

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO**

**Proceeding No. 17AL-0477E**

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IN THE MATTER OF ADVICE LETTER NO. 742 FILED BY BLACK HILLS/ COLORADO ELECTRIC UTILITY COMPANY, LP TO UPDATE BASE RATES AS REQUIRED BY COMMISSION DECISION NO. C16-1140 EFFECTIVE AUGUST 11, 2017.

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**ANSWER TESTIMONY OF JOHN BRINGENBERG ON BEHALF OF  
THE COLORADO SOLAR ENERGY INDUSTRIES ASSOCIATION**

**OCTOBER 23, 2017**

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**LIST OF ATTACHMENTS**

**JLB-1** NARUC Distributed Energy Resource Manual (2016)

**JLB-2** Black Hills’ Response to Discovery Request CPUC8-5

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME, TITLE, AND CONTACT INFORMATION.**

3 A. John Bringenberg. I am a faculty member of Ecotech Institute and a District  
4 Development Consultant for Petros PACE Funding. I am a recent former President of the  
5 Board of Directors of the Colorado Solar Energy Industries Association (COSEIA).  
6 COSEIA is located at 1536 Wynkoop St., Suite 104, Denver, CO 80202. I am a prior co-  
7 owner of a Colorado-based solar installation company and I serve as a consultant on solar  
8 policy issues, Distributed Energy Resources (DERs), and similar industry issues.

9 **Q. HAVE YOU TESTIFIED BEFORE?**

10 A. Yes. I have provided Testimony before the Colorado Public Utilities Commission  
11 (Commission or PUC) in prior Public Service Company of Colorado (Public Service)  
12 renewable energy proceedings, such as Proceeding No. 13A-0836E, and Public Service's  
13 Solar\*-then Renewable\*Connect applications (14A-0302E and 16A-0055E). I also  
14 participated in multiple stakeholder group meetings that were set up through the tri-  
15 proceeding settlement from last year, which includes the Renewable\*Connect application  
16 mentioned above.

17 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

18 A. I am testifying on behalf of COSEIA.

19 **Q. WHAT IS YOUR ROLE WITHIN COSEIA?**

20 A. As an unpaid former member of the Board of Directors of COSEIA, I served as  
21 President, and Co-Chair of COSEIA's Policy Committee. I was an elected board  
22 member from 2011-2016, and I continue in my active role on COSEIA's policy  
23 committee.

1 **Q. CAN YOU BRIEFLY DESCRIBE MORE ABOUT COSEIA?**

2 **A.** Yes. COSEIA is a 501(c)(6) nonprofit trade association established in 1989. For 27  
3 years, COSEIA has been leading the Colorado solar industry by advocating for policies  
4 and programs that expand solar choice in our state. COSEIA's membership is comprised  
5 of renewable energy companies and users and currently we have roughly 200 solar-  
6 related businesses and advocates as members, ranging from installers located throughout  
7 the state, to community and utility scale developers, to large national and international  
8 manufacturers, distributors, financing firms and other solar companies. COSEIA's broad  
9 membership base provides products and services to residential consumers, commercial  
10 businesses, utilities, and governmental entities. COSEIA holds regular policy calls to  
11 seek member input and has had numerous policy calls with members about this rate case.

12 **Q. HAVE YOU INCLUDED A DESCRIPTION OF YOUR QUALIFICATIONS?**

13 **A.** Yes. A description of my qualifications is included as Appendix A at the end of my  
14 testimony.

15 **II. SUMMARY OF TESTIMONY AND RECOMMENDATIONS**

16 **Q. WHAT IS THE PURPOSE OF YOUR ANSWER TESTIMONY?**

17 **Q.** My answer testimony discusses COSEIA's initial responses to the Phase II rate design  
18 proposals found in the direct testimony put forward in this proceeding by Black  
19 Hills/Colorado Electric Utility Company, LP. (Black Hills or Company).

20 **Q. CAN YOU PROVIDE A SUMMARY OF YOUR ANSWER TESTIMONY AND**  
21 **RECOMMENDATIONS?**

22 **Q.** As a general matter, COSEIA advocates for more forward-looking rate structures that can  
23 balance the need for fair rates which encourage participation in the Company's solar

1 programs, while adhering to cost causation principles. One key for COSEIA is a rate  
2 design that provides an open market for customers to choose solar outside of any  
3 incentive-based Company program. In this case, to achieve these ends, I recommend, on  
4 behalf of COSEIA that the Commission consider the following:

- 5 • Reject Black Hills' proposed across-the-board increases in monthly fixed charges.
- 6 • Reject the proposed separate and discriminatory Residential Net Metered (RS-3) rate  
7 class including the higher fixed monthly charges and higher energy rate, especially given  
8 that both are based on a small sample of residential solar customers.
- 9 • Modify the proposed Inclining Block Rates (IBR) for residential customers by increasing  
10 the break point from the 500 kWh average to 600 kWh per month, and increase the split  
11 between the first tier energy rate and second tier rate to encourage more conservation.
- 12 • Provide a rate structure based on usage (not fixed or demand) charges that allows  
13 residential and demand-based Commercial and Industrial (C&I) customers to choose on-  
14 site solar in an open market without having to participate in an incentive-based Company  
15 program.
- 16 • Deny the Company's proposal to force solar customers to install and pay for production  
17 meters, and order the Company to adhere to the Commission's Rules with respect to  
18 production meter installation and payment.

19 **III. REJECT HIGHER MONTHLY FIXED COSTS AND DISCRIMINATORY**

20 **SOLAR RATES**

21 **Q. WHY ARE THE PROPOSED HIGHER FIXED CHARGES A BAD IDEA FOR**  
22 **ALL CUSTOMERS?**

1 **Q.** The Commission should reject the across-the-board monthly fixed charge increases, and  
2 should also reject the discriminatory net metered customer rates. These would make  
3 going solar less, rather than more attractive. This rate policy runs counter to the goals set  
4 forth by the Colorado voting public, the Colorado legislature, and most recently by  
5 Governor Hickenlooper. For example, Amendment 37 sets an overarching intent for  
6 Colorado to “develop and utilize renewable energy resources to the maximum practicable  
7 extent.”<sup>1</sup> Furthermore, on July 11 of this year, Governor Hickenlooper signed Executive  
8 Order D 2017-015 “Supporting Colorado’s Clean Energy Transition.”<sup>2</sup> The executive  
9 order includes bold goals that depend on encouraging renewable energy such as wind and  
10 solar at all levels, including at the distributed level. Yet, the Company is now proposing  
11 to increase fixed charges almost 20% on residential regular customers (RS-1) by \$2.38  
12 per month.<sup>3</sup> Overall energy rates are proposed to increase by 8.7% according to  
13 testimony by Mr. Harrington.<sup>4</sup> The Company proposes a monthly customer charge of  
14 \$24.48, or \$7.98 more per month than the current monthly customer charge,<sup>5</sup> and \$5.21  
15 more than the proposed Residential Regular class (RS-1) increase.<sup>6</sup> These high monthly  
16 charges alone discourage efficiency and conservation as well as deployment of solar  
17 energy. High fixed charges make it more difficult for customers to see any benefit from  
18 decreasing energy usage through conservation and efficiency, and more difficult for

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<sup>1</sup> Legislative Declaration of Intent, Amendment 37 (approved by a vote of the registered electors of the state of Colorado on November 2, 2004).

<sup>2</sup> Office of the Governor of the State of Colorado. Executive Order D-2017-015 - Supporting Colorado’s Clean Energy Transition.

<sup>3</sup> Harrington Corrected Direct at 7:23-24. (All citations are to Page:Line). (The proposed Residential-Regular customer charge is \$19.27/month up \$2.38 from the current \$16.89).

<sup>4</sup> *Id.* at 5:5-7.

<sup>5</sup> *Id.* at 17:22.

<sup>6</sup> *Id.* at 20:3.

1 customers to see the economic benefit of going solar. As a result, these rates as proposed  
2 run counter to State policy and are unfair to residential, low-income, and commercial and  
3 industrial customers who wish to invest in on-site solar, energy efficiency, or to conserve  
4 electricity. As described in the National Association of Regulatory Utility Commissioners  
5 Manual on Distributed Energy Rate Design and Compensation (Attachment JLB-1 -  
6 NARUC DER Manual):<sup>7</sup>

7 “... the interplay between collecting more costs through a fixed charge and the  
8 volumetric rate may result in uneconomic or inefficient price signals. Indeed,  
9 an increase in fixed charges should come with an associated reduction in the  
10 volumetric rate. ... [It] may be more reasonable to lower the fixed costs and  
11 increase the volumetric rate, which would send a more efficient price signal.”  
12

13 **Q. WHAT SHOULD BE DONE ABOUT THE HIGHER PROPOSED RATES?**

14 A. The Commission should encourage revenue neutral rates that reduce fixed charges and  
15 send actionable and easy to understand price signals while focusing on charging  
16 ratepayers for the energy they actually use. Further, the Commission should determine  
17 that there is no sound basis to differentiate residential net metered customers from regular  
18 residential customers. Reducing fixed charges will promote clean renewable energy, and  
19 will be fairer to residential and low-income ratepayers. A rate design that relies primarily  
20 on charges for energy usage will help establish an open market for renewable energy, and  
21 give customers more choice to attain their energy needs through clean renewable energy.  
22 This also aligns the current state policy mentioned above and can make Black Hills’ on-  
23 site solar programs less reliant on performance based incentives.

24 **Q. WHAT ISSUES DOES COSEIA SEE WITH THE COMPANY’S PROPOSED NET**  
25 **METERED RATES FOR RESIDENTIAL CUSTOMERS (RS-3)?**

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<sup>7</sup> Attachment JLB-1- NARUC Manual on Distributed Energy Rate Design and Compensation, at p 118.

1 A. COSEIA has concerns with Black Hills applying its Class Cost of Service Study  
2 (CCOSS) to the small number of residential customers who have chosen to offset all or  
3 some portion of their electricity usage by making a private and personal investment in on-  
4 site solar energy, and treating this small number of customers much differently than the  
5 rest of the residential class. Segregating residential net metered customers by applying  
6 the 2015 CCOSS to a set of 201 net metered residential customers<sup>8</sup> of 84,000 total  
7 residential customers has very likely generated anomalous results that create a  
8 discriminatory application of increased fixed and energy charges for this small subset of  
9 net metered customers. As is shown in Corrected Attachment CRG-1,<sup>9</sup> on page two,  
10 Columns (l) and (m), there is a characterization of class costs that would be more proper  
11 to examine as averaged across all residential customers as shown in the Summary figures  
12 on page 1, column (c). Combining net metered and residential customers represents a  
13 more accurate class cost of service.

14 **Q. CAN YOU EXPLAIN COSEIA'S POSITION REGARDING A SEPARATE NET**  
15 **METERING RESIDENTIAL CLASS?**

16 A. Yes. The Company describes net metering customers as if they were a unique class  
17 served by different or dedicated plant and equipment. This is not true. Net metered  
18 customers are dispersed among all residential customers and are served by the same  
19 equipment and plant. In terms of energy use, these net metered customers are no  
20 different than other residential customers who chose to lower their consumption through  
21 any type of energy efficiency measure or the desire to conserve electricity. Net metered

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<sup>8</sup> Harrington Corrected Direct, Figure MJH-4, at 19:1.

<sup>9</sup> Gray Corrected Direct, Corrected Attachment CRG-1, at p.2, columns (l) and (m).

1 customers continue to pay for grid services through monthly charges and other fees, and  
2 continue to pay for energy delivered by the utility.

3 **Q. ARE THERE NATIONALLY-RECOGNIZED SOURCE MATERIALS THAT**  
4 **SUPPORT THIS POINT OF VIEW?**

5 A. Yes. Attachment JLB-1, the NARUC DER Manual considers what conditions are  
6 necessary for differentiating net metering customers from the rest of the regular customer  
7 class. COSEIA maintains that the Company has not met these conditions. Specifically,  
8 the manual states:

9 E.1.a: Different Rates Versus Changing All Rates: "... ratemaking is often the  
10 result of a regulator balancing a variety of interests and goals .... There is a  
11 strong argument to be made for changing the rate structure that applies to **all**  
12 customers, as sending all customers the most appropriate price signal should  
13 result in the most economically efficient outcomes related to electricity  
14 consumption, as well as decisions on the installation of DER."<sup>10</sup> (Emphasis  
15 added).

16  
17 And regarding the relevant portion of the next section of the NARUC DER Manual:

18  
19 E.1.b. Different Customer Classes to Recognize Difference in Service:  
20 "Traditionally, customers are separated into classes based on some important  
21 distinction in the service provided to or usages of different groups of  
22 customers that affects the cost to serve them. The question for DER  
23 customers, then, is whether the difference in the service provided to DER  
24 customers differs in a way that justifies their separation into a separate  
25 class."<sup>11</sup> (Internal citations omitted).

26  
27 Residential net metered customers are no more a separate cost class than homes with air  
28 conditioning, multi-family homes, or highly energy efficient homes, such as net zero or  
29 low HERS<sup>12</sup> homes. According to the guidelines above, a separate class is not necessary  
30 until DER constitutes some threshold portion of an important and significant cost

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<sup>10</sup> Attachment JLB-1 NARUC DER Manual, at p. 75.

<sup>11</sup> *Id.* at p. 76.

<sup>12</sup> Home Energy Rating System, a nationally recognized professional rating to determine a home's energy efficiency rating and energy performance.



1 determinant, and that doing so before this threshold is met constitutes rate  
2 discrimination.<sup>13</sup> Thus, the Company has not demonstrated either a significant  
3 penetration of net metering customers, nor a sufficient difference in the cost of serving  
4 net metered customers to justify a separate class or sub-class.

5 **IV. RECOMMENDATIONS FOR IMPROVEMENTS TO CERTAIN PROPOSED**  
6 **RATES**

7 **Q. WHAT ARE COSEIA'S RECOMMENDATIONS REGARDING THE TIERED**  
8 **RATES FOR RESIDENTIAL CUSTOMERS?**

9 A. COSEIA supports the Company's recommendation of tiered, or inclining block rates  
10 (IBR) generally, but has a few issues with the rates as proposed for the residential class.  
11 As described by Mr. Harrington,<sup>14</sup> in general an IBR rate design can provide benefits to  
12 lower income customers and can also promote conservation. However, the Company's  
13 proposed breakeven point between the tiers (500 kWh average usage) is too low. The  
14 Company's proposed lower tier rate is not different or low enough compared to the  
15 higher tier rate to properly signal and incentivize customers to use less energy.  
16 Additionally, 500 kWh is too low for low-income ratepayers who have little ability to  
17 alter their energy consumption.

18 **Q. WHY WOULD THIS STRUCTURE BE UNFAIR?**

19 A. While tiered rates may increase conservation measures among some ratepayers,  
20 residential users, particularly those with low-incomes often have little ability to control

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<sup>13</sup> See, e.g., Att. JLB-1, at 76, fn 105. (quoting Jim Kennerly, *Rethinking Standby and Fixed Cost Charges: Regulatory and Rate design Pathways to Deeper Solar Cost Reductions*. North Carolina Clean Energy Technology Center, Raleigh, NC, August 2014.)

<sup>14</sup> Harrington Corrected Direct, at 13:8 through 14:8.

1 their energy usage. Consequently, they will bear an unfair burden of the rate increases in  
2 a tiered system, if the rates are not carefully set up and protections for low-income  
3 consumers must be factored into these rates. As described by Mr. Harrington,<sup>15</sup> the  
4 average low-income customer uses 591 kWh/month on an annual basis and non low-  
5 income households average 624kWh per month. Therefore choosing 500 kWh as the  
6 breakeven point penalizes every “average” low-income customer by putting at least some  
7 of their usage in the higher rate category, without any behavioral change. Also, since this  
8 500kWh level is modeled with the higher proposed customer charge, all customers below  
9 500kWh pay more for energy used due to the higher fixed rates. Households with low and  
10 moderate incomes do not have resources to pay upfront costs for weatherization that  
11 would lower heating and cooling costs, or for other energy efficiency measures such as  
12 purchasing LED light bulbs. Renters also have little control over energy efficiency  
13 measures made by a landlord, which leaves renters paying more because their landlord  
14 has little incentive to make improvements when they do not directly benefit from the cost  
15 for efficiency improvements.

16 Thus we believe starting the higher tier after monthly usage of 600 kWh makes  
17 more sense as it is below the average for non low-income ratepayers and at the average  
18 for low-income ratepayers. Further, an increase in the break (along with lowered fixed  
19 rates) will support higher revenue neutral energy rates in this rate design, which provides  
20 a stronger signal to users for conservation and choosing alternatives to the higher energy  
21 rates.

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<sup>15</sup> *Id.*, at 13:1-6.

1 **Q. WHY DOES COSEIA RECOMMEND A RATE DESIGN WITH LOWER**  
2 **CUSTOMER CHARGES, AND CORRESPONDINGLY HIGHER ENERGY**  
3 **RATES?**

4 A. COSEIA agrees with the NARUC DER manual (Attachment JLB-1) in that “[i]deally,  
5 rates are price signals for **consumption** of electricity. Those same signals are used to  
6 compare the utility’s provision of said service against the alternatives.”<sup>16</sup> (Emphasis  
7 added). Therefore, a key goal in good, forward-thinking rate design is to establish strong  
8 signals that can be acted upon to meet goals of conservation and renewable energy among  
9 others. Even small fixed monthly customer charges represent a rate component that  
10 cannot be acted upon and therefore represents no signal. Alternatively, rate design with  
11 low customer monthly charges below \$10.00 and higher energy rates provides a stronger  
12 signal to drive conservation or efficiency. As further described in the NARUC DER  
13 Manual, “the more a rate structure reflects the costs associated with an activity, the more  
14 appropriately decisions can be made about how much of a service to use, when to use it,  
15 and whether other options for the provision of said service make economic sense.”<sup>17</sup>

16 **Q. DO YOU BELIEVE THE DIFFERENCE IN THE LOWER TIER VERSUS THE**  
17 **HIGHER RESIDENTIAL ENERGY RATE TIER IS LARGE ENOUGH TO**  
18 **SIGNAL CHANGE, AS DESCRIBED IN THE NARUC MANUAL?**

19 A. No. The currently proposed Tier 1 rate of \$0.08271/kWh and Tier 2 rate of  
20 \$0.11219/kWh does not provide enough differential to encourage conservation or  
21 alternatives. I describe this difference in tiered rates as rate fidelity. In this proposed  
22 two-tier rate, a delta less than \$0.03/kWh is a low fidelity and would not be as strong a

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<sup>16</sup> Att. JLB-1 NARUC DER Manual, at p. 79.

<sup>17</sup> *Id.* at 78-79.

1 behavior motivator as would be either a two-tier rate with \$0.04/kWh or more  
2 differential, or a three-tier rate with \$0.03kWh or more differential per tier. If the  
3 Company were to raise the breakeven level to 600 kWh and simultaneously lower the  
4 monthly customer charge using revenue neutral modeling principals, low-income  
5 ratepayers, solar customers, and customers who pursue energy efficiency would all  
6 benefit.

7 **V. RECOMMENDATIONS FOR RESIDENTIAL AND DEMAND-BASED**  
8 **COMMERCIAL CUSTOMERS – DESIGN FOR AN OPEN DG MARKET**

9 **Q. WHAT IS COSEIA’S OVERARCHING RECOMMENDATION FOR RATES**  
10 **FOR THE COMMERCIAL AND DEMAND-BASED CUSTOMERS?**

11 A. Rates generally should be based on usage, and not fixed or demand-based charges. We  
12 recognize that demand-based rates have been used by the Company and the industry for  
13 many years primarily for medium and large commercial class customers. COSEIA  
14 believes it is now time for the Company to offer an uncapped optional energy-based TOU  
15 rate, modeled to be revenue neutral, to all Demand classes.

16 **Q. WHY IS RATE DESIGN SO IMPORTANT TO ADOPTION OF ON-SITE**  
17 **SOLAR, ESPECIALLY FOR THESE LARGER USE RATE CLASSES?**

18 A. Rate design may well be the single most important and effective tool that utilities and  
19 regulators can use to either encourage or discourage the adoption of on-site solar or other  
20 distributed generation. As stated previously, the citizens of Colorado voted for a  
21 renewable energy standard and to encourage renewable energy “to the maximum

1 practicable extent,”<sup>18</sup> and this policy was further underscored by the July 11 Executive  
2 Order “Supporting Colorado’s Clean Energy Transition.” Black Hills’ current and  
3 proposed rates are counter to the principles that have repeatedly been expressed by the  
4 people of Colorado. For example, Black Hills currently incorporates fixed monthly  
5 charges that are more than two to three times greater than Public Service’s fixed charges  
6 in different rate classes.<sup>19</sup> By increasing fixed charges, Black Hills is dis-incentivizing  
7 conservation, energy efficiency, and distributed renewable energy adoption. By adopting  
8 either of COSEIA’s recommend rate actions below, Black Hills will encourage more on-  
9 site solar and can reduce overall energy usage and peak energy demand, therefore helping  
10 lower the long-term costs for expensive, and typically fossil-fuel based peak energy  
11 production.

12 **Q. WHAT CONCERNS DOES COSEIA HAVE WITH THE COMPANY’S**  
13 **DEMAND-BASED RATES FOR COMMERCIAL AND INDUSTRIAL**  
14 **CUSTOMERS WITH RESPECT TO ON-SITE SOLAR INVESTMENT?**

15 A. COSEIA is concerned that demand-based rates generate significant net metering inequity.  
16 By including a high demand charge, the energy charge is lowered to the point where on-  
17 site solar is not economic except in the presence of RESA based incentives. A  
18 commercial customer on the Company’s current SGS-N (Small General Service – Non-  
19 Demand) currently receives a net metering benefit of \$0.1042/kWh. The Company  
20 proposes to lower that rate to \$0.08731/kWh in the current filing while raising the  
21 Customer (fixed) Charge from \$16.50/mo to \$18.32/mo.

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<sup>18</sup> See *supra* footnote 1.

<sup>19</sup> See Harrington Corrected Direct, Figure MJH-2, 9:3. (Public Service’s fixed charge of \$6.54/mo vs. Black Hills’ \$16.89/mo).

1 However, for a customer interconnecting with net metering only on the Company's SGS-  
2 D (Small General Service – Demand), their net metering rate would be \$0.0113/kWh,<sup>20</sup> a  
3 fraction of the compensation for solar electricity generated by the SGS-N customer for  
4 the exact same solar production at the exact same time. This rate is more than nine times  
5 lower than the current net metering rate for RGS-N and almost eight times lower than the  
6 proposed lower SGS-N rate.

7 **Q. WHY IS IT IMPORTANT TO ADDRESS DEMAND BASED COMMERCIAL**  
8 **RATES WITH RESPECT TO DISTRIBUTED GENERATION AT THIS TIME?**

9 A. Addressing this inequity will allow commercial and industrial customers the ability to  
10 invest in on-site solar generation even potentially outside of any Renewable Energy  
11 Standard Adjustment (“RESA”) based incentive program. Furthermore, if the  
12 Company's incentive program were to be completely subscribed, customers would  
13 potentially be able to install systems outside of the incentive program. With the universal  
14 application of demand rates and absent equitable compensation for customers with very  
15 small energy rates, customers cannot find a value proposition for solar, and the  
16 commercial demand markets are not being served.

17 The public value of resolving this inequity cannot be understated. It is an  
18 opportunity for the PUC to create an optional rate design and policy that fairly  
19 compensates the utility and all customers. At the same time, it opens the market to  
20 private industry investment in DERs without impacting the RESA. Making these  
21 changes now also will help take advantage of the remaining years of the federal  
22 Investment Tax Credit that begins to diminish in 2021 and sunsets in 2023.

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<sup>20</sup> Note that all net metering rates are subject to standard adjustments including the Energy Commodity Adjustment (ECA) and other riders.

1 **Q. IS IT POSSIBLE TO ADDRESS THESE CONCERNS WITH ALTERNATIVE**  
2 **RATE DESIGN?**

3 A. Yes. When a customer elects to sell RECs to the Company in return for a PBI benefit,  
4 the amount of the PBI has been used historically to attempt to make the value of the solar  
5 generation more equitable to the non-demand rates. To create an open market for those  
6 who cannot participate, it is possible to have an optional commercial and industrial rate  
7 design that fairly recovers costs for those rate classes and encourages on-site solar  
8 investment. COSEIA offers two recommended alternative methods for addressing this  
9 issue.

10 1) COSEIA recommends that Black Hills adopt a revenue neutral energy-only Time-of-  
11 Use (“TOU”) rate available by customer option for all C&I demand customers. This  
12 would allow these customers to make a market-based decision on investing in on-site  
13 solar to serve their energy loads and would begin to create an open market for on-site  
14 solar that COSEIA thinks is a critical energy goal.

15 2) In the event that a TOU rate is not available to certain or any rate classes we propose  
16 that the net metering credit for all other demand -based tariffs be established at the Total  
17 Average Retail Rate (TARR) as provided to the PUC and published annually for every  
18 rate class. This rate is also used by the Company to determine the bill credits for a  
19 demand based community solar subscriber and, due to the physical off-site nature of  
20 community solar, a subtraction for distribution costs are applied to the TARR in those  
21 instances. The result of this more equitable treatment of net metering benefits will allow  
22 demand customers to have net metering benefits that approach approximately 90% or

1 more of the benefits received for net metering of the exact same solar energy generated  
2 by non-demand customers such as the SGS-N rate customers.

3 **Q. DOESN'T BLACK HILLS ALREADY HAVE A TOU RATE OR IS PROPOSING**  
4 **A TRIAL FOR ALL COMMERCIAL AND INDUSTRIAL CUSTOMERS?**

5 A. Yes, but the TOU trial is designed for low load factor energy users in the SGS-Demand  
6 class. The other TOU rates, while better than standard demand-based rates, as far as the  
7 energy charge goes, do not completely address the solar investment concerns and tend to  
8 apply to demand during the day, rather than total energy usage.

9 **Q. HOW SHOULD THE TOU RATES BE DESIGNED TO ENCOURAGE**  
10 **INVESTMENT IN ON-SITE SOLAR?**

11 A. First of all, the TOU rate should be an option for all customers and have no cap. The  
12 TOU rate would be revenue neutral and based on either two or three tiers of energy rates  
13 with no demand component.<sup>21</sup> A key benefit of TOU rates for the commercial and  
14 industrial demand segment is the ability for ratepayers to more clearly understand the rate  
15 they pay and in turn, to manage their energy use and make energy investments  
16 accordingly based on those clear rate signals.

17 **Q. WHAT IS THE CURRENT STATE OF BLACK HILLS' COMERCIAL SOLAR**  
18 **PROGRAM?**

19 A. As described by Mr. Harrington,<sup>22</sup> on-site solar customers currently receive production-  
20 based incentives (PBIs) in return for granting the Company the rights to the Renewable  
21 Energy Credits (RECs), and are put on the net metering tariff. Further, the PBI program  
22 is limited by the current RES compliance plan to 1,150 kW annually, with PBI's

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<sup>21</sup> Compare PSCo's trial with shoulder Off, on, and shoulder.

<sup>22</sup> Harrington Direct, 15:22-23, and 16:1-3.



1 available to 482 kW of capacity for photovoltaic (PV) systems between 10 and 30 kW  
2 (Tier 1). No acquisitions have occurred in the solar program in 2017 for PV systems  
3 between 30 and 60 kW (Tier 2) or from 60 to 100 kW (Tier 3).<sup>23</sup> The current incentive  
4 level for the tiers is \$0.05/kWh for the First Tier and \$0.075/kWh for the Second and  
5 Third Tiers.

6 **Q. IS IT POSSIBLE FOR COMMERCIAL OR INDUSTRIAL CUSTOMERS ON**  
7 **DEMAND-BASED RATES TO INTERCONNECT OUTSIDE OF THE SOLAR**  
8 **PROGRAM?**

9 A. Yes, technically it is possible. However with demand-based rates, customers who  
10 interconnect outside of the highly limited PBI program would only have the fractional net  
11 metering benefit described above to offset the very small energy charge. Therefore, it is  
12 unlikely that such customers could rationalize solar without an optional TOU rate or net  
13 metering compensation based on the TARR.

14 **Q. HOW WOULD THESE RATE CHANGES HELP OPEN THE MARKET FOR**  
15 **MORE SOLAR INVESTMENT?**

16 A. Moving to an optional energy-based rate that still accounts for peak energy pricing and is  
17 appropriate for the collection of class revenue will allow these commercial and industrial  
18 customers the ability to invest in on-site solar generation, potentially outside of any  
19 incentive based program. By increasing the energy charge, customers can use the energy  
20 generation of solar panels to offset their energy use and be properly compensated for the  
21 same solar production as customers in other classes. Furthermore, if the incentive

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<sup>23</sup> The Settlement from 16A-0436E Black Hills' latest Electric Resource Plan and combined RES Plan changed the total capacity to 1,500 kW, and combined the medium and large tiers to one tier (30 – 500 kW), and lowers the PBI each year by \$0.05/kWh).

1 program were to be completely subscribed, customers would potentially be able to install  
2 solar PV systems outside of the incentive program. Alternatively, in the absence of  
3 equitable compensation for customers in high demand, low usage classes, the business  
4 proposition for solar is not there. Even with incentives, such demand- based rates make  
5 the value proposition marginal.

6 The public value of resolving this inequity cannot be understated. It is an  
7 opportunity for the PUC to encourage a rate design that fairly compensates the utility and  
8 all customers, and opens the market to private industry investment in DERs without  
9 impacting the RESA. As mentioned, making these changes now also will help take  
10 advantage of the remaining years of the federal Investment Tax Credit that begins to  
11 diminish in 2021 and sunsets in 2023.

12 **VI. CHARGES FOR PRODUCTION METERS ARE INAPPROPRIATE AND NOT**  
13 **ALLOWED BY COMMISSION RULE**

14 **Q. WHAT IS THE COMPANY’S CURRENT BREAKDOWN OF THE CUSTOMER**  
15 **CHARGE FOR RESIDENTIAL-REGULAR CUSTOMERS VERSUS**  
16 **RESIDENTIAL-NET METERED CUSTOMERS?**

17 A. The Company indicates in its response to Staff’s discovery request 8-5, Attachment JLB-  
18 2,<sup>24</sup> its intention to charge all net metered customers \$5.15/month for the “Customer  
19 Meter Investment,” which presumably includes the additional production meter cost.<sup>25</sup>  
20 Mr. Harrington points out in his corrected direct testimony that “this additional

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<sup>24</sup> Attachment JLB-2, Black Hills’ response to Staff discovery request 8-5.

<sup>25</sup> Responses to COSEIA’s discovery requests on this were not available at the filing of answer testimony.

1 [production] meter cost is the primary reason why the Residential-Net Metering customer  
2 charge is higher than the Residential-Regular customer charge.”<sup>26</sup> However the  
3 discovery request more clearly shows it to be a differential of \$2.05/ month or about 39%  
4 of the difference in charges. Colorado’s Rules Regulating Electric Utilities<sup>27</sup> are clear  
5 with respect to charges for production meters. Specifically, section 3664 (f) states:

6 “The investor owned QRU shall not require more than one meter per customer  
7 to comply with this rule 3664. Nothing in this rule 3664 shall preclude the  
8 QRU from placing a second meter to measure the output of a solar renewable  
9 energy system for the counting of RECs subject to the following conditions:

10  
11 (I) For customer facilities over ten kW, a second meter shall be required to  
12 measure the solar renewable energy system output for the counting of RECs.

13  
14 (II) For systems 10 kW and smaller, an additional meter may be installed  
15 under either of the following circumstances:

16 (A) The QRU may install an additional production meter on the solar  
17 renewable energy system output *at its own expense* if the customer consents;  
18 or

19 (B) The customer may request that the QRU install a production meter  
20 on the solar renewable energy system output in addition to the revenue meter  
21 at the customer’s expense.

22  
23 (III) If the on-site solar system is not owned by the electric consumer, the  
24 owner or operator of the on-site solar system shall pay the cost of installing  
25 the production meter.”

26  
27 Using the above as its guidelines, the Commission should not allow the Company to levy  
28 charges for production meters for systems ten (10) kW and smaller, as is consistent with  
29 section 3664.

## 30 **VII. CONCLUSION**

31 **Q. DO YOU HAVE ANY CONCLUDING REMARKS?**

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<sup>26</sup> Harrington Corrected Direct, at 18:5-7.

<sup>27</sup> 4 Code of Colorado Regulations 723-3664(f).

1 A. Yes. Clean, renewable energy, especially distributed generation such as on-site solar, is  
2 in the public interest and its use is in alignment with state energy goals. On-site solar can  
3 reduce system peak energy demand and its long-term costs, it can reduce energy  
4 transmission costs, reduce pollution, improve air quality, and improve energy  
5 reliability.<sup>28</sup> The proposed increases in fixed charges (54% for net metered customers),  
6 including adding production meter costs, and vastly higher energy charges (\$0.1591/kWh  
7 compared to \$0.08271 / \$0.11219 for residential customers), are discriminatory and  
8 would undermine the adoption of distributed solar generation in Black Hills' territory.  
9 There are Time-of-Use rate options for demand-based customers that would align the  
10 energy charge so that the Company would still recover proper costs for C&I customers,  
11 but also open the market for distributed solar investment in those customer classes.  
12 Alternatively use of the TARR as the market mechanism for net metering compensation  
13 of demand-based customers would approach equality for solar production with non-  
14 demand rate classes. Finally, charges for production meters for customer-owned systems  
15 below 10 kW are not permitted by rule and should not be allowed.

16 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

17 A. Yes.

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<sup>28</sup> See, e.g., M.J. Bradley & Associates. *Powering the Future: Renewable Energy And Grid Reliability*. Feb. 2017. Available at: [http://www.mjbradley.com/sites/default/files/Powering\\_Into\\_the\\_Future.pdf](http://www.mjbradley.com/sites/default/files/Powering_Into_the_Future.pdf). Last visited: 10/23/2017.

**APPENDIX A: BRINGENBERG BIO/RESUME**

**BIO:**

**John Bringenberg, Ecotech Faculty and District Development, Petros PACE Funding**

John Bringenberg currently provides District Development for Petros PACE Finance, an Austin based national PACE funding company. Petros is a leading provider of clean energy financing for commercial properties throughout the United States. John is responsible for establishing new business, channel partners and deal flow in the Colorado. He held a similar position with Ygrene Energy Fund, the 2nd largest Residential PACE funding company in the US. He also has served as Senior Solar Development Specialist for Oak Leaf Energy Partners, a company bringing mid-size solar energy projects to municipalities and corporations throughout the US and Puerto Rico. He has been elected for 5 years on the Board and 2 years as President of the Colorado Solar Energy Industries Association (COSEIA) and serves on its State Policy Committee. Prior to Oak Leaf, he was the Founder of SunTalk Solar, a full service installer of Solar Energy systems for the Commercial and Residential sectors in Colorado. SunTalk served residential, small commercial solar customers as well as major production new home builders such as Ryland, Meritage, Thrive and others with solar and smart home technology. He managed to double the business size during adverse market downturns and was ranked among the Top 250 Solar Contractors in the US by Solar Power World. Mr. Bringenberg also teaches sustainability as a member of the faculty for Ecotech Institute, a unique renewable energy college in the Denver area.

**JOHN BRINGENBERG RESUME:**

○ Business Leader – Solar – Policy – Sustainability    VP | Director | GM

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Effective and persuasive business leader with deep understanding of solar and renewable energy / policy markets and emerging aggregated distributed generation (A-DER).

PACE funding program district expansion. Residential and Commercial solar development. Owned and led 45 person solar/smart home business through industry downturn and rebound. Community solar strategy and consulting engagement. Executed inventive business strategy that competed and won business normally dominated by branded National players. Policy focused with PUC, legislative and intervener initiatives.

### ○ Core Competencies & General Management Strengths

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- State / national new energy policy expertise; President, COSEIA Board; Chair, Policy Committee
- Co-Author of upcoming business book on Financing: *“PACE Yourself - and Your Business, and Your Home”*© and a similar companion renewable finance textbook for the education market.
- Regulatory experience as witness / intervener and central figure in 26 party Xcel ‘16 Settlement.
- New product / service development and execution. Policy matters including rate design.
- Creative business analyst / strategist including joint ventures and business combinations.
- Growth management of regional single market business from under \$1M to \$5M.

### ○ Career Experience

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#### Most recent decade

##### **Petros Pace Finance, Ygrene Energy Funding, Oak Leaf Energy, and Ecotech Institute**

- PACE program development including legislation, advocacy and business channel alignments.
- Community solar business, M&A and strategy development.
- Commercial solar project specialist for 24<sup>th</sup> largest US solar developer.
- Adjunct faculty teaching sustainability and renewable energy business courses for the nation’s only dedicated renewable energy college.

##### **HomeTalk and SunTalk Solar, President/CEO**

- Doubled business size at two intervals under adverse market downturns.
- Acquired company with dominate large client representing 70% of revenue. Quickly built additional client base to withstand exit of 70% client from the Colorado market 2 years later.
- Orchestrated 3 acquisitions in 7 years to add to growth and market leadership.
- Attracted and closed outside private investment mezzanine funding round for growth and market expansion including a 150% increase in business valuation.
- Expanded home technology business to incorporate photovoltaic solar taking national leadership in combining these two complementary product offerings.
- Ranked among Top 250 Solar Contractors in the US by Solar Power World.

#### 2001 - 2003

##### **Prorenata, Executive Director – start up Air Force Funded Media Group**

- Promoted the distribution of health-related video self-education programs created by USA Air Force Health Care service aimed at hospitals, schools, and public health outlets.
- Obtained and managed 2 years of funding using not-for-profit model to seek distribution strategies for award winning health media catalogue.
- Established relationships with 6 of the top 10 pharmaceutical manufacturers and leading health media publishing houses.

#### 1996- 2000

##### **Lifescape, President and Founder**

- Established best of breed online health information service for Mental and behavioral health and corporate EAP services aimed at corporate users and the general public.
- Built business plan and obtained funding for startup .com health information service.
- Identified and closed first and second funding rounds with strategic and financial investors.
- Managed staff of 15 in consumer division and arranged national advertising arrangements with major pharmaceutical and online players such as AOL.

#### Early Career

##### **TCI (now Comcast) and Liberty Media**

##### **Director, Corporate Development**

- Responsible for establishing and managing cross industry relationships including PC (Microsoft, Apple), high tech, (Cisco, AT&T, Qwest, others) and electric utilities (PG&E, Florida P&L, Duke, Entergy, Georgia Power, others).
- Part of 2-person team which initiated 10 years' worth of corporate technology business developments for the largest cable operator in the US.
- Championed pilot program for the first class of digital cable modem technology responsible for ultimately changing the landscape of digital network communications.
- Supported and was member of advisory committee of Emmy Award winning Faroudja digital television technology developments.
- Leading executive of the cable industry's efforts by 7 of the top 10 companies to establish and build Primestar, a national direct broadcast satellite service which was acquired by Direct TV. Negotiated \$700M satellite construction and space launch program.

#### Education

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##### **1989 University of Tulsa MBA Program**

- MBA program studies leading to career relocation to Denver, Colorado prior to completion.

##### **Thomas Edison State, NJ / Clemson University**

- Earned Undergraduate BS in Business Administration
- Studies also included Marketing and Architecture

○ Notable Accomplishments

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- Board President and Chair of Policy Committee as 3-time elected member of Colorado Solar Energy Industry Association (COSEIA).
- Selected to present 2016 ~SwitchTalk in on EE tied to real estate transactions.
- Member of Colorado Governor's 2013 Energy Key Industry Network Steering Committee.
- Chosen as small business representative for feedback on business issues - Colorado Public Radio.
- Published advocate for energy, climate and gun ethics, Denver Post
- Invited Member of FCC Technology Working Group to evaluate new Digital Television Standards for the US.
- Chaired coalition of 6 of the top 10 cable TV companies and 8 of the top 20 Investor owned Electric Utilities to explore cross industry relationships.
- Led Corporate Development resulting in a multi \$ million services trial between Microsoft, TCI (now Comcast) and Pacific Gas & Electric to test interactive electric service applications.
- 14-year rider in Colorado Children's Hospital Courage Classic mountain bike tour and fund raiser.
- 13-year volunteer with Copper Mountain Ski and Snowboard School program and avid snowboarder.