

Before the South Dakota Public Utilities Commission
of the State of South Dakota

In the Matter of the Application of Black Hills Power, Inc d/b/a Black Hills Energy for Approval of its Tax
Cut and Jobs Act Proposal

Docket No. EL18-___

June 29, 2018

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I. INTRODUCTION AND BACKGROUND

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Charles R. Gray. My business address is 105 South Victoria Avenue, Pueblo, Colorado 81003.

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

A. I am employed by Black Hills Utility Holdings, Inc. ("BHUH"), a direct, wholly-owned subsidiary of Black Hills Corporation ("BHC"), as Manager - Regulatory.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of Black Hills Power, Inc., d/b/a/ Black Hills Energy ("Black Hills" or the "Company").

II. STATEMENT OF QUALIFICATIONS

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

A. I am responsible for compiling and reviewing financial and customer billing information. I conduct analysis and prepare work papers and other supporting documents for various filings with regulatory agencies in several jurisdictions. I participate in the preparation of class cost of service studies, prepare rate design, and develop tariffs.

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

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

III. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to present and support the rate design for all customer classes related to the implementation of the Tax Cut and Jobs Act ("TCJA") revenue credit determined by Mr. Clevinger for Black Hills South Dakota retail customers. I also provide a proof of revenue by rate ID under the proposed base rates.

Q. ARE YOU SPONSORING ANY ATTACHMENTS?

A. Yes. I am sponsoring 4 attachments.

Q. HAVE THE TESTIMONY AND ATTACHMENTS WHICH YOU ARE SPONSORING BEEN PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes.

IV. RATE DESIGN OF PROPOSED RATES

Q. PLEASE EXPLAIN THE RATE DESIGN PHILOSOPHY EMPLOYED BY BLACK HILLS IN PROVIDING TO CUSTOMERS THE TCJA REVENUE CREDIT.

A. Black Hills is proposing to modify its current rate design of base rates to accomplish two initiatives. The first initiative is to lower South Dakota retail customer rates by approximately \$8.9 million beginning January 1, 2019, arising from the TCJA and the associated reduction in the Federal Income Tax Rate ("FIT Rate") and to return to South Dakota retail customers the TCJA benefit of approximately \$7.6 million for 2018. The second initiative is to re-balance the current fixed and volumetric charges to properly reflect cost recovery of fixed costs (customer component) through the monthly customer charge and recovery of volumetric costs (demand/energy related component) through the volumetric energy charges and demand charges, where applicable.

Q. WHY WAS THE RATE DESIGN REBALANCING INITIATIVE PROPOSED IN THIS FILING?

A. Black Hills presented a Class Cost of Service Study ("CCOSS") model in its last formal rate case, Docket No. EL14-026. The CCOSS produces the revenue requirement by rate class necessary to recover the utility costs that each customer class causes the Company to incur. This principle of cost causation is appropriately used in the class cost of service analysis. By comparing the costs of service by class to the current revenues received from each class, rate changes can be designed for each class as appropriate. The results of the CCOSS validated that there are intra-class subsidies for some customer classes. The proposed rate design initiative begins the process to reduce these intra-class subsidies.

Q. WHY ARE COSTS ALLOCATED TO CUSTOMER CLASSES?

A. Costs are allocated to customer classes in order to provide customer class revenue guidelines for rate design purposes. In addition, the cost study results provide information regarding the level of classified component costs per unit (i.e., demand cost per kW or kWh, energy costs per kWh, and customer costs per customer per month) which may be useful in the design of rates. The use of cost of service studies as a guide to rate design is a standard practice among utilities.

Q. HOW ARE COSTS ALLOCATED TO CUSTOMER CLASSES?

A. There are three steps involved in conducting a CCOSS - functionalization, classification, and allocation. Functionalization identifies the operational source where the costs are incurred, either directly or indirectly, with respect to the physical process of providing service. For example, the costs of generating units and purchased power (production function) are identified separately from costs associated with transmission lines

(transmission function) which are, in turn, segregated from the costs of the distribution system (distribution function).

The next step in conducting a CCOSS, classification, refers to the separation of costs according to the usage characteristic that drives the cost - i.e., demand, energy and customer-related costs. Demand costs are costs that arise as a result of the rate of power consumption over a short period of time (usually 15 minutes to an hour). Energy costs are those costs that result from the volume of energy supplied over time. Customer costs are costs that vary as a function of the number of customers.

The final step in conducting a cost of service study is allocation. Allocation is the process of using customer class metrics, along with the knowledge that certain costs are incurred exclusively for the benefit of specific identifiable customers (direct assignments), to assign or allocate the specific cost components that have been functionalized and classified to individual customer classes. Customer class information such as non-coincident peak demands, coincident peak demands, annual energy use, and customer counts are employed to calculate class allocation factors.

Q. PLEASE DESCRIBE THE PROCESS OF COST FUNCTIONALIZATION EMPLOYED IN THE COMPANY'S CLASS COST OF SERVICE STUDY.

A. After all the individual cost components representing the total revenue requirement have been identified, the components are separated according to the function or physical service they provide. These functions are:

- Production - costs associated with the production of energy and capacity, including purchased power;

- Transmission - costs associated with the high voltage system that transports the power to load centers;
 - Distribution - costs associated with distributing the energy from the transmission system to the end users;
 - Customer Service - costs associated with providing service to the customer -i.e., service drops, metering, billing, the customer-related portion of transformers and conductors, and similar costs; and
 - Administrative and General - common costs, such as management, buildings, software, support services, and similar indirect costs that are incurred to support the other functions of electric service.
- Production, Transmission and Distribution costs are primarily allocated on a volumetric basis, either on a per kWh (energy) basis or on a kW (demand) basis. The remaining costs, Customer Service and Administrative and General, are typically fixed customer costs, incurred as a result of the number of customers on the system. These costs, such as services, meters and billing, are incurred to serve individual customers. The recovery of those customer costs are typically recovered from each customer class through the monthly customer charge. When some of those fixed customer costs are shifted away from the customer charge and are instead recovered volumetrically, then an intra-class subsidy is created. Instead of all customers sharing equally in the recovery of its' class' fixed customer costs, larger than average users of energy within the class pay more than their fair share of costs and lower use customers do not contribute enough to cover their fair share of fixed customer costs.

Q. DID YOU CHANGE ANY COST ALLOCATION FACTORS FROM THE PREVIOUS RATE CASE?

A. No. All cost allocation factors approved in the previous rate case have been maintained in our proposal.

Q. CAN YOU PROVIDE EXAMPLES OF THOSE INTRA-CLASS SUBSIDIES YOU MENTIONED?

A. Yes. Both the Residential class and General Service class, representing 98% of the total South Dakota customer count, are currently charged substantially less than their full cost to serve for fixed customer related costs. The level of subsidization within a rate schedule is shown in Table CRG-1 below.

Table CRG-1

Rate Schedule	Current Customer Charge	Full Cost of Service Customer Charge	Percent of Customer Costs Subsidized by Others
Residential - Regular	\$9.25	\$15.99	42.2%
Residential - All Electric	\$12.00	\$18.69	35.8%
Residential - Demand	\$13.00	\$25.96	49.9%
General Service - Regular	\$12.00	\$19.09	37.1%
Gen. Service- All Electric	\$17.70	\$20.11	12.0%

The proposed rate design will begin to remove these intra-class subsidies while still providing to customers the full TCJA revenue credit from reduced energy/demand charges.

Q. CAN YOU PROVIDE EXAMPLES OF THESE INTRA-CLASS SUBSIDIES BLACK HILLS HAS PROPOSED TO BEGIN TO ADDRESS?

A. Yes, I have prepared Attachment CRG-4 which illustrates 5 residential customers of differing usages. The very low use customer, 100 kWh/month, has a revenue shortfall

(subsidized by others) of \$5.70, full cost of service is \$26.46 and customer pays only \$20.76 toward total class cost. The high use customer, 1,200 kWh/month, has a revenue overage (is subsidizing lower use customers) by \$5.70, full cost of service is \$141.66 and customer pays \$147.36 of the total class cost. A similar subsidy is paid by the 975 kWh customer, to the benefit of the 325 kWh customer. The average use customer, 650 kWh/month, pays his full cost of service of \$84.06.

While the Company is whole for the class, the current rate design provides reduced bills, below full cost of service, to some customers while collecting more from other customers in the same class. This intra-class subsidy will not be eliminated with the proposed rates with this filing but is an appropriate step in the right direction.

Q. WON'T A HIGHER RESIDENTIAL CUSTOMER CHARGE PRODUCE DIFFERENT BILL IMPACTS DEPENDING ON YOUR MONTHLY KWH USAGE LEVELS?

A. Yes, different usage levels will be impacted differently.

Q. AT WHAT AMOUNT OF MONTHLY KWH CONSUMPTION DOES THE PROPOSED HIGHER CUSTOMER CHARGE REMOVE ANY BILL SAVINGS DUE TO THE LOWER PROPOSED ENERGY CHARGE?

A. If a customer uses a small amount of kWh, approximately 7.6 kWh per day or 229 per month, this low use customer would receive the same base bill amount (\$32.12) on the proposed base rates compared to current base customer charge and base energy rate. The greater the usage, the greater the reduced bill from the proposed TCJA base rates. The average use per customer on the Residential-Regular rate schedule is approximately 650

kWh/month. That average bill for 650 kWh will see a \$5.06/month bill reduction with the proposed TCJA rates.

Q. PLEASE PROVIDE A SUMMARY OF THE CURRENT CUSTOMER CHARGES AND ENERGY CHARGES AND THE PROPOSED CUSTOMER AND ENERGY CHARGES FOR RESIDENTIAL AND GENERAL SERVICE CLASSES.

A. Table CRG-2 below provides the current and proposed customer charges.

Table CRG-2

Rate Schedule	Current Customer Charge	Proposed Customer Charge	Percent Increase over Current Charge	Remaining Percent of Customer Costs Subsidized by Others
Residential - Regular	\$9.25	\$12.00	29.7%	25.0%
Residential - All Electric	\$12.00	\$15.00	25.0%	19.7%
Residential - Demand	\$13.00	\$17.00	30.8%	34.5%
General Service - Regular	\$12.00	\$15.00	25.0%	21.4%
Gen. Service- All Electric	\$17.70	\$20.00	13.0%	0.6%

With the exception of the General Service-All Electric rate schedule, sizable cross-subsidies among customers in the same rate schedule still remains to achieve full fixed cost recovery. Generally, our rate design proposal is a first step toward equal and fair recovery of fixed costs by each customer.

Table CRG-3 below provides the current and proposed volumetric energy charges.

Table CRG-3

Rate Schedule	Current Energy Charge/kWh	Proposed Energy Charge/kWh	Percent Decrease over current Energy Charge
Residential - Regular	\$0.09989	\$0.08788	(12.02)%
Residential - All Electric	\$0.07529	\$0.06663	(11.5)%
Residential - Demand	\$0.02639	\$0.02056	(22.09)%
	\$0.08463	\$0.07610	(10.1)%
General Service - Regular	\$0.06763	\$0.06044	(10.6)%
	\$0.05937	\$0.05411	(8.9)%
Gen. Service- All Electric	\$0.05343	\$0.04870	(8.9)%

Q. HOW DO THE PROPOSED RESIDENTIAL AND GENERAL SERVICE CUSTOMER CHARGES COMPARE WITH OTHER NEIGHBORING UTILITIES IN WESTERN SOUTH DAKOTA?

A. The proposed residential and general service customer charges will remain lower, often substantially lower, than the comparable monthly customer charges of the neighboring electrical cooperatives. Following a review of neighboring cooperatives' rates and charges serving in the same counties as Black Hills, our neighbors pay much higher monthly charges.

As an example, West River Electric Association serves homes and businesses just east of the Rapid City area along with the town of Piedmont, which is also served by Black Hills. Our neighbors in those areas are currently charged by West River a monthly residential customer charge of \$23.00/month, soon to be raised to \$25.25/month. The proposed Black Hills residential charge of \$12.00 is 48% below that of West River's current charge and 53% below the upcoming higher charge. For similarly located small business

customers, the proposed Black Hills general service charge of \$15.00 is 40% below that of West Rivers' current single phase service charge of \$25.00 and 52% below that of West Rivers' three phase service charge of \$31.00.

A second example, Butte Electric Cooperative serves homes and businesses around Spearfish, Newell, Sturgis, Summerset and Whitewood. Neighboring areas of the same locales are served by Black Hills. Butte Electric monthly customer charges are \$45.00 for residential customers and \$50.00 for general service customers. Black Hills' proposed residential monthly charge is 73% lower than Butte Electric and the Black Hills general service monthly charge is 70% lower than Butte Electric's. While each utility has its own unique level of customer charges, Black Hills proposed monthly customer charges, while moving toward full cost of service, are still noticeably lower than the neighboring utilities monthly customer charges. Black Hills' proposed customer charges will remain well below its neighboring South Dakota utilities.

Q: HAS THE WYOMING PSC APPROVED HIGHER CUSTOMER CHARGES FOR RESIDENTIAL CUSTOMERS?

A: Yes. Black Hills' Wyoming residential customers currently are assessed a \$15.00/month customer charge, much more in line with the true level of customer costs incurred by the Company. While the South Dakota customers will still be charged less for their fixed costs through the monthly customer charge than the Company's Wyoming customers, the rate design proposal in this proceeding begins to move the South Dakota customers closer to cost based rates.

V. COMPLIANCE TARIFFS

Q. WILL BLACK HILLS FILE COMPLIANCE TARIFFS?

A. Black Hills will file compliance tariffs once final rates are approved by the Commission.

VI. PROOF OF REVENUE

Q. PLEASE DESCRIBE HOW THE COMPANY ENSURES THAT THE PROPOSED RATES WILL RECOVER THE ANNUAL REVENUE REQUIREMENT APPROVED IN PHASE I OF THIS RATE REVENUE.

A. The proposed base rates are designed to reduce base rate revenues in the amount of approximately \$8.9 million to South Dakota retail customers by adjusting rates for the TCJA impact. The adjustment to base rate revenues for the TCJA impact was determined by Mr. Mike Clevinger and provided in his testimony. The Company's base rate cost of service after incorporating the TCJA credit is \$122,464,868¹ \$. To validate that our proposed base rates recover this amount, I performed a proof of revenue analysis that is included as Attachment CRG-1 Proof of Revenue.

Q. PLEASE EXPLAIN HOW THE PROOF OF REVENUE IS DEVELOPED.

A. Using the final approved adjusted billing determinants and rate design from the previous rate review (Docket No. EL14-026), the \$8.9M reduction is allocated back to each South Dakota retail customer class based on their share of the base rate revenues. The residential-regular class in the previous rate review had proposed revenues of \$38,238,742 out of the total revenue total of \$131,436,207, or 29.09% of total company base revenues. The residential-regular class is allocated 29.09% of the \$8,971,339 or a TCJA credit of (\$2,610,032). All of the other classes had a TCJA credit allocated to them

¹ \$131,436,207 from Docket No. 14-026 Settlement Rate Design minus the TCJA credit of \$8,971,339.

based on the same method, the previous rate review proposed revenues. The amount of TCJA credit allocated to each class is shown on Attachment CRG-1, column (G). The total of each class's allocation of TCJA credit equals the Company TCJA credit of \$(8,971,339).

Once the proposed class base rate revenue with the TCJA credit was determined, the next step was to develop base rates incorporating the rate design philosophy on the Commission approved rate case billing determinants. The process was carried out for each class individually. Using Attachment CRG-2, Schedule 2-1 and the Residential-Regular class to illustrate the rate design process, the proposed residential monthly customer of \$12.00 was multiplied by 505,726, the number of annual bills, to develop the proposed revenue of \$6,068,712. The total Residential-Regular adjusted base revenue target is \$ 35,348,551, leaving \$ 29,279,839 to be collected by the volumetric energy charge. Dividing the desired energy charge revenues by the 333,179,776 kWhs' from previous rate review, the new lower energy charge is \$0.08788/kWh. With the current energy charge for Residential-Regular rate at \$0.09989/kwh, the proposed energy charge is 12.02% lower. This process was repeated for all the other metered rate classes to develop the proposed base rates. The Lighting class was handled differently.

Q. PLEASE EXPLAIN HOW THE LIGHTING CLASS PROOF OF REVENUE IS DEVELOPED.

A. For the unmetered Lighting class, an alternative approach was necessary to complete a proof of revenue. The lighting class is made up of 4 different types of lighting services. The four are (1) unmetered private area lights; area lights that serve residential, commercial, industrial, or governmental customers, (2) unmetered Company-owned

Street lights, (3) unmetered Customer-owned Street Lights and (4) metered traffic signal services. Each of the 4 types of lighting services has its own TCJA credit determined and when added to the previous rate case settlement revenue total, a new TCJA reduced class revenue level was calculated. With the previous rate case total lighting class revenue set at \$1,713,578 and a TCJA class credit of \$(116,962), the proposed lighting class revenue is \$1,596,616. That reduced class revenue will now be collected from the 11,894 light fixtures in the field by a new monthly charge.

Within the private area and street light options, there are three types of area/street lights providing comparable lumens. There are some older Mercury Vapor ("MV") lights that are still in service, and the standard High Pressure Sodium ("HPS") and Metal Halide (MH") for new lighting installations. Within the three different types of lights, there are also a multitude of wattage levels, ranging from 35 watts up to 1,000 watts per fixture. Each type and wattage size of light has its own unique monthly charge. To develop the appropriate monthly charge necessary to reach the proposed class TCJA revenue amount, the number of lights by level of wattage and fixture type in the field from the Company's last formal rate case is utilized. Each current monthly charge was then adjusted proportionately based on the number of lights and proposed class TCJA revenue amount. The proposed monthly charges will allow the Company to collect the proper level of PAL and street lighting class TCJA adjusted lighting revenues. Attachment CRG-3 Schedule 1 provides the work papers supporting the proposed monthly charges for Company Owned street Lights. Attachment CRG-3 Schedule 2 provides the work papers supporting the proposed monthly charges for Customer Owned street Lights and Attachment CRG-3

Schedule 3 provides the work papers supporting the proposed monthly charges for Private Area Lights.

The Traffic Signal monthly customer charge is currently the same value as the General Service rate and the proposed Traffic Signal monthly customer charge remains the same as the proposed Small General Service \$15.00 customer charge. The Energy Charge for metered Traffic Signal services was developed to reach the traffic signal class TCJA adjusted revenue levels.

Q. DO THE PROPOSED BASE RATES PRODUCE THE REVENUE TARGET EXACTLY?

A. No. Due to rounding issues and pricing decimal limits, the proposed base rates will never exactly match to the dollar the total base rate revenue. The proposed base rates will recover \$122,464,951, a difference of \$83.

Table CRG-4 below summarizes the proof of revenue by class developed in Attachment CRG-2:

Table CRG-4

<u>Customer Class</u>	<u>Base Revenue Target</u>	<u>Revenue on Proposed</u>	
	<u>For TCJA Credit</u>	<u>Base Rates</u>	<u>Difference</u>
Residential	\$48,886,205	\$48,886,214	\$(9)
General Service	\$42,363,688	\$42,363,642	\$46
General Service-Large	\$18,928,764	\$18,928,963	\$(199)
Special Contracts	\$10,634,675	\$10,634,589	\$86
Lighting Service	\$1,596,616	\$1,596,623	\$(7)
Rental/Other	\$54,920	\$54,920	\$—
Total South Dakota	\$122,464,868	\$ 122,464,951	\$(83)

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

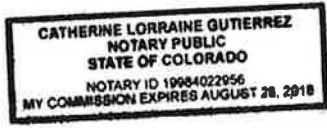
STATE OF COLORADO)
) SS
COUNTY OF Pueblo)

I, Charles Gray, being duly sworn on oath, depose and state that I am the witness identified in the foregoing prepared testimony and I am familiar with its contents, and that the facts set forth are true to the best of my knowledge, information and belief.

Charles Gray
Charles Gray

Subscribed and sworn to before me this 26th day of June, 2018.

(SEAL)



Catherine Lorraine Gutierrez
Notary Public

My Commission Expires: 8/28/18