Natural Gas Supply Association

2022-2023 WINTER OUTLOOK

MARKETS MATTER

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Understanding the Symbols

^	Upward market pressure
—	Flat market pressure
v	Downward market pressure

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2022-2023 Winter Outlook: Outline

LOOKING AHEAD TO WINTER 2022-2023

Market Pressure Points

Production/Supply | Weather | Economy | Demand | Storage

Wild Card Factors

Winter Expectations

SUMMARY

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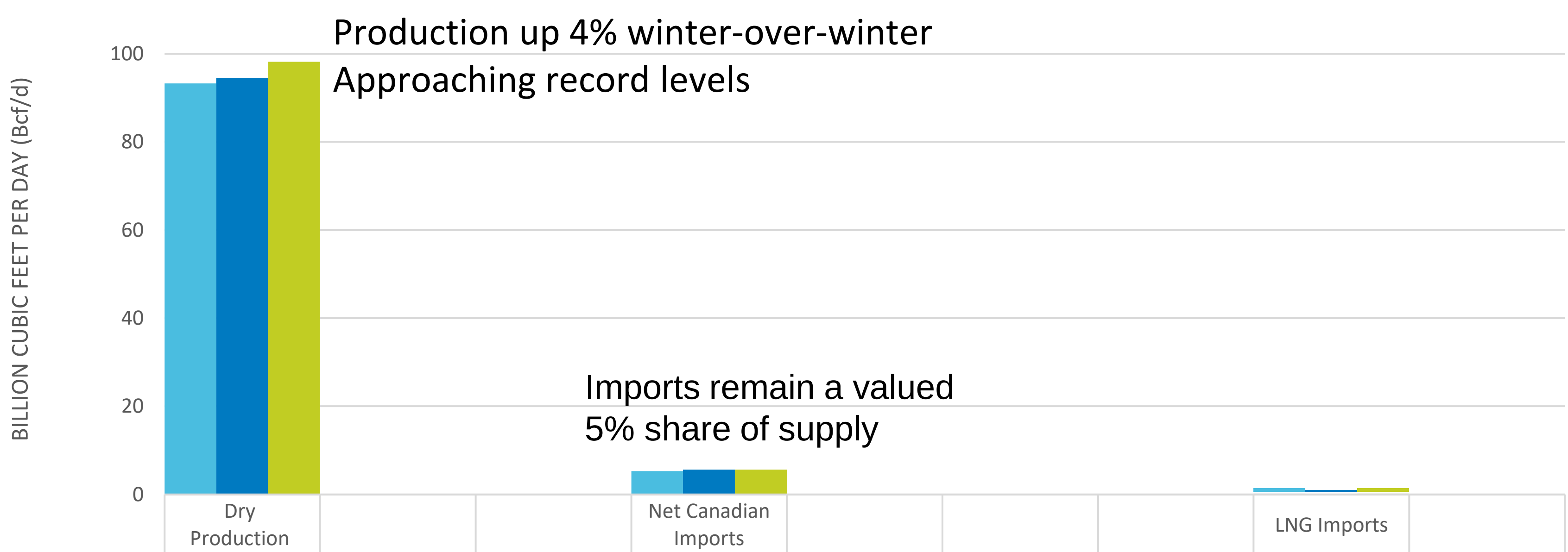
Supply: Winter Production Projected 4% Higher Than Last Winter

Winter 2022-2023 Supply Forecast: 104 Bcf/d

Previous 3-year average: 98.8 Bcf/d   Last winter's average 100.2 Bcf/d



	Dry Production	Net Canadian Imports	LNG Imports
3Yr Avg	93.3	5.3	0.2
2021-2022 Actual	94.5	5.6	0.1
2022-2023 Projected	**98.2**	**5.6**	**0.2**

Winter-to-winter pressure on natural gas prices

Data Source: Energy Ventures Analysis, Inc. EIA

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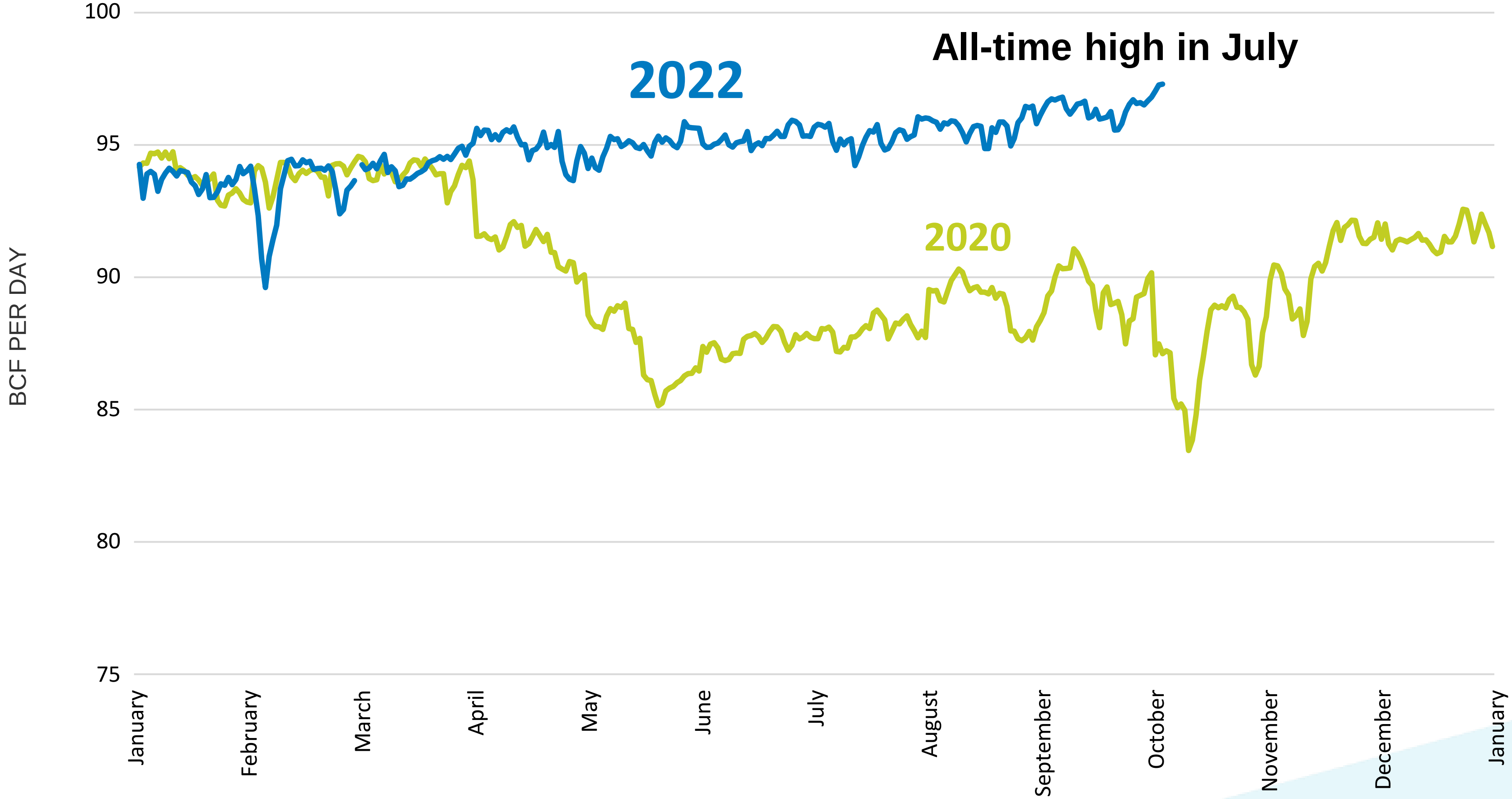
The Resounding Comeback of Natural Gas Production

2022 Natural Gas Production Compared to 2020



Data Source: Platts Global Insights, Oct. 2022

DUC Depletion and Rig Count Point to Strong Production Growth

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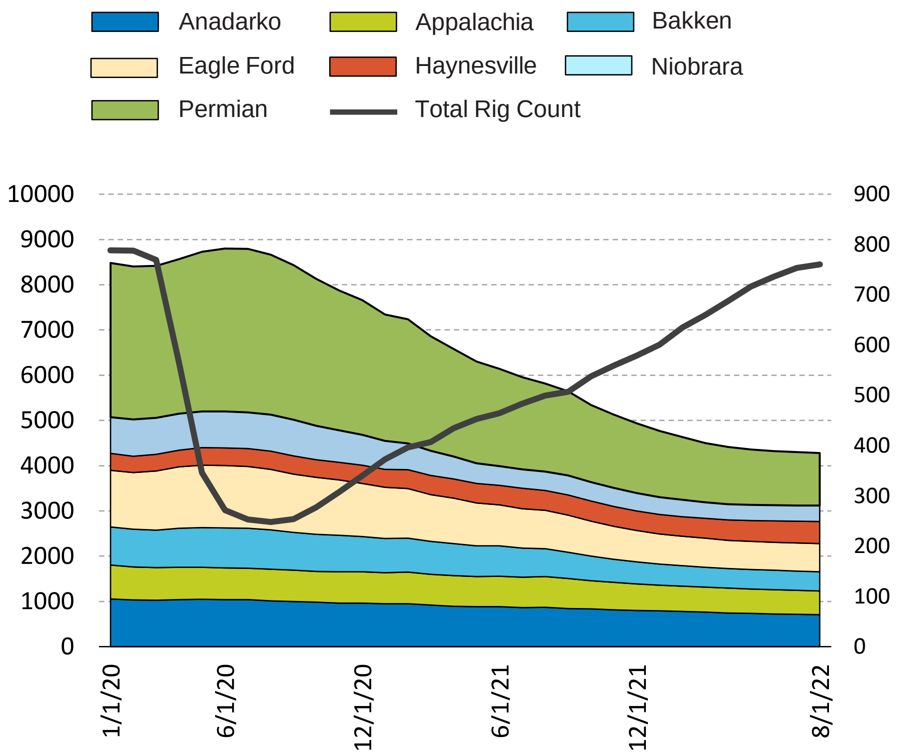
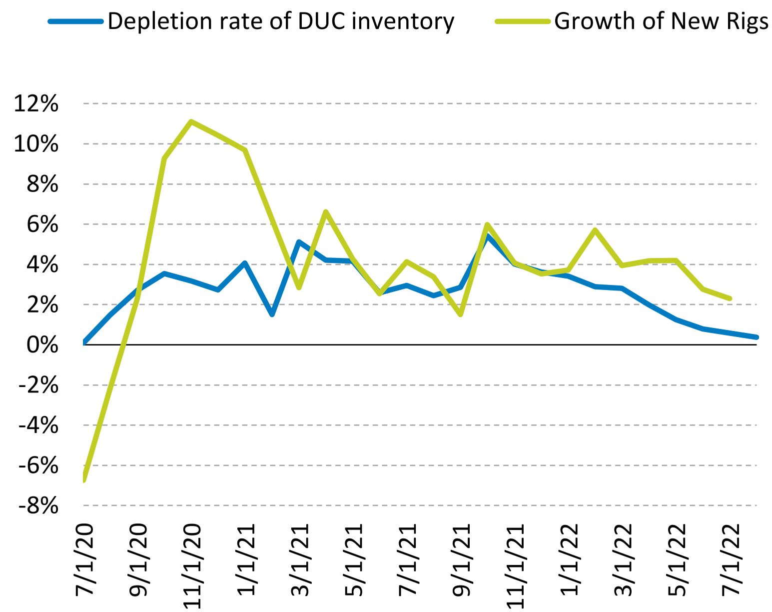
Drilled but Uncompleted Wells Inventory in Major U.S. Producing Areas



Data Source: EIA

New Gas Supply Source Growth Indicators: DUC vs Rig



Data Source: EIA; Energy Ventures Analysis

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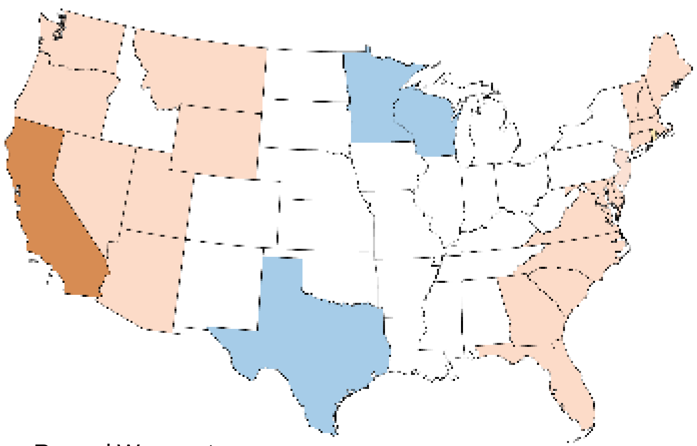
Demand: Winter Heating Season (November-March Weather)

Last Winter
2021-2022 ACTUAL

ACTUAL: 3,327 Heating degree days

1% *warmer* than last 3 winters



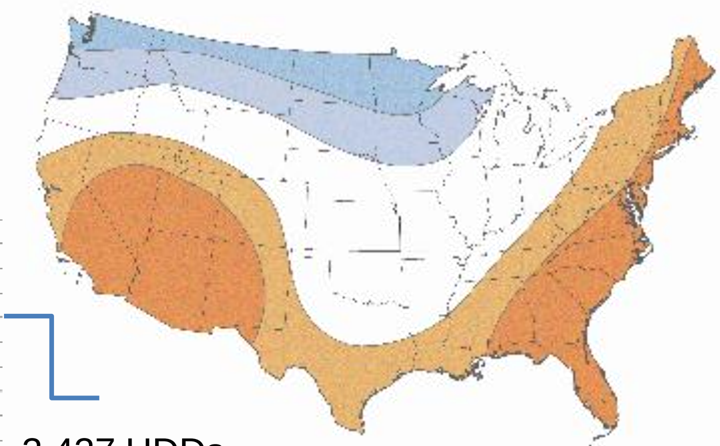
Record Warmest
Warmer Than Normal
Above Average
Below Average

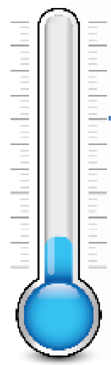
This Winter
2022-2023 FORECAST

Forecast: 3,437 Heating degree days

3.3% *colder* than last winter

2.8% *colder* than last three winters





3,327 HDDs Actual 2021-2022 winter

3,437 HDDs Forecast 2022

Winter-to-winter pressure on natural gas prices

Data Source: Energy Ventures Analysis.

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Demand: Economy

Winter Season Period-to-period change	Last Winter 2021-2022 ACTUAL	This Winter 2022-2023 FORECAST
GDP Growth (Year-over-Year)	2.7%	-0.5%
Manufacturing	77%	79.8%
Unemployment rate	3.9%	3.7%
Consumer Sentiment Index	83%	65%

Winter-to-winter pressure on natural gas prices

Data Sources: Moody's Analytics, Bureau of Labor Statistics, Bureau of Economic Analysis, University of Michigan, Energy Ventures Analysis

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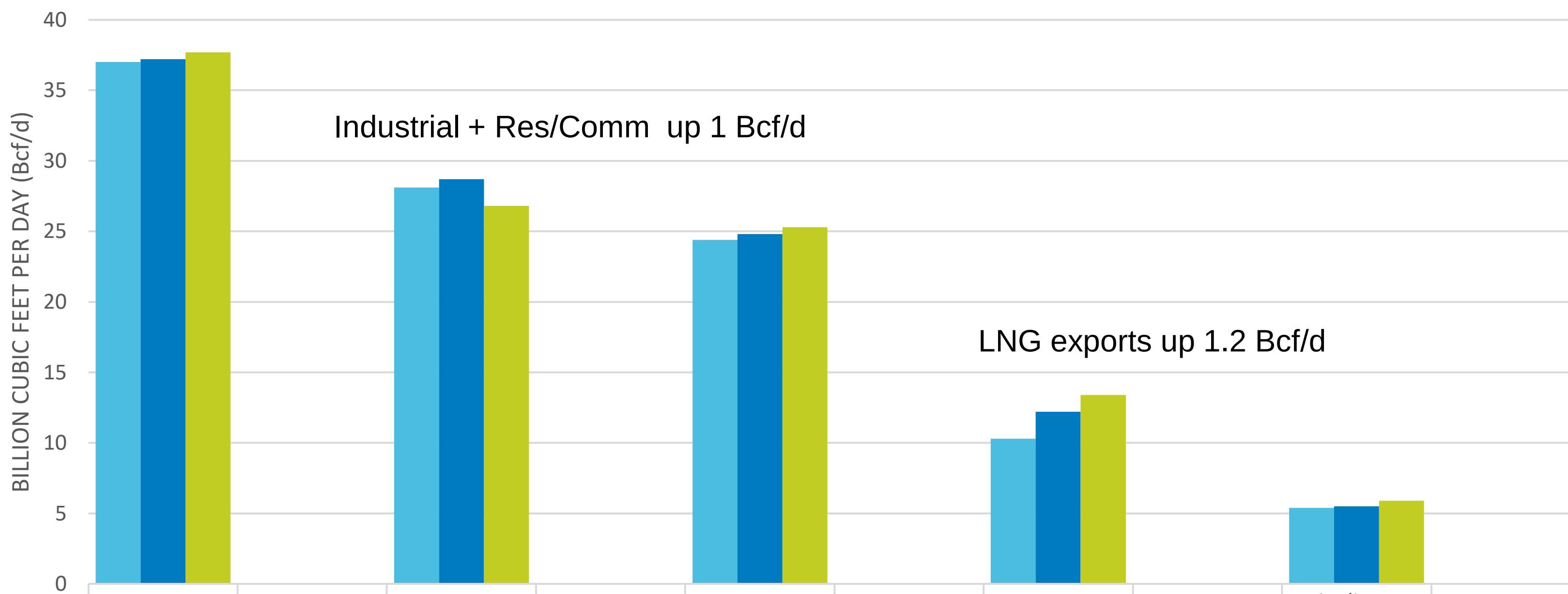
Demand: Demand Projected 2% Higher Than Last Winter

Winter 2022-2023: Forecast 118.1 Bcf/d

Previous 3-year average: 112.7 Bcf/d Last winter's average: 116.0 Bcf/d



	Res/Comm	Power Burn	Industrial	LNG Exports	Pipeline to Mexico
3yr avg	37	28.1	24.4	10.3	5.4
Last Winter 21-22	37.2	28.7	24.8	12.2	5.5
Forecast 22-23	**37.7**	**26.8**	**25.3**	**13.4**	**5.9**

Winter-to-winter pressure on natural gas prices

Data Source: Energy Ventures Analysis, Inc.

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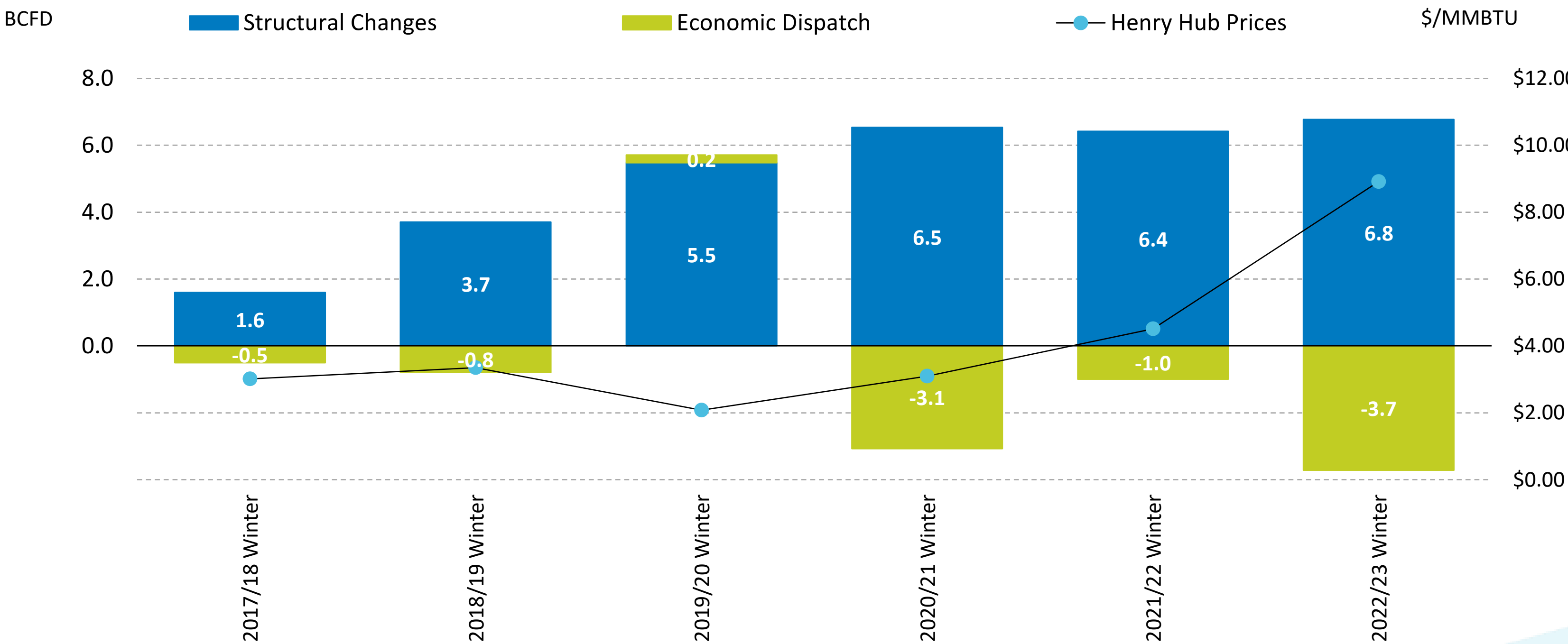
Power Burn Growth: Structural Growth vs. Economic Switching

Increases in natural gas power generation partially due to new gas-fired generation, partially due to greater use of existing generation because of pricing compared to other fuel options

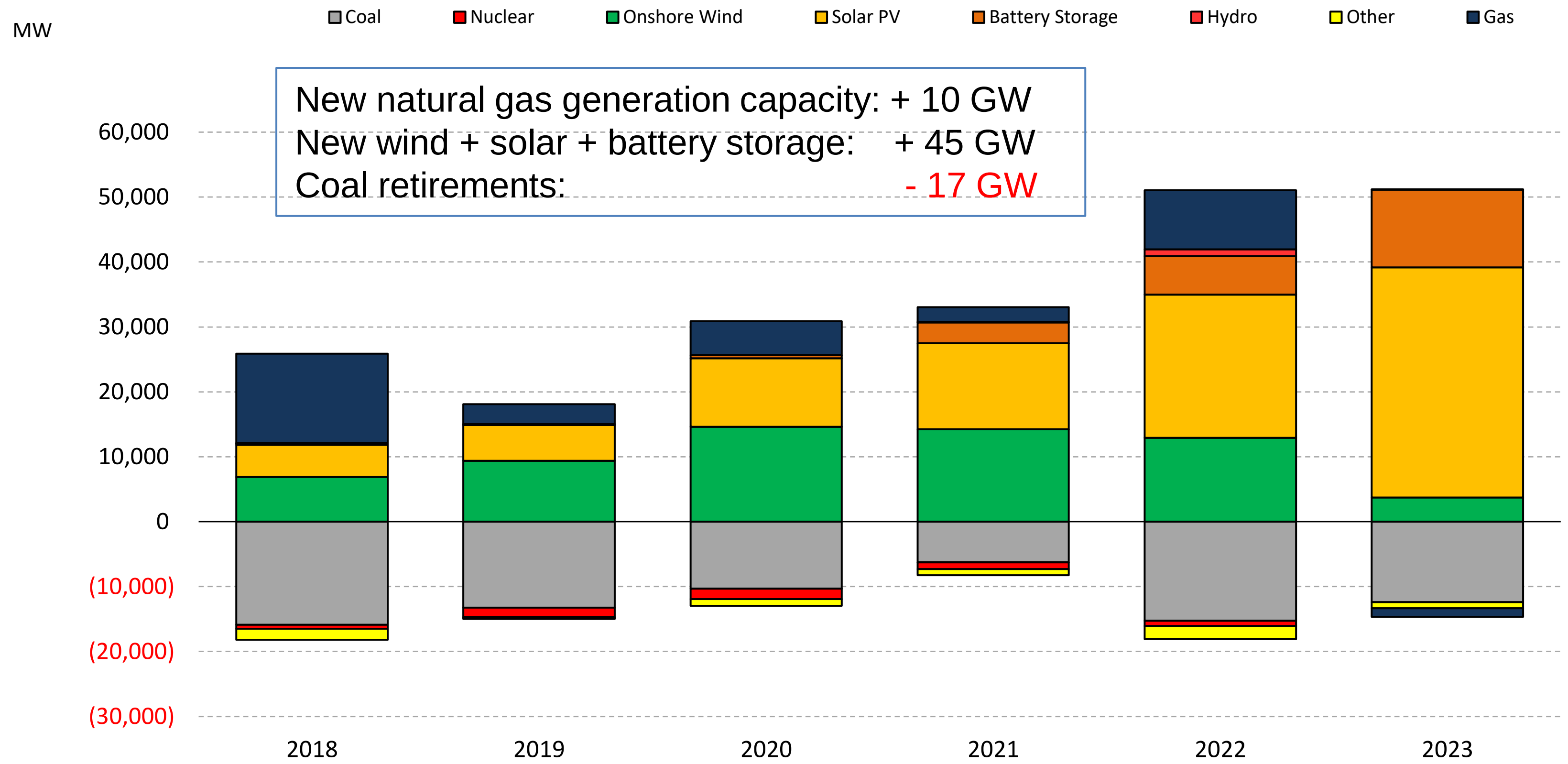
Winter-over-winter increases in power burn of natural gas compared to baseline of 2015



2015 was the first year retired over 10 GW of Coal, the beginning of large-scale coal retirements
Source: Energy Ventures Analysis
Note: 2022/23 winter prices are NYMEX settlements as of 8/17

Banner Year for Change in U.S. Power Generation

Net change in U.S. generating capacity



Source: Energy Ventures Analysis, U.S. EIA

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Focus: Industrial Demand Peak Growth Phase

Natural Gas Spurring 22 Major Industrial Projects 2022-2025

$33 Billion
Investment to Build

Increase of
1.0 Bcf/d by 2025

15 **New Projects**

12 Petrochemical
2 Steel
1 Fertilizer

3 **Expansions**

2 Fertilizer
1 Steel

1 **Re-start**

1 Steel

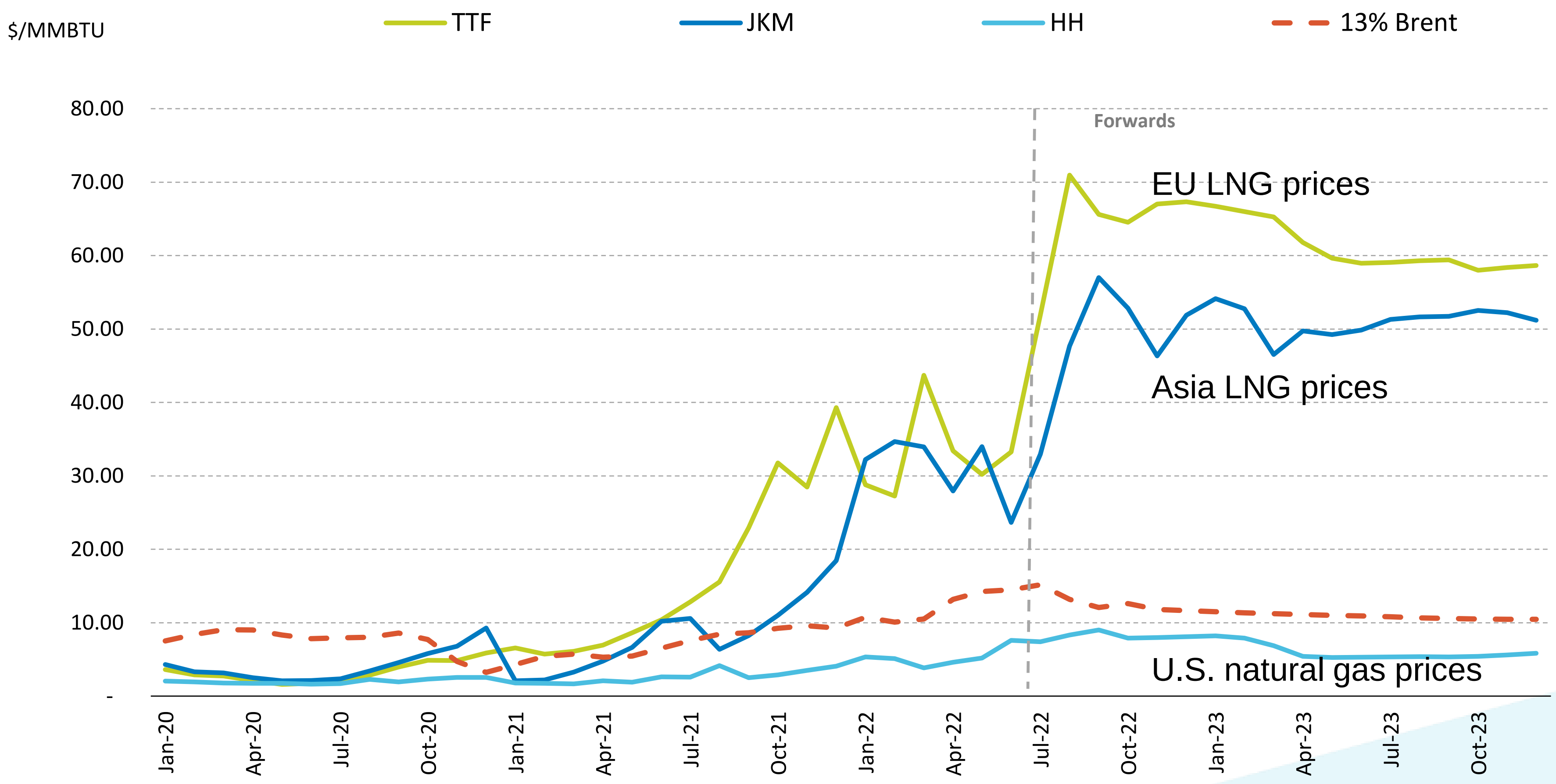
In addition to

46 **COMPLETED Projects** for additional $72 billion and 1.2 Bcf/d from 2017-2021

Data Source: Energy Ventures Analysis, September 2021
Photo Courtesy: Chevron U.S.A. Inc., 2017 (Pascagoula)

U.S. Natural Gas Prices Exponentially Lower Than EU, Asia

Global LNG price



Source: ICE. Future curves are based on 8/17/2022 settlements

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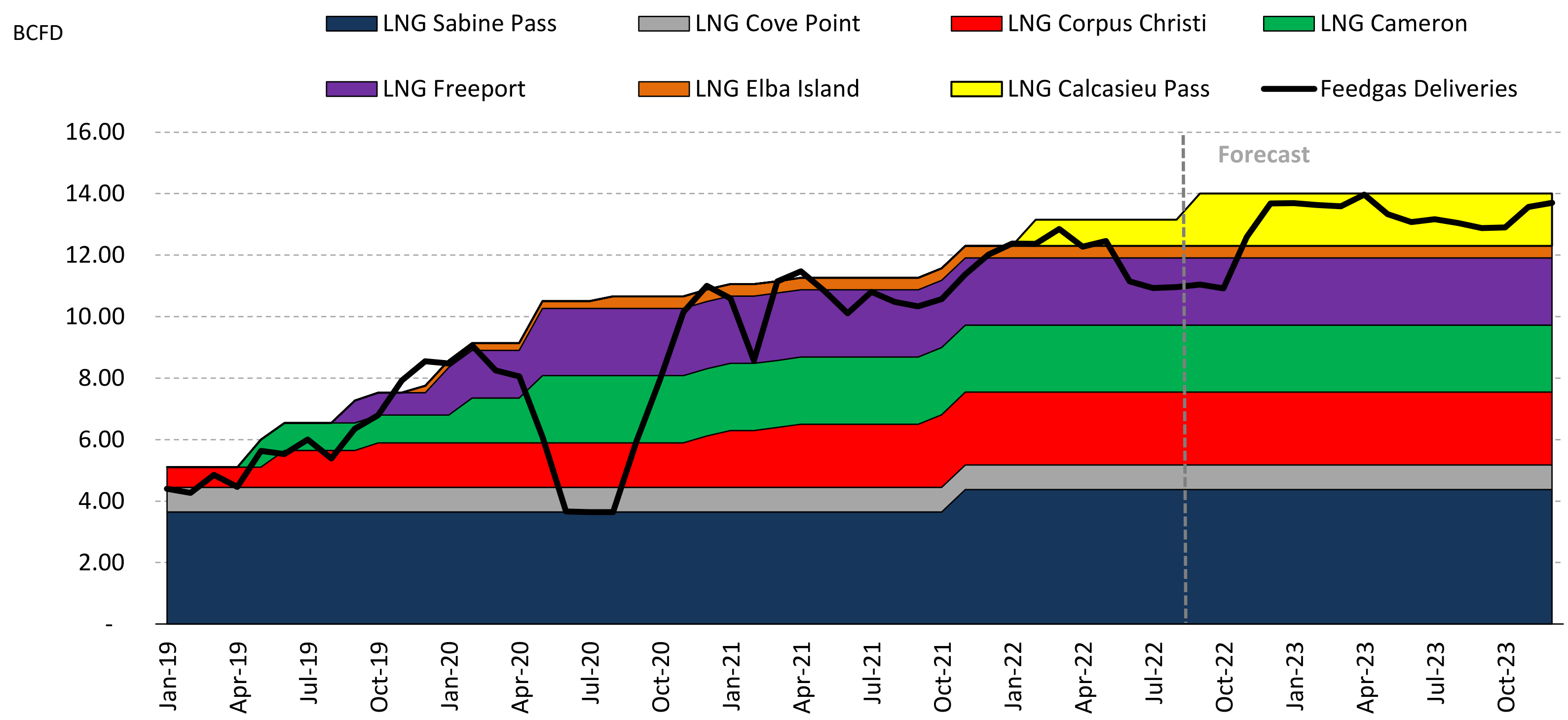
U.S. LNG Exports Respond to European Crisis

U.S. LNG Export Capacity vs. Feedgas Deliveries



Source: Energy Ventures Analysis, EIA

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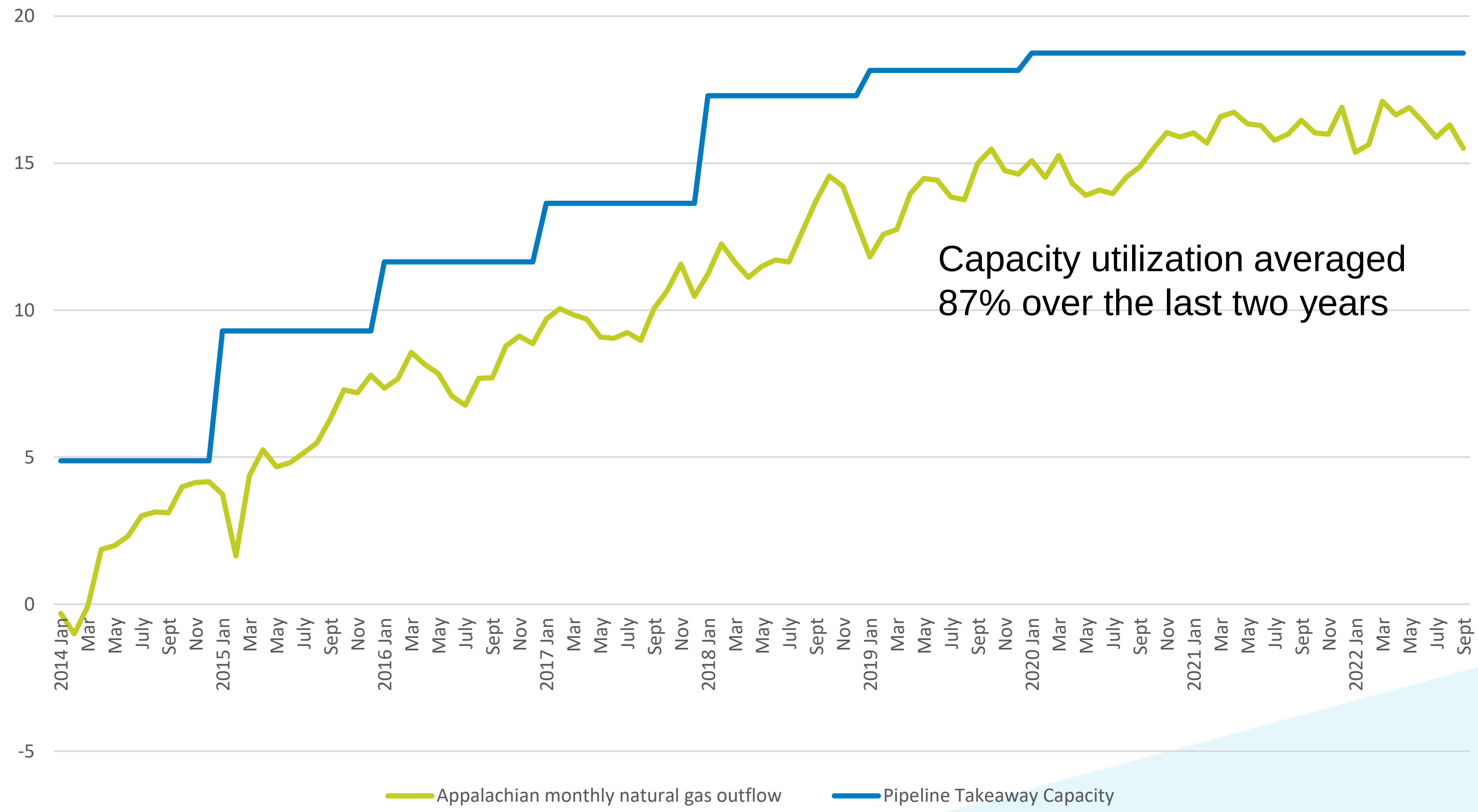
Natural gas infrastructure required to support increased need for fast-ramping resources and retiring coal plants

Appalachian Natural Gas Output Quickly Fills Pipeline Takeaway Capacity 2014-2022



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Supply: Winter Storage

Winter Season Period-to-period change	Last Winter 2021-2022 ACTUAL	This Winter 2022-2023 FORECAST
Start-of-winter inventory	3,644 Bcf	3,450 Bcf
Compared to 5-year average (Percent of total storage inventory)	similar	9% lower
Average daily withdrawal from storage	15.8 Bcf	14.2 Bcf
New storage capacity	+ 0 Bcf	+ 0 Bcf

Winter-to-winter pressure on natural gas prices

Data Source: Energy Information Administration and Energy Ventures Analysis.

This Season's Winter Outlook

Winter Season Period-to-period change	This Winter 2022-2023 FORECAST
Winter production + imports	↓
Weather	↑
Economy	↓
Overall demand	↑
Storage	↑
Winter-to-winter pressure on natural gas prices	↑

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Winter Outlook: Wild Cards

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Natural Gas Outlook: Flexible, Responsive Gas Market

Winter production surges in response to strong demand for natural gas

- Producers ramping up production to record levels
  - DUCs enabling production to get to market faster
  - Drilling rigs up 60% compared to last winter
  - Associated gas grows

Tight winter supply-demand balance

- Storage at low end of 5-year average
- Exports – LNG exports increase as EU countries struggle to replace Russian gas
- Industrial demand buoyed by colder weather and higher utilization rates
- Power sector fuel mix continues to evolve with less coal, more gas, more renewables

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About NGSA

- Represents major producers and suppliers of domestic natural gas
  - Integrated and independent companies: 7 members
  - Founded in 1965
- Only national natural gas association representing producers and suppliers with a dedicated focus on downstream issues
- Promotes benefits of competitive natural gas markets, resulting in reliable and efficient transportation and delivery, increased supply and demand
- Combined with the Center for LNG

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