

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO

PROCEEDING NO. 17A - ____G

IN THE MATTER OF THE VERIFIED JOINT APPLICATION OF BLACK HILLS/COLORADO GAS UTILITY COMPANY, LP D/B/A BLACK HILLS ENERGY AND BLACK HILLS GAS DISTRIBUTION, LLC D/B/A BLACK HILLS ENERGY, FOR APPROVAL OF A COMBINED NATURAL GAS DEMAND SIDE MANAGEMENT (DSM) PLAN FOR CALENDAR YEARS 2018, 2019 AND 2020 AND FOR APPROVAL OF REVISIONS TO THEIR GAS DSM COST ADJUSTMENT TARIFFS.

DIRECT TESTIMONY AND ATTACHMENT OF

JAMES DILLON

ON BEHALF OF

BLACK HILLS/COLORADO GAS UTILITY COMPANY, LP

AND

BLACK HILLS GAS DISTRIBUTION, LLC

NOTICE OF CONFIDENTIALITY

A PORTION OF THIS DOCUMENT HAS BEEN FILED UNDER SEAL:

**Confidential Appendices B.1, B.2, B.3, B.4, B.5, and B.6
to Attachment JD-1 are provided to the Commission on a flash drive.**

**A portion of Attachment JD-1 is filed under seal pursuant to
4 CCR 723-1-1100 and 1101**

A Redacted Version has been filed publicly

May 1, 2017

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Attachment

Attachment JD-1 Combined 2018-2020 Natural Gas Energy Efficiency Plan

Confidential Appendices B.1, B.2, B.3, B.4, B.5, and B.6 to Attachment JD-1 are provided to the Commission on a flash drive.

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DIRECT TESTIMONY OF JAMES DILLON

I. INTRODUCTION AND BACKGROUND

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is James Dillon. My business address is 1102 East First Street, Papillion, Nebraska 68046.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Black Hills Utility Holdings, Inc. (“BHUH”), a wholly-owned subsidiary of Black Hills Corporation (“BHC”). I am Senior Manager, Energy Efficiency and Demand Side Management.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of Black Hills/Colorado Gas Utility Company, LP (“BHCOG”) and Black Hills Gas Distribution, LLC (“BHGD”) (individually referred to as the “Company” and collectively, as the “Companies”).

II. STATEMENT OF QUALIFICATIONS

Q. WHAT ARE YOUR DUTIES AND RESPONSIBILITIES IN YOUR CURRENT POSITION?

A. I manage the energy efficiency and demand side management (“DSM”) programs, both gas and electric, across the utility footprint of BHC, and my responsibilities include designing, administering and evaluating the DSM programs to meet energy savings targets established by legislative, regulatory and/or company mandates or goals. I am responsible for the DSM programs of BHC’s utilities in South Dakota, Wyoming, Montana, Colorado, and Iowa. In 2016, with the acquisition of the SourceGas companies

1 (“SourceGas”) by BHUH, my responsibilities expanded to the legacy service territories
2 of SourceGas in Arkansas, Colorado, and Wyoming.

3 **Q. WOULD YOU PLEASE OUTLINE YOUR EDUCATIONAL AND**
4 **PROFESSIONAL BACKGROUND?**

5 A. A summary of my education, employment history, and experience is provided in
6 Appendix A.

7 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

8 A. Yes.

9
10 **III. PURPOSE OF TESTIMONY**

11 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

12 A. Through the Application filed in this proceeding, the Companies are requesting approval
13 of the BHCOG and BHGD proposed Combined 2018-2020 Natural Gas Energy Efficiency
14 Plan (“Combined Plan”), inclusive of its Appendices, which is attached to my testimony as
15 Attachment JD-1. Only Appendix B¹ to Attachment JD-1 is confidential and is filed under
16 seal (a public version is also being filed). Through my direct testimony, I explain the
17 context in which the Companies developed the Combined Plan. I also explain the
18 composition of the Combined Plan.

19

¹ As noted in the Combined Plan, Confidential Appendix B (Detailed Program Cost-Effectiveness Results) includes Confidential Appendices B.1, B.2, B.3, B.4, B.5, and B.6.

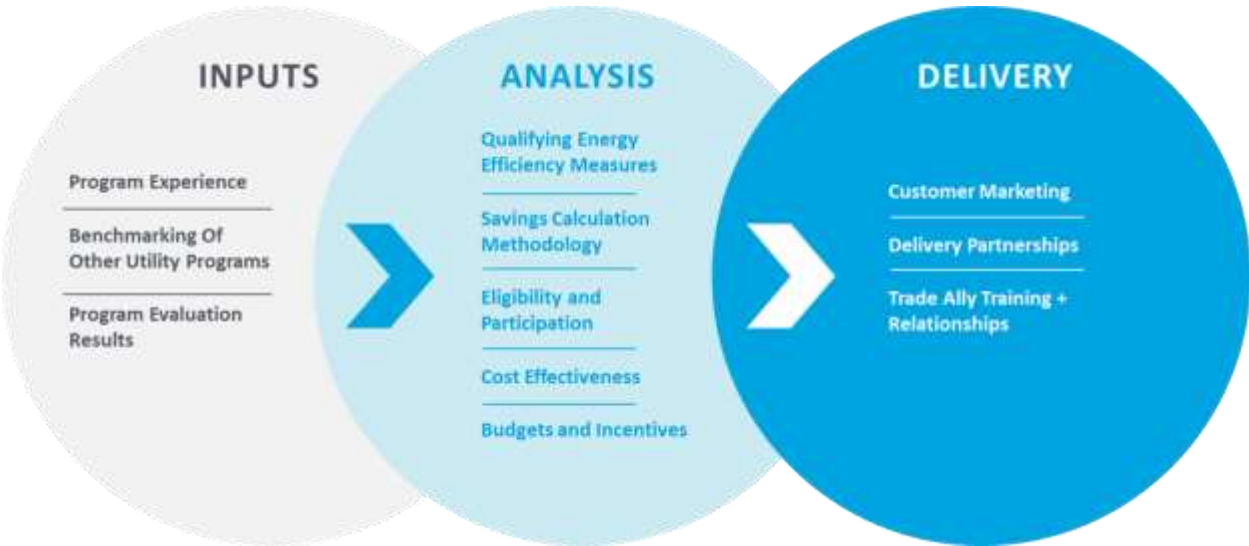
IV. DEVELOPMENT OF THE 2018-2020 COMBINED PLAN

Q. WHAT IS A DSM PLAN?

A. A DSM plan sets forth the goals and budgets for the individual energy efficiency programs that the Companies will offer during a specific time period. The Combined Plan presents estimated measurements of the cost-effectiveness of each program proposed to be offered, as well as the means by which the savings attributable to the programs will be evaluated, measured and verified. The overall cost-effectiveness of the Combined Plan is also presented.

Q. HOW WAS THE 2018-2020 COMBINED PLAN DESIGNED?

A. The programs included in the Combined Plan are designed to be inclusive, giving all customers the opportunity to benefit from participating in the Companies' energy efficiency programs. The Combined Plan, which used BHCOG's more comprehensive suite of programs from its 2015-2017 DSM Plan as the base, was designed by the Companies in collaboration with The Cadmus Group, an expert in energy efficiency and the development of DSM plans. The design process is depicted below:



1 As further explained in Chapter 3 of Attachment JD-1, the Combined Plan's design
2 process began with inputs, including, but not limited to, the Companies' own program
3 delivery experience, meetings with trade allies, and discussions with residential builders,
4 commercial builders and interested stakeholders. The second step, analysis, included
5 quantifying energy efficiency measures and calculating cost-effectiveness. The final step
6 in the design process, delivery, included decisions on marketing and trade ally
7 relationships.

8 **Q. WHAT WAS THE ROLE OF PROGRAM EVALUATION IN DEVELOPMENT OF**
9 **THE COMBINED PLAN?**

10 A. Throughout the planning process, lessons from past program evaluations were used to
11 inform the changes to program design, marketing, and implementation elements.

12 **Q. PLEASE DESCRIBE THE DIFFICULTIES ENCOUNTERED IN DESIGNING**
13 **THE COMBINED PLAN.**

14 A. The following market changes make it more difficult to design and implement cost-
15 efficient, natural gas energy-efficiency programs:

- 16 • **Cost of natural gas.** Natural gas costs have decreased and are forecasted to
17 remain low for the foreseeable future. Since avoided costs play a major role in
18 calculating cost-effectiveness, the drop in forecasted natural gas prices causes a
19 reduction in the benefit/cost ratios of natural gas energy efficiency measures.
- 20 • **Adoption of new building codes.** The 2015 International Energy Conservation
21 Code[®] (IECC), adopted in some jurisdictions in Colorado, makes it much more
22 challenging to attribute savings from new construction programs, as the efficiency

1 gap between building to code and building to a higher level of efficiency
2 continues to shrink.

- 3 • **Changes in equipment standards.** Similar to new building codes, updated
4 federal and state equipment codes and standards, which strive to move the market
5 towards more efficient products and equipment, change the baseline efficiencies
6 of many measures. Due to new and impending efficiency standards for measures
7 such as furnaces, doors, water heaters, and gas fireplaces, energy savings
8 available from these measures have decreased, also reducing their cost-
9 effectiveness.

10 These changes presented challenges in maintaining the Combined Plan’s overall cost-
11 effectiveness while providing a well-rounded portfolio of programs for Coloradans. The
12 Companies remain confident that this Combined Plan accounts for these challenges, and
13 they remain committed to providing a variety of programs to Colorado natural gas
14 customers.

15
16 **V. 2018-2020 COMBINED PLAN OVERVIEW**

17 **Q. PLEASE PROVIDE AN OVERVIEW OF THE 2018-2020 COMBINED PLAN**
18 **FOUND IN ATTACHMENT JD-1.**

19 A. The Combined Plan presents a continuation of BHCOG’s 2015-2017 DSM Plan for both
20 BHCOG and BHGD. BHCOG’s 2015-2017 DSM Plan was approved by the Colorado
21 Public Utilities Commission (the “Commission”) in 2014 (“Current BHCOG Plan”) and
22 thus far has been implemented successfully throughout BHCOG’s natural gas service
23 territory. The energy efficiency portfolio of the Combined Plan is intended to serve all

1 customer types, including residential and non-residential. The Companies will offer six
2 programs under the Combined Plan: Residential Retrofit, Residential New Construction,
3 Nonresidential Retrofit, Nonresidential New Construction, Income Qualified, and
4 School-Based Energy Education. These programs are explained in my testimony below.

5 **Q. WHAT MAJOR CHANGES FROM THE CURRENT DSM PLANS OF THE**
6 **COMPANIES HAVE BEEN INCORPORATED INTO THE COMBINED PLAN?**

7 A. In addition to the changes summarized in my testimony below, certain programs, or
8 components of programs under the Combined Plan, are new to BHCOG and/or BHGD,
9 as shown in Table JD-1 below.

10 **TABLE JD-1: Portfolio Measure Summary²**

New Program or Component	BHCOG	BHGD
Residential New Construction Program		X
Residential Behavior Change Component (part of Residential Retrofit Program)		X
Nonresidential New Construction Program	X	X
Commercial Direct Install Component (part of Nonresidential Retrofit Program)		X
School-Based Energy Education Program		X

11
12 As noted, the Combined Plan proposes the addition of one new program for both
13 Companies – Nonresidential New Construction.

14 **Q. DESCRIBE THE PROGRAM PORTFOLIO OF THE COMBINED PLAN.**

15 A. A description of the Combined Plan’s program portfolio follows:

16 ***Residential Retrofit Program.*** The Residential Retrofit Program is exclusive to
17 retrofit projects. All new construction projects fall under the Residential New

² Duplicate of “Table ES.1.3. Portfolio Measure Summary” found in the Combined Plan.

1 Construction Program. Three components make up this program: Evaluation,
2 Prescriptive, and Behavior Change. Each of these components was offered by BHCOG
3 and BHGD under the Current BHCOG and BHGD Plan, with the exception of the
4 Behavior Change component. The naming conventions for these particular programs
5 were different. Each component is discussed below:

- 6 • Evaluation includes online as well as in-home evaluations, as set forth in the
7 Combined Plan. This component is not changed from the Current BHCOG Plan.
8 BHGD named this the Energy Audit Program in the previous plan filings. The
9 online evaluation is a new option for the BHGD.
- 10 • Prescriptive provides incentives to customers who improve the efficiency of their
11 homes through installing certain measures, as set forth in the Combined Plan.
12 The basic design component has not changed from the Current BHCOG Plan and
13 was also offered by BHGD under its Efficient Natural Gas Rebate Program.
14 Prescriptive incentives will be provided for the following new measures under the
15 Prescriptive component: furnace quality installations, and a water savings kit
16 including faucet aerators and low-flow showerheads.
- 17 • Behavior Change seeks to promote residential energy conservation by providing
18 residential customers with personalized energy insights. This component has not
19 changed from the Current BHCOG Plan and is a new offering for the BHGD
20 customers.

21 ***Residential New Construction Program.*** The Residential New Construction
22 Program design was offered by BHCOG under its Current BHCOG Plan and this is a new
23 offering for BHGD. This program, which has been modified from that offered in the

1 Current BHCOG Plan, seeks to promote construction of energy-efficient, single-family
2 and multifamily homes by providing incentives to new home builders as described in the
3 Combined Plan. The Residential New Construction Program has been modified as
4 follows:

- 5 • This program has been modified to maximize flexibility. For example, each
6 builder can now participate through a prescriptive path, in which the builder may
7 install any number of energy efficiency measures offered. To incentivize a
8 comprehensive set of energy efficient measures, builders can receive an additional
9 bundle bonus if installing three or more measures. The performance path remains
10 open to builders as well, and an incentive can be received for achieving a Home
11 Energy Rating (“HER”) of 10% or greater than local code.

12 ***Nonresidential Retrofit Program.*** Three components make up the Nonresidential
13 Retrofit Program: Prescriptive, Custom, and Commercial Direct Install. Each of these
14 components was offered by BHCOG under the Current BHCOG Plan. BHGD offered
15 Prescriptive (under the Efficient Natural Gas Rebate Program) and Custom. Commercial
16 Direct Install is new for BHGD. Each component is discussed below:

- 17 • *Nonresidential Prescriptive*, which has been modified from that offered in the
18 Current BHCOG Plan, offers cash incentives to nonresidential customers that
19 purchase high-efficiency gas equipment and/or provides incentives to dealers that
20 sell eligible equipment. Changes include prescriptive incentives for the following
21 new measures: commercial cooking equipment (e.g., ENERGY STAR® steam
22 cookers, combination ovens, low flow pre-rinse spray valves, and demand kitchen

1 ventilation control), boiler pipe insulation, indoor pool covers, gas infrared
2 heaters, driveway snow melt systems, and high-efficiency backup generators.

- 3 • *Custom* provides incentives for installing energy efficient natural gas equipment
4 not specified in the Nonresidential Prescriptive component. This component has
5 not changed from the Current BHCOG Plan and has been adopted for BHGD.
- 6 • *Commercial Direct Install* provide on-site analyses to identify energy efficiency
7 opportunities and directly install energy efficiency measures. This component has
8 not changed from the Current BHCOG Plan and is a new offering for BHGD.

9 ***Nonresidential New Construction Program.*** The Companies now offer the
10 Nonresidential New Construction Program to address the needs of this market, which was
11 not offered under the Current BHCOG Plan. The program will work with builders to
12 incorporate energy efficient design and equipment into the building. Chapter 7 of the
13 Combined Plan provides a full discussion of this new program.

14 ***Income Qualified Weatherization Program.*** Through the Income Qualified
15 Weatherization Program, funding is provided to local organizations to conduct
16 weatherization that improves the efficiency of homes or apartments occupied by income
17 qualified customers. While an income qualified program has been offered by both
18 BHCOG and BHGD, this is an updated program under the Combined Plan. The
19 Companies determined, in mid-2016, to turn over the day-to-day administration of this
20 program to Energy Outreach Colorado (“EOC”). EOC has been managing many of
21 Colorado’s Income Qualified programs and does an excellent job of utilizing all
22 resources available to maximize program results. The Colorado Energy Office will
23 provide a supporting role and will work closely with EOC on a regular basis.

1 ***School-Based Energy Education Program.*** The School-Based Energy Education
2 Program was offered by BHCOG under its Current BHCOG Plan and this is a new
3 offering for BHGD. The basic design of the program has not changed from the Current
4 BHCOG Plan. This program seeks to achieve long-term energy savings by increasing
5 energy efficiency awareness among youth within the BHCOG and BHGD service
6 territories by providing participating teachers with energy saving kits and educational
7 material. The program also offers two low-flow spray rinse valves to each participating
8 school for use in its facility.

9 **Q. IS THERE A SUMMARY OF THE MEASURES OFFERED UNDER THE**
10 **PROGRAMS?**

11 A. Yes. Appendix F to the Combined Plan summarizes the offered measures, along with
12 measure descriptions, base equipment the measure replaces, proposed customer
13 incentives, and proposed dealer spiffs (when applicable).

14 **Q. DOES THE PROPOSED COMBINED PLAN PROVIDE SAVINGS**
15 **OPPORTUNITIES FOR BOTH COMMERCIAL AND RESIDENTIAL GAS**
16 **SALES CUSTOMERS AS REQUIRED UNDER THE COMMISSION'S GAS**
17 **RULES?**

18 A. Yes, the Combined Plan is comprehensive and offers programs for residential and non-
19 residential customers.

20 **Q. PLEASE GUIDE THE COMMISSION THROUGH THE PROPOSED**
21 **COMBINED PLAN YOU HAVE SUBMITTED AS ATTACHMENT JD-1.**

22 A. In addition to the Executive Summary, the Combined Plan consists of the following
23 chapters:

- 1 • Chapter 1 introduces the Combined Plan and its development process.
- 2 • Chapter 2 explains the various components used to generate avoided costs for
- 3 both energy and capacity.
- 4 • Chapter 3 illustrates the information and inputs BHCOG and BHGD have
- 5 incorporated in creating the Combined Plan.
- 6 • Chapters 4, 5, 6, 7, 8 and 9 describe the Programs in detail. These chapters
- 7 contain program-level metrics, including the marketing approach, budgets, and
- 8 cost-effectiveness as well as detailed descriptions of program components,
- 9 delivery and operating procedures, participation, measures, and impacts.

10 The following appendices of the Combined Plan provide supporting data:

- 11 • Appendix A. Avoided Costs
 - 12 ○ Appendix A.1: BHCOG Avoided Costs
 - 13 ○ Appendix A.2: BHGD Avoided Costs
- 14 • Confidential Appendix B. Detailed Program Cost-Effectiveness Results (all of
- 15 which are separately filed as Confidential):
 - 16 ○ Confidential Appendix B.1: EE Calculations 2018-2020 BHCOG Plan
 - 17 ○ Confidential Appendix B.2: Common Assumptions 2018-2020 BHCOG
 - 18 Plan
 - 19 ○ Confidential Appendix B.3: EE Calculations 2018-2020 BHGD1 Plan
 - 20 ○ Confidential Appendix B.4: Common Assumptions 2018-2020 BHGD1
 - 21 Plan
 - 22 ○ Confidential Appendix B.5: EE Calculations 2018-2020 BHGD2 Plan
 - 23 ○ Confidential Appendix B.6: Common Assumptions 2018-2020 BHGD2

- 1 ○ Appendix B.7: Water Cost Savings
- 2 • Appendix C. Lost Revenue Calculation
- 3 ○ Appendix C.1: BHCOG Lost Revenue Calculation
- 4 ○ Appendix C.2: BHGD Lost Revenue Calculation
- 5 • Appendix D. Estimated Rate Impacts for BHCOG and BHGD
- 6 • Appendix E. Cross-Reference to Commission Rules
- 7 • Appendix F. Portfolio Measure Summary

8 **Q. ARE THE COMPANIES ASKING FOR FLEXIBILITY WITH RESPECT TO**
9 **THE COMBINED PLAN? IF SO, WHAT FLEXIBILITY IS BEING**
10 **REQUESTED?**

11 A. Yes. Commission Rule 4753(k) allows each Company to “spend more than the annual
12 expenditure target established by the Commission up to twenty-five percent over the
13 target, without being required to submit a proposed DSM plan amendment.” Each
14 Company is also asking for Commission authority to have the flexibility to, within the
15 Combined Plan and consistent with the requirements of Commission Rule 4757(a), adjust
16 incentive amounts and measures as necessary to administer the Combined Plan.

17

18 **VI. PARTICIPATION AND SAVINGS GOALS**

19 **Q. HOW WAS PARTICIPATION ESTIMATED UNDER THE COMBINED PLAN?**

20 A. The Companies based the estimated number of eligible participants on the number of
21 their respective customers in 2016. Establishing a participation goal for each program
22 required balancing numerous factors, including the pool of eligible participants, the
23 available budget, and past program performance. In setting participation goals for 2018

1 (the first year of the Combined Plan), the Companies assessed historical program
2 performance for existing Colorado programs, seeking to understand which programs met
3 or exceeded their goals for BHCOG during the Current BHCOG Plan, and which fell
4 short. For program components falling short of their goals, the 2018 goal was scaled
5 down in the Combined Plan. In setting the 2018 goal for the new Nonresidential New
6 Construction Program, the Companies considered a similar program offered within their
7 affiliate's Iowa territory.

8 **Q. WHAT ARE THE ANNUAL PARTICIPATION GOALS UNDER THE COMBINED**
9 **PLAN?**

10 A. The Combined Plan anticipates having 3,702 residential participants for BHCOG and
11 2,980 residential participants for BHGD. These participation numbers are exclusive of
12 the Behavioral Program. In addition, it is estimated there will be 1,078 nonresidential
13 participants for BHCOG and 1,282 nonresidential participants for BHGD. Participation
14 is set forth in the Combined Plan on a program and component level basis in Chapters 4,
15 5, 6, 7, 8, and 9.

16 **Q. WHAT ARE THE PROGRAM ENERGY SAVINGS GOALS FOR BHCOG AND**
17 **BHGD UNDER THE COMBINED PLAN?**

18 A. Under the Combined Plan, BHCOG's full program portfolio offers projected savings
19 estimated of 226,591 Dth for the 2018–2020 plan cycle ("Plan Cycle") while BHGD's
20 full program portfolio offers projected savings estimated of 226,047 Dth. Table JD-2
21 below reflects a summary of the energy savings goals, and more granularity is contained
22 in the Combined Plan.

1

TABLE JD-2³

BHCOG ENERGY SAVINGS GOALS SUMMARY UNDER COMBINED PLAN (Dekatherms)				
Program Name	2018	2019	2020	2018-2020 Total
Residential Retrofit Program	40,270	40,270	40,270	120,809
Residential New Construction Program	5,765	5,765	5,765	17,294
Nonresidential Retrofit Program	19,109	19,109	19,109	57,327
Nonresidential New Construction Program	676	676	676	2,028
Income-Qualified Program	1,164	1,164	1,164	3,492
School-Based Energy Education Program	8,547	8,547	8,547	25,641
Total Portfolio	75,530	75,530	75,530	226,591
BHGD ENERGY SAVINGS GOALS SUMMARY UNDER COMBINED PLAN (Dekatherms)				
Program Name	2018	2019	2020	2018-2020 Total
Residential Retrofit Program	40,268	40,268	40,268	120,805
Residential New Construction Program	981	981	981	2,942
Nonresidential Retrofit Program	22,222	22,222	22,222	66,667
Nonresidential New Construction Program	676	676	676	2,028
Income-Qualified Program	5,160	5,160	5,160	15,480
School-Based Energy Education Program	6,042	6,042	6,042	18,126
Total Portfolio	75,349	75,349	75,349	226,047

2

3 **Q. HOW DO THE PROPOSED SAVINGS GOALS COMPARE TO THE ANNUAL**
 4 **PROGRAM ENERGY SAVINGS GOALS IN THE CURRENT DSM PLANS FOR**
 5 **BHCOG AND BHGD?**

6 A. Table JD-3 below shows that the proposed energy savings goals for the Combined Plan are
 7 higher than were approved for the Companies' currently effective DSM plans.

³ The information in this table is contained in Table ES.2.1 and Table ES 2.2 in the Combined Plan. The tables in the Combined Plan also list the energy savings goals for each program.

1

TABLE JD-3⁴

ENERGY SAVINGS GOALS (DTH)	
BHCOG PROGRAM YEAR COMPARISON	
Program Year	Energy Savings Goal (Dth)
2017	56,473
2018	75,530
BHGD PROGRAM YEAR COMPARISON	
Program Year	Energy Savings Goal (Dth)
2017	21,201
2018	75,349

2

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Q. THE ANNUAL PROGRAM ENERGY SAVINGS GOALS PROPOSED UNDER THE COMBINED PLAN ARE HIGHER THAN UNDER PRIOR PLANS. PLEASE EXPLAIN HOW THE COMPANIES PLAN TO ACHIEVE THESE GOALS.

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A. The Companies plan to utilize marketing, outreach and education processes implemented in other affiliate service territories that have produced strong results in past plans. The Companies review of past/current EM&V recommendations emphasizes the need for a strong trade ally network and local presence. The Companies’ emphasis on building a strong trade ally network will continue under this Combined Plan. Also, the Companies have a dedicated local resource that will be educating and informing trade allies, customers, employees and other interested parties regarding DSM program details.

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⁴ BHCOG’s 2017 savings goal is found in its 2015-2017 DSM Plan filed in Proceeding No. 14A-0488G. BHGD’s 2017 savings goal is found in its 2014-2016 DSM Plan filed in Proceeding No. 13A-0458G, with approval to use the 2016 goals in 2017 granted by the Commission in Decision No. C16-0378 issued in Proceeding No. 16A-0253G. The 2018 savings goals can be found in Table ES.2.1 and Table ES.2.2 in the Combined Plan.

VII. PROPOSED BUDGET

Q. WHAT ARE THE PROPOSED BUDGETS FOR EACH YEAR OF THE COMBINED PLAN FOR BHCOG AND BHGD, RESPECTIVELY?

A. The proposed annual budgets by program are provided in Table JD-4 and Table JD-5 below. Under the Combined Plan, the Companies assume steady participation in the programs over the Plan Cycle. The proposed budgets remain relatively constant each year. The Tables below present each Company’s budget summary by category.

TABLE JD-4: BHCOG Summary Budget by Program by Year⁵

Program	2018	2019	2020
Residential Retrofit Program	\$874,900	\$916,100	\$908,700
Residential New Construction Program	\$414,900	\$436,900	\$433,400
Nonresidential Retrofit Program	\$512,000	\$538,400	\$533,900
Nonresidential New Construction Program	\$43,300	\$44,800	\$44,500
Income-Qualified Program	\$257,500	\$271,200	\$269,000
School-Based Energy Education Program	\$139,100	\$146,500	\$145,300
Total Portfolio	\$2,241,700	\$2,353,900	\$2,334,800

* Table may not sum due to rounding.

TABLE JD-5: BHGD Summary Budget by Program by Year⁶

Program	2018	2019	2020
Residential Retrofit Program	\$537,000	\$563,800	\$558,500
Residential New Construction Program	\$79,700	\$86,700	\$85,600
Nonresidential Retrofit Program	\$596,800	\$633,500	\$627,600
Nonresidential New Construction Program	\$43,600	\$45,400	\$45,100
Income-Qualified Program	\$917,600	\$974,100	\$965,000
School-Based Energy Education Program	\$100,500	\$106,700	\$105,700
Total Portfolio	\$2,275,200	\$2,410,200	\$2,387,500

* Table may not sum due to rounding.

⁵ This is a duplicate of Table ES.3.5 from the Combined Plan.

⁶ This is a duplicate of Table ES.3.6 from the Combined Plan.

1 These budgets are inclusive of planning and design costs; administrative and DSM
2 program delivery costs; advertising and promotional costs, including DSM education;
3 customer incentive costs; equipment and installation costs; measurement and verification
4 costs; and miscellaneous costs.

5 **Q. DO THE BUDGETS ALSO INCLUDE ESTIMATED FULL-TIME EQUIVALENT**
6 **STAFF FOR THE COMBINED PLAN?**

7 A. Yes. For BHCOG, the estimated full-time equivalent staff is 2.40 (program admin (2.20)
8 and marketing (0.20). For BHGD, the estimated full-time equivalent staff is 2.57
9 (program admin (2.36) and marketing (0.21)).⁷ To better manage and promote the
10 programs more effectively and efficiently, a new Energy Efficiency Program
11 Coordinator, who has primary responsibility for the Combined Plan, was hired in August
12 2016. The coordinator will give the program a local and hands-on approach to promoting
13 and administering the energy efficiency programs to drive additional participation and
14 customer energy savings.

15 **Q. HOW WERE THE PROPOSED YEARLY COMBINED PLAN BUDGETS**
16 **DETERMINED?**

17 A. The Companies and The Cadmus Group developed the individual program budgets based
18 on expected program participation. For each program component, incentive and dealer
19 spiff budgets were developed based on the number of measures incented multiplied by
20 the incentive per measure. At the program level, there are also funds for program design,
21 administration, and delivery, evaluation delivery, marketing and training, and EM&V.
22 Program and evaluation delivery costs are based on third-party implementer costs to

⁷ This information is contained in Table ES.4.3 and Table ES.4.4 in the Combined Plan.

1 deliver the programs, as needed. For the other cost categories (program administration,
2 marketing and training, and EM&V), each are set to approximately 5 percent of the total
3 program budget. In addition, once all the programs are rolled up to the portfolio level, the
4 Companies review the total budgets for administration and marketing and training to
5 determine if they are sufficient to meet staffing needs, marketing campaigns, and other
6 operation costs, while still maintaining an overall cost-effective plan.

7 **Q. DO YOU EXPECT THAT THE EXPENDITURES FOR EACH PROGRAM WILL**
8 **EXACTLY MATCH THOSE BUDGETED IN THE COMBINED PLAN?**

9 A. No. While the Companies believe that the program participation will be close to the
10 projections, it is unlikely that each program will unfold exactly as expected. Some
11 programs may prove more attractive and will exceed expectations while others may
12 require additional effort to meet the budget.

13 **Q. HOW DO THE PROPOSED BUDGETS COMPARE TO THE 2017 BUDGETS**
14 **FOR THE COMPANIES UNDER THEIR CURRENTLY-EFFECTIVE DSM**
15 **PLANS?**

16 A. Table JD-6 below shows the proposed 2018 budgets as compared to the 2017 budgets in
17 the currently effective DSM plan for each Company.

1

TABLE JD-6

BHCOG PROGRAM YEAR COMPARISON	
Program Year	Budget
2017	\$1,953,400
2018	\$2,241,700

2

BHGD PROGRAM YEAR COMPARISON	
Program Year	Budget
2017	\$783,726
2018	\$2,275,200

3

4 **Q. IN THE CASE OF BHCOG, WHY IS THE 2018 BUDGET HIGHER THAN THE**
5 **BUDGET FOR 2017?**

6 A. The budget proposed for 2018 is \$288,300 higher than the 2017 budget under the Current
7 BHCOG Plan. A slight budget increase from 2017 to 2018 results primarily from the
8 addition of the Nonresidential New Construction Program, an increase in the School-
9 Based Energy Education Program, and a higher budget for the Residential New
10 Construction Program, which exceeded expectations in 2016 and is projected to perform
11 well in 2017. The remaining 2018 program budgets, inclusive of all costs, including
12 incentives, are relatively flat as compared to 2017.

1 **Q. IN THE CASE OF BHGD, WHY IS THE 2018 BUDGET NEARLY THREE**
2 **TIMES HIGHER THAN ITS 2017 BUDGET?**

3 A. BHGD has requested an increased budget for its portfolio so that a more comprehensive
4 and consistent program offering would be available to its Colorado customers. The
5 Combined Plan added the following for BHGD:

- Residential New Construction Program
- Residential Behavior Change Component (part of Residential Retrofit Program)
- Nonresidential New Construction Program
- Commercial Direct Install Component (part of Nonresidential Retrofit Program)
- School-Based Energy Education Program

6 These additions, plus increased support for the portfolio, are the main contributors to
7 BHGD's increased budget.

8 **Q. WHY IS BHGD GOING TO BE MORE SUCCESSFUL IN MANAGING THE**
9 **DSM PROGRAMS IN THE COMBINED PLAN?**

10 A. The Companies plan to utilize the existing process that is in place for BHCOG that has
11 proven successful over the last five years. As an example, a dedicated resource is
12 responsible for building a robust trade ally network to educate, promote and install
13 energy efficient measures. BHGD did not previously have a dedicated resource
14 managing the portfolio, nor did it focus on a trade ally network. Importantly, BHGD is
15 now a part of Black Hills' multi-state energy efficiency efforts.

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TABLE JD-7: Combined Plan NTG Values⁸

Program	NTG Value
Residential Retrofit Program	
Residential Evaluation Component	0.95
Residential Prescriptive Component	0.64 – 0.80*
Residential Behavior Change Component	1.00
Residential New Construction Program	
	0.90
Nonresidential Retrofit Program	
Nonresidential Prescriptive Component	0.85
Nonresidential Custom Component	0.85
Commercial Direct Install Component	0.90
Nonresidential New Construction Program	
	0.88
Schools-Based Energy Education Program	
	0.70
Income Qualified Weatherization Program	
	1.00

* Based on previous BHCOG program evaluations, unique NTG values are utilized for each equipment type: envelope = 0.78, equipment maintenance/tune-up = 0.80, space and water heating = 0.64.

Q. WILL THE COMPANIES USE THESE SAME NTG FACTORS IN EVALUATION OF DSM SAVINGS OBTAINED UNDER THE COMBINED PLAN?

A. Yes. The Companies will use the above NTG factors unless modified by future Evaluation, Measurement and Verification (“EM&V”) reports.

Q. WHAT ABOUT THE REMAINING TECHNICAL ASSUMPTIONS USED IN DEVELOPMENT OF THE COMBINED PLAN?

A. The remaining technical assumptions are set forth in the Combined Plan, as noted: Avoided Gas Capacity Costs (Section 2.2), Discount and Inflation Rates (Section 2.4), Gas Energy Costs (Section 2.1), Avoided Variable O&M Cost (Appendices A.1 and A.2), and Lost Revenue Calculations (Appendices C.1 and C.2).

⁸ This is a replicate of “Table 3: NTG Values” in the Combined Plan.

1 **IX. COST-EFFECTIVENESS**

2 **Q. WHAT TESTS ARE AVAILABLE TO DETERMINE IF DSM PROGRAMS ARE**
3 **COST EFFECTIVE?**

4 A. DSM program cost-benefit analysis can employ the following five benefit-cost tests:

- 5 • Total Resource Cost Test (“TRC”): evaluates the cost effectiveness of measures
6 and programs as a resource option;
- 7 • Societal Cost Test: similar to the TRC with the addition of environmental
8 externalities;
- 9 • Utility Cost Test: evaluates cost-effectiveness from the utility’s perspective;
- 10 • Participant Test: evaluates whether a program/measure is cost-effective from the
11 participant’s perspective; and
- 12 • Ratepayer Impact Measure: measures a DSM program/measure’s impact on
13 utility rates.

14 **Q. THE COMBINED PLAN SHOWS THAT SOME OF THE PROGRAMS ARE**
15 **NOT COST-EFFECTIVE. WHY ARE THE COMPANIES PROPOSING TO**
16 **KEEP THOSE PROGRAMS IN THE COMBINED PLAN?**

17 A. While, for both BHCOG and BHGD, the overall portfolio is cost-effective, certain
18 programs, as depicted in Tables ES.4.1 and ES.4.2 in the Combined Plan, are not cost-
19 effective on their own. The Rules allow the Companies to propose one or more low-
20 income DSM programs that yield a modified TRC test value below 1.0.

21 With respect to the Residential New Construction Program, BHCOG has spent the
22 last 4+ years gaining the support of builders through education and outreach efforts. By
23 doing so, the builders are now engaged in building more efficient homes. Removal of the

1 Residential New Construction Program at a point when it is finally maturing and
2 succeeding could result in less-efficient homes being built. In addition, BHGD is just
3 now starting to offer this program under the Combined Plan, and it takes time to build
4 momentum and success. Notably, the cost-effectiveness of this program under the
5 Combined Plan is affected by several factors, including the low price of natural gas and
6 new building and appliance codes.

7 The Nonresidential New Construction Program also does not pass the cost-
8 effectiveness test – due to the low price of natural gas and the stricter building codes.
9 Nevertheless, the Companies strongly propose to include this program in the Combined
10 Plan. By educating the architects and engineering firms on the most efficient measures
11 available in the market, the Companies’ commercial and industrial customers will benefit
12 by having high efficient measures designed and built into their new facilities.

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14 **X. MEASUREMENT AND VERIFICATION**

15 **Q. PLEASE DESCRIBE THE MEASUREMENT AND VERIFICATION SCHEDULE**
16 **PROPOSED UNDER THE COMBINED PLAN.**

17 A. EM&V of programs will be performed on a three-year rotating schedule. Each program,
18 program component and overall process will be analyzed to determine the extent to
19 which implementation is achieving the desired goals at some point during the life of the
20 Combined Plan. Combined Plan Table 1, entitled EM&V Schedule, sets forth the
21 proposed impact and process evaluation schedule. That table is replicated below:

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TABLE JD-8: EM&V Schedule

Program/Program Component	Evaluation Year	Program Year Evaluated	Reporting
Schools-Based Energy Education	1	2018	4/1/2019
Residential New Construction	1	2018	4/1/2019
Income Qualified Weatherization	1	2018	4/1/2019
Residential Evaluation	2	2019	4/1/2020
Residential Behavior Change	2	2019	4/1/2020
Residential Prescriptive	2	2019	4/1/2020
Nonresidential New Construction	3	2020	4/1/2021
Nonresidential Custom	3	2020	4/1/2021
Nonresidential Prescriptive	3	2020	4/1/2021
Commercial Direct Install	3	2020	4/1/2021

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3 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

4 A. Yes.

Appendix A

Statement of Qualifications

James Dillon

Mr. Dillon graduated from Cardinal Stritch University in 1988. He earned a Bachelor of Science degree in Business Administration and General Management. Mr. Dillon holds professional memberships in PIE2, AESP, IAEE and CEEE.

Mr. Dillon has over 15 years' experience in the investor-owned utility industry, in the areas of marketing, sales and contracts.

Mr. Dillon joined Black Hills Corporation in January 2010. He currently serves as Senior Manager, Energy Efficiency and Demand Side Management. For Black Hills, he manages the Company's overall energy efficiency and demand-side management portfolio, both gas and electric, across the enterprise footprint in five states: South Dakota, Wyoming, Montana, Colorado, and Iowa. In 2016, with Black Hills' acquisition of SourceGas Holdings LLC, Mr. Dillon's responsibilities expanded to the legacy SourceGas footprint in three states: Arkansas, Colorado, and Wyoming.

His responsibilities include DSM program design and regulatory support, program implementation with customers and business partners, vendor selection and third-party contract management. Mr. Dillon supervises seven professionals in the areas of DSM program coordination, vendor management, and customer outreach. Mr. Dillon manages a combined approved portfolio budget of over \$20,000,000 to achieve energy savings goals.