



**NARUC**

National Association of Regulatory Utility Commissioners

# **NARUC TASK FORCE ON NATURAL GAS RESOURCE PLANNING**



**EXPERT LEARNING SERIES:  
Volatility in Demand, Supply,  
and Price**

April 3, 2024

# Today's Agenda

## **Part 1: Expert speaker presentations** *(recorded for website library)*

**Moderator: Task Force Co-Chair Cordova**, Public Utilities Commission of Nevada

- **Larry Dykes**, Director, Gas Supply, ONE Gas
- **Frank Graves**, Principal, The Brattle Group
- **John Protano**, Manager, Origination and Price Volatility Management, National Grid

## **Part 2: Q&A with expert speakers** *(not recorded)*

## **Part 3: Lessons learned from Task Force members** *(not recorded)*



# EXPERT SPEAKER PRESENTATIONS



# **NARUC Infrastructure Task Force**

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April 3, 2024

Larry Dykes, Managing Director of Gas Supply



# ONE Gas Overview

**100%** regulated natural gas utility

**2.3 million** customers in Kansas, Oklahoma and Texas

**3,800** employees

**44,500** miles of pipeline

One of the **largest** publicly traded natural gas distribution companies

More than **100 years of experience** in the natural gas industry

## Our Divisions



**Kansas Gas Service®**

A Division of ONE Gas

**71% market share,**  
*the largest in Kansas*



**Oklahoma Natural Gas®**

A Division of ONE Gas

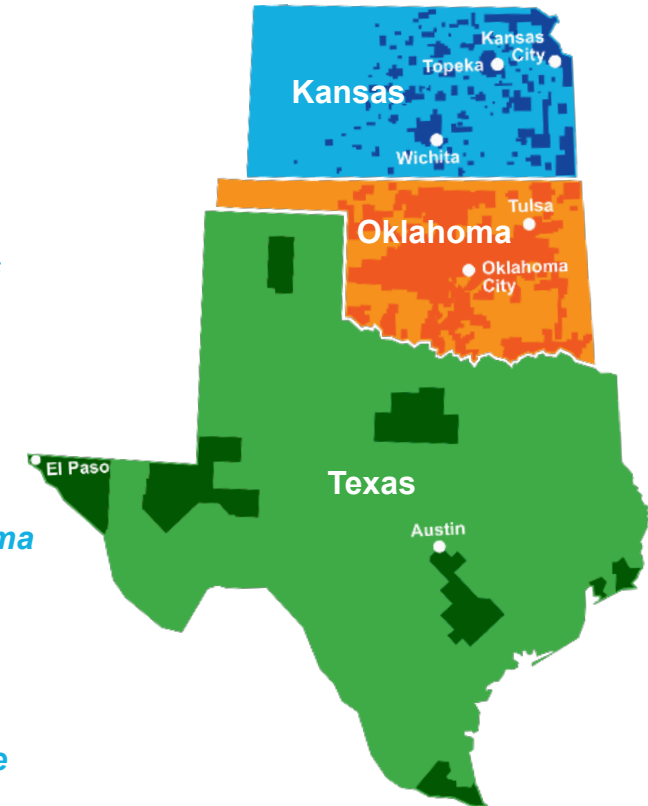
**88% market share,**  
*the largest in Oklahoma*



**Texas Gas Service®**

A Division of ONE Gas

**13% market share,**  
*the third largest in Texas*

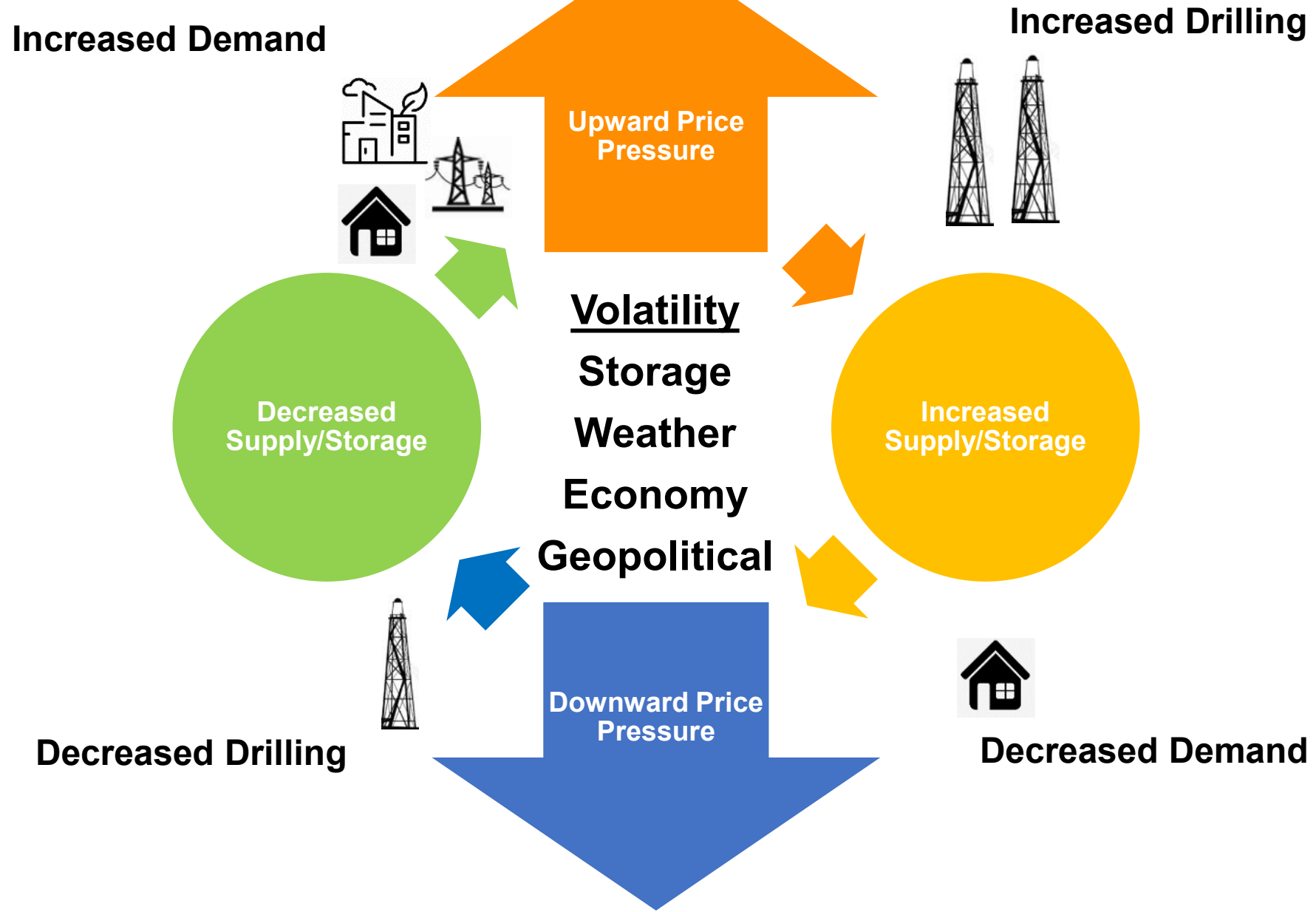


# Disclaimer

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**This presentation is a general overview of the natural gas market and is intended for informational and educational purposes only. The views, thoughts, opinions, information, and materials comprising the presentation do not necessarily represent the opinions of ONE Gas, Inc. The content is not intended to be used for any purpose other than discussion. The presentation is not a substitute for independent professional judgment of a unique situation or matter.**

# Supply/Demand Cycle



# National Gas Storage

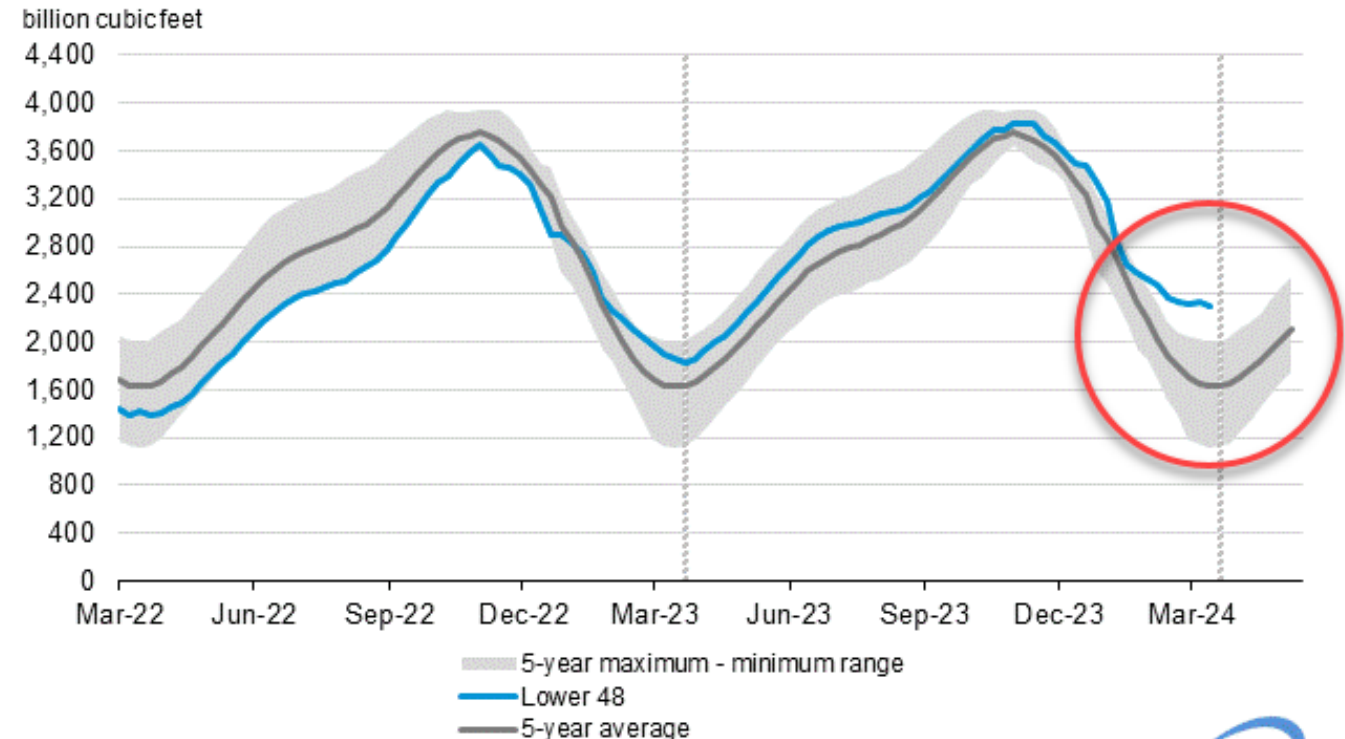
- Working gas is currently 23% above last year and 41% above the five-year average.
- Signaling downward price cycles and lower production.

## Summary

Working gas in storage was 2,296 Bcf as of Friday, March 22, 2024, according to EIA estimates. This represents a net decrease of 36 Bcf from the previous week. Stocks were 430 Bcf higher than last year at this time and 669 Bcf above the five-year average of 1,627 Bcf. At 2,296 Bcf, total working gas is above the five-year historical range.

For information on sampling error in this report, see [Estimated Measures of Sampling Variability](#) table below.

Working gas in underground storage compared with the 5-year maximum and minimum

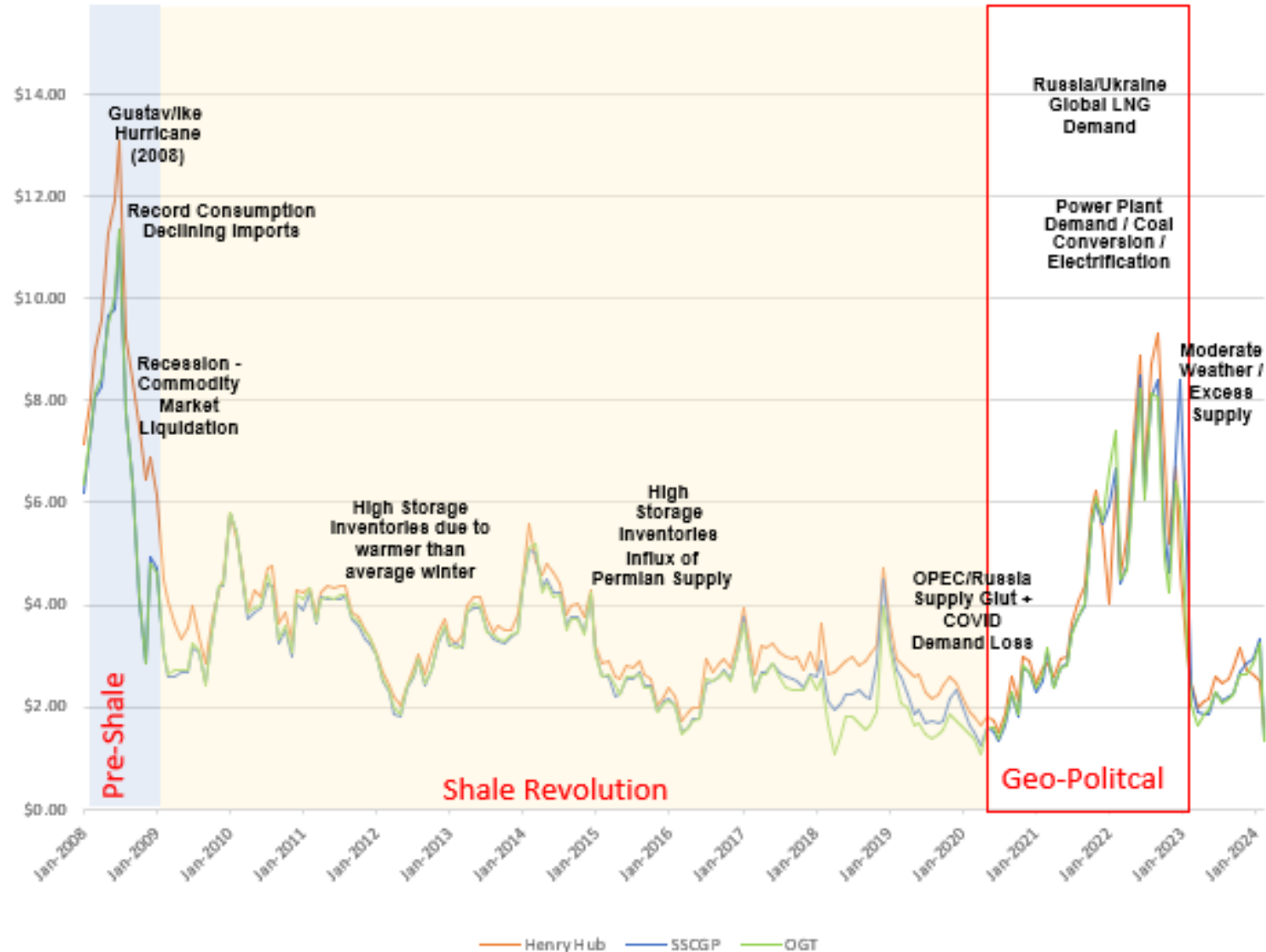


Data source: U.S. Energy Information Administration

Note: The shaded area indicates the range between the historical minimum and maximum values for the weekly series from 2019 through 2023. The dashed vertical lines indicate current and year-ago weekly periods.



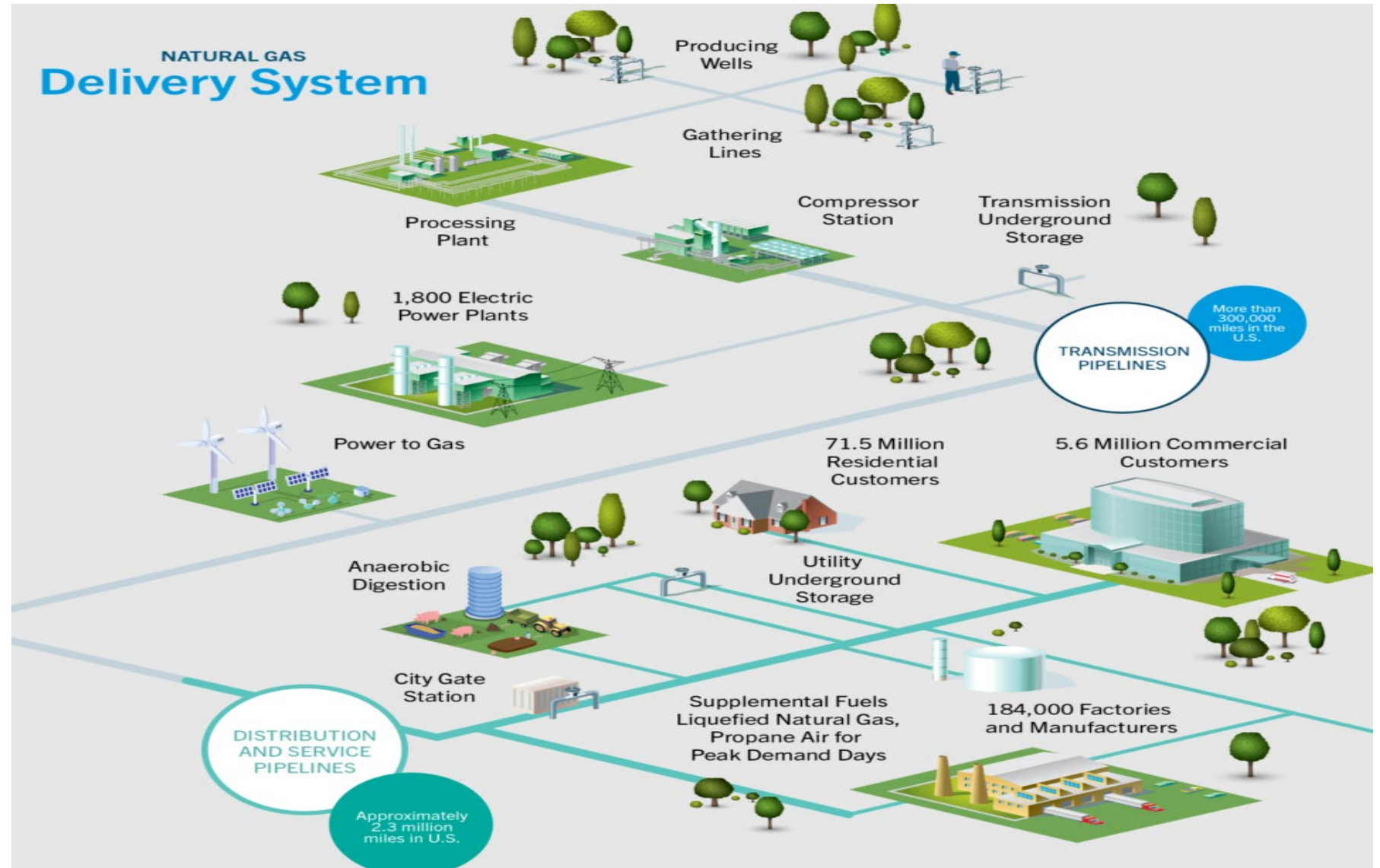
# Historical Market Influence



Source: S&P Global Platts - Nymex Henry Hub - Prompt Month Last Day Settle

# Natural Gas Delivery System

Producers  
Gatherers  
Processors  
Compressors  
Transporters  
Storage  
Marketers  
Utilities  
= Demand



Source: AGA

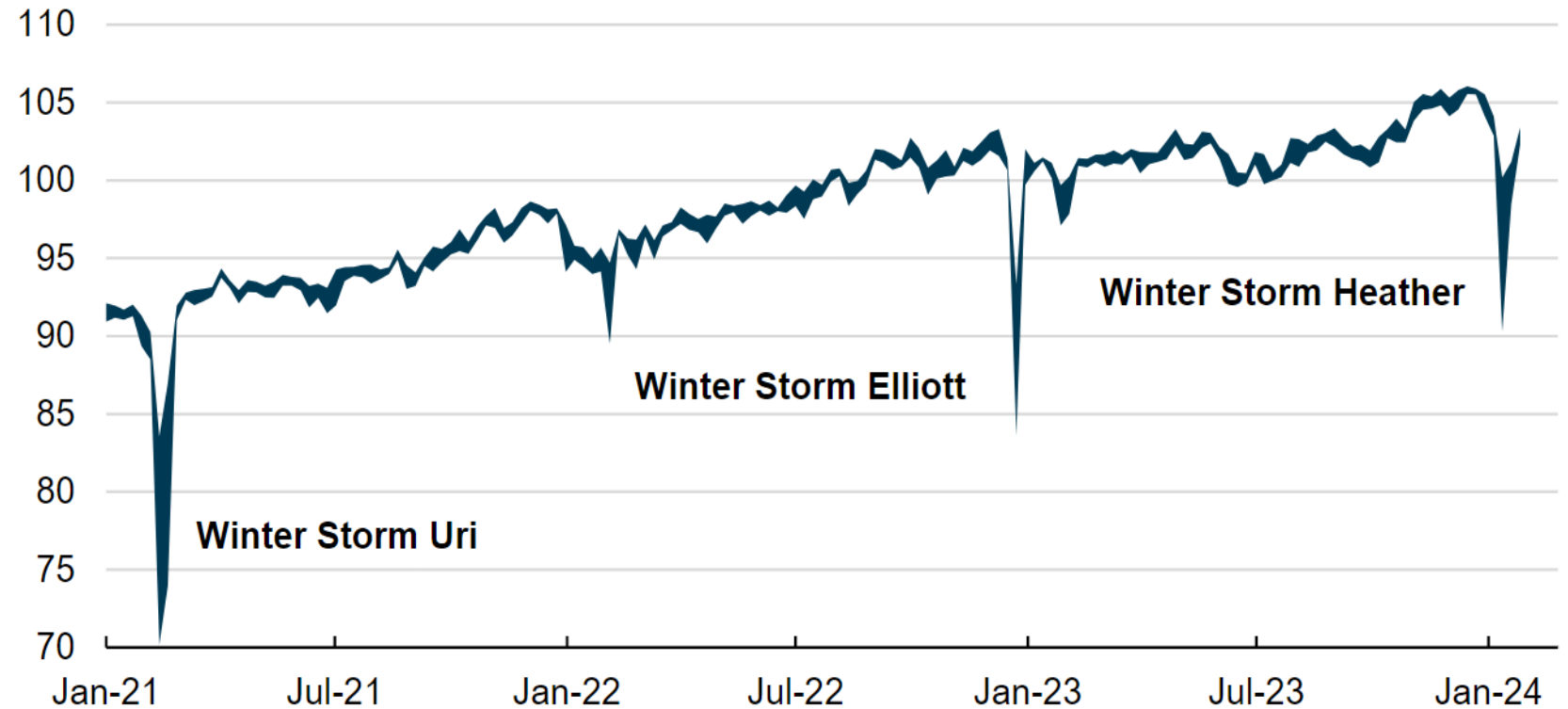
# Winter Storm Disruptions on Production

- Last four years, winter storms interrupted U.S. production by more than 15 Bcf/d

MARCH 13, 2024

## Winter storms have disrupted U.S. natural gas production

Weekly ranges of estimated U.S. dry natural gas production (Jan 6, 2021–Jan 31, 2024)  
billion cubic feet per day



Data source: S&P Global Commodity Insights

# Building the Supply Stack

- **Baseload Supply**

A set amount of natural gas delivered or required over a contracted period at a daily rate.

- **Firm Storage**

Physical hedge, form of daily variable supply considered to very reliable (load following). No-notice capability accommodates daily and hourly demand fluctuations

- **Gas Daily (GDD) Physical Call Option Supply**

Callable supply priced on a *Platts Gas Daily-Daily* index. GDD is typically used throughout the year with unlimited number of callable days.

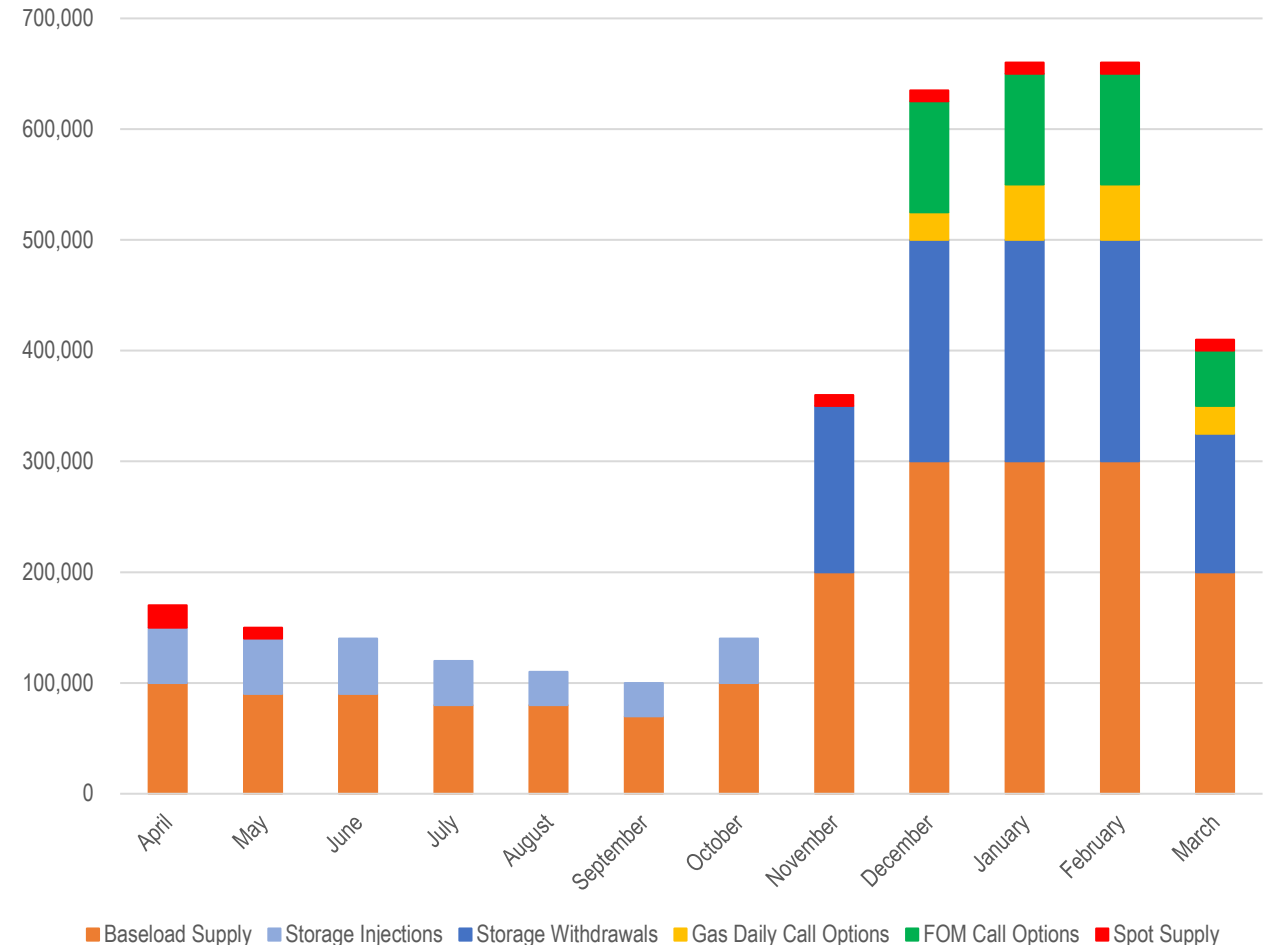
- **First of Month (FOM) Physical Call Option Supply**

Callable supply priced on a *Platts Inside FERC-FOM* index. FOM is typically limited to a number of call restrictions (i.e., 30 days or weather contingent temperature). In a Peak Day situation, both GDD and FOM callable supplies are exercised.

- **Spot Supply**

Fixed or daily average index price as published by *Gas Daily*; used to fill-in demand as needed.

Hypothetical LDC Supply Stack (Dth)



# Winter Hedge Examples

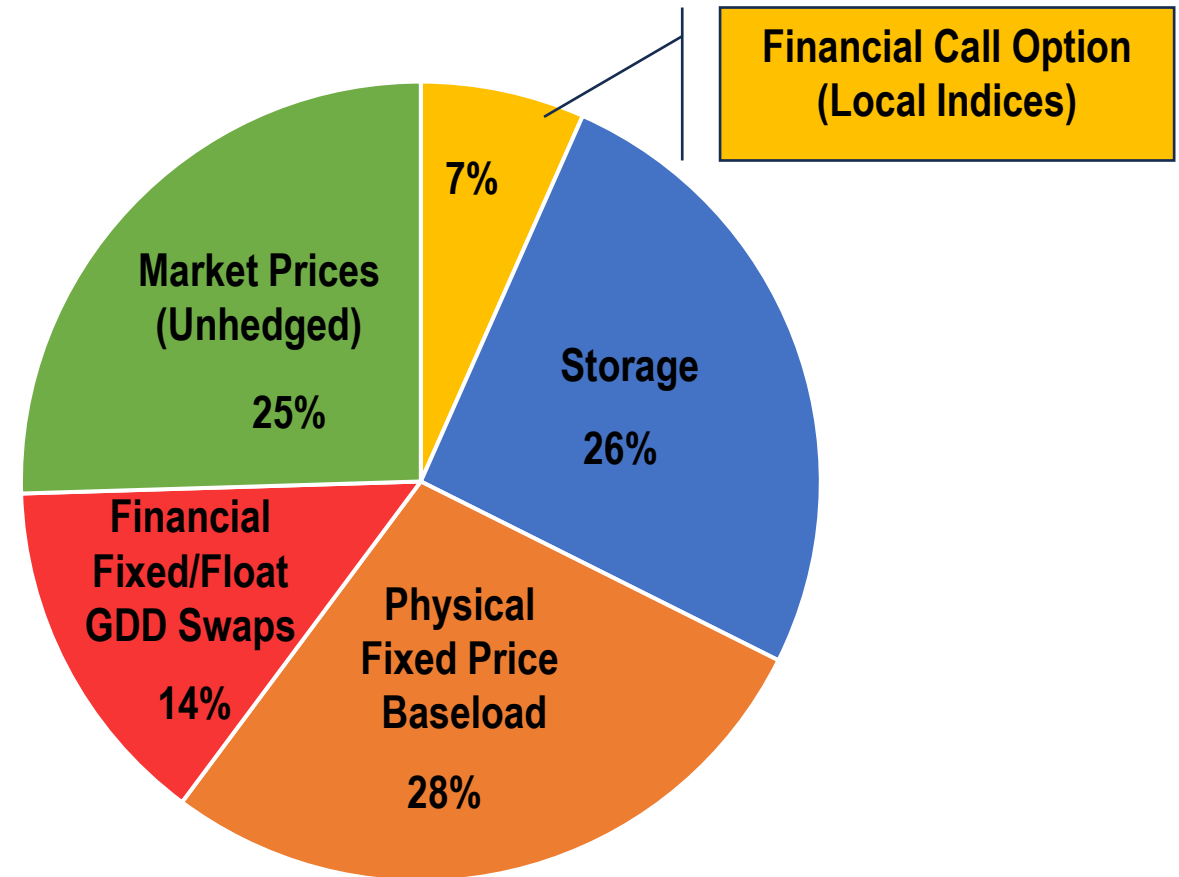
## Physical Hedging

- Storage
- Fixed Prices
- Price Caps

## Financial Hedging

- Financial Calls
- Fixed Price Gas Daily Swaps
- Costless Collars

Hypothetical Winter Hedge Plan



# Lessons Learned

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## Examples of Changes Post Significant Winter Storms

- Increase storage
- Supply diversification – local and regional
- Secure physical fixed price supply
- Review and restructure winter hedge position
- Utilize CNG
- Incorporate new peaks and growing system demands

**Thank you**

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# Balancing Corporate and Regulatory Objectives When Managing Natural Gas Supply Volatility

FRANK GRAVES

THE BRATTLE GROUP

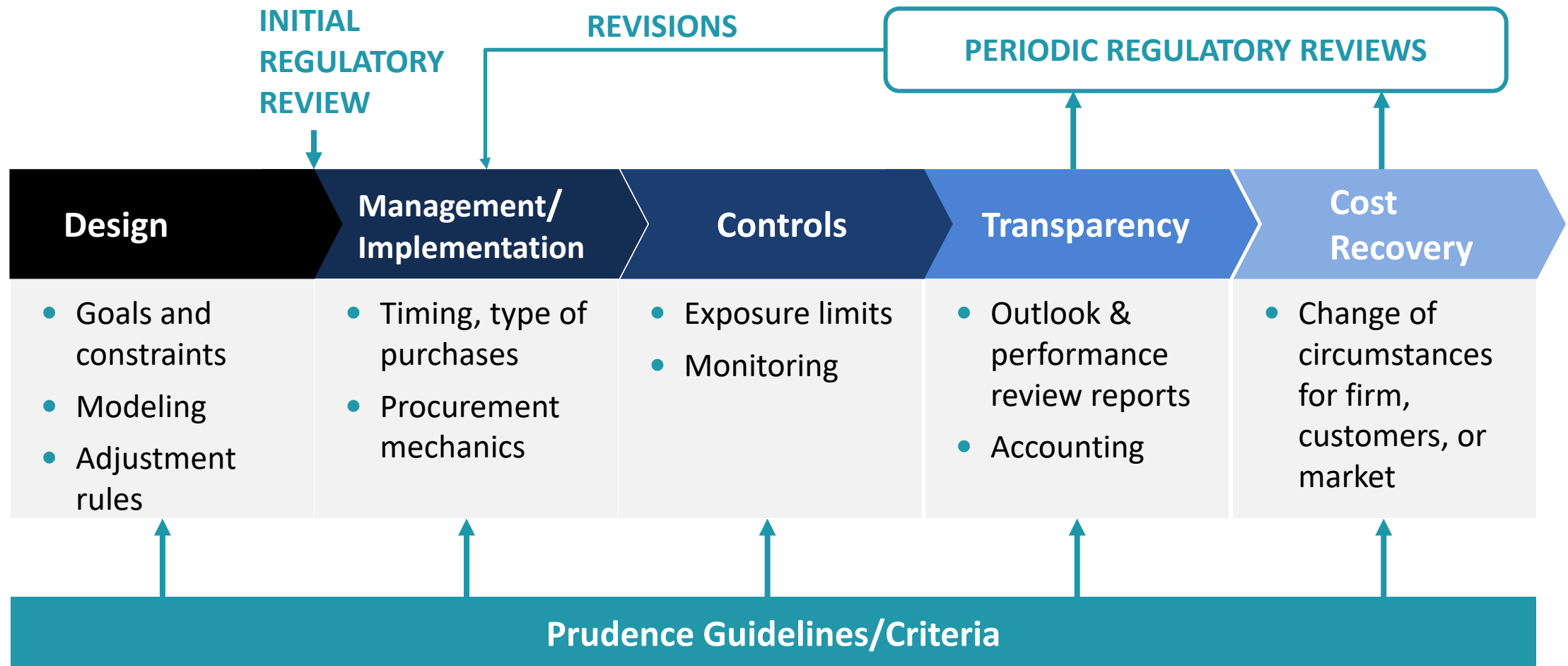
NARUC TASK FORCE ON NATURAL  
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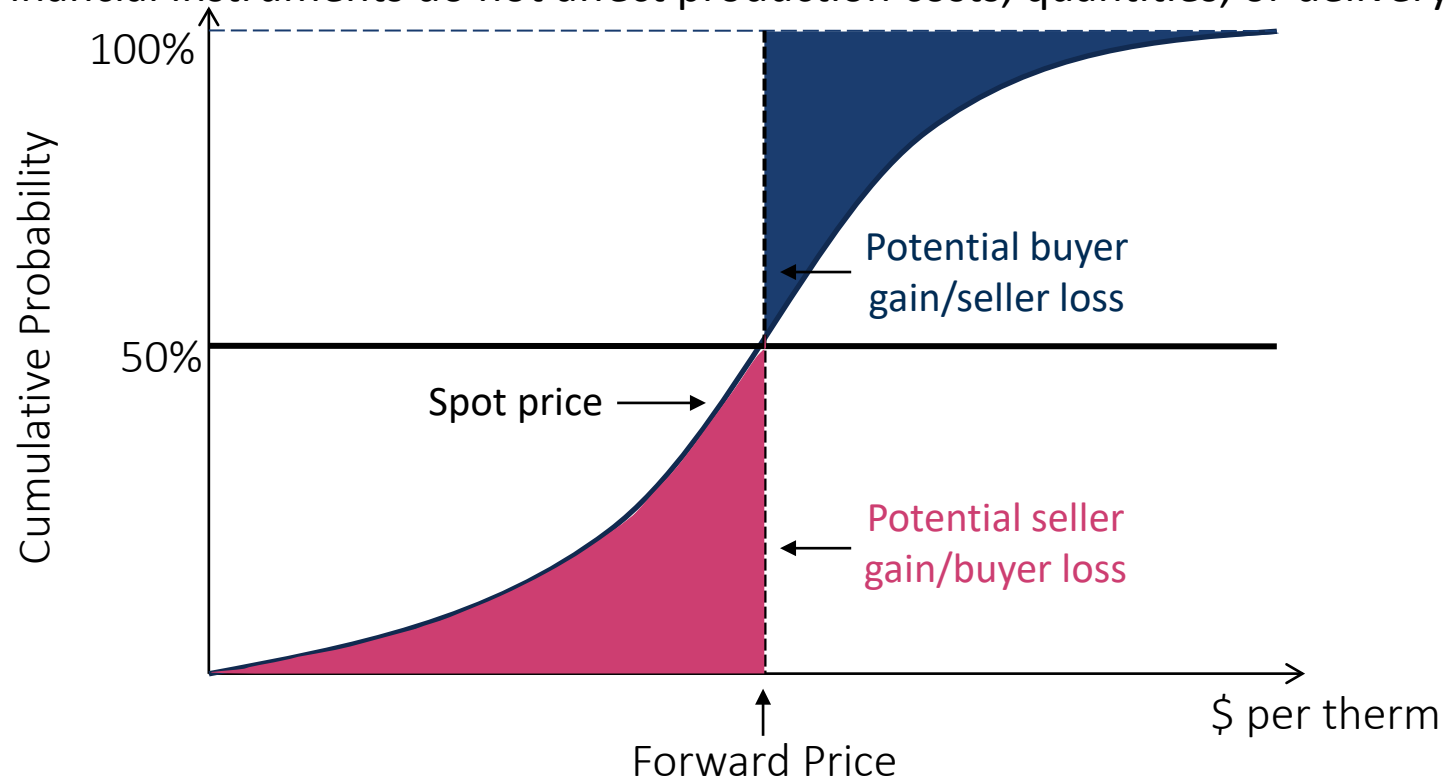
Hedging programs need to be *dynamic*, with regular recalibration of operating and financial goals as conditions change.



# There is no expected present value cost savings in hedging

**You don't hedge to save money or lower costs, but to trim risks of extreme outcomes that are otherwise undesirable: too much rate shock, budgetary stress, impaired access to capital, etc.**

- Informed Buyers / Sellers each have to feel the price is a fair deal – so cannot expect monetary gains for Buyer
  - On forwards, futures and swaps, no money trades hands at inception
- Market consists of active, competitive Buyers & Sellers, so no negotiated price deals – price-takers
- Financial instruments do not affect production costs, quantities, or delivery terms on the physical side



*Standard products are for fixed volumes at particular times and places.*

*Gas LDCs mostly hedge the net-of-storage winter-baseload portion of their demand.*

*Harder to hedge uncertain volumes or uncertain dates – physicals, esp. storage, may be better for those.*

# There is no objectively “right” amount to hedge. Hedging policy must be chosen with agreement on how to balance *ex ante* risk against *ex post* regret

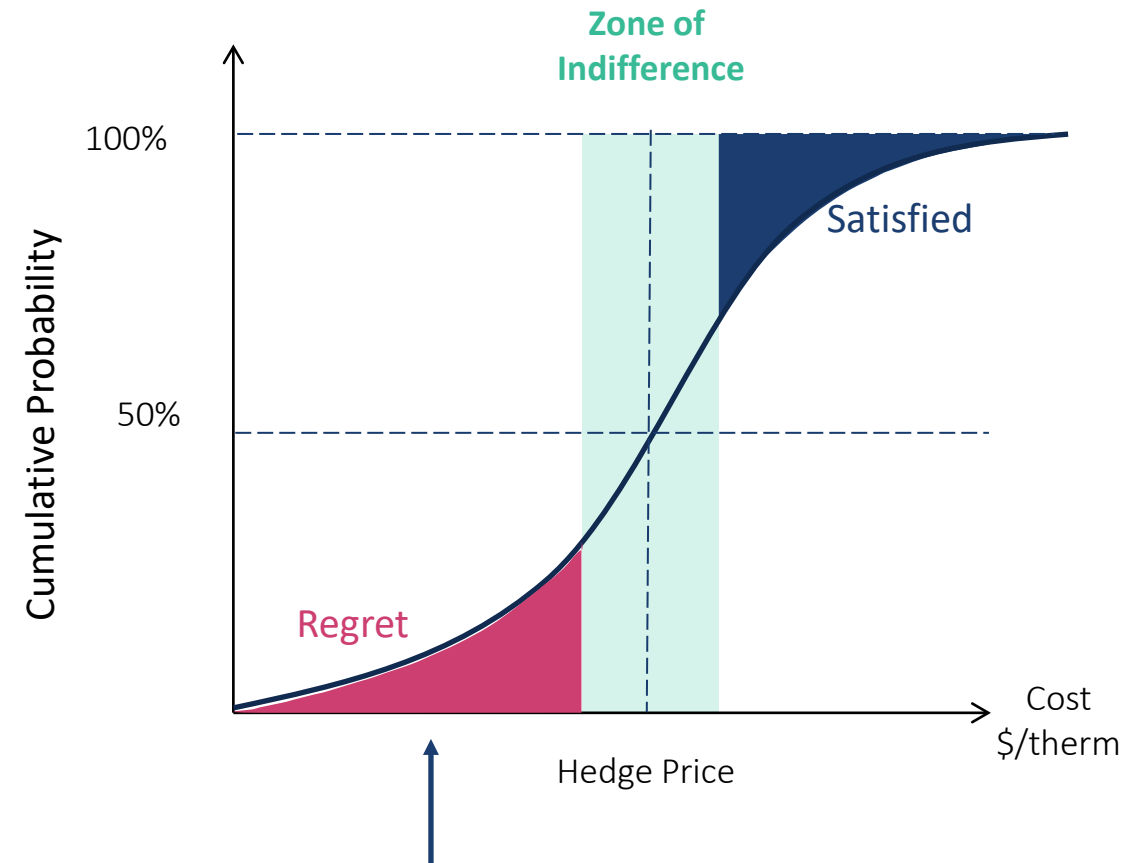
**Risk** is *ex ante* exposure to future volatility (unexpected potential variability) – eliminated by various types of forward purchases at fixed prices

**Regret** is *ex post* disappointment if a hedge turns out to be more costly than not hedging

- Not quite a fair complaint because insurance has value even if it is not exercised
- Regret is a valid concern, but regret reduction is completely antagonistic to risk reduction
- The more *ex ante* certainty, the greater the chance of *ex post* disappointment and *vice versa*

**Alternative hedging strategies can shift the weight between risk and regret** – subject to customer preferences

- e.g., Using call or put options that clip worst case while leaving preferred outcomes open—but they come with an upfront cost equal to the expected one-sided clip



Strategy can be designed and adjusted over time to **keep value-at-risk in these tails to within acceptable probabilities**

# Observed Best Practices in Risk Management for Gas LDCs

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**Hedging should reflect customer needs: utilities are just acting as agents to help customers avoid some portion of potentially disruptive cost extremes (and protect utility financial health)**

## **Desirable risk management practice involves:**

- Using appropriate risk-modeling techniques – what history, what distributions, what market process models to use
- Up-front agreement on proper balancing of ex ante risk against ex post regret -- what to hedge vs. leave “open”
- Timely, accurate updating of risk parameters – can be a difficult, somewhat subjective decision
- Actively controlling evolving risk exposure to stay within design limits (probabilistically)
- Modifying strategy when it is agreed that market conditions have shifted
  - Requires rules or criteria for altering hedging pace or targets based on price, volatility, and structural analysis of the market (and not just price)
- Resolve whether to use fixed annual budgets for hedging costs (mostly option premiums); not always a good idea!

**Hedging prudence is achieved by “sticking to the script” of agreed goals and approaches, as updated over time via good communication to regulators and customers about new conditions.**

- Important to revise the script in conjunction with stakeholders and regulators – the best risk management is expectations management!

# Gas Cost Volatility Management ("GCV")

Presented to NARUC Task Force  
April 3, 2024

**nationalgrid**



# Winter Gas Cost Volatility

- **Objective of hedge program:**
  - Reduce price volatility for firm customers at the lowest cost
- **Hedge program high-level details:**
  - Predetermined hedge targets are calculated using weather-normal demand forecasts
  - Purchase ratable volumes each month during a specific trade execution period
    - Term: Winter only (Nov-Mar, Apr)
  - Targets are monitored internally in accordance with plan to ensure dollar-cost averaging
- **Hedge Instruments:**
  - Financial: Swaps and options at NYMEX and basis price locations, and
  - Physical: Natural gas in storage<sup>1</sup>
- **Work closely with regulators in each of our jurisdictions:**
  - New York:
    - Downstate NY (BUG and KEDLI) and Upstate NY (NIMO)
  - Massachusetts (Boston Gas)

<sup>1</sup> Natural gas is injected into market area storage fields over the summer period and withdrawn in the winter to help support customer gas demand.

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