Natural Gas Winter Fundamentals & Outlook

Wednesday, 9 November 2022

Today’s speakers

Tina Hoang – Account Manager, ICE - Moderator

David Margolin - Meteorologist, ICE

James Bevan - Vice President of Research, Vice President of Operations, Criterion Research

Agenda

- Welcome – Tina Hoang
- 2022-23 Winter Weather Outlook
- Natural Gas Supply & Demand Fundamentals
- Q&A

ICE Weather Data & Analytics

David Margolin

Meteorologist, ICE

An Overview of ICE Data Services Desktop Solutions to help Evaluate the Risks and Impacts of Weather on the Energy Markets

Model Guidance:

- SEAS
- CFS

Historical Data:

- Evaluate Trends

Performance Tools:

- Progression/Volatility Tool for evaluating real-time model performance

Includes both weather and market data:

- Evaluate relationships between weather and price

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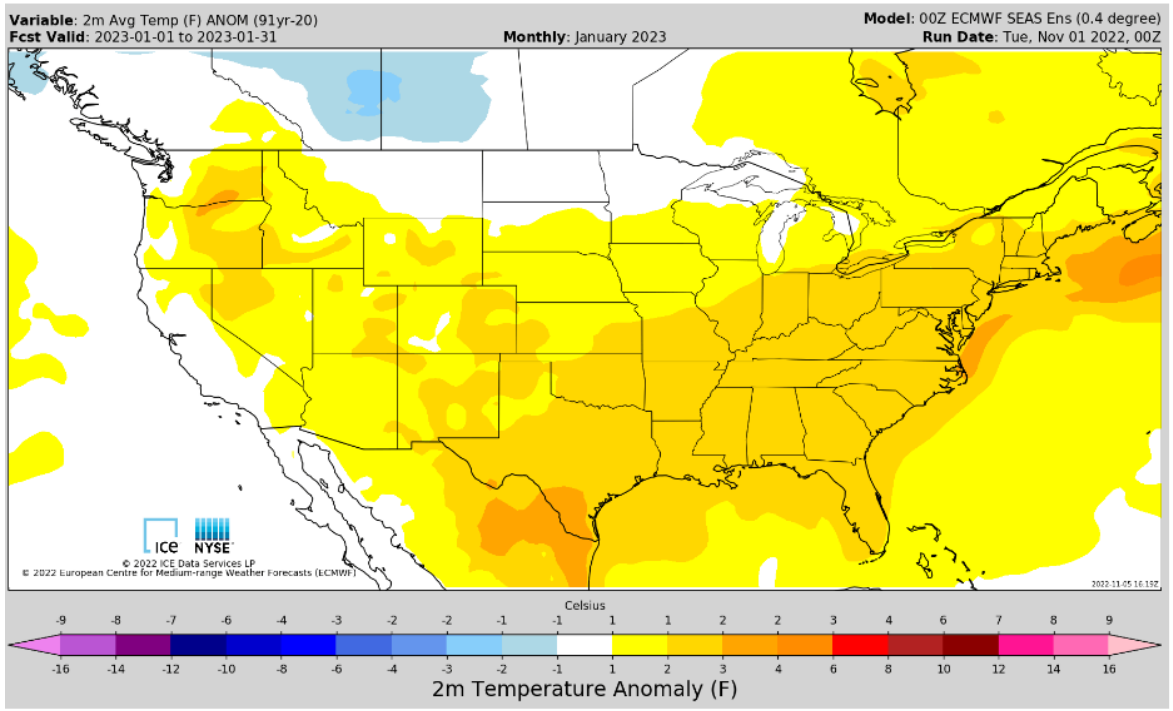
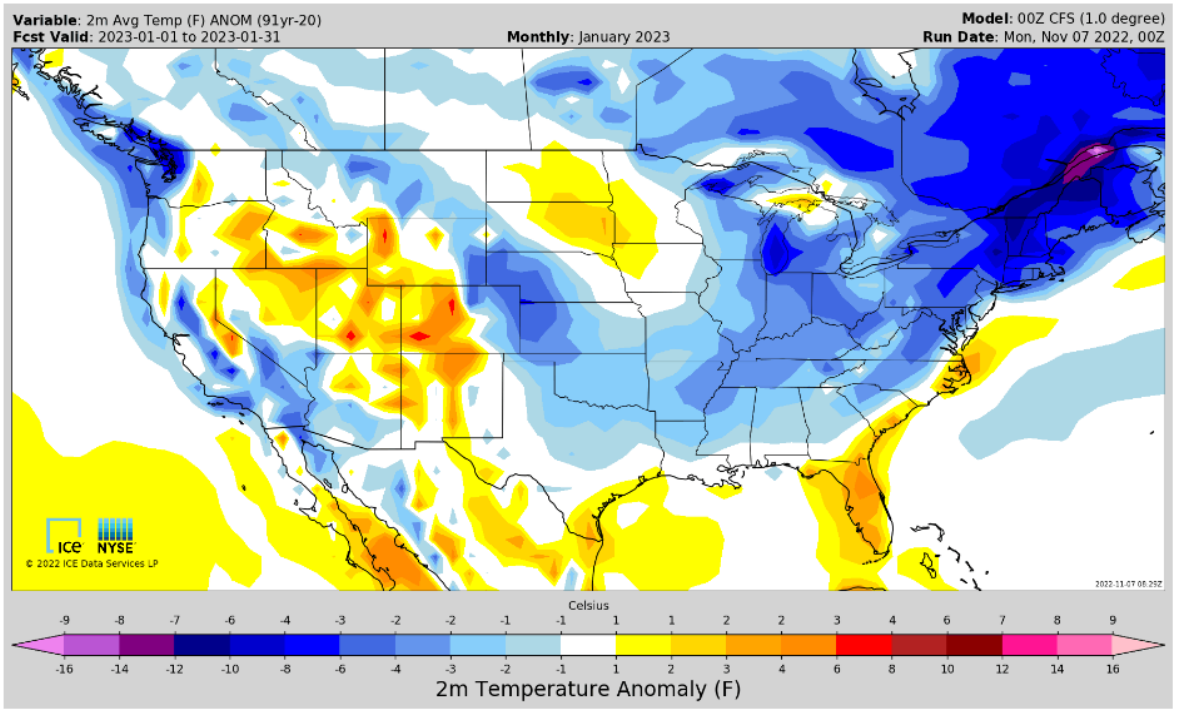
Long-Range Guidance: Maps

ICE Data Services offers temperature, precipitation, and upper-air month-ahead forecasts from NOAA and the ECMWF modeling centers

SEAS (ECMWF)



CFS (NOAA)



Source: ICE Connect, November 2022 - ICE Data, LP

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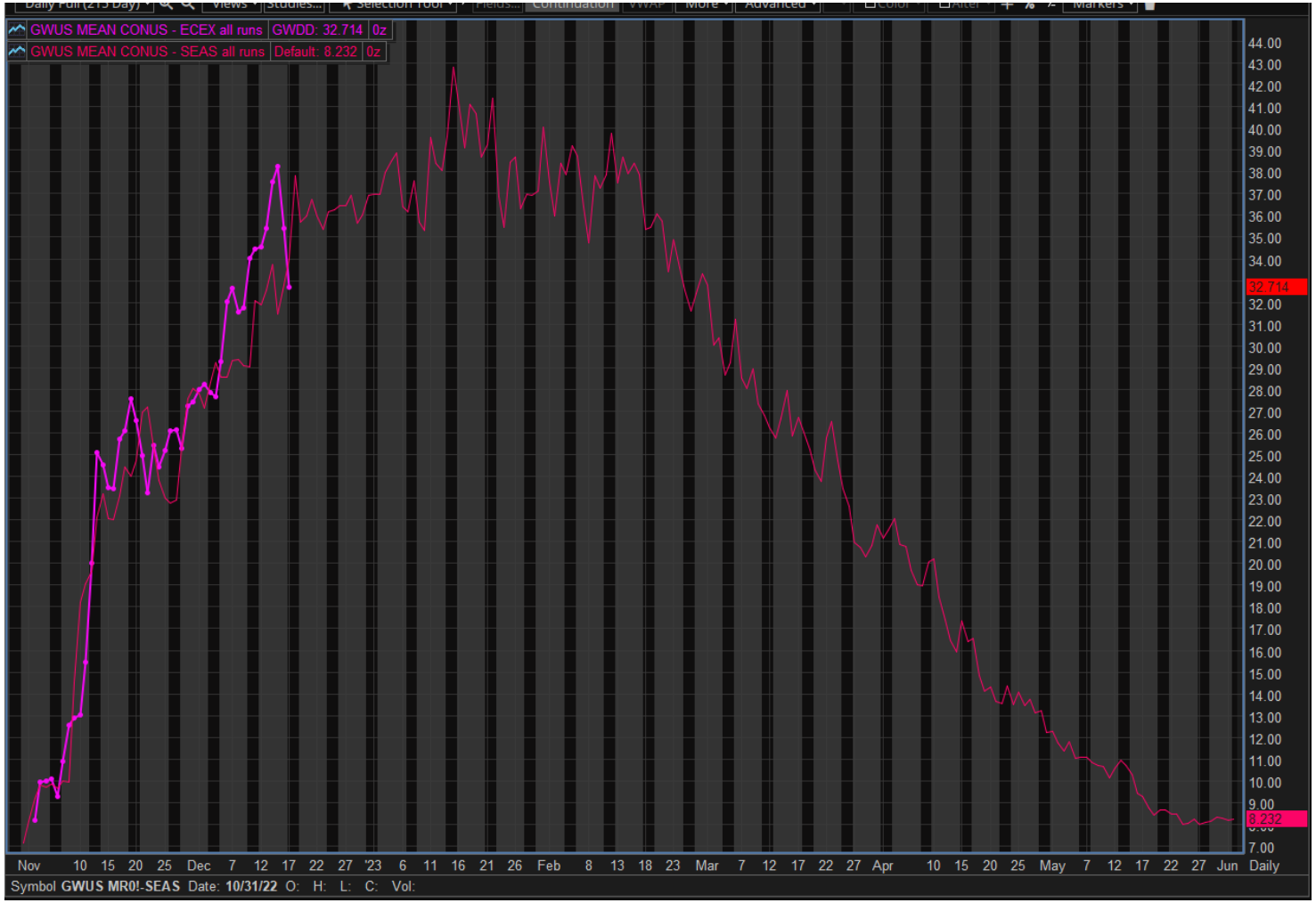
Long-Range Guidance: Data

ICE Data Services offers temperature, precipitation, upper-air forecasts from NOAA's and ECMWF's modeling centers



SEAS and ECEX model data for CONUS GWDDs

Source: ICE Connect, November 2022 - ICE Data, LP

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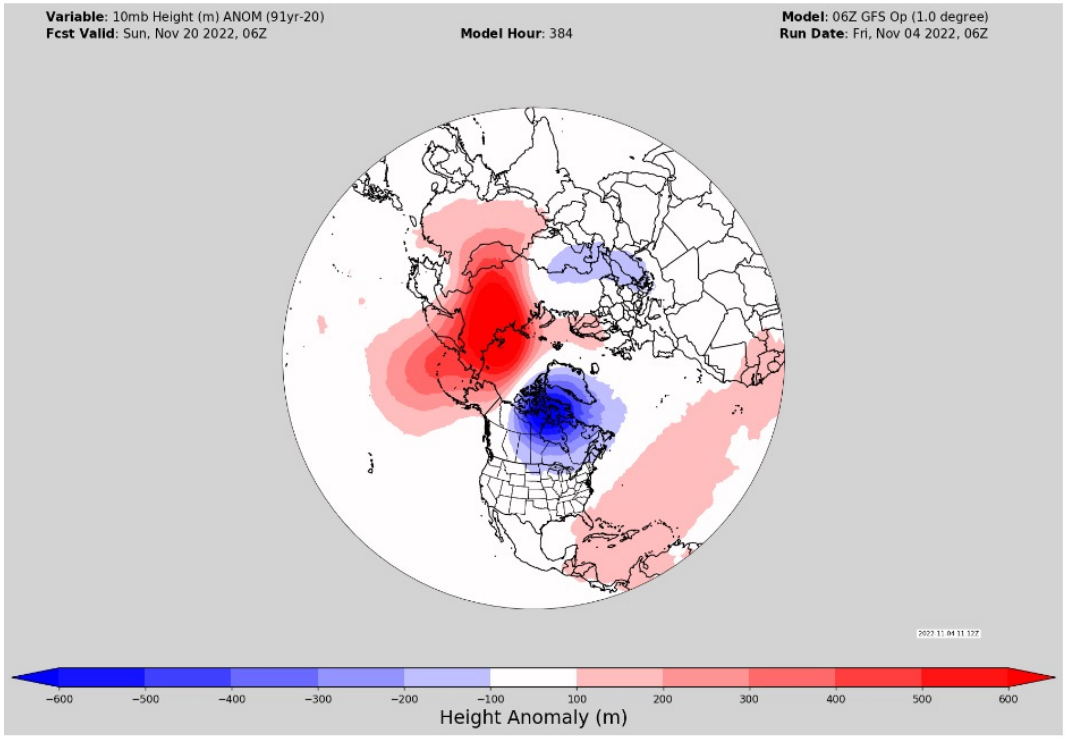
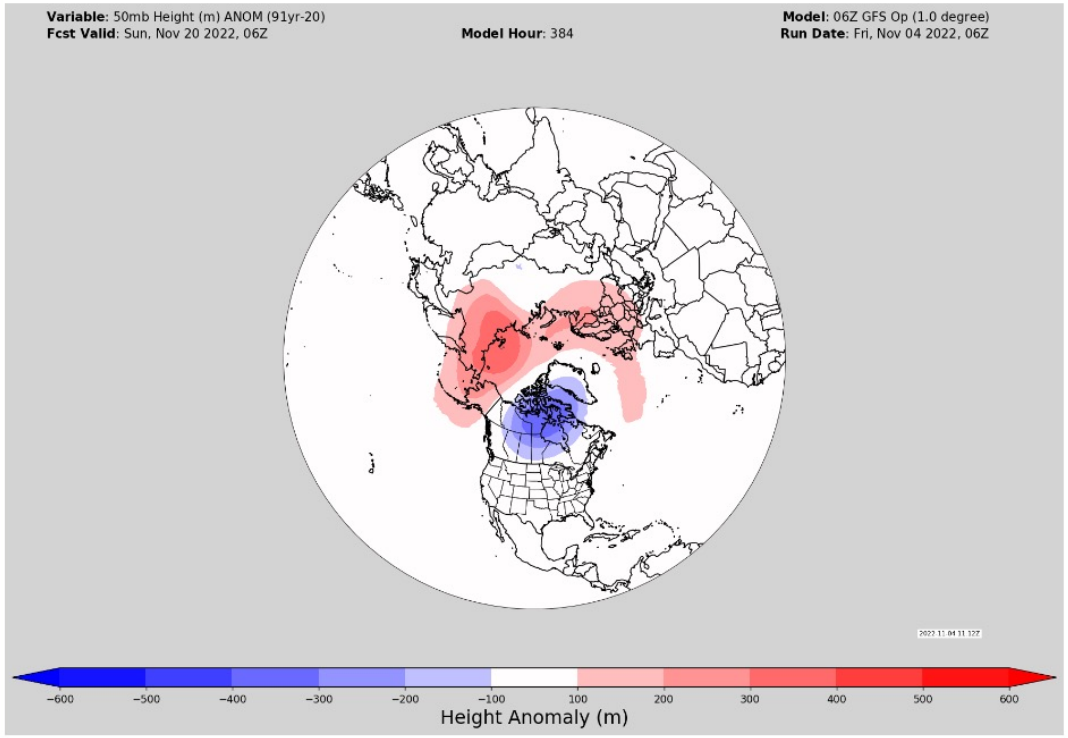
Model Guidance to Detect Pattern Signals that may Precede Major Cold and Warm Weather Regimes

ICE Data Services provides weather maps and data that is important to meteorologists for detecting the occurrence of ‘Sudden Stratospheric Warmings’ (SSW) and ‘Sudden Stratospheric Coolings’ (SSC) . **Why is this important?** There is a substantial body of peer reviewed research showing a significant relationship with SSW/SSC events and long-duration periods of anomalous cold/warm 4-6 weeks later.





Source: ICE Connect, November 2022 - ICE Data, LP

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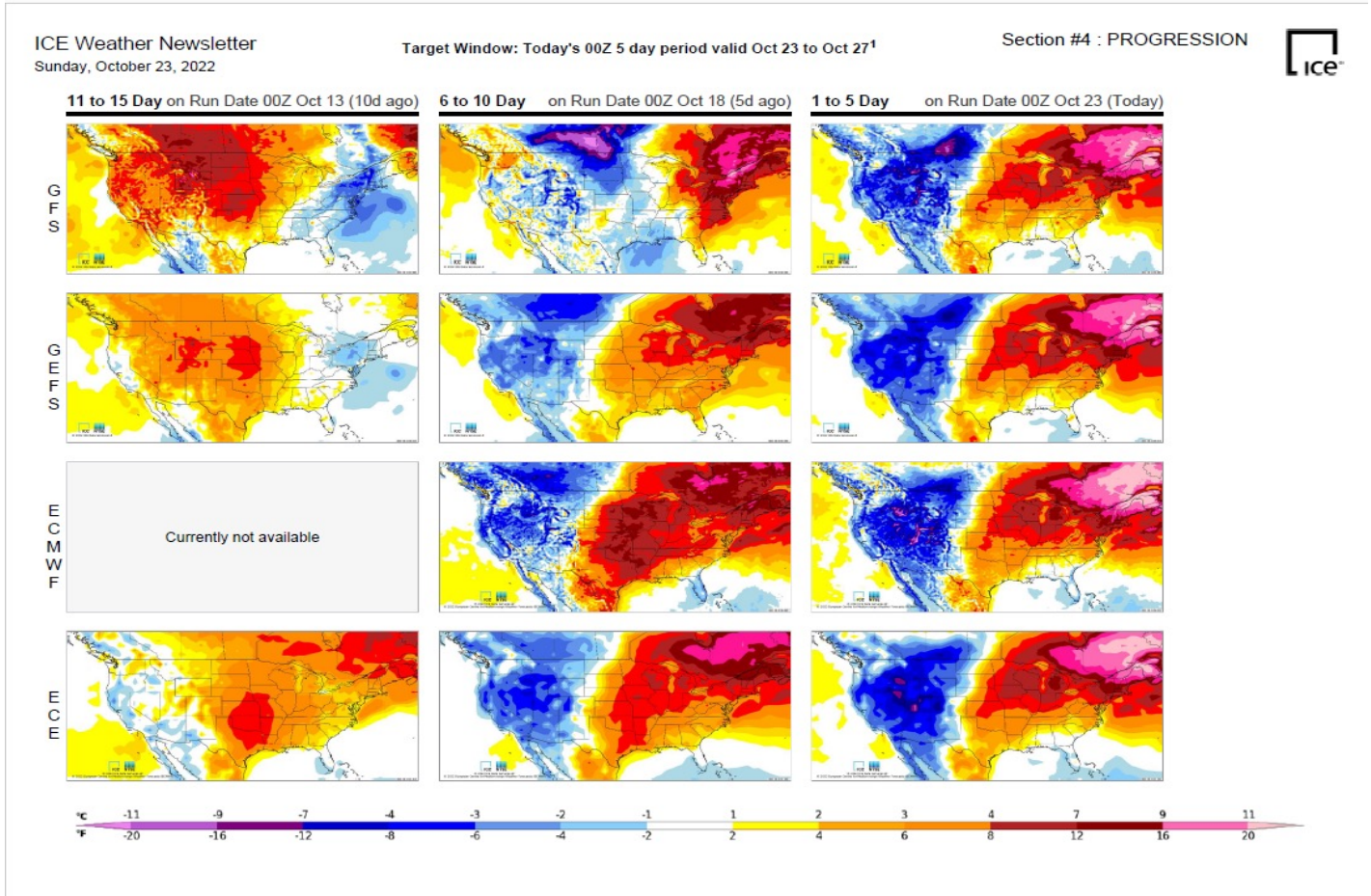
Data and Analytics to Study Weather Model Performance

ICE Data Services Desktop solutions offers volatility/performance tools for evaluating weather model performance and the potential for changes in the data.



We call this the 'Progression View' as it provides real-time information on how models are performing even before they verify.

What are the takeaways in today's Progression View (comparing the GEFS and ECE only)?

- The ECE performed better in identifying the anomalous warmth in the East from the 11 to 15 day period. In fact, the GEFS was showing Normal to Below Normal anomalies for locations that generally verified Above to Much Above Normal.
- By the 6 to 10 day period both the GEFS and ECE had generally picked up and resolved well the coverage and intensity of anomalous warmth for the East (along with the anomalous cold in the West)

Source: ICE Chat Daily Newsletter, November 2022 - ICE LP

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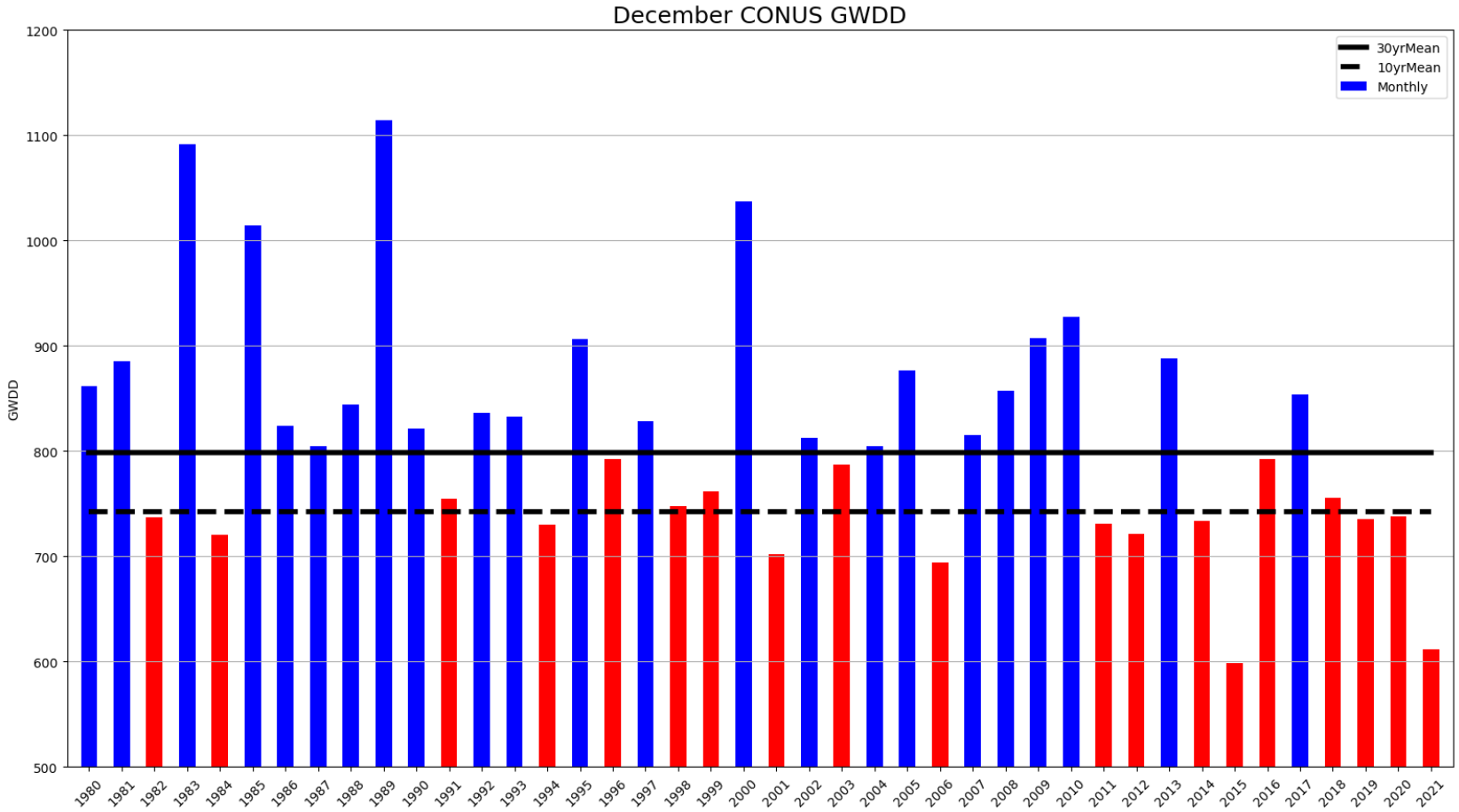
Data and Analytics to Study Climate Trends

ICE Data Services offers multiple historical data sources (CFSR and METAR) that are helpful in evaluating the impacts of climate change and other atmospheric oscillations on US Winter Weather.



Blue Bars represent December GWDDs above (or colder) the 30yr Mean

Red Bars represent December GWDDs below (or warmer) the 30yr Mean

Quick Takeaways:

- 8 of the past 10 Decembers are warmer than normal
- 2 of the warmest Decembers on record (since 1980) occurred in the past 10 years

 Source: ICE Connect, Python API November 2022 - ICE Data, LP

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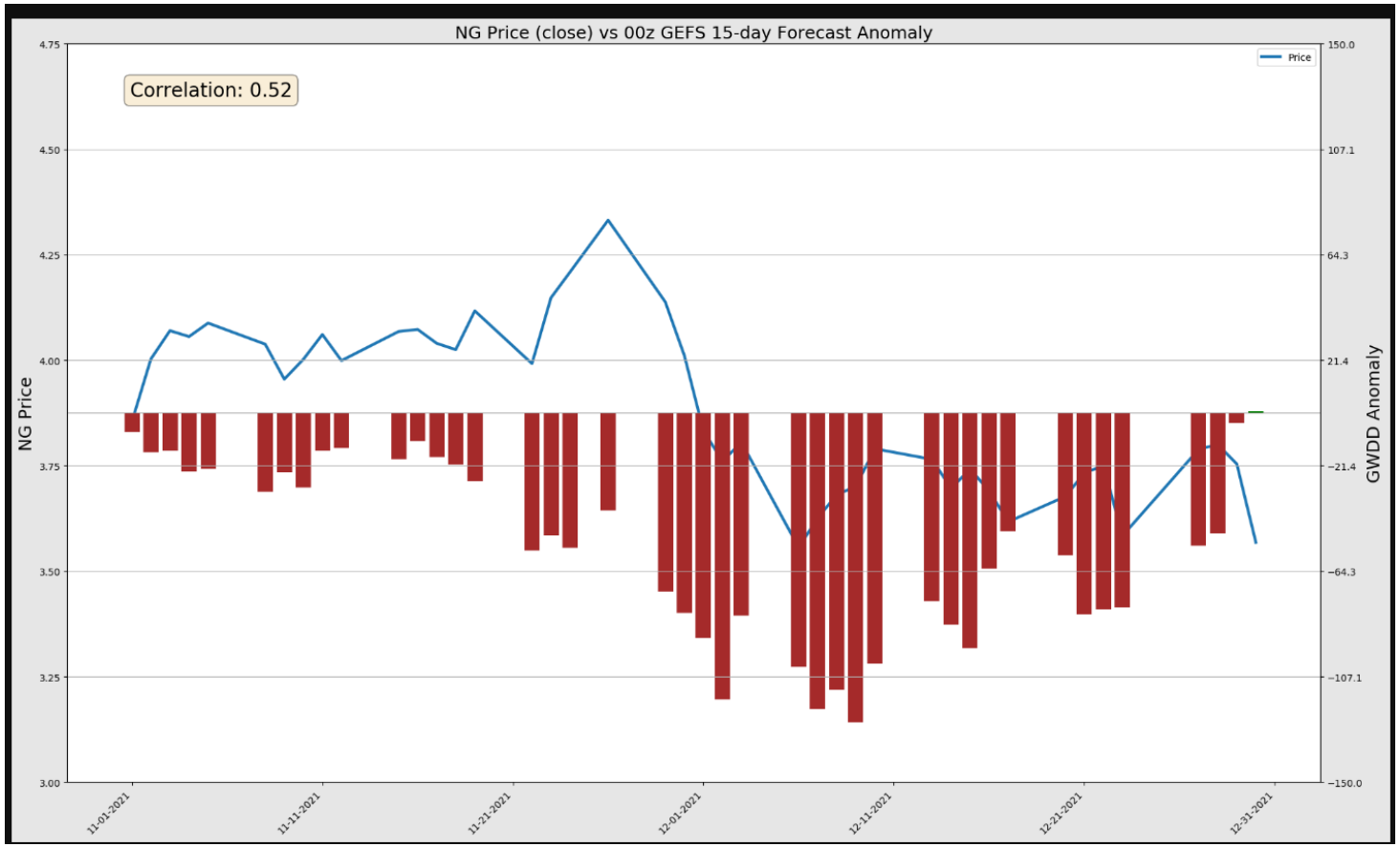
Data and Analytics to Study the relationship between Weather and Price

ICE Data Services is provider for weather and price data and analytics. In this example (utilizing the ICE Python API) we evaluate last winter's (2021-22) early season relationship between the Natural Gas market and the GEFS CONUS GWDD 15-day forecast.



Source: ICE Connect, Python API November 2022 - ICE Data, LP

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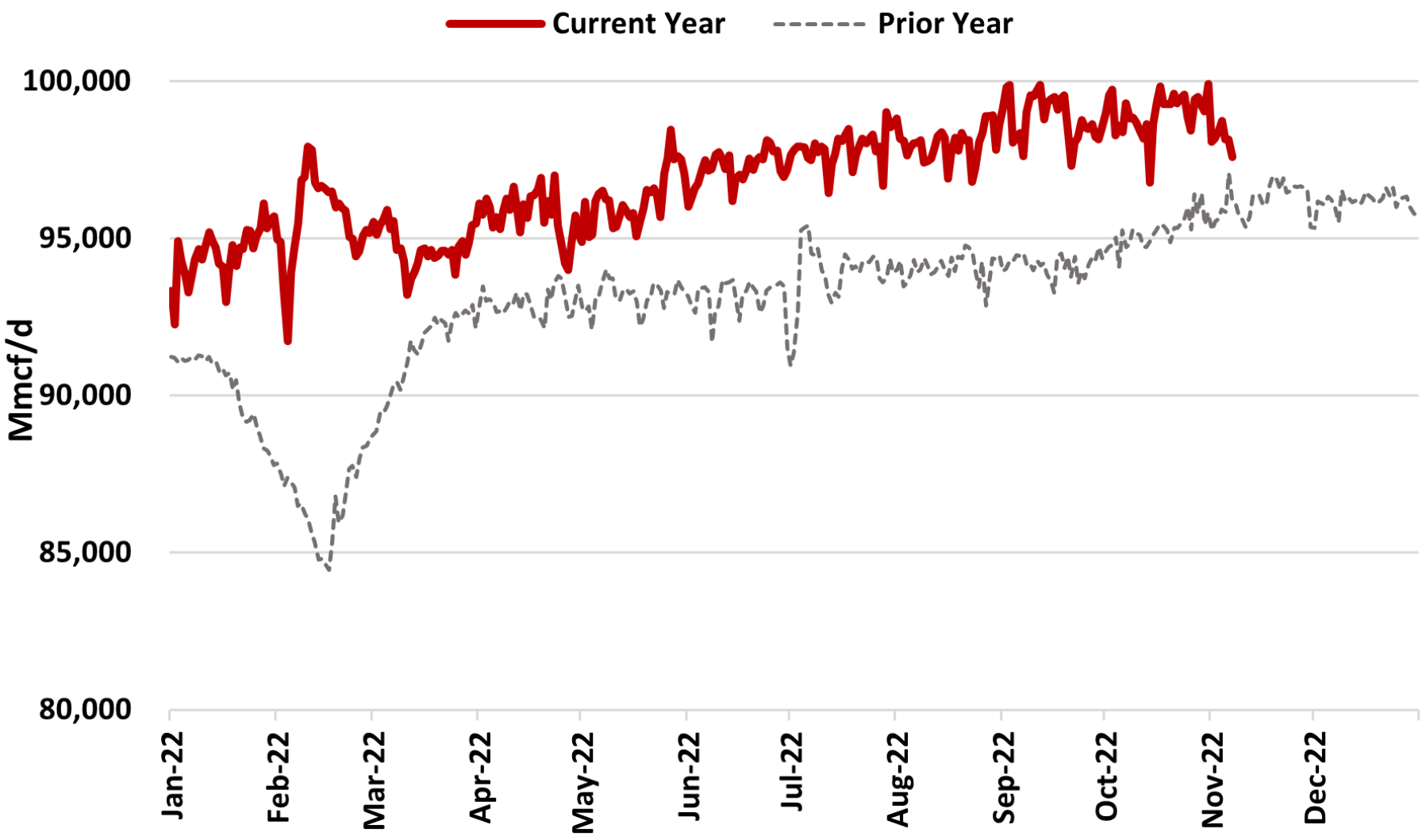
Natural Gas Supply & Demand Fundamentals

James Bevan
Vice President of Research,
Vice President of Operations,
Criterion Research

Lower 48 Natural Gas Production

Criterion Data via ICE RTD

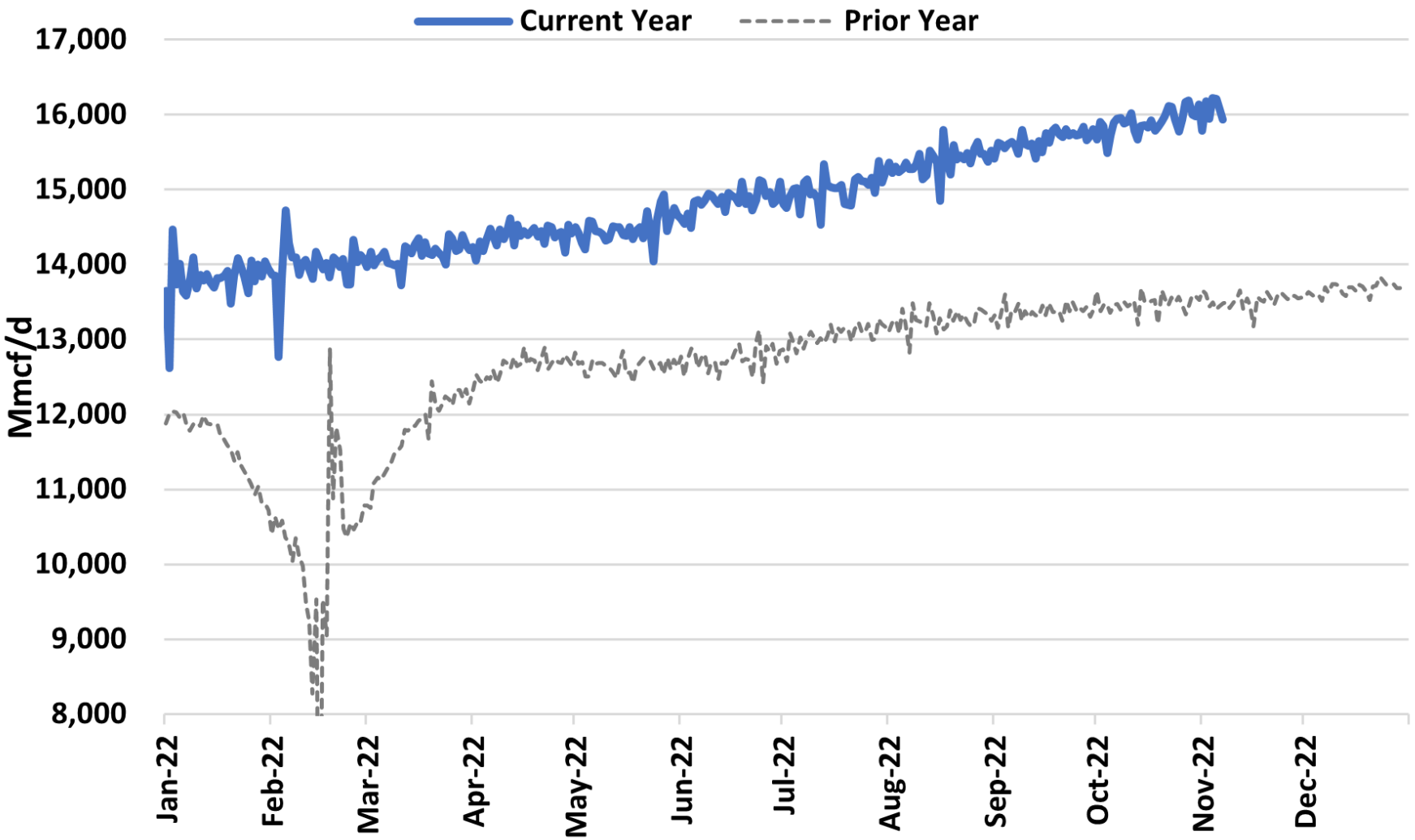


ICE Ticker: FDSD.NGPR.L48.SUM.A-CRIT

Source: Criterion Research, LLC

Permian Basin Natural Gas Production

Criterion Data via ICE RTD



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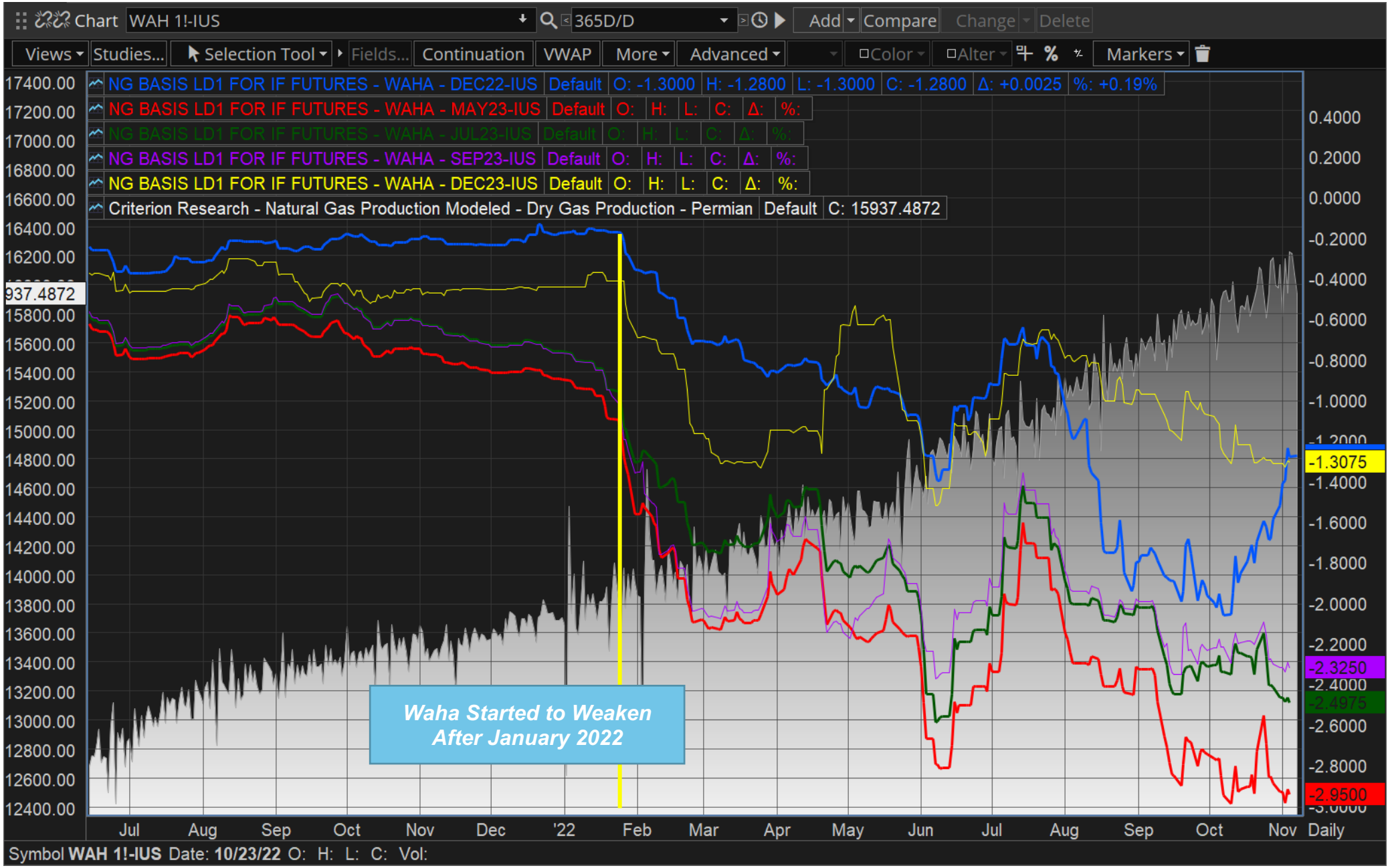
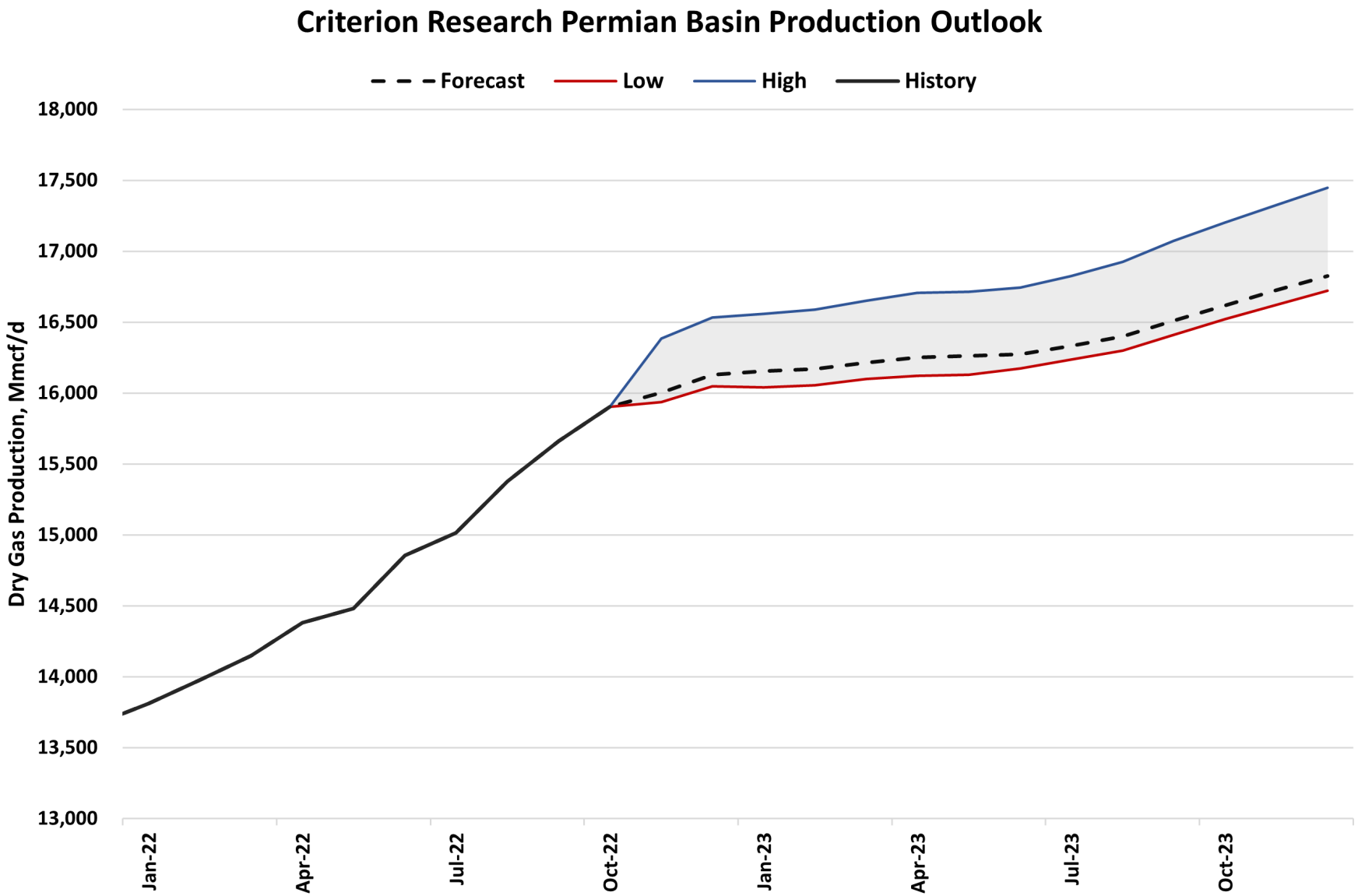
Source: Criterion Research, LLC



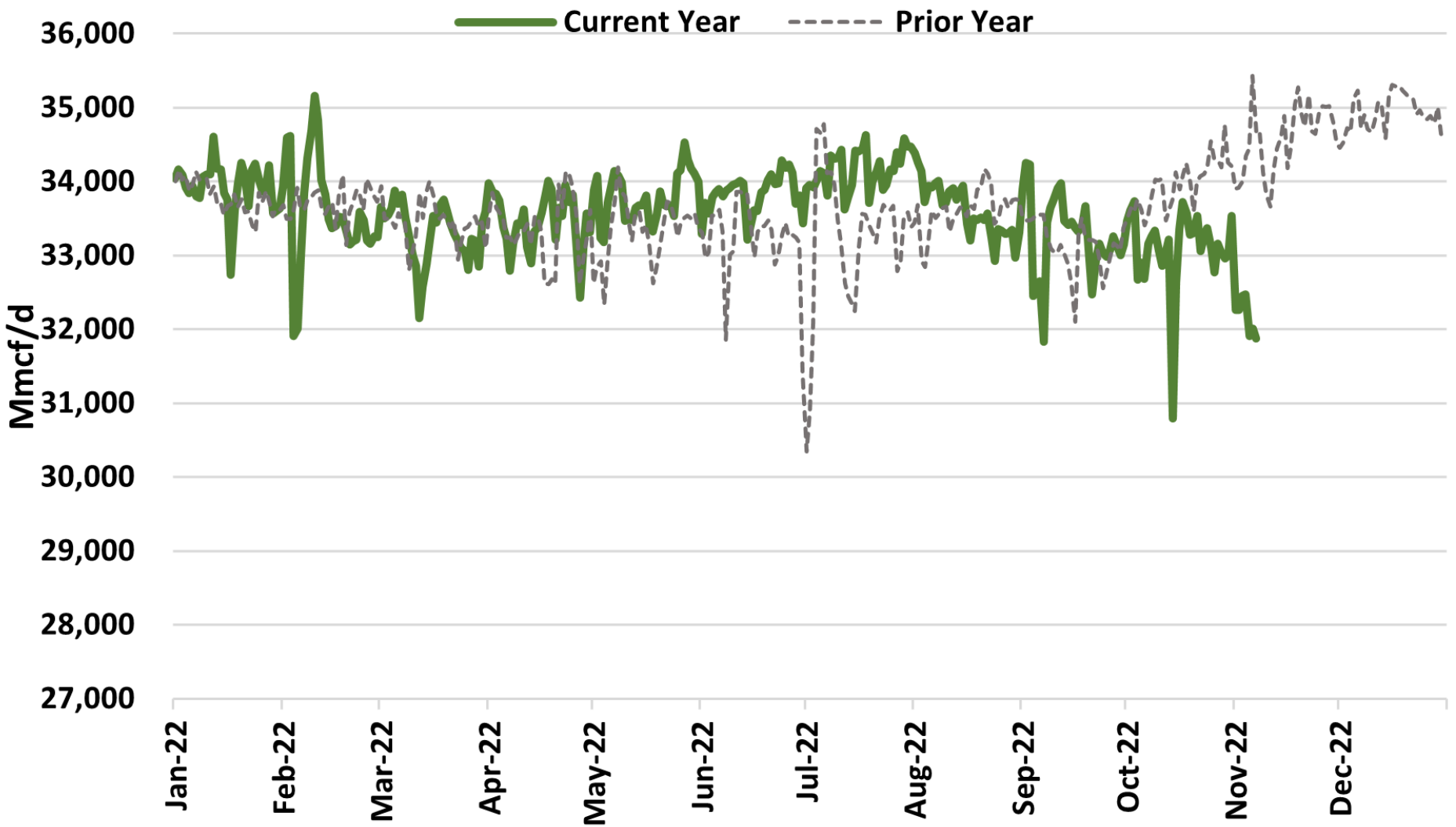
Source: Criterion Research, LLC



Source: Criterion Research, LLC

Appalachian Natural Gas Production

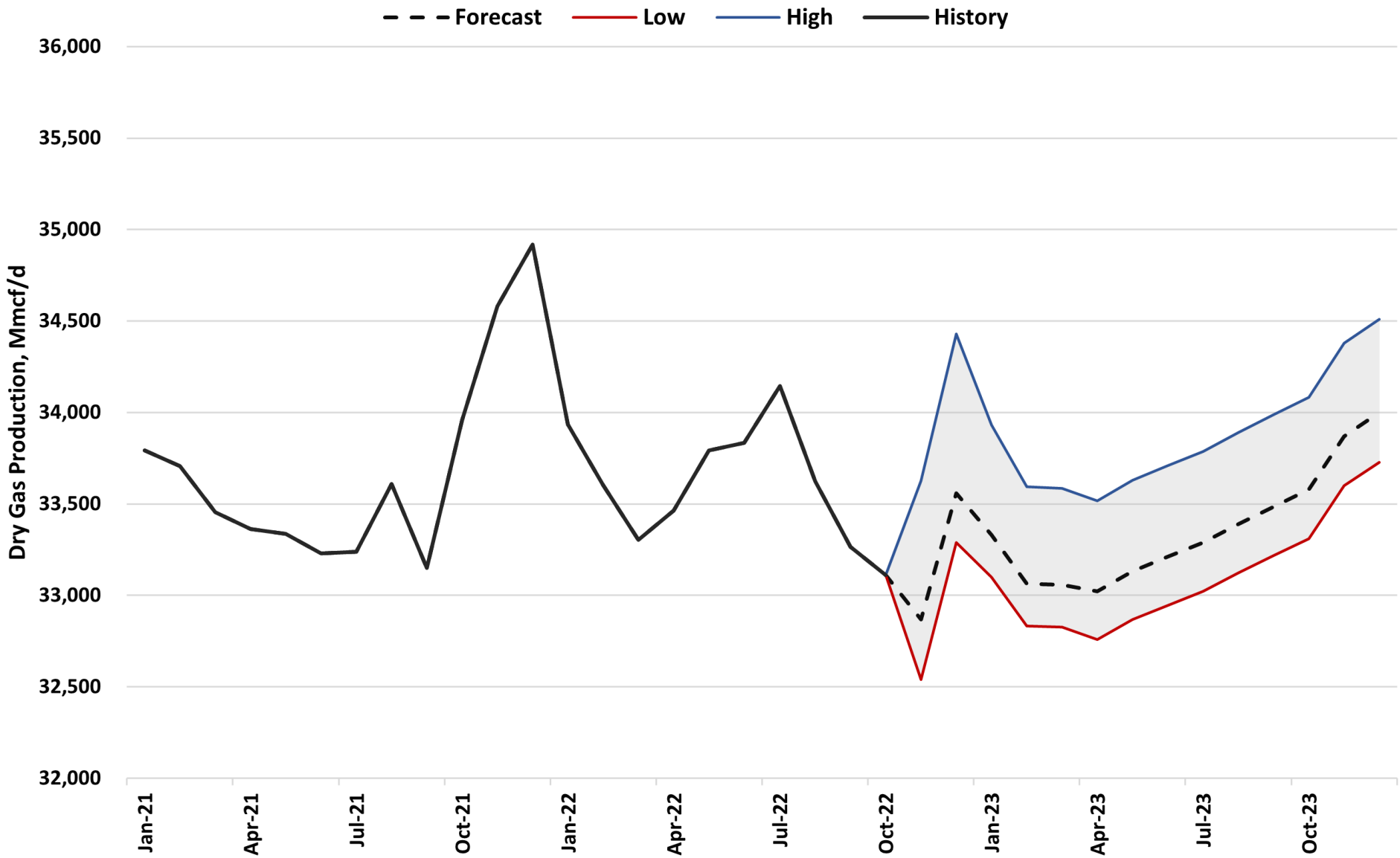
Criterion Data via ICE RTD



ICE Ticker: FDSD.NGPR.NE.APP.A-CRIT

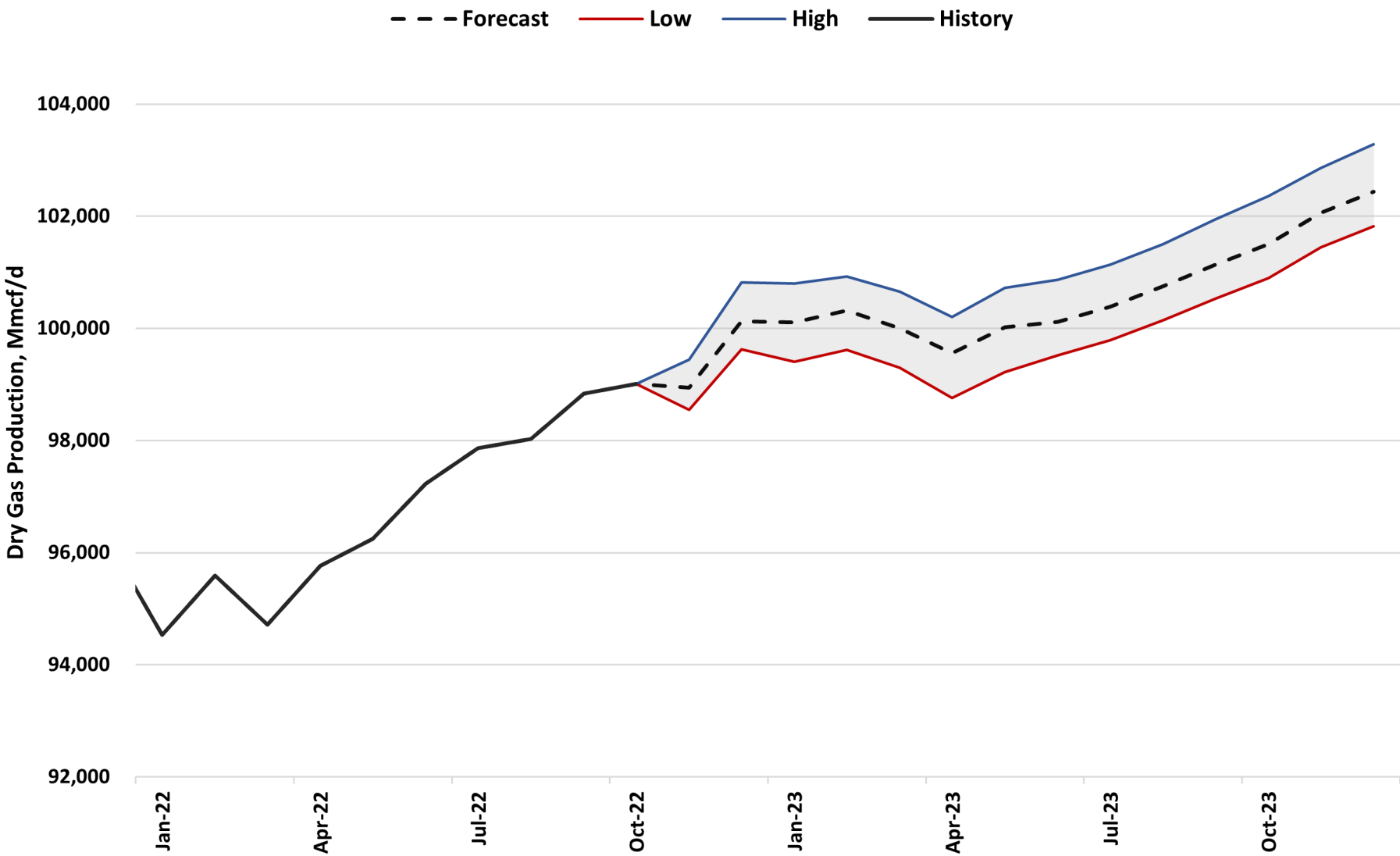
Source: Criterion Research, LLC

Criterion Research Appalachian Production Outlook



Source: Criterion Research, LLC

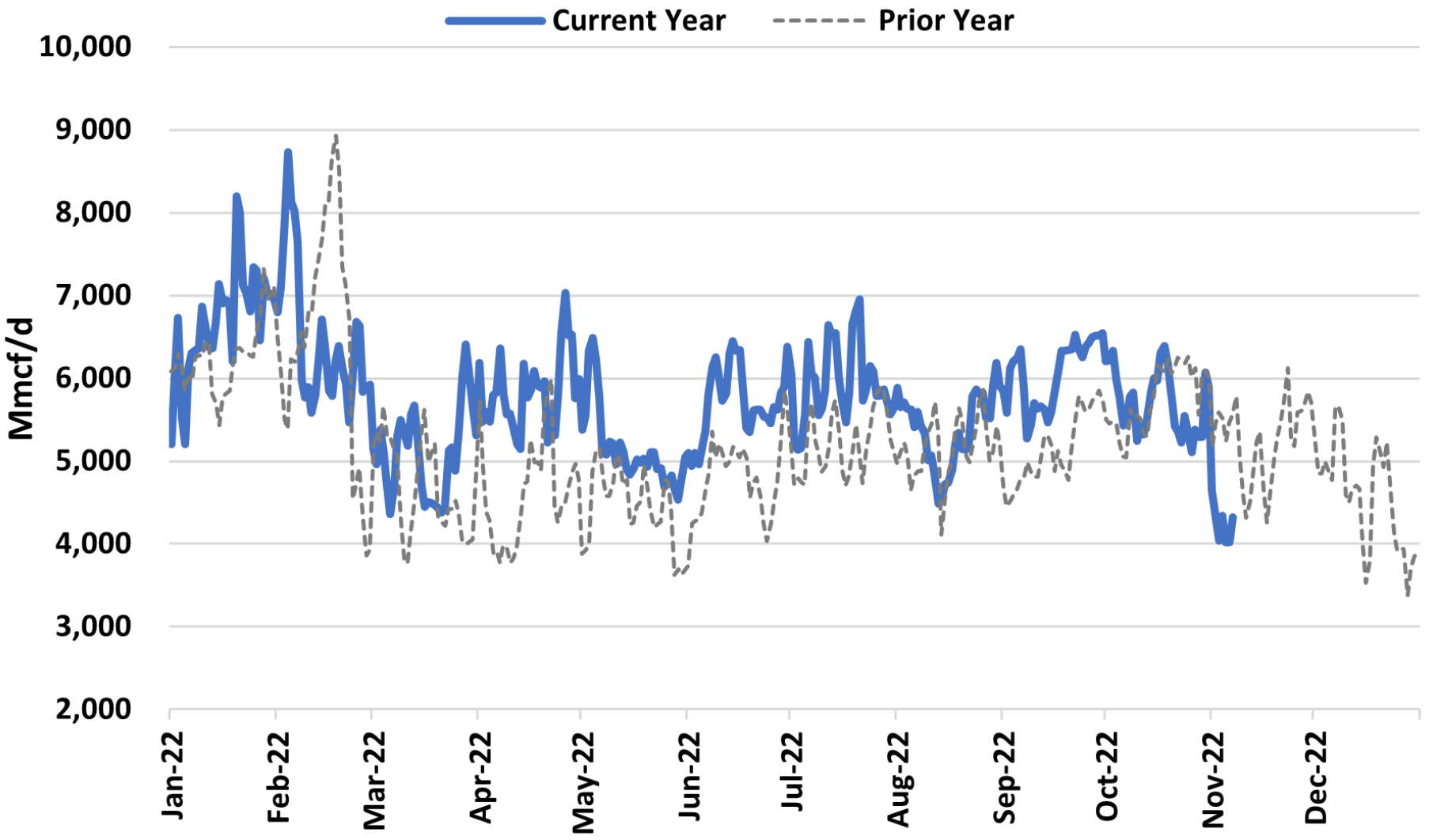
Criterion Research Lower 48 Natural Gas Production Outlook



Source: Criterion Research, LLC

Net Canadian Natural Gas Imports to United States

Criterion Data via ICE RTD

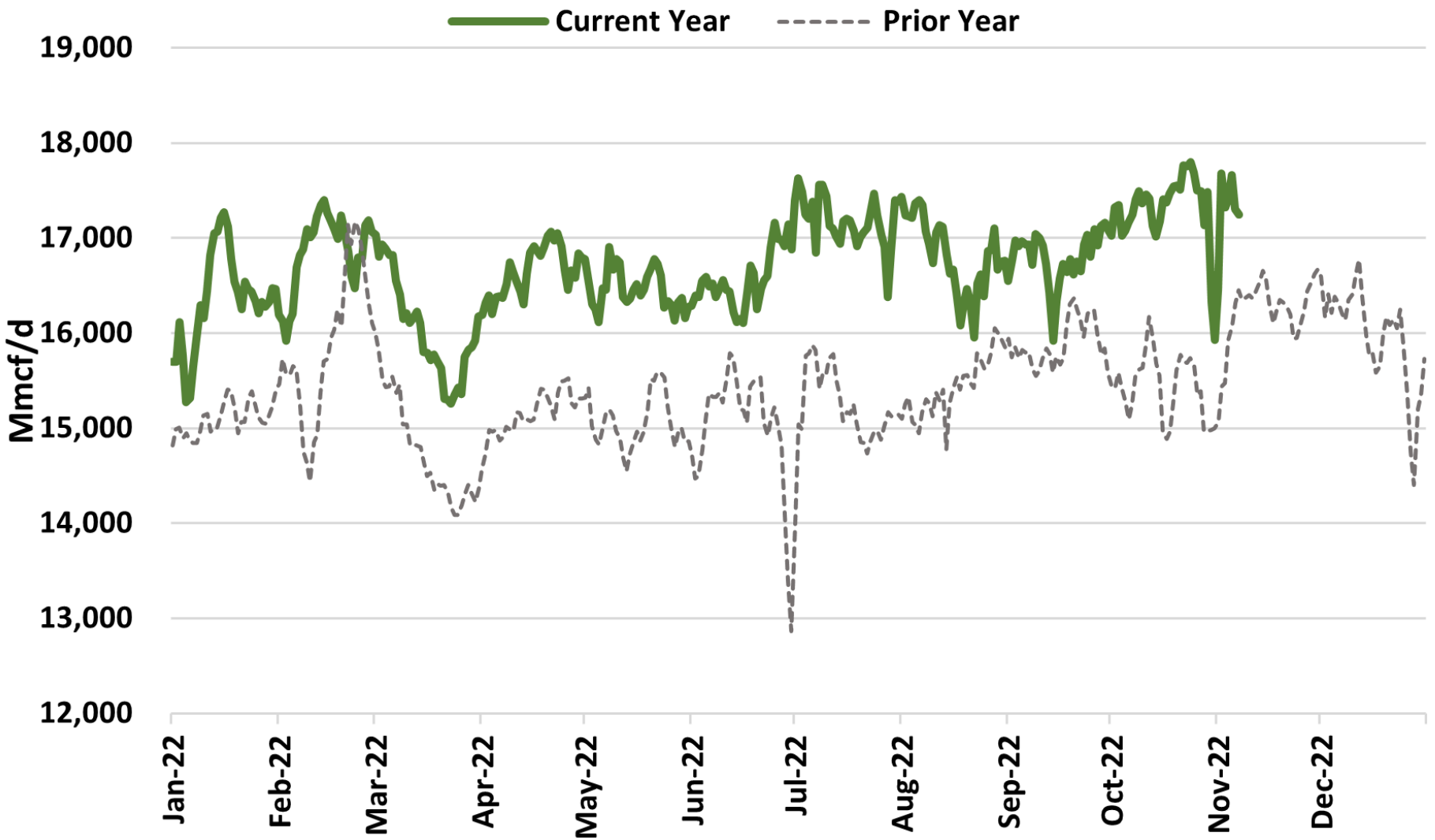


ICE Tickers: PLAG.CN2US.SUM.NET.A-CRIT

Source: Criterion Research, LLC

Canadian Natural Gas Production

Criterion Data via ICE RTD



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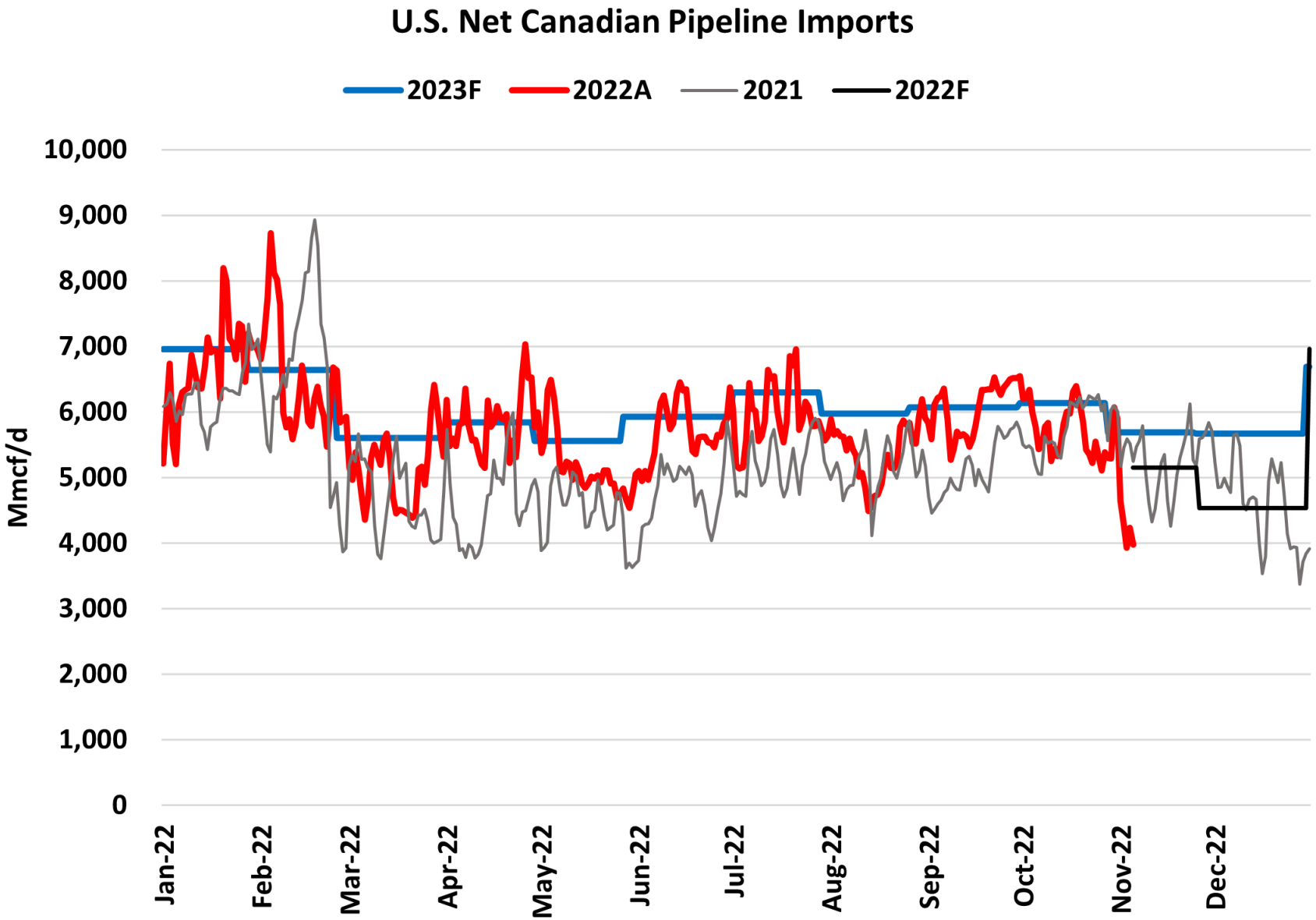
Source: Criterion Research, LLC



Source: Criterion Research, LLC

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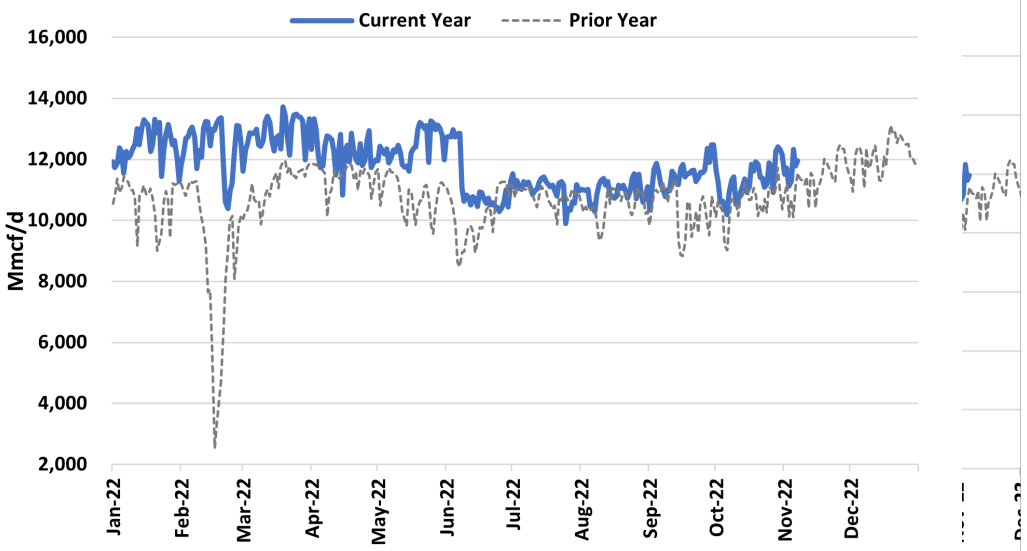
U.S. LNG Feed Gas Nominations

Criterion Data via ICE RTD



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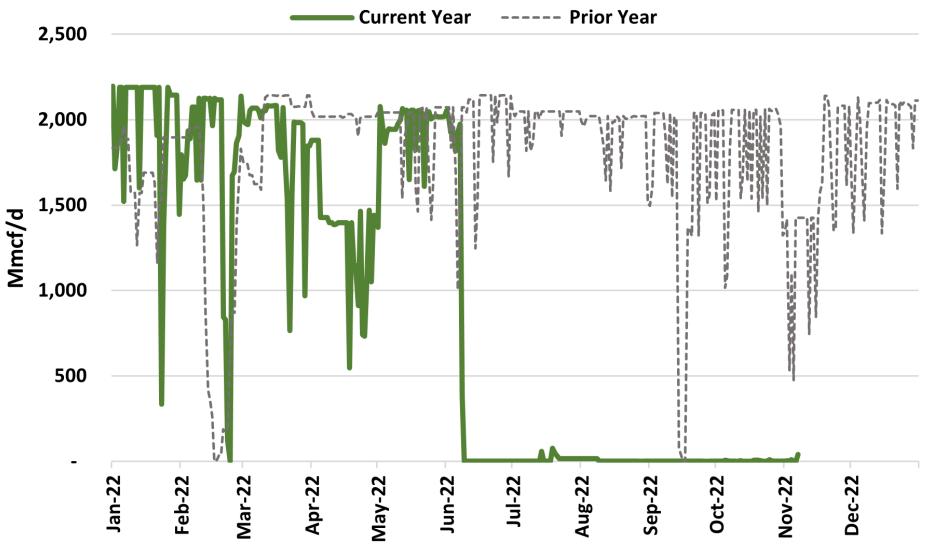
Freeport LNG Feed Gas Nominations

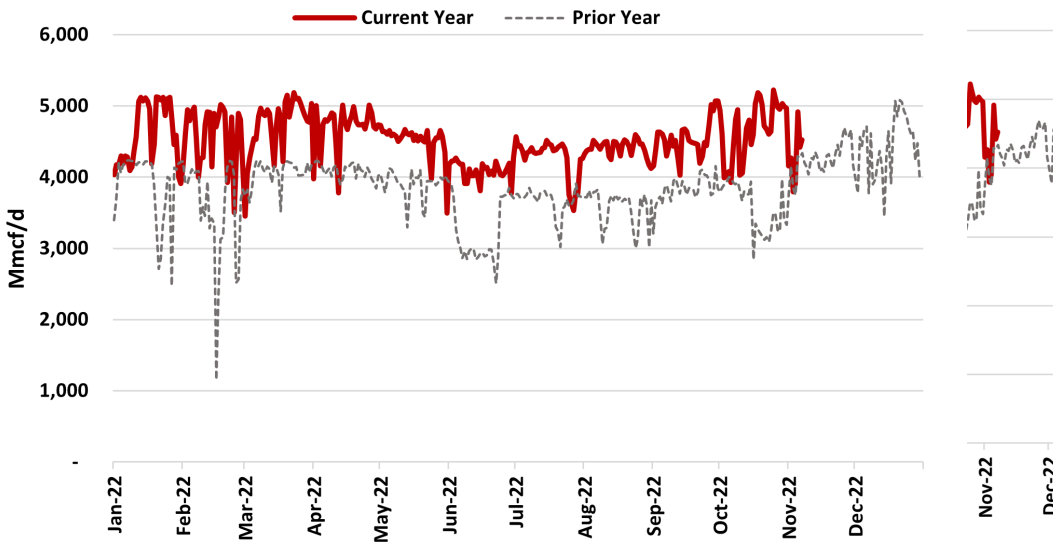
Criterion Data via ICE RTD



ICE Ticker: PLAG.LNGEXP.SUM.FLNG.A-CRIT

Sabine Pass LNG Feed Gas Nominations

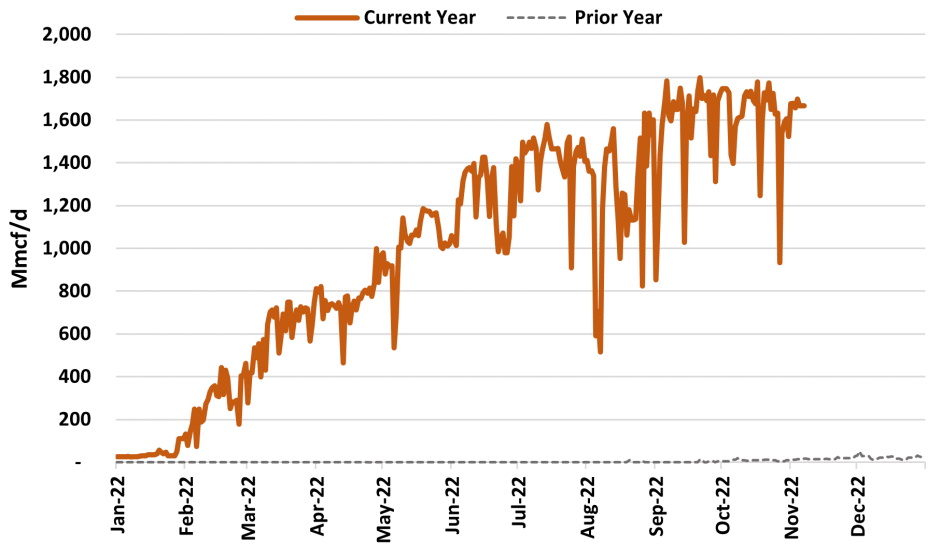
Criterion Data via ICE RTD



ICE Ticker: PLAG.LNGEXP.SUM.SPL.A-CRIT

Calcasieu Pass LNG Feed Gas Nominations

Criterion Data via ICE RTD

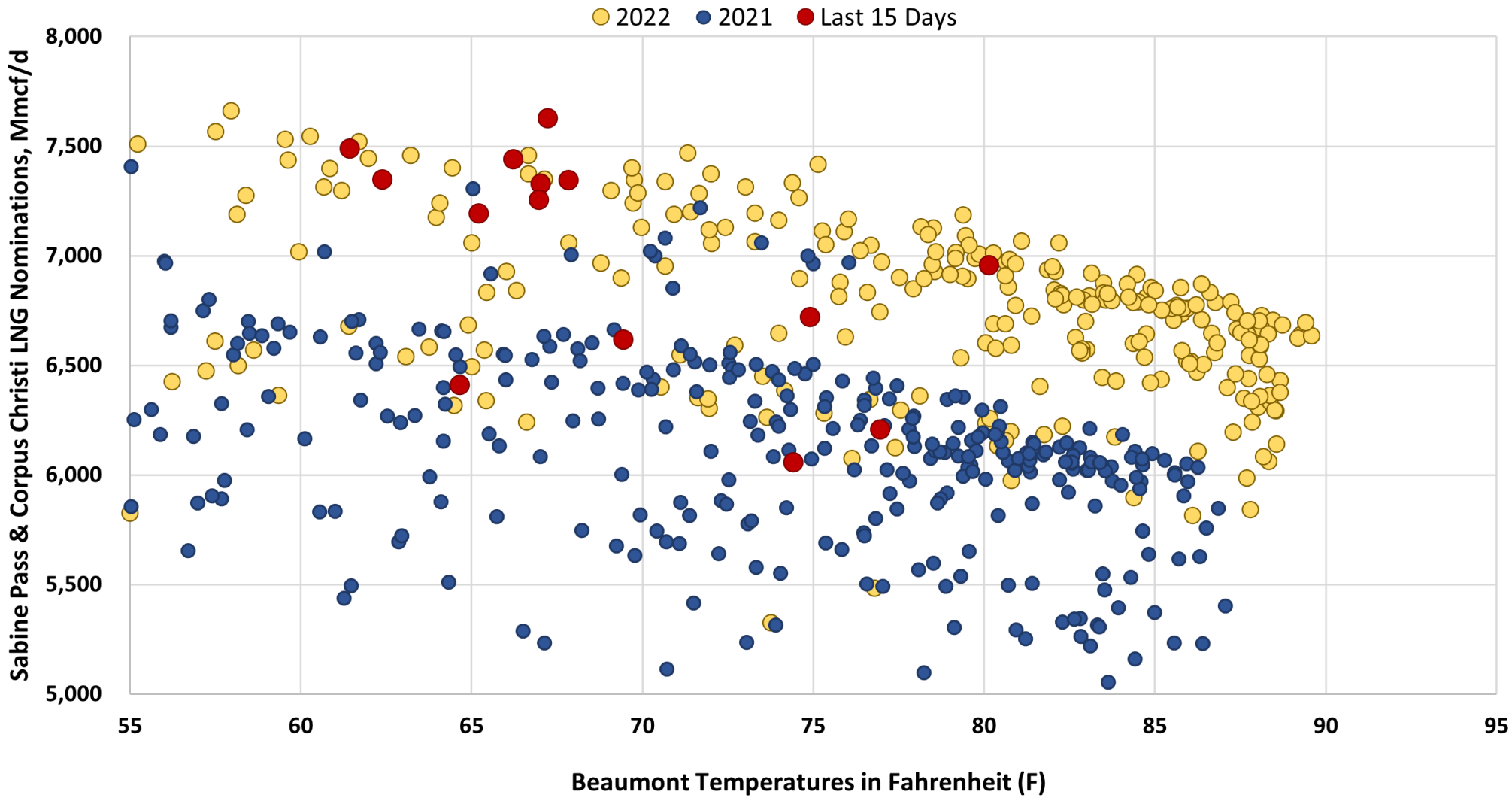


ICE Ticker: PLAG.LNGEXP.SUM.CALCP.A-CRIT

Source: Criterion Research, LLC

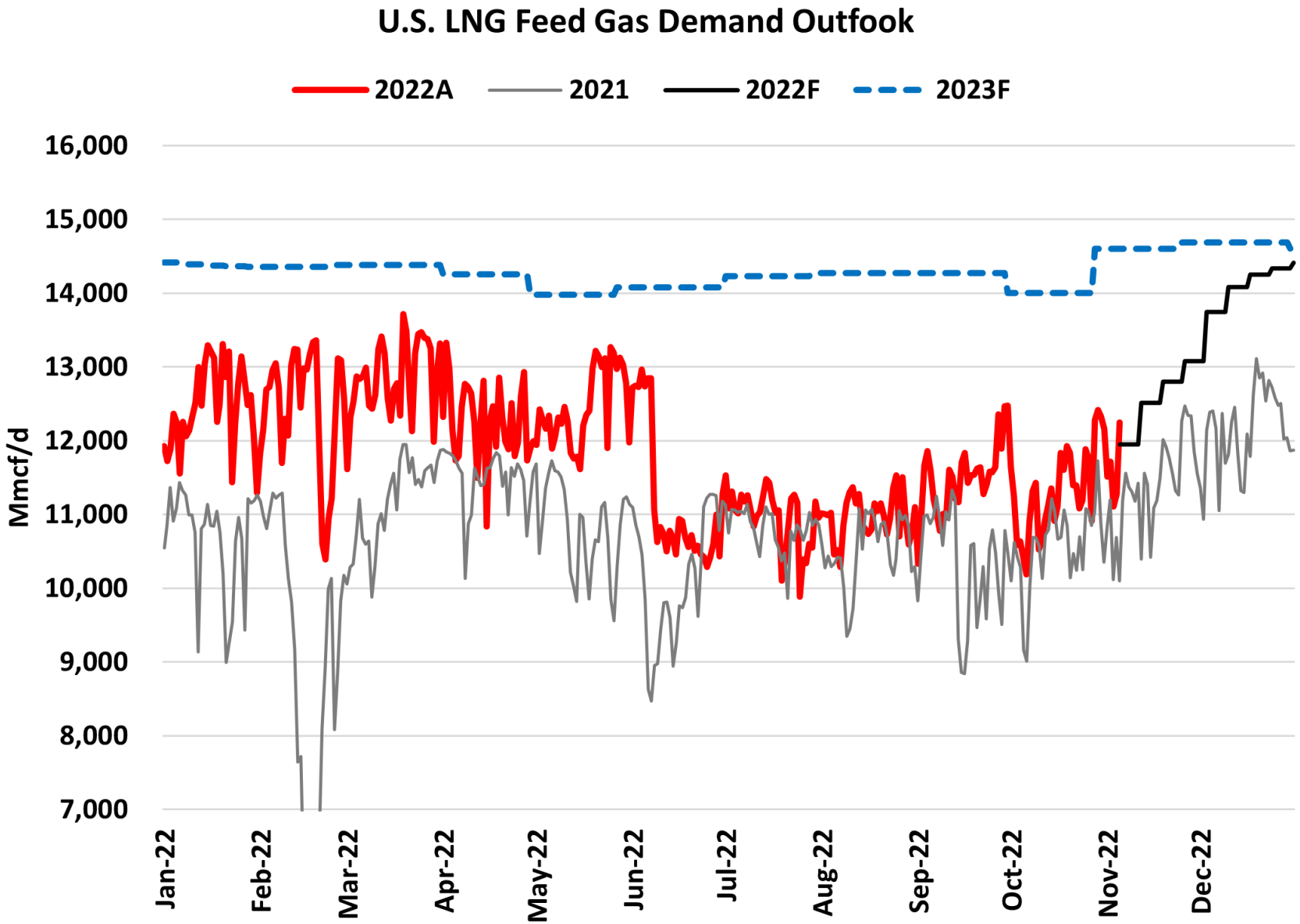
Cheniere Facility Nominations vs. Beaumont, TX Temperatures

Criterion & ICE Weather Data via ICE RTD



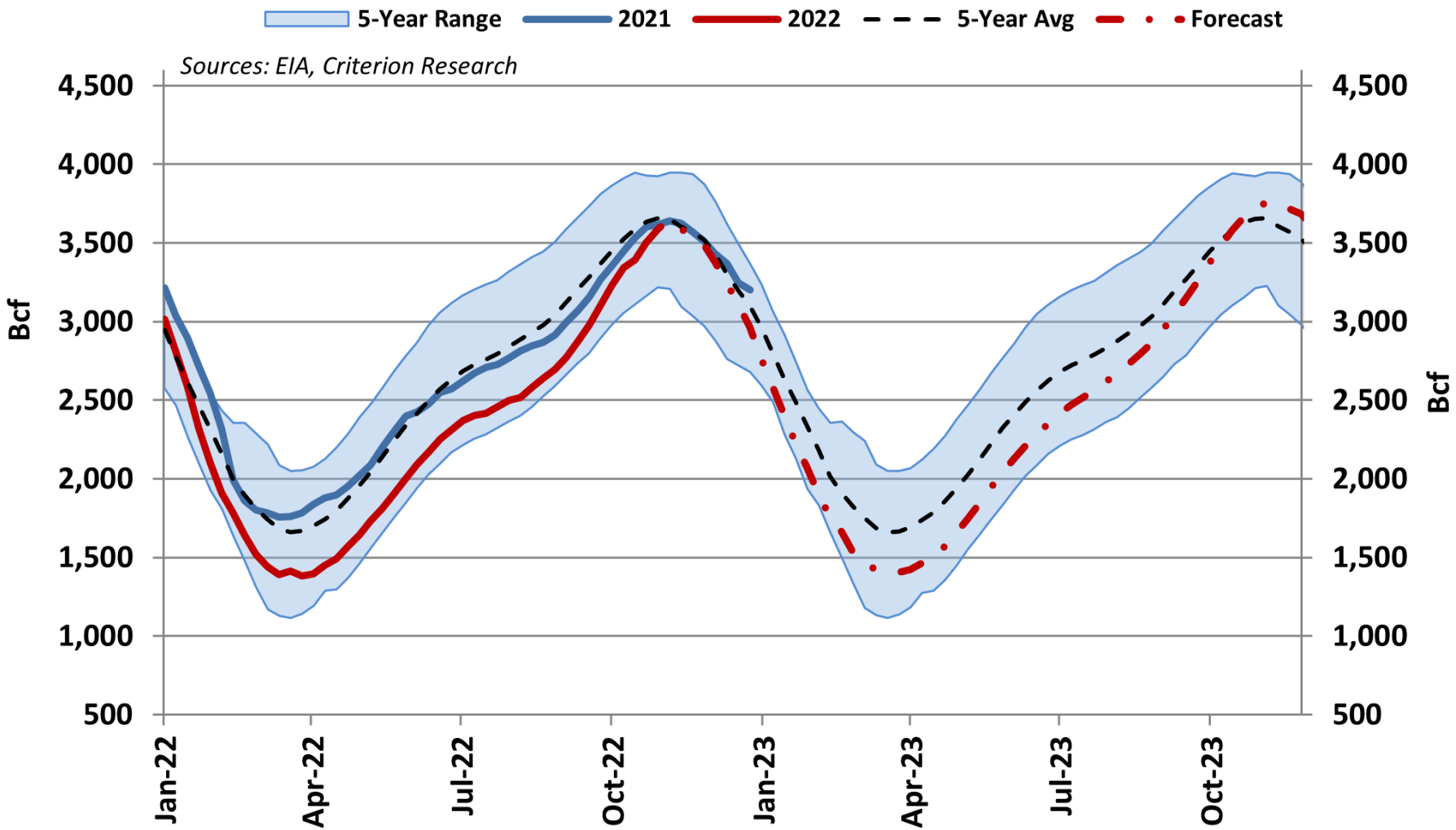
ICE Tickers: PLAG.LNGEXP.SUM.SPL.A-CRIT, PLAG.LNGEXP.SUM.CCL.A-CRIT, KORG-METR

Source: Criterion Research, LLC



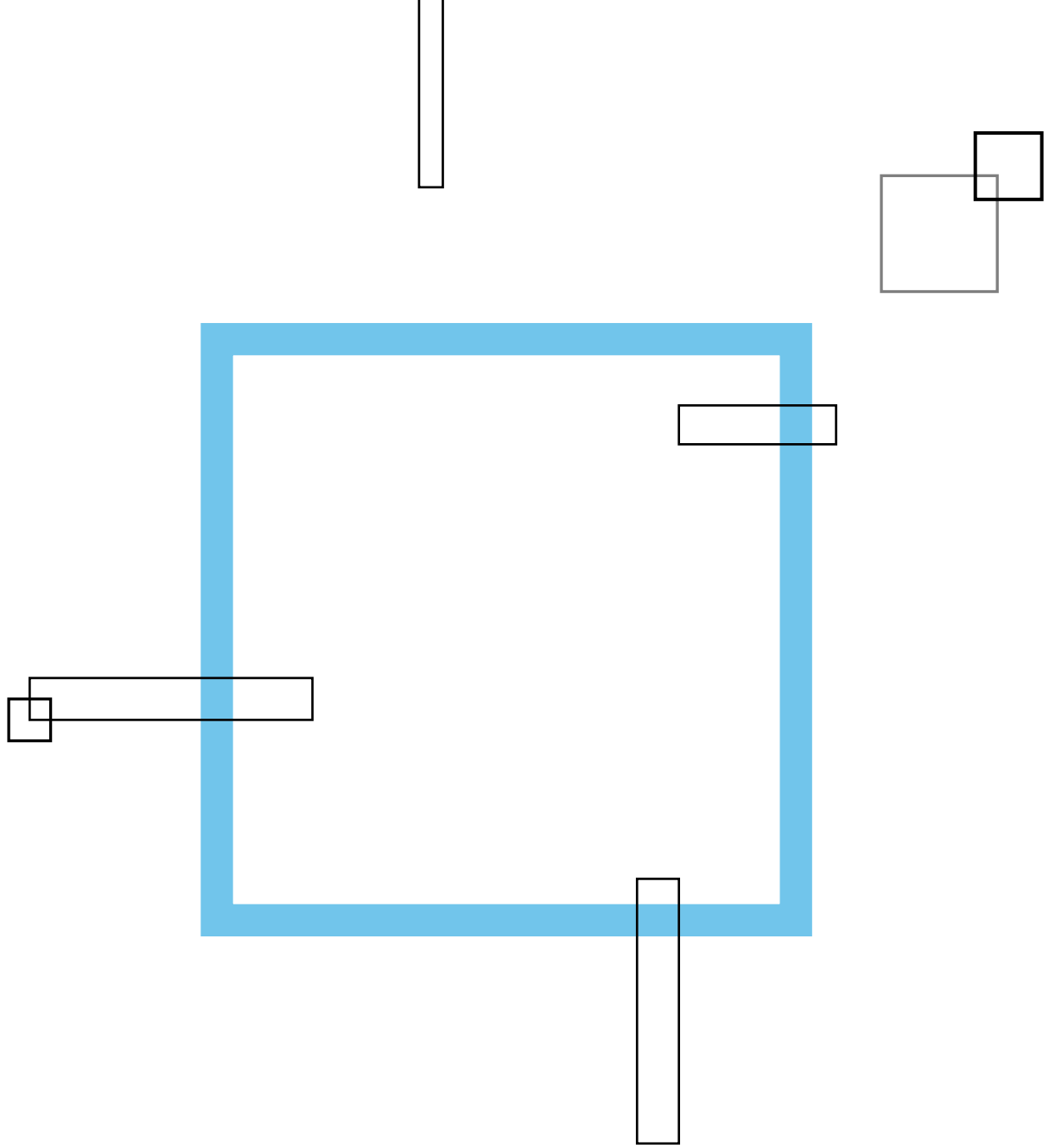
Source: Criterion Research, LLC

Lower 48 NG Storage

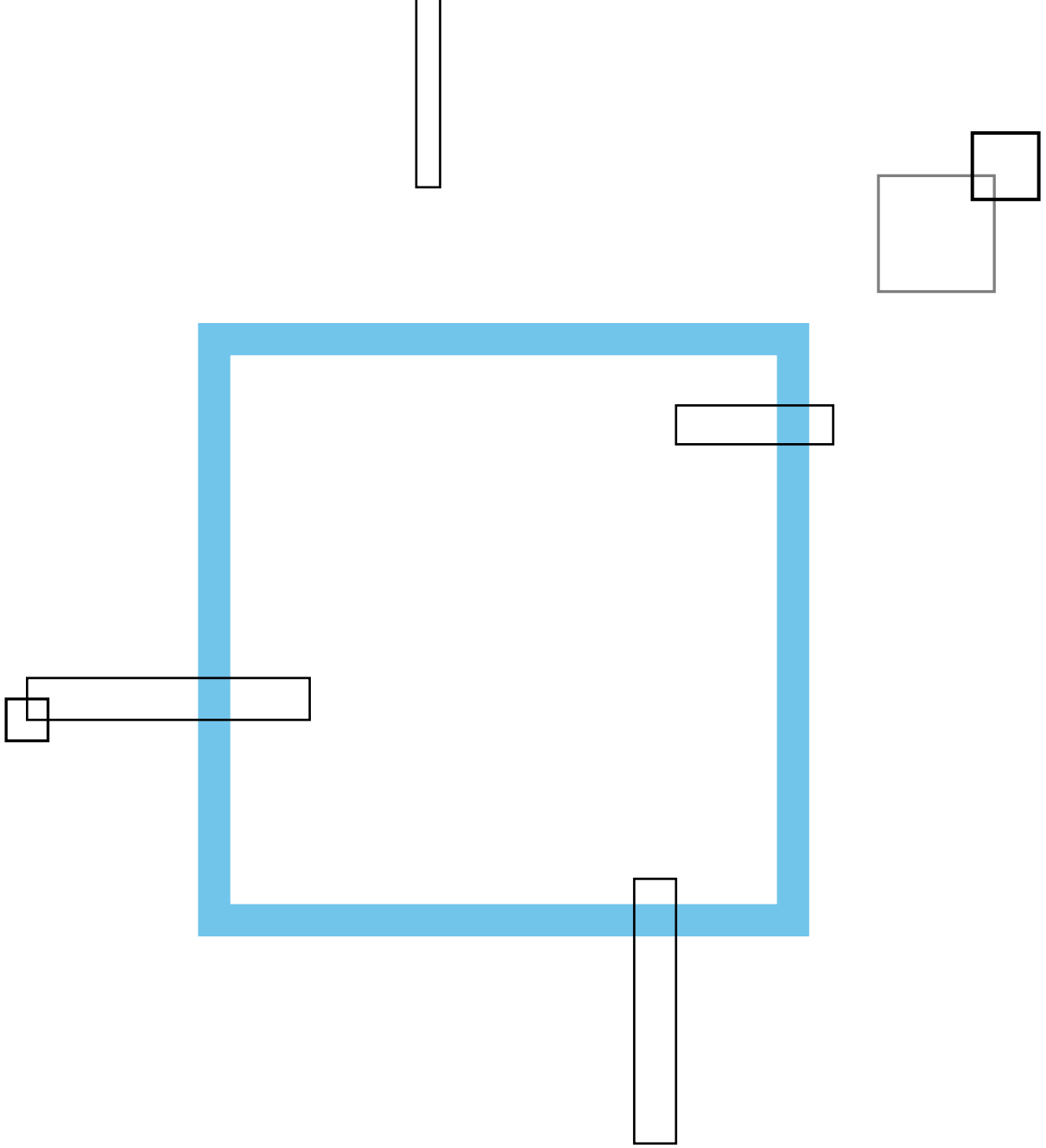


Source: Criterion Research, LLC

Q&A



Thank you



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