Oklahoma Gas & Electric Company

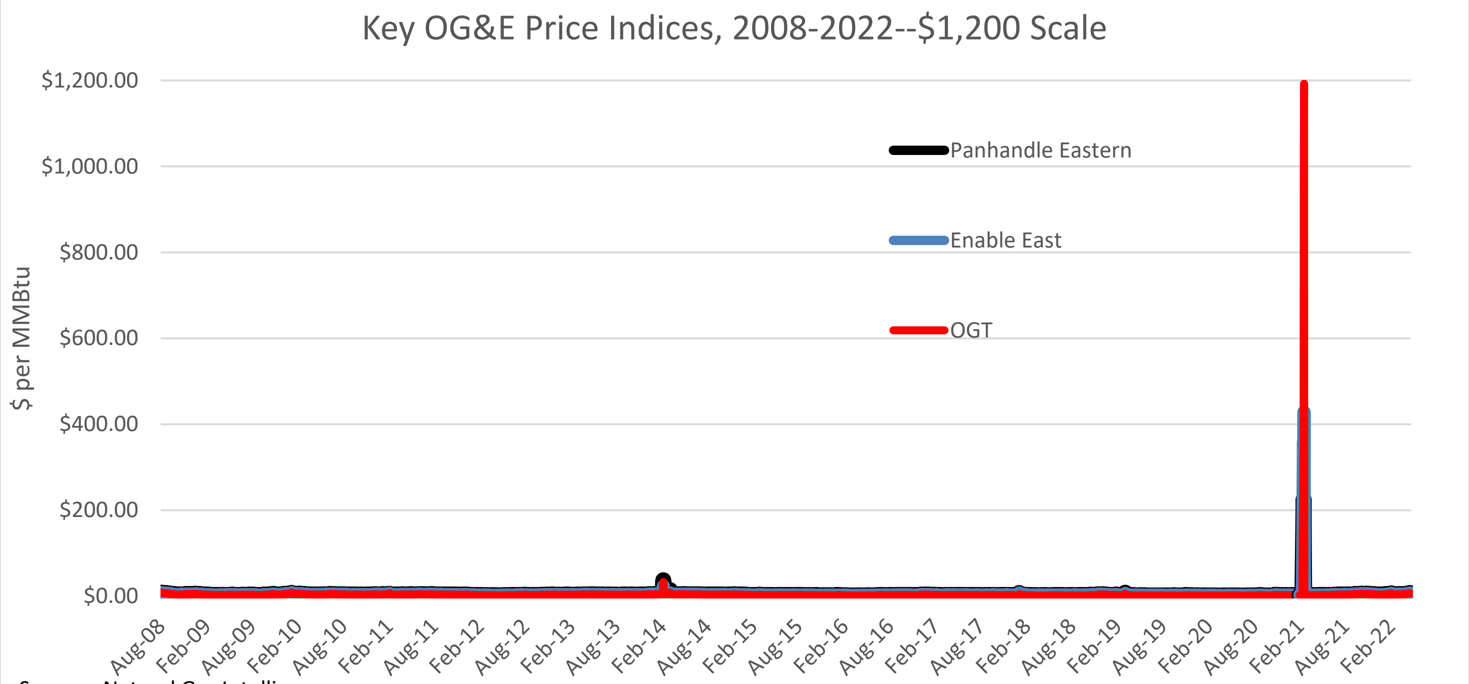
Report on Risk Management in the Utility Supply of Natural Gas

Review of Processes and Risk Management
and
Alternatives for the Hedging of Gas Supply Cost

RBN Energy LLC

May 25, 2022

February 2021, the Unprecedented Explosion of Prices



Source: Natural Gas Intelligence

- **OG&E enjoyed low, stable daily prices ever since the shale boom, a single one-day spike to the $30s in 14 years.**
- **Then came 8 days in February 2021 (Winter Storm Uri).**
- **Prices dwarfed anything ever experienced.**
- **Could physical or financial hedges prevent that from happening again on a cost-effective basis?**

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The Mission—
The Settlement-Directed Follow-up on February 2021

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION	)	
OF OKLAHOMA GAS AND ELECTRIC	)	
COMPANY FOR A FINANCING ORDER	)	
PURSUANT TO THE FEBRUARY 2021	)	
REGULATED UTILITY CONSUMER	)	Cause No. PUD 202100072
PROTECTION ACT APPROVING	)	
SECURITIZATION OF COSTS ARISING	)	
FROM THE WINTER WEATHER EVENT	)	
OF FEBRUARY 2021	)	

FILED
OCT 08 2021
COURT CLERK'S OFFICE - OKC
CORPORATION COMMISSION
OF OKLAHOMA

<u>JOINT STIPULATION AND SETTLEMENT AGREEMENT</u>

6. **Mitigation of Customer Costs:** The Stipulating Parties agree that OG&E should engage in the following to mitigate the costs to customers:

a. OG&E shall engage interested stakeholders in a meeting to discuss methods to mitigate costs to customers of natural gas price volatility and future cold weather events.

b. OG&E shall evaluate its use of natural gas storage services and physical and financial hedging related to natural gas procurement and revise its next fuel supply portfolio and risk management plan to address natural gas storage practices and natural gas procurement activities not based solely on daily index pricing.

- **To comply with the post-Winter Storm Uri settlement, OG&E engaged RBN Energy LLC (RBN) to review the company's purchase practices from prior to and during Winter Storm Uri, recommend changes, review changes that have already been made, and to assess hedging. In that regard, physical hedges that have been or are available to OG&E were distinguished from financial hedges, an area in which OG&E has not previously participated, to determine whether financial hedges would add enough value to pursue.**

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The RBN Team

- **Rick Smead, Managing Director, Advisory Services:**
  - Experienced natural gas industry veteran and expert in pipelines, markets and regulation.
  - Because Mr. Smead filed testimony for OG&E in the Securitization Case, here he functioned as liaison, manager, and drafter based on input from independent subject matter experts, not as primary expert, to preserve independence of study.
- **Scott Potter, Managing Director, Business Development:**
  - Experienced natural gas industry veteran, largely in marketing.
  - RBN project manager to guide selection and efforts of subject-matter experts.
- **Harry Ono, Jeff Ishee, Consulting Experts:**
  - Experienced natural gas industry veterans with extensive background in utility gas supply management and financial hedging for Black Hills and Excel Energy, respectively.
  - Primary independent subject-matter experts.

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The Final Result of RBN's Review

Report on Risk Management in the Utility Supply of Natural Gas:
Review of Processes and Risk Management of
Oklahoma Gas and Electric Company
And
Alternatives for the Hedging of Gas Supply Cost

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- **RBN's Final Report will be delivered to OG&E for ultimate submission with the 2022 *Fuel Supply Portfolio and Risk Management Plan.***
- **This presentation is a high-level summary of that report, capturing the major elements and conclusions.**

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Introduction and Overview

- As recognized in the Settlement, incurring significant costs to guard against daily price volatility was not cost-effective in the past—in essence, paying a premium to insure against an unlikely, unprecedented event of massive price fly-up did not make sense.

- However, the February 2021 Winter Storm Uri price spike was so high and its impact so profound that past policies needed to be revisited.

- Protecting against the potential for such volatility can involve multiple mechanisms, all of which impose costs or risks on utilities and ratepayers, thus requiring a great deal of judgment in their use.

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PHYSICAL AND FINANCIAL HEDGE ALTERNATIVES—STRENGTHS, WEAKNESSES, PROGRESS AND RECOMMENDATIONS

Types of Physical Hedges

- There are several types of physical hedges against severe daily price volatility accompanied by peak daily requirements:

  - Daily call gas with price limits (ceilings or collars)
  - Commitment to price-stable gas (first-of-month, or “FOM”) with monthly take requirements
  - Storage expansion or acquisition
  - Supply diversification by source region
  - Sizing monthly gas to meet peak loads and disposing of unused or unneeded supply

- In each case, the challenges are availability, cost effectiveness, and operational issues such as being oversupplied off-peak without the ability to dispose of excess supply.

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Price-limited Call Contracts

- Contracts in which the buyer has the right, but not the obligation, to take daily gas subject to a ceiling price are rare and, in the winter heating season, essentially non-existent. Particularly after the Winter Storm Uri experience, the degree of risk involved causes there to be no liquidity in that market.

  - Hybrid collared swing contracts can be built in combination with futures-based calls (controlling the price ceiling) and puts (establishing an obligation to take gas from the seller at or above a predetermined price).
  - It has been the experience of RBN's experts that such transactions require unacceptable levels of put obligations in order to avoid extremely high fixed (demand-charge) fees. Thus, the economics are virtually always unattractive, even if counterparties can be found.

- Overall, the intelligence from the industry throughout the Midcontinent is that there is no liquidity for any kind of upper limit on the price for daily winter call gas.

- Based on Company interviews, OG&E routinely explores the potential for such options in its annual and seasonal supply solicitation process—there are simply none available.

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Committing to FOM Gas (fixed monthly price and takes)

- OG&E has previously relied on daily-market prices, in that their monthly averages correspond to equal or lower prices than FOM, with more physical flexibility.
- That relationship broke down badly in Winter Storm Uri, so the price stability of FOM offers important value going forward.
- However, FOM includes two cost factors that must be considered:
  - FOM contracts generally require a premium over the expected average daily prices.
  - FOM contracts require fixed takes, impairing flexibility to meet volatile requirements.
- For 2021-22, OG&E did commit to a level of FOM contract supply, but necessarily is cautious to avoid over-committing to volumes that may not be needed.
- For 2022-23, the same caution is being exercised, in that the FOM premium has increased substantially.

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Changes in FOM Premium over Time

- The table shows the premium of FOM for OG&E's three benchmark indices over the average daily price for the same month.
- As shown, from an historic level of 99 cents to a negative $1.79, averaging virtually flat, the premium as increased to an average of 88 cents to $1.52.
- This change is consistent with OG&E's 2021-22 experience, and with overall seller-market reaction to Winter Storm Uri.
- OG&E has held its commitment to 15 to 25 percent of its term gas, which in RBN's opinion is prudent unless the premium declines significantly.

FOM Premium over GDD			
Apr 12 - Jan 21--Max			
Enable East	OGT	PEPL	Average
$0.97	$1.02	$0.98	$0.99
Apr 12 - Jan 21--Min			
Enable East	OGT	PEPL	Average
($1.30)	($2.07)	($2.01)	($1.79)
Apr 12 - Jan 21--Mean			
Enable East	OGT	PEPL	Average
$0.00	($0.02)	($0.03)	($0.02)
Apr 12 - Jan 21--Median			
Enable East	OGT	PEPL	Average
$0.00	($0.02)	($0.02)	($0.02)
Post-Feb 21 Average			
Enable East	OGT	PEPL	Average
$0.76	$1.08	$0.81	$0.88
Winter 21-22			
Enable East	OGT	PEPL	Average
$1.22	$1.97	$1.37	$1.52

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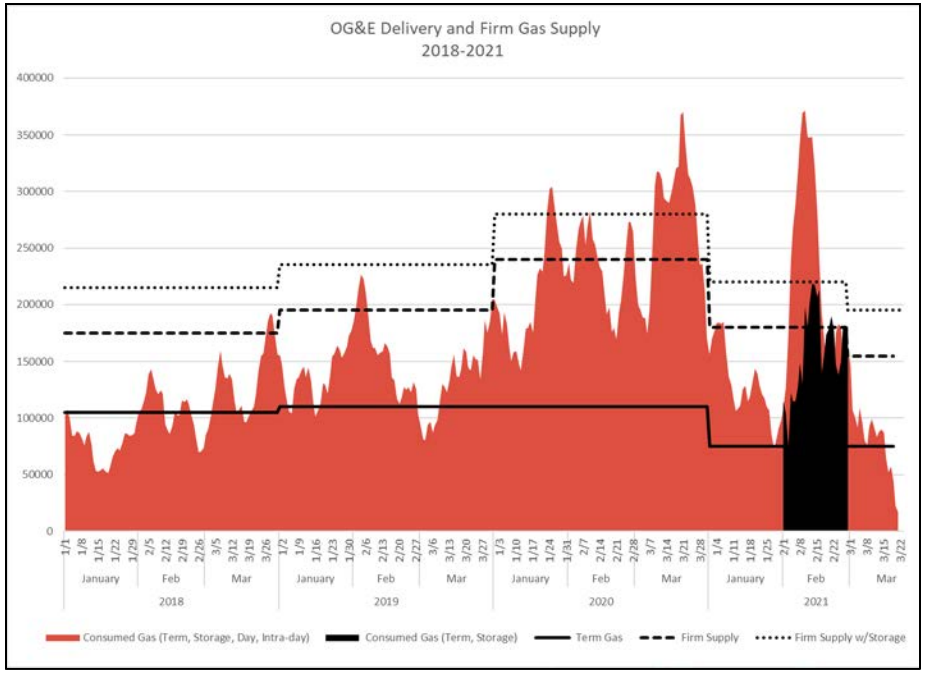
Storage

- Storage is the best physical hedge, in that it is supply the company can control directly, for which the price is already known.
- In deciding whether to seek additional storage, it is important to distinguish the dual roles of storage, as a critical operational tool and as a physical price hedge.
  - OG&E held 40 MDth/day of storage deliverability at the time of Winter Storm Uri, which primarily deals with system balancing and the unpredictability of Southwest Power Pool Integrated Market ("SPP IM") demands for generation. The figure shows the level of volatility in gas requirements for the four years through the 2020-21 winter.
  - Historically, OG&E covered 11 percent of its design day with storage withdrawals, used primarily for operational purposes.



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Balancing Operational with Economic Uses of Storage

- Reliability is of paramount importance, so use of storage as a physical hedge against price volatility is often a collateral benefit, not a primary benefit of the storage.
- Storage does provide important daily hedge value against price spikes, but more is needed.
- Thus, increases in the 11 percent of the peak-day volume are recommended, if the cost of additional storage is acceptable.
  - More opportunity for opportunistic purchases when prices swing down
  - More operational balancing capability
  - More peak day coverage
- RBN's analysis based on industry experience recommends adding 100,000 to 150,000 Dth/d of new storage capacity, to bring the percentage of peak day coverage to roughly 50 percent.
- In its most recent RFP, OG&E has already made progress with responses to its 2022-23 supply RFP, securing new capacity of 134,000 Dth/d of storage or storage-equivalent firm park-and-loan capacity, bringing the total to 174,000 Dth/d, fully consistent with RBN's recommended action.

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Supply Diversification by Geographic Region

- OG&E's location has allowed it diversity of supply basins and pipelines among multiple areas in Oklahoma, Texas, and the Rocky Mountains, plus potential access to Gulf Coast gas supply.
- As may be seen from the charts at the outset of this presentation, pricing across its three major supply conduits has been consistent enough that further diversity was not needed.
- However, the February 2021 experience simultaneously involved all currently accessible supply areas except the Gulf Coast, reducing or eliminating the pricing value of diversity.
- Thus, RBN recommends exploring access to Gulf Coast supplies, and potentially to Northeast U.S. supplies accessible through Panhandle Eastern or Rockies Express Pipeline.
  - Direct access to Rockies Express gave major benefits to St. Louis during Winter Storm Uri.
  - However, reliable access requires firm pipeline capacity that is likely to be cost prohibitive.
  - Thus, while exploration of such alternatives is recommended, RBN does not recommend taking on expensive fixed-price commitments—rather simply exploring creative options from the marketing community.

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Over-Contracting for Monthly Supply/ Disposing of Unused Supply

- The concept here is to size monthly supply (required to be taken ratably at a flat daily rate) such that it supplies much more of the peak-day requirement.

- There are significant issues with this approach:
  - Risk/certainty of substantial unused supply to dispose of in a soft market (at prices well below the purchase price).
  - Unpredictability of the size of excess volumes making predictable sale deals unworkable.
  - Current significant premium for FOM price-stable gas over daily prices, guaranteeing a loss on most unused supply.
  - Having to sell unused supply at the same time other utilities are similarly selling excess gas will further soften the sales market.

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Financial Hedging Tools

» **The financial tools reviewed for OG&E, include:**

- **NYMEX futures contract: Contract purchased on CME/NYMEX for 10,000 MMBtu monthly packages at predetermined prices, for delivery at Henry Hub**
- **NYMEX basis contract: Similar to the basic futures contract, but with delivery at non-Henry points.**
- **Capped call option for a fee: Option to take, without obligation, capped by a ceiling price, in exchange for a fixed monthly charge to cover risk**
- **Cost-free collar: A capped call option funded by agreeing to an obligation to take gas at or above a floor price**
- **A fix/float swap: Exchange of a fixed-price contract for a floating, market-price contract**
- **A daily swing/swap: Option to price a daily swing volume at a fixed price**

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Financial Hedging Tools

- Five of the six types of products address monthly pricing, not daily pricing. The only type with effectiveness for daily volatility without committing to very large levels of "must-take" gas is the daily swing/swap, a bilateral deal in which a counterparty commits to pay the buyer the difference between daily and FOM pricing for daily volumes.
  - The liquidity of this product is low or non-existent in the winter—no one is offering it, because based on the experience of February 2021, the seller could have been responsible for paying the difference between daily prices that rose to hundreds of dollars per MMBtu and the FOM price below $3.00—the risk is prohibitive for the seller.
  - In annual or seasonal RFPs, OG&E could canvass the market to determine interest, but it is RBN's opinion that no such deals will be found at anything close to a reasonable price (if at all).
- Thus, there is no indication that the financial hedging tools actually available offer any promise of protection from daily price volatility in any way superior to physical hedges such as storage or FOM contracting

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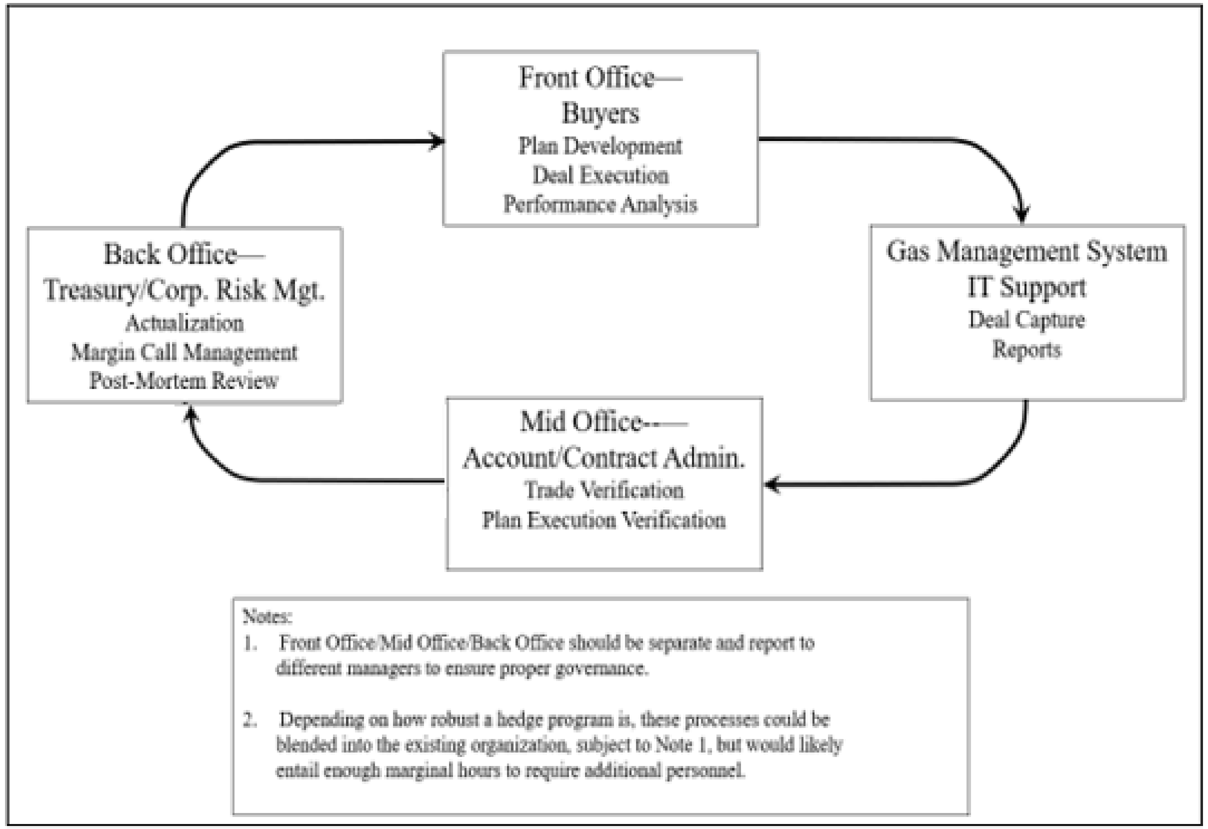
Administrative Structure Needed for Financial Hedging



Source: Experience with Black Hill Corp. and Xcel Companies, Sarbanes Oxley standards.

- **There are four primary areas that have to be created or enhanced to support financial hedges.**
- **Separation of people and reporting is necessary to proper governance.**
- **Thus, the cost and burden can be high and should not be incurred if equal value can come from physical hedges.**

Summary of Strengths and Weaknesses of Hedging Tools

FINANCIAL PRODUCTS	MARKET LIQUIDITY	DAILY PRICE RISK PROTECTION
Call Option	Good	No
Collars	Good	No
NYMEX contract	Excellent	No
Basis contract	Excellent	No
Fix/Float Swap	Excellent	No
Daily Swing/Swap	Poor	Yes

PHYSICAL PRODUCTS	MARKET LIQUIDITY	DAILY PRICE RISK PROTECTION
Storage	Average	Yes
Fixed price	Excellent	No
Daily call supply GDD	Good	No
FOM index	Excellent	No
FOM daily call	Poor	Yes

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Overall Summary of Hedging Review

» **None of the available physical or financial hedging tools reviewed, other than physical storage or the unavailable daily swing-swap offer protection against daily volatility without prohibitive cost or the cost and risk of paying for substantial quantities of unneeded supply.**

- **Physical storage offers an ability to respond directly to daily price volatility, if there is sufficient deliverability available beyond operational needs. OG&E's new commitment brings it to a level where that should be true.**

- **Exchange traded financial hedging tools all involve having to decide prior to the flow month, whether to take the gas committed to through a futures contract or an option.**

- **Thus, situations such as February 2021, when the severity of weather and price behavior do not become known until after the first of the flow month, are not amenable to mitigation from futures or options.**

- **Judicious commitment to FOM or other stable physical pricing for the flow month offers the bulk of the benefits of financial hedges without the cost.**

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Additional Recommendation Beyond Hedging

- RBN notes that the fuel supply plan presently provided to the Commission by OG&E is submitted in May of each year but includes a winter period that has already concluded.

- RBN recommends that the period covered by the plan be modified to include the upcoming summer and the next winter.

- This will allow for input in advance of OG&E commitments to specific RFP responses for the upcoming winter.

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RBN Energy LLC ("RBN") is a leading analyst of natural gas, crude oil, and natural gas liquids market fundamentals. Founded in 2012 by Rusty Braziel, a former co-owner of Bentek Energy (now part of S&P Global Commodity Insights), RBN is consulted throughout the natural gas industry as to matters of supply-demand economics, risk management, inter-fuel economic dynamics, and the fundamentals of midstream businesses for purposes of financing or acquisition. RBN also has an active regulatory practice in natural gas, dealing among other things with Winter Storm Uri supply and pricing issues. To that end, RBN has assembled a team of experts in utility gas supply operations and market issues, including both RBN personnel and networked expertise.

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