Direct Testimony
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Before the Office of Administrative Hearings
600 North Robert Street
Saint Paul, Minnesota 55101

For the Minnesota Public Utilities Commission
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In the Matter of the Petition of Minnesota Energy Resources Corporation for Approval of a Recovery Process for Cost Impacts Due to February Extreme Gas Market Conditions

MPUC Docket No. G011/CI-21-611
OAH Docket No. 71-2500-37763
Exhibit _____ (SRM-D)

Gas Procurement

October 22, 2021

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I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.

A. My name is Sarah R. Mead. My business address is WEC Energy Group, Inc., 2830 S. Ashland Ave., Green Bay, Wisconsin 54304. My position at Minnesota Energy Resources Corporation ("MERC" or the "Company"), a subsidiary of WEC Energy Group, Inc. ("WEC"), is Director Gas Supply.

Q. WHAT ARE YOUR PRIMARY DUTIES AND RESPONSIBILITIES AS DIRECTOR GAS SUPPLY?

A. As Director Gas Supply, I am responsible for the daily supply and balancing of MERC's distribution system. I am also responsible for the following: (i) developing and executing gas supply and storage capacity strategies to provide reliable and cost-effective natural gas service; (ii) developing and implementing short- and long-term gas supply and capacity release strategies, including gas purchase and hedging strategies; (iii) administering gas supply, transportation, and storage contracts, procedures, and approved plans; and (iv) acquiring daily, monthly, and annual supplies to meet system requirements. Additionally, I review and approve invoices for supply, storage, and transportation costs.

Q. PLEASE SUMMARIZE YOUR EDUCATION, EMPLOYMENT, AND PROFESSIONAL EXPERIENCE.

A. I hold a Bachelor's Degree from the University of Wisconsin – Milwaukee in Business Administration. I hold a Master of Business Administration Degree in Finance through Lakeland University in Sheboygan, Wisconsin. My employment started with Integrys Energy Group (now WEC) in the non-regulated marketing division where I worked as the Senior Sales Forecaster from May 2000 to October 2009. In that position, I forecasted natural gas and electric needs on an hourly, daily, monthly, seasonal, and yearly basis for Wisconsin, Michigan, Illinois, Minnesota, Ohio, limited areas in New England, and Alberta, Canada. In October 2009, I moved to the regulated division as a Senior Sales and Revenue Forecaster. In September 2011, I was promoted to the Manager of Gas Supply for Michigan Gas Utilities Corporation, and in October 2015 added the responsibilities of MERC. In July 2016, I was promoted to the Manager of Gas Supply for WPS Energy Services, Inc. ("WPS"), Upper Michigan Energy Resources Corporation, and Generation assets. In December 2019, I also took on the responsibilities of Wisconsin Gas LLC and Wisconsin Electric Power Company – gas operations and gas supply management. In December 2020, I was promoted to the Director Gas Supply and have taken on the responsibility and oversight for all of WEC's natural gas supply, including MERC.

Q. HAVE YOU PREVIOUSLY TESTIFIED IN ANY REGULATORY PROCEEDINGS?

A. Yes, I have testified before the Public Service Commission of Wisconsin on behalf of WPS in Case No. 05-UR-102 and on behalf of Integrys Energy Services, Inc. ("Integrys") in Case Nos. 6690-GR-101, 6690-UR-119, and 05-UR-100. Prior to those cases, I was Integrys' representative and an active member in the Retail Energy Supply Association until October 2009, and in that role, I actively participated in Case No. U-15953 before the Michigan Public Service Commission ("MPSC"). I submitted rebuttal testimony in MPSC Case Nos. U-16481and U-16513 on behalf of Michigan Gas Utilities Corporation ("MGU") in June 2011. I also submitted testimony and responded to data requests in MPSC Case Nos. U-16481-R, U-16920, U-16920-R, U-17130, U-17130-R, U-17331, U-17331-R, U-17690, U-17940, and U-20546, all on behalf of MGU, and in MPSC Case Nos. U-18112, U-18400, U-20247, and U-20539, all on behalf of Upper Michigan Energy Resources Corporation. Finally, on behalf of MERC, I submitted testimony in Minnesota Public Utilities Commission ("Commission") Docket No. G011/M-15-895.

Q. FOR WHOM ARE YOU PROVIDING TESTIMONY?

A. I am testifying on behalf of MERC.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to demonstrate that MERC's actions and decisions before and during the unprecedented market price spike that occurred

in February 2021 (the “February Market Event”) were reasonable and prudent. My testimony will discuss MERC’s winter preparedness planning leading up to the February Market Event, including the annual planning for cold weather events, and gas procurement activity, including decisions and actions taken well in advance of the February Market Event to plan for storage resources, winter baseload, and swing supplies, and decisions and actions taken during the February Market Event to purchase and nominate adequate gas supplies each day to ensure continuous service to our customers.

Q. ARE YOU SPONSORING ANY SCHEDULES IN CONNECTION WITH YOUR TESTIMONY IN THIS PROCEEDING?

A. Yes, I am. I am sponsoring the following schedules:

- Exhibit ___ (SRM-D), Schedule 1 is a map of MERC’s service territory. The map also shows the general location of the four interstate pipelines that deliver gas to MERC’s service areas for ultimate distribution to customers.
- Exhibit ___ (SRM-D), Schedule 2 is a listing of natural gas purchases or deals by price type for February 2021.
- Exhibit ___ (SRM-D), Schedule 3 displays the five peak days for the winter period 2020-2021 for firm customer sendout and the corresponding forecasted peak winter volume.

- Exhibit ___ (SRM-D), Schedule 4 is a table reflecting the actual monthly storage balances compared to the winter plan, including contractual ratchets.
- Exhibit ___ (SRM-D), Schedule 5 displays the Company's utilization of interstate pipeline transportation capacity on a monthly basis, as well as capacity release volumes.
- Exhibit ___ (SRM-D), Schedule 6 details the first of the month ("FOM") prices and the daily index prices for the pipeline trading hubs that serve MERC's service territory, and February 9-17, 2021 daily trading activity of MERC.
- Exhibit ___ (SRM-D), Schedule 7 details daily forecasts, Transportation customers, start of day nominations, planned deliveries, storage, and final balances utilized by MERC for gas days February 11-18, 2021. Also included is a chart detailing the NNG critical day declarations starting on February 12, 2021.

Q. WERE THESE SCHEDULES PREPARED BY YOU OR UNDER YOUR DIRECTION AND SUPERVISION?

A. Yes, they were.

Q. PLEASE DEFINE SOME OF THE UNIQUE TERMS USED IN THE TESTIMONY AND SCHEDULES YOU ARE SPONSORING.

A. Some key terms commonly used in my testimony and schedules include the following:

Asset Management Agreement ("AMA") – An agreement where a counterparty provides gas supply and manages transportation assets. The utility agrees to receive and pay for the gas delivered and release all applicable transportation assets to the Asset Manager.

Baseload – Supply that is the same volume every day for a given period and typically priced at the FOM index.

Call Option – Also known as a 10-day or 20-day call, where supply is available to be called upon during a certain period for the number of days in the option and not to exceed the daily volume multiplied by the number of days. For example: a 10-day call of 2,000 Dekatherm ("Dth") can be called upon for a total of 20,000 Dth for the winter period but cannot exceed 2,000 Dth per day. These call options are typically priced at a daily price index.

Daily Price Index – Index that is published by S&P Global's Platts ("Platts"). Platts Gas Daily indices are based upon trade data reported to Platts by market participants and the Intercontinental Exchange for natural gas transactions. The indices are calculated using detailed transaction level data from these participants.

Platts editors screen the data for outliers that may be further examined and potentially removed. A volume weighted average is then calculated from the remaining set of data. The daily price index represents the average of reported fixed-price deals for next day delivery and is typically distributed the night before the day gas is to flow (for weekends and holidays, there is one index set on the last business day prior to the group of non-business days to which the index is applicable). Typically, deals referencing a daily price index are transacted 12 hours to one day earlier than when the index is published.

FOM Index – Index that is published by Platts' Inside FERC ("Inside FERC") or Natural Gas Intelligence ("NGI") publications. The FOM index represents the average of reported fixed-price deals over the last five business days of the month for delivery of gas the following month. The FOM index is typically published on the first business day of the month in which the index is representing the flow of gas. Typically, deals referencing this index are transacted over a week before the index price is published. The index represents a "market average price." There is a specific index for each trading hub with liquid transactions.

Fixed Price – The agreed-to price for natural gas in a bilateral agreement between two counterparties for a specified period of gas delivery.

Request for Proposal ("RFP") – A formal process for inviting counterparties to provide offers for a product or services.

Settlement of Index – The FOM index settles on the last day of the month prior to the month of flow. It is published by the end of the second business day of the month of gas flow. The daily price index settles the day before the day of gas flow and is published prior to the day of gas flow.

Total Sendout – The total amount of gas that flowed through the pipelines' meters into MERC's distribution system, including all supplies purchased for sales customers and delivered by Transportation customers or their Marketers.

Transportation Service – Under this service, a customer procures and delivers its own gas supply to MERC's distribution system. MERC does not procure the gas supply for Transportation customers, nor do we have direct insight to their supply contracts. MERC expects these customers will deliver what is needed for their daily gas use.

Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

A. Section II provides an overview of MERC's service areas and the structure of those areas in terms of how natural gas is delivered to customers through the system of interstate pipelines to MERC's distribution system.

Section III provides an overview of MERC's interstate pipeline capacity contracts, storage assets, baseload natural gas supply contracts, and hedging plan for the 2020-2021 winter heating season, and describes the Company's actions and decisions in the spring and summer of 2020 with respect to winter preparedness to meet customer needs, including the development and implementation of gas procurement and hedging plans to mitigate price volatility while ensuring reasonably priced purchases in light of market conditions.

Section IV details the Company's gas procurement actions and decisions leading up to and during the February Market Event.

II. MERC SERVICE AREA AND PLANNING

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY

A. In this section, I provide an overview of MERC's service areas and the structure of those areas in terms of how natural gas is delivered to customers through the system of interstate pipelines to the Company's distribution system.

Q. PLEASE SUMMARIZE THE COMPANY'S TWO DISTINCT SERVICE AREAS.

A. MERC is divided into two distinct service areas: 1) MERC-Consolidated, which is served by Centra Pipeline ("Centra"), Viking Gas Transmission Pipeline ("VGT"), and Great Lakes Gas Transmission Pipeline ("GLGT") (collectively, the

"Consolidated" pipelines); and 2) MERC-NNG, which is served by the Northern Natural Gas Pipeline ("NNG"). These two areas have been approvedby the Commission as having unique and separate Purchase Gas Adjustments ("PGA") systems,[1] which include their respective cost assignments as approved by the Commission. In most cases, MERC's customers are served solely by a specific pipeline, with very few exceptions, as referenced later in testimony. Because these PGAs are geographically separate, they do not share pipeline capacity, storage, or natural gas supplies. All gas revenues are directly assigned to each PGA system based on the interstate pipeline system town border station that supplies gas to the customers' meters. All gas purchase costs, except for costs and credits associated with financial hedging options, are directly assigned (not allocated) to each PGA system based on the interstate pipeline system(s) and town border stations that supply each system. The financial hedging option costs and credits are allocated among the two PGA systems, based on each respective PGA system's percent of total MERC sales, and approved by the Commission. Exhibit ___ (SRM-D), Schedule 1 is a map of the areas MERC serves. The map shows the general location of the four pipelines that deliver gas into MERC's PGA systems.

[1] *In the Matter of the Application of Minnesota Energy Resources Corporation for Authority to Increase Rates for Natural Gas in Minnesota*, Docket No. G007,011/GR-10-977, Findings of Fact, Conclusions, and Order (Jul. 13, 2012) (approving consolidation of MERC's four gas-cost recovery and PGA systems into two new PGAs: the MERC-NNG PGA system and the MERC-Consolidated PGA system).

Q. CAN MERC'S CONTRACTED PIPELINE CAPACITY SERVE THE TWO PGA SYSTEMS INTERCHANGEABLY?

A. No. Contracts for the pipeline capacity specifically state a primary receipt point (origination location) and a primary delivery point (destination location) dictating the firmness and primary path of the capacity. On colder days, MERC nominates all gas supply on the pipeline capacity to the firm primary delivery point specified on the contract with the pipeline. If MERC or any other entity did not nominate gas to the primary delivery point on the contract, it would be at risk for the gas not getting scheduled or delivered by the pipeline. Gas nominated by MERC or any other entity on a secondary, not primary path, is more likely to be cut (or allocated) by the pipeline because it was not delivered on firm capacity to the specified points in the contract, as detailed later in my testimony. When gas is not delivered to the specified points on the contract, it reduces the priority of that gas on the pipeline. The pipelines only contract for a finite amount of firm capacity to each location due to many factors, including size of the pipe, meter size, and the pressure of the gas in the pipeline. Each pipeline contract has a primary receipt and delivery point. It is important to schedule the pipeline contracts for this capacity based on the points detailed in the contract to retain the highest firmness of scheduled gas with the pipeline. If a location is not being fully utilized, the pipeline will allow gas to be scheduled to those points not detailed on a contract on a "secondary" basis; however, there is no guarantee

such gas will be delivered. The earlier in the nomination cycles gas is nominated, the more likely it will be scheduled.

III. PLANNING FOR 2020-2021 NATURAL GAS DELIVERIES TO MEET CUSTOMER DEMAND

Q. WHAT DO YOU ADDRESS IN THIS SECTION OF YOUR TESTIMONY?

A. In this section of my testimony, I walk through MERC's gas procurement policies for the 2020-2021 heating season, which were filed in Docket No. G999/AA-21-114.

Q. OVERALL, WHAT ARE THE COMPANY'S GAS SUPPLY PORTFOLIO AND PURCHASING OBJECTIVES?

A. The overall objectives for MERC's gas supply portfolio are to provide reliable and reasonably priced natural gas for sales customers. These objectives are accomplished through utilizing diverse purchase locations, multiple counterparties, firm transportation contracts, storage, hedging, FOM supply, call options, and daily priced supply, including multiple supply sources, providing a diversity of supply points and prices where possible.

Q. AT A HIGH LEVEL, HOW DOES MERC PLAN FOR GAS SUPPLY AND DELIVERY TO MEET CUSTOMER DEMAND EACH WINTER?

A. To meet our objectives to provide reliable, reasonably priced natural gas to our customers while mitigating price volatility, MERC uses a diverse mix of firm gas supplies including:

- Fixed-price financial (futures);
- Financial calls (options);
- Pipeline storage (NNG/ANR);
- FOM Index; and
- Daily Market – Gas Daily Index ("GDD").

In addition, we invest in conservation measures through our approved Conservation Improvement Program ("CIP"), which serves to reduce overall customer demand through increased efficiency. Through investments in our approved CIP programs, MERC esitmates it was able to avoid over $20 million of additional costs during the February Market Event.[2]

Q. HOW DOES MERC PLAN FOR GAS SUPPLY TO MEET CUSTOMER NEEDS IN ADVANCE OF THE HEATING SEASON?

[2] During the February Market Event, our investments in CIP allowed MERC to avoid additional gas purchases, resulting in estimated avoided costs of approximately $21.3 million. *See* Docket No. G999/CI-21-135, Comments of the Minnesota Department of Commerce, Division of Energy Resources at Department Attachment 5 (MERC Response to Department Information Request No. 5) (May 10, 2021).

A. MERC determines supply requirements for our customers on a daily, monthly, and seasonal basis. On a seasonal basis, specifically winter, MERC determines a volume that is needed when considering normal weather and executes term (more than one month) baseload purchases. These are priced on a FOM index plus or minus a premium/discount. On a monthly basis, MERC considers what has occurred in the prior winter months, where storage balances are, how the weather has been trending, and whether the demand forecasts have been trending long or short. MERC then determines if additional monthly purchases are needed and, if so, purchases these supplies and schedules the required flowing natural gas supply. In addition to monthly flowing supplies, MERC also nominates storage withdrawals based on the forecast monthly requirements assuming normal weather.

On a daily basis, MERC evaluates the weather, demand forecasts, storage levels, and already secured supplies and, if needed, purchases and schedules additional gas supply based on specific daily forecasted weather, day of week, and time period included, such as a weekend or holiday. In the event additional market supply is necessary, MERC considers the most economic and operationally efficient option available, consistent with contract requirements, in deciding whether to purchase supply in the market, decrease injections, or increase storage withdrawals.

In the event gas demand is lower and there is more flowing supply than the daily requirement, MERC considers the most economic and operationally efficient option available in deciding whether to increase storage injections, decrease storage withdrawals, or sell the excess flowing supply.

Q. WHY IS UTILIZING DIVERSE GAS SUPPLIERS A PART OF MERC'S POLICY FOR PROCURING GAS?

A. Geographical diversity of suppliers is a best practice for a utility's procurement strategy. MERC diversifies its suppliers, including when procuring for the winter, monthly, or in the market; however, during severe cold periods, the number of suppliers with gas to sell typically decreases as there are more buyers or gas is already presold. Regarding the mix of pipelines, pipeline capacity contracts are long-term in nature and are limited by the pipelines that physically can reach the demand location on MERC's distribution system. Exhibit ___ (SRM-D), Schedule 2 is a listing of natural gas purchases by price type for February 2021, and Exhibit ___ (SRM-D), Schedule 5 displays the Company's utilization of available interstate transportation capacity on a monthly basis, as well as capacity release volumes.

Q. WHAT ARE THE STEPS MERC FOLLOWS TO PLAN FOR AND SECURE GAS SUPPLY AND RELATED PURCHASES?

A. MERC uses the following steps and processes to plan for and secure gas supply and related purchases:

1) Determination of transport and storage resources available to serve demand;
    a. Supply available from storage, supply available from supply basins where firm transportation is held;
2) Determination of supply mix;
    a. Storage;
    b. Baseload – volume that is purchased in equal amounts daily for a month or more;
    c. Call options – volume that is called upon when needed;
3) Determination of supply mix (baseload/call options) by specific supply basins based on delivery points to be served as determined by pipeline contract;
    a. Market area (Demarcation and Ventura);
    b. Canadian supply (Emerson);
4) Determination of length of term to meet forecasted firm demand for both baseload and swing products, targeting 100% load factor;
5) Develop RFP documents for baseload and call options;
6) Issue RFPs to counterparties with an established umbrella agreement (North American Energy Standards Board Base Contract for Sale and Purchase of Natural Gas, or "NAESB Contract");

7) Solicit bids;

8) Evaluate bids and select best offerings by location with counterparties with appropriate levels of established credit;

9) Issue awards; and

10) Execute contracts and secure gas.

Q. CAN YOU PROVIDE A CHRONOLOGY THAT DESCRIBES THE TYPE OF GAS PURCHASING ACTIVITIES A LOCAL DISTRIBUTION UTILITY TAKES IN ADVANCE OF A WINTER HEATING SEASON, INCLUDING COLD WEATHER EVENTS?

A. The table below provides a summary of the timeline for when the Company must take action on various aspects of its gas procurement. Many decisions must be made well in advance of a particular winter or cold weather event. This table provides the approximate timeline relative to a generic cold weather event during a heating season for aspects of our gas procurement planning:

Table 1. Gas Procurement Chronology

Approximate Timeline Relative to a Cold Weather Event	Activity
Years in advance – prior to the heating season	Contracting for pipeline capacity
Years in advance – prior to the heating season	Contracting for storage capacity
During the spring/summer before the heating season	Issuing RFPs to secure seasonal baseload FOM gas purchases
During the spring/summer before the heating season	Implementing financial hedging instruments
During the spring/summer before the heating season	Issuing RFPs to secure call options for daily supplies

Approximate Timeline Relative to a Cold Weather Event	Activity
During the summer before the heating season	Contracting for gas supplies to inject into available contracted storage
Midmonth prior to each month during the heating season	Make any adjustments or add any baseload monthly gas supply deliveries for the upcoming month
A few days prior to the start of each month during the heating season	Nominate on the pipelines all baseload supply, and schedule expected storage withdrawals
25 hours in advance of the gas day and trading period (in the case of non-holiday weekdays)	Call on supplies pursuant to call option swing contracts
Prior to 9 a.m. the day ahead	Adjust storage, and secure any daily gas

Q. HOW IS THE REST OF THIS SECTION ORGANIZED?

A. In the rest of this section, I describe the actions MERC took to plan for and implement gas procurement prior to the winter of 2020-2021, including:

(1) conducting design day forecast calculations for MERC-NNG and MERC-Consolidated;

(2) contracting for adequate interstate pipeline capacity to meet forecasted design day loads, including a reasonable reserve margin;

(3) contracting for baseload natural gas supplies for delivery on each of the pipelines on which MERC holds capacity;

(4) implementing the Company's hedging plan; and

(5) injecting natural gas into the Company's contracted storage facilities during the summer months and planning for available withdrawals through the heating season in accordance with contract rights.

A. Customer Demand and Design Day Planning

Q. WHAT IS A DESIGN DAY?

A. A design day is a 24-hour period of natural gas demand that is used as the basis for planning capacity requirements. Design day conditions reflect the coldest weather expected to occur based on historic weather events.

Q. HOW DOES MERC FORECAST DESIGN DAY CUSTOMER DEMAND?

A. The design day forecast identifies the coldest adjusted heating degree days since January 1996 for a variety of weather stations within the MERC-NNG and MERC-Consolidated service areas. MERC then utilizes the last three years of weather for December, January, and February, and firm system sales load, to calculate forecasted firm customer demand under design day conditions, using regression analysis.

Q. HOW DOES MERC FACTOR IN INTERRUPTIBLE LOAD WHEN FORECASTING DESIGN DAY CUSTOMER DEMAND?

A. When forecasting design day customer demand, MERC excludes all interruptible customers in the design day. That is, the design day forecast only includes firm customer sales volumes.

Q. WHAT WAS MERC'S FORECASTED DESIGN DAY FOR 2020-2021 FOR MERC-NNG AND MERC-CONSOLIDATED?

A. The following table summarizes MERC's design day forecast for MERC-Consolidated and MERC-NNG for each of the pipelines used to serve customer load requirements. These design day forecasts were approved in Docket Nos. G011/M-20-636 (MERC-Consolidated) and G011/M-20-637 (MERC-NNG) by Orders issued January 25, 2021.

Table 2. 2020-2021 Design Day Forecasts

Pipeline/PGA	Design Day Forecast (2020-2021)
Centra/Consolidated	9,364 Dth
Great Lakes/Consolidated	30,279 Dth
Viking/Consolidated	17,422 Dth
Total Consolidated	57,065 Dth
NNG	280,796 Dth

Q. ONCE THE COMPANY IDENTIFIES THE FORECASTED DESIGN DAY FOR ITS TWO SYSTEMS, MERC-NNG AND MERC-CONSOLIDATED, HOW IS THAT INFORMATION USED TO PLAN FOR CUSTOMER DEMAND DURING THE WINTER HEATING SEASON?

A. MERC must ensure there is enough contracted interstate pipeline capacity to provide firm delivery of natural gas to its firm customers on a peak day. MERC's natural gas supply policy is to have adequate firm transportation capacity to protect against a one-in-twenty year cold weather event, plus a positive reserve margin. Due to MERC's service territories being geographically spread throughout the state, MERC must contract for firm pipeline capacity on NNG, GLGT, VGT, Centra, and Northern Border Pipeline ("NBPL"). This mix of pipelines allows purchasing supply from Canadian, Mid-Continent, and Rockies

supply sources, providing a diversity of supply points and prices. This capacity, including the utilization factor by day in February 2021, is detailed in Exhibit ___ (SRM-D), Schedule 5 and Exhibit ___ (SRM-D), Schedule 2. This is discussed in more detail in Mr. Tim Sexton's testimony.

Q. WHAT COMPONENTS OF PEAK OR DESIGN DAY PROTECTION DID MERC INCLUDE IN THE 2020-2021 WINTER PLAN?

A. The supply for forecasted design day load was planned to be met through a combination of monthly baseload, call options, daily priced gas purchases, and storage supplies; however, winter 2020-2021 peak day demand never reached the design day forecast.

Q. YOU JUST MENTIONED THAT DURING THE WINTER OF 2020-2021, THE COMPANY DID NOT EXPERIENCE A DESIGN DAY. CAN YOU EXPLAIN THAT FURTHER?

A. Yes. Exhibit ___ (SRM-D), Schedule 3 displays the five highest firm customer sendout days during the 2020-2021 winter heating season and the corresponding forecasted peak winter volumes. As shown, despite the February Market Event, from November 2020 through March 2021, peak day usage never exceeded MERC's design day forecast for the period.

B. Interstate Pipeline Transportation Capacity

Q. HOW DOES MERC PLAN TO MEET ITS FORECASTED DESIGN DAY?

A. To meet our design day load obligation, MERC contracts for firm transportation capacity to allow for the delivery of contracted natural gas supplies to specified delivery points where the interstate pipelines interconnect to MERC's distribution system. Failing to have adequate supply, capacity, and storage on a peak day would place MERC's customers at risk of having their natural gas service interrupted and experiencing physical or financial harm.

The Company continually assesses current and future capacity needs in the context of safety, reliability, operational requirements, cost, availability, supply basin diversity, and delivery point requirements.

Q. BRIEFLY EXPLAIN MERC'S CAPACITY UTILIZATION FOR THE FEBRUARY 2021 PLAN YEAR.

A. Exhibit ___ (SRM-D), Schedule 5 shows the capacity utilization for the Company's transportation contracts. This exhibit shows capacity utilization, capacity release volumes, capacity that was part of MERC's AMA, and the combination of these three elements. Additionally, capacity needed for call options is shown, but not included in the total utilization values.

C. Storage Contracts and Planning

Q. WHAT ROLE DOES NATURAL GAS STORAGE PLAY IN PROVIDING RELIABLE AND REASONABLY PRICED GAS SERVICE TO MERC CUSTOMERS UNDER VARIOUS WEATHER AND MARKET CONDITIONS?

A. Natural gas storage provides the Company's primary means of balancing supply and demand day-to-day through nominations. Storage is imperative to maintain system integrity and to respond to weather pattern changes. In addition, customer consumption fluctuations may affect MERC's ability to meet customer demand. MERC utilizes storage to provide natural gas deliverability during periods of high demand and for operational flexibility in balancing the system. In addition to operational benefits, storage provides a physical price hedge for customers by reducing the amount of gas purchased in the winter and increasing the amount purchased in the summer for delivery at a later date.

Q. HOW DOES MERC PLAN FOR AND IMPLEMENT PIPELINE STORAGE CONTRACTS?

A. For the most part, storage costs are controlled by long-term service agreements with pipelines. Gas prices associated with storage do not react to changing market conditions as rapidly as gas commodity prices react. During the winter season (November 2020 through March 2021), MERC utilized a 40%/30%/30% strategy to mitigate price volatility and provide reasonably priced natural gas. The strategy consists of 40% of normal winter supply requirements purchased at

a FOM index price, 30% supplied by physical storage, and 30% covered by financial hedges (10% futures and 20% call options). Storage supply and financial products were purchased from May through October 2020. This approach provided MERC customers with 60% of the portfolio protected from increasing market prices via storage, call options, and futures.

Q. PLEASE DESCRIBE MERC'S STORAGE UTILIZATION.

A. MERC has contracted pipeline storage contracts with ANR and NNG. The ANR storage is only deliverable to the MERC-Consolidated system customers, while the NNG storage is only deliverable to customers served by the MERC-NNG system. MERC's storage contracts specify a maximum storage volume and set forth contractual requirements related to the injection and withdrawal of natural gas from storage throughout the year. As described below, MERC must utilize contracted pipeline capacity to deliver withdrawn storage supplies to customers on the MERC-Consolidated and MERC-NNG systems.

It is MERC's understanding that the geology in Minnesota is not conducive to further development of underground gas storage. As a result, MERC must lease storage services for delivery to its markets via the interstate transmission companies. The U.S. Department of Energy's Energy Information Agency ("EIA") data shows that of the over 400 underground gas storage facilities in the US,

only a single storage field is located in Minnesota, and it is operated by CenterPoint Energy (Waterville Storage).

Q. PLEASE DESCRIBE MERC'S ANR STORAGE SERVICE FOR MERC-CONSOLIDATED IN MORE DETAIL.

A. MERC entered into a four-year contract for natural gas storage with ANR Storage, effective April 1, 2018. The Commission approved MERC's ANR Storage contract on January 8, 2018 in Docket No. G011/M-17-587. MERC also entered into a four-year contract, effective November 1, 2018, for ANR Pipeline transportation services to move gas from ANR Storage to the interconnect with GLGT. MERC's ANR Storage contract provides for a maximum storage quantity of 754,200 Dth and a maximum daily withdrawal of 15,084 Dth/day, which is reduced through the winter heating season based on contractual ratchets. A ratchet is when the withdrawal rights are reduced from the maximum storage withdrawal capability based on either volume or date. These ratchets are also detailed in Exhibit ___ (SRM-D), Schedule 4. MERC's ANR storage accounted for 17% of the MERC-Consolidated forecasted normal winter demand for the 2020-2021 heating season. MERC's ANR storage is limited to only serving the Great Lakes area due to location of pipelines within the state.

Q. PLEASE DESCRIBE MERC'S NNG STORAGE SERVICE FOR MERC-NNG.

A. As reflected in Exhibit ___ (SRM-D), Schedule 4, the total NNG storage capacity for the 2020-2021 winter heating season was 6,519,321 Dth with a maximum daily withdrawal of capability prior to ratchets of 104,402 Dth. Based on this, MERC's NNG storage accounted for 29% of the MERC-NNG forecasted normal winter demand for the 2020-2021 heating season.

MERC has sought opportunities over the years to increase its available storage capacity and, effective June 1, 2017, acquired 1,500,000 Dth of released storage on NNG, which was approved by the Commission on December 6, 2017 in Docket No. G011/M-16-650. This contract was permanently released to MERC in January 2021 and was renegotiated with a new expiration of May 31, 2026.

Q. HOW DOES STORAGE PROVIDE FOR OPERATIONAL NEEDS?

A. Storage is a key component in providing overall gas service. Storage allows the Company to meet immediate operational needs while supporting the broader goal of making monthly and daily purchases necessary to meet sales customers' needs. Storage also functions as a natural price hedge where gas has historically been less expensive in the summer for injections into storage. That is, the value of seasonal price arbitrage is dependent upon the winter and summer pricing differential, which varies in value each year. Finally, NNG storage allows for a nomination to be made utilizing MERC's NNG storage prior

to 8 a.m. or when about 23 hours of the gas day[3] have passed. This provides MERC with operational flexibility to manage the daily, as well as cumulative monthly, imbalances it has with NNG. Each day, MERC performs a final forecast by reviewing estimated throughput available for the first 20 plus hours of the gas day as well as the latest scheduled volumes made by MERC's transportation customers. MERC also requests that transportation customers communicate to MERC any nomination changes they plan to make for the 23rd hour nomination cycle. With the latest forecast and transportation nominations, MERC can adjust its storage nominations to minimize any daily imbalances. Minimizing daily imbalances lowers the costs associated with daily imbalances and also minimizes the costs associated with the cumulative monthly imbalance. This approach also allows MERC to retain gas in storage for use on the remaining days within the month instead of having those volumes in an inaccessible imbalance account.

Q. HOW DOES MERC'S PIPELINE STORAGE PROVIDE PROTECTION TO CUSTOMERS FROM UNREASONABLE PRICE RISKS?

A. As I previously indicated, storage provides a physical price hedge for customers. MERC determines supply requirements for MERC customers on a daily and monthly basis. On a monthly basis, it is MERC's policy to purchase and schedule the required flowing natural gas supply and required storage injections or

[3] A "gas day" is defined as the 24-hour period from 9 a.m. Central Clock time to 9 a.m. Central Clock time.

withdrawals based upon the forecast monthly requirements, taking into account applicable contract requirements.

On a daily basis, it is MERC's policy to purchase and schedule additional flowing gas supply and storage injections or withdrawals based upon changes from the monthly plan. In the event additional market supply is necessary, MERC considers the most economic and operationally efficient option available in deciding whether to purchase supply in the market, decrease injections, or increase storage withdrawals.

D. Baseload Gas Purchases

Q. WHAT ROLE DO BASELOAD GAS PURCHASES PLAY IN PROVIDING RELIABLE SERVICE TO CUSTOMERS?

A. MERC's baseload gas supply is the first layer of supply for its customers. It is the same volume every day for a given period and typically priced at a FOM index. Baseload gas ensures a level of reliability for the period contracted for, that it will be there and can be planned on. Because baseload gas supply is delivered every day of the contract, all storage activity, call options, and daily purchases are layered on top of it.

Q. HOW DOES MERC DETERMINE THE LEVEL OF BASELOAD PURCHASES?

A. MERC annually forecasts system demand for both the NNG and Consolidated systems. To determine the level of baseload purchases for each month over the winter season, MERC takes into account considerations such as storage withdrawal/injection rights, historical seasonal weather variations, market factors, and daily operational flexibility, among other variables. MERC generally will maximize the amount of baseload purchases while ensuring sufficient operational flexibility to balance load variability through the winter heating season. In Minnesota, daily temperatures over a given winter month can vary significantly, and it is necessary to have more flexible supply to balance those variations.

Q. WHEN DOES THE COMPANY COMPLETE ITS PLANNING FOR AND EXECUTION OF BASELOAD PURCHASES?

A. For the 2020-2021 winter, and consistent with past practice, MERC completed its planning for and execution of baseload purchases in late April 2020. The Minnesota Department of Commerce, Division of Energy Resources ("Department") reviews and the Commission approves MERC's annual gas costs as part of the Annual Automatic Adjustment ("AAA") process each year, including the volume of baseload gas purchases.

Q. HOW ARE BASELOAD PURCHASES PRICED?

A. Baseload purchases are priced using either Inside FERC FOM indices or the NYMEX Last Day Settled ("LDS") index.

Q. DOES MERC ENGAGE IN AMAS?

A. Yes, MERC does enter into AMAs with natural gas suppliers to secure baseload purchases. For the last two winters (2019-2020 and 2020-2021), MERC has entered into an AMA transaction where MERC purchased approximately 14,000 Dth/day of FOM-priced baseload for the months of April and October and 40,000 Dth/day of daily index priced call option gas for November through March. For winter 2021-2022, MERC has entered into a total of five AMA transactions. In addition to the AMAs mentioned above, MERC has entered into two AMAs for call options and two that are a mix of baseload and call option gas.

Q. HOW DID THESE AMAS HELP TO PROVIDE PRICE PROTECTION DURING THE FEBRUARY MARKET EVENT?

A. MERC released 40,000 Dth/day of NBPL capacity in February 2021 per an AMA. As part of this AMA, MERC has full rights to call on this volume to have gas delivered at various NNG receipt points during the month of February. MERC's NBPL capacity was originally contracted for to bring gas from Emerson into NNG at the NBPL/NNG interconnect. MERC can then use 40,000 Dth of NNG capacity to pick up the gas at the NBPL/NNG interconnect to deliver to the MERC-NNG system. MERC was able to gain value from the AMA by receiving a credit for releasing 40,000 Dth of the NBPL capacity, but also giving MERC the full rights to call on an equivalent volume of gas equal to the release (40,000 Dth) at

various NNG receipt points during the month of February. This transaction is discussed in more detail by Mr. Sexton.

Q. PLEASE DESCRIBE THE COMPANY'S METHODOLOGY FOR SECURING INDEX-PRICED NATURAL GAS SUPPLY.

A. The majority of MERC's index-priced purchases are made on a monthly basis through a RFP process. Winter (November through March) supplies are purchased on a term basis, where the same volume is delivered for each day for multiple months in a row as contracted. MERC was able to determine a base level of gas that was needed for a normal winter and secured multi-month index-priced purchases at a FOM pricing index. Multi-month FOM index-priced purchases provide security in ensuring that supply is contracted for and will be available, especially during the winter period. MERC also purchases baseload for one month at a time when volumes can be determined and adjusted for the current storage positions. Finally, MERC fills in the difference between daily forecasts and already secured supply and storage withdrawals with daily index priced gas. Exhibit ___ (SRM-D), Schedule 2 provides specific information for February 2021 by counterparty, pipeline, location, type of pricing, and volume by day of gas purchased.

Q DOES THE COMPANY TYPICALLY SECURE FIXED-PRICE SUPPLY?

A No. As a gas utility, MERC's objective in procuring natural gas supply is to provide continuous, reliable service to customers at reasonable prices in light of market and demand conditions. To achieve this objective, MERC transacts daily gas purchases priced at the daily index for gas supplies that are needed to meet forecasted customer load after accounting for available baseload supplies, storage withdrawals, and where such index prices are set based on the average of all reported fixed-price transactions for that day. This ensures the price MERC pays is consistent with the market circumstances and will not be above or below the competitive market.

In my experience more counterparties are willing to transact at an index than at a fixed price. A given fixed price may be far away from the weighted average of all transactions that day, and it is impossible to always "beat the market." There is no way to know when the "perfect" time to purchase gas is, and as a utility, MERC simply cannot risk not having enough supply to serve customers. Finally, the index price can also be beneficial in a rising and falling market. Although the final index price is unknown until the index settles and is published, as defined above, the index represents the average of reported fixed-price deals for next day delivery. This ensures the buyer pays the average price, not the highest nor the lowest, but the middle, of all reported fixed-price transactions. It would be impossible to always be on the low end of fixed-price deals, and therefore MERC

believes that always being in the middle is the most reasonable pricing mechanism when purchasing supply.

E. Hedging Planning and Implementation

Q. WHAT IS HEDGING?

A. Hedging means reducing or controlling risk associated with market price volatility. A hedge is an investment or position taken in the futures market that is opposite to the one in the physical market with the objective of reducing or limiting risks associated with adverse price movements in an asset.

Q. HOW DOES MERC UTILIZE HEDGING IN ITS GAS PROCUREMENT?

A. MERC uses natural gas price hedging tools for a portion of the portfolio to mitigate risks associated with significant price increases of natural gas purchased each winter. MERC has developed and implemented a hedging strategy that targets price protection for 60% of normal winter volumes – 30% through physical storage and 30% through financial instruments (10% futures and 20% options).

MERC hedges winter months with these contracts executed in the preceding summer months. Specific to 2021, we had purchased all winter (November 2020-March 2021) financial contracts by the end of October 2020. We hedge against NYMEX volatility, offering protection from monthly market volatility.

Q. WHAT ROLE DOES HEDGING PLAY IN PROVIDING PRICE STABILITY UNDER VARIOUS WEATHER AND MARKET CONDITIONS?

A. Hedging is designed to reduce MERC's month-to-month price swings in the PGA and provide reasonable cost for blended gas supplies. Ideally, the PGA would have less price volatility than the appropriate market index price volatility, but it is not expected that the PGA would be lower than the market index price over time.

The Department has described the goal of hedging to be to "use appropriate strategies to minimize the risk of cost increases for any given level of reduced volatility. In a sense, a hedge is an insurance policy that, for a fee, protects utilities (and their ratepayers) against a specific (unfavorable) event occurring during the term of a policy."[4] Hedging should not be expected to reduce the average price of gas purchases over time and, in its purest form, does not provide a means to reduce the expected price of gas – its primary function is to stabilize prices.

Q. DOES HEDGING PROTECT AGAINST MARKET VOLATILITY?

A. Yes, but this strategy must be balanced. MERC's goal has been to have a balanced approach that provides price protection for customers while also allowing MERC to take advantage of lower than expected market prices. The

[4] Department Review of 2017-2018 Annual Automatic Adjustment Reports, Docket No. G999/AA-18-374, Department Report at 73 (Apr. 25, 2019).

more a company hedges, the higher the reduction of volatility. However, as one hedges more, you risk the chance of over-hedging (i.e., procuring gas supplies in excess of actual customer load), especially when winter volumes change due to weather and other factors. In addition, the higher the hedging percent, or the more volume that is locked at a price, and the less opportunity there is to participate in a falling gas market, you risk ultimately increasing customers' gas costs. The more a utility uses hedging, the greater the chance there is for winter costs to vary either much higher or much lower than the market price. MERC's goal is to take a balanced approach of financially hedging about 30% of expected winter volumes and physically hedging with storage about 30% of expected winter volumes. This reduces the risk of being in an over-hedged situation during a warm winter, while still reducing volatility (i.e., MERC tries to hedge about 60% of its customers' winter usage). As discussed in the Direct Testimony of Mr. Eidukas, the Commision annually reviews the Company's hedges through the annual Demand Entitlement and AAA report filings and periodically approves the Company's hedging through variance petitions, including parameters and requirements applicable to hedges.[5]

[5] In its periodic petitions to extend Commission-approved variances to authorize the recovery of the costs of hedging, MERC provides information and analysis demonstrating that customers benefit from hedging and that there is not an undue price premium paid for such hedging. *See In the Matter of the Petition of Minnesota Energy Resources Corporation for Extension of Rule Variances to Recover the Costs of Financial Instruments Through the Purchased Gas Adjustment*, Docket No. G011/M-20-833.

Q. WHEN DOES THE COMPANY COMPLETE ITS PLANNING FOR AND EXECUTION OF HEDGES?

A. As with storage supply, financial products were purchased from May through October 2020 to provide customers with 60% of the portfolio protected from increasing market prices via storage, call options, and futures.

F. Call Options for Gas

Q. WHAT ARE CALL OPTIONS FOR GAS?

A. Call options provide a right to call upon gas supply for a certain number of days for a specific period and location with a predetermined price, typically priced around the daily market.

Q. DID THE COMPANY CONTRACT FOR CALL OPTIONS FOR THE 2020-2021 WINTER PERIOD?

A. Yes. The Company contracted for call options during the 2020-2021 winter period.

Q. WHAT CALL OPTIONS DID MERC HAVE AVAILABLE DURING THE 2020-2021 WINTER?

A. Exhibit ___ (SRM-D), Schedule 2 is a listing of natural gas purchases or deals by price type for February 2021, specifically call deals are labeled “Call Option.”

Q. WHAT ROLE DO CALL OPTIONS PLAY IN ENSURING MERC CAN RELIABLY SERVE CUSTOMER NEEDS AND PROTECTING CUSTOMERS FROM UNREASONABLE PRICES?

A. The benefit of call options is to secure firm supply on days when it is needed without having the requirement to pay for the gas when it is not needed or risk having to sell the gas during low-demand days at a loss. To have the ability to call on gas with call options ensures the supply will be there on a cold day or during peak days. These options are typically required to be called upon for an entire trading window. For example, if gas is needed on a Monday, the entire weekend would need to be called upon, Saturday, Sunday, and Monday, in equal volumes (i.e., ratable volumes). If there happens to be a holiday, that is also included in the trading window.

G. Daily Gas Purchases

Q. WHY ARE DAILY SUPPLIES IMPORTANT TO MAINTAINING MERC'S FLEXIBILITY WITH RESPECT TO NATURAL GAS SUPPLY?

A. The use of daily supply purchases provides needed flexibility to address the reality of variability in weather and customer load over each month or the heating season. As described above, purchasing baseload supplies in excess of what is needed to serve customer demand in normal weather creates a significant risk that MERC would have to sell, most likely at a loss, during each day that a peak was not experienced. MERC is able to purchase monthly and daily gas in line

with sales customers' needs. Daily purchases provide the operational flexibility needed during months where the range in temperatures can be large, such as February, and ensures gas supplies are not consistently sold off at a loss in the daily market when not needed.

Q. PLEASE EXPLAIN THE PROCESS MERC FOLLOWS TO PROCURE GAS IN THE DAILY MARKET.

A. As normal practice, the business day before flow date,[6] MERC's Gas Supply Group analyzes the forecast for accuracy based on previous days or previous similar weather prior to 7:30 a.m. In extreme weather conditions, MERC will analyze the forecast one and half business days before the flow date. Once determined acceptable, the gas supply traders ensure there is sufficient firm capacity within MERC's portfolio on the pipelines needed to serve the load. First, the trader subtracts off from the forecast an estimate of what transport customers will be delivering. Next, the trader takes into consideration what natural gas supplies MERC already has flowing (i.e., baseload purchases for the month or season), storage withdrawal limits and availability, and call deals (i.e., predetermined supplies that MERC is able to "call" on for a certain number of days per year at a predetermined pricing structure); and determines a plan to supply customers. If there is a shortfall after storage withdrawals are maxed out

[6] The flow date or gas day runs from 9 a.m. to 9 a.m. Central. For weekends, this date is the Friday before. For holidays, it is the business day immediately preceding the holiday.

and call deals have been called on, only then does the Gas Supply Group purchase additional supply on the daily market utilizing available firm capacity on the relevant pipeline.

If additional supply is to be purchased on the daily market, typically before 8:15 a.m., MERC will send out a Request for Price on the Intercontinental Exchange ("ICE") trading platform to three or more counterparties MERC has NAESB contracts with, requesting to bid on MERC's volume needs at a settled index price. Typically by 8:30 a.m., the bids are reviewed, and purchases are completed based on the least cost supply that will fill the forecasted needs. Once the supply is procured, MERC nominates it on the pipeline for the timely cycle. Timely cycle is due at 1:00 p.m for most pipelines.

In the afternoon, the Gas Supply Group reviews the forecast and and compares it to the scheduled/nominated supply for the current and upcoming days.

The daily index price, which is calculated based on the average of all reported fixed-price sales, is not published until later that night.

On the NNG pipeline, just before the gas day ends at around 7:15 a.m., MERC calculates the estimated load for that gas day (ending at 9 a.m.) and adjusts the storage nomination to better match the actual flow to minimize daily imbalances.

Timeline of Gas Supply Flow

One business day before flow date

7:30 a.m.	Gas Supply analyzes the forecast for accuracy based on previous days or previous similar weather.
Before 8:15 a.m.	If additional supply is to be purchased: Send out a Request for Price on ICE to three or more counterparties MERC has NAESBs with requesting them to bid on MERC's volume needs.
8:30 a.m.	Bids are reviewed and purchases are completed based on the least cost supply that will fill the forecasted needs.
Before 1 p.m.	Once supply is procured, MERC nominates it on the pipeline for the timely cycle. Deadline is 1p.m.
Afternoon	Gas Supply reviews the forecast and compares again to the scheduled/nominated supply for the current and upcoming days. On occasion, we will secure supply in the afternoon for current day or next day.
8 p.m.	The Index Prices are published. Index prices typically are a fair market price and lessens the risk of high fixed prices.

Flow date

7:15 a.m.	Just before the gas day ends, MERC calculates the estimate MERC will adjust the storage nomination to better match the actual flow in an attempt to minimize daily imbalances.

IV. 2021 FEBRUARY MARKET EVENT

Q. WHAT DO YOU ADDRESS IN THIS SECTION OF YOUR TESTIMONY?

A. In this section, I discuss MERC's actions and decisions in purchasing natural gas supplies during the February Market Event. I will provide support for the reasonableness and prudence of those decisions under the circumstances of the event, including the information that was or could have been known at the time MERC needed to purchase gas supplies to serve our firm customers' needs. I provide a detailed timeline of the Company's actions and decisions based on available information and the options that were available. I discuss what was known, and when, with respect to the forecasted cold weather that impacted much of the United States in February 2021, the impact of that cold weather on natural gas supplies, and the unprecedented market price spike that occurred. I also describe the tools that were available at the time of the February Market Event and how MERC utilized those tools to reasonably protect customers from the market price spike.

A. Knowledge of February Price Spike

Q. COULD MERC HAVE REASONABLY PREDICTED THE GAS PRICES IN FEBRUARY 2021?

A. No. MERC could not have reasonably predicted the gas prices in February 2021 could have reached the levels they did. Historically, the highest prices for gas

supply on NNG was under $70, so anything offered above that was outside of the range of where anyone would or could have expected prices to settle.

Q. BASED ON AVAILABLE INFORMATION, DID MERC HAVE ANY REASON TO BELIEVE GAS PRICES COULD OR WOULD REACH THE UNPRECEDENTED LEVEL THEY DID DURING THE FEBRUARY MARKET EVENT?

A. No. The conditions that occurred in February 2021 were truly unprecedented and could not reasonably have been predicted in the months, weeks, days, or hours leading up to the price spike that occurred on February 12, 2021. While previous cold weather events have occurred, those events did not result in a similar unprecedented market price spike.

Further, although it was cold for February, it was not anywhere near peak conditions that MERC plans for, and operates its system and manages its assets, including storage assets, to meet.

Q. HAVE ANY SIMILAR COLD WEATHER EVENTS OCCURRED PREVIOUSLY?

A. Yes.

Q. DURING THOSE COLD WEATHER EVENTS, WHAT WAS THE ASSOCIATED NNG PRICING AT VENTURA AND DEMARC?

A. Table 3 below lists the cold weather events that were as cold, or colder, than February 2021 and includes the prices associated with those events at Ventura and Demarc. Based on this data, MERC could not have expected or even assumed a pricing point for February 2021 anywhere near the range that was experienced.

Table 3. Historic Cold Weather Events and Prices

Similar Cold Weather Incidents			
Weather Event Period (Year/Mo)	HDD Range [1/]	Max Vent $/Dth during Period	Max Demarc $/Dth during Period
Feb-21	**77-85**	**$ 154.91**	**$ 231.67**
Feb-20	77	$ 2.07	$ 2.07
Mar-19	79	$ 8.96	$ 8.48
Feb-19	77	$ 3.57	$ 3.43
Jan-19	77-99	$ 6.74	$ 4.23
Dec-17	80-85	$ 67.46	$ 3.50
Dec-16	78-81	$ 4.07	$ 4.07
Jan-16	82-83	$ 2.65	$ 2.65
Feb-15	79	$ 7.06	$ 6.81
Jan-15	80	$ 3.72	$ 3.69
Mar-14	82	$ 41.58	$ 19.14
Jan-14	79-84	$ 53.31	$ 6.22
Jan-14	91	$ 9.61	$ 6.38

[1/] Heating Degree Days (HDD) value represents the day's average temperature that is below 65 Fahrenheit, including the wind factor.

Q. PLEASE PROVIDE ADDITIONAL INFORMATION ON THE PRIOR HIGHER NATURAL GAS PRICE EVENTS.

A. Table 4 below lists all the periods since 2014 in which the prices went over $20/Dth at either Ventura or Demarc along with a brief explanation of the event:

Table 4. Historic Daily Price Increases

Time Period	$/Dth Ventura	$/Dth Demarc	Additional Information
February 2021	$188-$7	$232-$15	February Market Event
December 2017	$67	$3.50	Cold weather event
March 2014	$41-$10	$19-$9	Waves of polar vortex fronts beginning Dec. 2013
February 2014	$43-$10	$35-$10	Waves of polar vortex fronts beginning Dec. 2013
January 2014	$41-$10	$6.21	Waves of polar vortex fronts beginning Dec. 2013

B. Gas Supply Implementation During the February Market Event

Q. PLEASE PROVIDE A TIMELINE OF THE EVENTS LEADING UP TO AND THROUGH THE FEBRUARY MARKET EVENT, FOCUSING ON THE MERC-NNG SERVICE AREA.

A. Beginning February 4, 2021, NNG called a system overrun limitation ("SOL") with 0% System Management Service ("SMS"). When a SOL is in place, MERC's typical 5% tolerance above the scheduled volume of SMS is not available. In other words, when a SOL is in effect, MERC has no tolerance available to be short on balancing gas supply deliveries against actual daily demand without

being assessed significant imbalance penalties by NNG.

On Monday, February 8th, MERC evaluated the weather for February 9th and beyond and identified that the weather was trending colder than normal for the next week. MERC called on its call options on February 8th for gas days February 9 and beyond. This call option was part of an AMA as detailed on Exhibit ___ (SRM-D), Schedule 6 under the section labeled "Physical Forward Start (AMA) Exercised Trades" for the amount of 39,245 Dth/day. MERC continued to exercise this call option until February 18th. MERC made no additional daily purchases for the February 9th gas day. At the end of the day of February 8th, Gas Daily index prices settled at $3.71 at Demarc and $4.20 at Ventura for gas day February 9.

On the morning of February 9th, MERC again forecasted colder than normal weather and secured an additional 2,875 Dth/day at Gas Daily index prices, knowing the day prior settled at $3.71 at Demarc and $4.20 at Ventura. This purchase was agreed upon at 7:47 a.m. for the February 10th gas day only. At the end of the day on February 9th, Gas Daily index prices settled at $3.86 at Demarc and $4.06 at Ventura for gas day February 10.

On the morning of February 10th, when forecasting for the February 11th gas day, MERC continued to see colder than normal weather forecasted. As detailed in

Exhibit ___ (SRM-D), Schedule 7, MERC forecasted for 248,375 Dth of system sales load for gas day February 11, after backing out forecasted transportation customer volumes (estimated to be 190,655 Dth). MERC met this forecasted load through storage withdrawals, baseload supplies, an AMA call option, and 37,875 Dth of daily purchases. At the end of the day on February 10th, daily prices on gas day February 11 settled at under $7.00 per Dth ($6.61 at Demarc and $6.91 at Ventura).

Because the daily gas market does not actively trade over weekends and holidays, MERC had to plan for its gas supply needs for the entire four-day holiday weekend, February 13-16, on or before February 12th. Additionally, all call options and daily gas purchases over the four-day weekend had to made ratably (i.e., in the same volume for each day of the four-day weekend). As a result, MERC planned for the highest forecast demand day and utilized storage to balance on the other three days. Because February 14th was the highest forecast demand day of the holiday weekend, MERC focused on that day as detailed below.

MERC started planning on the afternoon of February 11th for gas to be delivered starting on Saturday, February 13th. As detailed in Exhibit ___ (SRM-D), Schedule 6, MERC purchased daily gas on February 11th between 1:45 p.m. and 2:25 p.m. to ensure we could secure sufficient supply for customer demand. On

the afternoon of February 11th, when forecasting for the February 14th gas day (the highest demand day in the weekend), MERC continued to see colder than normal weather forecasted. Daily index prices at the end of the day on Feburary 11th for gas day February 12 settled at $15.68 at Demarc and $15.42 at Ventura.

MERC was first notified on February 12th, midmorning, that NNG had declared a Critical Day. These notices from NNG are detailed in Exhibit ___ (SRM-D), Schedule 7. A Critical Day is called when the operating condition of NNG's system has severely deteriorated and the integrity of the system is threatened.

As detailed in Exhibit ___ (SRM-D), Schedule 7, MERC's forecasted demand for gas day February 14 was 456,675 Dth for MERC-NNG system demand. Transportation customers were estimated at 187,789 Dth, making the total at the beginning of the planning period 268,886 Dth. MERC made a storage withdrawal from NNG storage of 87,341 Dth; however, based on fuel loss as dictated by NNG's FERC tariff, 86,302 Dth was delivered to MERC's distribution system. MERC had monthly priced baseload gas purchases of 94,640 Dth, call options as part of an AMA of 38,779 Dth, and finally daily purchases of 56,832 Dth for a total flowing gas of 276,553 Dth, about 7,667 Dth or 1.68% long prior to the start of the gas day. At the end of the day February 12th, index prices for the weekend (February 13-16) published at unprecedented levels – $231.67 at Demarc and $154.91 at Ventura.

Throughout the next 40 hours MERC continued to monitor the weather and review gas supplies for reliability. In addition, MERC evaluated the notices on the pipelines, fielded calls from suppliers, verified gas was scheduled correctly on the pipelines and from storage, and confirmed the overall volumes and processes. Around 7 a.m. on February 14th, the forecast of gas load was reduced from 456,675 Dth to 379,990 Dth, and the transport customers' estimated volumes were reduced from 187,789 Dth to 137,765 Dth, or 50,024 Dth less than originally expected. MERC adjusted its storage withdrawal by 33,675 Dth to limit the daily imbalance on NNG. Once actuals were available, MERC's final forecast with all information now known, transport customers delivered 146,905 Dth or 40,884 Dth difference from the start of day planning period. The MERC-NNG system finalized the day with a 3.08% or 12,225 Dth long position.

MERC started planning on the afternoon of February 15th for gas to be delivered starting on Wednesday, February 17th. On the morning of February 16th, when forecasting for the February 17th gas day, MERC continued to see colder than normal weather forecasted, but it was moderating. As detailed in Exhibit ___ (SRM-D), Schedule 6, MERC purchased daily index priced gas on the morning of February 16th between 7:30 a.m. and 7:45 a.m. to ensure it was able to secure sufficient supply for customer demand.

As detailed in Exhibit ___ (SRM-D), Schedule 7, MERC's forecasted demand for gas day February 17 was 391,379 Dth for the MERC-NNG system demand. Transportation customers were estimated at 138,405 Dth, making the total at the beginning of the planning period 252,974 Dth. MERC made a storage withdrawal from NNG storage of 87,341 Dth; however, based on fuel loss as dictated by NNG's FERC tariff, 86,302 Dth was expected for delivery to MERC's distribution system. MERC had monthly priced baseload gas purchases of 94,640 Dth, call options as part of an AMA of 38,779 Dth, and finally daily purchases of 29,644 Dth for a total flowing gas of 249,365 Dth, about 3,609 Dth or 0.92% short prior to the start of the gas day.

Throughout the next 20 hours, MERC continued to monitor the weather and review gas supplies for reliability. In addition, MERC evaluated the notices on the pipelines, fielded calls from suppliers, verified gas was scheduled correctly on the pipelines and from storage, and confirmed the overall volumes and processes. At the end of the day on February 16th, gas daily index prices were published with a midpoint of $133.64 at Demarc and $188.32 at Ventura.

Around 7 a.m. on February 17th, the forecast of gas load was reduced from 391,379 Dth to 318,603 Dth, and the transport customers estimated volumes increased their volumes by a few hundred Dth more than originally expected. MERC adjusted its storage withdrawal to 23,074 Dth to limit the daily imbalance on NNG. Once actuals were available, MERC's final forecast with all information now known, transport customers delivered 137,100 Dth or minimal difference from the start of day planning period. The MERC-NNG system finalized the day with a 2.37% or 7,844 Dth long position.

Q. WHAT CIRCUMSTANCES DURING THE FEBRUARY MARKET EVENT IMPACTED MERC'S PLANNING AND IMPLEMENTATION OF GAS PROCUREMENT?

A. As noted above, from February 12-17, NNG had called a SOL with 0% SMS. Additionally, from February 13-18, NNG called a Critical Day. For the Presidents' Day weekend, NNG was also warning that there was a potential for wellhead freeze-offs. Freeze-offs occur when temperatures fall below freezing, resulting in water and other liquids contained in the natural gas mixture to freeze, blocking the flow of gas out of the wellhead. Given these system conditions, it was extremely important for MERC to purchase sufficient gas supplies during the February Market Event to meet its customers' load.

Q. WHAT IS A SOL WITH 0% SMS?

A. When a SOL is in place, MERC's typical 5% tolerance above the scheduled volume of SMS is not available. In other words, when an SOL is in effect, MERC has no tolerance available to be short on balancing gas supply deliveries against actual daily demand without being assessed significant imbalance penalties by NNG. With the SOL notices that NNG declared, neither imbalance tolerance nor SMS were available, and MERC was left with no balancing services.

Q. WHAT IS A CRITICAL DAY?

A. A Critical Day is called when the operating condition of NNG's system has severely deteriorated and the integrity of the system is threatened. Usually, a SOL day will already be in effect prior to a Critical Day being called, but not always. A Critical Day may be called for all or part of the system by localizing the smallest affected area, beginning with individual points, followed by branch line, operational zone, market/field area, and up to the entire system, in that order.

With NNG taking the additional step of declaring a Critical Day on February 13th, the potential risks became even higher because significant penalties ($695.01/Dth)[7] would be assessed if the amount of gas that MERC took off the system did not match what it purchased between February 13-18, 2021.

[7] The imbalance penalty under these circumstances is up to three times the index price which for the Market Area is the highest published Platt's Gas Daily Midpoint price at NNG, Demarc or NNG, Ventura.

Q. WHAT ARE THE IMPLICATIONS OF NNG CALLING A CRITICAL DAY?

A. The significance of a Critical Day being called is if a shipper takes deliveries from the pipeline in excess of scheduled quantities, such shipper may incur higher penalties as set forth on Tariff Sheet No. 53 and the Daily Delivery Variance Charges ("DDVC") rates page on NNG's website.

Q. WHAT MAGNITUDE OF NNG PENALTIES WAS MERC EXPOSED TO IF THE COMPANY HAD UNDERDELIVERED GAS DURING THE EVENT?

A. MERC was exposed to NNG penalties of up to three times the daily spot price or approximately $695 per Dth.

Q. WHY DID MERC MAKE THE PURCHASES IT DID DURING THE FEBRUARY MARKET EVENT?

A. MERC has an obligation to provide continuous and reliable service to its firm customers and needed to purchase daily gas supplies in order to meet that obligation through the February Market Event. MERC reviewed the latest available forecast along with the latest nominations made by transportation customers. The net difference represents the MERC requirements to serve system sales customers. MERC then planned for full delivery of the term baseload purchases and maximum storage withdrawals available. Due to a remaining need for gas, MERC executed all of its contracted call options and

executed daily index purchases to ensure it had sufficient supply to meet the planning period needs.

Q. PLEASE PROVIDE ADDITIONAL INFORMATION ABOUT WHY THE COMPANY UTILIZES INDEX PURCHASES.

A. MERC has purchased index priced gas when in the short-term market to ensure it is not overpaying (i.e., paying higher than the midpoint of what the gas traded at). By nature of a fixed-price product, the buyer and seller are setting a rate for a predetermined period of time, and there is as much chance of being above the index as there is of being below the index. The index price, in contrast, reflects the midpoint of the market, and therefore will not be above where the market settles.

Q. DID MERC SEEK QUOTES FOR ANY FIXED-PRICE CONTRACTS FOR THE FEBRUARY MARKET EVENT?

A. MERC did not seek quotes for any fixed-price contracts during the February Market Event. MERC generally purchases any daily gas at index prices, as described above.

Q. DID MERC ISSUE ANY CONSERVATION CALLS TO ITS CUSTOMERS IN THE DAYS LEADING INTO THE FEBRUARY MARKET EVENT AS A WAY TO

LIMIT THE AMOUNT OF GAS MERC WOULD NEED TO PROCURE FOR ITS CUSTOMERS?

A. No, it did not. As described by Mr. Eidukas, MERC's distribution system was performing as expected, and there were no distribution system issues or constraints that would have warranted MERC asking its firm customers to curtail their gas usage. Additionally, MERC could not reasonably have reduced its daily gas purchases made on the morning of February 12, 2021, as those purchases were completed by 8:30 a.m. on February 12, 2021 for February 13-16, 2021.

Additionally, there is no guarantee by requesting that Residential customers lower their thermostats that all customers would comply. Based on MERC's tariffs, while interruptible customers would be assessed a penalty for usage during a time of curtailment, which is a disincentive to use during times of curtailment, there would be no such penalty for residential customers if they had been asked to lower their thermostats. Conservation calls would not have impacted MERC's planning and implementation of gas procurement.

Q. WHAT ACTIONS DID MERC TAKE DURING THE FEBRUARY MARKET EVENT TO REASONABLY PROTECT ITS CUSTOMERS FROM EXTREME PRICES, INCLUDING PIPELINE PENALTIES?

A. On colder than normal days, such as those during the February Market Event, MERC proactively plans its natural gas supplies to ensure that it has sufficient

supplies to meet its customers' needs. MERC starts by forecasting its customer loads using the most recent weather forecast information and continuously, twice per day at a minimum, updates these load forecasts as the cold weather period approaches. Based on these customer load forecasts, MERC plans to procure sufficient amounts of gas, through either storage, baseload purchases, or daily market purchase, to ensure that it has an adequate supply to meet its customers' needs and avoid the extremely high pipeline penalties.

To meet its customers' forecasted needs, MERC regularly evaluates its existing storage situation to understand what storage options are available and to evaluate the best use of available storage based on information known at the time. MERC's evaluation considers: (1) the withdrawal capability available; (2) MERC's total storage balance; (3) the amount of storage gas needed to meet customer needs for the remainder of the winter season; (4) what options are available; and (5) what is the best use of this asset (e.g., stored natural gas) with the information available at this time. During extremely cold periods—including the February Market Event—MERC maximizes its storage withdrawal limits to the fullest extent allowed by its contracts, especially later in the winter, as less storage is needed to meet customer needs for the remainder of the winter. After deploying maximum storage withdrawals, MERC then seeks to meet the remainder of its forecasted customer demand by calling on prearranged purchase agreements and then, as a last resort, purchasing gas in the daily

market. In this case, MERC had to forecast for the entire four-day period (February 13-16) and needed to make daily market purchases in the same quantities each day for the entire weekend. During the February Market Event, there was a holiday on Monday, which pushed the weekend out one additional day, requiring MERC to make purchase decisions on Friday, February 12th for gas deliveries for the four-day period from Saturday, February 13th through Tuesday, February 16th. Since the four days (February 13-16) were Critical Days on NNG, MERC planned its gas purchases to meet the highest daily load forecast by setting daily purchases for the weekend based off this day. While the forecasted demand was not the same on all four days (due to forecasted warmer and colder days over this period), because natural gas had to be traded in equal increments for all four days, MERC was required to purchase more than what it forecasted for three of the four days during the weekend. After MERC had completed its daily market purchases, MERC then monitored its supply position throughout each day. In so doing MERC waits until the final cycle on NNG, which is due at 8:00 a.m. (one hour prior to the end of the gas day), before it does its final balancing. MERC reviewed the available information at that time and determined what, if any, adjustments to make. At this point, the only supply that MERC is able to adjust is storage withdrawals because MERC had already made its daily market purchases. MERC thus reduced these withdrawals to closely match the total actual flows to customers.

Q. WAS MERC ABLE TO AVOID ANY COSTS TO PROVIDE SERVICE TO ITS CUSTOMERS DURING THE FEBRUARY MARKET EVENT DUE TO ITS PLANNING PROCESSES FOR PROCURING GAS?

A. Yes. MERC effectively utilized available storage withdrawals between February 13-17, 2021 to avoid an estimated $47 million in additional costs for MERC-NNG. Additionally, MERC's baseload gas purchase avoided an estimated $76 million in additional costs for MERC-NNG during the February Market Event. Further, MERC was able to effectively utilize its storage assets for balancing during the event, when we were otherwise constrained by the requirement to purchase ratable volumes over the full four-day weekend. This allowed MERC to avoid potentially significant pipeline imbalance penalties far in excess of the daily cost of gas.

Had MERC not purchased sufficient daily gas supply to meet highest daily forecasted demand over the four-day weekend, MERC could have incurred penalties of up to $695/Dth for under-delivery of gas needed to serve its customers. For example, on gas day February 14 alone, if MERC had not purchased the daily gas supplies it did to meet forecasted load, MERC could have incurred up to $30 million in potential pipeline imbalance penalties.

Q. DID ANY OTHER FACTORS IMPACT THE COMPANY'S GAS PROCUREMENT ON FEBRUARY 12, 2021?

A. Yes. MERC had to forecast for the entire four-day period and nominate its daily call options and purchase daily market volumes in the same quantities each day for the entire weekend. During the February Market Event, there was a holiday on Monday, which pushed the weekend out one additional day, requiring MERC to make purchase decisions on or before Friday, February 12th for gas deliveries for the four-day period from Saturday, February 13th through Tuesday, February 16th.

MERC's decision to purchase gas was appropriate based on forecasts and the need to make ratable daily gas purchases over the four-day holiday weekend. Our forecasts showed that the daily purchases made would be needed in addition to maximum storage withdrawals to meet our customers' demand over the four-day weekend.

Q. WERE THERE OTHER CIRCUMSTANCES OR INFORMATION THAT IMPACTED HOW MERC APPROACHED ITS GAS PROCUREMENT DURING THE FEBRUARY MARKET EVENT?

A. Yes, freeze-offs in the production wells started to occur, leading to reduced supply, just as demand across much of the U.S. spiked due to colder than normal temperatures.

Q. PLEASE EXPLAIN WHY THERE ARE DAYS IN WHICH IT APPEARS, AFTER THE FACT, THAT MERC DID NOT FULLY UTILIZE ALL OF ITS AVAILABLE STORAGE WITHDRAWAL RIGHTS.

A. MERC nominated all of its storage withdrawal rights when executing its day ahead process. MERC continued to nominate all of its storage withdrawal rights throughout the day, evening, and night right up until the next morning or the 23rd hour nomination for NNG storage. NNG allows for nomination changes up until 8 a.m. on the gas day or after about 23 hours have passed in the gas day. MERC does a final review of its supply and compares it to the forecasted demand just prior to this deadline. At that time, transportation customers have made more accurate nominations, and the forecasted demand typically is much closer to the final actual expected throughput. If there is a large enough difference between the supply and forecasted demand, MERC will adjust the storage withdrawal nominations to be much closer to the latest forecasted system requirements. In situations such as the February Market Event, MERC targets being long to reduce the risk of NNG's penalties. Exhibit ___ (SRM-D), Schedule 7 provides specific information on the storage withdrawals throughout each day during the gas days of February 11-18, 2021.

Q. WHY DOES IT APPEAR THAT MERC PROCURED MORE GAS SUPPLY THAN IT ENDED UP NEEDING?

A. During the day ahead purchasing period, as discussed above, MERC procured enough supply to meet forecasted load during the coldest day of the purchasing period.

During severe cold weather events, it is critical that MERC ensure there is enough supply to account for forecast error (i.e., actual weather is colder than forecasted) and/or supply disruptions. This was uniquely important during this period where the reality of potential pipeline penalties and the risk of possible supply shortages necessarily and appropriately informed the Company's planning. Freeze-offs typically result in supply disruptions and cuts. Further, pipelines such as NNG assess significant penalties for taking more gas supply off their pipeline than what the shipper delivers. The penalties for being short of supply can be significantly more than the cost of procuring the needed supply. This is also necessary to ensure the pipeline can maintain sufficient pressures on the pipe to reliably deliver supply to even the most remote areas of MERC's system. Exhibit ___ (SRM-D), Schedule 7 provides specific information as the basis of decisions, including NNG critical day notices made during the gas days of February 11-18, 2021.

Q. DID THE COMPANY ENGAGE IN ANY SALES DURING FEBRUARY 2021?

A. No, MERC did not sell any wholesale gas in February 2021 because the demand forecasts indicated all gas secured was needed. MERC has the ability to sell gas

at wholesale. However, MERC will execute the sale of gas at wholesale as an option of last resort – only when previously procured gas is no longer needed and other options (i.e., storage, balancing) to shed the unneeded gas are fully utilized at that point in time. MERC does not speculate on price nor take risks of not having sufficient supplies. This is especially important during colder than normal weather, when there is the risk for increased penalties and the risk of not having firm supplies for our customers.

Q. PRICES SPIKED AT NNG, DEMARC AND NNG, VENTURA DURING THE FEBRUARY MARKET EVENT BUT DID NOT INCREASE TO THE SAME LEVEL AT VGT, EMERSON. WHY DID MERC NOT PURCHASE DAILY GAS AT VGT, EMERSON TO AVOID THESE UNPRECEDENTED COSTS?

A. MERC could not have avoided daily gas purchases at NNG/Ventura or NNG/Demarc hubs by purchasing additional gas to meet forecasted MERC-NNG customer needs at VGT/Emerson (Canadian supply). The MERC-NNG system cannot take gas supply directly from the VGT Pipeline as the NNG system is not directly integrated with the VGT Pipeline in order to serve MERC's NNG PGA. Further, as I indicated above, utilizing secondary receipt points for purchasing gas would have risked not receiving the gas under the situation.

Q. COULDN'T MERC USE A PORTION OF THE CONSOLIDATED VGT CAPACITY TO PURCHASE DAILY SUPPLIES AT VGT, EMERSON?

A. No. As I mentioned above, the MERC-NNG system cannot take gas supply directly from the VGT Pipeline as the NNG system is not directly integrated with the VGT Pipeline. Further, while it could be theoretically possible that MERC-NNG could utilize VGT supply to transport as secondary receipts at Chicago into NNG, under the circumstances of this February Market Event, such an approach would have been unreasonable, given the extremely high probability NNG would have cut those secondary deliveries. MERC would have risked purchasing gas supplies that were ultimately not deliverable. This issue is discussed in additional detail in the Direct Testimony of Mr. Sexton.

Q. WERE MERC'S ACTIONS AND DECISIONS BEFORE AND DURING THE FEBRUARY MARKET EVENT REASONABLE AND PRUDENT?

A. Yes. MERC's actions through the February Market Event ensured the Company was able to meet its obligation to provide continuous natural gas service to customers. And while MERC was required to make daily market purchases to ensure Minnesota customers had sufficient natural gas supplies to heat their homes, farms, and businesses through the February Market Event, the actions taken and the decisions the Company made during the February Market Event also effectively mitigated the economic impacts of the event by maximizing the use of available storage and baseload supplies and avoiding the risk of significant imbalance penalties.

V. CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. MERC's winter preparedness planning leading up to the February Market Event, including the annual planning for cold weather events, and gas procurement activity, were reasonable and prudent, and helped to provide price protection to MERC customers during the February Market Event through the use of storage and baseload gas purchases. MERC's actions taken during the February Market Event to purchase and nominate adequate gas supplies each day ensured continuous service to our customers while also avoiding potentially significant pipeline penalties in place during the event.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.