BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO

PROCEEDING NO. 21A – ____G

IN THE MATTER OF THE VERIFIED APPLICATION OF BLACK HILLS COLORADO GAS, INC. FOR APPROVAL TO RECOVER GAS COSTS ASSOCIATED WITH THE FEBRUARY EXTREME COLD WEATHER EVENT

DIRECT TESTIMONY AND ATTACHMENTS OF

JAY D. BAUER

ON BEHALF OF

BLACK HILLS COLORADO GAS, INC.

NOTICE OF CONFIDENTIALITY

THE FOLLOWING ATTACHMENTS HAVE BEEN FILED UNDER SEAL:

Hearing Exhibit 102, Attachment JDB-1C – BHCG GPP Filing2020-2021 Hearing Exhibit 102, Attachment JDB-3HC – DSC Models Hearing Exhibit 102, Attachment JDB-4HC – February Event Gas Summaries Hearing Exhibit 102, Attachment JDB-5HC – Detailed Summary of Transactions Hearing Exhibit 102, Attachment JDB-6HC – Non-Ratable Supply Cost Savings

These documents are filed under seal pursuant to 4 CCR 723-1-1100 and 1101 Redacted Versions have been filed publicly

May 18, 2021

SUMMARY OF THE DIRECT TESTIMONY OF JAY D. BAUER

Mr. Jay D. Bauer is employed by Black Hills Service Company, LLC as a Senior Manager, Gas Supply Services. In this role, Mr. Bauer is responsible for leading the scheduling and forecasting functions, developing gas supply plans, and negotiating all physical gas supply purchases for natural gas customers of Black Hills Colorado Gas ("BHCG" or "Company") in Colorado and most of Wyoming.

The purpose of Mr. Bauer's Direct Testimony is to support BHCG's request to recover the extraordinary natural gas commodity costs incurred as a result of the extreme weather and natural gas event that took place across the country in February 2021, and in particular from February 13-17, 2021 (the "February Event"). Specifically, Mr. Bauer provides information on how the Company plans its natural gas supply purchases and how BHCG implemented this plan, consistent with industry best practices, to purchase sufficient gas supplies and ensure reliable service for the Company's natural gas customers during the February Event.

Mr. Bauer begins his discussion by describing the conditions that led to the February Event. He explains that widespread extreme cold temperatures – including below-zero temperatures affecting every Black Hills Energy customer from western Wyoming to northeastern Arkansas – led to increased demand for natural gas across much of the central United States. On February 14, 2021, BHCG experienced a new system peak demand day of 208,540 dekatherms ("Dth"), as compared to the previous peak of 202,009 Dth. At the same time that demand was increasing, the cold led to well freeze-offs and natural gas processing plant outages in portions of the country that caused supply disruptions. These disruptions led to reduced supply to meet the increased demand, which in turn ultimately caused daily spot market gas prices to rise to unprecedented levels. Mr. Bauer next describes the Company's Gas Purchase Plan ("GPP") that is developed each year to plan the Company's gas supplies for the upcoming winter. The Company's GPP is developed through sophisticated regression analyses determining the correlation between historical customer demand and historical weather, and provides forecasted customer demand and storage utilization targets.. The Company's current GPP through June 2021 was accepted as complete by the Colorado Public Utilities Commission in the summer of 2020.

Next, Mr. Bauer explains that the Company obtains gas supply through a combination of baseload purchases, storage withdrawals, daily firm peaking contracts, and daily spot market purchases. He describes each type and source of gas supply for BHCG in more detail, noting that the Company must balance the need for flexibility to meet customer demand and limitations on storage withdrawals with the certainty of established baseload purchase and storage options. He notes that BHCG must make daily gas purchases when its forecasted demand is expected to exceed existing gas supplies from baseload and storage, and considering such other factors as upstream pipeline operating conditions, available storage, storage maximum daily withdrawal quantity ("MDWQ"), pipeline imbalances, and the estimated price of gas. Mr. Bauer's team conducts this analysis every weekday to determine the necessary daily gas purchases, and at least twice a day during extreme cold weather or other unusual situations.

Mr. Bauer then applies this information to the February Event. By way of overview, Mr. Bauer explains that the diversity of BHCG's gas supplies, especially BHCG's baseload supply contracts executed in the summer of 2020 and strategic "Firm No-Notice" storage purchases before the February Event, provided considerable protection against the volatile market conditions and saved customers approximately \$57.6 million. BHCG achieved additional savings of \$8.8 million

by using non-ratable (flexible quantity) supply agreements to avoid purchasing excess gas supplies for Monday and Tuesday and \$1.4 million in savings by using firm peaking agreements.

Mr. Bauer describes and provides the Company's weather and demand forecasts leading up to the February Event. He also discusses the relatively typical increase in daily prices the Company began to observe for gas deliveries on Thursday, February 11, 2021, consistent with the beginning of cold weather events and the expected increase in demand for natural gas for heating. Mr. Bauer also explains, however, that the Company implemented contingency plans with suppliers in the event gas sold to BHCG could not flow due to pipeline constraints or other issues, and prepared for the potential likelihood of supply freeze-offs and intra-weekend supply availability issues.

Mr. Bauer then walks through the Company's baseload, storage, firm peaking contracts, and daily spot market gas purchases for the February Event. To ensure adequate gas supply for the Presidents' Day weekend, BHCG made both daily spot market purchases and called on its existing firm peaking contracts on February 12 for February 13-16. These daily spot market purchases and firm peaking contracts were for both ratable (fixed levels) and non-ratable (adjustable levels of) daily gas. Pricing for BHCG's daily spot market purchases was "Daily Index + Premium/Discount" priced gas, which is the first type of daily gas that trades each day. Because BHCG has a limited number of suppliers, it was important for BHCG to complete its trades early in the day to ensure that it can purchase its needed daily supplies. As gas prices subsequently spiked to unprecedented levels and customer demand grew, BHCG was also able to withdraw more gas from storage than planned because it subscribes to Firm No-Notice contracts. Additionally, BHCG made an intraday gas purchase on February 14, to meet increasing customer demand. This combination of strategic advance planning, in advance purchasing, and active management during

the February Event not only provided customers with reliable natural gas service, but also avoided Operational Flow Order ("OFO") penalties and even higher costs. Specifically, the average price that BHCG paid for its baseload, storage, and daily gas purchases used during the February Event was \$85.81 per Dth, whereas the five day (February 13-17) average daily index price for gas at the Cheyenne Hub was \$168.67 per day.

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ATTACHMENTS

Hearing Exhibit 102, Attachment JDB-1C Hearing Exhibit 102, Attachment JDB-1	BHCG GPP Filing 2020-2021
Hearing Exhibit 102, Attachment JDB-2	Detailed Timeline of Relevant Events from February 9-17, 2021
Hearing Exhibit 102, Attachment JDB-3HC Hearing Exhibit 102, Attachment JDB-3	DSC Models
Hearing Exhibit 102, Attachment JDB-4HC Hearing Exhibit 102, Attachment JDB-4	February Events Gas Summaries
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Hearing Exhibit 102, Attachment JDB-7	MDWQ and Imbalance Charges

BHC	Black Hills Corporation
BHCG	Black Hills Colorado Gas, Inc.
BHSC	Black Hills Service Company, LLC
CIG	Colorado Interstate Gas
Company	Black Hills Colorado Gas, Inc.
DSC	Daily Supply Calculator
Dth	dekatherm
February Event	February 13-17, 2021
FERC	Federal Energy Regulatory Commission
GCA	gas cost adjustment
GPP	Gas Purchase Plan
HDD	Heating Degree Days
ICE	InterContinental Exchange
MAC	maximum available capacity
MDWQ	maximum daily withdrawal quantity
МТ	mountain time
NOAA	National Oceanic and Atmospheric Administration
OFO	Operational Flow Order
RFP	Request for Proposal
WACOG	weighted average cost of gas

LIST OF ACRONYMS AND DEFINED TERMS

1		DIRECT TESTIMONY OF JAY D. BAUER
2		
3		I. <u>INTRODUCTION</u>
4	Q.	PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.
5	A.	My name is Jay D. Bauer. My business address is 1515 Arapahoe Street, Tower 1 - Suite
6		1200, Denver, Colorado 80202.
7	Q.	BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?
8	A.	I am employed by Black Hills Service Company, LLC ("BHSC"), a wholly owned
9		subsidiary of Black Hills Corporation ("BHC"). I am a Senior Manager, Gas Supply
10		Services.
11	Q.	ON WHOSE BEHALF ARE YOU TESTIFYING?
12	A.	I am testifying on behalf of Black Hills Colorado Gas, Inc. ("BHCG" or the "Company")
13		d/b/a Black Hills Energy.
14		
15		II. STATEMENT OF QUALIFICATIONS
16	Q.	WHAT ARE THE DUTIES AND RESPONSIBILITIES IN YOUR CURRENT
17		POSITION?
18	A.	As the Senior Manager, Gas Supply Services for BHCG, my current responsibilities
19		include leading the scheduling and forecasting functions, developing gas supply plans, and
20		negotiating all physical gas supply purchases for BHCG's natural gas customers in
21		Colorado and most of Wyoming.

1	Q.	PLEASE OUTLINE YOUR EDUCATIONAL AND PROFESSIONAL									
2		BACKGROUND.									
3	A.	My education, employment history, and professional experience is provided in Appendix									
4		А.									
5	Q.	HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?									
6	A.	No.									
7											
8		III. <u>PURPOSE OF TESTIMONY</u>									
9	Q.	WHAT IS THE PURPOSE OF YOUR TESTIMONY?									
10	A.	The purpose of my Direct Testimony is to support BHCG's request to recover the									
11		extraordinary natural gas commodity costs incurred as a result of the extreme weather and									
12		natural gas event that took place across the country in February 2021, and in particular									
13		from February 13-17, 2021 (the "February Event"). As the Senior Manager of Gas Supply,									
14		I specifically support BHCG's request by providing information on how the Company									
15		plans its natural gas supply purchases and how BHCG implemented this plan, consistent									
16		with industry best practices, to purchase sufficient gas supplies to ensure reliable service									
17		for our natural gas customers during the extreme market and weather conditions of the									
18		February Event.									
19	Q.	WHAT ARE THE ATTACHMENTS TO YOUR TESTIMONY?									
20	A.	I am sponsoring the following attachments:									
		• Hearing Exhibit 102, Attachment JDB-1C BHCG GPP Filing 2020-2021									
		• Hearing Exhibit 102, Attachment JDB-1 BHCG GPP Filing 2020-2021									
		• Hearing Exhibit 102, Attachment JDB-2 Detailed Timeline of Relevant Events from February 9-17, 2021									

		• Hearing Exhibit 102, Attachment JDB-3HC	DSC Models
		• Hearing Exhibit 102, Attachment JDB-3	DSC Models
		• Hearing Exhibit 102, Attachment JDB-4HC	February Event Gas Summaries
		• Hearing Exhibit 102, Attachment JDB-4	February Event Gas Summaries
		• Hearing Exhibit 102, Attachment JDB-5HC	Detailed Summary of Transactions
		• Hearing Exhibit 102, Attachment JDB-5	Detailed Summary of Transactions
		• Hearing Exhibit 102, Attachment JDB-6HC	Non-Ratable Supply Cost Savings
		• Hearing Exhibit 102, Attachment JDB-6	Non-Ratable Supply Cost Savings
		• Hearing Exhibit 102, Attachment JDB-7	MDWQ and Imbalance Charges
1			
2		IV. OVERVIEW OF NATURAL GAS SUP	PLY AND FEBRUARY EVENT
2 3	Q.	IV. <u>OVERVIEW OF NATURAL GAS SUP</u> PLEASE PROVIDE AN OVERVIEW OF	<u>PLY AND FEBRUARY EVENT</u> BHCG'S NATURAL GAS SUPPLY
2 3 4	Q.	IV. <u>OVERVIEW OF NATURAL GAS SUP</u> PLEASE PROVIDE AN OVERVIEW OF STRATEGY.	<u>PLY AND FEBRUARY EVENT</u> BHCG'S NATURAL GAS SUPPLY
2 3 4 5	Q. A.	IV. OVERVIEW OF NATURAL GAS SUPPORTPLEASE PROVIDE AN OVERVIEW OFSTRATEGY.BHCG provides natural gas public utility ser	PLY AND FEBRUARY EVENT BHCG'S NATURAL GAS SUPPLY rvices to approximately 198,000 retail
2 3 4 5 6	Q. A.	 IV. <u>OVERVIEW OF NATURAL GAS SUPP</u> PLEASE PROVIDE AN OVERVIEW OF STRATEGY. BHCG provides natural gas public utility ser customers in numerous areas throughout Coloration 	PLY AND FEBRUARY EVENT BHCG'S NATURAL GAS SUPPLY vices to approximately 198,000 retail ado. The Company has approximately
2 3 4 5 6 7	Q. A.	 IV. <u>OVERVIEW OF NATURAL GAS SUPP</u> PLEASE PROVIDE AN OVERVIEW OF STRATEGY. BHCG provides natural gas public utility ser customers in numerous areas throughout Colora 183,000 residential customers and 15,000 comm 	PLY AND FEBRUARY EVENT BHCG'S NATURAL GAS SUPPLY vices to approximately 198,000 retail ido. The Company has approximately ercial or other non-residential customers
2 3 4 5 6 7 8	Q. A.	 IV. OVERVIEW OF NATURAL GAS SUPPORT OF NATURAL GAS SUPPORT	PLY AND FEBRUARY EVENT BHCG'S NATURAL GAS SUPPLY vices to approximately 198,000 retail ado. The Company has approximately ercial or other non-residential customers nt natural gas supplies to meet the needs
2 3 4 5 6 7 8 9	Q. A.	 IV. OVERVIEW OF NATURAL GAS SUPPORT OF SUPPORT OF	PLY AND FEBRUARY EVENT BHCG'S NATURAL GAS SUPPLY evices to approximately 198,000 retail ado. The Company has approximately ercial or other non-residential customers int natural gas supplies to meet the needs occess of its purchasing gas supply and
2 3 4 5 6 7 8 9 10	Q. A.	 IV. OVERVIEW OF NATURAL GAS SUPPORT OF NATURAL GAS SUPPORT OF STRATEGY. BHCG provides natural gas public utility series customers in numerous areas throughout Colorated 183,000 residential customers and 15,000 community in its Colorado service area. To procure sufficient of these customers, BHCG approaches the procure sufficient of these customers and the procure sufficient of these customers and the procure sufficient of these customers areas throughout the procure sufficient of these customers and the procure sufficient of these customers areas throughout the procure sufficient of the procure suffic	PLY AND FEBRUARY EVENT BHCG'S NATURAL GAS SUPPLY vices to approximately 198,000 retail ado. The Company has approximately ercial or other non-residential customers int natural gas supplies to meet the needs ocess of its purchasing gas supply and BHCG strives to be a reasonably-priced
2 3 4 5 6 7 8 9 10 11	Q. A.	 IV. OVERVIEW OF NATURAL GAS SUPPORT OF NATURAL GAS IN THE SUPPORT OF NATURAL GAS INTER OF SUPORT OF NA	PLY AND FEBRUARY EVENT BHCG'S NATURAL GAS SUPPLY vices to approximately 198,000 retail ado. The Company has approximately ercial or other non-residential customers int natural gas supplies to meet the needs ocess of its purchasing gas supply and BHCG strives to be a reasonably-priced cond, BHCG is committed to ensuring a

high level of reliability. This means that, for those customers who are paying for firm natural gas service, especially residential and commercial customers who depend on the service to heat their homes and businesses, the gas will be there even during the coldest temperatures. Finally, BHCG employs tools within its portfolio management plan to
 mitigate price volatility in its supply portfolio to maintain a level of cost stability for its
 customers.

4 Q. PLEASE PROVIDE A BRIEF SUMMARY OF THE NATURAL GAS MARKET 5 CONDITIONS LEADING UP TO AND DURING THE FEBRUARY EVENT.

A. Beginning on February 12, 2021, extremely cold temperatures engulfed much of the
country including BHCG's service territory. For instance, the weather station correlated
to BHCG's Castle Rock service territory recorded a temperature of negative 7 degrees
Fahrenheit on February 14, 2021. The abnormal nature of this extreme cold weather during
the February Event is shown in the figure below, which provides a five-year look at the
recorded February temperatures at this weather station.





At one point, every Black Hills Energy customer – from western Wyoming to northeastern Arkansas – simultaneously endured below zero temperatures.

5 These widespread extreme cold temperatures led to increased demand for natural 6 gas for home heating and electric generation across much of the central U.S. BHCG 7 experienced a new system peak demand day on February 14, 2021, of 208,540 dekatherms 8 ("Dth"), as compared to the previous peak of 202,009 Dth. At the same time that demand 9 was increasing, the cold led to well freeze-offs and natural gas processing plant outages in 10 portions of the country that caused supply disruptions leading to reduced supply to meet 11 the increased demand.

12 This imbalance between supply and demand caused daily spot market gas prices to 13 rise to unprecedented levels. For the two main indices related to our daily spot market

2

3

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¹ Colorado Springs Airport Station is one of eight weather stations utilized in the Daily Supply Calculator model for our BHCG customers.

purchases (Chevenne Hub and Colorado Interstate Gas ("CIG")), daily natural gas prices 1 2 were in the range of \$2.50-\$3.50 per Dth for the days leading up to February 10, 2021. For 3 gas delivered on Thursday, February 11, 2021, daily spot market gas prices were in the range of \$4.80-\$5.65 per Dth. For gas delivered on Friday, February 12, 2021, daily spot 4 5 market gas prices were in the range of \$13.25-\$14.85 per Dth. For gas delivered on 6 Saturday, February 13, 2021 through Tuesday, February 16, daily spot market gas prices 7 spiked, resulting in midpoint settlements of \$187.69 per Dth at the Cheyenne Hub and 8 \$172.95 per Dth at the CIG pricing index and remained at heightened prices through 9 February 18, 2021.

10 The magnitude of this spike in natural gas prices was unprecedented. During the 11 2014 Polar Vortex event, daily natural gas prices only rose to \$35 per Dth on February 6, 12 2014 at the Cheyenne Hub. The unusual nature of the February Event price spike is further 13 demonstrated by the below table that provides the historical, maximum daily midpoint 14 prices at the five price indices utilized in February by BHCG: (1) CIG; (2) Cheyenne Hub; (3) Kern River Opal; (4) El Paso-Bondad; and (5) White River Hub.² The prices provided 15 16 in the table are shown over the last 10 years (2011-2020) compared to the daily midpoint 17 natural gas prices for the February Event.

 $^{^{2}}$ White River Hub did not exist as a trading point in 2011. Therefore, historical daily mid-point pricing is only provided from 2012-2020.

									Historica	l Dai	ily Midpo	oint	Price								
	Date	CIG Midpoint (Max)			Cheyenne Hub Midpoint (Max)				Kern River Opal Midpoint (Max)				El Paso - Bondad Midpoint (Max)			ndad lax)	White River Hub Midpoint (Max)				
		201	1-2020		2021	2011-2020			2021	201	11-2020		2021	2011-2020		2021		2012-202		0 2021	
Fe	ebruary-10	\$	6.96	\$	3.46	\$	7.02	\$	3.48	\$	14.30	\$	3.39	\$	6.41	\$	3.31	\$	6.51	\$	3.37
Fe	ebruary-11	\$	8.25	\$	4.83	\$	9.93	\$	5.64	\$	14.30	\$	4.53	\$	8.06	\$	4.29	\$	8.14	\$	4.81
Fe	ebruary-12	\$ ¢	5.07	\$	13.29	\$	6.67	\$	14.84	\$	6.35	\$	10.69	\$	6.20	\$	10.70	\$	6.18 5.21	\$	12.14
Fé	ebruary-13	Ψ S	5.14	Ψ \$	172.95	φ S	5.30	\$	187.69	Ψ \$	8.55	Ψ S	85.56	Ψ S	5.02	φ \$	79.36	φ \$	5.31	\$	139.40
Fe	ebruary-15	\$	5.27	\$	172.95	\$	5.35	\$	187.69	\$	7.23	\$	85.56	\$	5.25	\$	79.36	\$	5.28	\$	139.46
Fe	ebruary-16	\$	5.27	\$	172.95	\$	5.35	\$	187.69	\$	8.22	\$	85.56	\$	5.25	\$	79.36	\$	5.28	\$	139.46
Fe	ebruary-17	\$	5.27	\$	78.20	\$	5.35	\$	92.60	\$	8.22	\$	160.84	\$	5.25	\$	186.54	\$	5.28	\$	106.73
Fe	ebruary-18	\$	5.27	\$	19.53	\$	5.35	\$	20.44	\$	8.22	\$	20.00	\$	5.25	\$	27.19	\$	5.28	\$	19.82
Fe	ebruary-19	\$	5.23	\$	5.79	\$	5.35	\$	5.81	\$	8.22	\$	5.41	\$	5.19	\$	6.26	\$	5.23	\$	5.96
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	WAS ITS (B CU	HCG STOI	A MI	BLE T ERS D	ГО UR	MAI RING	N] TI	TAIN I HE FE	RE CBF	LIAE RUAE	BL] RY	E NAT	ГUI NT?	RAL ?	G	AS SE	RV	ICE	FC	DR
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	F					2	9	ГГ											0		
	natura	al ;	gas cu	ıst	omer l	ost	servi	ce.	BHO	CG'	's pro	cu	rement	t of	`suffi	cie	ent gas	su	pplies	5 W	/as
	aided	by	/ seve	ra	l factor	rs ii	nclud	ing	g: (1) p	oruc	dent g	gas	suppl	y pi	ractic	es;	(2) di	iver	sity c	of g	gas
	suppl	ус	option	s;	(3) po	siti	ve an	d e	effectiv	ve	worki	ng	relation	onsl	hips v	vit	h gas	sup	pliers	; a	nd
	(4) ef	fec	ctive u	ise	of its	nati	ural g	as	storag	e.	I disc	us	s these	fac	ctors i	n g	greater	de	tail la	ter	in
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Table JDB-1: Historical Maximum Daily Midpoint Price

18 A confidential and public version of BHCG's most recent GPP is provided as Attachment

of natural gas supplies that BHCG plans to use throughout the year to serve our customers.

2		GPP, and the additional gas supply procurement undertaken during this event to ensure that
3		BHCG had adequate natural gas supplies.
4		
5		V. <u>GAS PURCHASE PLAN</u>
6	Q.	PLEASE PROVIDE AN OVERVIEW OF BHCG'S GAS COST ADJUSTMENT
7		REGIONS?
8	A.	Company witness Mr. Michael J. Harrington addresses that the Company provides natural
9		gas service to retail customers within the following gas cost adjustment ("GCA") regions:
10		North/Southwest, Central, and Western Slope. My testimony will be structured around the
11		divisions within these GCA Regions.
12	Q.	WHAT GAS SUPPLY SOURCES ARE AVAILABLE TO BHCG TO SERVE ITS
13		CUSTOMERS?
14	A.	The supply sources available are physical gas purchases and storage.
15	Q.	IS STORAGE SERVICE AVAILABLE TO ALL CUSTOMERS?
16	A.	No. Because our customers are geographically spread out throughout the state, we cannot
17		serve our customers by only one upstream pipeline. Therefore, BHCG relies on multiple
18		pipelines to serve our customers. In some areas, storage service is available, and in others,
19		storage is simply not an option.
20	Q.	ON WHICH PIPELINES DOES BHCG CONTRACT FOR TRANSPORTATION
21		CAPACITY TO SERVICE ITS CUSTOMERS?
22	A.	BHCG contracts for transportation capacity on the following pipelines:
23 24		Rocky Mountain Natural Gas LLC;

JDB-1. Then, I discuss the details of the February Event, how BHCG implemented its

1		• Northwest Pipeline;
23		• TransColorado Gas Transmission Company LLC;
4 5		Colorado Interstate Gas Company, LLC;
6 7		Public Service Company of Colorado;
8 9		• Red Cedar Gathering Company; and
10 11		Tallgrass Interstate Gas Transmission.
12	Q.	ON WHICH PIPELINES IS STORAGE SERVICE OFFERED AND
13	-	CONTRACTED BY BHCG TO SERVICE ITS CUSTOMERS?
14	A.	Storage service is offered and contracted by BHCG on the following pipelines:
15 16 17 18 19 20		 Rocky Mountain Natural Gas LLC; Colorado Interstate Gas Company, LLC; and Tallgrass Interstate Gas Transmission.
21	Q.	HOW DOES BHCG PLAN ITS GAS SUPPLY PORTFOLIO EACH YEAR?
22	A.	Each year, the Company develops a GPP with the goal of minimizing natural gas supply
23		costs while reliably meeting the forecasted demand on the system. BHCG files its GPP
24		with the Commission on or before June 1. The annual GPP includes the forecasted quantity
25		of gas to be purchased over the ensuing gas purchase year; the utility's forecasted pricing
26		for each receipt point/area; and the utility's portfolio management plan. BHCG filed its
27		most recent GPP on June 1, 2020 in Proceeding No. 20P-232G for gas purchases from July
28		1, 2020 through June 30, 2021. The Commission deemed BHCG's current GPP complete
29		by minute entry on July 15, 2020.

Q. WHAT ANALYSIS DOES BHCG UNDERTAKE EACH YEAR TO DEVELOP ITS 2 GPP?

3 A. As explained in the GPP, which is Attachment JDB-1, BHCG conducts a regression 4 analysis to determine the correlation between historical customer demand and historical 5 weather. This correlation produces an equation that can then be used to forecast customer 6 demand based on forecasted weather. To forecast the weather for the GPP, BHCG uses 7 the National Oceanic Atmospheric Administration ("NOAA") 30-year monthly average. 8 The 30-year monthly average forecast establishes the normal weather expected to be 9 observed each month. BHCG can then use the correlation equation described above to 10 forecast normalized monthly customer demand.

BHCG then determines the estimated total monthly gas supply requirements by incorporating the volumetric effect of anticipated storage injections and withdrawals (where applicable) into the monthly normalized customer demand.

Finally, an analysis is done to determine the ratio of minimum daily customer demand to average daily customer demand for each month. From this analysis, the multimonth gas supply purchase plan volumes are defined.

17 Q. PLEASE FURTHER DESCRIBE THE SOURCES OF GAS SUPPLY THAT ARE 18 AVAILABLE TO BHCG TO SERVE ITS CUSTOMERS.

A. The physical gas supplies that are available to BHCG can be described as baseload
 purchases, storage withdrawals, daily firm peaking contracts, and daily spot market
 purchases. I describe each of these types of gas supplies in the next sections of my
 testimony.

1

A. BASELOAD PURCHASES

2 Q. WHAT ARE BASELOAD PURCHASES?

A. Baseload purchases are purchases from counterparties for a term of one month or longer.
The volume is the same each day of the month and these volumes are priced at Inside FERC
First-of-Month Index prices, which do not fluctuate throughout the month. For a baseload
contract longer than a month, the volume is the same each day of the month but may vary
from month to month.

8 Q. HOW DOES BHCG DETERMINE THE AMOUNT OF GAS THAT IT WILL 9 ACQUIRE THROUGH BASELOAD CONTRACTS EACH YEAR?

10 A. BHCG uses the monthly customer requirements determined in the GPP, and conducts an 11 analysis to determine the ratio of the three-year minimum daily customer demand to the 12 average daily customer demand and storage activity. This ratio determines a volume of 13 baseload supply that can be purchased without needing to sell excess gas.

Based on this analysis, BHCG issues a Request for Proposal ("RFP") to solicit offers for long-term baseload supply contracts and executes these contracts through a competitive bidding process.

In addition, my team holds monthly meetings during which we evaluate the month ahead weather forecasts, current storage inventory and imbalance levels relative to planned targets, market conditions, and potential upstream pipeline maintenance or constraints, to determine if additional monthly baseload purchases would be prudent for that particular month.

Q. WHY DOESN'T BHCG RELY SOLELY ON BASELOAD CONTRACTS FOR ITS GAS SUPPLY?

3 A. Procuring gas supplies through baseload contracts would not provide BHCG with the 4 flexibility to match its gas supply purchases to each day's forecasted load. Under a 5 baseload contract, BHCG is required to purchase the same volume of gas each day of the 6 month. To procure sufficient gas for each day of the month, BHCG would have to set the 7 monthly baseload contract to cover the maximum daily forecasted load for that month. 8 This means that BHCG would have excess gas supplies each day that actual usage is below 9 the forecasted maximum daily load for the month. To provide the necessary flexibility and 10 to better match gas supplies to load, BHCG relies on storage and daily spot market 11 purchases to supplement its baseload contracts.

- 12
- 13

B. STORAGE AND HEDGING

14 Q. WHAT TYPES OF GAS STORAGE OPTIONS ARE AVAILABLE TO BHCG?

A. BHCG does not own any storage facilities but rather BHCG contracts for storage service
 with upstream pipelines where storage services are available. BHCG has firm, no-notice³
 storage contracts as described above.

18 Generally speaking, BHCG injects gas into storage during the summer months
 19 (May – October), and it withdraws gas from storage during the winter months (November
 20 – April). The benefit of storage is BHCG can inject gas in the summer months when natural
 21 gas prices are typically lower, and it can withdraw gas at the weighted average cost of gas

³ Within firm service, many pipelines and storage facilities provide "no-notice" service. No-notice service means that BHCG does not have to notify pipelines that that we intend to use storage. It provides automatic balancing between our customers' load requirements and BHCG's physical flowing supply such that any additional supply is drawn from our storage inventory.

("WACOG") during the winter months, when daily spot market prices are generally higher.
 As a result, the use of storage acts as a hedging tool that can mitigate BHCG's exposure to
 higher natural gas prices during the winter months.

4

5

Q. HOW DOES BHCG DETERMINE THE AMOUNT OF GAS THAT IT WILL ACQUIRE FOR STORAGE EACH YEAR AS PROVIDED IN THE GPP?

A. BHCG targets an inventory increase each month from May – October with the goal of
approximately 95% of its maximum available capacity ("MAC") in storage by November 1
of each year.

9 Q. HOW DOES THE COMPANY DETERMINE THE AMOUNT OF GAS THAT
10 WILL BE TAKEN OUT OF STORAGE EACH DAY?

11 A. BHCG determines its storage withdrawals based on factors that include: (1) actual current 12 inventory compared to the ending month inventory target as included in the GPP; (2) the 13 daily load forecast as determined by BHCG's load forecast model, the Daily Supply 14 Calculator ("DSC"); (3) the available maximum daily withdrawal quantity ("MDWQ") as 15 defined in the storage service providers' Federal Energy Regulatory Commission 16 ("FERC") or state Public Utilities Commission-approved tariff; (4) current pipeline 17 operating conditions; and (5) current daily spot market prices. The Company also reserves 18 a portion of its storage withdrawal capability each day to manage weather and load forecast 19 uncertainty, unforeseen supply curtailments, or other system contingencies.

20

21

Q. ARE THERE LIMITS ON THE AMOUNT OF GAS THAT CAN BE WITHDRAWN FROM STORAGE ON A PARTICULAR DAY?

A. Yes. As I mentioned, each storage provider has a defined MDWQ for each day. In
addition, each pipeline has the ability to charge penalties in the event that a shipper

1	withdraws more gas from storage than the MDWQ for that day. I provide in Attachment
2	JDB-7 the MDWQ for the February Event.

3 Q. IN ADDITION TO STORAGE, DOES THE COMPANY'S GPP INCLUDE ANY 4 OTHER HEDGING TOOLS?

A. Yes. In addition to storage, the Company also uses call option purchases as a financial
hedging tool for its winter gas supply. Mr. Harrington discusses BHCG's hedging plan in
his Direct Testimony.

8

9

C. DAILY GAS PURCHASES

10 Q. DESCRIBE THE TYPES OF DAILY GAS PURCHASES MADE BY BHCG.

- A. Daily gas purchases are made in two ways: pre-arranged firm peaking contracts and daily
 spot market purchases.
- Firm peaking contracts are contracts with upstream suppliers in which BHCG reserves a volume of gas that BHCG may call upon at its discretion. Firm peaking contracts are typically entered into in the summer months during the RFP process for long-term baseload contracts.

Daily spot market purchases are gas purchases generally contracted the day before,
or day of, gas delivery. Daily spot market purchases are typically made when firm baseload
and planned storage are not enough to cover the forecasted load.

20Q.HOW DOES THE COMPANY DETERMINE WHETHER DAILY GAS21PURCHASES ARE NEEDED FOR A PARTICULAR DAY AND WHAT TYPES OF

INFORMATION DOES BHCG RELY ON TO DETERMINE ITS DAILY GAS PURCHASE VOLUMES?

A. BHCG makes daily gas purchases when its forecasted demand (a combination of
temperature and weather conditions) is anticipated to exceed its existing gas supplies from
baseload and storage. Other factors are also considered such as: upstream pipeline
operating conditions, available storage inventory storage MDWQ, pipeline imbalances,
and the estimated price of gas.

8 Typically, my team conducts this analysis every weekday to determine the 9 necessary daily gas purchases. In extreme cold weather or other unusual situations, this 10 activity is completed twice a day to ensure that the most current load information is 11 available to make purchasing decisions.

12 Q. WHAT IS THE SOURCE OF BHCG'S WEATHER FORECAST DATA THAT IS

13 USED TO DETERMINE ITS DAILY CUSTOMER LOAD?

A. To forecast its customer load for a particular day, BHCG uses a third-party contractor for
 its weather and temperature forecasts. BHCG relies on weather forecast information from
 various weather stations within BHCG's service territories. Weather forecast data is
 provided by the third-party contractor twice a day at around 5 a.m. Mountain Time ("MT")⁴
 and 2 p.m.

19 Q. HOW IS THE WEATHER FORECAST INFORMATION USED TO DEVELOP A 20 CUSTOMER LOAD FORECAST?

A. The weather data is processed through BHCG's load forecast model called the DSC.
Within the DSC, a regression analysis is used to establish a correlation factor between

⁴ All times are in Mountain Time unless otherwise indicated.

historical weather and actual customer consumption based on the most recent three years
of data. The DSC uses third-party weather forecast inputs, including average daily
temperature and wind speed forecasts, to develop Adjusted Heating Degree Days
("HDD")⁵ for the upcoming dates. The DSC then applies the correlation factor, determined
by the regression analysis, to the forecasted Adjusted HDD produced by the DSC, which
determines the forecasted natural gas load requirements over the upcoming dates.

The DSC load model forecasts load data for the current day and the following six days. Results beyond six days are unreliable due to the nature of weather forecasting and is subject to large margins of error from forecasted to observed weather. The six-day range provides BHCG with sufficient information to make informed longer-term decisions on gas purchases. Additionally, the six-day lead time allows purchases over weekends and holidays when markets are closed.

Q. WHAT IS THE INDUSTRY STANDARD FOR WHEN DAILY GAS PURCHASES ARE TRANSACTED?

A. Daily gas purchases are purchases that are made for delivery the next calendar day. For
example, gas purchased on Monday would be delivered on Tuesday. Gas purchased on
Fridays are for delivery on Saturday, Sunday, and Monday. In the case of four-day holiday
weekends, like the Presidents' Day holiday weekend, gas trading on Friday covers
Saturday through Tuesday of the following week.

⁵ HDD is defined by the Energy Information Administration as: "A degree day compares the mean (the average of the high and low) outdoor temperatures recorded for a location to a standard temperature, usually 65° Fahrenheit in the United States." The Adjusted HDD also accounts for wind chill and provides a more accurate forecast of the weather customers will experience.

1 Q. HOW ARE DAILY GAS PURCHASES PRICED?

A. Gas purchased pursuant to firm peaking contracts are priced at daily index price, if and
when the firm peak volumes are called upon, plus an agreed upon premium amount. The
daily index price is set at the Platts Gas Daily midpoint index price for the delivery hub
that settles at the end of the trading day.

6 Daily spot market purchases are priced either at a "Daily Index + 7 Premium/Discount" price or fixed price. A Daily Index + Premium/Discount price is the 8 daily index price plus an agreed upon premium or discount of that daily index price. 9 Typically, Daily Index + Premium/Discount priced gas is the first type of daily spot market 10 gas that is offered for sale each day.

A fixed price is a set price that is agreed to between the supplier and purchaser when the transaction is made. All fixed priced transactions that are reported to Platts are used to calculate the weighted average midpoint index price for each delivery hub. Fixed priced transactions could be above or below the midpoint index price that settles at the end of the day.

16 Q. HOW DOES BHCG GATHER DATA ABOUT DAILY MARKET PRICES?

A. BHCG uses the InterContinental Exchange ("ICE") trading platform to gather real-time
access to gas trading activity and pricing information.

19 Q. HOW DOES BHCG MAKE ITS DAILY MARKET GAS PURCHASES?

A. BHCG uses a communication tool on ICE to communicate and complete transactions with
 counter parties. This tool is widely used in the natural gas trading industry. BHCG uses
 the North American Energy Standards Board's contracts and transaction confirmation for
 all gas purchases.

Q. WHAT TIME OF DAY DOES THE COMPANY DECIDE WHETHER DAILY GAS PURCHASES ARE REQUIRED?

A. The data gathering process as described above, generally begins at 5 a.m. each weekday.
If necessary, the Company will begin to execute daily gas purchases starting as early as 6
a.m. These daily gas purchases are typically completed before 7 a.m. BHCG executes
these purchases early in the day to ensure that BHCG is able to procure sufficient gas
supplies to meet forecasted customer loads.

8 Q. HOW DOES THE COMPANY DECIDE WHETHER TO USE ITS FIRM PEAKING

9 CONTRACTS OR TO BUY GAS IN THE DAILY SPOT MARKET?

10 A. To determine whether to call on a firm peaking arrangement or buy gas on the daily spot 11 market, the Company analyzes supply liquidity and the current estimated purchase 12 premium in the daily spot market. As stated, firm peaking arrangement counterparties must 13 stand ready to supply gas volumes up to a pre-determined level. If gas is unavailable in 14 the daily spot market, firm peaking arrangements provide a reliable source of supply with 15 a predetermined premium.

16 If the daily spot market purchase premium is higher than the predetermined 17 premium agreed to on the firm peaking arrangement, the firm peaking contract is a lower 18 cost alternative for our customers.

19

1

VI. <u>THE FEBRUARY EVENT</u>

2 Q. HOW DOES BHCG'S GAS PURCHASING PROCESS AND GPP THAT YOU 3 DISCUSSED ABOVE RELATE TO THE FEBRUARY EVENT?

4 A. During the February Event, BHCG relied on its established gas purchase process and its 5 GPP to ensure that BHCG had sufficient natural gas supplies to serve its customers during 6 these extreme cold temperatures and volatile market conditions. The diversity of BHCG's 7 gas supplies, in particular the baseload and storage purchases made by BHCG prior to this 8 event, also provided BHCG considerable protection against the volatile market conditions 9 that were experienced and saved customers approximately \$57.6 million. The table below 10 provides a calculation of these cost savings from baseload and storage. I also discuss 11 further below the additional savings of \$8.8 million that BHCG achieved by using non-12 ratable (flexible quantity) supply agreements to avoid purchasing excess gas supplies for 13 Monday and Tuesday and \$1.4 million in savings by using firm peaking agreements.

14

Table JDB-2: Gas Baseload and Storage Savings

		Gas Base	load	and Storage	Savir	ngs				
	Sat,	Feb 13, 2021	Sun	, Feb 14, 2021	Mor	n, Feb 15, 2021	Tue	, Feb 16, 2021	Wed,	Feb 17, 2021
Total State	_									
Baseload Gas Volumes		60,350		60,350		60,350		60,350		60,350
Baseload Gas Costs @ Contract	\$	153,743	\$	153,743	\$	153,743	\$	153,743	\$	153,743
Baseload Gas Costs @ Market Rate	\$	8,713,264	\$	8,713,264	\$	8,713,264	\$	8,713,264	\$	5,137,897
Savings from Baseload Gas	\$	39,222,241								
Storage Gas Volumes		22,679		42,736		14,712		16,517		23,374
Storage Gas Costs @ WACOG	\$	41,627	\$	76,327	\$	25,139	\$	28,606	\$	41,510
Storage Gas Costs @ Market Rate	\$	4,218,305	\$	7,207,657	\$	2,243,338	\$	2,612,620	\$	2,355,860
Savings from Storage Gas	\$	18,424,570								
Total Savings	\$	57.646.811								

15

16 Q. PLEASE PROVIDE AN OVERVIEW OF THE WEATHER FORECAST LEADING

17 **UP TO FEBRUARY EVENT.**

18 A. Prior to the February Event, the weather forecast projected colder than normal temperatures

19 for much of the central portion of the United States, including Colorado, for the Presidents'

7	0.	CAN YOU PROVIDE AN EXAMPLE OF THE COMPANY'S WEATHER
6		as Attachment JDB-2.
5		weather. A detailed timeline of the relevant events from February 9-17, 2021 is provided
4		to ensure that their shippers have sufficient gas to meet the increased demand due to cold
3		pipeline operators are a typical practice in advance of cold weather events. Operators want
2		weather alerts for the Presidents' Day weekend. Cold Weather alerts from upstream
1		Day weekend. On February 9, 2021, upstream pipeline operators started issuing cold

8 FORECASTS IN ADVANCE OF THE FEBRUARY EVENT?

9 A. Yes. Figure JDB-2 below shows weather forecasting for Castle Rock, Colorado provided
10 as the 6-day ahead HDD forecast, day ahead HDD forecast, and observed adjusted HDD
11 for the month of February 2021.

12 Figure JDB-2: Castle Rock Weather Forecasts Comparison – Adjusted HDD



13

Figure JDB-2 demonstrates that the closer the weather forecast is to the observed weather
 day, the more accurate it is. Attachment JDB-3 provides the weather forecasts that were
 used in the DSC model for the February Event.

4 Q. CAN YOU PROVIDE AN EXAMPLE OF BHCG'S LOAD FORECASTS IN 5 ADVANCE OF THE FEBRUARY EVENT?

- A. Figure JDB-3 below shows for Castle Rock, Colorado the 6-day ahead load forecast, day
 ahead load forecast, and observed load for the month of February 2021. Attachment JDB-
- 8 3HC includes BHCG's DSC model for the February Event.
- 9

Figure JDB-3: Load Forecast Comparison



10

Figure JDB-3 demonstrates that the closer the load forecast is conducted to the observed day, the more accurate it is. This is why during the February Event, BHCG was updating the DSC model twice a day. Also represented here is the volumetric risk associated with attempting to buy gas too far into the future from the delivery day.

Q. WHEN DID DAILY GAS PRICES BEGIN TO INCREASE PRIOR TO THE FEBRUARY EVENT?

- A. As shown in Table JDB-1 above, daily prices increased on Thursday, February 11, 2021,
 but this type of increase in daily prices is not atypical at the beginning of cold weather
 events due to the expected increase in demand for natural gas for heating.
- 6 Q. WHAT ACTIONS DID BHCG TAKE IN ADVANCE OF THE FEBRUARY EVENT
 7 TO ENSURE THAT ITS CUSTOMERS HAD AN ADEQUATE SUPPLY OF GAS
 8 DURING THE FORECASTED COLD TEMPERATURES?
- 9 A. Prior to the February Event, BHCG discussed contingency plans with its suppliers in the
 10 event that gas sold to BHCG could not flow due to pipeline constraints or other issues that
 11 can occur more frequently during cold weather. I also discussed the potential likelihood
 12 of supply freeze-offs and any potential intra-weekend supply availability.
- Q. TURNING TO THE FEBRUARY EVENT, WHAT TYPES OF NATURAL GAS
 SUPPLIES WERE USED BY BHCG TO SERVE ITS CUSTOMERS?

15 BHCG procured natural gas supplies consistent with its GPP and relied on a combination A. 16 of baseload purchases, storage withdrawals, and daily gas purchases (including firm 17 peaking contracts) to serve its natural gas customers. Examining the February Event, 34.2 18 percent of BHCG's gas supplies were baseload purchases at an Inside FERC First-of-19 Month Index. In addition to the baseload, storage represented 13.6 percent priced at 20 WACOG. The remaining 52.2 percent were daily purchases (including 22 percent from 21 peaking purchases). The details of the natural gas purchases made by BHCG during the 22 February Event are provided in Attachment JBD-4 and Attachment JBD-5. A summary of

- 1 the total volume of gas purchased by type during the February Event is summarized in the
- 2 table below.
- 3

Table JDB-3: BHCG's Gas Purchases for February Event (Dth)

			Sat, Feb 13, 2021	Sun, Feb 14, 2021	Mon, Feb 15, 2021	Tue, Feb 16, 2021	Wed, Feb 17, 2021					
	-	Total State										
		Baseload Supplies	60.350	60.350	60.350	60.350	60.350					
	-	Daily Purchases	63,048	65,239	53,050	44,050	40,950					
		Peaking Purchases	45,000	45,000	45,000	30,000	29,000					
4		Storage Gas	22,679	42,736	14,712	16,517	23,374					
5	Q.	WHEN DID E	BHCG PROC	URE ITS BAS	SELOAD SUP	PLY OF NAT	URAL GAS					
6		THAT WAS	USED TO S	SERVE CUST	OMERS DU	RING THE	FEBRUARY					
7		EVENT?										
8	A.	BHCG executed	l baseload cont	racts and firm p	eaking contracts	s that were relie	d upon during					
9		the February Ev	vent following	a competitive b	oidding process	that occurred i	n the summer					
10		of 2020. BHC0	of 2020. BHCG purchased 60,350 Dth of daily baseload and contracted for a volume up									
11		to 45,000 Dth o	f daily firm pea	aking purchases	s for February 2	021.						
12	Q.	DOES BHCG	HAVE AN E	ESTIMATE O	F THE COST	SAVINGS T	HAT WERE					
13		ACHIEVED 1	ACHIEVED BY RELYING ON ITS BASELOAD SUPPLIES DURING THE									
14		FEBRUARY E	EVENT?									
15	A.	Yes. During	the February I	Event, the Con	npany's relianc	e on baseload	gas supplies					
16		provided consid	lerable protect	ion against the	extreme marke	t conditions. 7	The Company					
17		estimates that it	estimates that its baseload supply purchases avoided the need to purchase 301,750 Dth at									
18		the daily index	the daily index prices during the February Event, which saved customers approximately									
19		\$39.2 million.										
20	Q.	WHAT WERE	E BHCG'S PL	ANNED GAS	STORAGE W	THDRAWA	LS DURING					
21		THE FEBRUA	ARY EVENT?									

A. BHCG'S planned gas storage withdrawals during the February Event by GCA region are
 provided in Attachment JDB-4 and are provided in total in Table JDB-4 below. Prior to
 the February Event, BHCG forecasted 76,553 Dth in planned storage gas withdrawals for
 February 13-17, 2021.

5 Q. WHAT WERE BHCG'S ACTUAL GAS STORAGE WITHDRAWALS DURING 6 THE FEBRUARY EVENT?

A. BHCG planned our storage withdrawal to the maximum reasonable extent possible while
also ensuring that there were sufficient storage reserves in case of unforeseen supply or
pipeline issues due to the cold weather. The table below provides the volumes of storage
gas planned and actual withdrawals each day during the February Event.

11

 Table JDB-4: Planned and Actual Storage Withdrawals (Dth)

Total State	Sat, Feb. 13, 2021	Sun, Feb. 14, 2021	Mon, Feb. 15, 2021	Tues, Feb. 16, 2021	Wed, Feb. 17, 2021
Planned Storage Withdrawals	1,227	30,259	21,190	8,976	14,901
Actual Storage Withdrawals	22,679	42,736	14,712	16,517	23,374

12

Q. WHY DID BHCG WITHDRAW MORE GAS FROM STORAGE THAN INITIALLY PLANNED DURING THE FEBRUARY EVENT?

A. BHCG withdrew more gas from storage than planned because actual observed customer loads were higher than forecasted due to actual observed weather being colder than forecasted. As stated earlier, BHCG's contracted storage capacity is Firm No-Notice. This level of service provided an important balancing tool and to help prevent potential pipeline penalty charges. BHCG's use of its storage supplies also reduced the Company's exposure to the daily index gas prices during the February Event. The flexibility of our gas storage

1		and prudent management of our inventory allowed BHCG to mitigate the impact of the
2		high prices for daily spot market gas during the February Event. BHCG's use of its gas
3		storage supplies saved our customers \$18.4 million in daily spot market purchases.
4	Q.	WHY DID BHCG ALSO MAKE DAILY GAS PURCHASES DURING THE
5		FEBRUARY EVENT?
6	A.	As stated earlier, daily gas purchases are required when the DSC model forecasts customer
7		usage greater than baseload and planned storage supply as was the case during the February
8		Event.
9	Q.	WHEN DID BHCG MAKE ITS DAILY GAS PURCHASES TO SERVE
10		CUSTOMERS DURING THE FEBRUARY EVENT?
11	A.	On Friday February 12, BHCG began contacting counterparties at around 5:40 a.m. for gas
12		supply for the four-day holiday period (February 13-16, 2021). BHCG executed its first
13		transaction at 6:04 a.m. and completed the final transaction at 6:50 a.m. This means that
14		by 6:50 a.m. on February 12, BHCG had locked in its volume of daily gas purchases and
15		the pricing terms with its gas suppliers for gas supplies for February 13-16. For a complete
16		listing of all daily market transactions with time stamps, please refer to Attachment JBD-
17		5.
18	Q.	WHEN DID BHCG HAVE INDICATIONS THAT DAILY GAS PRICES WERE
19		GOING TO BE HIGH OVER THE PRESIDENTS' DAY HOLIDAY?
20	A.	Not until after these daily gas purchases were made. Around 7:30 a.m. on Friday, February
21		12, BHCG observed elevated gas prices on ICE for gas purchased for delivery on Saturday,

22 February 13. At this early time of the day, it was not known if these prices would continue

rising, stabilize, or decrease by the end of the trading day.

Q. WHY DID BHCG PURCHASE ITS DAILY GAS EARLY IN THE MORNING ON FEBRUARY 12?

A. Given the forecasted cold weather and expected high demand for natural gas, BHCG knew
there would be increased competition for gas supply. In some areas, BHCG has a limited
number of suppliers. If BHCG had waited until later in the day on February 12 to make its
needed daily purchases, BHCG would have risked that it would not have been able to
purchase a sufficient supply of daily gas to serve customers during the February Event.

8 Q. CAN YOU PROVIDE MORE DETAILS ABOUT THE TYPES OF DAILY GAS

9 PURCHASES MADE BY BHCG ON THE MORNING OF FEBRUARY 12?

A. BHCG made both daily spot market purchases and called on its existing firm peaking
 contracts on February 12. These daily spot market purchases and firm peaking contracts
 were for both ratable and non-ratable daily gas.

13 Ratable purchases require BHCG to purchase the same amount of gas each day14 from February 13-16.

Non-ratable purchases allow BHCG the flexibility to change the volume for each day from February 13-16.⁶ These types of transactions are not industry norm and are not easy to find as most suppliers cannot offer this type of flexibility.

BHCG used a RFP process to secure a non-ratable firm peaking contract, which was called on during the February 13-16 weekend. In addition, BHCG used our longstanding relationships with suppliers to transact two additional non-ratable daily spot market purchases for the February 13-16 weekend on February 12. The non-ratable supply

⁶ Non-ratable purchases are only available on weekends and holidays.

volumes for each day of the four-day period were set when these purchases were executed
 on the morning of February 12.

BHCG purchased the non-ratable gas because the DSC model predicted higher customer usage for Saturday, February 13 and Sunday, February 14 but lower customer usage for Monday, February 15 and Tuesday, February 16. As shown in the table below, by purchasing non-ratable gas, BHCG was able to adjust its supply volumes to match usage rather than purchasing the same volume of daily gas for each of the four days of the Presidents' Day holiday.

Because we were able to better match supply and demand, BHCG estimates that
we saved customers approximately \$8.8 million by not purchasing excess gas supplies for
Monday and Tuesday. The table below provides a summary of the how these non-ratable
purchases provided cost savings to customers. Additional details on the cost savings from
the non-ratable purchases are provided in my Attachment JDB-6.

14

Table JDB-5: February Event Non-Ratable Cost Savings

		2/13		2/14		2/15		2/16	2/17			
	Su	upply Cost	S	upply Cost	Su	upply Cost	Si	upply Cost	Supply Cost	Total Cost	Тс	otal Savings
Non-ratable Deal 63006	\$	2,965,848	\$	2,965,848	\$	2,965,848	\$	2,200,468	-	\$ 11,098,010	\$	647,270
Ratable Deal at Market Price	\$	2,936,320	\$	2,936,320	\$	2,936,320	\$	2,936,320	-	\$ 11,745,280		
Non-ratable Deal 60261	\$	2,597,175	\$	2,597,175	\$	2,597,175	\$	-	-	\$ 7,791,525	\$	3,574,875
Ratable Deal at Market Price	\$	2,841,600	\$	2,841,600	\$	2,841,600	\$	2,841,600	-	\$ 11,366,400		
Non-ratable Deal 63008	\$	4,791,867	\$	4,792,250	\$	2,875,350	\$	1,916,900	-	\$ 14,376,367	\$	4,567,633
Ratable Deal at Market Price	\$	4,736,000	\$	4,736,000	\$	4,736,000	\$	4,736,000	-	\$ 18,944,000		
											\$	8,789,778

15

1 YOU MENTIONED THAT SOME OF THESE NON-RATABLE PURCHASES **Q**. 2 WERE FIRM PEAKING CONTRACTS, PLEASE DESCRIBE THE BENEFITS OF 3 THESE FIRM PEAKING CONTRACTS.

4 As I discussed above, these firm peaking contracts are executed in the summer months and A. 5 allowed BHCG the ability to call on these suppliers during February Event to purchase 6 certain volumes of gas at Daily Index prices plus a set premium. These firm peaking 7 contracts provided a valuable gas supply source to BHCG during the February Event when there was increased competition for gas. As the pricing for these firm peaking contracts 8 9 was negotiated prior to the February Event, they also provided customers with protection 10 from the high daily spot market prices. By utilizing these firm peaking contracts to meet 11 BHCG's gas supply needs during February Event, BHCG saved customers approximately \$1.4 million as summarized in the table below. Additional details about the cost savings 12 from the firm peaking contracts is provided in Attachment JDB-4. 13

14

 Table JDB-6: February Event Firm Peaking Contract Savings

		Sat,	Feb 13, 2021	5	Sun, Feb 14, 2021		Mon, Feb 15, 2021	1	Tue, Feb 16, 2021	١	<i>N</i> ed, Feb 17, 2021
Total State				-		-		-		-	
Peaking Purchases	Volume		45,000		45,000		45,000		30,000		29,000
	Total Cost	\$	7,115,450	\$	7,115,450	\$	7,115,450	\$	4,518,275	\$	3,073,725
Peaking Gas Costs @ Contract	Average Price	\$	158.12	\$	158.12	\$	158.12	\$	150.61	\$	105.99
Peaking Gas Costs @ Market Rat	Peaking Gas Costs @ Market Rate		7,555,200	\$	7,555,200	\$	7,555,200	\$	4,713,600	\$	2,999,725
Savings from Peaking Gas		\$	439,750	\$	439,750	\$	439,750	\$	195,325	\$	(74,000
Total Savings		\$	1,440,575								

15

16 Q. WHAT WERE THE PRICING TERMS FOR THE DAILY SPOT MARKET GAS

17

PURCHASED BY BHCG ON THE MORNING OF FEBRUARY 12?

18 A. These daily spot market purchases were made at "Daily Index + Premium/Discount" prices. 19 More detailed pricing information for these daily spot market purchases is available in

20 Attachment JBD-5.

Q. WHY DID BHCG PURCHASE DAILY SPOT MARKET GAS AT "DAILY INDEX + PREMIUM/DISCOUNT" PRICING AS OPPOSED TO A FIXED PRICE DURING THE FEBRUARY EVENT?

A. First, as I mentioned earlier, "Daily Index + Premium/Discount" priced gas is the first type
of daily gas that trades each day. Because BHCG has a limited number of suppliers, it is
important for BHCG to complete its trades early in the day to ensure that it can purchase
its needed daily supplies. BHCG's primary obligation in purchasing gas supplies is to
ensure reliable service. BHCG competes with other, and also larger, purchasers of gas
supplies. Trading early in the day assists BHCG in ensuring it has an opportunity to obtain
necessary gas supplies.

Second, the price for "Daily Index + Premium/Discount" is an effective purchasing
 practice for risk mitigation. With "Daily Index + Premium/Discount" prices, BHCG avoids
 the risk of purchasing fixed price gas at a price that is higher than the prevailing market
 price.

Q. WHEN BHCG MADE ITS DAILY GAS PURCHASES ON THE MORNING OF FEBRUARY 12, DID BHCG ANTICIPATE THAT THE INDEX PRICES FOR DAILY GAS WOULD SETTLE WHERE THEY DID?

A. No, no one did. While prices were slowly increasing prior to the February Event, no one
 predicted that prices would reach historic levels. The table below shows the sudden,
 surprising nature of this price spike.

	-								-	
Feb. 2021	Che	yenne Hub	CIG	Rockies	El P	Paso - Bondad	Kerr	n River Opal	Whit	e River Hub
Feb-01	\$	2.565	\$	2.565	\$	2.580	\$	2.650	\$	2.580
Feb-02	\$	2.655	\$	2.660	\$	2.680	\$	2.685	\$	2.660
Feb-03	\$	2.830	\$	2.805	\$	2.810	\$	2.845	\$	2.815
Feb-04	\$	2.805	\$	2.760	\$	2.780	\$	2.815	\$	2.795
Feb-05	\$	2.875	\$	2.835	\$	2.785	\$	2.830	\$	2.830
Feb-06	\$	3.490	\$	3.490	\$	3.410	\$	3.540	\$	3.475
Feb-07	\$	3.490	\$	3.490	\$	3.410	\$	3.540	\$	3.475
Feb-08	\$	3.490	\$	3.490	\$	3.410	\$	3.540	\$	3.475
Feb-09	\$	3.415	\$	3.395	\$	3.295	\$	3.390	\$	3.355
Feb-10	\$	3.475	\$	3.460	\$	3.305	\$	3.390	\$	3.365
Feb-11	\$	5.635	\$	4.825	\$	4.285	\$	4.530	\$	4.805
Feb-12	\$	14.840	\$	13.285	\$	10.695	\$	10.685	\$	12.140
Feb-13	\$	187.690	\$	172.945	\$	79.355	\$	85.560	\$	139.455
Feb-14	\$	187.690	\$	172.945	\$	79.355	\$	85.560	\$	139.455
Feb-15	\$	187.690	\$	172.945	\$	79.355	\$	85.560	\$	139.455
Feb-16	\$	187.690	\$	172.945	\$	79.355	\$	85.560	\$	139.455
Feb-17	\$	92.595	\$	78.200	\$	186.540	\$	160.840	\$	106.725
Feb-18	\$	20.440	\$	19.525	\$	27.190	\$	20.000	\$	19.815
Feb-19	\$	5.810	\$	5.785	\$	6.255	\$	5.405	\$	5.955
Feb-20	\$	3.730	\$	3.655	\$	3.755	\$	3.650	\$	3.770
Feb-21	\$	3.730	\$	3.655	\$	3.755	\$	3.650	\$	3.770
Feb-22	\$	3.730	\$	3.655	\$	3.755	\$	3.650	\$	3.770
Feb-23	\$	2.650	\$	2.665	\$	2.660	\$	2.810	\$	2.705
Feb-24	\$	2.700	\$	2.700	\$	2.715	\$	2.785	\$	2.685
Feb-25	\$	2.630	\$	2.630	\$	2.680	\$	2.750	\$	2.650
Feb-26	\$	2.485	\$	2.480	\$	2.425	\$	2.580	\$	2.440
Feb-27	\$	2.485	\$	2.480	\$	2.425	\$	2.580	\$	2.440
Feb-28	\$	2.485	Ś	2.480	Ś	2.425	Ś	2.580	Ś	2.440

Table JDB-7: February Daily Natural Gas Prices

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Q. PLEASE PROVIDE ADDITIONAL DETAILS AS TO WHAT BHCG WAS DOING DURING THE PRESIDENTS' WEEKEND TO MONITOR THE GAS MARKET AND BHCG'S SUPPLY OF NATURAL GAS?

A. BHCG worked diligently throughout the weekend to ensure customer's reliability needs were met with the necessary gas supplies during the extreme event. In addition to updating our load forecasts twice a day, BHCG personnel worked throughout the holiday weekend

1	to ensure that all purchased gas was flowing as expected. My team monitored upstream
2	pipeline conditions and notifications and communicated with gas suppliers and scheduling
3	teams to ensure that the gas supplies we purchased were showing up as expected to avoid
4	potential pipeline penalties.

5 Q. DID BHCG MAKE ANY ADDITIONAL PURCHASES DURING THE 6 PRESIDENTS' DAY WEEKEND?

A. Yes. Based on updated DSC forecast, BHCG purchased additional fixed price daily gas
supplies on Sunday, February 14, 2021, for our customers. While there is very limited
liquidity in the intra-day market, BHCG was able to find additional gas supply to meet this
increase in demand.

11 This intra-day purchase was also needed so that BHCG could avoid a potential 12 Operational Flow Order ("OFO") penalty for consuming more gas than was purchased. 13 The OFO penalty being assessed by the pipeline at the time was the daily midpoint index 14 price plus \$25 per Dth.

15 Q. DID BHCG INCUR ANY OFO PENALTIES DURING THE FEBRUARY EVENT?

16 A. No.

17 Q. DID BHCG'S DAILY SPOT MARKET PURCHASES DURING THE FEBRUARY 18 EVENT RESULT IN GAS SUPPLIES IN EXCESS OF CUSTOMER LOAD?

A. As shown in the table below, on Monday, February 15 and Wednesday, February 17,
BHCG's overall gas supply was slightly higher than its actual customer load. While Gas
Supply aims to procure only enough gas to meet the forecasted load, there is no way to
forecast load with 100 percent accuracy. BHCG seeks to procure sufficient gas supplies to
not only meet its customers' needs but to also avoid Under Delivery OFO penalties. As

shown, BHCG procured gas supplies in amounts that were within approximately one percent of actual load.

Total State	Sat.,	Sun.,	Mon.,	Tues.,	Wed.,
	Feb. 13	Feb. 14	Feb. 15	Feb. 16	Feb. 17
Baseload Supplies	60,350	60,350	60,350	60,350	60,350
Daily Purchases	63,048	65,2390	53,050	44,050	40,950
Peaking Purchases	45,000	45,000	45,000	30,000	29,000
Actual Storage Withdrawals	22,679	42,736	14,712	16,517	23,374
Total Supply	191,077	213,325	173,112	150,917	153,674
Actual Load	192,560	210,458	174,170	153,045	153,333
Percentage Supply/Load Difference	-0.78	1.34	-0.61	-1.41	0.22

Table JDB-8: Total Gas Supplies and Actual Load (Dth)

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5 Q. WHAT HAPPENS WHEN THERE IS MORE GAS SUPPLY THAN CUSTOMER

6 LOAD?

A. If storage service is available; the excess gas will be injected into inventory. Where storage
service is unavailable, a pipeline imbalance is created. In Attachment JDB-7, I have
provided the total costs of imbalance charges incurred during the February Event, which
were minor.

11 Q. DID THE COMPANY SELL ANY NATURAL GAS DURING THE FEBRUARY 12 EVENT TO OTHER PARTIES?

13 A. No.

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Q. HOW DOES THE AVERAGE PRICE FOR ALL OF BHCG'S GAS SUPPLIES USED DURING THE FEBRUARY EVENT COMPARE TO THE AVERAGE DAILY MARKET PRICE FOR GAS?

A. The average price that BHCG paid for its baseload, storage, and daily gas purchases that
was used during the February Event was \$85.81 per Dth whereas the five day (February
13-17) average daily index price for gas at the Cheyenne Hub was \$168.67 per day.

Q. PLEASE SUMMARIZE WHY BHCG'S GAS PURCHASES FOR THE FEBRUARY 8 EVENT, WERE REASONABLE AND PRUDENT.

9 A. BHCG's primary obligation is to supply safe and reliable natural gas service to its 10 customers. During the extreme weather and market conditions of the February Event, BHCG was able to provide this service because the accuracy of its load forecasting allowed 11 BHCG to procure sufficient natural gas supplies comprised of baseload, storage, firm 12 peaking, and daily spot market purchases. As daily gas prices spiked, the Company's 13 14 strategic and proactive purchases of baseload, non-ratable, and firm peaking contracts provided considerable price protection to BHCG customers to the high daily gas prices 15 16 during the February Event. These contracts provided customers with the following 17 savings: \$39.2 million from baseload, \$8.8 million from non-ratable, and \$1.4 from firm peaking contracts. BHCG was also able to withdraw more gas from storage than planned 18 19 during the February Event because it subscribes to Firm No-Notice storage contracts saving 20 customers an additional \$18.4 million. The Company thus saved customers \$67.8 million. 21 The combination of strategic advance planning, advance purchasing, and active 22 management of gas supplies during the February Event allowed the price paid by BHCG

1		for gas supplies used during time period to come in below the average daily index price for
2		gas on the Cheyenne Hub.
3		
4		VII. <u>CONCLUSION</u>
5	Q.	DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?
6	A.	Yes.

Appendix A

Statement of Qualifications

Jay D. Bauer

I received my Bachelor of Science degree in Business Administration with an emphasis in Marketing from Bemidji State University in 1997. After receiving my degree, I began working as a Transportation Sales Representative for C.H. Robinson Worldwide, Inc. in Eden Prairie, Minnesota where my responsibilities included over-the-road freight logistics and transportation contract negotiations. In 1998, I moved to Bismarck, North Dakota and started my career in the natural gas industry at Williston Basin Interstate Pipeline Company as a Customer Service Specialist. As part of the Customer Service team, I balanced customer nominations and allocations as well as confirmed multiple interconnecting pipeline agreements. In 2001, I was offered the role of Gas Control Analyst for Millennium Gas Marketing where my responsibilities included transportation contract optimization and scheduling natural gas deliveries on twenty different pipelines and gathering systems. In 2003, I accepted an offer for Director of Gas Marketing for a start-up company, Liberty Gas Marketing, LLC where I was tasked with investor relations and establishing a market presence to trade natural gas. In 2007 I founded Viking Energy, Inc. and performed all activities relevant to owning and operating a natural gas marketing company. In 2008, I was approached by SourceGas LLC regarding their open Manager, Gas Supply position and I accepted the offer to relocate to Denver, Colorado. I maintained the same role with the title of Sr. Manager, Gas Supply Services following the acquisition of SourceGas by Black Hills Energy in 2016. My current responsibilities include leading the Scheduling and Forecasting functions, developing gas supply plans, and negotiating all physical gas supply purchases for Black Hills natural gas customers in Colorado and most of Wyoming.

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO

PROCEEDING NO. 21A– G

IN THE MATTER OF THE VERIFIED APPLICATION OF BLACK HILLS COLORADO GAS, INC. FOR APPROVAL TO RECOVER GAS COSTS ASSOCIATED WITH THE FEBRUARY EXTREME COLD WEATHER EVENT

State of Colorado) SS. City and County of Denver

Affidavit Adopting Direct Testimony and Attachment(s)

Jay D. Bauer being duly sworn, states that he is the Jay D. Bauer whose Direct Testimony and Attachment(s) in the above-captioned proceeding accompany this Affidavit.

Jay D. Bauer further states that such Direct Testimony is a true and accurate statement of his answers to the questions contained therein, and that he does adopt those answers as his sworn Testimony in this proceeding. Jay D. Bauer further states that such Attachment(s) that accompany his Direct Testimony are true and accurate.

Jay D. S.

On May 14, 2021, appeared Jay D. Bauer, not in my physical presence but rather appearing remotely by means of communication technology from 10746 W. Weaver Drive, Littleton, Colorado, 80127, known to me to be the person who executed the foregoing instrument, and acknowledged that he executed the same as his free act, and deed.

Claim D. g. Jegl Notary Public

My Commission Expires: _______

ELAINE D HEGLER Notary Public State of Colorado Notary ID # 19984031852 My Commission Expires 11-17-2022