

NG-115.1

Management Review Audit of NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy

Report to the Nebraska Public Service Commission

Prepared by Bates White, LLC

August 28, 2024

**BATES
WHITE**
ECONOMIC CONSULTING

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Abbreviations

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AMA	asset management agreement	NOAA	National Oceanic and Atmospheric Administration
Dth	dekatherm	NWE	NorthWestern Energy
FERC	Federal Energy Regulatory Commission	NYMEX	New York Mercantile Exchange
GSCA	gas supply cost adjustment	PGA	Purchased Gas Adjustment
HDD	heating degree day	RFP	request for proposal
ICE	Intercontinental Exchange	TIGT	Tall Grass Interstate Gas Transmission
IRP	integrated resource plan	TPC	Trailblazer Pipeline Corp.
MDQ	maximum daily quantity	WACOG	weighted average cost of gas
MMBtu	metric million British thermal unit		
NAESB	North American Energy Standards Board		

I. Introduction and Executive Summary

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I.A. Background, scope, and objectives of this audit

Bates White Economic Consulting (“Bates White”)¹ was retained by the Nebraska Public Service Commission (“the Commission”) to perform a management audit of fuel purchases by NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy (“NorthWestern”) for the period January 1, 2020 to December 31, 2022 (“Audit Period”).² This report provides the results of our audit (“Audit Report”).

The scope of Bates White’s audit is found in the Nebraska Public Service Commission Application No. NG-115.1 (“Docket NG-115.1”), pursuant to Nebraska Revised Statute § 66-1854 (“the Statute”).³ Specifically, the Statute notes that “[o]nce annually, the Commission may initiate public hearings, upon complaint, to determine whether the gas supply cost adjustment schedule of a jurisdictional utility reflects the costs of the utility’s gas supply and whether such costs were prudently incurred and to reconcile any amounts collected from ratepayers with the actual costs of gas supplies incurred by the utility.”⁴ The Commission notes that it “is not restricted to the filing of a formal complaint in order to review [gas supply cost adjustments].”⁵

The Commission chose to conduct an informal review of NorthWestern’s gas supply cost adjustment (“GSCA”). The informal review was conducted by the Commission’s consultant. For the management audit, Bates White served as the Commission’s consultant.

Bates White’s scope of work included the following items:

1. A review and description of NorthWestern’s approach to natural gas procurement and hedging. This would necessarily include:
 - a. The procurement and hedging objectives, such as minimization of customer costs, portfolio target hedge percentages, hedge effectiveness calculations (e.g., how well a hedge contract protects the utility and customers from changes in gas prices), and any other utility objectives.
 - b. How the procurement and hedging approach is implemented. We would determine the organizational structure as it relates to the procurement and hedging processes, the roles

¹ Bates White is an economic consulting firm offering services to law firms, Fortune 500 companies, and government agencies. Founded in 1999 and headquartered in Washington, DC, we have been recognized by *The Washington Post* as a Top Workplace, named a Top 50 Consulting Firm by Vault, and cited as a Top 21 Economics Firm by Global Competition Review.

² Before the Nebraska Public Service Commission, “Order Opening Docket and Initiating Review Notice of Assessment,” Application No. NG-115.1, March 5, 2024, page 3. (“Docket NG-115.1”)

³ Nebraska Revised Statutes, Chapter 66 – Oil, Fuels, and Energy, 66-1854 – Cost of gas supply; effect on rate schedules; procedure. (“Statute”)

⁴ Statute, ¶ 4.

⁵ Docket NG-115.1, p. 2.

and individuals responsible for the work, how the process works on a day-to-day basis, the governing documents for the process and how they are maintained and disseminated, and how the process incorporates use of competition among potential suppliers.

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- c. NorthWestern’s internal controls, including its risk management practices. This would include a review of allowable contract types/hedging instruments, methods for mitigating certain risks (e.g., counterparty risk, credit risk), and the utility’s processes for reviewing potential transactions.
2. A high-level assessment of the processes identified in (1). This high-level assessment would be limited to initial insights and conclusions we would derive in our review and would not necessarily include detailed insights from best practices in other jurisdictions or in-depth review of the utility’s shortcomings.
3. A review and description of the results of the procurement approach during the Audit Period, January 1, 2020, to December 31, 2022, and whether and how the procurement results met the utility’s stated objectives. This would include general descriptions of overall transaction volume, prices, costs, and counterparties, as well as overall general hedging results.
4. A high-level assessment of the results identified in (3). This high-level assessment would be limited to general insights on the overall data and would not review in detail individual transactions or contracts with suppliers and financial counterparties.

Notably, our scope of work did not include review, assessment, or audit of any areas outside of gas supply and transportation procurement, planning, and hedging, such as reliability or operations. Further, while we sampled Audit Period transactions, we did not review every transaction in the Audit Period. Moreover, we wish to emphasize that our scope of work included multiple “high-level” assessments of NorthWestern’s processes and results, but not a detailed review of these processes and results. This degree of review was specified by the Commission in engaging Bates White. Our review did also not include a financial audit of NorthWestern. A financial audit was completed in 2022 by Horne, LLP.

I.B. About NorthWestern

NorthWestern Energy Public Service Corporation (“NorthWestern”) is a wholly owned subsidiary of NorthWestern Energy Group, Inc., an investor-owned electric and natural gas utility headquartered in Sioux Falls, South Dakota.⁶ NorthWestern Energy Group, Inc. has a market capitalization of over \$3

⁶ S&P Capital IQ, “NorthWestern Energy Group, Inc.” Company ID 4057053. © 2024 S&P Global Market Intelligence (and its affiliates, as applicable) (individually and collectively, “S&P”). Reproduction of any information, data or material, including ratings (“Content”) in any form is prohibited except with the prior written permission of S&P. S&P does not guarantee the accuracy, adequacy, completeness, timeliness or availability of any Content and is not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, or for the results obtained from the use of such Content. In no event shall S&P be liable for any damages, costs, expenses, legal fees or losses (including lost income or lost profit and opportunity costs) in connection with any use of the Content. A reference to a particular investment or security, a rating or any observation concerning an investment that is part of the Content is not a recommendation to buy, sell or hold such investment or security, does not address the sustainability of an investment or security and should not be relied on as investment advice. Credit ratings are statements of opinions and are not statements of fact.

billion and serves over 775,000 electric and natural gas customers across Montana, South Dakota, and Nebraska.⁷

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As of 2024, NorthWestern services over 40,000 retail customers in four communities throughout Nebraska.⁸ These four communities include North Platte, Grand Island, Kearney, and the Village of Alda, representing some of Nebraska’s largest population centers outside of Omaha and Lincoln.⁹ Figure 1 below outlines NorthWestern’s service areas in Nebraska (as well as NorthWestern Energy Group, Inc.’s infrastructure elsewhere). Our audit addressed NorthWestern’s procurement of natural gas for customers in Nebraska only. NorthWestern provided us pipeline contracts with two pipelines, Tall Grass Interstate Gas Transmission (“TIGT”) and Trailblazer Pipeline Company (“Trailblazer”). Both the TIGT and Trailblazer contracts are used entirely for Nebraska customers.¹⁰

⁷ S&P Capital IQ, “NorthWestern Energy,” Company ID 4010420.

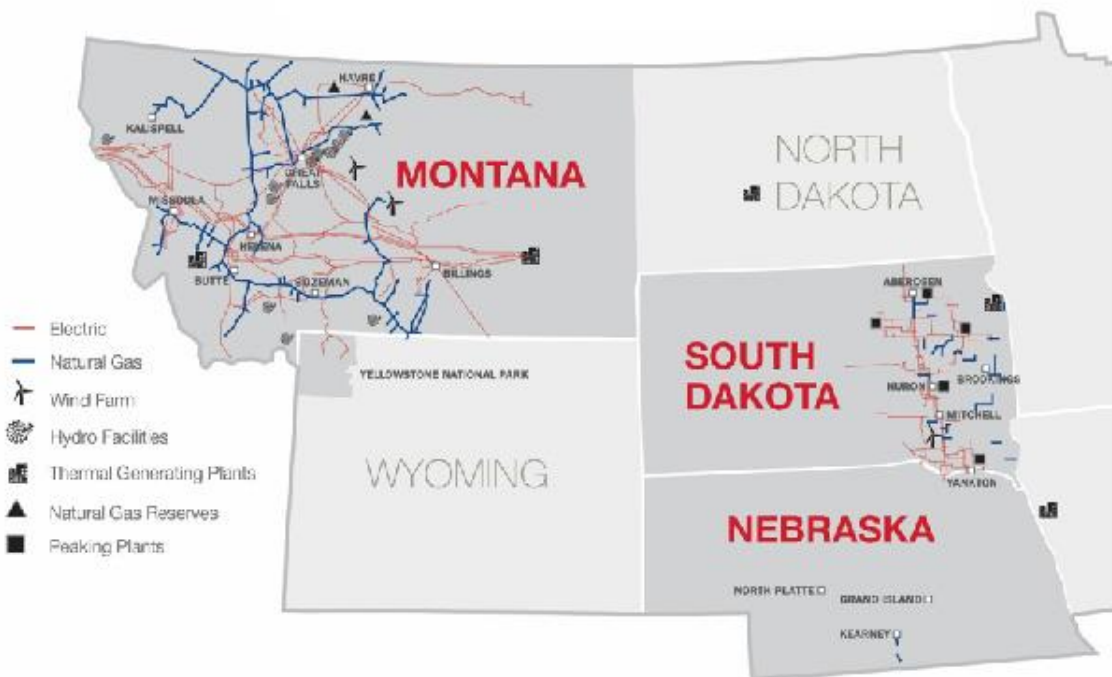
⁸ NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy, “In the Matter of the Application of NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy: Pre-filed Direct Testimony of Brian B. Bird,” June 6, 2024, page 3, available at: <https://www.northwesternenergy.com/docs/default-source/default-document-library/billing-and-payment/rates-and-tariffs/nebraska/2024-nebraska-rate-review/binder-application-tariff-testimony-exhibits.pdf>.

⁹ NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy, “In the Matter of the Application of NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy: Pre-filed Direct Testimony of Brian B. Bird,” June 6, 2024, page 7, available at: <https://www.northwesternenergy.com/docs/default-source/default-document-library/billing-and-payment/rates-and-tariffs/nebraska/2024-nebraska-rate-review/binder-application-tariff-testimony-exhibits.pdf>.

¹⁰ NorthWestern Response to IR 1-9.

Figure 1: NorthWestern Energy Group, Inc. Facilities and Service Areas¹¹

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From 2020 to 2022, NorthWestern’s natural gas supply requirements in Nebraska were about 12.9 billion cubic feet (“Bcf”). Table 1 below displays this on an annual basis.

Table 1: NorthWestern's Nebraska natural gas supply requirements during the Audit Period¹²

Year	NG Supply Requirements
2020	4.3 Bcf
2021	4.2 Bcf
2022	4.4 Bcf

I.C. Our methodology and process

Bates White’s approach to the audit was to compile a record of information obtained from NorthWestern through formal data requests, web-based interviews, web-based presentations, web-based sensitive

¹¹ NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy, “In the Matter of the Application of NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy: Pre-filed Direct Testimony of Brian B. Bird,” June 6, 2024, page 3, available at: <https://www.northwesternenergy.com/docs/default-source/default-document-library/billing-and-payment/rates-and-tariffs/nebraska/2024-nebraska-rate-review/binder-application-tariff-testimony-exhibits.pdf>.

¹² 2022 requirements drawn from NorthWestern’s 2022 Annual Report, page 18, available at:

document review, and conference calls. We issued formal data requests, reviewed numerous transactions, and conducted numerous conference calls and interviews with key personnel at NorthWestern, including management and operations personnel that are responsible for forecasting and scheduling, gas supply, and risk management. Our report's findings, conclusions, and recommendations are based on that record of information.

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We focused our review on the natural gas procurement and hedging processes, practices, and procedures of NorthWestern. We did not audit NorthWestern's operations outside of its natural gas procurement and hedging processes, nor its compliance with reliability or cybersecurity standards.

We note that NorthWestern remained cooperative and responsive throughout the audit process. NorthWestern accommodated our requests, including to interview certain employees, review NorthWestern's models and forecasts, and receive contracts, reports, invoices, and other forms of supporting documentation requested throughout the audit process. NorthWestern also used a secure document sharing platform to allow for efficient sharing of documents that served as a reliable record of documents provided to date throughout the process.

I.D. Report structure

Our report proceeds as follows. We have four substantive chapters, each addressing a different aspect of our scope of work and NorthWestern's procurement and hedging activities:

- Chapter II – Organization, staffing, and controls
- Chapter III – Planning and forecasting
- Chapter IV – Procurement
- Chapter V – Hedging

Each chapter follows the same structure. Each begins with the Findings section, which contains our factual records, evidence, and analysis. This section is always the longest of each chapter, as it serves as the factual basis for the next two sections. The next section is the Conclusions section, which includes our distilled deductions and judgments on NorthWestern's procurement and hedging activities during the Audit Period. This section is particularly important for readers to review, as it provides our view of what

<https://northwesternenergy.com/docs/default-source/default-document-library/about-us/investors/annual-reports/annual-report-2022.pdf>. 2021 requirements drawn from NorthWestern's 2021 Annual Report, page 17, available at:
<https://northwesternenergy.com/docs/default-source/default-document-library/about-us/investors/annual-reports/annual-report-2021.pdf>. 2020 requirements drawn from NorthWestern's 2020 Annual Report, page 16, available at:
<https://northwesternenergy.com/docs/default-source/default-document-library/about-us/investors/annual-reports/2020-annual-report-10k-final.pdf>.

NorthWestern is doing well and how it can improve. Last is the Recommendations section, which contains our action items for NorthWestern to address to improve outcomes for its customers. **NG-115.1**

I.E. Summary of key conclusions and recommendations

Below are ten recommendations. To provide some context for these recommendations, we include the directly related conclusion(s) on which the recommendations are based. To fully understand our basis for these recommendations, please refer to the full respective chapters for our complete findings.

II – Organization, Staffing, and Controls

Conclusion II-4: NorthWestern’s risk management documentation, particularly the Energy Risk Management Policy, clearly outline its approach to risk management. Evidence suggested that NorthWestern followed its risk management process, though its practices would benefit from dating any presentations made pursuant to the risk management policy. **(Recommendation II-1)**

Recommendation II-1: For all presentations which discuss important decisions – such as presentations made to NorthWestern’s Energy Supply and Transmission Board – NorthWestern should include the date on which the presentation was made or shared.

Conclusion II-7: Employees are distributed the risk management policy but are not required to provide regular written acknowledgment of the policy. **(Recommendation II-2)**

Recommendation II-2: NorthWestern Energy should consider implementing a formal risk policy review system in which new employees provide signed acknowledgements of the risk policy, and tenured employees provide signed acknowledgments of the risk policy regularly (e.g., annually).

III – Planning and Forecasting

Conclusion III-2: While NorthWestern does plan for a peak day it does not plan for a peak winter. It appears to rely on the availability of daily spot supplies to meet the most extreme conditions experienced over an entire winter. **(Recommendation III-1)**

Recommendation III-1: NorthWestern should define a “design winter” for its service territory and analyze its supply portfolio for the purpose of 1) determining the adequacy of its supply assets to meet customer demands over its design winter, 2) to assist it in determining the most cost-effective supply portfolio to meet current and projected demands, and 3) assist it in optimizing the dispatching of storage supplies.

Conclusion III-4: NorthWestern’s daily gas demand forecasts exhibited a positive bias (a tendency to under-estimate demand) and, in some cases, exhibited elevated forecast error (particularly for Grand Island). **(Recommendation III-2)**

Recommendation III-2: NorthWestern should consider reviewing its internal forecasting process to determine if improvements could be made that reduce overall error percentages and any bias, particularly at Grand Island. **NG-115.1**

IV – Procurement

Conclusion IV-2: NorthWestern has been active prior to and during the Audit Period in seeking to reduce its gas supply costs. This included the use of competitive procurement whenever possible, a process that was generally sound, well-disseminated, and designed to select the lowest-cost reliable offer(s). While its competitive RFP process provides benefits to customers, it can be enhanced by better record keeping when NorthWestern selects a winning offer that is not lowest cost or is surplus to RFP quantity targets. **(Recommendation IV-1)**

Recommendation IV-1: NorthWestern should enhance its record-keeping for competitive RFPs in which NorthWestern does not select the lowest priced offer and/or selects additional winning supplier(s) that provide quantities that are surplus to the RFP quantity target by documenting the reason for the selected winning suppliers.

Conclusion IV-5: We found no concerning outcomes in our review of NorthWestern’s short-term natural gas supply transactions. However, NorthWestern does not retain records of its canvassing of potential counterparties, making it impossible to review the market conditions at the time of the transactions. NorthWestern would be well-served to enhance its record-keeping processes related to its short-term gas supply transactions. Doing so will assist the Commission and future auditors in reviewing NorthWestern’s procurement results and will help NorthWestern’s traders demonstrate the value and competitiveness of the transactions they execute (or choose not to execute) for customers. **(Recommendation IV-2)**

Recommendation IV-2: NorthWestern should develop a system to document and record its efforts to canvass the market when pursuing short-term gas supply transactions. At a minimum, this system should include NorthWestern’s calculated supply needs, the gas suppliers contacted, their availability and pricing, and the resulting gas purchases (if any).

Conclusion IV-12: NorthWestern has had an Asset Management agreement in place with BP Energy since 2010. During the Audit Period the agreement generated approximately \$521k in refunds to NorthWestern Nebraska customers. The bulk of the revenue was generated on TIGT prior to Storm Uri. Only about 20% of that revenue was generated post Storm Uri. **(Recommendation IV-3)**

Recommendation IV-3: NorthWestern should examine the reasons behind the significant drop-off in capacity release revenues post Storm Uri. Depending on the results of its examination, it might consider other potential counterparties for its Asset Management Agreement. BP Energy has been the counterparty since 2010.

V – Hedging

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Conclusion V-8: Given the extreme volatility of prices during Storm Uri, NorthWestern decided to increase the volumes it hedges. It now excludes storage supplies from its hedging percentages and will expect to serve its average winter demands using flowing pipeline supply that is 100% hedged. If by October its model does not indicate that 100% of the November-March strip should be hedged, NorthWestern will proceed to hedge the remaining volume necessary to reach the 100% level.

(Recommendation V-1) (Recommendation V-2) (Recommendation V-3)

Recommendation V-1: NorthWestern’s hedging strategy post-Storm Uri raises the possibility that if futures prices are not significantly below historical prices during the prior year, a large volume of supply would be hedged immediately before the start of winter. NorthWestern should use the pricing information in its model to assess the potential impacts of large volume hedges immediately before the winter and make appropriate changes to its hedging strategy if it determines the likelihood of this outcome should be avoided or minimized.

Recommendation V-2: NorthWestern should consider alternatives to non-hedged summer baseload and storage injection volumes. Rising levels of gas-fired power generation and increasing natural gas exports may increase summer price volatility.

Recommendation V-3: NorthWestern should continue to investigate capping swing purchases, especially during the December-February period. As evidenced during the latter part of December 2022, the experience of Storm Uri may have significantly increased price volatility during periods of very cold weather.

II. Organization, Staffing, and Controls

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II.A. Findings

II.A.1. Organization

As noted above, NorthWestern Energy Public Service Corporation, doing business as NorthWestern Energy (“NorthWestern”) is an indirect, wholly-owned subsidiary of NorthWestern Energy Group, Inc. NorthWestern is a regulated utility providing natural gas distribution services in Nebraska, as well as natural gas and electric distribution services to customers in South Dakota and Montana.¹³ NorthWestern is regulated by the state public utility commissions in these three states; in Nebraska, the Commission regulates NorthWestern’s natural gas rates and tariffs.¹⁴

NorthWestern employees noted that recently, NorthWestern Energy Group, Inc. underwent a reorganization at the corporate level. This did not impact the day-to-day operations of NorthWestern employees in Nebraska.¹⁵ Figure 2 below displays NorthWestern Energy Group, Inc.’s corporate structure.¹⁶

¹³ Notes from March 27, 2024 call.

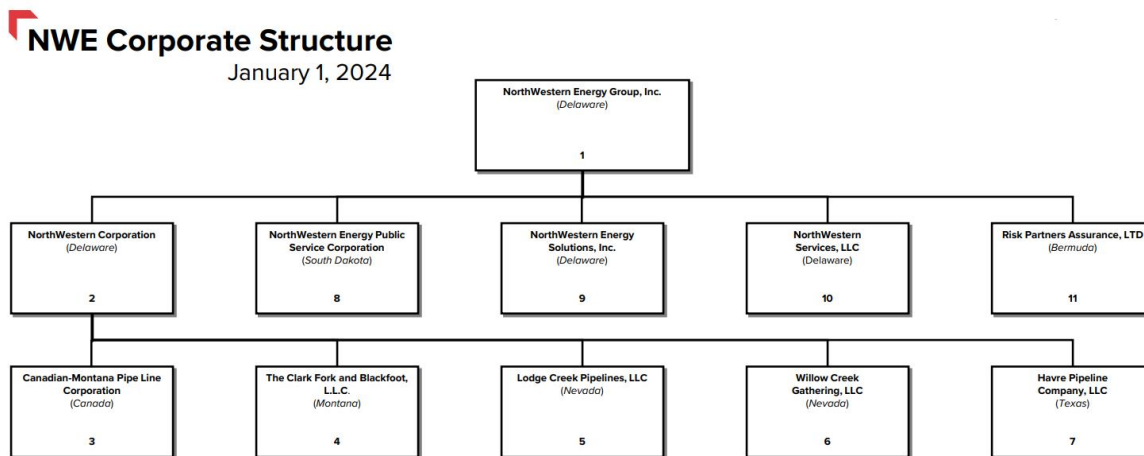
¹⁴ Northwestern Energy, “About Us,” available at: <https://www.northwesternenergy.com/about-us/our-company/regulatory-environment#>.

¹⁵ Notes from March 27, 2024 call.

¹⁶ NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy, “In the Matter of the Application of NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy: Application for Natural Gas Rate Increase,” Attachment A, May 23, 2024, available at: <https://www.northwesternenergy.com/docs/default-source/default-document-library/billing-and-payment/rates-and-tariffs/nebraska/2024-nebraska-rate-review/binder-application-tariff-testimony-exhibits.pdf>.

Figure 2: NorthWestern Energy Group, Inc. Corporate Structure

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This Audit Report focuses on the natural gas services offered by NorthWestern in Nebraska. Figure 3 below outlines NorthWestern’s organizational structure. A Gas Supply Manager, Gas Supply Marketer, and two gas supply analysts sit under a Director for Marketing Operations. This Director reports to the Vice President for Supply & Montana Government Affairs, and, in turn, NorthWestern’s President & CEO.¹⁷ Functions of natural gas planning, purchasing, contracting, and hedging for Nebraska customers are the responsibility of the Director for Marketing Operations and the Director’s related staff.¹⁸ More specifically, these functions include managing the acquisition of gas for supply requirements obligations in Nebraska, including supply purchase, nominations, pipeline balancing, managing storage services, and ensuring supply reliability and deliverability.¹⁹

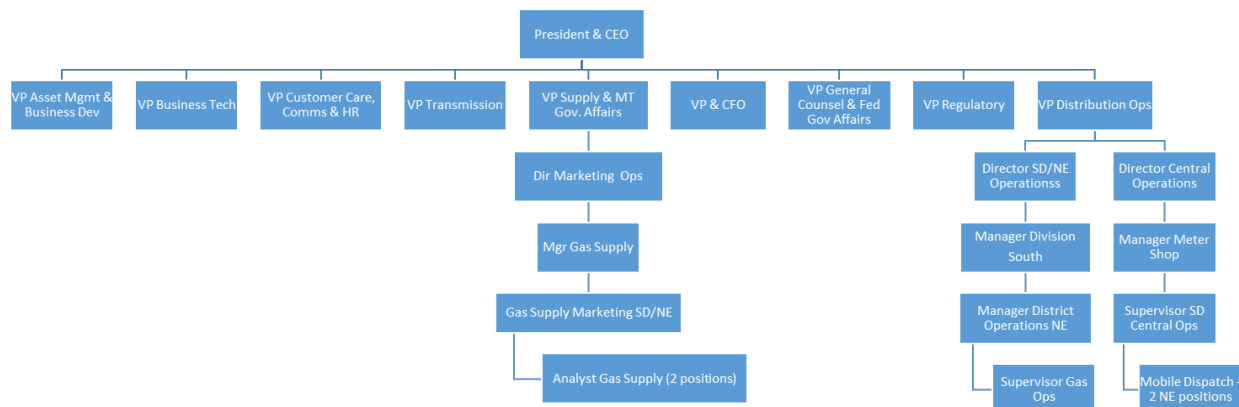
¹⁷ NorthWestern Response to IR 1-2.

¹⁸ Notes from April 26, 2024 call.

¹⁹ Confidential 1-3 2023_Energy Supply Risk Policy Redacted, page 57.

Figure 3: NorthWestern Organizational Chart

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The Statute allows NorthWestern to pass through the costs of natural gas through the gas supply cost adjustment rate to customers. These include (a) federally regulated wholesale rates for energy delivered through interstate facilities, (b) direct costs for natural gas delivered, (c) costs for fuel used in the manufacture of gas, as well as (at the Commission’s discretion) the costs related to gas price volatility risk management activities, the costs of financial instruments purchased to hedge against gas price volatility.²⁰ Unlike other jurisdictional gas utilities in Nebraska (such as Black Hills Energy/Nebraska Gas), NorthWestern’s planning, purchasing, and hedging activity for Nebraska customers does not include any of NorthWestern’s customers in other states and as such, costs are allocated directly to Nebraska customers and are not subject to any cost sharing provisions.

II.A.2. Staffing

As of 2024, NorthWestern Energy Group, Inc. employs approximately 1,573 individuals serving a total of 775,300 customers across Montana, South Dakota, and Nebraska.²¹ Within Nebraska, NorthWestern

²⁰ The Statute, section (1).

²¹ NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy, “In the Matter of the Application of NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy: Pre-filed Direct Testimony of Brian B. Bird,” June 6, 2024, page 3, available at: <https://www.northwesternenergy.com/docs/default-source/default-document-library/billing-and-payment/rates-and-tariffs/nebraska/2024-nebraska-rate-review/binder-application-tariff-testimony-exhibits.pdf>.

employs 33 individuals serving just over 40,000 customers in four communities (Grand Island, Kearney, Alda, and North Platte).²² NorthWestern maintains local offices in North Platte, Kearney, and Grand Island.²³ Those employees responsible for planning, purchasing, and hedging natural gas are located in NorthWestern's offices in Montana and South Dakota.²⁴ These employees work regularly with NorthWestern's legal experts in initiating new contracts with counterparties.²⁵ We interviewed several employees and found each to be knowledgeable about their roles and having significant, relevant experience.

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Employees receive regular training related to their roles. NorthWestern's primary risk policy document, the NorthWestern Energy Risk Management Policy (discussed in detail in Section II.A.3.a below), is available to employees on NorthWestern's internal employee website.²⁶ On an annual basis, NorthWestern managers and leadership review the Energy Risk Management Policy and consider updates or changes. New hires receive training on the policy as a whole, while managers give a presentation to their employees regarding changes made during the review process.²⁷

Like other utilities, NorthWestern has faced staffing challenges in recent years related to attrition and retention.²⁸ NorthWestern explained that because they operate in locations with lower populations, recruiting can be challenging and has become more so due to competition from other employers located outside those locations that allow employees to work from home.²⁹ While employee turnover has been less of an issue in gas procurement functions, NorthWestern added a gas supply analyst during the Audit Period to protect against unexpected attrition.³⁰ In speaking with some of these employees, we found them to have a strong understanding of the issues facing NorthWestern's Nebraska footprint.

II.A.3. Risk management

NorthWestern's natural gas supply and transportation activities expose it to a number of risks, including market, credit, and operational risks. NorthWestern utilizes an approach to risk management that is

²² NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy, "In the Matter of the Application of NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy: Pre-filed Direct Testimony of Brian B. Bird," June 6, 2024, page 3, available at: <https://www.northwesternenergy.com/docs/default-source/default-document-library/billing-and-payment/rates-and-tariffs/nebraska/2024-nebraska-rate-review/binder-application-tariff-testimony-exhibits.pdf>.

²³ NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy, "In the Matter of the Application of NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy: Pre-filed Direct Testimony of Brian B. Bird," June 6, 2024, page 3, available at: <https://www.northwesternenergy.com/docs/default-source/default-document-library/billing-and-payment/rates-and-tariffs/nebraska/2024-nebraska-rate-review/binder-application-tariff-testimony-exhibits.pdf>.

²⁴ Notes from March 27, 2024 call.

²⁵ Notes from April 26, 2024 call.

²⁶ Notes from April 24, 2024 call.

²⁷ Notes from April 24, 2024 call.

²⁸ Notes from April 26, 2024 call.

²⁹ Notes from April 26, 2024 call.

³⁰ Notes from April 26, 2024 call.

generally consistent with industry standards and should effectively manage common utility risks. We reviewed NorthWestern's risk management approach, policies, and documents, as well as its actions during the Audit Period. We identified no material concerns related to implementation of risk management policies during the Audit Period. NG-115.1

II.A.3.a. Risk Management Approach, Policies, and Documents

NorthWestern utilizes an enterprise approach to risk management.³¹ Enterprise risk management refers to a top-down risk management approach, whereby leadership identifies, mitigates, and sets policies for the entire organization, including all subsidiaries and business units. NorthWestern defines enterprise risk management as “the systematic approach to identifying, categorizing, quantifying, and proactively dealing with all risk in a corporation in order to preserve and enhance value. Enterprise Risk Management includes defining the risk appetite, corporate governance, financial risk oversight, and a disciplined process for centralized allocation of capital.”³² Enterprise risk management is a common approach among U.S. utilities. NorthWestern employs a front-middle-back office structure for transactions; generally, the front office enters transactions, the back office settles transactions, and the middle office monitors risk. Lines of reporting for each segment are organizationally independent.³³ This is also a common structure in U.S. utilities.

NorthWestern's Board of Directors is ultimately responsible for risk management. The Board (operating through a Board Audit Committee) is responsible for understanding the critical risks of NorthWestern's operations, approving overall enterprise risk management strategies and risk tolerance levels, and ensuring that risks are effectively mitigated and managed.³⁴ As of July 2022, NorthWestern's Energy Supply and Transmission Board is responsible for the oversight and risk management of energy supply.³⁵ NorthWestern's chief financial officer (“CFO”) presents supply-related activities of the Energy Supply and Transmission Board to the Board Audit Committee. Key responsibilities of the Energy Transmission and Supply Board include understanding, reviewing, and authorizing NorthWestern's energy supply strategies, as well as directing NorthWestern's approach to risk management and regulatory requirements. We reviewed several examples of presentations made to the Energy Transmission and Supply Board.³⁶ The presentations adequately communicate the status of NorthWestern's adherence to its gas supply procurement strategy, though were undated. We include one recommendation on these presentations below.

NorthWestern's risk management policies are codified within one primary document, the Energy Risk Management Policy.³⁷ This document outlines NorthWestern's risk governance objectives, governance

³¹ Confidential 1-3 2023_Energy Supply Risk Policy Redacted, page 77.

³² Confidential 1-3 2023_Energy Supply Risk Policy Redacted, page 77.

³³ NorthWestern Energy Risk Management Policy, Section 1.3.1.1.

³⁴ NorthWestern Energy Risk Management Policy, Section 1.4.1.

³⁵ NorthWestern Energy Risk Management Policy, Section 1.4.2.

³⁶ NorthWestern Response to IR 1-3.

³⁷ NorthWestern Response to IR 1-3, NorthWestern Energy Energy Risk Management Policy, December 22, 2004 (Amended

structure, and the relevant roles in the organization. The Energy Risk Management Policy also outlines NorthWestern's approach to market risk management, credit risk management, and records retention, as well as the specific responsibilities of the front, middle, and back offices.³⁸ The policy requires distribution of the Energy Risk Management Policy document to all relevant employees³⁹ but does not require those employees to provide written acknowledgement of the policy. We include a recommendation on this point. **NC-115.1**

II.A.3.b. Audit Period Results

We reviewed NorthWestern's risk management results during the Audit Period and found no material violations or concerns associated with the implementation of risk management policies. We tested various aspects of NorthWestern's risk policies to determine if NorthWestern had acted in accordance with its policies and offer our findings as follows.

First, we confirmed that NorthWestern was in compliance with its own risk policies regarding production of certain plans and reports. For example, the Energy Risk Management Policy calls for NorthWestern's Manager for Mid Office Energy Risk Management to assemble and distribute a range of reports covering risk management topics. Some of these reports, such as a mark-to-market report covering existing NorthWestern positions, are developed on an as-needed basis. Others, such as a monthly report for NorthWestern's Energy Supply and Transmission Board, are developed on a monthly basis.⁴⁰ NorthWestern provided sufficient evidence of compliance with these requirements.⁴¹ The Energy Risk Management Policy also calls on the middle office to maintain a cumulative record of limit violations; NorthWestern confirmed no such limit violations had occurred during the Audit Period (and thus did not provide any reports outlining limit violations).⁴²

Second, we confirmed that NorthWestern distributes the Energy Risk Management Policy to all employees directly employed within NorthWestern's energy supply functions, and that updates to the document are relayed to employees.⁴³

Third, we requested a sample of ten natural gas transactions from NorthWestern. NorthWestern provided their backup documentation to the transactions, which we reviewed in-depth.⁴⁴ Though we do include several recommendations related to record-keeping, we found no evidence of violations of the Energy Risk Management Policy.

November 22, 2023) "NorthWestern Energy Risk Management Policy."

³⁸ NorthWestern Energy Risk Management Policy, pages 3 and 4.

³⁹ Energy Risk Management Policy Section 1.1.3.3.

⁴⁰ Energy Risk Management Policy Section 8.2.10.

⁴¹ NorthWestern Response to IR 2-4(c).

⁴² NorthWestern Response to IR 2-4(b).

⁴³ Notes from April 24, 2024 call.

⁴⁴ NorthWestern provided these files on June 27, 2024. See folder "RFP Files."

Fourth, we reviewed NorthWestern's performance during and in the aftermath of Storm Uri to determine any deviations or changes in risk management. NorthWestern confirmed that there were no instances of non-compliance with risk policies.⁴⁵ Transaction activity was conducted within the bounds of the risk management policies, though was impacted by the very high prices observed during Storm Uri. NG-115.1

Fifth, we requested a list of all incidents (and associated reports) of non-compliance or violations of the risk policies in place during the Audit Period. NorthWestern confirmed there were no such instances.⁴⁶

II.A.4. Internal Auditing

An important aspect of utility internal controls is the ability to self-direct audit activity, whether internal, external, or both. NorthWestern employs an internal auditing group.⁴⁷ We requested all internal and external audits/studies commissioned and relied upon related to natural gas fuel and transportation procurement, planning/forecasting, contract administration, and risk management. NorthWestern responded, noting that it had not performed any internal audits or third-party consulting studies during the Audit Period.⁴⁸

II.B. Conclusions

Conclusion II-1: NorthWestern's organizational structure is sufficiently defined, with roles adequately specified, including responsibilities, which can help create an environment of accountability.

Conclusion II-2: NorthWestern and its middle office is well-staffed with experienced personnel.

Conclusion III-3: NorthWestern's Nebraska operations are located in primarily rural areas, which can make hiring difficult, a fact which was exacerbated by competition from out-of-area employers offering remote work options. Some of NorthWestern's relevant staff are based out of neighboring states but demonstrated a strong understanding of the issues facing Nebraska operations.

Conclusion II-4: NorthWestern's risk management documentation, particularly the Energy Risk Management Policy, clearly outline its approach to risk management. Evidence suggested that NorthWestern followed its risk management process, though its practices would benefit from dating any presentations made pursuant to the risk management policy. **(Recommendation II-1)**

⁴⁵ NorthWestern Response to IR 2-4(b).

⁴⁶ NorthWestern Response to IR 2-4(b). See also, NorthWestern Response to IR 1-5.

⁴⁷ Confidential 1-3 2023_Energy Supply Risk Policy Redacted, page 26.

⁴⁸ NorthWestern Response to IR 1-5.

Conclusion II-5: The Energy Risk Management Policy also calls on the middle office to maintain a cumulative record of limit violations; NorthWestern confirmed no such limit violations had occurred during the Audit Period. **NG-115.1**

Conclusion II-6: After reviewing a sample of transactions, we found no evidence of violations of the Energy Risk Management Policy.

Conclusion II-7: Employees are distributed the risk management policy but are not required to provide regular written acknowledgment of the policy. **(Recommendation II-2)**

Conclusion II-8: NorthWestern did not perform any internal audits or third-party consulting studies related to gas planning, procurement, and hedging during the Audit Period.

II.C. Recommendations

Recommendation II-1: For all presentations which discuss important decisions – such as presentations made to NorthWestern’s Energy Supply and Transmission Board – NorthWestern should include the date on which the presentation was made or shared.

Recommendation II-2: NorthWestern Energy should consider implementing a formal risk policy review system in which new employees provide signed acknowledgements of the risk policy, and tenured employees provide signed acknowledgments of the risk policy regularly (e.g., annually).

III. Planning and Forecasting

NG-115.1

III.A. Findings

III.A.1. Planning and forecasting approach

To help reliably meet customer demand for gas, NorthWestern conducts regular forecasting of gas demand for its Nebraska territories. The forecasts are used to develop and execute portfolio plans for gas supply purchase products, volumes, and timing.

NorthWestern develops two forecasts for the procurement of natural gas to serve its customers: monthly and daily. Monthly forecasted loads are an average of the last five years. The last five years of measured usage at each town border station is gathered and then reduced by the third party loads to determine the monthly forecast. Daily forecasts are developed using forecasted weather and comparing the forecasted weather against similar historical weather and customer loads.⁴⁹ NorthWestern adjusts the daily forecasts for wind speed by forecasting an additional heating degree day for every forecasted two miles per hour of wind greater than the base wind assumption of eleven miles per hour.⁵⁰ We reviewed samples of the daily and monthly forecasts.⁵¹ The forecasts matched the processes explained by NorthWestern.

By November of each year, NorthWestern also develops an estimate of the amount of gas that will be needed by regulated customers beginning with the heating season that is one year out.⁵² The process involves taking the prior year's actual gas usage, normalized for weather, customer growth, and changes in large customer usage.⁵³ This estimate is used in the development of an annual natural gas procurement strategy that considers pipeline capacity, storage services, contractual obligations, load requirements, pricing comparison, and proposed fixed price target procurement quantities.⁵⁴ Ultimately, this strategy is presented to NorthWestern's Energy Supply and Transmission Board for approval.⁵⁵ We observed the presentations for the three years of the Audit Period.⁵⁶

One aspect of NorthWestern's forecasting and planning efforts that could be improved is the consideration of customer demands in the event of extreme weather. NorthWestern's annual review of demand for gas by its regulated customers is based on the prior 5-year actual experience, adjusted for

⁴⁹ NorthWestern Response to IR 1-8.

⁵⁰ NorthWestern Response to IR 3-11.

⁵¹ NorthWestern Response to IR 2-2.

⁵² Confidential 1-3 2023_Energy Supply Risk Policy Redacted, page 64.

⁵³ Confidential 1-3 2023_Energy Supply Risk Policy Redacted, page 64.

⁵⁴ Confidential 1-3 2023_Energy Supply Risk Policy Redacted, page 64.

⁵⁵ Confidential 1-3 2023_Energy Supply Risk Policy Redacted, page 64.

⁵⁶ NorthWestern Response to IR 1-3.

changes in its customer profile. This approach would not capture the impact of a particularly cold winter season, which could result in significantly greater winter gas consumption than what had been observed in the prior five winters. NG-115.1

While NorthWestern plans for a peak winter day, it does not plan for a design winter, i.e., the coldest winter it expects to experience.⁵⁷ Typically, utilities that plan for a design winter use the coldest winter experienced over a 30 to 50-year period. This planning is necessary to assist the utility in designing an efficient supply portfolio. That is, to ensure supplies are sufficient to meet the most extreme winter expected but are not so excessive that they burden customers with unnecessary costs. Furthermore, a design winter analysis can assist a utility in determining how to best order its dispatch priorities as the winter progresses. Typically, early in the winter, storage supplies are preserved in order to both ensure there is sufficient supply to meet severe winter demands, and to provide lower priced gas during severe weather when prices tend to rise. A design winter plan would enable the utility to compare its current winter to its design winter, and assist it in determining when it might be advisable to give typically lower-priced storage gas dispatch priority over spot supplies.

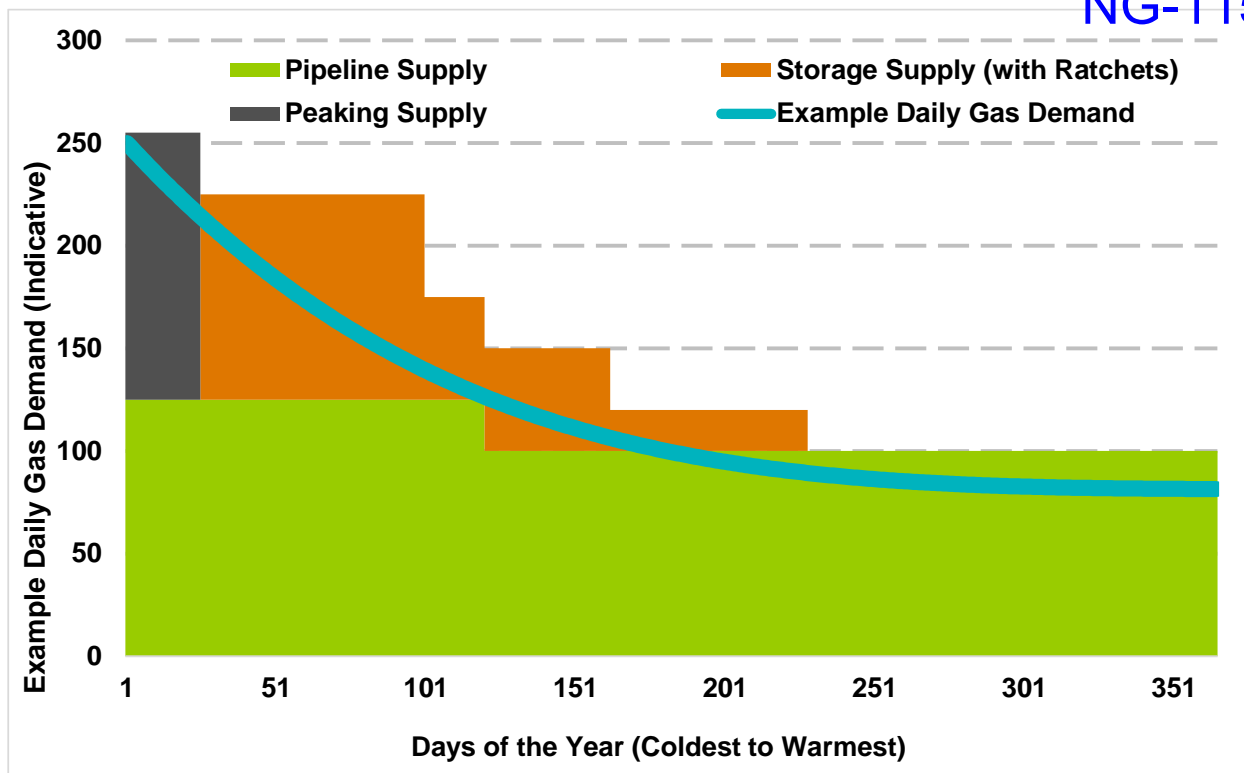
Figure 4 is a pictorial representation of how a utility's supply portfolio compares to its coldest expected winter, commonly referred to as a load duration curve. The line on the graph represents customer demands from the coldest expected day to the warmest over the course of a year. The bars represent the supplies available to meet those demands. If there is no day where the bar is below the line graph, i.e., a gap between customer demand and supply, then supplies are sufficient to meet the most extreme demands. If, however, the bars are excessively above customer demands, then this could suggest that the supply portfolio is inefficient. There are many considerations that come into play in designing a gas supply portfolio beyond the results of a load duration curve. The reliability of supplies/deliveries, the types of services contracted for, and winter/summer price differentials are a few of those considerations. For heat sensitive load such as NorthWestern's, however, an important starting point is understanding how your supply portfolio compares to meeting your coldest expected winter. Furthermore, NorthWestern indicated that it does not assign its capacity to its transport customers because it has little excess capacity, preferring instead to keep that capacity for its customers.⁵⁸ Under tight capacity constraints, planning for a design winter becomes even more critical.

⁵⁷ Notes from May 7, 2024 call.

⁵⁸ Notes from May 7, 2024 call.

Figure 4: Example Load Duration Curve

NG-115.1



NorthWestern could determine its portfolio adequacy in the event of an extreme winter season (e.g., the coldest winter in the prior 30 years). We include a recommendation on this point.

III.A.2. Forecast accuracy

NorthWestern reviews the accuracy of its forecasts by comparing the estimated weather and loads to the actual weather and actual town border station loads, where the town border station loads are reduced by third-party usage.⁵⁹ NorthWestern maintains a spreadsheet that tracks the forecast data, the actual data, and the forecast error.⁶⁰ NorthWestern also maintains a spreadsheet that tracks the accuracy of its wind adjustments to the daily gas forecasts, keeping track of the forecasted and actual wind speeds and resulting deviations.⁶¹ NorthWestern provided natural gas consumption data which included daily forecasted and actual natural gas consumption at three locations: Grand Island, Kearney, and North Platte.⁶² In the materials provided, NorthWestern did not provide any summary data or presentations demonstrating the accuracy of its forecasts. Thus, we reviewed and analyzed these forecasts, reviewed the results, and developed an assessment of their accuracy.

⁵⁹ NorthWestern Response to IR 2-3.

⁶⁰ NorthWestern Response to IR 2-2, "Daily Forecasts revised.xlsx."

⁶¹ NorthWestern Response to IR 3-12.

⁶² NorthWestern Response to IR 2-2, "Daily Forecasts revised.xlsx."

Our analysis focused on NorthWestern's daily gas forecasts. The data set included one forecast for each day of the Audit Period, showing the forecasted regulated customer demand at North Platte, Grand Island, and Kearney, which is then aggregated. Adjustments are made for third-party consumption, and the primary determinant of the demand at these locations is the number of heating degree days forecasted, which is driven by weather (temperature and wind speed).⁶³ To assess the accuracy of NorthWestern's forecast, we needed to isolate days in the Audit Period where the number of heating degree days matched what was forecast, i.e., where actual weather was as predicted. Thus, in our tables below, we have focused only on days where the forecasted heating degree days was correct.

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The metric we use for assessing accuracy is forecast error percentage. We reviewed both the actual forecast error percentage, which can be positive or negative, to understand if the forecasts may have a bias toward over- or under-estimating demand. We also reviewed absolute percentage error, which looks only at the magnitude of the error, not the direction of that error, which provides a sense of whether the forecasts are reasonably close to actual results.

Figure 5 below provides the monthly and annual statistics for the Grand Island region. The data suggests that NorthWestern's forecasts may be biased toward under-estimating demand. In all three years, the average percentage error was positive, ranging between 5.0% and 13.8%. Moreover, across the 36 months, 28 months have positive average percentage errors. From an absolute error percentage perspective, the data suggests that NorthWestern's forecast accuracy may be elevated, though did improve during the Audit Period. On an annual basis, the average absolute percentage error was 22.8% in 2020; 15.4% in 2021; and 14.7% in 2022.

⁶³ NorthWestern Response to IR 2-2, "Daily Forecasts revised.xlsx."

Figure 5: Accuracy of Natural Gas Forecasts, Summarized by Month (Grand Island)⁶⁴

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Year	Month	Average Absolute Percentage Error	Average Percentage Error (Positive Values Indicate Actual Demand Exceeded Forecast Demand)	Number of Days
2020	1	3.3%	3.2%	2
2020	2	22.7%	-22.7%	2
2020	3	18.8%	14.2%	3
2020	4	19.4%	0.5%	4
2020	5	9.9%	9.9%	4
2020	6	10.1%	3.9%	4
2020	7	17.4%	17.4%	5
2020	8	51.0%	26.5%	6
2020	9	28.0%	28.0%	5
2020	10	29.8%	23.9%	4
2020	11	17.2%	17.2%	1
2020	12	10.3%	10.3%	2
2021	1	7.8%	6.9%	6
2021	2	5.3%	4.3%	3
2021	3	16.4%	16.4%	3
2021	4	18.4%	18.4%	3
2021	5	56.0%	56.0%	1
2021	6	19.3%	16.0%	3
2021	8	29.9%	29.9%	3
2021	9	16.5%	12.3%	6
2021	10	10.5%	-8.7%	4
2021	11	10.8%	0.9%	3
2021	12	11.7%	4.4%	2
2022	2	11.8%	-11.8%	1
2022	3	13.6%	13.6%	4
2022	5	6.4%	6.4%	3
2022	6	13.6%	13.6%	2
2022	7	18.9%	-3.4%	7
2022	8	16.8%	7.0%	6
2022	9	20.9%	7.3%	4
2022	10	8.8%	2.5%	4
2022	11	9.7%	9.2%	2
2020		22.8%	13.8%	42
2021		15.4%	10.9%	37
2022		14.7%	5.0%	33

Figure 6 below displays the same information for the Kearney region. Here, the data suggests a slight bias, but much less so than for Grand Island above. In all three years, the average percentage error was positive, ranging between but was lower (between 3.3% and 5.3%) than Grand Island. Across the 36 months, 24 months have positive average percentage errors (compared with 28 for Grand Island). The

⁶⁴ NorthWestern Response to IR 2-2, "Daily Forecasts revised.xlsx."

absolute average error percentage was also less elevated than Grand Island’s, ranging from 12.0% in 2020 to 15.9% in 2022.

NG-115.1

Figure 6: Accuracy of Natural Gas Forecasts, Summarized by Month (Kearney)⁶⁵

Year	Month	Average Absolute Percentage Error	Average Percentage Error (Positive Values Indicate Actual Demand Exceeded Forecast Demand)	Number of Days
2020	1	2.2%	2.1%	3
2020	2	13.4%	0.2%	3
2020	3	11.6%	8.9%	4
2020	4	13.1%	-6.3%	4
2020	5	25.5%	25.5%	4
2020	6	12.3%	-12.3%	1
2020	7	13.9%	5.2%	4
2020	8	7.1%	-5.2%	7
2020	9	6.0%	0.2%	3
2020	10	23.9%	-4.4%	2
2020	11	12.3%	12.3%	3
2020	12	5.9%	5.9%	2
2021	1	1.8%	0.2%	3
2021	3	16.5%	10.5%	4
2021	4	18.3%	18.3%	6
2021	5	5.5%	-5.0%	3
2021	6	6.6%	6.6%	2
2021	7	10.8%	10.8%	1
2021	8	6.7%	0.0%	5
2021	10	42.2%	-12.8%	5
2021	11	7.0%	6.6%	3
2021	12	9.6%	8.5%	2
2022	1	10.3%	10.3%	2
2022	2	12.6%	-12.6%	1
2022	3	25.7%	25.7%	1
2022	4	33.2%	-33.2%	1
2022	5	11.0%	-8.0%	4
2022	6	11.7%	10.4%	5
2022	7	9.9%	9.5%	6
2022	8	24.7%	1.1%	3
2022	9	8.0%	8.0%	3
2022	10	34.4%	10.2%	4
2022	11	16.9%	16.9%	2
2022	12	9.6%	1.0%	2
2020		12.0%	3.3%	40
2021		14.9%	3.9%	34
2022		15.9%	5.3%	34

⁶⁵ NorthWestern Response to IR 2-2, “Daily Forecasts revised.xlsx.”

Forecasts results were strongest at North Platte, which are shown in Figure 7 below. The data again suggest a slight bias (a tendency to under-estimate) at a scale similar to Kearney, with average percentage errors ranging between 3.2% and 4.5% on an annual basis, with 23 out of 36 months having positive average percentage errors. Absolute average error percentages were lowest among the three locations, with annual values of 7.4% in 2020, 8.1% in 2021, and 8.1% in 2022.

NG-115.1

Figure 7: Accuracy of Natural Gas Forecasts, Summarized by Month (North Platte)⁶⁶

NG-115.1

Year	Month	Average Absolute Percentage Error	Average Percentage Error (Positive Values Indicate Actual Demand Exceeded Forecast Demand)	Number of Days
2020	1	8.6%	8.6%	1
2020	2	6.8%	-6.8%	1
2020	3	18.7%	-18.7%	1
2020	4	2.6%	0.1%	3
2020	5	17.8%	-5.4%	5
2020	6	5.0%	2.1%	4
2020	7	13.4%	13.4%	3
2020	8	12.4%	12.4%	3
2020	9	4.0%	4.0%	2
2020	10	18.5%	11.4%	2
2020	11	15.0%	15.0%	2
2020	12	8.1%	-3.9%	2
2021	1	7.6%	6.3%	5
2021	2	7.6%	7.3%	2
2021	4	13.8%	-5.3%	3
2021	5	10.9%	9.4%	4
2021	6	1.6%	-0.1%	3
2021	8	5.0%	-5.0%	2
2021	9	6.9%	6.9%	1
2021	10	9.9%	-1.3%	4
2021	11	7.6%	7.6%	3
2021	12	7.0%	5.4%	2
2022	1	4.2%	4.2%	2
2022	2	10.0%	10.0%	2
2022	3	2.9%	-1.1%	4
2022	4	16.1%	5.0%	2
2022	5	5.1%	5.1%	1
2022	6	0.8%	-0.8%	1
2022	7	10.1%	10.1%	4
2022	8	6.3%	2.6%	5
2022	9	7.9%	7.9%	5
2022	10	11.5%	0.5%	6
2022	11	8.1%	8.1%	3
2020		7.4%	3.3%	29
2021		8.1%	3.2%	29
2022		8.1%	4.5%	35

We urge caution in reviewing these results, as, again, the tables above cover only days where the number of heating degree days was equal to forecast. (These totaled only about 10% of all days in the Audit Period.) We also reviewed daily wind data at all three locations to see if wind patterns had any clear impact on the accuracy of NorthWestern’s forecasts; we did not find a clear correlation. Still, it is our

⁶⁶ NorthWestern Response to IR 2-2, “Daily Forecasts revised.xlsx.”

view that these results suggest that NorthWestern could consider a review of its internal forecasting process to determine if improvements could be made that reduce overall error percentages and bias, particularly at Grand Island. We include a recommendation on this point.

NG-115.1

III.A.3. Strategic planning

Gas utilities in the U.S. are, to varying degrees, facing risks of legislation that curbs customer demand for gas supply. While several U.S. cities have passed or considered action curbing new natural gas installations in residential and/or commercial buildings, it was the state of New York in May 2023 that passed the first state-wide ban on natural gas installations in new buildings, beginning in 2026.⁶⁷ Several states also have emissions reductions targets that affect natural gas utilities, including California, Colorado, Washington, Oregon, Massachusetts, New York, and Vermont.⁶⁸ For example, in 2021, Colorado began requiring gas distribution utilities to reduce greenhouse gas emissions by 4% from 2015 levels by 2025 and 22% by 2030.⁶⁹ Starting in 2023, gas utilities are required to file “Clean Heat Plans” that demonstrate compliance through measures such as energy efficiency programs and beneficial electrification (which allows customers to switch from gas furnaces and appliances to heat pumps and electric appliances).⁷⁰ The net impact of such programs will be less gas demanded by customers, and thus less gas supplied and transported by the utility.

At this point, we observed no evidence that the states in which NorthWestern does business – including Nebraska – are considering similar measures as those in states such as Colorado. In fact, in Montana the legislature passed a law prohibiting local governments from “banning or limiting energy choices,”⁷¹ which might serve to prevent legislatively-based curbs on natural gas consumption in that state. South Dakota and Nebraska’s state legislatures passed similar laws in March 2024 and April 2024, respectively.⁷² Nevertheless, the risk of new legislation remains (such as at the federal level), and thus we would expect NorthWestern to monitor the legislative environment for future changes in law that could impact customer demand, and be prepared to adjust its planning processes to ensure reliability for its customers.

⁶⁷ Rachel Ramirez and Ella Nilsen, “New York becomes the first state to ban natural gas stoves and furnaces in most new buildings,” *CNN*, May 3, 2023, <https://www.cnn.com/2023/05/03/us/new-york-natural-gas-ban-climate/index.html>.

⁶⁸ Elaine Prause, *Regulatory Assistance Project*, “Modernizing Gas Utility Planning: New Approaches for New Challenges,” September 2022, footnote 4.

⁶⁹ Colorado Department of Regulatory Agencies, “What are Clean Heat Plans?,” available at: <https://puc.colorado.gov/cleanheatplans#:~:text=What%20are%20Clean%20Heat%20Plans,2030%2C%20from%20a%202015%20baseline>.

⁷⁰ *Ibid.*

⁷¹ Montana SB 208, available at: <https://leg.mt.gov/bills/2023/billpdf/SB0208.pdf>.

⁷² South Dakota Legislature, “Senate Bill 174,” available at: <https://sdlegislature.gov/Session/Bill/24109>. See also, *American Gas Association*, “Nebraska becomes 26th state to pass fuel choice legislation, securing protections for consumer choice in more than half of America,” available at: <https://www.aga.org/news/news-releases/nebraska-becomes-26th-state-to-pass-fuel-choice-legislation-securing-protections-for-consumer-choice-in-more-than-half-of-america/>.

A second longer-term strategic issue is the impact of Storm Uri, a several-day severe winter storm event that impacted Nebraska in February 2021.⁷³ Storm Uri impacted customers through an incremental cost of gas of \$22,770,848.64,⁷⁴ the cost of which was subject of a regulatory proceeding at the Commission. Additionally, in light of the impact and cost of Storm Uri, NorthWestern changed its approach to hedging exposure to natural gas prices by increasing its hedge targets and counting only its fixed price purchases toward its hedge targets and no longer including its gas storage capabilities, as it did prior to Storm Uri.⁷⁵ (We explain this in more detail in Chapter V.) NorthWestern also noted that gas purchasing since Storm Uri has also been impacted, with buyers seeking additional price certainty during winter months (minimizing exposure to real-time prices).⁷⁶ Suppliers, on the other hand, may have incentive to maximize exposure to real-time pricing to benefit from future price spike events, such as that experienced during Uri. Our review suggests NorthWestern has internalized some lessons learned from the experience of Storm Uri. We address NorthWestern's procurement and hedging activities in the following two chapters, respectively.

NG-115.1

III.B. Conclusions

Conclusion III-1: NorthWestern generally forecasts natural gas consumption and pipeline utilization in a reasonable manner.

Conclusion III-2: While NorthWestern does plan for a peak day it does not plan for a peak winter. It appears to rely on the availability of daily spot supplies to meet the most extreme conditions experienced over an entire winter. **(Recommendation III-1)**

Conclusion III-3: NorthWestern tracks and monitors the accuracy of its forecasts of gas demand.

Conclusion III-4: NorthWestern's daily gas demand forecasts exhibited a positive bias (a tendency to under-estimate demand) and, in some cases, exhibited elevated forecast error (particularly for Grand Island). **(Recommendation III-2)**

Conclusion III-5: NorthWestern took reasonable steps to adapt in light of the experience of winter storm Uri in February 2021, including adjustments to its planning and hedging process.

⁷³ National Weather Services, "Historic Winter Outbreak February 11-20, 2021," available at: <https://www.weather.gov/hgx/2021ValentineStorm>.

⁷⁴ NorthWestern Response to IR 3-10.

⁷⁵ Notes from March 27, 2024 call.

⁷⁶ Notes from March 27, 2024 call.

III.C. Recommendations

NG-115.1

Recommendation III-1: NorthWestern should define a “design winter” for its service territory and analyze its supply portfolio for the purpose of 1) determining the adequacy of its supply assets to meet customer demands over its design winter, 2) to assist it in determining the most cost-effective supply portfolio to meet current and projected demands, and 3) assist it in optimizing the dispatching of storage supplies.

Recommendation III-2: NorthWestern should consider reviewing its internal forecasting process to determine if improvements could be made that reduce overall error percentages and any bias, particularly at Grand Island.

IV. Procurement

NG-115.1

IV.A. Findings

IV.A.1. Products and Services Purchased

To reliably serve its customers, NorthWestern dispatches significant amounts of gas every day. In all, NorthWestern purchased 29,993,957 Dth of gas supply during the Audit Period.⁷⁷ NorthWestern's only owned gas reserves are located in Montana and are used solely to serve Montana customers.⁷⁸ As such, NorthWestern must procure sufficient sources of gas supply to serve customers. In addition, NorthWestern must ensure it can reliably transport the gas supply to its distribution network of in-state pipelines. These two objectives require NorthWestern to procure both gas supply and gas transportation.

NorthWestern largely relies on physical gas supply contracts and transactions. Contracts can vary by term, the timing of delivery, and the receipt point, among others. Below are some of the sources of physical supply used by NorthWestern to supply customers during the Audit Period:

- **Contract Terms:** NorthWestern's physical supply contracts had terms ranging from one day to 150 days.⁷⁹ The shorter-term transactions included day-ahead and intraday transactions. Longer-term transactions included monthly contracts and seasonal contracts, typically covering the winter period or portions of the winter period.⁸⁰
- **Baseload vs. Swing supplies.** Most of NorthWestern's purchases are known as "baseload" supply, which sets a fixed volume to be supplied for the duration of the supply contract. These supplies could be flowing pipeline gas or gas from storage. NorthWestern also relies upon swing supplies to serve hours and days during periods (especially winter) when customer demands are particularly high.⁸¹ Many utilities also enter into peaking contracts where a specific daily volume of gas is reserved, and can be called upon, for all or a portion of the winter. These supplies typically have reservation charges. NorthWestern had no peaking contracts during the audit period.⁸²

⁷⁷ NorthWestern Response to IR 1-1. This figure includes purchases from BP Energy pursuant to an Asset Management Agreement. When NorthWestern purchases supply from a supplier it must sell that supply to BP Energy before it is shipped to NorthWestern. NorthWestern then repurchases that supply from BP Energy at NorthWestern's delivery points.

⁷⁸ NorthWestern Response to IR 1-6.

⁷⁹ NorthWestern Response to IR 1-1.

⁸⁰ NorthWestern Response to IR 1-1.

⁸¹ Notes from May 7, 2024 call.

⁸² NorthWestern Response to IR 1-1.

- **Receipt Point and Delivery Point:** Receipt points are those points where NorthWestern delivers gas it has purchased into one of the pipelines with which it has contracted. Delivery points are those points where the delivering pipeline connects with the NorthWestern system and redelivers the supply to NorthWestern. All gas purchased during the Audit Period was delivered to various points on either the Trailblazer or Tallgrass pipelines (discussed below).⁸³
- **Pricing Structure:** Prices for physical supply may be either fixed price or tied to an established pricing index. NorthWestern relied on a mix of fixed-price and index-priced supply contracts during the Audit Period.⁸⁴

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In addition to physical supply, NorthWestern can also rely on natural gas storage arrangements. Natural gas storage allows NorthWestern to store and then call upon natural gas supplies when needed, such as during winter season and/or during shorter-term peak demand periods. During the Audit Period, NorthWestern held storage contracts on both the Trailblazer and Tallgrass pipelines, which we explain below.

To reliably transport gas supplies, NorthWestern had in place transportation arrangements on both Trailblazer and Tallgrass. (We discuss these arrangements below.) To help maximize the value of those transportation contracts, NorthWestern had an “asset management agreement” in place throughout the Audit Period. Asset management agreements allow entities like NorthWestern to extract value from its transportation contracts allowing a larger, more regional supplier of gas to manage and optimize use of the transportation contract, while ensuring NorthWestern’s gas demand needs are met. We review the asset management agreement below.

NorthWestern’s overall procurement approach and processes appear reasonable. We observed evidence that NorthWestern seeks to use competitive procurement whenever possible. When not possible, such as pursuit of daily transactions, we observed limited evidence of market canvassing by NorthWestern to seek the lowest-priced, reliable offer from counterparties. (We include a recommendation for how NorthWestern can enhance this process below.) NorthWestern’s trading activity also appeared in line with its risk management policies.

IV.A.2. Summary of Contracts and Transactions

During the Audit Period, NorthWestern maintained 10 master agreements with suppliers of natural gas. These master agreements – often referred to as “NAESB” contracts, short for the North American Energy Standards Board – help reduce the time and cost of contracting for natural gas by codifying a set of agreed-upon terms and conditions of supply that does not change or require renegotiation for each natural gas transaction. When two parties agree to enter into a specific natural gas transaction for the sale or purchase of natural gas supply, the NAESB terms and conditions govern that transaction, and the

⁸³ NorthWestern Response to 1-1.

⁸⁴ NorthWestern Response to 1-1.

transaction is memorialized in a short (e.g., one page) “confirmation” agreement that specifies the key details of the transaction, such as price, volume, and delivery point. Details on the NAESB agreements is in Table 2 below. NG-115.1

Table 2: NorthWestern Master Agreements During the Audit Period⁸⁵

Counterparty	NorthWestern Entity	Date Entered
BP Energy Company	Northwestern Corporation dba Northwestern Energy	June 1, 2010
Centerpoint Energy Services, Inc.	Northwestern Corporation dba Northwestern Energy	June 1, 2008
Concord Energy LLC	Northwestern Corporation dba Northwestern Energy	Undated
ConocoPhillips Company	Northwestern Corporation dba Northwestern Energy	Undated; Amended June 1, 2010
Energy America, LLC	Northwestern Corporation dba Northwestern Energy	April 4, 2016; Amended August 4, 2021
J Aron and Company (formerly Nexen Marketing U.S.A. Inc)	Northwestern Corporation dba Northwestern Energy	July 1, 2007
Koch Energy Services, LLC	Northwestern Corporation dba Northwestern Energy	February 14, 2019; Amended May 1, 2022
MIECO Inc.	Northwestern Corporation dba Northwestern Energy	April 25, 2017
Sequent Energy Management, L.P.	Northwestern Corporation dba Northwestern Energy	March 21, 2013
Tenaska Marketing Ventures	NorthWestern Energy, LLC	September 1, 2002; Amended December 1, 2005
Tenaska Marketing Ventures	Northwestern Corporation dba Northwestern Energy	June 29, 2022

During the Audit Period, NorthWestern purchased gas from ten different suppliers. Table 3 below shows the total purchase volumes from nine of these suppliers. The tenth supplier, BP Energy, sold natural gas to NorthWestern and also engaged in purchases and sales under an Asset Management Agreement; we provide greater detail into the transactions with BP Energy below in a separate table.

⁸⁵ NorthWestern Response to IR 1-1.

Table 3: NorthWestern's Total Purchases (Dth) and Costs, Excluding BP Energy⁸⁶

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Counter Party	Total Volume	Total Cost	Observations (Indicates total number of daily gas deliveries)	Average Price (\$/Dth)
CenterPoint	853,763	\$1,974,377	424	\$2.31
Concord	1,080,290	\$2,265,255	275	\$2.10
Conoco	182,000	\$420,420	91	\$2.31
Direct Energy	1,064,100	\$2,940,487	455	\$2.76
J Aron	155,000	\$214,520	31	\$1.38
Koch	30,800	\$4,404,305	8	\$143.00
MIECO	2,910,567	\$12,440,157	1002	\$4.27
Sequent	630,535	\$4,538,466	152	\$7.20
Tenaska	2,561,250	\$10,105,745	887	\$3.95

MIECO, Tenaska, and Concord were the three largest suppliers of natural gas to NorthWestern, with average prices ranging from \$2.10/Dth to \$4.27/Dth during the Audit Period. In general, prices across suppliers were fairly consistent, with one exception. Purchases from Koch Energy Services averaged \$143.00/Dth. NorthWestern only engaged in two transactions with Koch during the Audit Period; a week-long purchase of 4,000 Dth/day at a price of \$154.61/Dth from February 11, 2021 to February 17, 2021, and a single delivery of 2,800 Dth for \$26.90/Dth for delivery on February 18, 2021.⁸⁷ This timing aligns with Winter Storm Uri, which caused natural gas prices to spike across the United States.⁸⁸

Bates White has separately analyzed NorthWestern's transactions with BP Energy, with which NorthWestern maintained an Asset Management Agreement for the duration of the Audit Period. Table 4 below outlines the transactions with BP Energy during the Audit Period. BP Energy was by far NorthWestern's most common counterparty, though much of the volume and value shown below occurred in sales and purchases via the Asset Management Agreement. We discuss this agreement in detail below.

Table 4: NorthWestern's Transactions with BP Energy during the Audit Period⁸⁹

Transaction	Total Volume (Dth)	Total Transaction Value	Average Price (\$/Dth)
Purchase	20,525,652	\$89,570,940	\$4.36
Sale	14,944,804	\$49,818,701	\$3.33

NorthWestern's sales to BP Energy are because, as an Asset Manager, BP Energy is the shipper of record. Pipeline rules require the shipper to have title to the gas. Consequently, when NorthWestern purchases

⁸⁶ NorthWestern Response to IR 1-1, attachment "1-1.xlsx."

⁸⁷ NorthWestern Response to IR 1-1.

⁸⁸ See, for example, the United States Energy Information Agency, "Natural Gas Prices Spiked in February 2021, then generally increased through October," January 6, 2022, available at: <https://www.eia.gov/todayinenergy/detail.php?id=50778>.

⁸⁹ NorthWestern Response to IR 1-1, attachment "1-1.xlsx."

supply from a supplier it must sell that supply to BP Energy before it is shipped to NorthWestern. NorthWestern then repurchases that supply from BP Energy at NorthWestern's delivery point. **NG-115.1**

IV.A.3. Annual, Term, and Monthly Gas (RFPs)

NorthWestern's process for term and monthly gas RFPs is generally sound. NorthWestern uses a request for proposals ("RFP") process for all gas contracts which are one month or longer.⁹⁰ NorthWestern then receives bids and utilizes an Excel spreadsheet to evaluate the bids and select the lowest-cost bidder.⁹¹ We reviewed four of NorthWestern's term natural gas transactions during the Audit Period; in every instance besides one, NorthWestern clearly recorded the incoming RFP responses in the Excel spreadsheet, calculated the expected cost of delivery, and selected the least-cost option.⁹² Table 5 below outlines the four sample term RFPs we reviewed.

Within the backup documentation for Deal Number 9202, NorthWestern recorded responses from both MIECO and BP. The RFP leading to this transaction sought 2,000 Dths per day from November 2022 through March 2023.⁹³ NorthWestern calculated the expected cost of BP Energy's bid at \$2,617,106, and the expected cost of MIECO's bid at \$2,618,340.⁹⁴ With both suppliers offering 2,000 Dth/day, and the RFP target being 2,000 Dth/day, we would expect to see just one offer selected. Moreover, we would expect to see the BP Energy offer selected, as it was slightly lower in cost than the MIECO bid. However, it appears from the information provided by NorthWestern that the MIECO offer was selected and, concurrently, NorthWestern executed a term agreement with BP Energy for nearly identical terms to its RFP offer. Specifically, after reviewing NorthWestern's transaction records, it appears that NorthWestern also finalized a term deal with BP for the same term, on the same day, at a price that is nearly exactly the same as the price estimated within the RFP documentation.⁹⁵ The RFP documentation did not include any additional information to explain how NorthWestern came to choose the MIECO offer, nor did it explain why NorthWestern executed deals with both suppliers. This lack of documentation regarding the evaluation of the RFP responses and decisions makes it difficult to fully evaluate this transaction. Generally, we would expect to see a greater level of detail outlining NorthWestern's decision-making during the RFP process. We include a recommendation on this point.

⁹⁰ NWE RFP clarification.pdf, page 1.

⁹¹ See, for example, "8194 analysis.xlsx."

⁹² Analysis files for Deal No. 8194; 8227; 8964; and 9202.

⁹³ Nebraska winter supply 2022-2023 email from NorthWestern.

⁹⁴ Analysis file for Deal No. 9202.

⁹⁵ IR 1-1. The term deal with BP Energy is Deal No. 9201; NorthWestern estimated the average cost of the BP Energy gas at \$8.67 in the RFP documentation, the average cost listed for Deal No. 9201 is \$8.70.

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Table 5: Sample Term RFPs⁹⁶

Deal No.	Type	Counter Party	Trade Date	Pipeline	Delivery Date(s)	Daily Volume (Dth)	Average Cost (\$/Dth)	RFP Respondents	Notes
8227	Baseload	Mieco	March 11, 2020	TIGT	Apr 1-30, 2020	4,893	\$1.60	Centerpoint, Mieco	n/a
8194	Baseload	BP Energy	February 11, 2020	TIGT	Nov. 1-Mar. 31, 2021	2,500	\$2.08	BP Centerpoint, Mieco, Tenaska	n/a
8964	Baseload	Tenaska	November 17, 2021	TIGT	Dec 1-31, 2021	2,000	\$5.16	Tenaska	n/a
9202	Baseload	Mieco	June 3, 2022	TPC	Nov 1-Mar 31, 2023	2,000	\$8.67	BP, Mieco	MIECO was one of 2 bidders (and came in with a slightly higher price); however, it looks like NorthWestern signed a deal with both Mieco in deal 9202 and BP in deal No. 9201 for the same term, likely in response to the same RFP.

⁹⁶ This table is built using information from NorthWestern’s Response to IR 1-1 as well as information provided within the “RFP Files” folder.

IV.A.4. Short-Term Transactions

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As explained above, NorthWestern can make daily spot market purchases either in the intraday market or, more likely, in the day-ahead timeframe. These purchases are made when firm baseload and planned storage releases are insufficient to meet demand. These purchases may be at a fixed or indexed price. Unlike longer-term gas supply contracts discussed above, NorthWestern does not submit written RFPs when procuring supply for the following day.⁹⁷ Instead, NorthWestern determines its next-day supply needs and canvasses four gas suppliers to determine supply availability and pricing. These four suppliers are BP, Tenaska, Koch, and MIECO.⁹⁸ NorthWestern does not save the analyses from these phone conversations, and thus was not able to supply records or analyses from a sample group of short-term transactions for our review.⁹⁹ NorthWestern would be well-served to enhance its record-keeping processes related to its short-term gas supply transactions. Doing so will assist the Commission and future auditors in reviewing NorthWestern's procurement results and will help NorthWestern's traders demonstrate the value and competitiveness of the transactions they execute (or choose not to execute) for customers. We include a recommendation on this topic below.

IV.A.5. Transportation Contracts

NorthWestern has in place transportation contracts for firm capacity on two pipelines: Trailblazer Pipeline Corp. ("TPC") and Tallgrass Interstate Gas Transmission ("TIGT"). Figure 8 and Figure 9 show the detailed maps for each pipeline.¹⁰⁰ TPC is a 436-mile pipeline extending from northeast Colorado to Gage County in Nebraska.¹⁰¹ TIGT originates in Wyoming and stretches across much of western and central Nebraska. TIGT also has operations in Colorado, Kansas and Missouri.

⁹⁷ NWE RFP clarification.pdf.

⁹⁸ NWE RFP clarification.pdf.

⁹⁹ NWE RFP clarification.pdf.

¹⁰⁰ NorthWestern Response to IR 1-10.

¹⁰¹ Tallgrass Energy, "Trailblazer Pipeline Company (TPC)," available at: <https://pipeline.tallgrassenergy.com/Pages/Content.aspx?pipeline=403&type=SMRY>.

Figure 8: Trailblazer Pipeline Map

NG-115.1

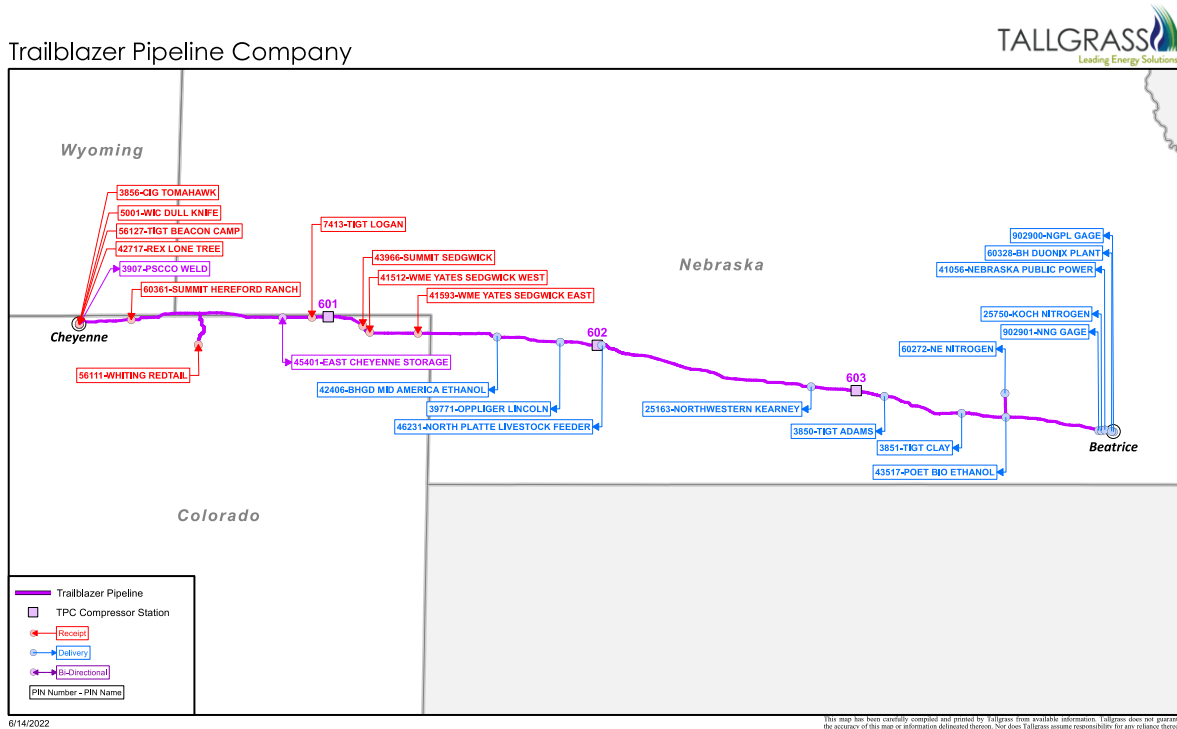


Figure 9: Tallgrass Interstate Gas Map

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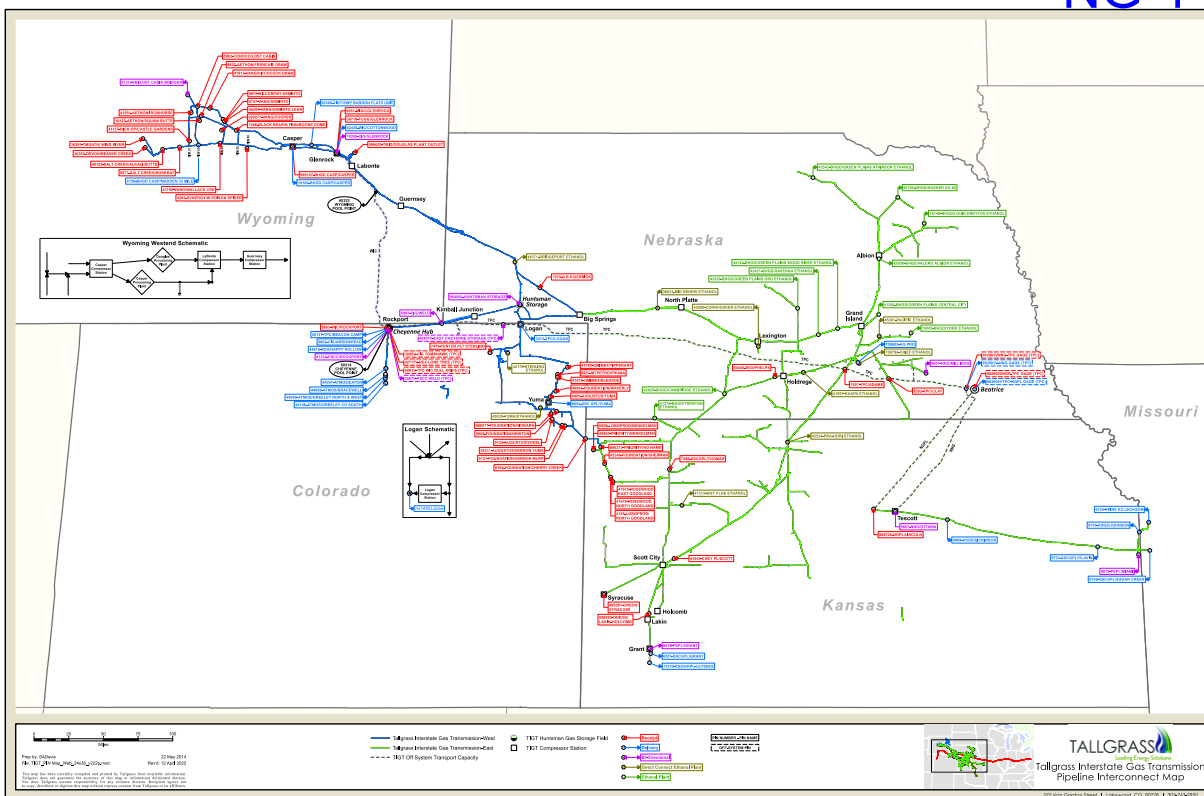


Table 6 shows the pipeline transportation contracts in place prior to and during the Audit Period. No other contracts or transport services were entered into during the Audit Period.¹⁰² We have included contract volumes (#553772) prior to the Audit Period to provide a clearer picture of NorthWestern’s contract changes. NorthWestern’s principal firm FT contract with TIGT was for 45,378 Dth/day. Effective on December 1, 2017, NorthWestern reduced this FT contract by 6,047 Dth/day. Approximately 17 months later, beginning April 1, 2019, it executed a new FTS contract for 13,000 Dth/day with TPC for a ten-year term expiring in March 2029. That TPC contract was the result of an open season process whereby TPC provided notice of its intent to expand its system and parties submit requests for service. Unlike its FT agreement with TIGT, the TPC agreement has no Right of First Refusal (“ROFR”) or rollover rights.¹⁰³ NorthWestern does have an agreement with TPC that gives it the option to extend its transport contract for up to 10 years subject to certain conditions discussed in more detail in section IV.A.6.b.i below.

Upon the expiration of the NorthWestern’s reduced TIGT-FT contract on June 30, 2020, it further reduced the volume by an additional 4,331 Dth/day and extended that contract for 20 years. The net effect of these changes was to reduce its TIGT-FT service by 10,378 Dth/day and to replace it with TPC-FTS

¹⁰² NorthWestern Response to IR 1-9, 1-10.

¹⁰³ Confidential 1-9 Trailblazer FTS.pdf, page 4.

service of 13,000 Dth/day. The principal benefit of these changes was to significantly lower its total demand charges.¹⁰⁴ Table 6 below provides additional detail on NorthWestern’s pipeline contracts.

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Table 6: Transportation Contracts¹⁰⁵

Contract Number	Pipeline	Service Type	MDQ(Dth/day)	Start Date	End Date
950547	TPC	Firm (FTS)	13,000	April 1, 2019	March 31, 2029
553772	TIGT	Firm (FT)	45,378	April 1, 2009	June 30, 2020
553772 ¹⁰⁶	TIGT	Firm (FT)	39,331	December 1, 2017	June 30, 2020
553772 (Amendment 7)	TIGT	Firm(FT)	35,000	July 1, 2020	June 30, 2040

IV.A.6. Storage and Asset Management Agreements

IV.A.6.a. Storage contracts

Storage of natural gas offers gas distribution utilities like NorthWestern the ability to address seasonal and daily fluctuations in supply and demand of natural gas to enhance reliability of service and mitigate price volatility. In addition, it results in a resource portfolio that is better optimized for a natural gas distribution company primarily serving heating loads, such as NorthWestern. Table 7 shows the storage contracts in effect during the Audit Period.

Each contract specifies certain terms and conditions of service, including the maximum volume of gas that can be stored at any given time, as well as daily limits on injection and withdrawals. The No-Notice services on TIGT include firm transportation to NorthWestern’s citygates so it provides peak day deliveries in addition to NorthWestern’s FT contracts.¹⁰⁷ It also allows for storage withdrawals and injections without prior nominations.¹⁰⁸ This feature has the additional benefit of automatically balancing demands with deliveries, minimizing the need to buy daily spot gas or sell excess gas back into the market. This service carries a significant benefit on TIGT since the pipeline requires shippers to balance demands and deliveries daily.¹⁰⁹ The East Cheyenne storage service on TPC is a nominated storage service that requires NorthWestern to specifically nominate injections and withdrawals. TPC, however,

¹⁰⁴ It further reduced its peak day deliveries by 3,553 Dth/day with changes to its TIGT-NNS as shown in Table 7.

¹⁰⁵ Contract details drawn from documents provided in NorthWestern Response to IR 1-9.

¹⁰⁶ Rate agreement that discounted rates for 39,331 Dth of the total contract of 45,378 Dth.

¹⁰⁷ Confidential 1010 TIFT-NNS 30002.pdf, page 3.

¹⁰⁸ See, for example, Ken Costello, “Efforts to Harmonize Gas Pipeline Operations with the Demands of the Electricity Sector,” *National Regulatory Research Institute*, July 2006, available at: <https://pubs.naruc.org/pub/FA863AC7-0702-8EF1-EB15-7E41A2349391>.

¹⁰⁹ NorthWestern Response to IR 3-4.

only requires shippers to balance demands and deliveries on a monthly basis which allows NorthWestern significant flexibility to avoid any excess costs due to imbalances.¹¹⁰

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Table 7: Storage Contracts¹¹¹

Contract Number	Storage Provider	Pipeline	Service Type	Max Quantity (Dth)	Max Daily Withdrawal Quantity (Dth/day)	Max Daily Injection Quantity	Start Date	End Date
NEW-ECFSS-2019	East Cheyenne Gas Storage	TPC	Nominated	500,000	6,250	5,000	April 1, 2019	March 31, 2024
30002	Huntsman Storage	TIGT	No-Notice	546,885	12,153	6,077	October 1, 2013	June 30, 2020
30002 (Amendment 6)	Huntsman Storage	TIGT	No-Notice	387,000	8,600	4,300	July 1, 2020	June 30, 2040
955144	Huntsman Storage	TIGT	No-Notice	240,372	5,342	2,671	April 1, 2021	March 31, 2041

Note: For contract number NEW-ECFSS-2019, maximum withdrawal rights are only available when the storage inventory is equal to greater than 50% of the maximum storage quantity. When the storage quantity is between 50% and 25%, the maximum withdrawal quantity is reduced to 5,000 Dth/day. When the storage quantity is between 25% and 0%, the maximum withdrawal quantity is reduced to 3,000 Dth/day. For both listings associated with contract number 30002 as well as contract number 955144, Maximum withdrawal rights are only available when the storage inventory is greater than 40% of the maximum storage quantity. When storage inventory is between 40% and 20% of the maximum storage quantity, withdrawal rights are reduced to 75% of the maximum withdrawal quantity. When storage inventory is between 20% and 0% of the maximum storage quantity, withdrawal rights are reduced to 50% of the maximum withdrawal quantity.¹¹²

During the Audit Period, NorthWestern held storage contracts on both TIGT and TPC. NorthWestern acquired transportation service on TPC and a new East Cheyenne storage contract to begin April 1, 2019. The East Cheyenne Gas Storage contract expired March 31, 2024. The transportation contract is for 13,000 Dth/day with a 10-year term that expires in 5 more years.¹¹³ The storage contract was for a 5-year term and provided 500,000 Dth of storage capacity with a maximum withdrawal of 6,250 Dth/day, delivered within the 13,000 Dth/day FT service on TPC. Consequently, while the storage contract enabled NorthWestern to deliver more summer priced gas during the winter months, it did not provide incremental peak day deliveries above the 13,000 Dth/day TPC contract. Upon the expiration of the No-Notice storage service on TIGT (Contract # 30002), NorthWestern reduced the Maximum Storage Quantity by 159,885 Dths and the corresponding withdrawal quantity by 3,553 Dth/day.¹¹⁴ It made that decision because it had executed the East Cheyenne Storage contract 15 months earlier. When Storm Uri hit approximately 8 months later, NorthWestern experienced a record peak day that exceeded its planned peak day.¹¹⁵ Given

¹¹⁰ NorthWestern Response to IR 3-4.

¹¹¹ NorthWestern Response to IR 1-10.

¹¹² NorthWestern Response to IR 2-11.

¹¹³ NorthWestern also has a precedent agreement with TPC allowing for an extension for up to 10 years. See Section IV.A.6.b.i.

¹¹⁴ See contract # 30002 and amendment in Table 7.

¹¹⁵ On February 15, 2021 NorthWestern experienced a new peak day of 50,389 Dth; NorthWestern Response to IR 2-7.

this experience, NorthWestern executed a new No-Notice contract with TIGT (Contract # 955144) for an additional 240,000 Dth of storage capacity and 5,342 Dth/day of maximum withdrawal capability.¹¹⁶ **NG-115.1**

Table 8 shows the net storage injections and withdrawals during the winter and non-winter periods. Generally, storage injections occur during the April-October period and storage withdrawals occur during the November-March period. Exceptions to this pattern will typically occur when storage is used to balance deliveries with customer demands. Exceptions also occur during shoulder periods, principally April-May and September-October, when weather can be unseasonable.

For meeting its winter demands, NorthWestern relied heavily on the East Cheyenne storage service during the Audit Period as seen in Table 8. For the two full injection and withdrawals seasons, NorthWestern utilized over 80% of its East Cheyenne storage quantity. Table 8 also shows the effect of NorthWestern’s new post-Storm Uri NNS contract with TIGT. NorthWestern’s net injections during the period immediately following Storm Uri totaled 594,967 Dth on a storage quantity for both NNS contracts that totaled 627,372 Dth.¹¹⁷ Net withdrawals of the NNS storage service would typically show less utilization of the full contract amount since, as a no-notice service, it is utilized for balancing demands and deliveries so there will often be many days during the winter when gas is being injected rather than withdrawn. In addition, unlike the East Cheyenne storage service, the NNS storage ratchets affect peak day delivery capability so its utilization requires more careful planning.

Table 8: Net Storage Injections and Withdrawals¹¹⁸

Period	NNS Storage Service (Net Injected/Withdrawn in Dth)	EC-FSS Storage Service (Net Injected/Withdrawn in Dth)
Jan1-Mar. 31, 2020	(192,425)	(187,200)
Apr. 1-Oct. 31,2020	237,008	468,042
Nov. 1 2020 - Mar.31,2021	(185,462)	(396,077)
Apr. 1 - Oct. 31, 2021	594,967	411,401
Nov. 1, 2021-Mar.31, 2022	(372,081)	(421,562)
Apr. 1 - Oct.31,2022	370,582	436,806
Nov. 1 - Dec.31, 2022	(277,401)	(118,909)

Table 9 shows both the transportation and storage contract changes implemented by NorthWestern and the annualized savings and costs of those changes. The actual savings during the Audit Period will be somewhat lower because of the timing of the individual contract changes. For example, the new contracts on TPC initiated service in April 2019 while some contract reductions on TIGT didn’t begin until July 2020.¹¹⁹ NorthWestern’s reduction in its TIGT services saved approximately \$2.3 million in demand charges offset by only approximately \$624K in new TPC charges. With the addition of the new TIGT No-

¹¹⁶ NorthWestern Response to IR 3-13.

¹¹⁷ The maximum storage quantities associated with these contracts are shown in Table 7 above.

¹¹⁸ NorthWestern Response to IR 3-3.

¹¹⁹ See Table 6 above.

Notice service and the expiration of the East Cheyenne Storage service, peak day deliveries are 5,342 Dth/day higher and annualized demand charge savings are still approximately \$793K. The East Cheyenne storage contract expired on March 31, 2024; NorthWestern bid on the storage capacity in an open season, but did not win.¹²⁰ The loss of the East Cheyenne storage service will likely result in increased winter commodity costs on TPC. NG-115.1

Table 9: Transportation and Storage Contract Changes

Contract	Counterparty	Original quantity	New Quantity	Rate (\$/Dth/mo)	Annualized \$ Savings (Costs)
30002	TIGT NNS	12,153	8,600	\$19.571	\$834,425
553772	TIGT FT	45,378	35,000	\$12.104	\$1,507,371
955144	TIGT NNS	0	5,342	\$19.571	(\$1,254,573)
950547	TPC FTS	0	13,000	\$1.885	(\$294,122)
NEW-ECFSS-2019	East Cheyenne Storage	0	500,000	\$0.055	(\$330,000)
Total Annualized Savings					\$463,101
Total Annualized Savings, Excluding East Cheyenne					\$793,101

Notes: Contract, Counterparty, Original Quantity, and New Quantity columns sourced from NorthWestern Response to IR 1-9 (Transport Contracts) and IR 1-10 (Storage Contracts). Rates are sourced from NorthWestern Response to IR 3-1, except for the East Cheyenne Storage rate, which is sourced from the relevant contract (Confidential 1-10 East Cheyenne.pdf, page 7). Annualized \$ savings are calculated using the following equation: (Original Quantity – New Quantity) * Rate * 12.

IV.A.6.b. Asset Management Agreement

NorthWestern has had an asset management agreement in place with BP Energy since June 2010.¹²¹ There have been several amendments made over time, but the basic function of the agreement has been unchanged, principally to extract value from NorthWestern’s transportation and storage assets it has under contract while still supplying all of NorthWestern’s needs. NorthWestern correctly determined that a regional supplier of natural gas would be better positioned to optimize the value of NorthWestern’s supply assets due to its familiarity with markets and market conditions beyond those served by NorthWestern.¹²² NorthWestern initiated a competitive process in initially choosing BP Energy to optimize its Nebraska assets.¹²³ Since then, it has renewed the agreement and the most current renewal expires in 2025.¹²⁴

Under the agreement, NorthWestern has assigned all its transportation and storage contracts to BP Energy.¹²⁵ NorthWestern proceeds with its usual competitive processes for securing gas supplies for

¹²⁰ NorthWestern Response to IR 2-14.

¹²¹ NorthWestern Response to IR 1-14, BP AMA 2010 Confidential.pdf, page 1.

¹²² See, for example, NorthWestern Response to IR 2-15(c).

¹²³ NorthWestern Response to IR 2-15(b).

¹²⁴ NorthWestern Response to IR 1-14, BP Tallgrass Trailblazer AMAs 2022-2025.pdf.

¹²⁵ NorthWestern Response to IR 2-16(a).

delivery to its citygates and injection into its storage resources. Once NorthWestern purchases its supplies, that supply is then sold to BP Energy at cost and scheduled (nominated) by BP Energy with the transporting pipelines and storage operators.¹²⁶ When that gas is delivered to NorthWestern and/or withdrawn from storage, BP Energy sells back the gas supply to NorthWestern at the NorthWestern meter, and at the same cost.¹²⁷

NorthWestern's dispatching of its gas supply is no different than if it retained control of its transportation and storage assets, and its records reflect its actual purchases and dispatching of its flowing gas and storage supplies.¹²⁸ While BP Energy retains the obligation to deliver the quantities requested by NorthWestern, it may utilize other resources or supplies to make those deliveries if it sees market opportunities to extract value from NorthWestern's assets that exceed any incremental cost it might incur.¹²⁹ It would also be in a position to know if there were markets that would value capacity or supply that is not needed by NorthWestern or use those assets to meet other obligations. Under the agreement, NorthWestern receives 70% of the optimization value generated by BP Energy on TPC and 80% of the capacity optimization value BP Energy can generate on TIGT.¹³⁰ Over the Audit Period, BP Energy generated \$459,552 by optimizing NorthWestern's TIGT assets and \$61,178 on TPC by taking advantage of supply basin price differentials.¹³¹ The amounts credited to NorthWestern were refunded to customers.¹³²

It is noteworthy that only 20% of the revenue generated on TIGT was generated after the effects of Storm Uri had fully passed, with the bulk of that revenue occurring in only 3 months over the 22-month post Storm Uri period covered by this audit.¹³³

¹²⁶ NorthWestern Response to IR 2-15(c).

¹²⁷ This sale to BP and sale back to NorthWestern is necessary because pipeline rules require the shipper, in this case BP Energy, to have title to the gas supply. See NorthWestern Response to IR 1-14, "IR 1-14 BP Trailblazer AMA 2019.pdf," Section 4.2.

¹²⁸ See, for example, NorthWestern Response to IR 1-1. See also, NorthWestern Response to IR 2-16(d).

¹²⁹ See, for example, NorthWestern Response to IR 1-14, "IR 1-14 BP Trailblazer AMA 2019.pdf," Section 4.5.

¹³⁰ NorthWestern Response to IR 2-15(b).

¹³¹ NorthWestern Response to IR 2-15.

¹³² Notes from May 7, 2024 call.

¹³³ These three months were July 2021, August 2021, and December 2022. See NorthWestern Response to IR 2-15, "Trailblazer optimization.xlsx."

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Table 10: NorthWestern's Share of Revenues from AMA with BP Energy¹³⁴

Months	Tallgrass (TIGT)	Trailblazer (TPC)
Jan-20	\$26,149	\$3,924
Feb-20	\$30,721	\$956
Mar-20	\$32,082	\$5,974
Apr-20	\$43,657	\$20,407
May-20	\$38,544	\$203
Jun-20	\$29,979	\$0
Jul-20	\$30,322	\$3,094
Aug-20	\$27,542	\$0
Sep-20	\$33,628	\$0
Oct-20	\$25,307	\$0
Nov-20	\$20,440	\$0
Dec-20	\$8,760	\$0
Jan-21	\$14,600	\$0
Feb-21	\$7,880	\$0
Mar-21	\$14,600	\$20
Apr-21	\$0	\$371
May-21	\$0	\$0
Jun-21	\$0	\$1,722
Jul-21	\$26,405	\$266
Aug-21	\$26,280	\$349
Sep-21	\$0	\$157
Oct-21	\$0	\$323
Nov-21	\$0	\$2,722
Dec-21	\$7,008	\$0
Jan-22	\$0	\$0
Feb-22	\$2,141	\$182
Mar-22	\$0	\$798
Apr-22	\$0	\$1,981
May-22	\$0	\$492
Jun-22	\$0	\$1,818
Jul-22	\$0	\$3,999
Aug-22	\$1,049	\$223
Sep-22	\$0	\$2,864
Oct-22	\$0	\$3,156
Nov-22	\$0	\$3,946
Dec-22	\$12,459	\$1,232
Total	\$459,552	\$61,178
Total (Pre-Uri)	\$369,610	\$34,558
Total (Post-Uri)	\$89,943	\$26,620
% Pre-Uri	80%	56%

NorthWestern has speculated that, since BP is able to recall those assets if needed by NorthWestern, markets are relying more on acquiring firm or non-recallable capacity as a result of the experience with Storm Uri. While that reasoning may be true for the winter period, it does not explain all the data. For the 13 months prior to Storm Uri, capacity release revenues were significant in all 13 months, with the greatest monthly values occurring during the non-winter months, when NorthWestern is unlikely to recall the capacity. Furthermore, of the 22 months covered by the Audit Period after Storm Uri, only 7 months had any capacity release revenue with the most significant revenues occurring in July and August of

¹³⁴ This table indicates the revenues allocated to NorthWestern. On TIGT, NorthWestern receives 80% of revenues generated under the AMA; on TPC, NorthWestern receives 70%. NorthWestern Response to IR 2-15, attachments "Tallgrass Cap Release.xlsx" and "Trailblazer Optimization.xlsx."

2021. Consequently, additional research is needed to completely understand the reasons behind the significant drop-off in capacity release revenue post Storm Uri.

NG-115.1

IV.A.6.b.i. Trailblazer Pipeline conversion project

In May 2022, Trailblazer Pipeline Company (“TPC”) and Rockies Express Pipeline (“REX”) filed an application with the Federal Energy Regulatory Commission (“FERC”) to abandon natural gas service on 392 miles (of the 436-mile total miles) of the pipeline and several compressor stations, and to convert it to carbon dioxide transportation service. The existing natural gas service on TPC would, with the construction of additional facilities, be provided by REX.¹³⁵ FERC issued an order in October 2023 approving the project and on May 3, 2024 the new company, Trailblazer CO₂ Pipeline LLC, held an open season requesting interested shippers to nominate volumes for carbon dioxide transportation.¹³⁶ We were unable to find any public information on the results of that open season.

NorthWestern has executed a precedent agreement with TPC that gives NorthWestern the right to extend its existing transportation contract for up to ten years if the carbon dioxide conversion moves forward.¹³⁷ It also has a Negotiated Rate agreement that ensures NorthWestern’s reservation rate will not increase during the term of any extension exercised by NorthWestern. The precedent agreement provides for some added variable costs on nominated quantities, though those variable costs should not significantly impact NorthWestern’s overall gas costs.¹³⁸

IV.B. Conclusions

Conclusion IV-1: NorthWestern’s overall procurement approach and processes appear reasonable.

Conclusion IV-2: NorthWestern has been active prior to and during the Audit Period in seeking to reduce its gas supply costs. This included the use of competitive procurement whenever possible, a process that was generally sound, well-disseminated, and designed to select the lowest-cost reliable offer(s). While its competitive RFP process provides benefits to customers, it can be enhanced by better record keeping when NorthWestern selects a winning offer that is not lowest cost or is surplus to RFP quantity targets.

(Recommendation IV-1)

Conclusion IV-3: NorthWestern was party to master supply agreements with ten counterparties and received gas supply from all ten entities during the Audit Period.

¹³⁵ Some additional facilities will also need to be constructed by TIGT. Federal Energy Regulatory Commission, “Order Issuing Certificate and Granting Abandonment,” October 23, 2023, Docket No. CP22-468.

¹³⁶ Oil & Gas Journal, “Trailblazer CO₂ pipeline holding open season,” May 6, 2024, available at: <https://www.ogj.com/energy-transition/article/55037232/trailblazer-co2-pipeline-holding-open-season>.

¹³⁷ 959547 NORTHWESTERN CORP.DBA NORTHWESTERN ENERGY_TPC Conversion Precedent Agreement, page 3.

¹³⁸ 959547 NORTHWESTERN CORP.DBA NORTHWESTERN ENERGY_TPC Conversion Precedent Agreement, page 3.

Conclusion IV-4: NorthWestern purchased over 15,000,000 Dth of gas supply during the Audit Period. BP Energy was by far NorthWestern's most common counterparty, with much of the volume and value shown appearing to occur in sales and purchases via the Asset Management Agreement with BP Energy. **NG-115.1**

Conclusion IV-5: We found no concerning outcomes in our review of NorthWestern's short-term natural gas supply transactions. However, NorthWestern does not retain records of its canvassing of potential counterparties, making it impossible to review the market conditions at the time of the transactions. NorthWestern would be well-served to enhance its record-keeping processes related to its short-term gas supply transactions. Doing so will assist the Commission and future auditors in reviewing NorthWestern's procurement results and will help NorthWestern's traders demonstrate the value and competitiveness of the transactions they execute (or choose not to execute) for customers. **(Recommendation IV-2)**

Conclusion IV-6: Over the period 2017 through 2020, NorthWestern reduced its more expensive TIGT firm transport (FT) and No-Notice (NNS) services and replaced them with a less expensive TPC firm transport service (FTS) and an East Cheyenne storage service delivered by TPC.

Conclusion IV-7: The East Cheyenne storage contract expired and renewal was subject to a competitive process that NorthWestern did not win. The loss of the storage contract was unfortunate. It did not, however, impact daily deliverability since the storage volumes were delivered as part of the transportation contract's MDQ. It did impact NorthWestern's ability to deliver summer priced gas during the winter on TPC.

Conclusion IV-8: The contract changes made prior to Storm Uri generated approximately \$1.7 million in annualized net savings in demand charges.

Conclusion IV-9: As a result of a new record peak day experienced during Storm Uri, NorthWestern executed a new NNS service with TIGT consisting of 240,372 Dths of storage capacity and 5,342 Dth/day of additional peak day deliverability. Annualized demand charges are approximately \$1.25 million.

Conclusion IV-10: NorthWestern's East Cheyenne storage contract expired in March 2024 and had no renewal rights. NorthWestern was not successful in winning a competitive process to renew the contract.

Conclusion IV-11: NorthWestern's TPC contract of 13,000 Dth/day also has no rollover or ROFR rights. It expires in five years. NorthWestern has executed a precedent agreement with TPC that gives NorthWestern the right to extend its existing transportation contract for up to ten years if the planned conversion of the pipeline to service carbon dioxide moves forward.

Conclusion IV-12: NorthWestern has had an Asset Management agreement in place with BP Energy since 2010. During the Audit Period the agreement generated approximately \$521k in refunds to NorthWestern Nebraska customers. The bulk of the revenue was generated on TIGT prior to Storm Uri. Only about 20% of that revenue was generated post Storm Uri. **(Recommendation IV-4)**

Conclusion IV-13: TPC has received FERC approval to convert 392 miles of its 436-mile pipeline to carbon dioxide transportation service. NorthWestern has several agreements with TPC that gives it the right to extend its transportation agreement through 2039 without any increase in its reservation charges. **NG-115.1**

IV.C. Recommendations

Recommendation IV-1: NorthWestern should enhance its record-keeping for competitive RFPs in which NorthWestern does not select the lowest priced offer and/or selects additional winning supplier(s) that provide quantities that are surplus to the RFP quantity target by documenting the reason for the selected winning suppliers.

Recommendation IV-2: NorthWestern should develop a system to document and record its efforts to canvass the market when pursuing short-term gas supply transactions. At a minimum, this system should include NorthWestern's calculated supply needs, the gas suppliers contacted, their availability and pricing, and the resulting gas purchases (if any).

Recommendation IV-3: NorthWestern should examine the reasons behind the significant drop-off in capacity release revenues post Storm Uri. Depending on the results of its examination, it might consider other potential counterparties for its Asset Management Agreement. BP Energy has been the counterparty since 2010.

V. Hedging

NG-115.1

V.A. Findings

Natural gas prices can be volatile and NorthWestern, like all natural gas distribution utilities, is subject to natural gas price risk. Natural gas prices are affected by numerous factors, including weather (which impacts demand for natural gas and, in the cases of major events such as storms, can impact supply), changes in natural gas production or exports, changes in domestic storage volumes or delivery constraints (due to pipeline operational issues, such as compressor issues). These factors can significantly impact natural gas prices both in the short-term (i.e., spot market prices) and longer-term (i.e., futures prices).

Hedging is an activity that can reduce exposure to the volatility in natural gas prices. Importantly, hedging is *not* intended to lower natural gas costs or to secure below-market gas prices. Rather, hedging can lower exposure to natural gas price volatility, which means more predictable costs and more stable customer rates. Hedging activity may reduce or increase costs in comparison with a just-in-time purchasing strategy.¹³⁹ Evaluation of the hedging strategy, therefore, is not how the hedged forward price compares to spot prices, but rather how well the forward purchases mitigate the impact of any price spikes of natural gas for that particular winter period, without incurring significant costs. In this way, hedging is similar to purchasing insurance: most of the time, insurance premium payments add costs until the day when an insurable event occurs and protects the holder from large one-time costs. On the other hand, it's also important not to "over insure" against price spikes, which can potentially carry significant and unsupported excess costs.

There are many approaches to hedging that may be taken. The strategy needs to be dependent on the particular circumstances of the utility, its supply assets, market and supply conditions and any regulations it must follow. It is also advisable to assess and reassess the strategy periodically to determine whether it continues to achieve its objectives or whether there are changes that can be made to improve it. There are limits, however, to the level of physical hedging that can, or should, be done. A physical hedge generally means that the hedging party must take delivery of the gas. Since for natural gas utilities such as NorthWestern, where winter demands are highly dependent on weather, there may be days where winter demands are less than the quantity hedged. On those days the hedging party must either inject the excess gas into storage or sell it back into the market, often at depressed daily prices when the excess supply is caused by warmer weather.

¹³⁹ By just-in-time purchasing strategy, we mean setting prices for all baseload deliveries during Bidweek. Bidweek generally occurs during the last week of each month when baseload natural gas prices are set for the following month. The largest volume of trading typically occurs during this period.

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One of NorthWestern’s primary objectives in its hedging approach is minimizing exposure to winter prices and potential high-priced days.¹⁴⁰ NorthWestern is not subject to any regulatory requirements in Nebraska regarding hedging and exposure to natural gas price risk, and thus has developed its approach internally and in light of lessons learned from events such as winter storm Uri.¹⁴¹ During the Audit Period, NorthWestern hedged its exposure to natural gas prices through a combination of fixed price physical supply purchases of gas and natural gas storage arrangements,¹⁴² as explained below. NorthWestern does not use financial contracts (such as futures or options) to hedge its natural gas price exposure.¹⁴³ NorthWestern explained that it had analyzed use of physical option contracts in hedging natural gas price exposure (especially after the experience of winter storm Uri) but had found it to be too expensive.¹⁴⁴

NorthWestern’s hedging strategy relies on an internally developed Excel-based spreadsheet model to guide it in making hedging decisions. NorthWestern defines three hedging categories shown in Table 11 below. While it defines these three strips for potential hedges, during the Audit Period it only hedged the winter strip.

Table 11: Gas Volume Strips¹⁴⁵

Gas Volume Strips	Covered Months
Winter Strip	November through March
Swing Months	April through May
Summer Baseload plus Storage	June through October

NorthWestern maintains historical and futures prices within the model. It analyzes a variety of historical prices and calculates an average historical price for the November-March winter period to compare to the price of the futures strip for the next November-March winter period. It updates its analysis monthly and makes hedging decisions monthly for the next November-March winter period based on the guidelines in Table 12 below.¹⁴⁶ How it applies the guidelines is explained in more detail below. During the Audit Period, all of NorthWestern’s hedging activity consisted of physical hedges. That is, it fixes the price with a supplier for supplies it intends to take delivery of from that supplier. It did not use any financial instruments such as calls, puts or basis swaps to hedge supplies.¹⁴⁷ NorthWestern’s hedged supplies are priced at the pipeline receipt points of its transportation contracts with TPC and TIGT. Consequently, its basis is locked-in when the supply is hedged.

¹⁴⁰ Notes from May 26, 2024 call.

¹⁴¹ Notes from May 9, 2024 call.

¹⁴² NorthWestern Response to IR 1-12.

¹⁴³ Notes from March 27, 2024 call.

¹⁴⁴ Notes from March 27, 2024 call.

¹⁴⁵ See, for example, NorthWestern Response to IR 2-1, attachment “GasProcurementStrategyModel2004RevDec2020,” tab “SD Market,” rows 325 through 338.

¹⁴⁶ See the attachments provided alongside NorthWestern Response to IR 2-1.

¹⁴⁷ NorthWestern Response to IR 1-12.

Table 12 represents NorthWestern’s guidelines for the timing and level of hedges it will implement. The matrix gradually increases the level of hedges over a 12-month period regardless of the relative pricing levels, with the level of hedging and the pace of hedging increasing more rapidly if futures prices remained below its calculation of historical prices. For example, If November is six months out and its calculated historical price is 25% higher than the current futures November-March strip (i.e., defined as a “positive” relationship), then NorthWestern would seek to hedge additional supplies to get to 40% (yellow cell) hedged. On the other hand, if NorthWestern’s calculated historical price was 25% lower (i.e., defined as a “negative” relationship) than the future November-March strip, then it would seek to be only 20% (grey cell) hedged. It updates prices and performs this analysis monthly and hedges additional volumes if indicated by the matrix.

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The volumes that are associated with being 100% hedged is the average actual monthly demands only of its sales customers for the prior 5 years. NorthWestern backs out the volumes associated with its transportation customers.¹⁴⁸

Table 12: Purchase Matrix Guidelines (Accumulated Percentage)¹⁴⁹

Months Ahead	10 - 12	7-9	6	5	4	3	2	1
Market Condition Rating								
More than 50% negative	0%	0%	10%	15%	20%	30%	40%	50%
30% - 50% negative	0%	0%	10%	15%	25%	35%	45%	55%
10% - 30% negative	0%	5%	20%	25%	35%	40%	45%	55%
10% negative - 10% positive	10%	25%	30%	35%	40%	45%	50%	60%
10% - 30% positive	15%	35%	40%	50%	60%	75%	85%	90%
30% - 50% positive	25%	40%	50%	60%	70%	80%	90%	100%
50% - 75% positive	30%	50%	60%	70%	80%	90%	100%	100%
More than 75% positive	40%	65%	70%	75%	85%	100%	100%	100%

Prior to Storm Uri, NorthWestern relied exclusively on the results of its model to decide on the timing and level of its price hedges. It also included its storage volumes in the percentage of supply hedged since the price of those supplies is fixed when they are injected into storage. Consequently, for some winters, it could have entered the winter with less than 100% of its 5-year average winter demand hedged if futures prices remained consistently above historical prices.

As a result of the events of Storm Uri, NorthWestern altered its hedging strategy. It made two changes that result in a higher level of hedged supply. First, it excluded its storage supplies from its determination of the percentage of supply that is hedged.¹⁵⁰ Second, if the matrix guidelines did not result in 100% being hedged for the November-March period by October, NorthWestern would proceed to hedge the remaining

¹⁴⁸ NorthWestern response to IR 1-8.

¹⁴⁹ See, for example, NorthWestern Response to IR 2-1, attachment “GasProcurementStrategyModel2004RevDec2020,” tab “Guidelines,” rows 41 through 51.

¹⁵⁰ NorthWestern Response to IR 3-5.

portion necessary to get to 100% hedged.¹⁵¹ The effect of these changes is that it planned to serve average monthly demands with flowing pipeline supply that is 100% hedged, regardless of the guidelines in its model. Storage gas and spot purchases would be used to serve demands above those averages. As noted earlier, physical hedges must be taken. The higher the level of hedged supply relative to demand, the greater likelihood that there will be days of over-supply, especially in early winter and late winter when demands are below average. In order to manage potential excess supplies, NorthWestern leaves a small percentage of its storage capacity empty at the start of the winter.¹⁵² In this way, it can inject excess supply into storage and minimize costs associated with cashouts or sales back into the market. NorthWestern has been effective at managing excess deliveries. During the Audit Period, only 13,819 Dth was sold back into the market and there were no cashouts.¹⁵³

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NorthWestern's approach removes price speculation in its hedging decisions. It relies exclusively on the relationship of historical to futures prices up until the start of winter, where if not 100% hedged it will hedge the remaining portion, regardless of prices. NorthWestern made no changes to the model or the matrix guidelines, only to how they are applied. We believe NorthWestern's hedging strategy is a reasonable approach given the events of Storm Uri, its supply portfolio and the apparent increased volatility post-Storm Uri. Given this changed strategy, however, it is possible that for some winter periods a large volume of winter supply could be hedged right before the start of winter, especially if futures prices remain consistently above historical prices. Since NorthWestern's model includes numerous years of historical pricing data, we suggest it analyze how the winter futures strip in October compared to the winter futures strip during the previous months for years which it has data. If their review determines that locking in large volumes of the winter strip in October should be avoided or minimized, it should consider adjustments to its hedging approach. In that event, some approaches it might consider is adjusting its matrix guidelines and/or considering the current price embedded in its PGA. That price is a product of its hedging strategy and any hedge at or near that price would have a stabilizing effect on future PGAs. Consequently, we include a recommendation that, in the event the possibility of large volume hedges immediately before the winter should avoided or minimized, it should consider making adjustments to its hedging approach to minimize that possibility.

As indicated earlier, while NorthWestern has defined a summer baseload and storage strip, it does not lock-in the price of these supplies earlier than the month before delivery. While summer prices are typically less volatile and tend to be lower than winter prices, it is not always the case. In the summer of 2022, prices increased significantly and NorthWestern was paying between \$8 and \$9/Dth to inject gas into storage.¹⁵⁴ While this level of summer prices is highly unusual, it is not unprecedented. During the non-winter months (May through October) of 2005- 2008, NYMEX spot prices settled between roughly \$5-\$13/MMBtu, with July through September prices settling between \$5-\$11.75/MMBtu.¹⁵⁵ During this

¹⁵¹ Notes from March 27, 2024 call.

¹⁵² NorthWestern Response to IR 3-5.

¹⁵³ NorthWestern Response to IR 3-5.

¹⁵⁴ See, for example, Deal Number 9191 within NorthWestern's Response to IR 1-1, Attachment "1-1.xlsx."

¹⁵⁵ U.S. Energy Information Administration, "Henry Hub Natural Gas Spot Price," available at:

period, a number of non-winter months had settled prices that exceeded settled winter prices. Consequently, we include a recommendation that NorthWestern consider alternatives to an approach that relies exclusively on non-hedged summer storage injections. **NG-115.1**

Delivered natural gas commodity prices generally have two components. They are a price for the commodity itself and a price for the locational value of the commodity. For example, Henry Hub prices typically reflect the value of the commodity in Louisiana. Prices of Henry Hub supplies delivered north will add the locational value of that supply, referred to as basis. Winter events such as extremely cold temperatures or supply or pipeline disruptions often cause prices near market areas to far exceed prices in supply areas. Though extreme, Storm Uri is a case on point. While Henry Hub prices peaked at \$23.86/MMBtu during Storm Uri, observed prices on Northern Natural Gas Pipeline delivered in Kansas and Iowa varied around the \$200 MMBtu level.¹⁵⁶

While NorthWestern's physical hedges and storage supplies have no basis risk, its spot purchases do carry basis risk. For example, during Storm Uri, it purchased 92,176 Dth of swing supplies at an average price of \$206.83/Dth, similar to the observed prices on Northern Natural Pipeline.¹⁵⁷ A less extreme example occurred in December 2022. The latter part of that month experienced some extreme temperatures. To meet the peak customer demands, NorthWestern purchased spot supplies at \$12/Dth, \$19.50/Dth, \$45/Dth and \$50/Dth.¹⁵⁸ These prices were as much as seven times the prices observed at the beginning of that month.¹⁵⁹ NorthWestern indicated it has investigated purchasing physical options with its suppliers where it could cap the price of a delivered spot supply at \$10/Dth. It did not execute such an option due to its determination that the premium being requested was cost prohibitive.¹⁶⁰ While we do not question NorthWestern's assessment, the apparent increased spot price volatility post-Storm Uri suggests that NorthWestern should continue to examine opportunities to cap some level of spot purchases, especially in the December-February period, and we include a recommendation to that effect.

V.B. Conclusions

Conclusion V-1: NorthWestern has a well-defined hedging strategy that relies principally on the relationship of futures prices to historical prices.

Conclusion V-2: NorthWestern hedges the level of flowing pipeline supplies that it expects to need during the November through March winter period. Its expected need is based on its most recent 5-year

<https://www.eia.gov/dnav/ng/hist/rngwhhdm.htm>.

¹⁵⁶ U.S. Energy Information Administration, Henry Hub Natural Gas Spot Price, <https://www.eia.gov/dnav/ng/hist/rngwhhdm.htm>; Kansas Corporation Commission, "Energy Infrastructure Impacts from Winter Storm Uri – Feb 2021," January 11, 2022, slides 11-12, available at: <https://kci.contentdm.oclc.org/digital/collection/p16884coll36/id/521>.

¹⁵⁷ This figure includes volume and prices for deals Number 8682, 8683, and 8684 within NorthWestern's Response to IR 1-1.

¹⁵⁸ NorthWestern Response to IR 1-1.

¹⁵⁹ NorthWestern Response to IR 1-1.

¹⁶⁰ NorthWestern Response to IR 2-10.

monthly average customer requirements. It relies on storage withdrawals and swing supplies to meet demands in excess of these averages.

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Conclusion V-3: NorthWestern relies on an internally developed spreadsheet model to guide its hedging decisions. NorthWestern’s model maintains historical and futures prices and calculates an “average market condition price” that it then compares to the November-March average futures price for the coming winter period. NorthWestern updates this information monthly and utilizes a matrix to decide on the percentage of its average winter demand that it will hedge in each month. The percentage to be hedged in a given month is a function of the relative prices calculated by the model and the number of months before the coming November.

Conclusion V-4: The matrix provides an intuitive, and reasonable, approach for gradually increasing the percentage of supply hedged as the winter approaches. If historical prices are well-below futures prices over the course of the prior year, it slows down the pace of hedging. If historical prices are significantly above futures prices, it accelerates the percentage to be hedged.

Conclusion V-5: NorthWestern does not use its model to hedge non-winter baseload or storage injections. It generally locks-in the price of those supplies in the weeks before delivery.

Conclusion V-6: During the audit period, NorthWestern executed only physical hedges. That is, it executed fixed price contracts with suppliers for volumes it planned to take.

Conclusion V-7: Prior to Storm Uri, NorthWestern relied exclusively on its spreadsheet model to determine the timing and level of physical hedges. It also included its storage volumes as contributing to the percentage hedged since the price of those supplies is locked-in when they are injected into storage during the non-winter period.

Conclusion V-8: Given the extreme volatility of prices during Storm Uri, NorthWestern decided to increase the volumes it hedges. It now excludes storage supplies from its hedging percentages and will expect to serve its average winter demands using flowing pipeline supply that is 100% hedged. If by October its model does not indicate that 100% of the November-March volumes should be hedged, NorthWestern will proceed to hedge the remaining volume necessary to reach the 100% level.

(Recommendation V-1) (Recommendation V-2) (Recommendation V-3)

Conclusion V-9: Physical hedges contracted with a supplier must be taken by NorthWestern. The increased level of hedging means that there is a greater risk that all those supplies may not be needed, especially in early and late winter. To manage its hedged pipeline supplies, NorthWestern enters the winter with a small percentage of its storage empty to be able to inject any hedged volumes in excess of daily customer demands.

Conclusion V-10: NorthWestern has effectively managed its imbalances and excess supplies on both TPC and TIGT. During the audit period, there were relatively few sales of excess gas supply and no cashouts. NG-115.1

Conclusion V-11: During Storm Uri, spot gas prices to NorthWestern were in excess of \$200/Dth.

Conclusion V-12: Post-Storm Uri, commodity prices may have become more sensitive to extreme temperatures. During an extremely cold late December 2022, the price of spot supplies reached levels of \$40-\$50/Dth compared to prices of \$7-\$9/Dth at the beginning of the month.

Conclusion V-13: NorthWestern has investigated physical options with some of its suppliers to cap spot (swing) supplies at \$10/Dth but felt the premium being asked was too high.

V.C. Recommendations

Recommendation V-1: NorthWestern's hedging strategy post-Storm Uri raises the possibility that if futures prices are not significantly below historical prices during the prior year, a large volume of supply would be hedged immediately before the start of winter. NorthWestern should use the pricing information in its model to assess the potential impacts and desirability of large volume hedges immediately before the winter and make appropriate changes to its hedging strategy if it determines the likelihood of this outcome should be avoided or minimized.

Recommendation V-2: NorthWestern should consider alternatives to non-hedged summer baseload and storage injection volumes. Rising levels of gas-fired power generation and increasing natural gas exports may increase summer price volatility.

Recommendation V-3: NorthWestern should continue to investigate capping swing purchases, especially during the December-February period. As evidenced during the latter part of December 2022, the experience of Storm Uri may have significantly increased price volatility during periods of very cold weather.