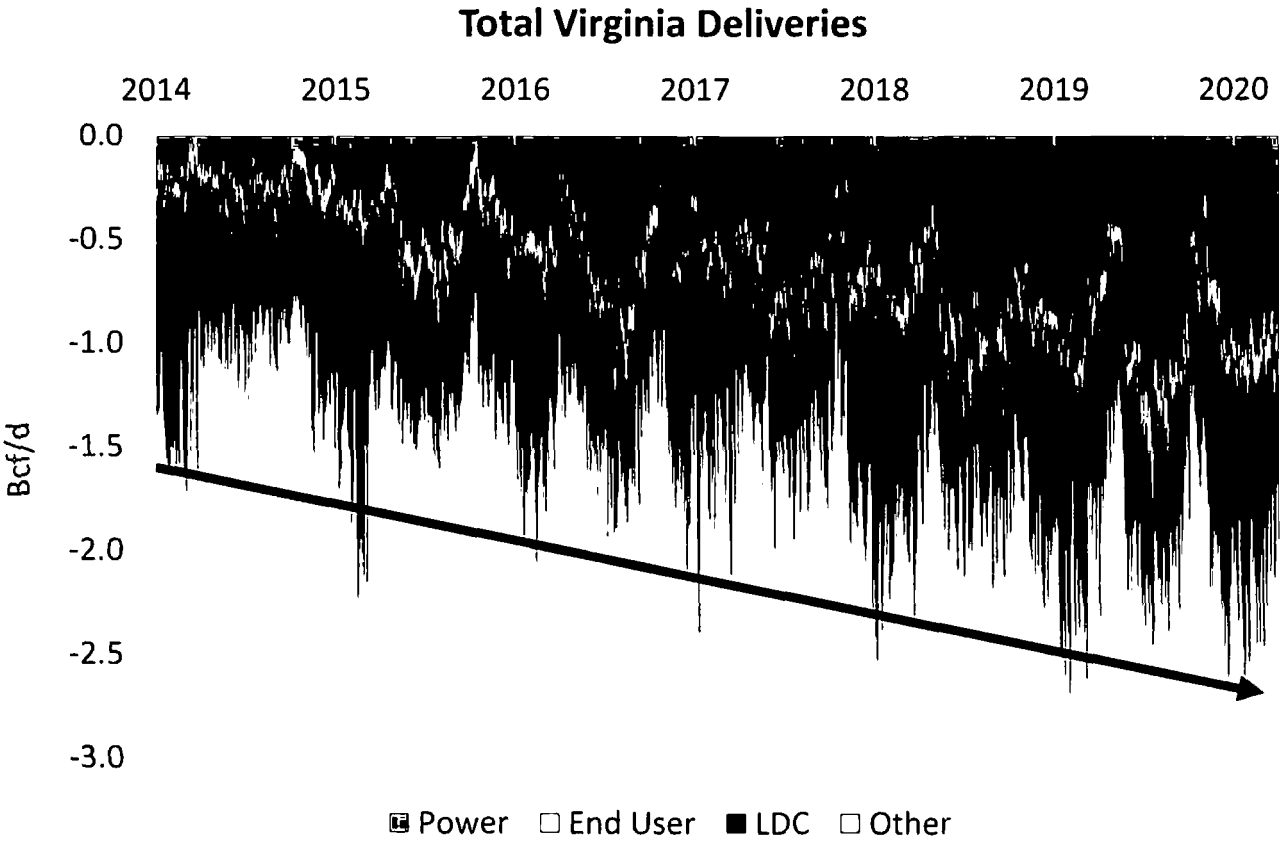


Macro View of Infrastructure

Natural gas deliveries into the state of Virginia have grown by nearly 1 Bcf/d since 2014.

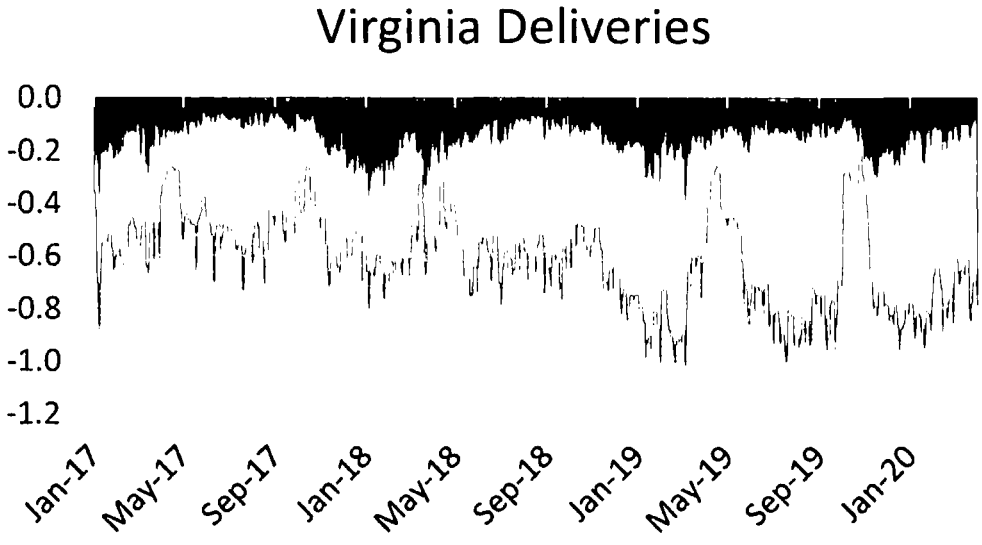
- Power generation demand is an important destination for gas heading to Virginia, representing 48% of consumption in 2019.
- Natural gas also finds a home with Local Distribution Company (LDC) Citygates for residential and commercial customers and industrial end users.

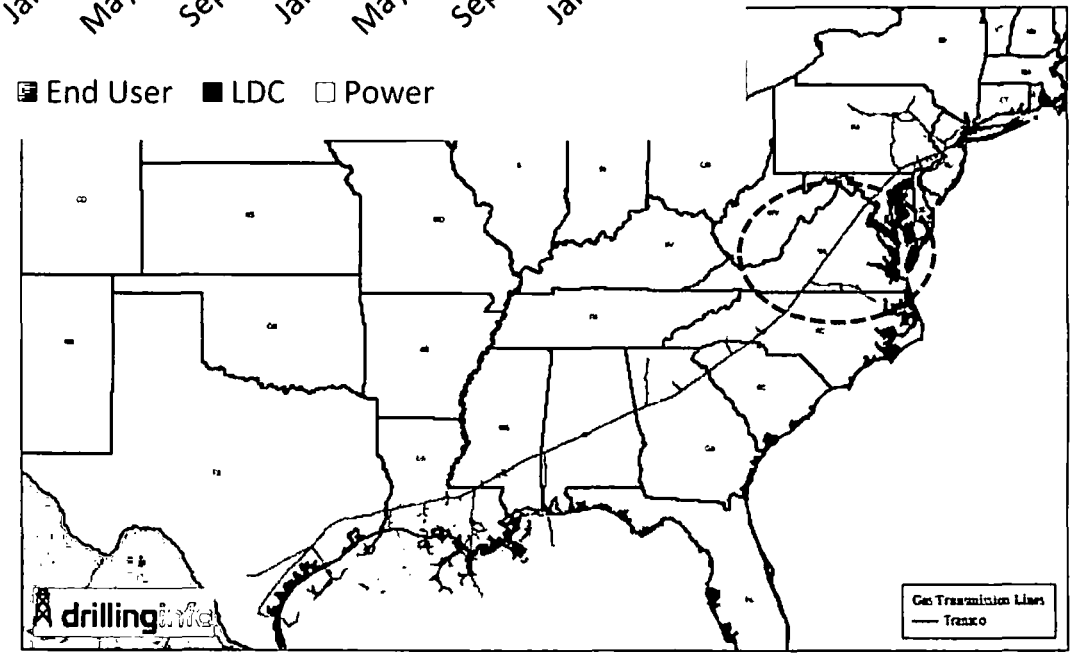
Note: throughout this report, negative volumes on charts represent pipeline deliveries.



Transcontinental Gas Pipeline Co. ("Transco")

- Transco receives gas in the Marcellus region and ships it south to MidAtlantic demand markets.
- In Virginia, Transco primarily delivers to Power Plants and LDCs.
- Deliveries into Virginia grew as Transco expanded its pipeline with the Atlantic Sunrise project, increasing capacity on the pipeline from the Marcellus region and shipping gas south.
- Power Plant deliveries represented ~74% of the average 2019 consumption, the remaining 23% went to LDC Citygates (for Residential/Commercial demand). The remaining went to other end users.

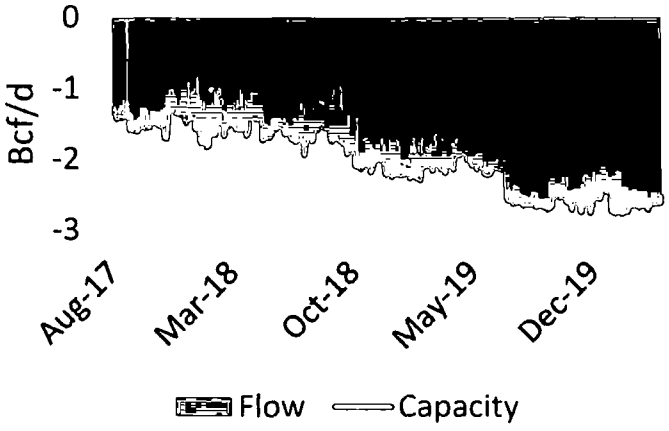




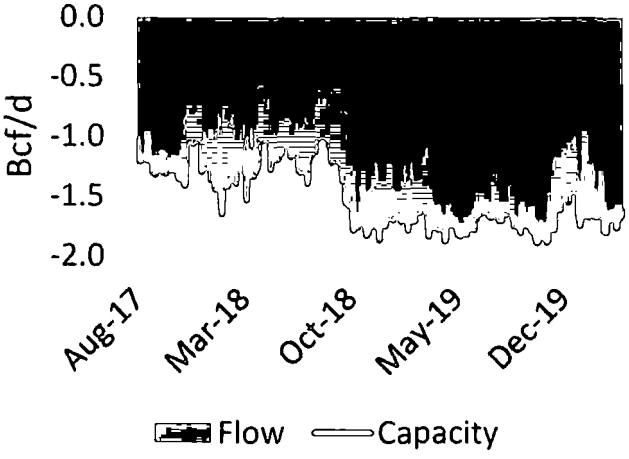
Transcontinental Gas Pipeline Co. ("Transco")

- Transco historically flowed south to north. However, with supply growth in the Marcellus region, flows reversed. Transco expanded out of the Marcellus region in late 2018 with the Atlantic Sunrise project, adding additional flows on the pipeline out of Pennsylvania into southern states.

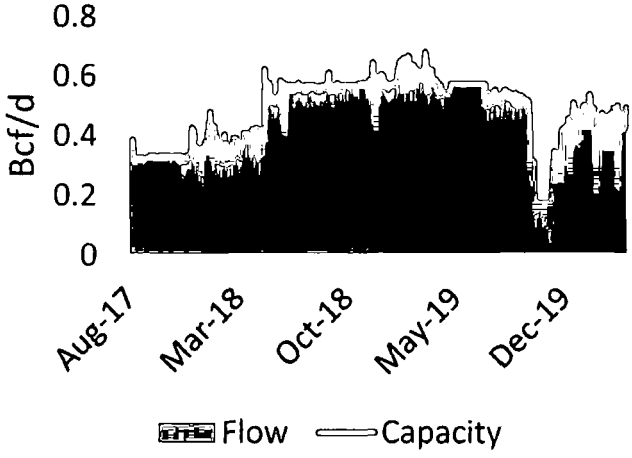
Flows MD to VA



Flows VA to NC (CS 160)

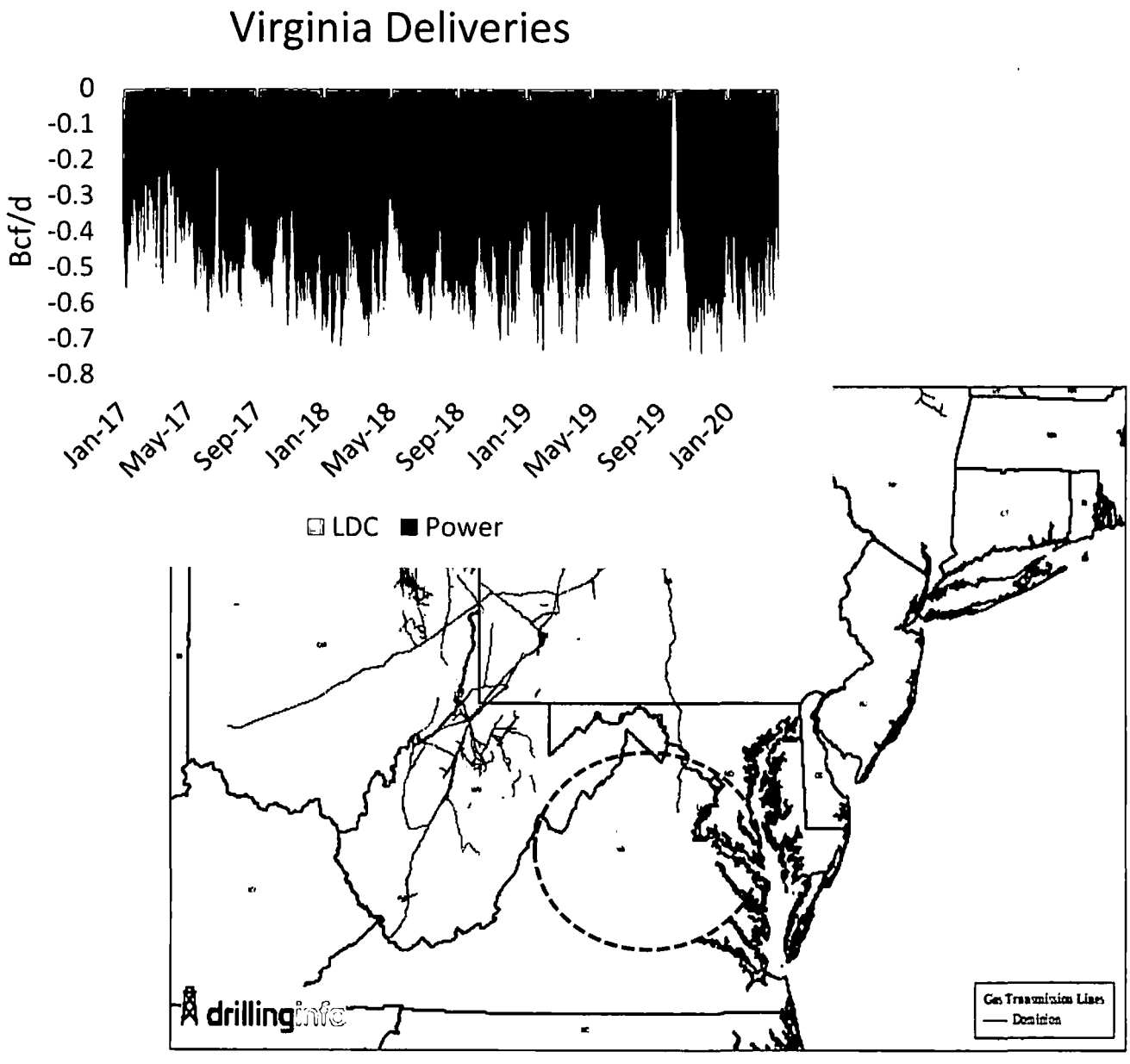


VA Lateral



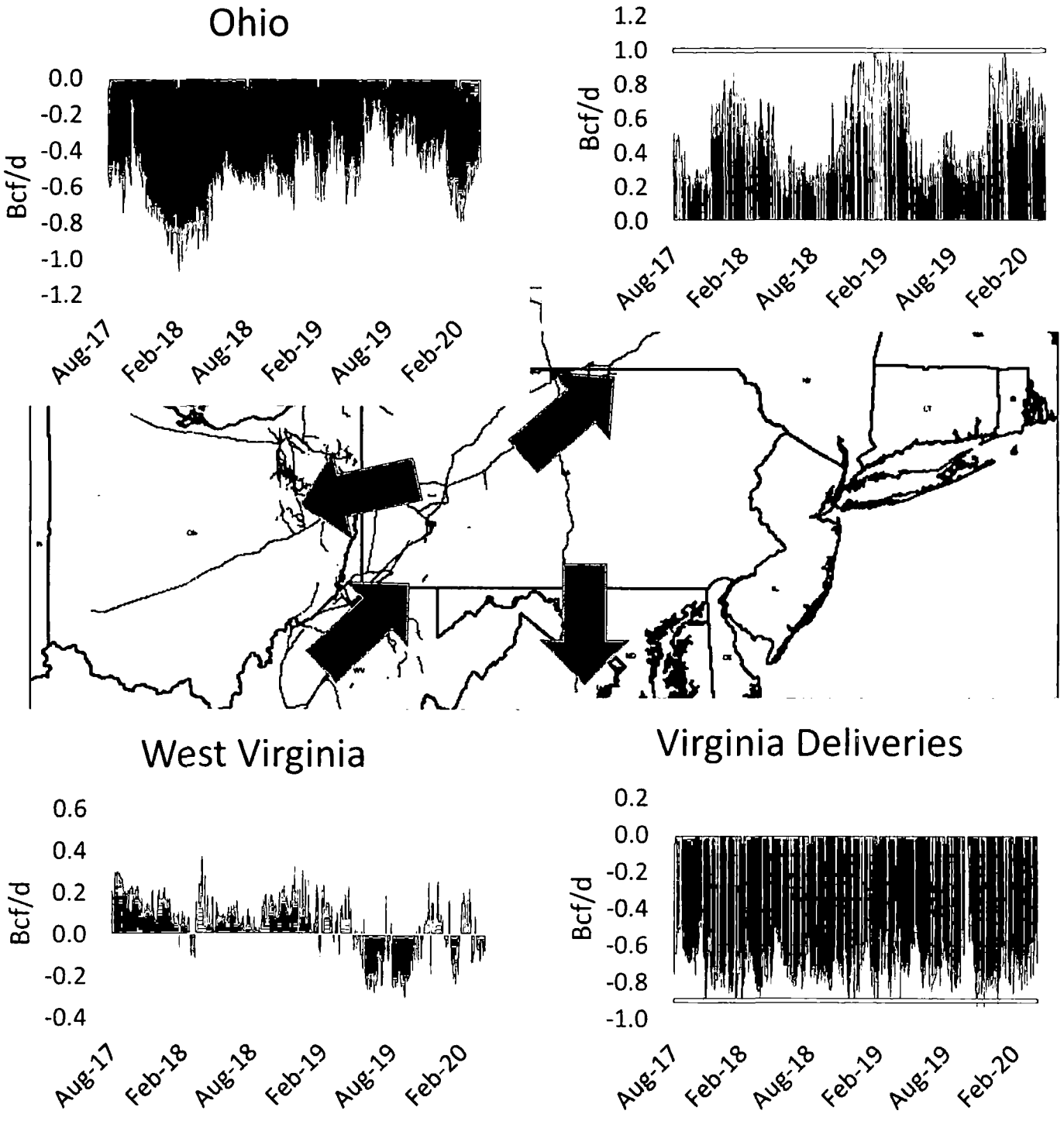
Dominion Gas Transmission ("DTI")

- DTI receives most of its gas in Pennsylvania and makes deliveries to final destinations in NY, OH and VA.
- In Virginia, DTI delivers to LDCs and Power Plants.
- Power Plant deliveries represented 59% of the average 2019 consumption, while the remainder, 41%, went to LDC Citygates (for Residential / Commercial demand).



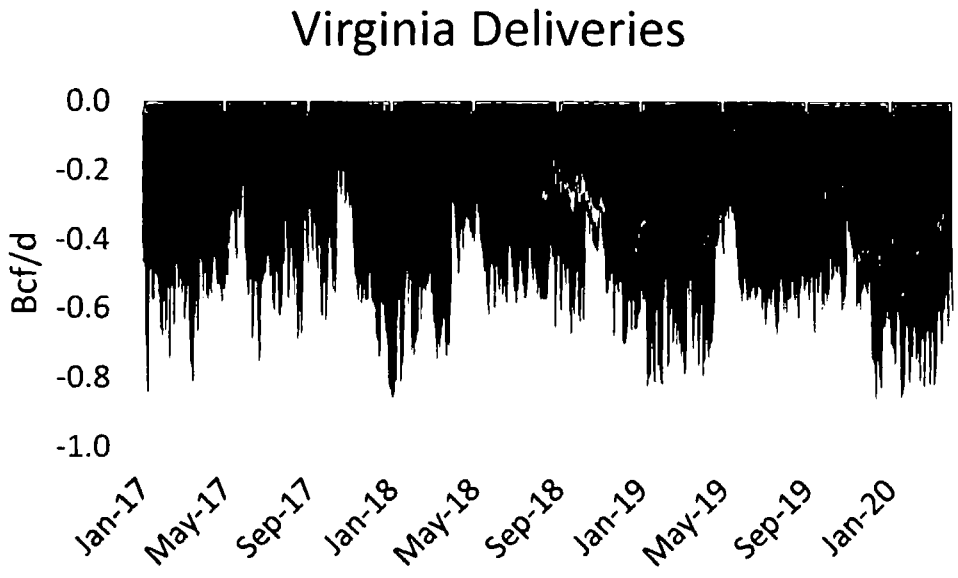
Dominion Gas Transmission ("DTI")

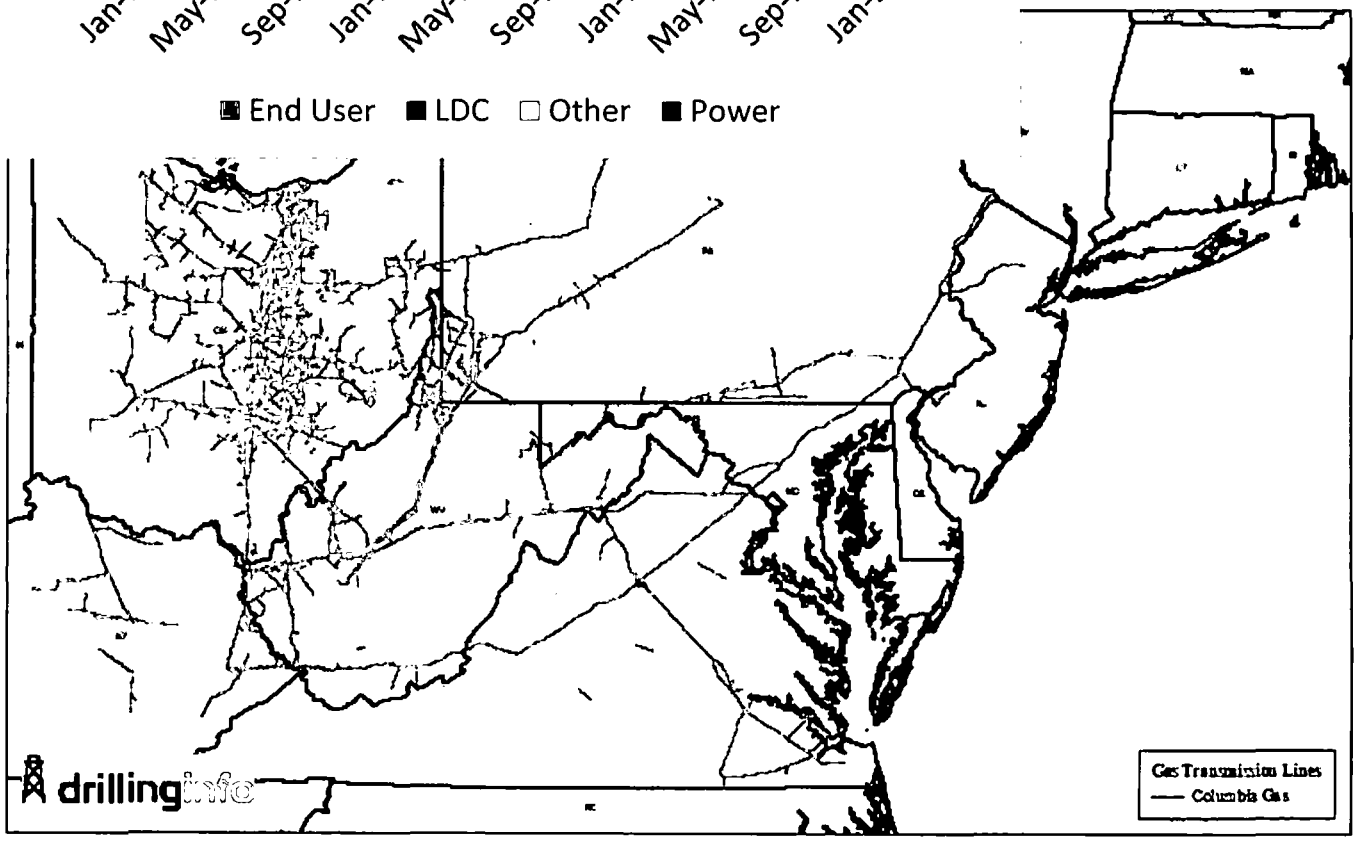
- While West Virginia bounces between a receipt and a delivery on DTI, markets in New York and Virginia reach capacity, with Virginia regularly near capacity.



Columbia Gas Pipeline ("TCO")

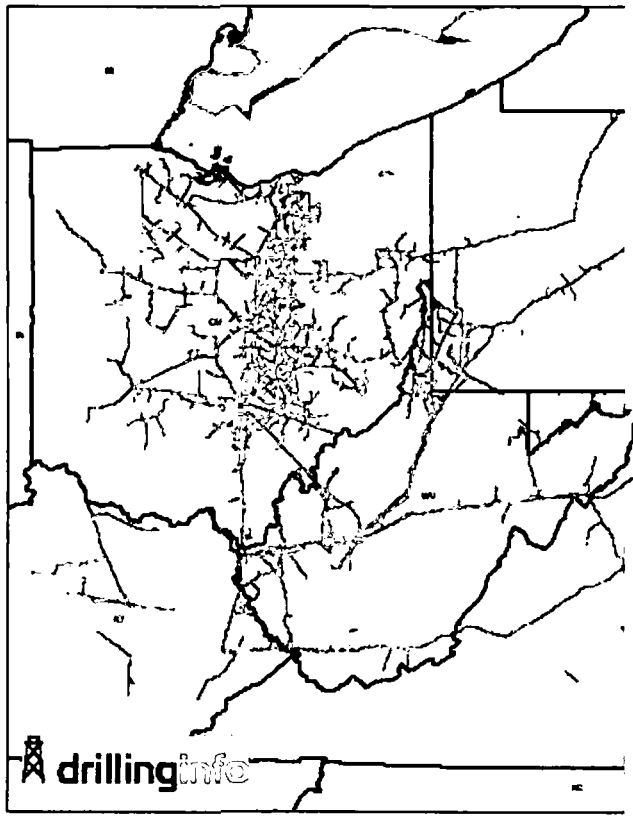
- Virginia is a key destination market for TCO with more than 0.8 Bcf/d of gas delivered in the state of VA for consumption.
- In 2019, 43% of total consumption went to LDC Citygates (for Residential/Commercial demand), 38% to Power Plants, and 17% to other end users.

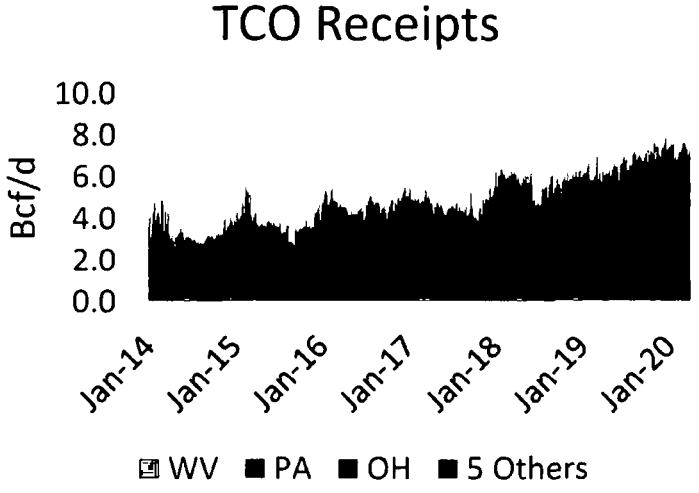


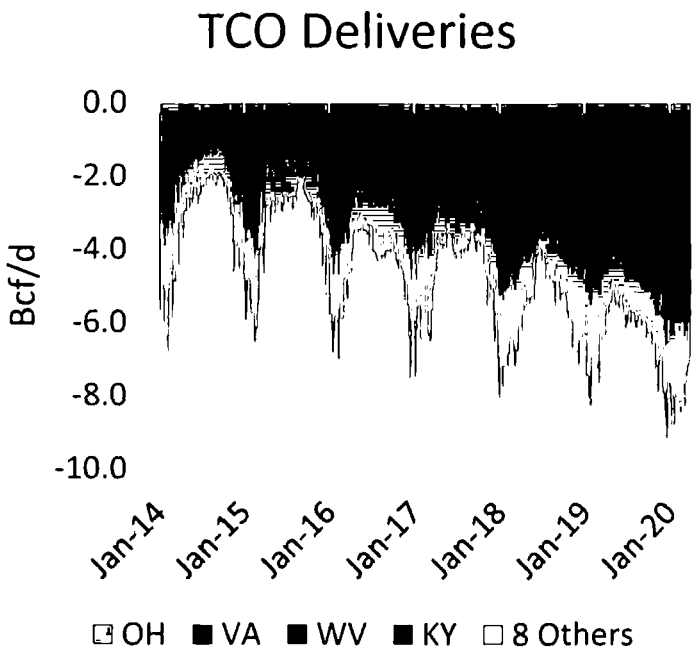


Columbia Gas Pipeline ("TCO")

- Gas supply on TCO has changed drastically as the Marcellus/Utica basin emerged.
- Traditionally, most gas was sourced from the interconnection at Leach with sister pipeline Columbia Gulf.
- However, as northeast production has continued to grow, receipts on TCO have about doubled from ~3.3 Bcf/d in 2014 to ~6.5 Bcf/d in 2019.

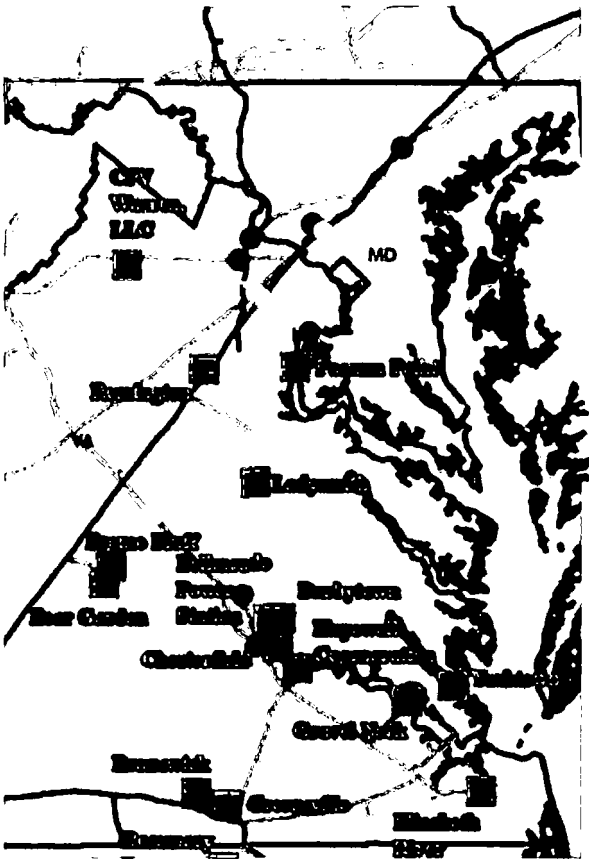


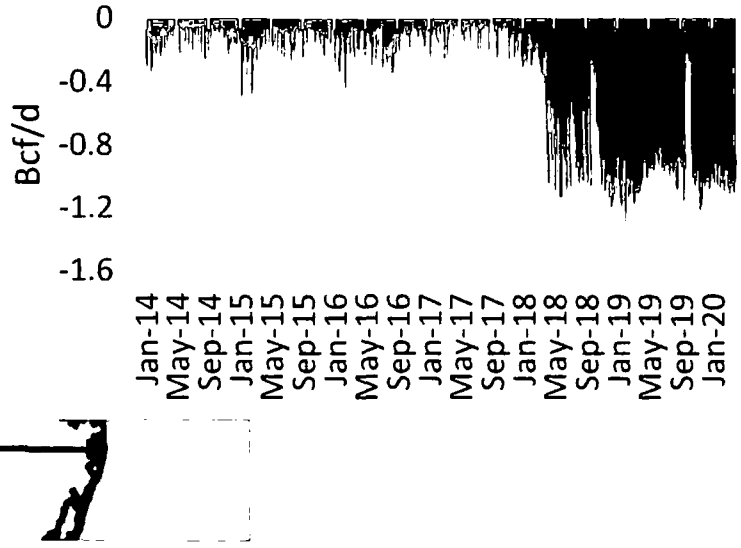


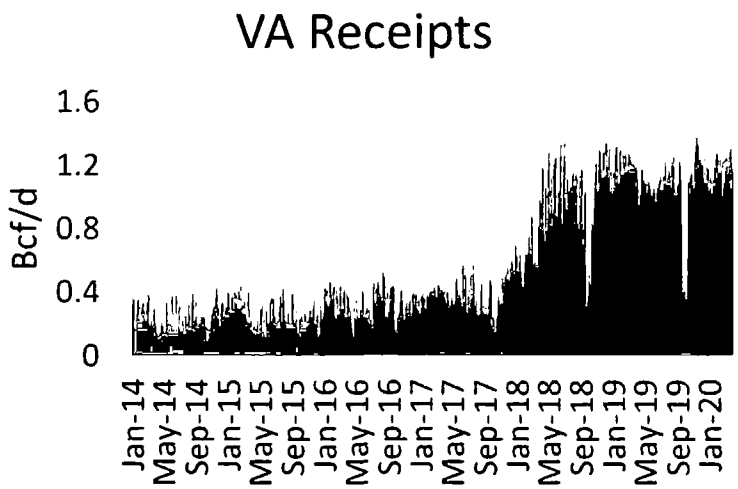


Dominion Cove Point Pipeline ("DCP")

- Activity has increased on DCP as the Cove Point LNG Export Terminal came online in 2018.







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Discussion of Commodity Price Forecasts

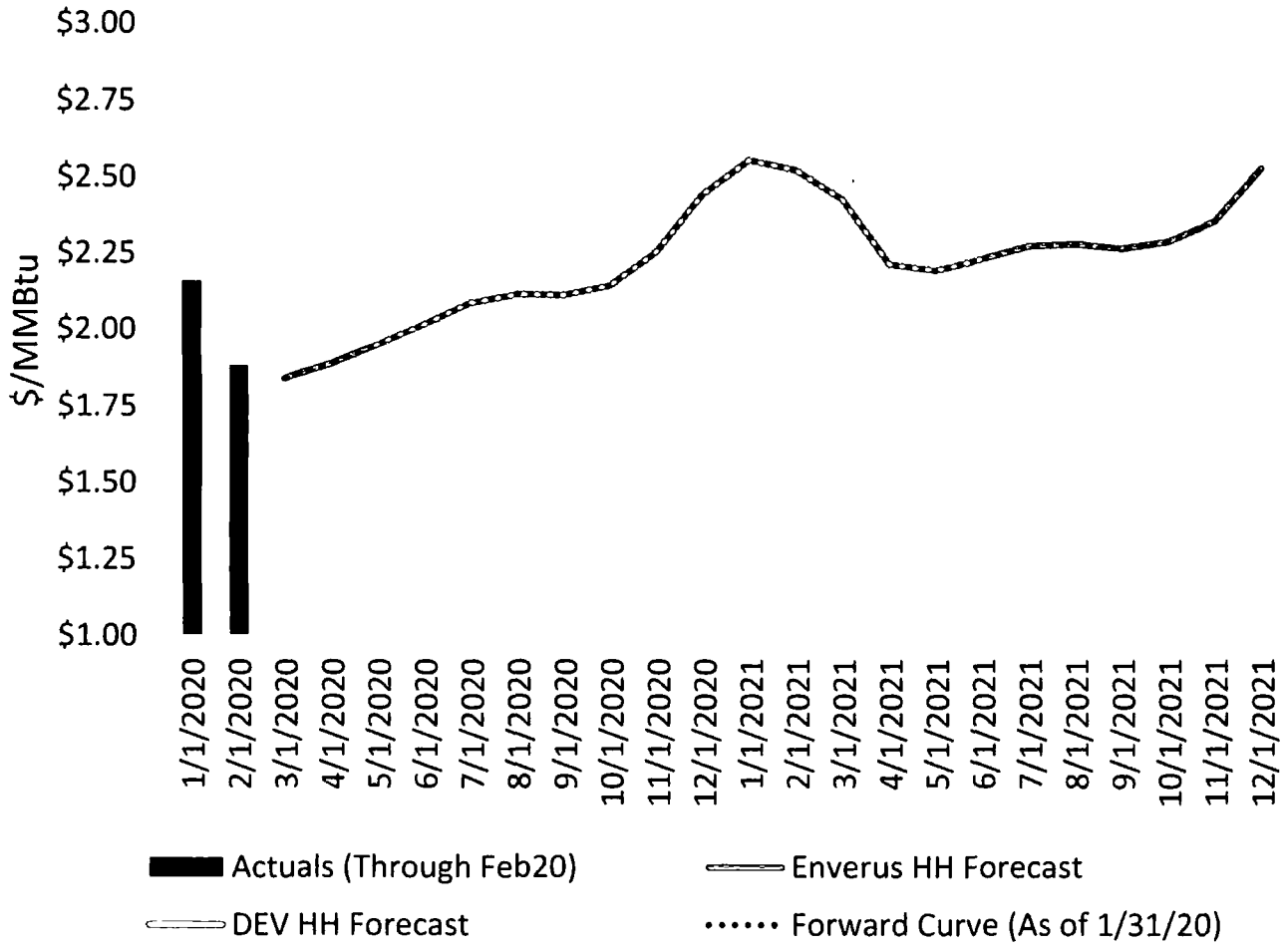
- In the Direct Testimony of Robert G. Thomas, filed with DEV's Application to revise its Fuel Factor, the Company describes its overall process for projecting commodity prices as relying on observable market data.
- Specifically, Mr. Thomas states "The availability and transparency of forward commodity markets over the last several years have eliminated the need to produce forecasts for short-term time horizons."
- Enverus agrees with this approach and practices it regularly across our entire consulting client base.
- A forward price forecast by its very nature is intended to amalgamate all available information, from a given moment in time, into a set of predicted prices that represent a 50% probability of being higher or lower.
- Furthermore, the advantage of observable market forecasts is that it essentially is leveraging the power of crowd-sourcing. Because it represents a survey of all market participants, the analysis and views of multiple different entities is inherently represented within it.
- Finally, because of the practice of mark to market accounting, there are tangible daily financial ramifications for the participants in these market surveys. Therefore, they are naturally resistant to a single analyst outlier viewpoint.
- Because Enverus follows the same philosophy as the Company, and in many cases uses the same market survey sources, the Enverus price forecasts agree with the Company's.
- In the few cases where a different, but equally reputable, source is used, the differences are small and reasonable. This is caused by surveying slightly different collections of market participants.

Discussion of Commodity Price Forecasts (continued)

- One additional observation to be noted regarding commodity price forecasts is the timing of the forecasts.
- Throughout the Application, the Company correctly points out that the primary reason the projected system fuel expense is lower than that in the 2019 Fuel Factor Case is the commodity price forecast.
- In her testimony filed with the application, Katherine Farmer presents data that shows the decline across commodity prices between 03/28/2019 (for the 2019 case) and 01/31/2020 (for the 2020 case).
- Enverus agrees with the data as presented and agrees that it is most notable in natural gas and power prices which have decreased on the order of 20-25% between the dates chosen.
- However, since January 31, 2020, near-term prices have collapsed even further. This is the result of two macro factors: (a) global demand destruction from social distancing mandates designed to combat the global COVID-19 pandemic; and (b) the battle for oil market share amongst OPEC+ nations (specifically Saudi Arabia and Russia).
- These events are having particularly unique effects on the natural gas markets (and by proxy on power markets as well).
- The first part of the Fuel Factor period (thru October 2020) is experiencing further depressed prices due to the demand destruction.
- However, the November 2020 – March 2021 (winter) period, and beyond, is experiencing rapidly rising forward prices. The main driver is the collapse in oil prices will eventually result in lower oil production and therefore a significant decline in associated gas that is produced at crude oil wells. This is expected to leave the natural gas market in short supply this coming winter.
- With that in mind, Enverus also acknowledges the Fuel Factor is designed to be recalculated every year with a new application. This allows for realistic administration around such volatility.
- As such, Enverus agrees with the Company's commodity price forecasts as presented.

Price Forecast: Henry Hub

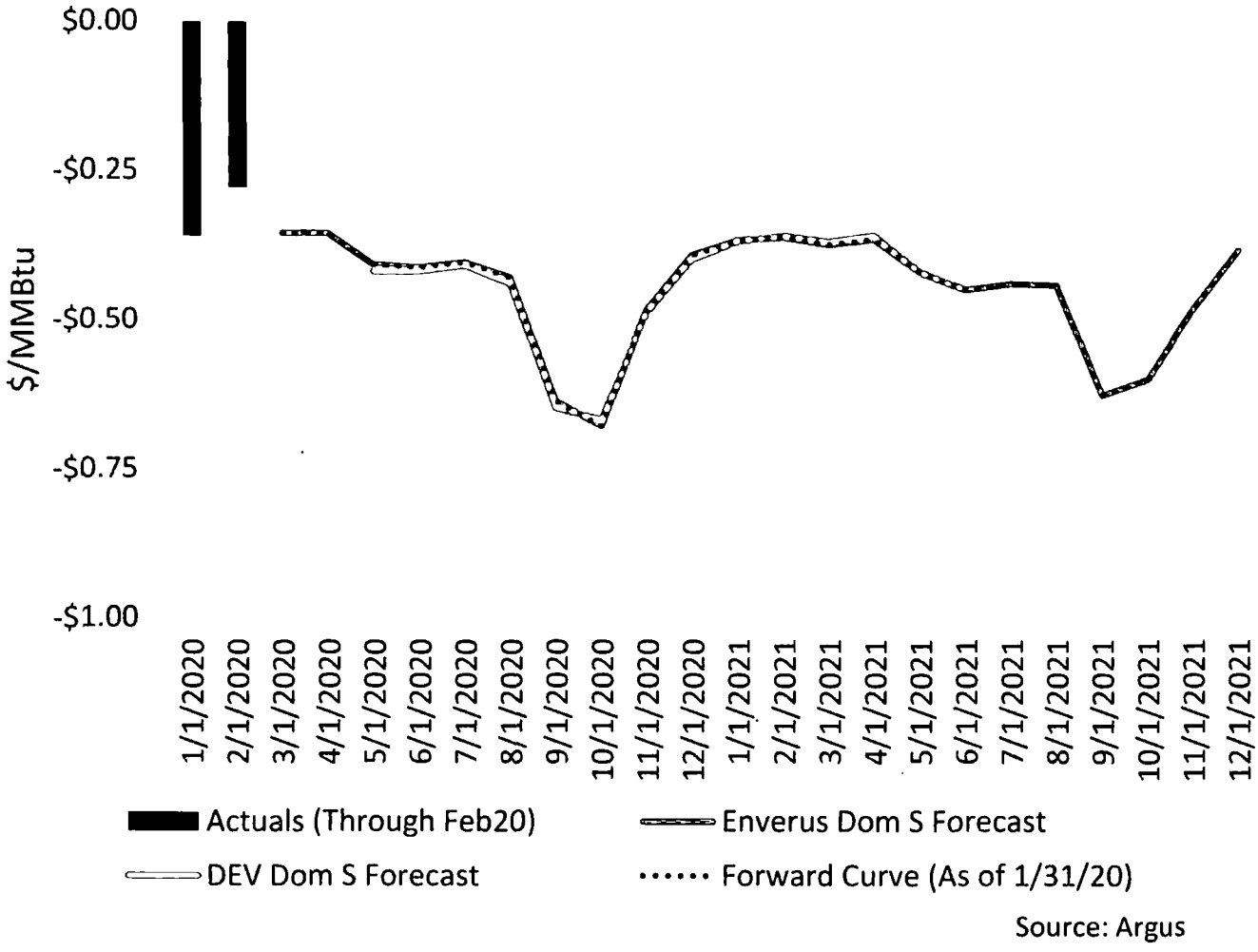
- Enverus and DEV use the NYMEX forward curve as of 1/31/2020.



Source: NYMEX

Price Forecast: Dominion South Basis

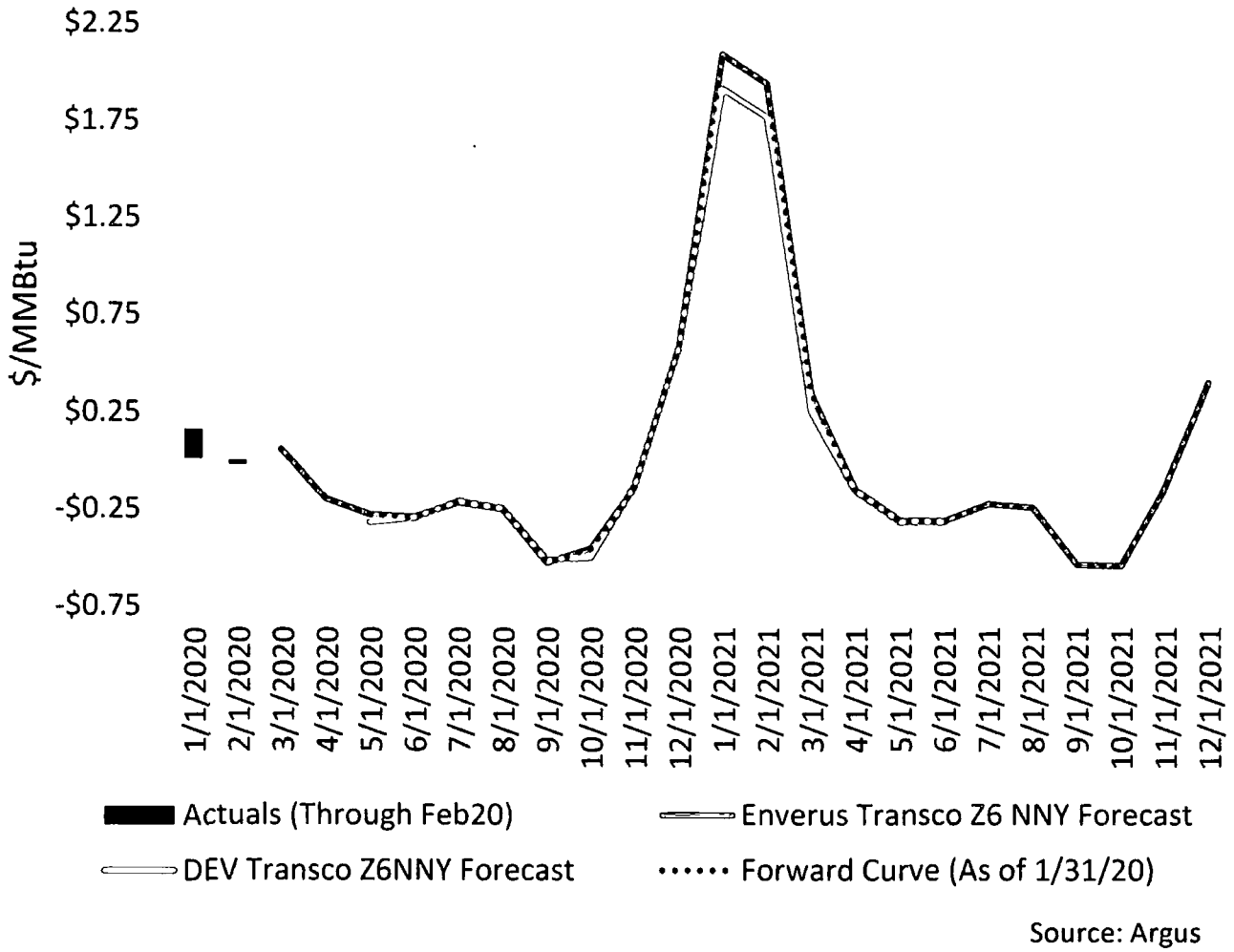
- Enverus uses Argus as its source for natural gas basis assessments while the Company uses ICE. This results in slight but negligible differences.



Source: Argus

Price Forecast: Transco Zone 6 NNY Basis

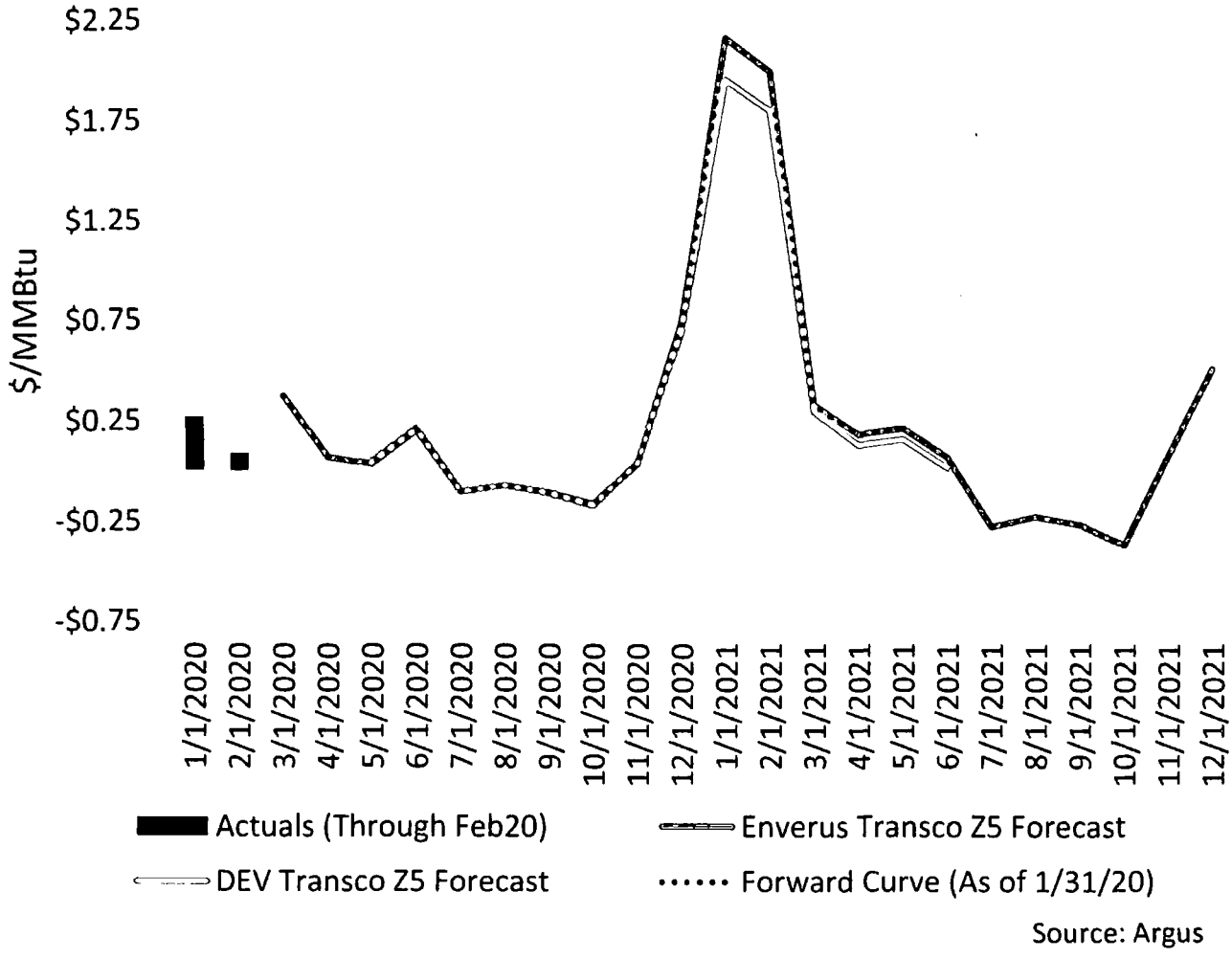
- Enverus uses Argus as its source for natural gas basis assessments while the Company uses ICE. This results in slight but negligible differences.



Source: Argus

Price Forecast: Transco Zone 5 Basis

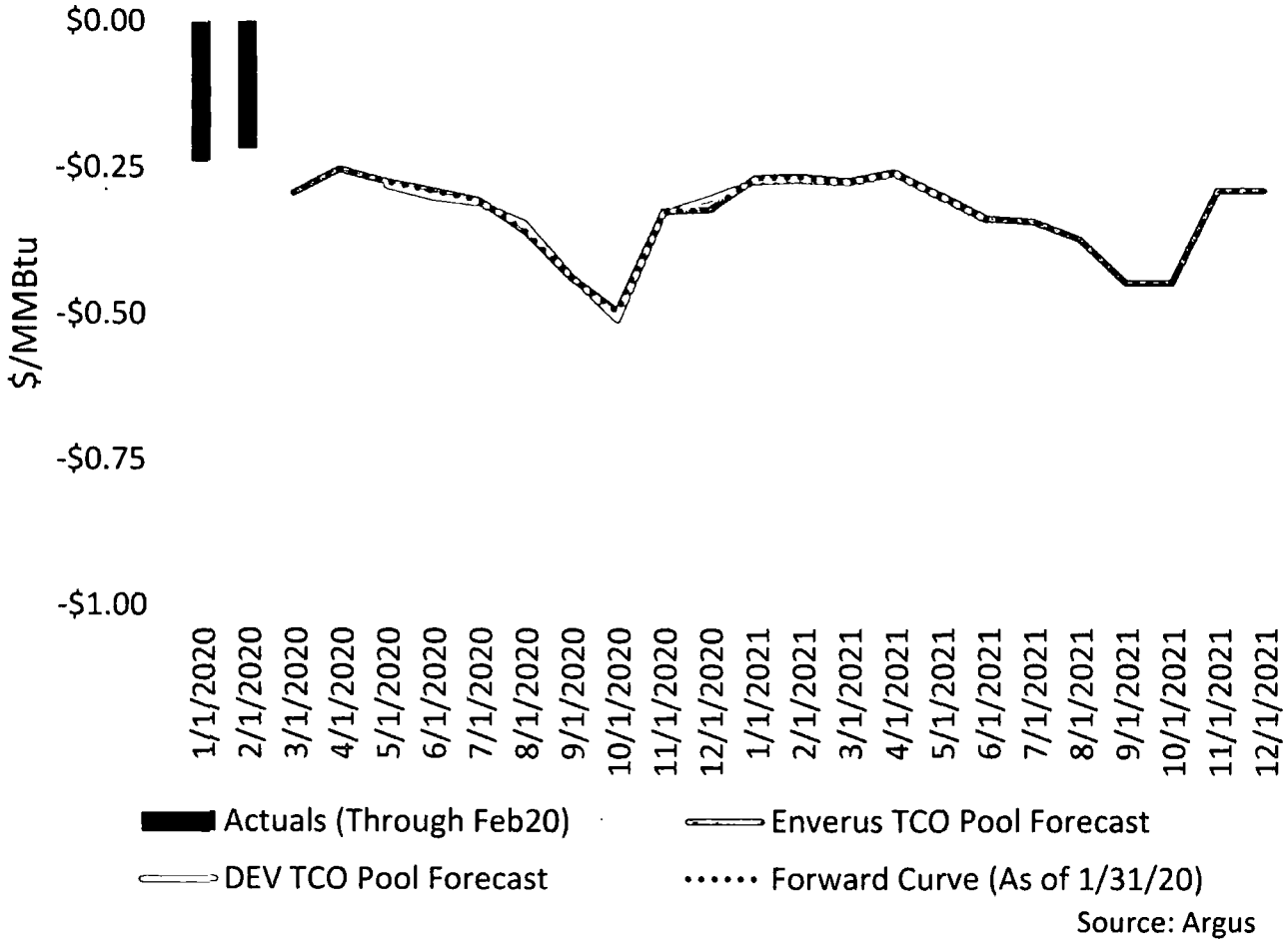
- Enverus uses Argus as its source for natural gas basis assessments while the Company uses ICE. This results in slight but negligible differences.



Source: Argus

Price Forecast: TCO Pool Basis

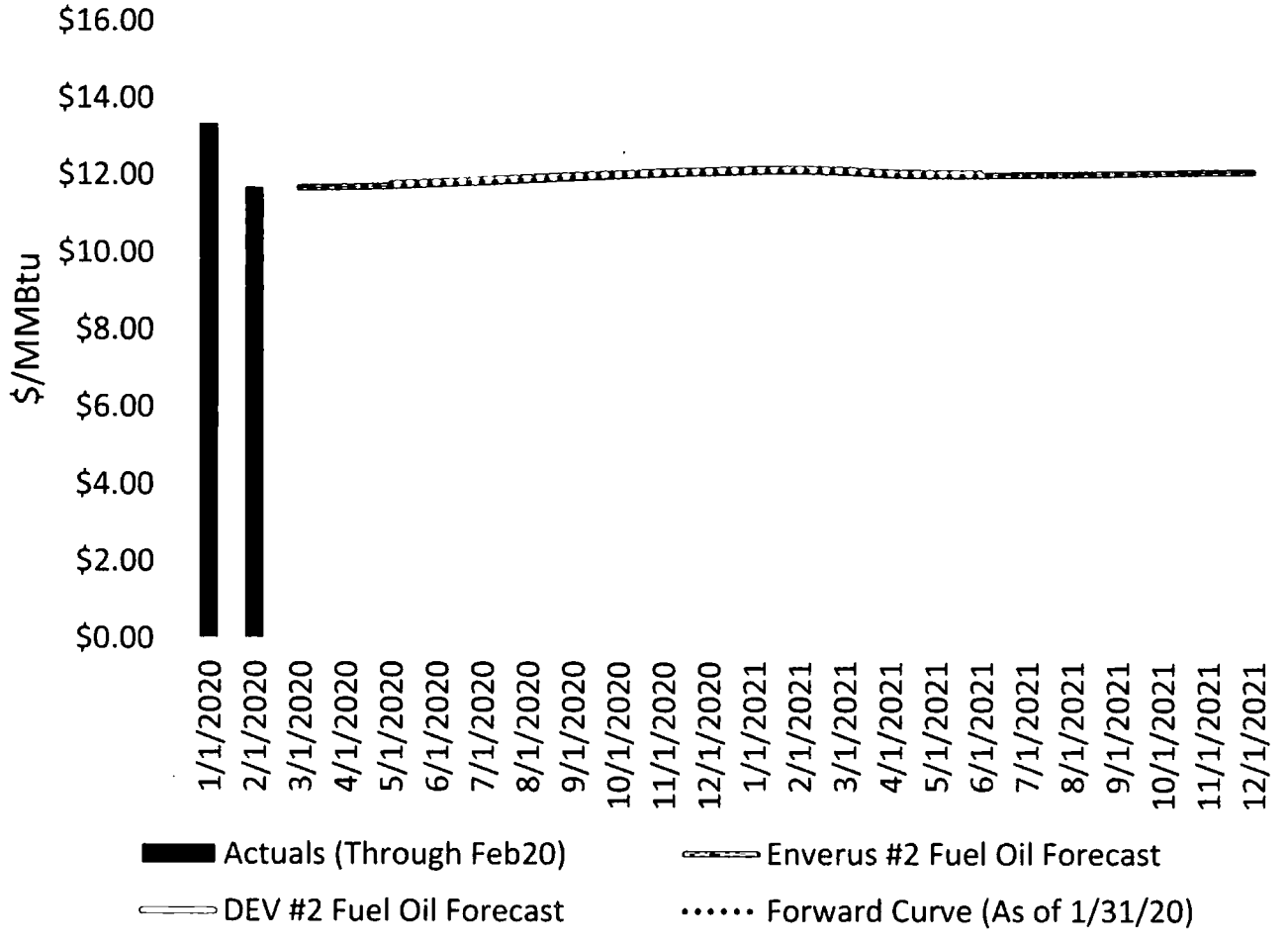
- Enverus uses Argus as its source for natural gas basis assessments while the Company uses ICE. This results in slight but negligible differences.



Source: Argus

Price Forecast: #2 Fuel Oil

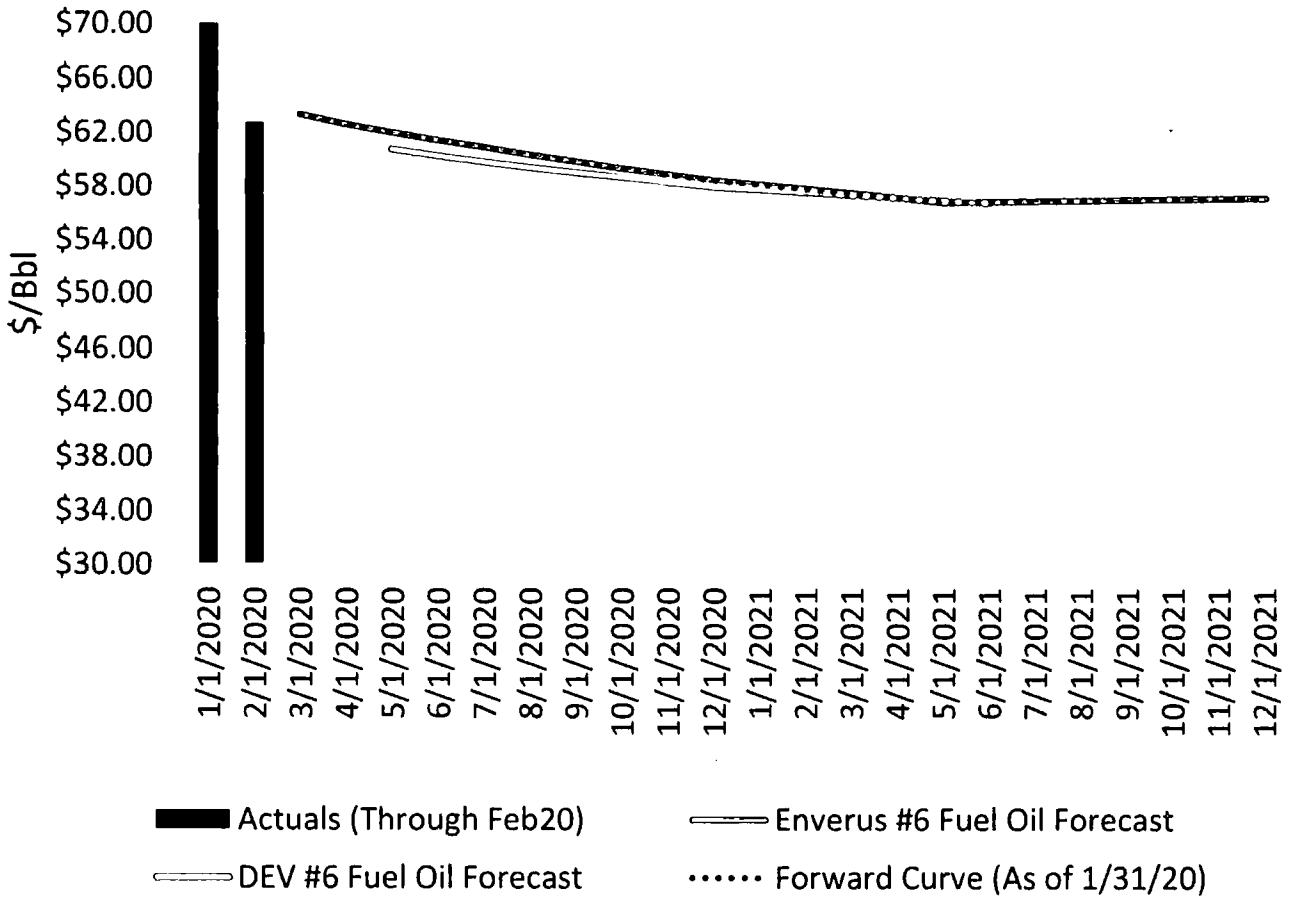
- Enverus and DEV both use the NYMEX forward curve as of 1/31/2020 to forecast #2 Fuel Oil prices.



Source: NYMEX NY Harbor ULSD

Price Forecast: #6 Fuel Oil

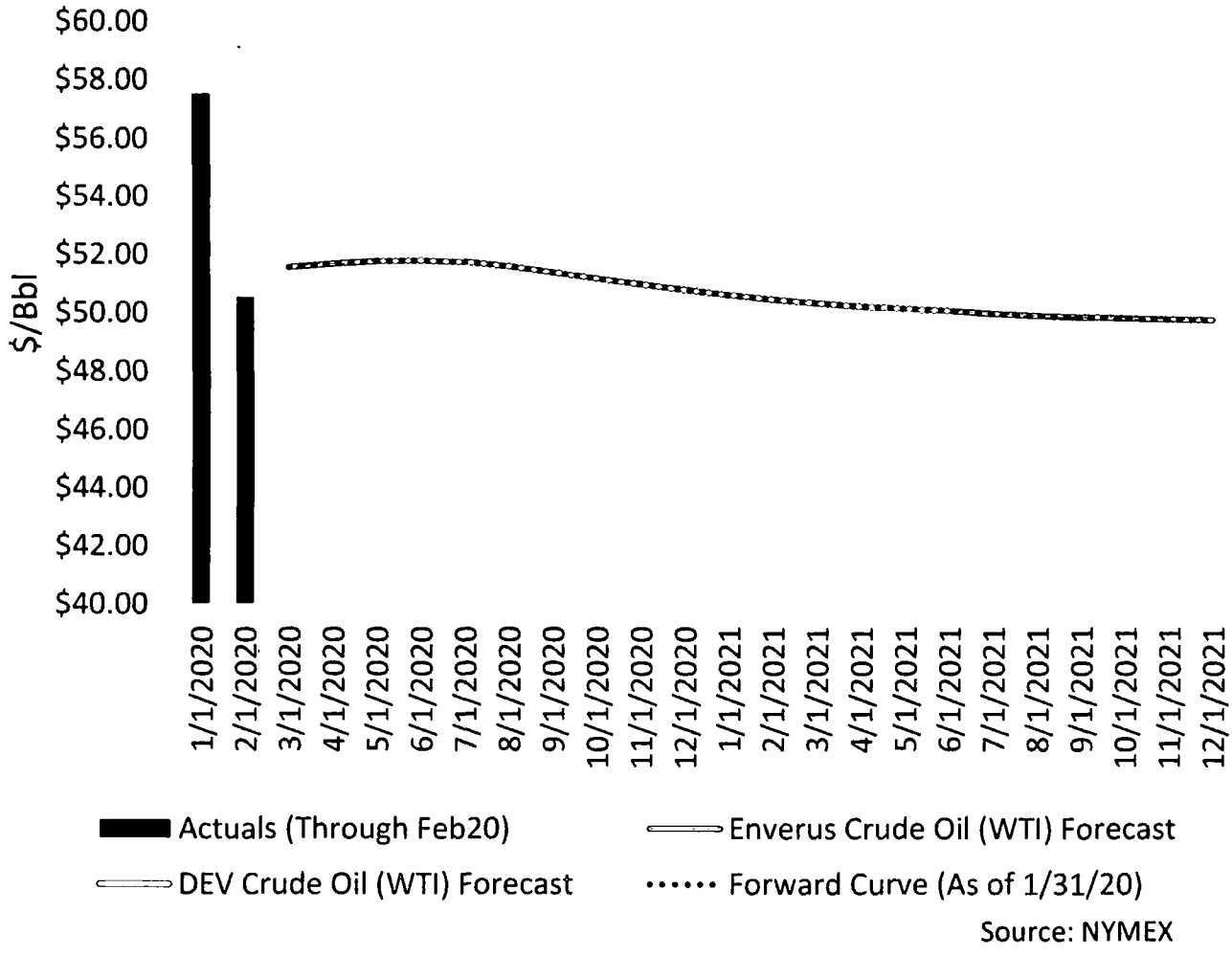
- Enverus uses ICE 1% NYH Cg Fuel Oil Futures as of 1/31/2020.
- DEV uses Starfuels, Inc.
- Differences are negligible.



Source: ICE 1% NYH Cg Fuel Oil Futures - Monthly

Price Forecast: Crude Oil (WTI)

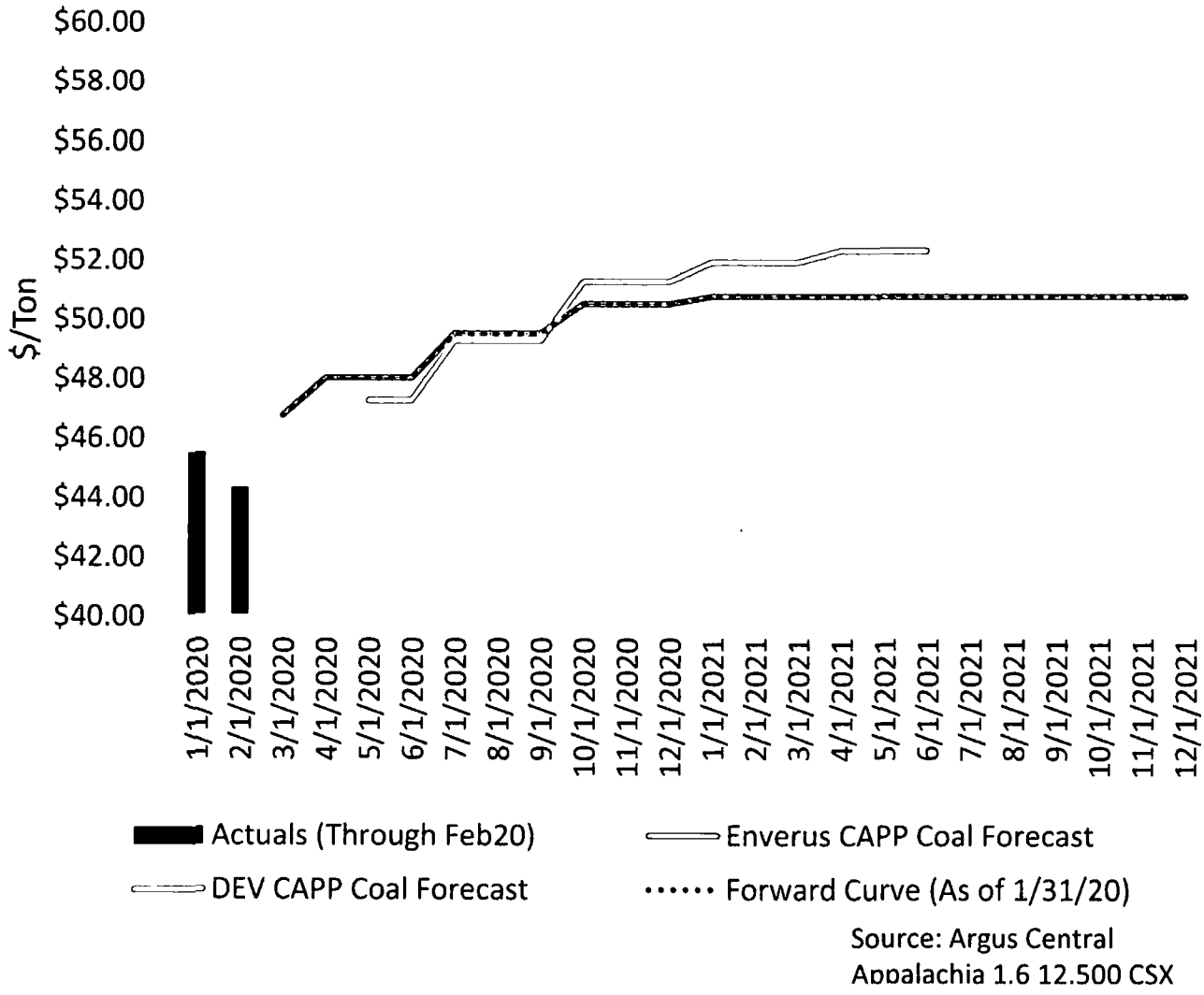
- Enverus and DEV both use the NYMEX forward curve as of 1/31/2020 to forecast Crude Oil (WTI) prices.



Source: NYMEX

Price Forecast: Central Appalachia Coal

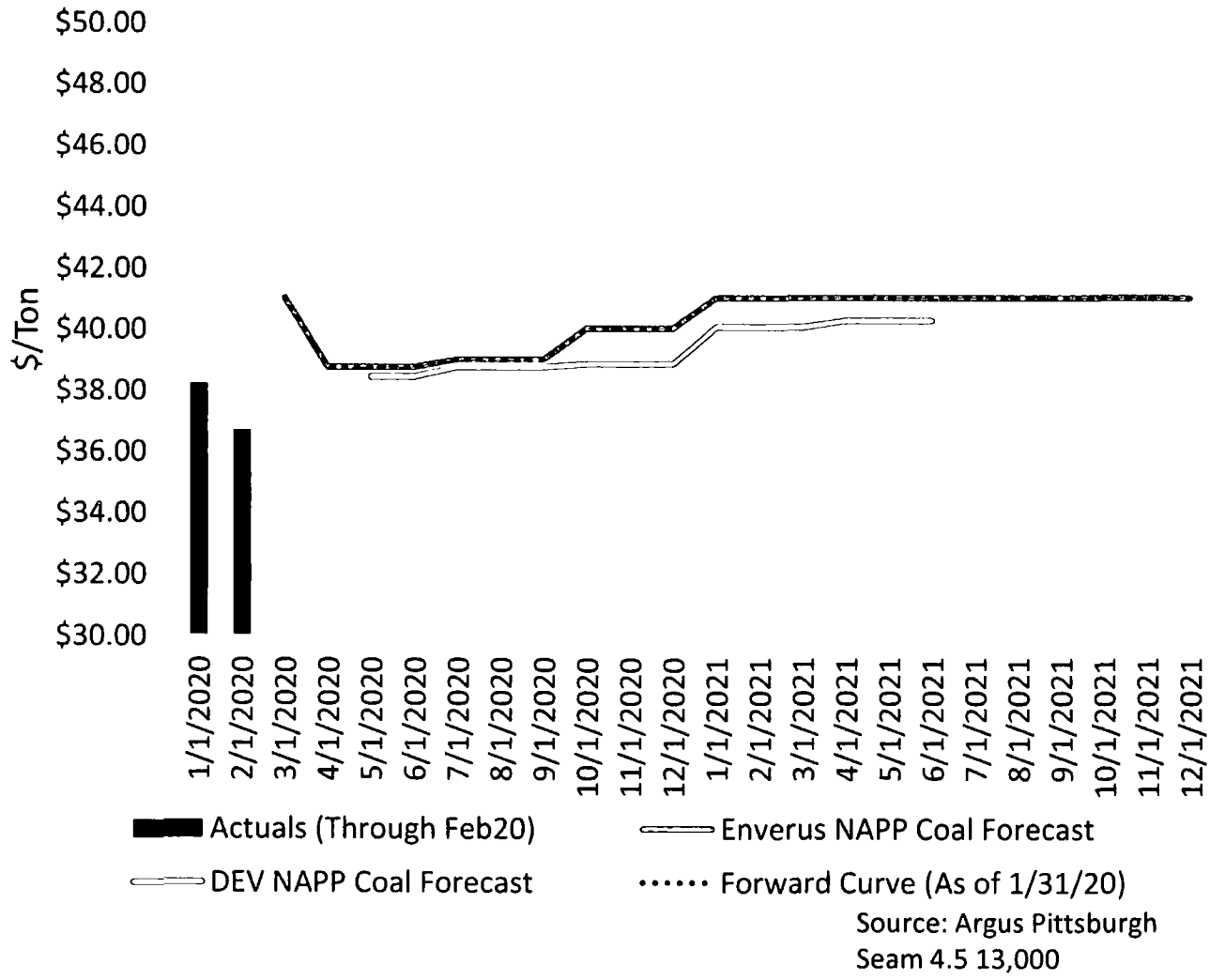
- Enverus utilizes Argus Central Appalachia 1.6 12,500 CSX forwards as of 1/31/2020 to forecast Central Appalachian coal prices.
- The Company uses United Power, a division of ICAP United.
- The trend of prices indicated is the same and the differences are reasonable.
- Enverus is familiar with the Company's source and acknowledges it to be widely used in the industry. It is an acceptable and reliable price forecast.



Source: Argus Central Appalachia 1.6 12,500 CSX

Price Forecast: Northern Appalachia Coal

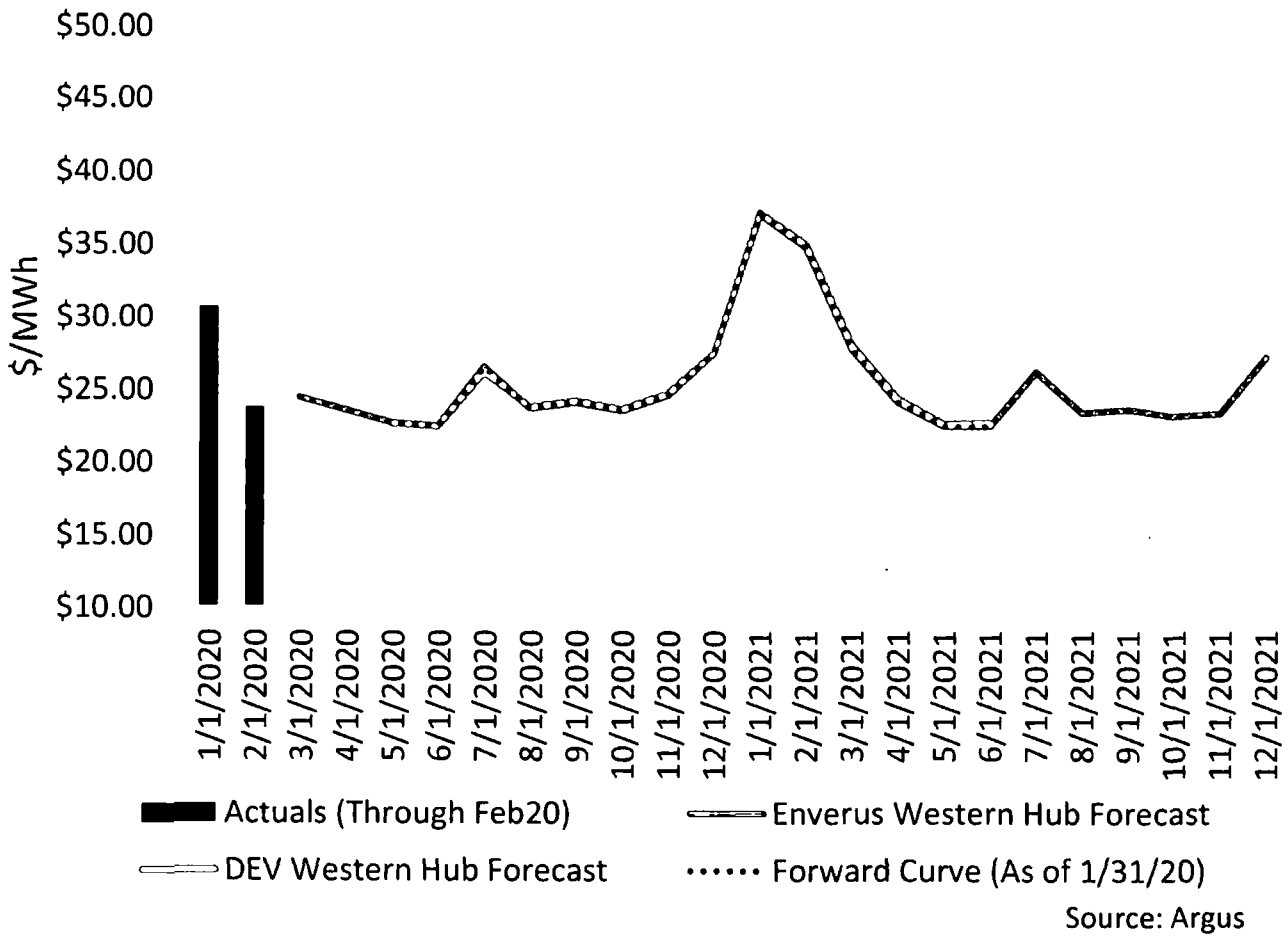
- Enverus utilized Argus Pittsburgh Seam 4.5 13000 forwards as of 1/31/2020 to forecast Northern Appalachian coal prices.
- The Company uses United Power, a division of ICAP United.
- The trend of prices indicated is the same and the differences are reasonable.
- Enverus is familiar with the Company's source and acknowledges it to be widely used in the industry. It is an acceptable and reliable price forecast.



Source: Argus Pittsburgh Seam 4.5 13,000

Price Forecast: PJM Western Hub Power

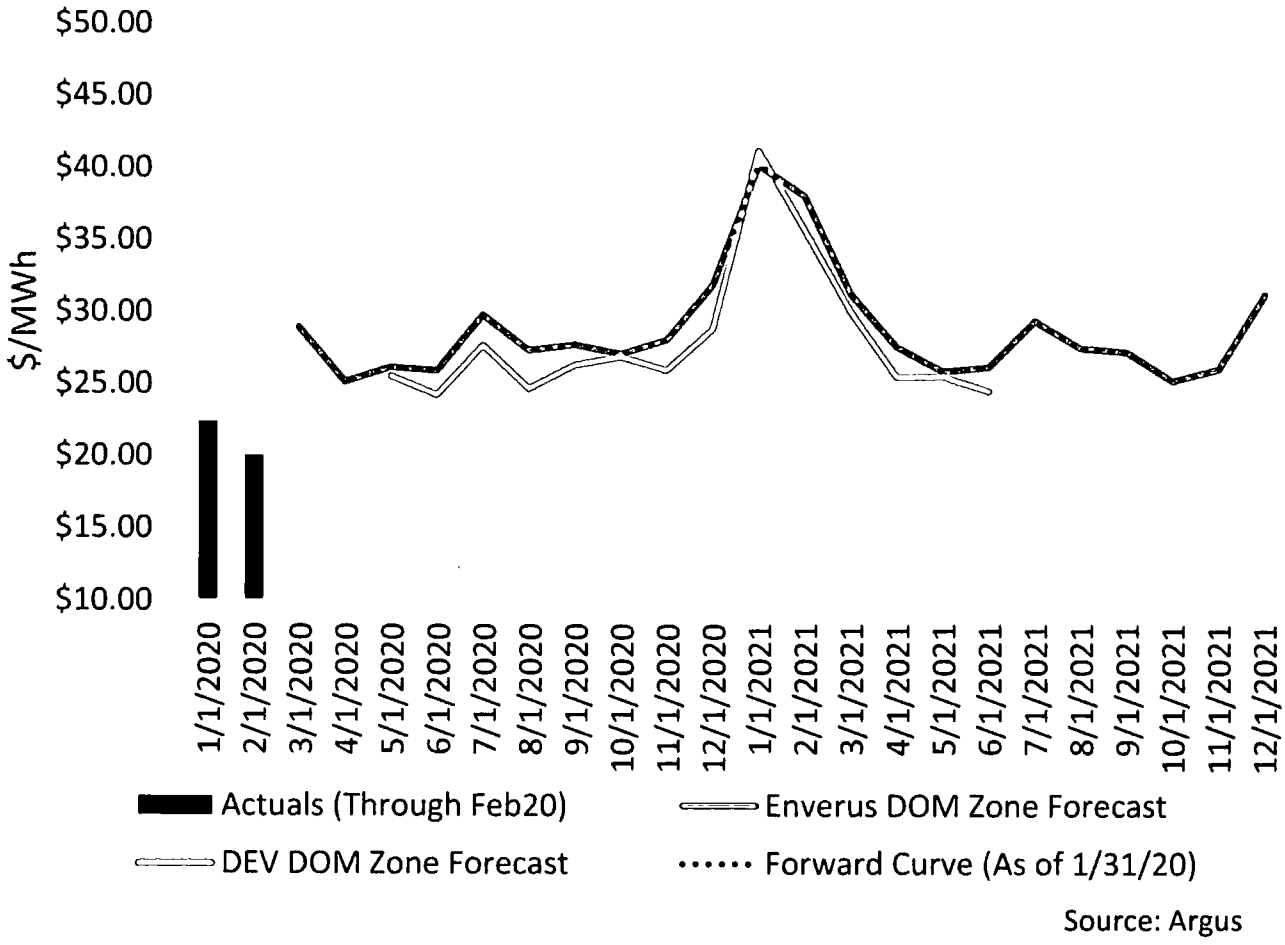
- Enverus uses Argus as its source for PJM Western Hub price assessments while the Company uses ICE. This results in slight but negligible differences.



Source: Argus

Price Forecast: PJM DOM Zone Power

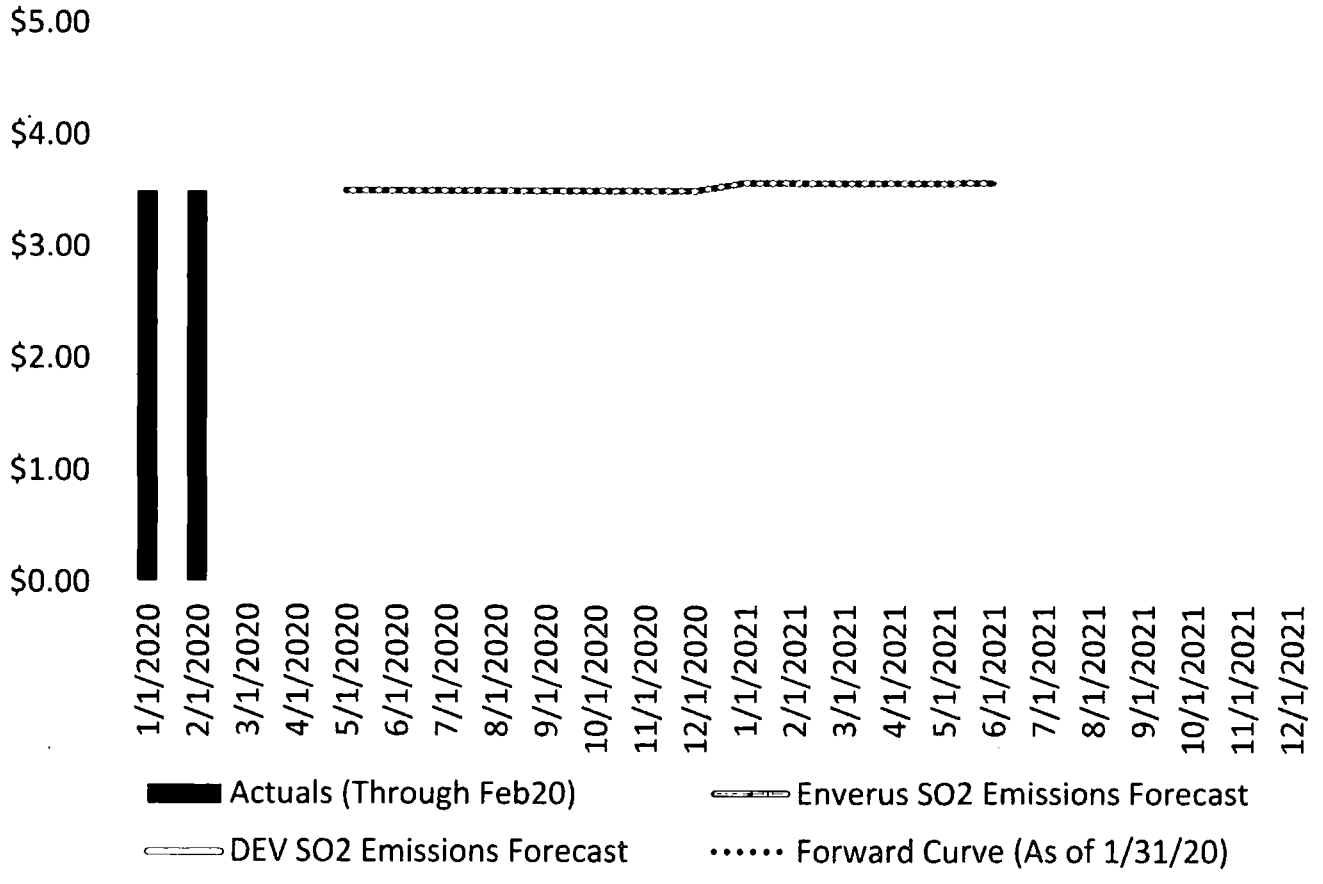
- Enverus uses Argus as its source for PJM Dom Zone price assessments.
- The Company applies a locational difference to the PJM Western Hub assessment from ICE. This difference is based on three years of historical average for both congestion and losses. This is an acceptable and commonly used alternative.
- As the chart shows, the results are negligible, with the Company generally lower than Enverus.



Source: Argus

Price Forecast: SO2 Emissions

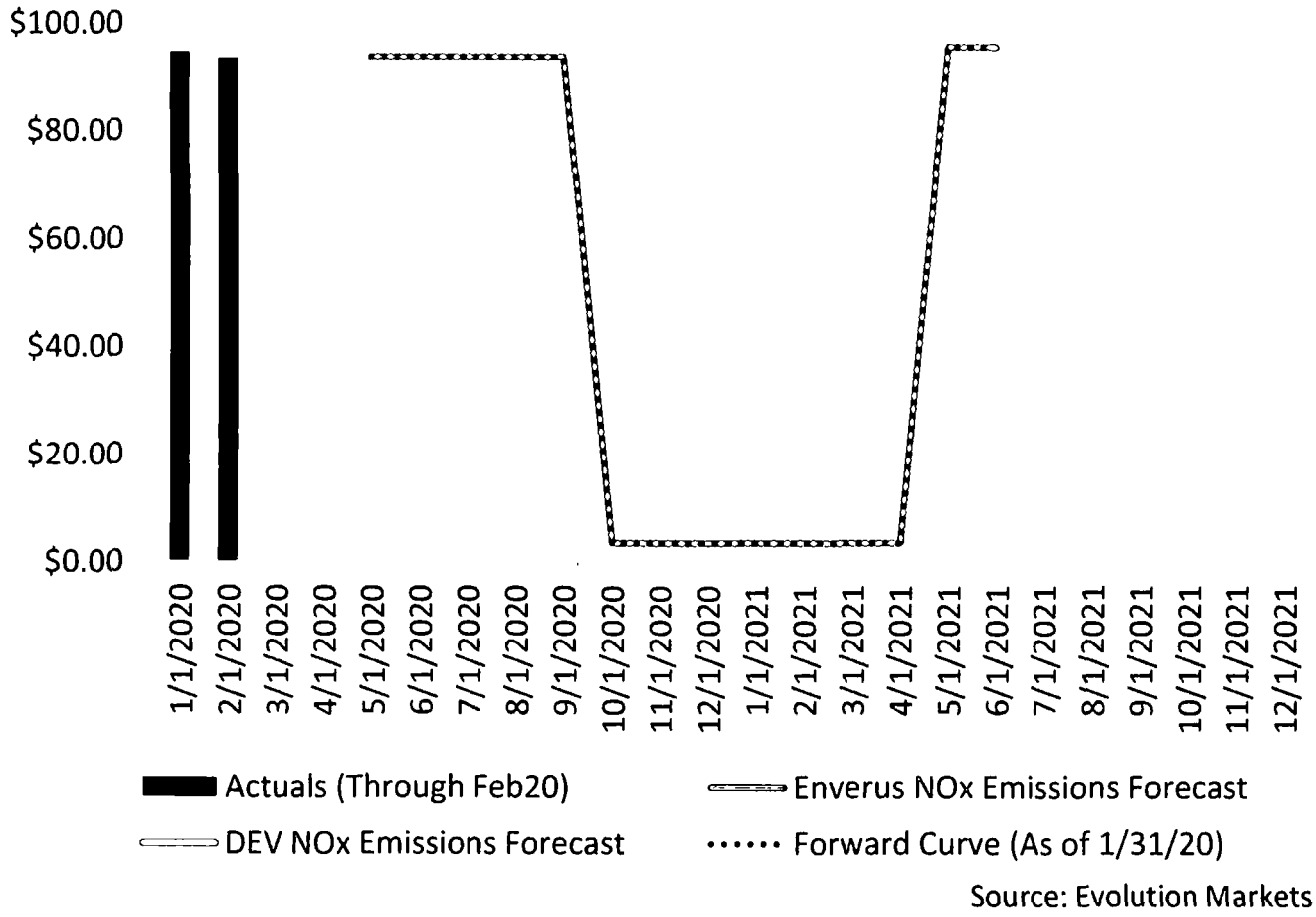
- For the SO2 emissions price forecasts, Enverus and DEV use the same source (Evolution Markets), resulting in the same forecast.



Source: Evolution Markets

Price Forecast: NOx Emissions

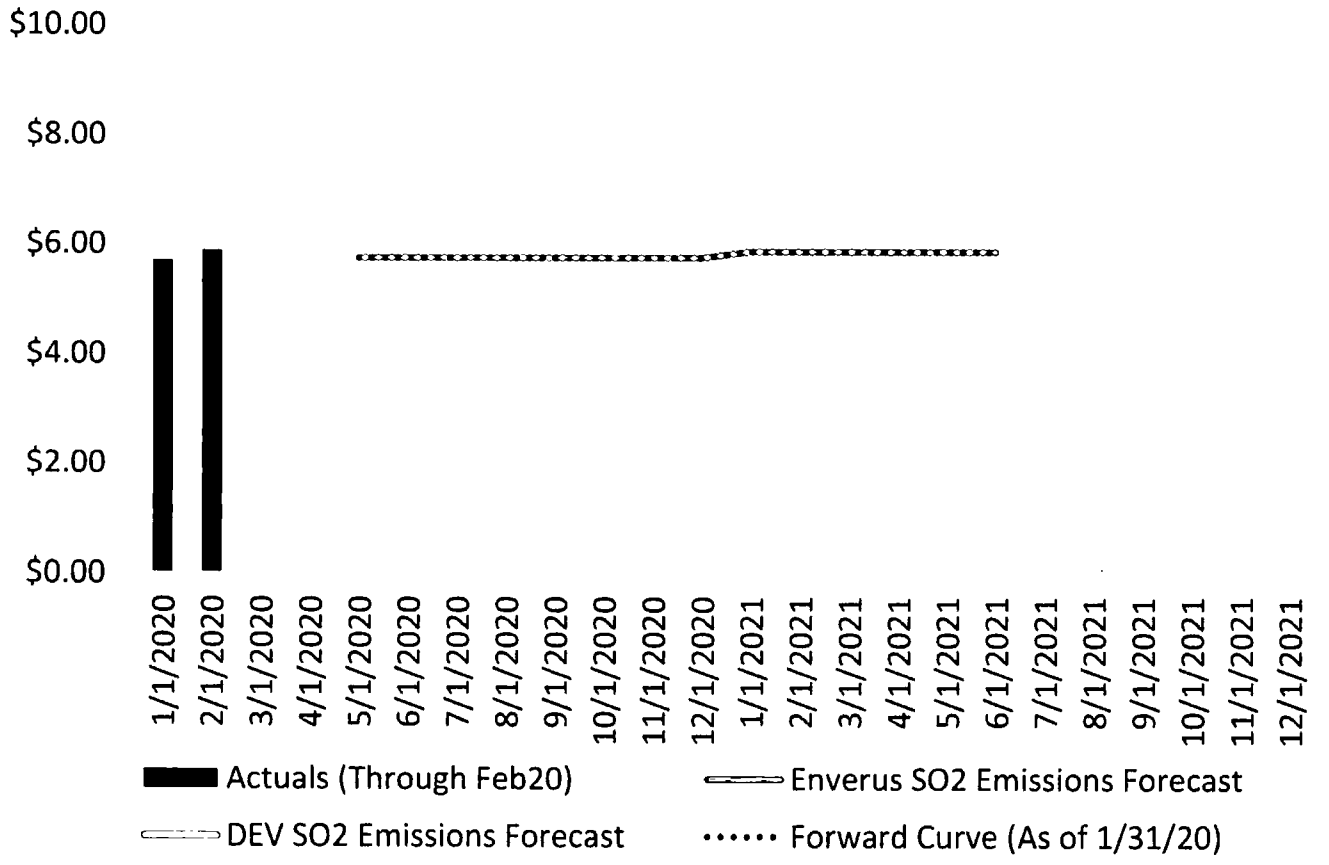
- For the NOx emissions price forecasts, Enverus and DEV use the same source (Evolution Markets), resulting in the same forecast.



Source: Evolution Markets

Price Forecast: RGGI CO2 Emissions

- For the RGGI CO2 emissions price forecasts, Enverus and DEV use the same source (Evolution Markets), resulting in the same forecast.



Source: Evolution Markets, Argus

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DEV Generation Assets

[BEGIN CONFIDENTIAL]

- [redacted]

[END CONFIDENTIAL]

- The list was compiled from documents provided to Staff by DEV, EIA and Dominion Energy's website.

[BEGIN CONFIDENTIAL]

[redacted]

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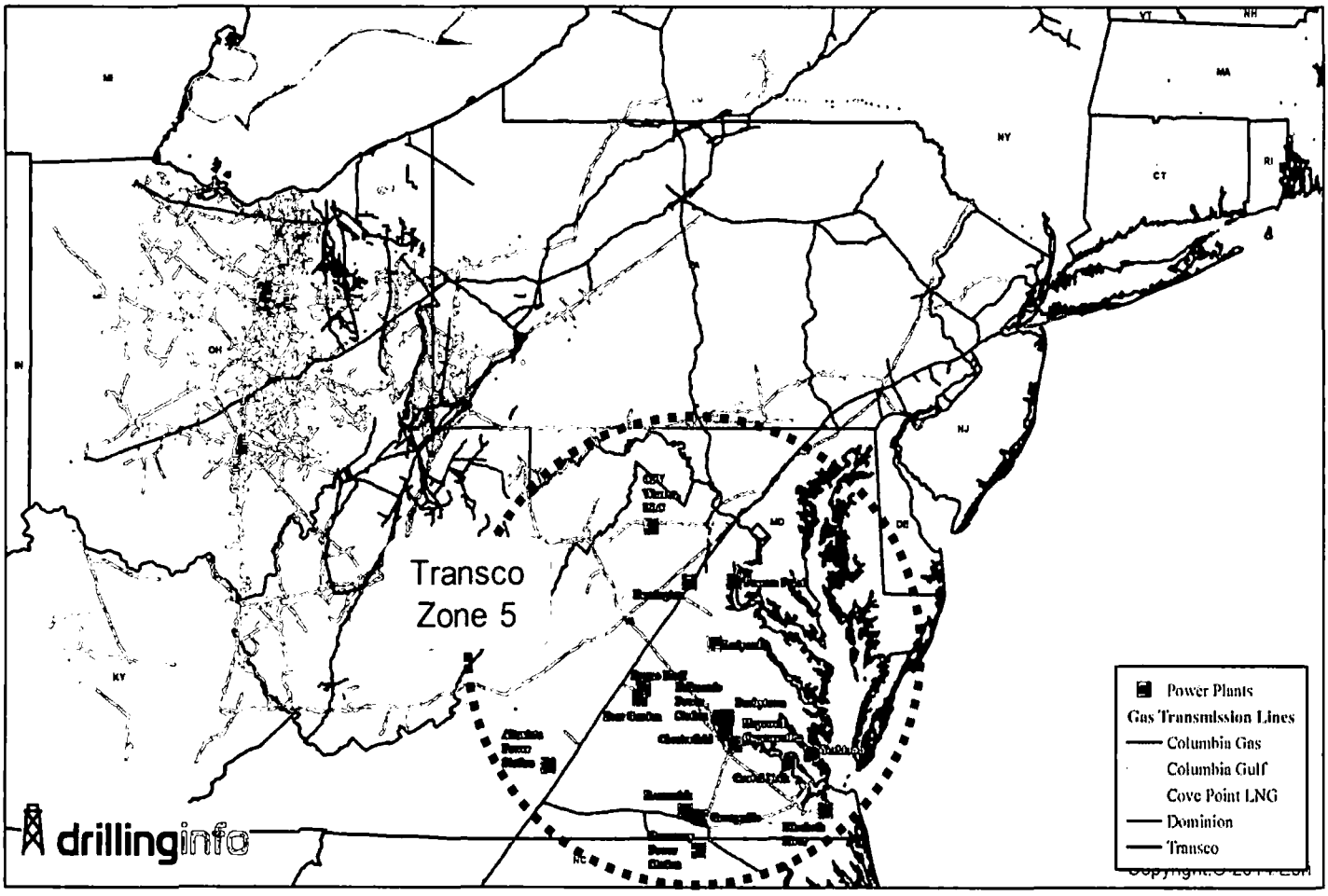
The majority of DEV Generation Assets are in or nearby to the Transco Zone 5 region.



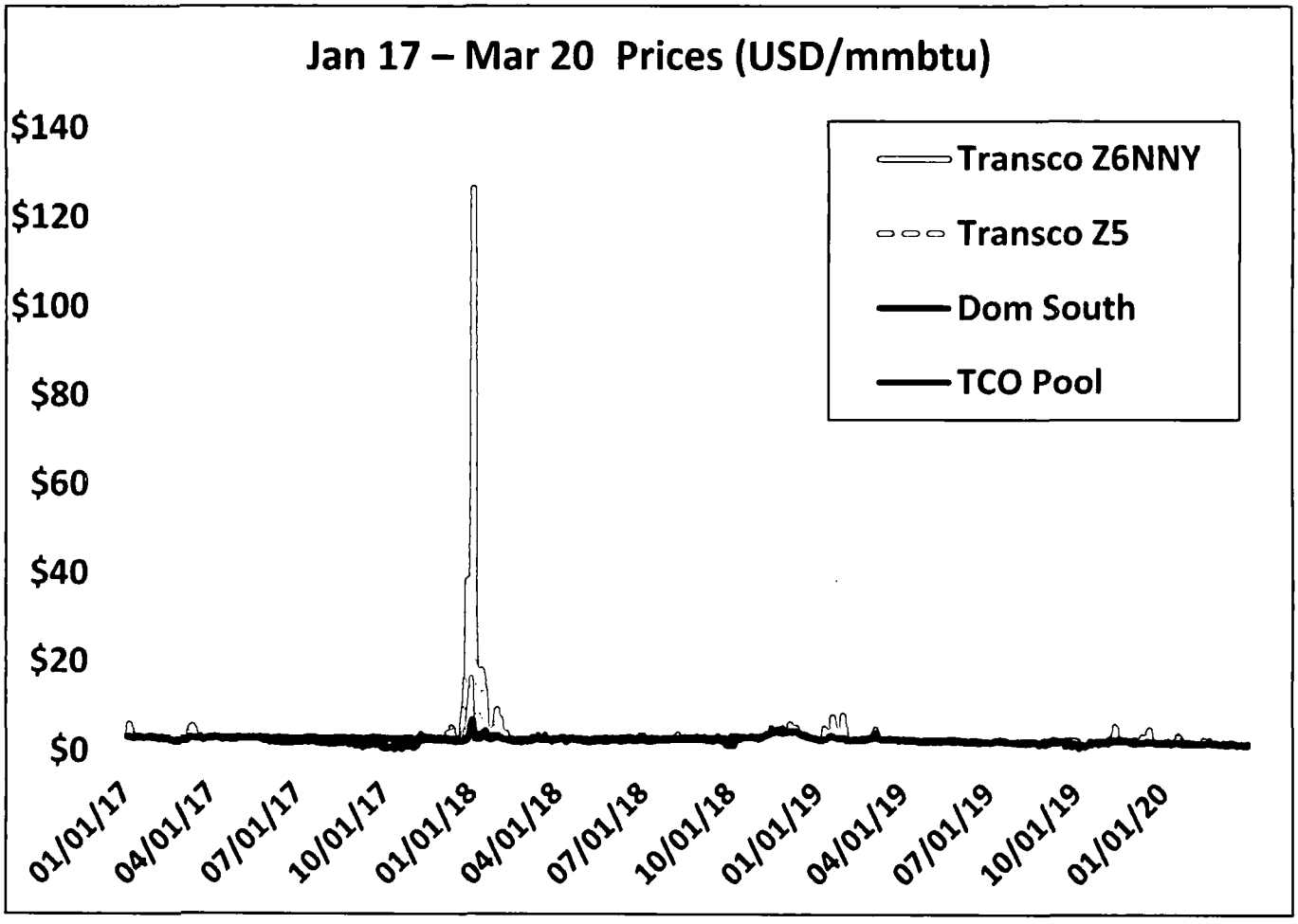
DEV Generation Assets are in Transco Zone 5 region

- DEV's transportation contracts primarily source gas from Transco Z5, Transco Z6 Non-NY, TCO Pool, Dominion-South.
- These locations typically trade within reasonable proximity of each other.
- However significant disconnects especially during winter months can occur. These are driven by pipeline constraints.
- These disconnects as well as overall price spikes became less severe this past winter after Transco's Atlantic Sunrise expansion project came online.

Hub	2019 Average
Transco Z5	$ 2.68
Transco Z6 (Non-NY)	$ 2.44
TCO Pool	$ 2.22
Dominion South	$ 2.12

DEV Assets are exposed to Transco Zone 5 price spikes

- While the past two winters have been relatively mild in terms of price differentials, Winter 17/18 is a key example as to what can happen.
- The degree of price spike seen in winter 17/18 likely hasn't happened over the past two winters as new projects and pipeline expansions have come online to help serve Transco Zone 5 and Transco Zone 6NNY during high demand periods.



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Transco Capacity

[BEGIN CONFIDENTIAL]

- [redacted]
- [redacted]

[END CONFIDENTIAL]

- Fluctuations in capacity, both historically and forward looking, are the result of short-term transport contracts that expire as well as seasonal contracts.

[BEGIN CONFIDENTIAL]

[END CONFIDENTIAL]

Dominion (DTI) Capacity

[BEGIN CONFIDENTIAL]

- [redacted]
- [redacted]

[END CONFIDENTIAL]

- Fluctuations in capacity, both historically and forward looking, are the result of seasonal contracts.

[BEGIN CONFIDENTIAL]

[redacted]

[END CONFIDENTIAL]

Columbia Gas (TCO) Capacity

[BEGIN CONFIDENTIAL]

- [redacted]
- [redacted]

[END CONFIDENTIAL]

- Fluctuations in capacity, both historically and forward looking, are the result of seasonal contracts.

[BEGIN CONFIDENTIAL]

[END CONFIDENTIAL]

Dominion Cove Point (DCP) Capacity

[BEGIN CONFIDENTIAL]

- [redacted]
- [redacted]
- [redacted]

[END CONFIDENTIAL]

Virginia Natural Gas (VNG) Capacity

[BEGIN CONFIDENTIAL]

- [redacted]
- [redacted]

[END CONFIDENTIAL]

- These contracts were not included in our assessment of DEV's total transport capacity (next slide) as they do not appear to directly serve generating stations.

[BEGIN CONFIDENTIAL]

[redacted]

[END CONFIDENTIAL]

[redacted]

DEV Total Capacity

[BEGIN CONFIDENTIAL]

- [redacted]

[END CONFIDENTIAL]

- Based on flows to DEV's generating stations, the size of DEV's firm transport portfolio appears appropriate to reliably serve their fleet.
- Explained further on next page.

[BEGIN CONFIDENTIAL]

[redacted]

[END CONFIDENTIAL]

DEV Total Capacity

[BEGIN CONFIDENTIAL]

- [redacted]
- [redacted]

[END CONFIDENTIAL]

- If the portfolio was consistently utilized at <70%, it would indicate the portfolio is too large and excessive funds are being spent on fees.

[BEGIN CONFIDENTIAL]

- [redacted]

[END CONFIDENTIAL]

- The final assessment is subjective but Enverus considers the portfolio to be reasonably sized. The ongoing cost of firm transportation to accommodate the rare absolute maximum day would likely be higher than procuring in the daily market.

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Monetization of Unutilized Capacity

- In response to Staff Set 1-27, the Company describes its methodology for monetizing the unused portion of its capacity as follows:
    - Each day, the Company supports gas-fired generation offers into PJM using its firm pipeline capacity portfolio. When the Company determines there is unused firm pipeline capacity, after considering generation offers, awards, flexibility and system constraints, it can offer this capacity either in the release or third-party sales market(s). Capacity release or third-party sales decisions are based on various factors including, but not limited to: timing, market availability and perceived market value for the unused firm capacity. All monetization revenues are returned to the Company's customers on a one for one basis, as a fuel rate offset.
- Additionally, in response to ER Set 3-2, the Company provides vigorous detail data supporting the explanation of when unconstrained capacity was (or was not) available.
- The topic of monetizing unused portfolio capacity has been discussed in previous Fuel Factor cases as well as other cases before the commission where Enverus has participated.
- Enverus' position remains the same. In an ideal universe every inch of available energy infrastructure would always be utilized to its full capacity. However this ignores the day to day realities and limitations of putting physical infrastructure into use.
- In Enverus' opinion, the Company's explanation aligns with common industry practice and indicates best-efforts practice exists to extract maximum value of the portfolio on behalf of DEV's customers.
- Stated more simply, the portfolio is necessary to support generation offers into PJM. Even if a portion of the portfolio is unnecessary (because an offer was not called by PJM) that capacity may not be useful to a third party given the time of day and the logistics involved in capacity release. But the Company's first obligation is still to reserve it to support the generation offer.
- The reporting and data provided by the Company adequately demonstrate best efforts here.

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Summary

- DEV has opted to use observable market forward prices for near term commodity price forecasts. Enverus agrees that this is the most reliable approach.
- The overall **size** of the portfolio of transportation assets is reasonable for the operation of the DEV fleet.
- Flows to the generating stations did exceed DEV's firm transport capacity on numerous occasions (most notably on TCO, DTI, and DCP).
- However, a portfolio for this purpose that never exceeded its total capacity would be deemed over-sized. The reservation fees spent on transport that often goes unutilized would be wasteful.
- Most of DEVs generating units are exposed to Transco Zone 5 pricing. Volatility in Transco Zone 5 has been minimal in the last two winter seasons due to expansion projects like Transco's Atlantic Sunrise. However, as demand in the region continues to grow, a return to volatile pricing is always a risk. Strict attention should be paid to rightly sizing the portfolio for future growth.
- DEV also appears to be conducting best efforts to maximize the value of the portfolio on behalf of its customers. DEV monetizes its unused portion of the portfolio according to best industry practices.

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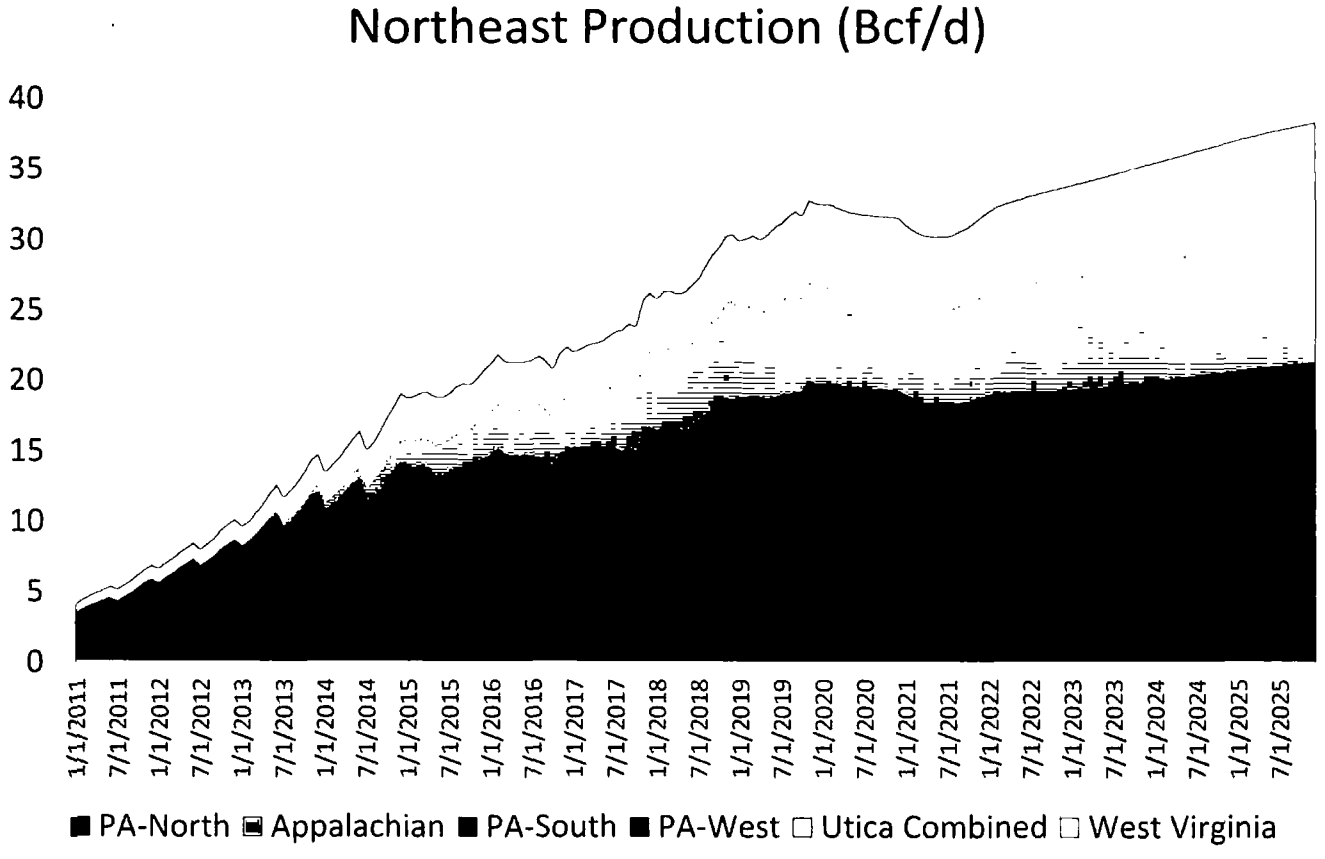
Enverus Marcellus/Utica Production Forecast

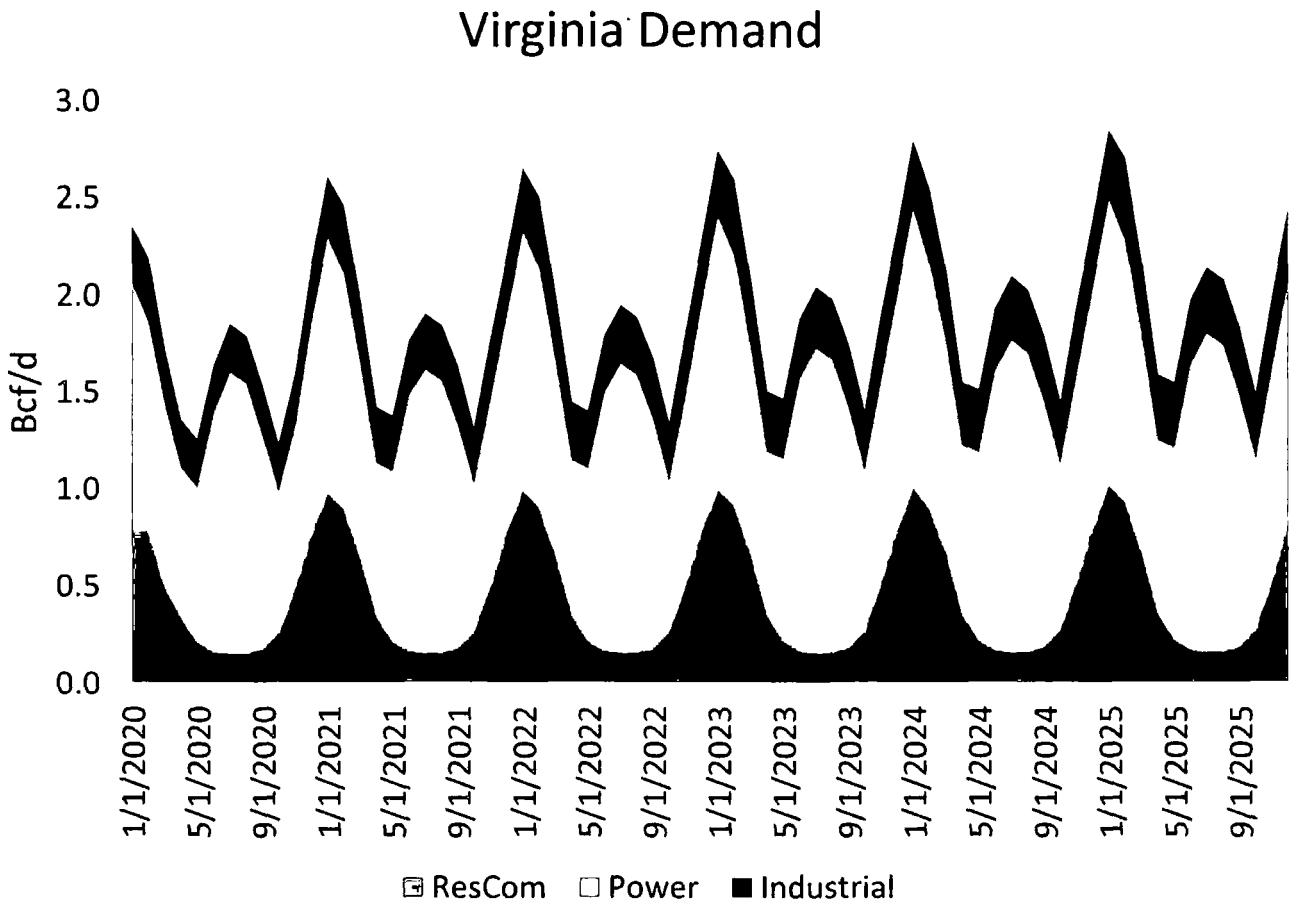
- Enverus' proprietary production forecast indicates Northeast supply will grow by an almost 8 Bcf/d by 2025
- Due to the current market environment and the expectation of associated gas falling off in 2020, production does decline in 2020 and into 2021.
- With associated gas production declining, gas prices will need to increase to incentivize production in gassier areas, such as the Northeast, causing production to increase through 2025.



Date	Appalachian	PA-North	PA-South	PA-West	Utica	West Virginia
12/2018	0.7	10.8	0.5	6.5	7.2	4.7
12/2025	0.5	11.8	0.3	8.6	9.5	7.5
Change	**(0.2)**	**1.0**	**(0.2)**	**2.1**	**2.3**	**2.8**

Enverus Virginia Demand Forecast

- Virginia natural gas demand is expected to average ~1.72 Bcf/d in 2020.
- By 2025, Virginia natural gas demand is expected to grow by ~0.34 Bcf/d to 2.06 Bcf/d.
- A bulk of this demand growth is expected to come from Power generation, which is expected to grow 0.20 Bcf/d from 2020 to 2025.

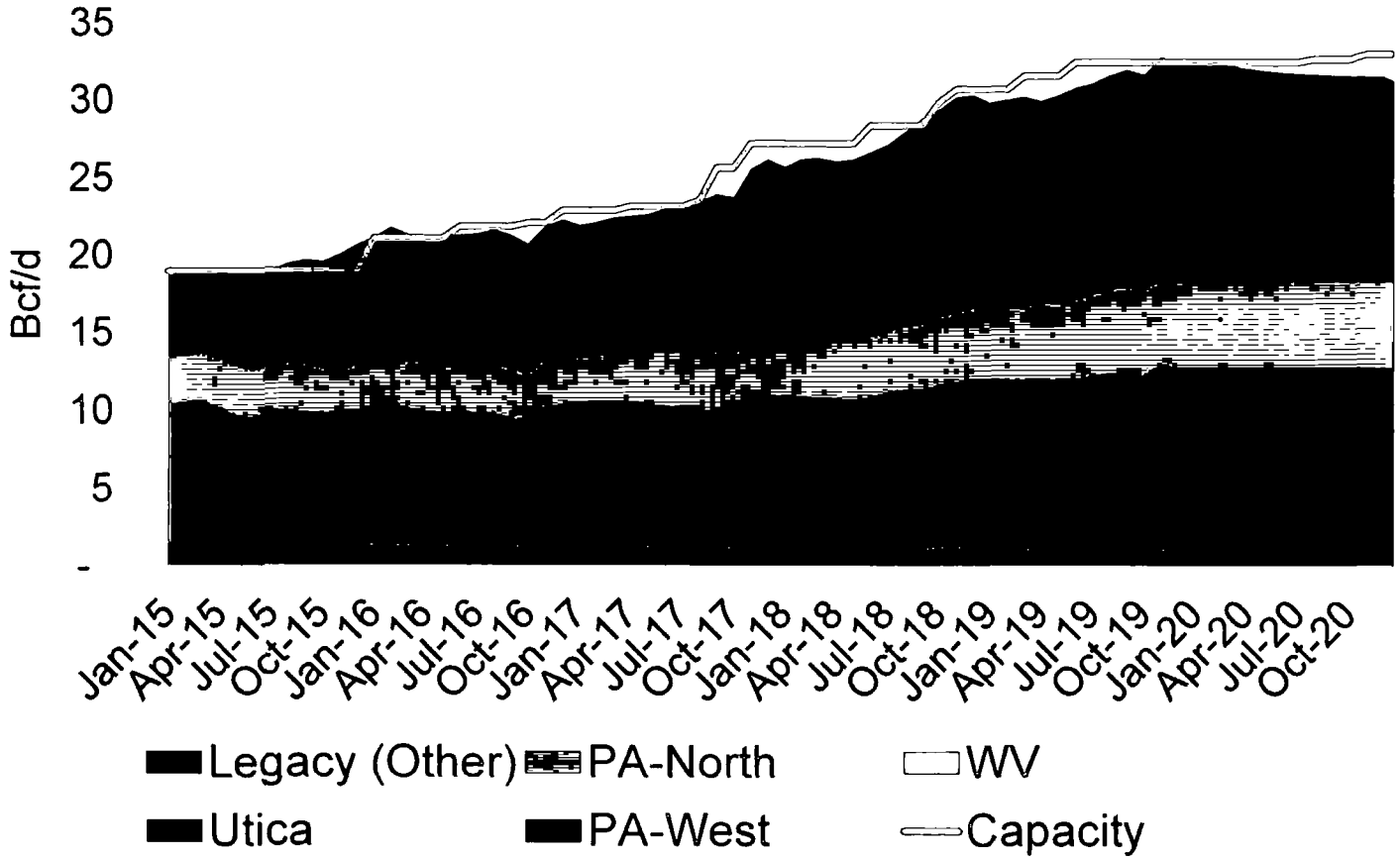


Northeast Pipeline Expansions

- In 2018, the following projects came online increasing Appalachian Basin export capability
  - Rover – Jun18 (3.25 bcf/d to Midwest/Canada)
  - Transco Atlantic Sunrise – Sep18 (1.7 bcf/d to Southeast)
  - NEXUS – Oct18 (1.5 bcf/d to Midwest/Canada)

- Legal issues have hindered many pipeline projects in the Northeast. Atlantic Coast Pipeline and Mountain Valley Pipeline, both delayed by legal issues, will provide further deliverability into Transco Z5:
  - Atlantic Coast Pipeline (ACP) – 1/1/2022
    - 1.5 Bcf/d from West Virginia to Virginia and North Carolina
  - Mountain Valley Pipeline (MVP) – 1/1/2021
    - 2.0 Bcf/d from West Virginia to Virginia

Northeast Production vs Takeaway Capacity



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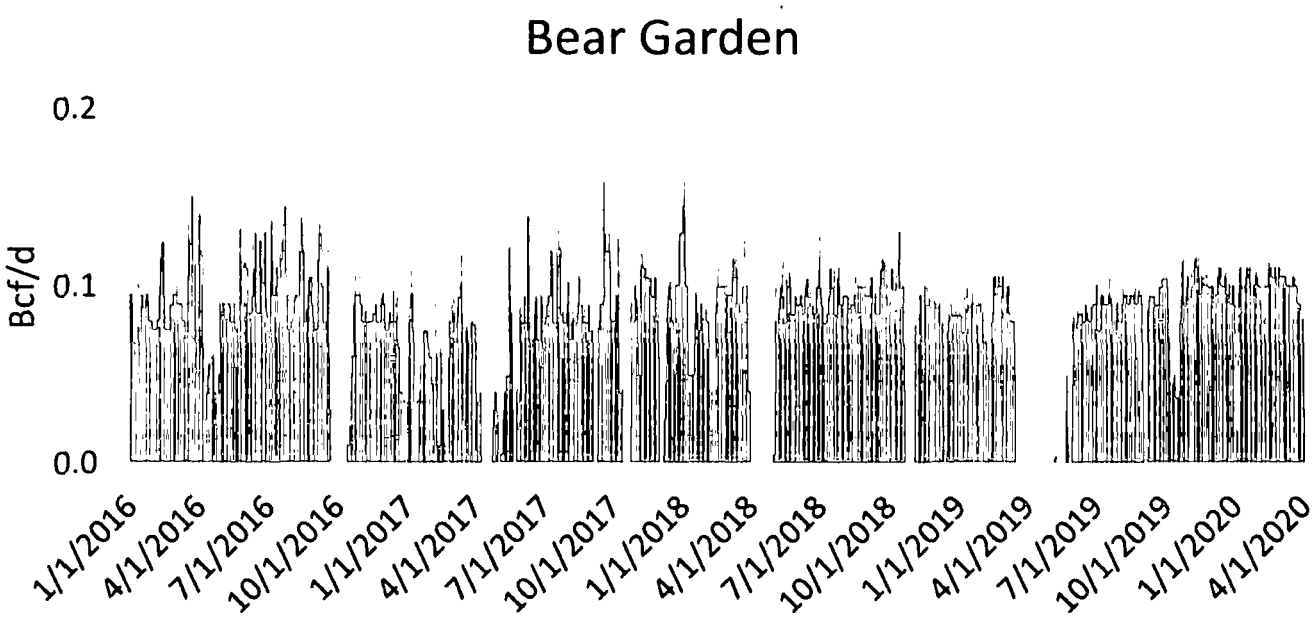
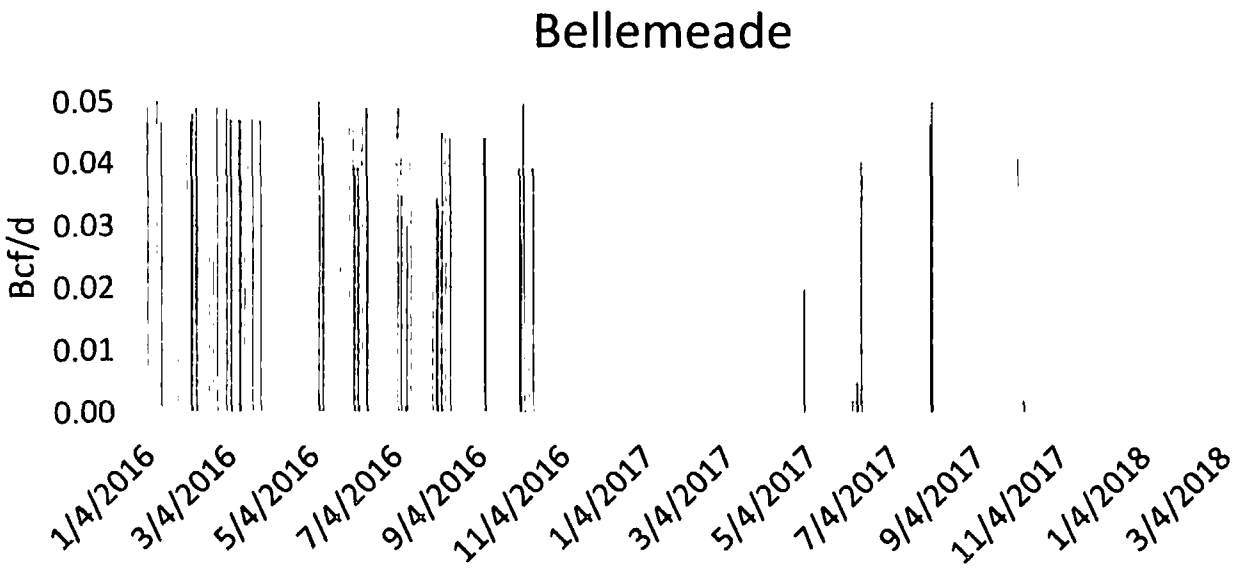
Bear Garden power plant

- Bear Garden located in Buckingham County, Virginia
- Pipeline Access: Transco
- Max Flow: 160 MMcf/d
- Peak Utilization = 51%



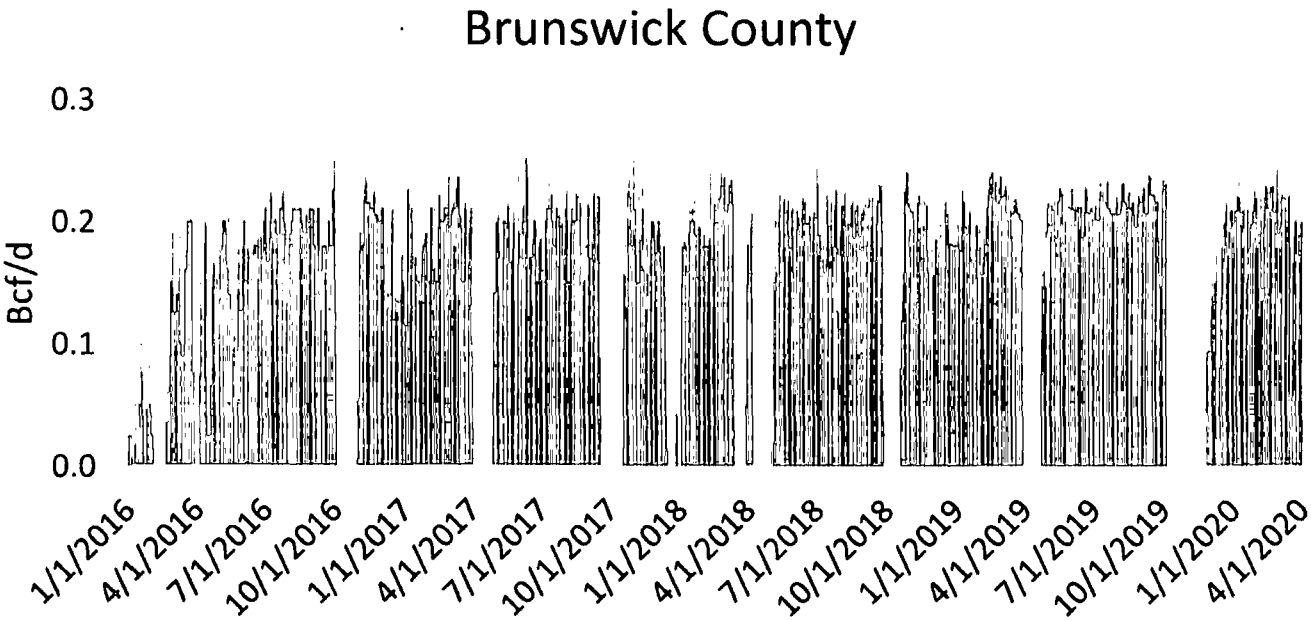
Bellemeade power plant

- Bellemeade located in Richmond County, Virginia
- Plant currently Out of Service
- Pipeline Access: Columbia Gas
- Max Flow: 53.5 MMcf/d
- Seasonal Utilization: Winter = 14%, Summer = 44%



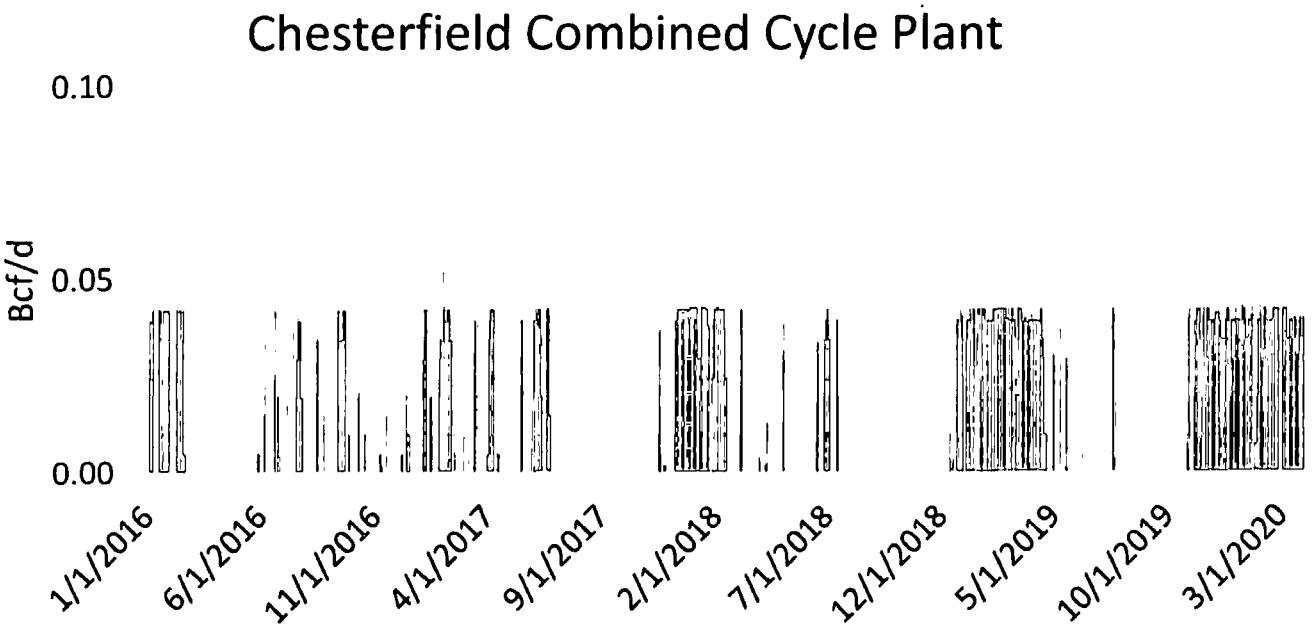
Brunswick County power plant

- Brunswick located in Brunswick County, Virginia
- Pipeline Access: Transco
- Max Flow: 250 MMcf/d
- Peak Utilization = 72%



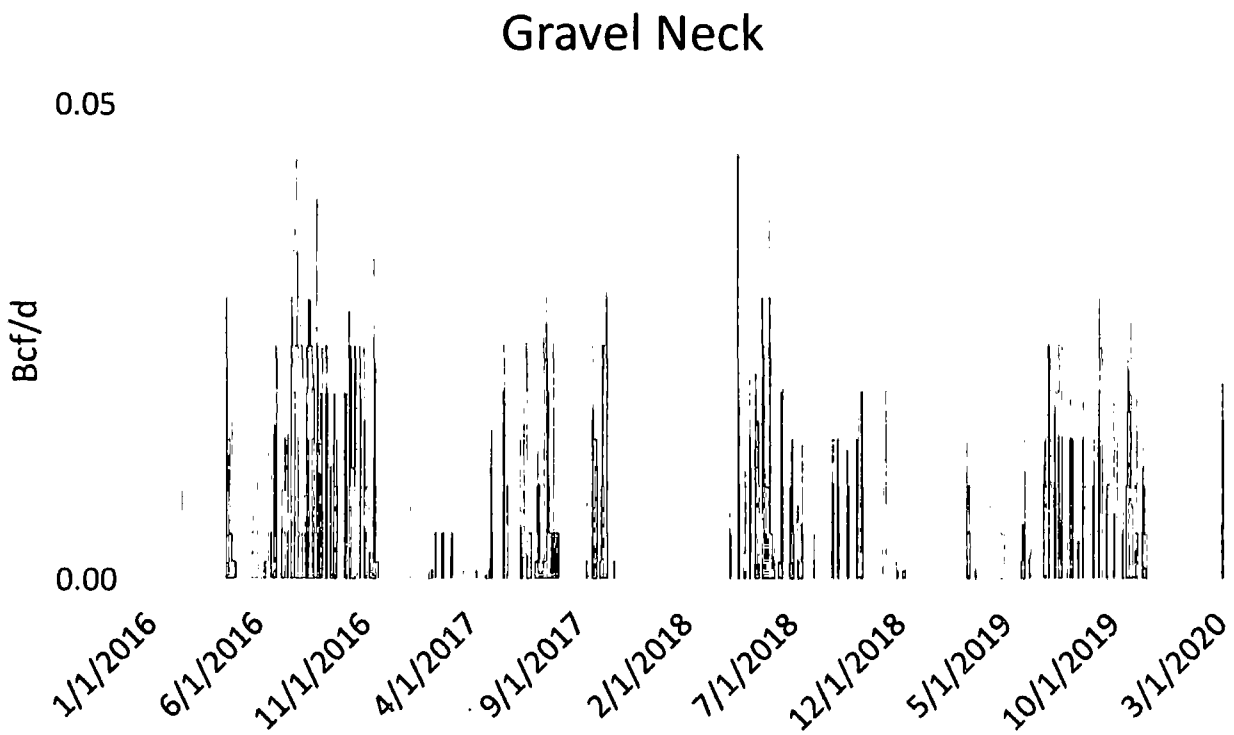
Chesterfield CC power plant

- Chesterfield located in Chesterfield County, Virginia
- Pipeline Access: Columbia Gas
- Max Flow: 52 MMcf/d
- Peak Utilization = 73%



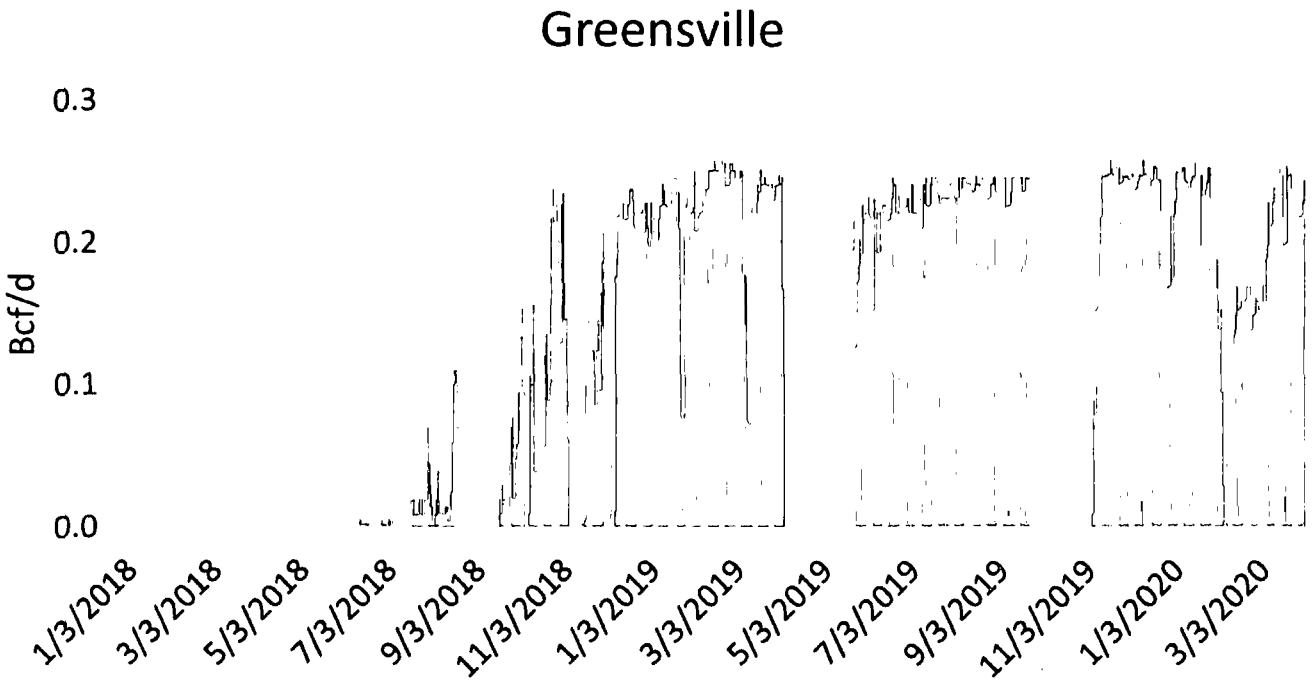
Gravel Neck power plant

- Gravel Neck located in Surry County, Virginia
- Pipeline Access: Columbia Gas
- Max Flow: 45 MMcf/d
- Peak Utilization = 64%



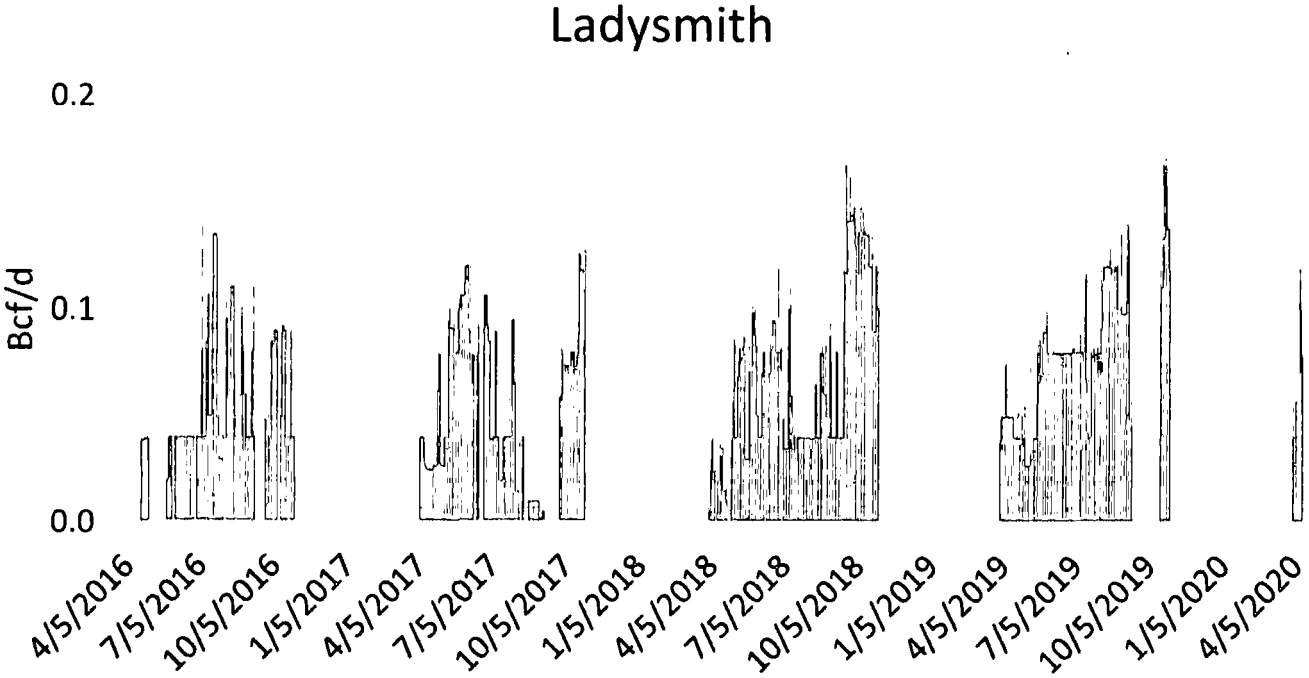
Greensville power plant

- Greensville located in Greensville County, Virginia
- Pipeline Access: Transco
- Max Flow: 261 MMcf/d
- Peak Utilization = 71%



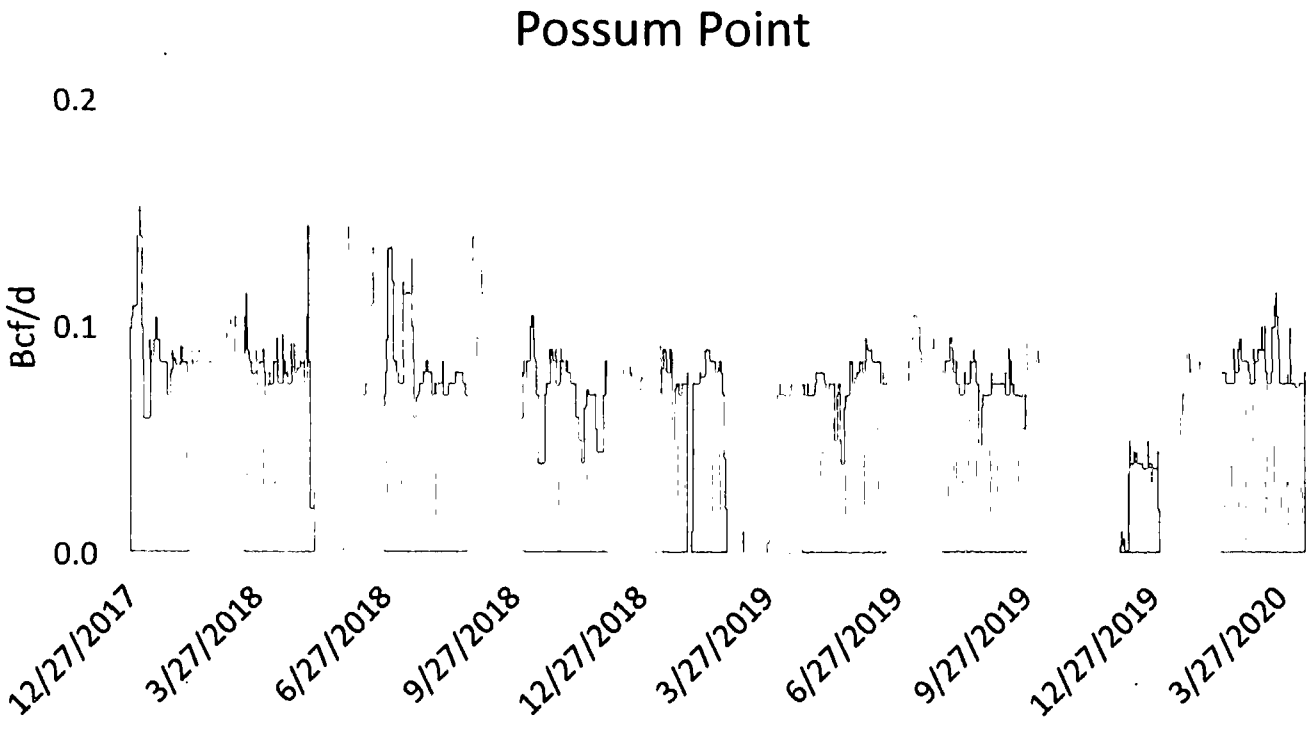
Ladysmith peaking plant

- Ladysmith located in Caroline County, Virginia
- Pipeline Access: DTI
- Max Flow: 171 MMcf/d
- Peak Utilization = 100%



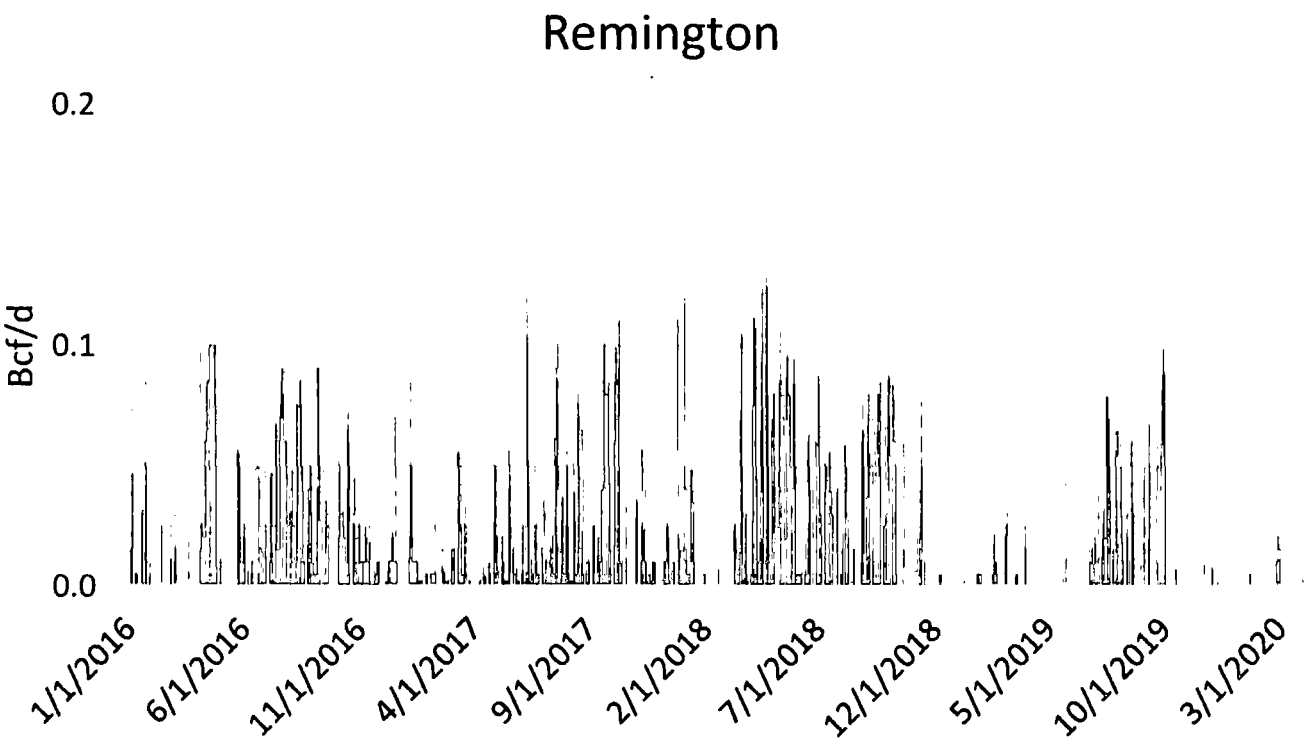
Possum Point plant

- Possum Point located in Prince William County, Virginia
- Pipeline Access: Dominion Cove Point
- Max Flow: 152 MMcf/d
- Peak Utilization = 78%



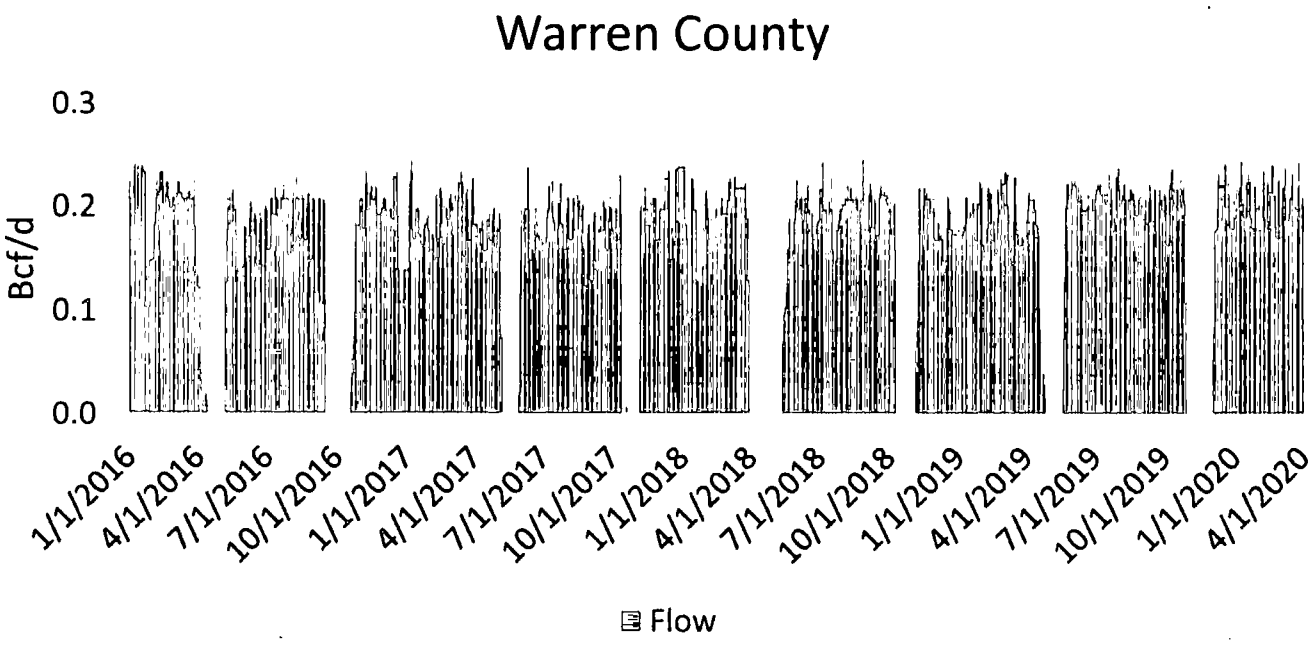
Remington power plant

- Remington located in Fraquier County, Virginia
- Pipeline Access: Transco
- Max Flow: 128 MMcf/d
- Peak Utilization = 21%



Warren County power plant

- Remington located in Warren County, Virginia
- Pipeline Access: Columbia Gas
- Max Flow: 246 MMcf/d
- Peak Utilization = 99%



Contact

Bernadette Johnson
bjohnson@enverus.com
1-888-290-7697, ext 3

Enverus
8000 S. Chester St., Suite 100
Centennial, CO 80112