BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO

PROCEEDING NO. 20A-____E

IN THE MATTER OF THE VERIFIED APPLICATION OF BLACK HILLS COLORADO ELECTRIC, LLC FOR APPROVAL OF ITS TRANSPORTATION ELECTRIFICATION PLAN, READY EV, FOR PROGRAM YEARS 2021 – 2023 AND FOR RELATED TARIFF APPROVALS.

DIRECT TESTIMONY AND ATTACHMENT OF

MICHAEL J. HARRINGTON

ON BEHALF OF

BLACK HILLS COLORADO ELECTRIC, LLC

May 8, 2020

SUMMARY OF THE DIRECT TESTIMONY OF MICHAEL J. HARRINGTON

Mr. Michael J. Harrington is employed by Black Hills Service Company, LLC as a Sr. Manager of Regulatory & Finance. Mr. Harrington is responsible for managing all aspects of the regulatory and financial process for Black Hills. He serves as the policy witness, and he introduces the other Company witnesses testifying in this proceeding.

Mr. Harrington provides an overview of the Commission approvals the Company requests, existing Colorado policy on EVs, and on the Company's service territory. He also describes the Company's approach in designing and working with stakeholders to formulate Ready EV, with aims on ensuring Ready EV maximizes benefits at a reasonable cost, establishes a durable regulatory framework, and complies with statutory and policy goals.

Mr. Harrington describes the four core elements of Ready EV, including: (1) rebates for EVSE, (2) modification to the Distribution Line Extension Tariff for EVSE, (3) EV charging rates, and (4) a Customer Communication and Education Strategy. Of these elements, Mr. Harrington notably describes that providing rebates is a better option for the Company's customers than the Company's ownership of EVSE.

He proposes a regulatory framework for Ready EV similar to the DSM framework. Specifically, Ready EV will involve a three-year plan, with timely cost recovery, an incentive mechanism to achieve a policy goal, a budget cap with budget flexibility, a process to implement changes before the next three-year filing, and a stakeholder engagement process.

Mr. Harrington introduces the budget for Ready EV, explaining it includes cost associated with construction allowances provided for distribution line extensions, EVSE rebates, a performance incentive, and program administrative expenses. Of the construction allowances and rebates, Mr. Harrington explains why it is reasonable for the Company to receive a return on

investments at its Commission authorized WACC. Mr. Harrington addresses that the overall Ready EV budget will increase an average residential customers monthly bill by less than 0.25%, which is significantly below the amount allowed by statute. Given the level of EV maturity in the Company's service territory, he asserts the budget is an appropriate starting place that is in the best interest of customers.

Mr. Harrington presents economic analyses undertaken by a consultant on Ready EV to assist the Commission in considering Ready EV. The economic analysis (a) calculates potential reduction in CO2 emissions and the Social Cost of Carbon benefit of the reduced CO2 emissions; (b) calculates the total energy impacts; (c) presents various cost-effectiveness tests; and (d) calculates the total net economic benefits of the Company's Ready EV Plan.

Mr. Harrington proposes a novel Performance Incentive Mechanism as part of Ready EV to encourage and reward the Company to achieve cost-effective reduction in CO2 emissions through the widespread adoption of EVs. The PIM is tied to the social cost of carbon benefit achieved by Ready EV.

Mr. Harrington concludes by addressing the elements of Ready EV that are designed to comply with statute and a Commission Staff report on recommendations governing TEP filings.

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Attachments

GLOSSARY OF ACRONYMS AND DEFINED TERMS

AQCC	Air Quality Control Commission
AMI	Advanced Metering Infrastructure
AEG	Applied Economics Group
BHC	Black Hills Corporation
BHSC	Black Hills Service Company, LLC
BHEAP	Black Hills Energy Assistance Program
Black Hills or Company	Black Hills Colorado Electric, LLC
CIS+	Customer Information System Plus
CCOSS	Class Cost of Service Study
Communication Strategy	Customer Communication and Education Strategy
DCFC	Direct Current Fast Chargers
DSMCA	Demand Side Management Cost Adjustment
EV	Electric Vehicle
EV rates	newly proposed EV rates for charging
EVSE	Electric Vehicle Supply Equipment
FERC	Federal Energy Regulatory Commission
GHG	Greenhouse gas
IRS	Internal Revenue Service
kW	Kilowatt
LEAP	Low-Income Energy Assistance Program
LGS-S	Large General Service – Secondary
LGS-SEV	Large General Service Secondary EV rate schedule
LPS	Large Power Service
MDMS or MDM	Meter Data Management System
mTRC	Modified Total Resource Cost Test
NEBs	Non-Energy Benefits
NOPR	Notice of Proposed Rulemaking
PCT	Participant Cost Test
PIM	Performance Incentive Mechanism
PUC or Commission	Colorado Public Utilities Commission
PSCo	Public Service Company of Colorado
Ready EV or Ready EV Plan	Company's first Transportation Electrification Plan
Ready EV programs	design elements of the Ready EV Plan
RIM	Rate Payer Impact Measure
RS-EV	Residential EV rate schedule
RS-1	Residential service rate schedule
SCADA	Supervisory Control and Data Acquisition
SGS-N or SGS-D	Small General Service
SGS-EV	Small General Service EV rate schedule
TEP	Transportation Electric Plan
TOD rates	time-of-day rates
WACC	weighted average cost of capital
ZEV	zero emission vehicle

DIRECT TESTIMONY OF MICHAEL J. HARRINGTON

I. INTRODUCTION AND BACKGROUND

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Michael J. Harrington. My business address is 1515 Arapahoe Street, Tower 1 - Suite 1200, Denver, Colorado 80202.

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

A. I am employed by Black Hills Service Company, LLC ("BHSC"), a wholly-owned subsidiary of Black Hills Corporation ("BHC"). I am a Sr. Manager of Regulatory & Finance.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of Black Hills Colorado Electric, LLC ("Black Hills" or "Company").

II. STATEMENT OF QUALIFICATIONS

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

A. I am responsible for managing all aspects of the regulatory and financial process for Black Hills. I manage the development of regulatory filings and initiatives that support business strategies and regulatory policies. In addition, I manage the development, analysis, and interpretation of financial forecasts, including budgets and strategic plans for Black Hills.

Q. PLEASE OUTLINE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

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

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. Yes.

III. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to introduce to the Commission the Company's first comprehensive Transportation Electrification Plan ("TEP"), called "Ready EV" or the "Ready EV Plan." I introduce several Company witnesses that support various aspects of Ready EV. I provide a specific list of requested Commission approvals. I provide an overview of the Black Hills service territory and Black Hills' policy on electric vehicles. I discuss the appropriate regulatory framework the Commission should consider for Black Hills' TEP. I present various economic analyses, and I discuss the proposed budget and cost recovery mechanism for the TEP. Finally, I discuss how the Company's Ready EV Plan was designed in light of Senate Bill 19-077, and how it meets the State's objective to encourage the widespread adoption of electric vehicles.

Q. ARE YOU SPONSORING ANY ATTACHMENTS?

A. Yes. I am sponsoring the following attachment:

- Hearing Exhibit 101, Attachment MJH-1 – SB19-077

IV. INTRODUCTION OF WITNESSES

Q. PLEASE INTRODUCE THE COMPANY'S WITNESSES PROVIDING PRE-FILED DIRECT TESTIMONY IN SUPPORT OF THIS APPLICATION AND BRIEFLY SUMMARIZE THEIR TESTIMONY.

A. The following witnesses, in addition to myself, are providing pre-filed direct testimony in support of this Application, along with a brief summary of their direct testimony:

- Mr. T. Aaron Carr, Director of Energy Innovation, introduces and presents the Company's TEP, known as Ready EV. He describes the genesis of the Ready EV Plan, as well as the multiple facets and actions in the TEP designed to increase electric vehicle ("EV") adoption rates and raise the general awareness of the benefits of EVs, and he describes the advocacy steps the Company proposes to undertake for EVs.
- Mr. Michael Grubert, Sr. Regulatory Analyst, describes Black Hills' new EV rate design. The Company is proposing a new Time-of-Day rate design for residential and commercial customers who own or lease an EV and for public Electric Vehicle Supply Equipment ("EVSE"). Mr. Grubert designed the proposed rates using industry best practices and the practical attribute of simplicity.
- Ms. Theresa Donnelly, Sr. Communications Program Manager, describes Black Hills' Customer Communication and Education Strategy ("Communication Strategy") to provide information and education about Ready EV to our customers, measuring the effectiveness of the Communication Strategy, and the associated budget.
- Mr. P. Grant Gervais, Regulatory and Finance Analyst II, describes the proposed EVSE rebates and he introduces a slight modification to the Company's Distribution Line Extension Tariff. Mr. Gervais discusses the overall budget for Ready EV and the

Company's proposal to recover the cost through the Demand Side Management Cost Adjustment ("DSMCA") mechanism and the annual reporting requirements. In addition, Mr. Gervais discusses the potential impacts that EV charging may have to the Company's distribution system.

V. REQUESTS FOR APPROVALS

Q. WHAT ARE THE SPECIFIC APPROVALS THE COMPANY IS SEEKING FROM THE COMMISSION IN THIS PROCEEDING?

A. The Company is specifically requesting the Commission to approve the following:

- The Company's 2021-2023 TEP, known as Ready EV, including not limited to the following:
  - Ready EV programs, such as new EVSE rebates, a modified distribution line extension tariff, and a Customer Communication and Education Strategy;
  - A three-year budget for Ready EV, subject to a 150 percent budget flexibility cap;
  - A notice of program change process;
  - A stakeholder engagement process; and
  - Ready EV reporting requirements.
- A requested Performance Incentive Mechanism based on the social cost of carbon benefit achieved by reducing CO2 emissions.
- New time-of-day tariff rate schedules available for EV charging for customers of the residential class, the small general service class, and the large general service –

secondary class, as set forth in Attachments PGG-3 (redlined) and PGG-4 (clean) to the Direct Testimony of Mr. P. Grant Gervais.

- Regulatory accounting approval to track certain Ready EV costs for potential future recovery through the DSMCA.
- Revisions to the DSMCA Tariff sheets as set forth in Attachments PGG-3 (redlined) and PGG-4 (clean) to the Direct Testimony of Mr. P. Grant Gervais.
- Revisions to the Distribution Line Extension Tariff sheets as set forth in in Attachments PGG-3 (redlined) and PGG-4 (clean) to the Direct Testimony of Mr. P. Grant Gervais.

VI. COLORADO STATE POLICY ON ELECTRIC VEHICLES

Q. WHAT IS THE GENERAL LANDSCAPE IN COLORADO AS CONCERNS ELECTRIC VEHICLES?

A. Colorado is one of the nation's leaders in electric vehicle adoption and policies. As of 2018, Colorado had the fourth highest number of electric vehicle sales in the nation.[1] Though Colorado consumers have been some of the leading adopters of electric vehicles, electric vehicle sales only accounted for 1.82 percent of vehicles purchased in 2018.[2] There are multiple reasons for this low level of overall sales, such as the higher cost of electric vehicles, consumer anxiety of electric vehicle technologies, and electric vehicle supply chain issues.[3]

[1] Auto Alliance, Sales Ranked By State, available here: https://autoalliance.org/economy/consumer-choice/electric-vehicles
[2] *Id.*
[3] *See* McKinsey & Company, Expanding Electric-Vehicle Adoption Despite Early Growing Pains, available here: https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/expanding-electric-vehicle-adoption-despite-early-growing-pains; Congressional Research Service, Vehicle Electrification Federal and State Issues Affecting Deployment (June 3, 2019), available here: https://fas.org/sgp/crs/misc/R45747.pdf

Q. HAS COLORADO TAKEN ACTIONS AT THE EXECUTIVE LEVEL TO ADDRESS ELECTRIC VEHICLES?

A. Yes, there have been numerous executive developments that are important to the Colorado landscape for electric vehicles. A starting point for this discussion is Governor Polis's May 30, 2019 "Roadmap to 100% Renewable Energy By 2040 and Bold Climate Action" ("Roadmap").[4] The Roadmap includes a policy goal of placing 940,000 zero emission vehicles on the road by 2030.[5]

Complementing the Roadmap is Executive Order, B-2019-002, adopting California's zero emission vehicle ("ZEV") rules (requiring manufacturers to offer for sale specific numbers of clean vehicles), as well as directing the development of new rules to establish a state ZEV program and other programs.[6]

In compliance with the Executive Order, the Air Quality Control Commission ("AQCC") adopted a ZEV rule on August 16, 2019. The rule is codified at 5 CCR 1001-24, Part C. For the 2023 vehicle model year, a specified percentage of vehicles offered for sale in Colorado must be ZEV. The percentage shall be consistent with California Code of Regulations, Title 13, Section 1962.2. The percentage is more than 5 percent zero-emission vehicles by 2023 and more than 6 percent zero-emission vehicles by 2025. The vehicles covered by the ZEV rule are passenger car and light-duty trucks.

[4] The Roadmap is available here: https://www.documentcloud.org/documents/6111385-Governor-Polis-Roadmap-to-100-Renewable.html
[5] Roadmap at 2.
[6] Executive Order B-2019-002 is available here: https://www.colorado.gov/governor/sites/default/files/inline-files/b_2019-002_supporting_a_transition_to_zero_emissions_vehicles.pdf

Q. WHAT DEVELOPMENTS HAVE THERE BEEN ON THE LEGISLATIVE FRONT AFFECTING ELECTRIC VEHICLES?

A. There have been multiple legislative actions aimed at electric vehicles. A brief summary of the notable actions taken in 2019[7] include the following:

- House Bill 19-1159, effective August 2, 2019, modifies available income tax credits for electric or hydrogen fuel cell vehicles, and it extends the number of years the tax credit is available from 2021 through 2025.[8] This law decreases the currently available tax credit level of $5,000 gradually through a phase-out through year 2025.
- House Bill 19-1198, effective August 2, 2019, allocates funding for EVSE grants and funding to offset EVSE operation costs.[9]
- Especially important to this proceeding, on August 2, 2019, Senate Bill 19-077 was effective, providing a new regulatory process at the Commission to govern utility programs on electric vehicles. Senate Bill 19-077 is included as Attachment MJH-1 to my testimony.

Q. PLEASE EXPAND ON SENATE BILL 19-077.

A. Senate Bill 19-077 includes a declaration that the "[w]idespread adoption of electric vehicles requires that public utilities increase access to electricity as transportation fuel . . . ."[10] Following that policy, Senate Bill 19-077 amends C.R.S. §§ 40-1-103.3, 40-3-116, and 40-5-107 to provide a framework for regulated electric utilities to submit

[7] Several additional legislations addressing EVs have been introduced in the 2020 legislative session but have not yet been signed into law.
[8] House Bill 19-1159 is available here: https://leg.colorado.gov/sites/default/files/2019a_1159_signed.pdf
[9] House Bill 19-1198 is available here: https://leg.colorado.gov/sites/default/files/2019a_1198_signed.pdf
[10] Senate Bill 19-077, Section 1(1)(d).

Transportation Electrification Plans ("TEPs"). I will not restate each element of Senate Bill 19-077, as it is included as Attachment MJH-1. However, I note for context some of the requirements of this bill as codified.

First, by May 15, 2020, Black Hills is directed to submit for approval rate(s) for electricity supplied to commercial and industrial facilities used to charge electric vehicles.[11]

Second, the utility TEP "must seek to minimize overall costs and maximize overall benefits."[12]

Third, the TEP ***may*** address multiple items, such as incentives to facilitate EVSE; incentives to facilitate electrification of vehicle fleets; rate designs that encourage vehicle charging; and customer education, outreach, and incentive programs to increase awareness.[13]

Fourth, the retail rate impact from the development of electric vehicle infrastructure must not exceed 0.5 percent of the utility's total annual revenue requirement, while also reflecting revenues from electric vehicles in the utility's service territory.[14]

Fifth, there are specific factors the Commission must consider when evaluating a utility's TEP, including that the TEP is reasonably designed to improve use of the grid, reasonably expected to increase access to electricity as transportation fuel, designed to ensure system safety/reliability, reasonably expected to provide access for low-income customers in totality of the TEP, and is transparent with reporting requirements.[15]

[11] C.R.S. § 40-3-116(2).
[12] C.R.S. § 40-5-107(1)(b).
[13] *Id.*
[14] C.R.S. § 40-1-103.3(6).
[15] C.R.S § 40-5-107(2)(a)-(g).

Q. IS BLACK HILLS' APPLICATION IN THIS PROCEEDING INTENDED TO COMPLY WITH SENATE BILL 19-077?

A. Yes. The Application filed in this proceeding represents Black Hills' first TEP. As I will explain further below, this TEP was designed to address the requirements of Senate Bill 19-077.

VII. BLACK HILLS' SERVICE TERRITORY

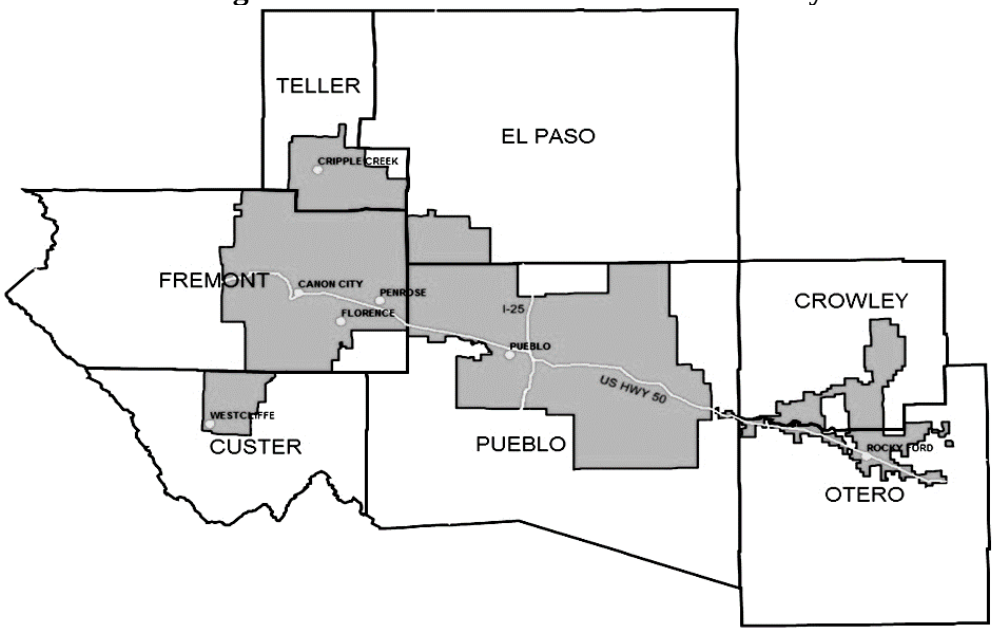
Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY AND ITS COLORADO SERVICE TERRITORY.

A. Black Hills provides electric service in Southern Colorado to approximately 96,000 customers in 21 communities with the major communities being Pueblo, Cañon City, Rocky Ford, Florence, and Westcliffe. Black Hills is a vertically integrated investor-owned utility providing generation, transmission, and distribution service to its customers. In 2019, the Company's annual retail sales were 1,954,359[16] MWh and the system peak in 2019 was 422 MW. The Company's power supply is made up of a combination of Purchase Power Agreements, owned generation facilities, and market purchases. Overall, the Company's power supply is comprised of approximately 70% natural gas and 30% renewable energy. The Company owns and operates 598 miles of transmission lines (115 kV) and 3,120 miles of distribution lines (69 kV and below).

As shown in Figure 1 below, Black Hills' service territory is a predominately rural territory of Southern Colorado. The City of Pueblo is the largest city served by Black Hills.

[16] 2019 FERC Form 1 page 301 line 10.

Figure MJH-1: Black Hills' Service Territory



Q. ARE BLACK HILLS' CUSTOMERS PARTICULARLY SENSITIVE TO CHANGES IN RATES?

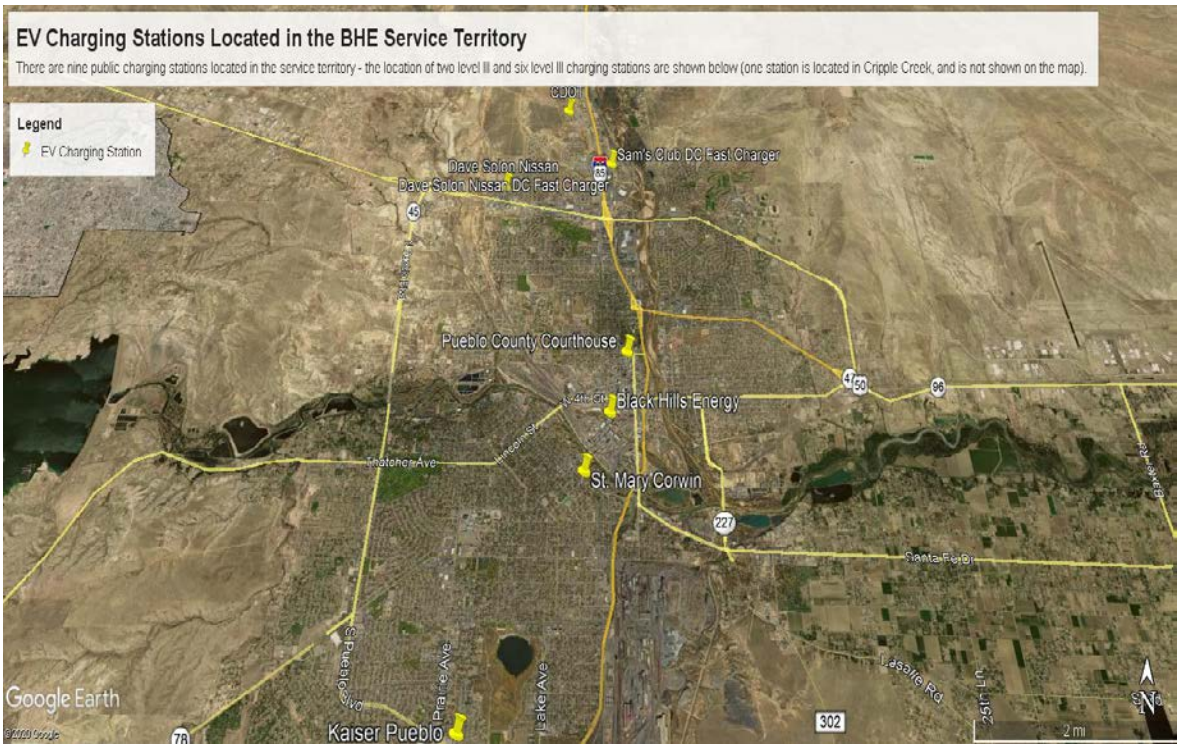
A. Yes. Customers of Black Hills have expressed concerns about the level of previous rate increases that occurred between 2010 - 2012, which primarily reflected the build-out of new generation resources necessary to serve Black Hills' customers. Black Hills customers are very sensitive to changes in rates, and the Company is very mindful of the impacts that changes in rates have on its customers.

Q. TURNING TO ELECTRIC VEHICLES, HOW MANY PUBLIC LEVEL 2 OR DIRECT CURRENT FAST CHARGERS ARE IN BLACK HILLS' SERVICE TERRITORY?

A. Currently, there is a total of nine public EVSE located in the Company's service territory, consisting of a total of 30 charging ports. Of the nine locations, two are Level 3 (Direct Current Fast Chargers), each located in Pueblo, one at the Dave Solon Nissan car dealership

and one at Sam's Club. The remaining seven public EVSE are Level 2. Six of the Level 2 EVSE are located in Pueblo, including a Level 2 EVSE placed at Black Hills' customer service center. There is also one Level 2 EVSE located in Cripple Creek, Colorado. Figure MJH-2 below is a map depicting the locations of the EVSE, excluding the Cripple Creek location. Only two of the EVSE are separately metered (the Black Hills' and Sam's Club stations). Because only two are separately metered, Black Hills has limited availability of charging data.

Figure MJH-2: PUBLIC EVSE



Q. PLEASE DESCRIBE THE COMPANY'S PARTNERSHIP WITH THE CITY OF PUEBLO TO INSTALL THREE ADDITIONAL PUBLIC LEVEL 2 CHARGERS.

A. The Company recently partnered with the City of Pueblo and submitted an application with the Colorado Energy Office's Charge Ahead Grant program, seeking funding for three new

public Level 2 EVSE. This partnership was successful, as the City was awarded a $27,000 grant, which equates to approximately 80% of the total cost for the purchase and installation of the three Level 2 EVSE. These new EVSE will be located in downtown Pueblo. Black Hills has committed to cover the remaining cost of the chargers that are in excess of the grant award or approximately 20% of the total cost of the stations with shareholder funds. The locations of the new EVSE are shown in Figure MJH-3 and are expected to be operational in Q2 2020.

Figure MJH-3: NEW PUEBLO PUBLIC EVSE

VIII. BLACK HILLS' TEP STRATEGIC APPROACH

Q. PLEASE DESCRIBE BLACK HILLS' STRATEGIC APPROACH IN DESIGNING ITS TRANSPORTATION ELECTRIFICATION PLAN.

A. Black Hills recognizes that the transition to electric vehicles has begun. In Colorado, the number of registered EVs has increased 400% from 2015 to 2020.[17] In the Company's service territory, registered EVs have increased 210%, from 96 on 1/1/2015 to 299 on 3/1/2020.[18] The Company expects the number of EVs to increase in the coming years, presenting new market opportunities. Black Hills designed its Transportation Electrification Plan to align with the growth of EVs and to help encourage the widespread adoption of EVs.

As described by Mr. Carr in his Direct Testimony, in late 2018 BHC created an internal cross-functional team to explore, develop, and execute a strategic electric vehicle plan that would encourage increases in electric vehicle infrastructure and increase EV adoption across all three of its electric service territories. From this research and analysis, BHC's electric vehicle strategy was developed for all three electric utilities of Black Hills Corporation, including Cheyenne Light Fuel and Power (serving Cheyenne Wyoming), Black Hills Power (servicing the Black Hills of South Dakota and northeastern Wyoming), and Black Hills Colorado Electric (serving Southern Colorado).

In designing Black Hills Colorado Electrics' first TEP, called Ready EV, the Company had three primary objectives. First concerns the cost of the EV program. The Company supports a goal of encouraging the widespread adoption of EVs. However, the

[17] https://energyoffice.colorado.gov/evs-colorado; in 2015 there were 5,561 registered EVs, in March 2020 there were 27,713.
[18] https://energyoffice.colorado.gov/evs-colorado

Company's customers are very sensitive to rate changes; thus, Black Hills is striving to find the right balance between maximizing the benefits of EV adoption at a reasonable cost to all customers. As discussed in greater detail below, the Company has proposed several steps to mitigate the potential rate impact to customers. The Company's proposed Ready EV budget will result in a less than 0.25% increase to an average residential monthly bill.

Second, the Company is striving to establish a fundamental framework to assist in the widespread adoption of EVs. This framework is intended to provide several program elements that are necessary to support EV growth, while also ensuring that additional mechanisms can be added or changed over time based on technology changes, customer preferences, and lessons learned. Future TEPs will be able to build off of and expand the framework proposed in Ready EV. As discussed in more detail below, the Company has designed a comprehensive strategy involving rebates, EV charging rates, a communication strategy, and cost recovery, among others. Establishing the appropriate regulatory framework will allow the Company to make timely adjustments to the TEP as the EV market in the Company's service territory matures.

The third objective was to design the TEP to comply with applicable statutes and policy objectives.

Q. PLEASE DESCRIBE THE COMPANY'S EFFORTS TO GATHER STAKEHOLDER INPUT IN DESIGNING ITS TEP.

A. Early and on-going stakeholder engagement was essential to create an open dialog between stakeholders and the Company to share ideas and information. The Company took proactive measures and engaged various stakeholders to gather feedback, input, and support in designing its TEP. The Company attended several industry meetings and met

with multiple organizations in a collaborative and constructive manner. These stakeholders included the Colorado Energy Office, Western Resource Advocates, the Office of Consumer Counsel, Staff of the Public Utilities Commission, other electric utilities, EV charging manufacturers, local government entities, EV owners, EV dealerships, and EVSE site hosts. These stakeholders provided valuable input and helped shape the Company's EV strategy.

The Company appreciates the open dialog with stakeholders and will continue to engage with stakeholders as the Company implements Ready EV. As part of Ready EV, the Company proposes the formation of a new stakeholder engagement group that will meet quarterly to discuss the Ready EV programs, opportunities for betterment, new pilots, and subsequent TEPs. The new stakeholder engagement group is discussed further in Section XI of my testimony.

IX. BLACK HILLS' READY EV OVERVIEW

Q. PLEASE DESCRIBE THE COMPANY'S READY EV PLAN.

A. Ready EV is a comprehensive plan designed to encourage the widespread adoption of electric vehicles. The Ready EV Plan itself is included as Attachment TAC-1 to the Direct Testimony of Mr. T. Aaron Carr. The goal statement for the Ready EV plan is as follows:

> The Black Hills Ready EV Plan strives to accelerate EV adoption through the deployment of customer-focused education, partnerships, rates, and rebates/incentives for public and in-home chargers. The Ready EV program will support Black Hills' sustainability efforts and commitment to environmental stewardship. The Plan recognizes that increases in EV adoption have the potential to benefit all customers. The highly flexible load of EVs can allow Black Hills to efficiently utilize system capabilities and increase load shifts to off-peak times, resulting in lower costs for all customers.

Overall, the Ready EV Plan contains the following programs: (1) EV charging rates; (2) an EVSE approach, (3) EVSE rebates, (4) fleet electrification programs, (5) low-income customer programs, (6) a revision to the Company's distribution line extension tariff, (7) a Customer Communication and Education Strategy, (8) an EV dealership engagement program, (9) an employee EV engagement program, (10) a safety and reliability assessment, (11) Plan metrics, (12) a Plan budget, and (13) stakeholder engagement.

Q. PLEASE SPECIFICALLY DESCRIBE WHAT ASPECTS OF THE READY EV PLAN EACH OF THE COMPANY'S WITNESSES ADDRESS.

A. I will address the following:

- (13) stakeholder engagement;
- (12) reasonableness of the Plan budget; and
- (11) Plan metrics

Witness Mr. Aaron Carr addresses:

- (2) the Company's EVSE approach;
- (4) fleet electrification;
- (9) an employee EV engagement program; and
- (8) EV dealership engagement

Witness Mr. Michael Grubert addresses:

- (1) EV charging rates

Witness Mr. Grant Gervais addresses:

- (3) EVSE rebates;
- (5) low-income customer programs;
- (6) distribution line extension tariff revision; and
- (12) components of the Plan budget;
- (10) safety and reliability.

Witness Ms. Theresa Donnelly addresses:

- (7) the Customer Communication and Education Strategy

Q. THOUGH THE READY EV PLAN CONTAINS MULTIPLE PROGRAMS, WHAT ARE THE CORE ELEMENTS OF THE PLAN?

A. The Ready EV Plan contains four core elements that work independently, but together are designed to meet overall program goals. These four core elements are: (A) rebates for EVSE, (B) modification to the Company Distribution Line Extension Tariff for EVSE, (C) EV charging rates, and (D) a Customer Communication and Education Strategy. The Company has specific witnesses that address each of these; however, I will provide an overview of each component.

A. REBATES FOR EVSE

Q. IS THE COMPANY PROPOSING TO OWN ELECTRIC VEHICLE SUPPLY EQUIPMENT OR EVSE?

A. No, not at this time. Company witness Mr. Carr addresses the rationale for why the Company believes it is better suited at this time to offer rebates to customers for their purchase of EVSE, as opposed to the Company's ownership of the EVSE. Under the Company's approach, customers—not the Company—will own and maintain EVSE. The Company reserves the ability to potentially own EVSE in the future, based on changed developments, but at this time it is not proposing to do so.

Q. PLEASE PROVIDE AN OVERVIEW OF THE PROPOSED REBATE PROGRAM.

A. Company witness Mr. Gervais addresses the rebate program in his Direct Testimony. As he explains, the rebate amounts are intended to offset a portion of the installed cost of the

EVSE, mitigating a potential barrier to customer adoption of EVs. Based on industry best practices, the Company has selected the following rebate amounts:

Table MJH-1: Ready EV Rebate Maximum Amounts

Rebate Type	Rebate Maximum Amounts
Residential Level 2	$500 per port
Residential- Low-Income Level 2	$1,000 per port
Commercial / Multi-unit dwelling Level 2	$2,000 per port
Governmental/Non-Profit Level 2	$3,000 per port
DCFC Level 3	$35,000 per port

B. DISTRIBUTION LINE EXTENSION TARIFF MODIFICATION

Q. PLEASE DESCRIBE THE PROPOSED MODIFICATION TO THE COMPANY'S DISTRIBUTION LINE EXTENSION TARIFF.

A. Company witness Mr. Gervais discusses the Company's proposal to make a modification to the existing Distribution Line Extension Tariff to specifically state that new EVSE will be designated as permanent service and therefore eligible for a construction allowance. A line extension cost represents the cost to interconnect EVSE to the Company's facilities. The Company is proposing to expressly clarify that new EVSE are eligible for a construction allowance.

C. NEW EV CHARGING RATES

Q. PLEASE DESCRIBE THE NEW EV CHARGING RATES.

A. Company witness Mr. Grubert discusses the proposed new EV rate design. The Company is proposing to implement new EV time-of-day rates for its Residential, Small General Service, and Large General Service customer classes. The time-of-day rates are designed to encourage the widespread adoption of EVs and are designed to encourage the efficient

use of the grid by sending pricing signals that promote off-peak charging. Table MJH-2 is a summary of the proposed rates.

Table MJH-2: Proposed EV Base Rates

		RS-EV	SGS-EV	LGS-SEV
Customer Charge	$/Bill	$ 8.77	$ 11.39	$ 64.00
Summer On-Peak Energy Charge	$/kWh	$ 0.29156	$ 0.20900	$ 0.38879
Summer Off-Peak Energy Charge	$/kWh	$ 0.09469	$ 0.06943	$ 0.13010
Winter On-Peak Energy Charge	$/kWh	$ 0.19262	$ 0.14096	$ 0.26101
Winter Off-Peak Energy Charge	$/kWh	$ 0.09469	$ 0.06943	$ 0.13010
Demand Charge	$/kW	N/A	N/A	$ 6.35

D. CUSTOMER COMMUNICATION AND EDUCATION STRATEGY

Q. PLEASE DESCRIBE THE READY EV COMMUNICATION STRATEGY.

A. Company witness Ms. Theresa Donnelly discusses the Company's Communication Strategy. As she explains, customers need clear and accurate guidance to allow them to make appropriate decisions on the electric rates and program options available to them. Ready EV will increase the suite of offerings available to customers. It is thus important that the Company provide customers with sufficient information so that they can make informed decisions. Research indicates that developing the resources necessary for consumers to make informed decisions plays a critical role in encouraging EV deployment.[19]

The Company will use internal resources and personnel for much of the Communication Strategy and external resources where the Company does not have

[19] Proceeding No. 17I-0692E, Colorado PUC Electric Vehicle Working Group Report filed January 15, 2019.

adequate in-house expertise or available personnel. The Company will use a variety of channels to reach and inform customers, including a Ready EV website, social media, emails, media relations, print material, call center representatives, EVSE manufacturers, and auto dealerships.

X. TEP REGULATORY FRAMEWORK

Q. WHY IS IT APPROPRIATE TO ADDRESS THE REGULATORY FRAMEWORK APPLICABLE TO THE TEP?

A. It is necessary to address the regulatory framework because this is the Company's first TEP. The TEP is based on legislation passed in 2019, and there are no Commission rules governing the TEP. Given the new requirement to seek approval of a TEP, the Company explains how it envisions a successful regulatory process for this, and future, TEP filings.

Q. WHAT SHOULD THE REGULATORY FRAMEWORK BE FOR BLACK HILLS' TEP?

A. Establishing an appropriate regulatory framework will allow the Company to make timely adjustments to its TEP as the EV market in the Company's service territory matures. The Company proposes a process very similar to the current Demand Side Management ("DSM") regulatory framework. The current DSM regulatory framework includes: (1) filing of a three-year plan that is updated and filed with the Commission every three years, (2) a mechanism for timely cost recovery, (3) performance incentive mechanisms to encourage the Company to meet certain goals, (4) a budget cap and budget flexibility, (5) a process to implement changes to the approved plan between regulatory filings, and (6) a

stakeholder engagement process. As I will discuss, the Company has adopted a similar approach governing DSM for its first TEP, the Ready EV Plan.

Q. WHAT IS THE REQUIRED REGULATORY FILING CYCLE FOR THE TEP?

A. Similar to the DSM filing cycle, C.R.S. § 40-5-107(1)(a) requires the Company to file with the Commission an application for a program for regulated activities to support transportation electrification by May 15, 2020, and every three years thereafter. This application is the Company's first TEP. The TEP will become effective in January 2021, and it will expire in December 2023. During year 2023, the Company will file another TEP applicable to become effective in January 2024, which will then expire in December 2026. The three-year filing cycle will continue thereafter.

Q. HOW WILL THE COMPANY RECOVER THE COST ASSOCIATED WITH ITS TEP?

A. The Company is proposing to use the DSMCA rider for cost recovery of its TEP program costs. The TEP costs and the DSM costs will be separately identified, and the Company will not comingle the budgets. This proposal is discussed in more detail in Section XV of my testimony.

Q. PLEASE DESCRIBE THE PERFORMANCE INCENTIVE MECHANISM.

A. A Performance Incentive Mechanism ("PIM") is currently included in the Company's DSM program. In DSM, if the Company achieves certain targets, the Company is awarded a performance incentive in the form of monetary bonuses. Similarly, the Company is proposing a PIM with its Ready EV Plan. The PIM is discussed in more detail in Section XIV of my testimony below.

Q. PLEASE DESCRIBE BUDGET FLEXIBILITY FOR THE TEP.

A. The Company is afforded budget flexibility with its annual DSM budget. The Company has defined annual budgets for each DSM program, but it is afforded the flexibility to shift funds between programs as demand for the programs can vary year-to-year. In addition, the Company can exceed its annual budget, so long as it does not incur cost in excess of 115% of the overall annual budget amount. Budget flexibility is important in the DSM program because it allows the company to maximize the effectiveness of the programs and meet changing customer demands. Similarly, the Company needs the ability to adjust its Ready EV budget to maximize its effectiveness and meet customer demands. The Company cannot predict with perfect accuracy how customers will respond to the methods employed by the Company to incentivize EV adoption. Therefore, the Company is requesting budget flexibility to: (1) shift funds between programs, and (2) allow the Company to increase its overall budget, not to exceed 150% of the budget. This proposal is discussed in more detail in Section XII of my testimony.

Q. PLEASE DESCRIBE THE COMPANY'S PROPOSAL TO IMPLEMENT POTENTIAL CHANGES TO ITS TEP BETWEEN COMMISSION FILINGS.

A. The DSM process to implement changes to programs is an effective and efficient process that involves stakeholder meetings and a notice period informing all interested parties of proposed changes. Through the stakeholder and notice process, the Company can add new programs, make changes to existing programs, change rebate levels, and discontinue programs. These changes can be made to the approved DSM portfolio, subject to filing of the changes at the Commission and receiving comments from interested stakeholders. This process has worked well for the Company's DSM program. As an example, following the Commission's approval of the Company's 2019-2021 DSM program unanimous

settlement agreement, the Company conducted a Pilot Program Feasibility Study. The Company held several stakeholder meetings to gather input and information into potential new pilot programs. The stakeholder meetings were robust, collaborative, and resulted in many stakeholders presenting possible pilot programs. Through this stakeholder process, two new programs were added to the Company's DSM portfolio as 2020 pilot programs. The Company gathered consensus among the stakeholders and filed a 60-day notice informing all parties of the new programs. The new programs took effect January 2020. This process allows the Company to implement pilot programs during the three-year program. Thus, the Company does not have to wait until the next regulatory filing to implement new pilot programs.

For Ready EV, the Company is proposing a very similar process. A goal of Ready EV is to encourage the widespread adoption of EVs. As the EV market matures and grows in Southern Colorado, the Company envisions future implementation of various pilot programs. For example, Black Hills desires to implement a pilot program to address the electrification of public transit and fleets, as discussed by Company Witness Mr. Carr. However, at this time, Black Hills needs more time to thoroughly understand the needs of its customers as it pertains to electrifying public transit and fleets. The Company is proposing to address new pilots, such as pilots to address public transit and fleets, through engagement with stakeholders and submitting notices of new pilots to the Commission that are subject to comment by interested parties. This process mirrors that applicable for program changes in DSM.

Q. HOW WILL THE COMPANY NOTIFY PARTIES OF POTENTIAL NEW PILOT PROGRAMS OR OTHER CHANGES TO THE READY EV PLAN?

A. Following the stakeholder engagement process, if a new pilot program is determined to be feasible and cost effective or if there are other changes to the existing programs, the Company would issue a 60-day notice to all parties in this proceeding. If an existing program is determined to be canceled, the Company would issue a 90-day notice to all parties. The notices would be filed in this proceeding, as well as posted on the Company's website. The 60-day notice and the 90-day notice would inform parties and the Commission of the proposed change. Parties would have the opportunity to comment on the proposed change. If there are no timely comments on the proposal in the notice, the Company would implement the proposed change on or after the 61st day or 91st day from the date of the Notice. If timely comments are received by the Company, prior to implementing the proposed change upon expiration of the notices, the Company will act in good faith in considering any comments received.

The Company needs the ability to implement changes to its approved TEP during the three-year term of the TEP. This proposed process is based on stakeholder engagement, is transparent, and will ensure appropriate changes can be undertaken in a flexible manner.

XI. STAKEHOLDER ENGAGEMENT PROCESS

Q. PLEASE DESCRIBE THE NEW EV STAKEHOLDER ENGAGEMENT PROCESS.

A. Black Hills is committed to encourage the widespread adoption of EVs through both immediate and long-term strategies. The immediate strategies composing Ready EV are listed below. Moving forward, Black Hills understands that these immediate strategies may require refinement, whole-sale revision, or program supplements. In addition, over

time, as new technologies are introduced and customer EV adoption rates increase, Black Hills must remain responsive to these changes. For these reasons, an important element of Ready EV includes the launching of a new stakeholder engagement process specific for EVs.

The stakeholder engagement process will be ongoing throughout the course of Black Hills' first TEP. It will enable Black Hills a forum to evaluate its ongoing EV programs, review potential new programs, and launch pilot programs, as necessary. The stakeholder engagement process will be an effective mechanism to improve Ready EV, and to assist Black Hills in its submittal of future TEPs.

The specific steps of the stakeholder engagement process are as follows:

1. Noticing the holding of stakeholder meetings such that all interested entities are made aware and given the opportunity to attend the meetings;

2. Conducting on a quarterly basis the stakeholder meetings at locations in Black Hills' service territory;

3. Ensuring that the quarterly meetings are available via teleconference for those entities that cannot attend in person;

4. Developing through the quarterly meetings the action items to improve Ready EV, including with the potential launching of new pilots during the three-year term of the first TEP or in Black Hills' next TEP;

5. Providing notice to the Commission and stakeholders of any changes to Ready EV programs or the launching of new pilots, including the budget impacts; and

6. Reflecting in the next TEP lessons learned through the stakeholder engagement process on the results of the program offerings of Ready EV.

Q. WHY IS THE STAKEHOLDER ENGAGEMENT PROCESS IN THE PUBLIC INTEREST?

A. Black Hills envisions that its Ready EV Plan will grow and adopt over time to meet the needs of its customers. Black Hills will work with stakeholders to address the changing needs and the new or modified programs to meet those needs. Keeping an open and transparent dialogue will ensure that Black Hills is best meeting the needs of the communities it serves.

XII. READY EV BUDGET

Q. WHAT IS THE ESTIMATED TOTAL COST OF THE COMPANY'S READY EV PLAN?

A. As discussed above, the Company is very mindful of the potential impacts Ready EV will have on its customers. Based on customer sensitivities to Black Hills' rates, the Company strategically structured its budget to further customer interest. As discussed by Mr. Gervais, the total Ready EV budget is $396,687 in year one, $441,014 in year 2, and $506,008 in year three. The potential residential bill impact ranges from 0.19% to 0.24% increase. In order to achieve this conservative bill impact, the Company mitigated several cost items by amortizing the amounts over multiple years. For example: the one-time cost incurred associated with putting together this application (*i.e.*, legal and consulting) will be amortized and recovered over a three-year period. This allows the Company the ability to smooth-out the recovery of certain costs and manage the potential bill impacts over a longer time period. Company witness Mr. Gervais discusses the Company's budget calculation in more detail in his Direct Testimony.

Q. PLEASE DESCRIBE THE COST COMPONENTS OF THE TOTAL BUDGET.

A. The Company's Ready EV budget includes cost associated with the EV distribution line extension (construction allowance), cost of EVSE rebates, a performance incentive, and program administrative expenses. Company witness Mr. Gervais discusses the Company's budget calculation in more detail in his Direct Testimony.

The first category of cost represents the cost of the distribution facilities necessary to serve EVSE. The Company is proposing a modification to its Distribution Line Extension Tariff to state that EVSE will be designated as permanent service and therefore eligible for a construction allowance. C.R.S. § 40-1-103.3(6) addresses that there can be recovery of distribution system investments that are a component of TEP. These facilities are normal investments that the Company routinely installs on a day-to-day basis, and they are of a type that would otherwise be included in the Company's ratebase calculation. For cost recovery purposes, the Company will calculate the annual revenue requirement, using the Company's Commission authorized Weighted Average Cost of Capital ("WACC"), associated with each new EVSE project. The annual revenue requirement will be included in the overall cost of the Ready EV budget. Similar to other capital investment riders, like the Transmission Cost Adjustment and the Clean Air Clean Jobs Act rider, the Company will roll-in the construction allowance cost into base rates at the next Phase I rate review. Company witness Mr. Gervais discusses the revenue requirements calculation in more detail in his Direct Testimony.

The second category of cost in the Ready EV budget represents the cost of the annual rebates awarded to customers. The Company is not proposing to own the EVSE infrastructure, as the Company will provide instead rebates to eligible EVSE. C.R.S. § 40-3-116(1)(a) addresses that a utility may earn a rate of return on rebates provided to

customers through a transportation electrification program. The cost of these rebates each year will be recorded as a regulatory asset that is amortized over a three-year period. The Company will calculate the annual revenue requirements associated with this regulatory asset using the Commission authorized WACC. Company witness Mr. Gervais discusses the revenue requirement calculation in more detail in his Direct Testimony.

The third category of costs in the Ready EV budget represents a Performance Incentive Mechanism ("PIM"). The Performance Incentive Mechanism is based on the social cost of carbon benefit achieved by reducing CO2 emissions. The PIM is explained in Section XIV of my testimony.

The fourth category of cost in the Ready EV budget represent the Ready EV program administrative and implementation expenses. There are a number of expenses the Company will incur to administer and implement the program, these expenses include customer education and outreach costs, administrative and general costs, and legal and consulting costs. Mr. Gervais discusses these expenses in more detail in his Direct Testimony.

Q. THE COMPANY IS PROPOSING TO TREAT THE COST OF THE EVSE REBATES AS A REGULATORY ASSET. WHY IS IT REASONABLE TO INCLUDE A RETURN ON THE REBATES USING THE COMPANY APPROVED WACC?

A. As I discussed above, there have been numerous executive developments and recent legislation that have shaped Colorado's landscape for electric vehicles. Governor Polis's May 30, 2019 "Roadmap to 100% Renewable Energy By 2040 and Bold Climate Action" ("Roadmap") includes a policy goal of placing 940,000 zero emission vehicles on the road

by 2030. It is recognized that electric utilities play a vital role in helping the State achieve these goals. As declared in SB19-077, the expanded growth of EVs "will be assisted by investments in infrastructure necessary to maximize the benefits of the expanding electric vehicle market."[20]

Prior to the passage of SB19-077, utilities have questioned how the Commission will treat EVSE infrastructure investments. It was unclear if the Commission would consider those investments as regulated, used and useful investments, that are eligible to be included in its rate base calculation and earn an authorized return. SB19-077 removed this ambiguity by revising C.R.S. § 40-1-103.3 to state that electric public utilities may provide alternative fuel vehicle charging or fueling facilities as regulated services.

In addition to providing that utilities may engage in EV charging as regulated services, Senate Bill 19-077 addressed treatment of rebates for EVSE. Specifically, it revised C.R.S § 40-3-116 to provide that the Company may include (emphasis added):

> a return on any investment made under section 40-5-107 by an electric public utility at the electric public utility's weighted average cost of capital, including the most recent rate of return on equity, approved by the commission, ***including by allowing a utility to earn a rate of return on rebates*** provided to customers through a transportation electrification program.

As explained by Mr. Carr in greater detail, the Company is pleased to propose a comprehensive TEP that will support widespread transportation electrification within its Colorado service territory. The rebate structure is an integral part of this Plan. The Company made the strategic decision to not own and ratebase EVSE. Even though SB19-077 provides that an electric utility may own, operate, and earn a return on the EV charging

[20] SB 19-077, Section 1(c).

infrastructure, the Company decided, at this time, that such ownership is not in the best interests of its customers primarily due to cost risks. The decision to not own and earn a return on EVSE represents an opportunity cost whereby the Company is foregoing the benefits (*i.e.*, return on rate base) it would have received if it had owned and operated EVSE. Rather than investing in infrastructure, the Company is proposing to invest in the form of rebates to facilitate the deployment of customer-owned EVSE. These incentive rebates are intended to "meet the market half-way." Meaning, the Company will provide some, but not all, of the initial investment in EVSE. The Company's decision to offer incentive rebates does not burden its customers with 100% of EVSE costs, but rather it requires the EV market to also contribute to infrastructure needs. This is a fair and reasonable approach that supports the public interest.

In addition, a return on the rebates represent a small portion of the overall Ready EV budget. As shown in Attachment PGG-1, the equity return on rebates represent approximately 2% of the total cost of Ready EV.

Q. WHAT IS THE COMPANY'S COMMISSION APPROVED WEIGHTED AVERAGE COST OF CAPITAL?

A. The Company's Commission approved weighted average cost of capital is 7.43%. This was established by the Commission in Proceeding No. 16AL-0326E.[21]

Q. WHAT IS THE TOTAL READY EV BUDGET AMOUNT PER YEAR AND THE ASSOCIATED RETAIL RATE IMPACT?

[21] *In re Advice Letter No. 721 Filed by Black Hills/Colo. Elec. Util. Co., LP to Increase Its Base Rates for All Rate Schedules, Implement a Gen. Rate Schedule Adjustment, Revise Its Transmission Cost Adjustment Tariff, and Implement Other Proposed Changes to Its Colo. PUC No. 9-Electric Tariff To Be Effective June 5, 2016*, Proceeding No. 16AL-0326E, Decision Permanently Suspending Tariff Sheets, Establishing Rates, and Requiring Compliance Filings at 27–28 (Dec. 19, 2016).

A. The total estimated budget for the Ready EV Plan is $396,687 in year 1, $441,014 in year 2, and $506,008 in year 3. This budget equates to a retail rate impact of less than 0.25%. Company witness Mr. Gervais calculates this amount in his Direct Testimony and attachments.

Table MJH-3: Ready EV budget

Budget Category	2021 Costs	2022 Costs	2023 Costs
Line Extension Construction Allowance	$8,818	$25,399	$45,591
EVSE Rebates	$72,419	$145,592	$234,781
Performance Incentive	$27,117	$31,690	$37,303
Administrative & General			
Legal (3 yr. amortization)	$40,000	$40,000	$40,000
Consulting (3 yr. amortization)	$10,000	$10,000	$10,000
Education and Outreach	$175,000	$125,000	$75,000
EV Vendor Expense	$3,333	$3,333	$3,333
New Employee	$60,000	$60,000	$60,000
Total	$396,687	$441,014	$506,008

Q. WHAT IS THE MAXIMUM RETAIL RATE IMPACT ALLOWED UNDER C.R.S. § 40-1-103.3(6)?

A. The retail rate impact from the development of electric vehicle infrastructure must not exceed one-half of one percent of the total annual revenue requirement of the utility, including revenues from electric vehicles. Company witness Mr. Gervais calculates this amount to be approximately $1,200,000.

Q. WHAT BUDGET CAP WILL THE COMPANY USE FOR THE READY EV BUDGET?

A. The Company will cap its budget at 150% of the estimated budget for each plan year. This budget amount approximates to $595,030, $661,521, and $759,012. The Company's proposed budget cap is less than the statutory maximum rate impact, and it will grant the

Company necessary flexibility in meeting customer demand if actual cost exceed estimated costs.

Q. DOES THE COMPANY BELIEVE THAT THE READY EV BUDGET IS REASONABLE?

A. Yes. C.R.S. § 40-1-103.3(6) allows a TEP to have a maximum retail bill impact that does not exceed 0.5% of the total annual revenue requirements of a utility, reflecting additional revenues from EVs. However, as I discussed above, one of the Company objectives is to keep the bill impacts as low as possible. The Company's TEP budget will increase an average residential customers monthly bill by less than 0.25%, which is significantly below the amount allowed by statute. Given the level of EV maturity in the Company's service territory, this overall budget is an appropriate starting place. As the EV market matures, with the help of the Company's Ready EV Plan, the Company will continue to evaluate the appropriate budget and cost of electrification of transportation in Southern Colorado.

XIII. PLAN METRICS

Q. PLEASE DESCRIBE THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section, I present an economic analysis and resulting metrics associated with the Company's Ready EV Plan. The Company retained Applied Economics Group ("AEG") to calculate economic analysis, including the Social Cost of Carbon ("SCC") and various cost-effectiveness metrics.

Q. WHO IS APPLIED ENERGY GROUP AND WHAT ANALYSIS DID THEY PERFORM?

A. AEG has assisted the Company for many years on the development and implementation of the Company's DSM program. AEG has extensive experience consulting with utilities and regulators on a wide range of topics including energy efficiency and demand response related programs.

AEG used various inputs from the Company and industry benchmarks to perform an economic analysis for the Company's Ready EV Plan. The economic analysis (a) calculates potential reduction in CO2 emissions and the SCC benefit of the reduced CO2 emissions; (b) calculates the total energy impacts; (c) presents various cost-effectiveness tests; and (d) calculates the total net economic benefits of the Company's Ready EV Plan.

Q. HOW WAS THE ECONOMIC ANALYSIS DEVELOPED?

A. AEG began with a benchmarking of electric vehicle programs currently offered by other electric utilities, focusing on regional utilities and utilities of similar size to the Company. The research focused on the program rules, equipment incentivized, and incentive levels.

Next, AEG developed a reasonable set of assumptions for the electric vehicle charging equipment that will be included in the Company's Ready EV Plan. These assumptions include, but not be limited to, gasoline savings, kWh savings, kW savings, coincidence factors, incremental costs, and other inputs. AEG utilized both Colorado-specific and regional/national datasets in order to fully populate the assumptions used in their analysis.

Last, AEG used its proprietary program modeling tool, BenCost, to complete a cost-effectiveness analysis. AEG analyzed the total estimated benefits and total estimated cost to measure the cost effectiveness of the Company's Ready EV Plan.

A. CO2 EMISSIONS AND THE SOCIAL COST OF CARBON

Q. C.R.S. § 40-3.2-106 REQUIRES THE COMPANY TO INCLUDE AN ANALYSIS OF THE SOCIAL COST OF CARBON. HOW WAS THE SOCIAL COST OF CARBON CALCULATED?

A. To determine the social cost of carbon, AEG analyzed three sources of carbon emissions, 1) the avoided emissions from Internal Combustion Vehicles ("ICE") that are replaced by electric vehicles, 2) the additional emissions from increased electricity sales, and 3) the avoided electricity sales as a result of using efficient chargers.

To calculate the SCC of the avoided CO2 emission from ICE vehicles, first AEG estimated the average annual gasoline savings using information from the 2017 National Household Travel Survey (for miles traveled) and the 2019 US Vehicle Fuel Economy Guide (for fuel efficiency). The estimated CO2 savings were determined by applying a CO2 emission conversion factor. The estimated CO2 savings were then multiplied by the SCC $/ton, which was determined using the Technical Support Document authored by the Interagency Working Group on Social Cost of Greenhouse Gases as referenced in C.R.S § 40-3.2-106(4). The 2020 value of the social cost of carbon is $49.32/short ton of CO2.

To calculate the SCC of the increased CO2 emissions from increased electricity sales to EV, AEG estimated the annual kWh consumed by an EV using the 2017 National Household Travel Survey (for miles traveled) and EIA's 2019 Annual Energy Outlook (for electricity use). The estimated CO2 increases were determined by applying a Colorado State average CO2 emissions factor. The estimated CO2 increase was then multiplied by the SCC $/ton.

To calculate the SCC of the avoided electricity sales as a result of using efficient chargers, AEG estimated the annual kWhs saved as a result of the use of efficient EV chargers. The same CO2 conversion and SCC $/ton was then applied.

Q. CAN YOU PLEASE PROVIDE AN EXAMPLE OF THE CALCULATION OF THE SCC?

A. Table MJH-4 below depicts the calculation of the SCC for one Residential Level 2 EVSE rebate. The calculation for Commercial Level 2 and DCFC is very similar.

Table MJH-4: Residential SCC Calculation

			Total Social Cost of Carbon Savings Formula						
Technology	**Fuel**	**Fuel Unit**	**Fuel Savings**	**x**	**Tons of CO2 per Fuel Unit**	**x**	**Social Cost of Carbon ($/Ton)**	**=**	**Carbon Savings ($)**
ICE Vehicle	Gasoline	Gal	397	x	0.00947	x	$49.32	=	$185.52
Electric Vehicle	Electricity	kWh	(3,342)	x	0.00068	x	$49.32	=	($112.32)
Efficient EV Charger	Electricity	kWh	36	x	0.00068	x	$49.32	=	$1.23
								Total	$74.43

Q. WHAT IS THE POTENTIAL REDUCTION OF CO2 EMISSIONS AND THE SCC ASSOCIATED WITH THE COMPANY'S READY EV PLAN?

A. The amount of estimated CO2 savings (tons) and the associated SCC (dollars) are provided in the tables below.

Table MJH-5: CO2 Savings

Rebate	**Total Net Annual CO2 Savings (tons)**		
	2021	**2022**	**2023**
Residential Level 2 Chargers	370.5	413.1	455.5
Commercial Level 2 Chargers	21.8	21.8	28.1
Governmental Level 2 Chargers	18.7	21.8	24.9
DC Fast Chargers	3.1	3.1	6.2
TOTAL	**414.2**	**459.9**	**514.7**

Table MJH-6: Social Cost of Carbon Savings

Rebate	Total Net Annual CO2 Savings (Nominal $)			
	2021	2022	2023	Total
Residential Level 2 Chargers	$18,277	$21,446	$24,874	$64,597
Commercial Level 2 Chargers	$1,076	$1,133	$1,532	$3,742
Governmental Level 2 Chargers	$923	$1,133	$1,362	$3,418
DC Fast Chargers	$154	$162	$340	$656
TOTAL	**$20,430**	**$23,874**	**$28,108**	**$72,412**

B. TOTAL ENERGY IMPACT

Q. DID AEG CALCULATE THE TOTAL ENERGY AND DEMAND IMPACTS OF THE READY EV PLAN?

A. Yes, AEG calculated the total energy and demand impacts resulting from the Company's Ready EV Plan. Table MJH-7 provides the energy and demand impacts.

Table MJH-7: Energy and Demand Impacts

Rebate	Annual Net Energy Savings (kWhe)		
Residential Level 2 Chargers	817,678	911,589	1,005,116
Commercial Level 2 Chargers	48,416	48,416	62,249
Governmental Level 2 Chargers	41,499	48,416	55,333
DC Fast Chargers	6,917	6,917	13,833
Total	**914,510**	**1,015,337**	**1,136,530**

Rebate	Annual Net Demand Savings (kW)		
Residential Level 2 Chargers	-53.8	-60.0	-66.2
Commercial Level 2 Chargers	-3.2	-3.2	-4.2
Governmental Level 2 Chargers	-2.8	-3.2	-3.7
DC Fast Chargers	-0.5	-0.5	-0.9
Total	**-60.2**	**-66.9**	**-75.0**

Q. PLEASE FURTHER DESCRIBE WHAT THE ANNUAL ESTIMATED NET ENERGY SAVINGS REPRESENT.

A. The annual net energy savings is determined by 1) converting gasoline savings into an energy equivalent savings from the associated EVs, 2) the increased energy use associated with the addition of EVs, and 3) the energy savings associated with the use of ENERGY STAR rated EVSE. These three areas are netted together and represent the total annual net energy savings expressed in kWhs

The first area of energy savings is determined by converting gasoline savings into an energy equivalent value. In order to provide a complete analysis of the energy impacts, the reduction of gasoline use from the additional EVs was converted into an energy equivalent savings value. These energy equivalent savings are expressed in kilowatt hour equivalents ("KWhe"). The kWhe represents the fossil fuel savings converted to KWhs to represent a KWh equivalent for analysis of the total energy impacts associated with the Company's Ready EV Plan. This energy conversion calculation is based on the tool developed by the Vermont Department of Public Service to model compliance with their energy goals.[22]

The second category represents the increased energy use associated with the increased number of EVs. As more EVs are added, the Company will increase its energy sales to these new customers.

The third area of energy savings is determined by using highly efficient charging stations. The Company's rebate program supports the use of highly efficient charging

[22] https://publicservice.vermont.gov/sites/dps/files/documents/2019%20Annual%20Report%20on%20the%20RES.pdf

stations. AEG compared the energy use of these ENERGY STAR rated chargers to a standard Level 2 charging station. These ENERGY STAR chargers are more efficient that other available chargers.

Q. PLEASE FURTHER DESCRIBE WHAT THE ANNUAL ESTIMATED NET DEMAND SAVINGS REPRESENT.

A. Similar to the expected increase in energy use associated with the increased number of EVs, the Company anticipates that some of this increased energy use will occur during the peak hours. Thus, the demand savings represent a slight increase in demand. This increase in demand is expressed as a negative KW value in Table MJH-7 above. Notably, the Residential EV rate is a whole-house rate. AEG only estimated the on-peak and off-peak energy use from EVs and did not estimate potential energy shifting from other energy uses for the residential class, which may result in additional demand savings.

Q. WHAT IS THE RELEVANCE OF THE CALCULATION OF THE TOTAL ENERGY AND DEMAND IMPACTS?

A. There are many environmental benefits associated with the Company's Ready EV Plan, including the reduction of CO2 emissions. The Company has presented a method by which the environmental attributes can be converted to a kWh equivalent. This kWhe could be used to evaluate environmental savings associated with the Company's efforts. The Company believes that future modifications to the DSM programs to include programs that achieve environmental related benefits such as TEPs and/or beneficial electrification programs could be included in the Company's DSM portfolio in the future. I discuss the inclusion of the TEP in the Company DSM below in Section XV.

C. COST EFFECTIVENESS TESTS

Q. SB19-077 DOES NOT REQUIRE A SPECIFIC COST/BENEFIT TEST. HOWEVER, THE COMMISSION REQUESTED THE COMPANY PRESENT APPROPRIATE COST-EFFECTIVENESS METRICS FOR THE COMMISSION TO CONSIDER. PLEASE DESCRIBE THE VARIOUS COST-EFFECTIVENESS MEASURES THE COMPANY IS PRESENTING.

A. The Company is presenting two cost-effectiveness tests. The tests are commonly used in DSM proceedings to evaluate cost effectiveness. The cost-effectiveness tests were calculated from a variety of different perspectives: the Modified Total Resource Cost Test ("mTRC") and the Participant Cost Test ("PCT"). These tests are described as:

The mTRC measures the net costs of a program. The total costs of the program include the participant and the utility costs. The net benefits of the program are the avoided gasoline costs offset by the slight increase in energy sales. This test represents the combination of the effects of a program on both participating and non-participating customers. To perform the mTRC, a Non-Energy Benefits ("NEBs") adder is applied to the avoided supply costs, thereby impacting the net benefits of an energy efficiency measure. A 10% NEBs adder was applied, which is consistent with the Company's DSM mTRC calculations.

The PCT quantifies the benefits and costs to the customer due to participation in a program. The benefits include reduction in participants' bills, costs, and incentives received. The costs are out-of-pocket expenses incurred as a result of participation.

Q. WHAT ARE THE COST-EFFECTIVENESS RESULTS?

A. The cost-effectiveness has been determined according to the cost-benefit tests as described above. Total combined 2021-2023 cost effectiveness results are provided in the table MJH-8 below. Cost-effectiveness scores greater than 1 show that the programs benefits are greater than the program costs.

Table MJH- 8: Cost-Effectiveness

	mTRC Test	Participant Cost Test
With NEBs	2.02	3.12
Without NEBs	1.73	3.12

Q. IS THE COMPANY RECOMMENDING THE COMMISSION ADOPT A CERTAIN COST/BENEFIT TEST?

A. No. C.R.S. § 40-5-107(b) does not require a cost-benefit test, but states that a utility's plan must seek to minimize overall costs and maximize overall benefits. In Proceeding No. 19M-0574E, Staff encouraged the utilities to include in their TEP applications appropriate cost-effectiveness metrics for the Commission to consider. The Company recognizes that there could be several methods to evaluate cost-effectiveness. The Company has presented two methods that are commonly used in the evaluation of energy efficiency programs.

D. TOTAL NET ECONOMIC BENEFITS

Q. WHAT IS THE TOTAL NET ECONOMIC BENEFITS OF THE COMPANY'S PLAN ACCORDING TO THE COST EFFECTIVENESS ANALYSIS?

A. Using the mTRC test as described above, the net economic benefits of the company's Ready EV Plan are calculated as the sum of all benefits of the Plan (including the social cost of carbon), minus the sum of all costs of the Plan. The mTRC net economic benefits of the Plan are provided in the table below:

Table MJH-9: mTRC Net Benefits

	2021	2022	2023	Total
With NEBs	$812,081	$910,095	$975,182	**$2,697,357**
Without NEBs	$673,113	$768,534	$829,518	**$2,271,165**

XIV. PERFORMANCE INCENTIVE MECHANISM

Q. WHAT IS A PERFORMANCE INCENTIVE MECHANISM?

A. A Performance Incentive Mechanism ("PIM") is a tool regulators use to encourage the utility to achieve certain goals or targets that represent State and local priorities. PIMs are usually in the form of a financial reward or penalty to the utility based on specific metrics in furtherance of public benefit goals. In general, a well-designed PIM will encourage utilities to innovate and continuously improve in a cost-effective manner.

Q. IS A PERFORMANCE INCENTIVE FOR TRANSPORTATION ELECTRIFICATION PLANS ALLOWED UNDER SB19-077?

A. Yes. C.R.S. § 40-3-116(1)(c) states that a TEP may include "[p]erformance-based incentive returns or similar investment incentives." The statute does not provide clear guidance on how the PIM should be structured, but the legislature contemplated that PIMs could be used to help the utility encourage the widespread adoption of EVs.

Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S PROPOSED PIM.

A. The Company is proposing a PIM to encourage and reward the Company to achieve cost-effective reductions in CO2 emissions through the widespread adoption of electric vehicles in the Company's service territory. The PIM will be tied to the number of rebates awarded and calculated based on the social cost of carbon benefit achieved through the Company's Ready EV Plan.

Q. WHAT PRINCIPLES DID YOU CONSIDER IN DESIGNING THE PIM FOR THE COMPANY'S READY EV PLAN?

A. The Company designed the Ready EV PIM based on three principles.

First, the PIM should be tied to policy goals and objectives that the Company, Commission, State policy makers, customers, and others deem appropriate.

Second, the PIM should have clearly defined and easily interpreted metrics. The metrics used in the PIM should leave little ambiguity regarding what data is and is not included. The metrics used should reflect whether the underlying policy goals are being met.

Third, the PIM should provide an adequate financial incentive that encourages and rewards the Company for achieving the desired policy goals and objectives.

A. PIM POLICY GOALS AND OBJECTIVES

Q. WHAT POLICY OBJECTIVES IS THE PIM AIMED AT ADDRESSING?

A. Recent changes in legislation and public policy objectives have put an emphasis on the reduction of greenhouse gas emissions as measured through the social cost of carbon.

There have been numerous legislative efforts affecting greenhouse gas emissions. Most notably, HB19-1261, set economy-wide targets for reducing greenhouse gas emissions with a goal of 26% reductions by 2025, 50% reductions by 2030, and 90% reductions by 2050, below 2005 levels.

Relatedly, SB19-236 codified the specific treatment of the social cost of carbon. C.R.S. § 40-3.2-106 states that the Commission shall apply a cost of carbon dioxide emission to the nonenergy benefit programs that are defined to be beneficial electrification.

Beneficial electrification means a utility change in the energy source powering an end use from a nonelectric source to an electric source, *including transportation*, water heating, space heating, or industrial processes.

Reducing carbon emissions from the transportation sector as measured by the social cost of carbon is an important policy objective of the State of Colorado. Towards this end, as stated in Governor Polis's Roadmap, "[o]ne of the most important parts of our transition to cleaner energy is electrifying transportation in Colorado."[23] The Company asserts tying the PIM to the achieved social cost of carbon benefit is appropriate for the Company's TEP, allowing the Company to be measured against how successful Ready EV reduces greenhouse gas emissions as measured via the social cost of carbon.

Q. WHAT IS THE SOCIAL COST OF CARBON VALUE ASSOCIATED WITH THE COMPANY'S READY EV PLAN?

A. I discussed this calculation in more detail in Section XIII of my testimony above. The main contributor of CO2 emissions reductions are achieved by the avoided emissions from internal combustion vehicles that are replaced by electric vehicles. The amount of estimated CO2 savings (tons) and the associated social cost of carbon (dollars) are provided in Tables MJH-5 and MJH-6 above.

B. PIM METRICS

Q. WHAT METRICS WILL THE COMPANY USE IN THE CALCULATION OF THE PIM?

[23] Roadmap at 2.

A. The calculation of the CO2 emissions and the associated SCC value is discussed above in more detail. To calculate the CO2 emission reductions, various assumptions are used including, the vehicle miles traveled of an average vehicle, gasoline vehicle fuel efficiency, CO2 conversion factors, and electric vehicle energy usage. Each year, the Company will use the actual number of rebates awarded to determine the estimated CO2 reductions and the associated social cost of carbon benefit achieved.

C. PIM AMOUNT

Q. BASED ON THE DEFINED METRICS ABOVE, WHAT IS THE TOTAL ESTIMATED PIM AMOUNT?

A. The financial reward will depend upon the actual performance of the Company's Plan. The Company will use the actual achieved metrics to calculate the PIM. The Company will then calculate the social cost of carbon value using the Commission determined values of the social cost of carbon. For budget illustrative purposes, the estimated annual PIM amount is approximately $27,000 in year one growing to approximately $37,000 in year three. The estimated annual PIM amounts are included in the Company's TEP budget. The actual annual PIM amount that the Company will recover is dependent on the Company's performance in implementing Ready EV.

Q. WHAT PERCENTAGE OF THE TOTAL TEP BUDGET DOES THE PIM REPRESENT?

A. The average annual PIM amount represents less than 8% of the overall cost of the Company's TEP.

Q. FOR COMPARISON PURPOSES, WHAT PERCENTAGE OF THE TOTAL DSM BUDGET DOES THE DSM PIM REPRESENT?

A. If the Company achieves 100% of its DSM savings goals, then the associated DSM PIM would be approximately $360,000 or 6% of the DSM budget.

Q. IS THE COMPANY PROPOSING A CAP ON THE TOTAL PIM AMOUNT?

A. Yes, the Company is proposing to cap the PIM amount so that it does not exceed 15% of the total annual cost of the Company's TEP.

Q. WHY DOES THE COMPANY NEED AN ADDITIONAL INCENTIVE TO SUPPORT THE WIDESPREAD ADOPTION OF EVS?

A. The Company intends to aggressively pursue the electrification of the transportation system. To accomplish this pursuit, the Company should have appropriate financial incentives to align with the goal of the widespread adoption of EVs. There are several reasons why the PIM will not have enough incentive to aggressively pursue EV adoptions.

First, as discussed by Mr. Carr, the Company has selected a business approach where the Company acts as a facilitator of the widespread adoption of EVs, as opposed to an ownership approach to EVSE. By choosing to not pursue ownership of EVSE, the Company avoids increases to its rate base that would increase costs to customers and prevents the Company from the ability to earn a return on the investments. In other words, the Company is forgoing the financial incentives associated with EVSE ownership.

Second, the potential additional revenue the Company will receive by increasing EV adoption is unknown. Mr. Carr provides a forecast of the number of additional EVs based on national publications; however, the Company does not know how customers will

respond to the rebate incentives and adopt EVs, making it difficult to fully understand the potential revenue impacts.

Third, the return on the distribution line extension investments and the return on rebates, as proposed by the Company is low. Mr. Gervais calculates the total equity earnings the Company will receive on the distribution line extension and the rebates to be approximately $12,500 in year one growing to $40,000 in year three. These are not significant amounts. The lack of equity earnings potential does not lend to a sufficient financial incentive for the Company to aggressively pursue EV adoption.

Recent changes in legislation and public policy objectives have put an emphasis on the reduction of greenhouse gas emissions as measured through the social cost of carbon. Without additional incentives, the Company is not in a position to prioritize and aggressively pursue the desired results of GHG emissions from EV adoption.

Q. WHY IS THE PROPOSED PERFORMANCE INCENTIVE MECHANISM THAT IS TIED TO THE SOCIAL COST OF CARBON CALCULATION REASONABLE?

A. The Company is proposing a novel PIM aimed at addressing a specific public policy objective. The PIM attempts to align the Company's interest with the public policy objective of reducing CO2 emissions by encouraging the widespread adoption of EVs. The PIM has clearly defined metrics that are easily understood and calculated. The potential value of the PIM represents an overall small portion of the total cost of the TEP and it is comparable with other PIMs awarded to the Company. Giving the Company an incentive, in the form of a financial return, will encourage the Company to aggressively pursue the widespread adoption of EV.

XV. COST RECOVERY

Q. HOW WILL THE COMPANY RECOVER THE COST OF ITS READY EV PLAN?

A. The Company proposes to recover the cost of its Ready EV Plan through the existing DSMCA rider. Company witness Mr. Gervais discusses how the Ready EV Plan will be included in the DSMCA calculation.

Q. WHY IS IT APPROPRIATE TO USE THE DSMCA FOR COST RECOVERY?

A. The are several reasons why the DSMCA is an appropriate mechanism that can be used to recover the cost of Ready EV.

First, the DSMCA rate is a flat percentage rider. All customers pay the same percentage on their bill. This is a fair and equitable rate design as all customers benefit from the Company's Ready EV Plan.

Second, there are many regulatory administrative efficiencies in using the existing DSMCA. The existing DSMCA process provides a good framework to use in the review and approval of cost recovery. The DSMCA is updated semi-annually; October and April each year. The October filing reflects the approved budget for the next year, with an effective date of January. The April filing trues-up the budgeted cost to the actual cost for the previous year. For its TEP, the Company is not proposing to forecast its cost. Rather, the Company is proposing to use the April DSMCA filing to reflect the actual cost of its TEP. The Company will combine the actual TEP cost with the DSM cost and calculate one DSMCA rate, which will become effective on July 1st of each year. This process is discussed in greater detail in Mr. Gervais' Direct Testimony.

Third, inclusion of the Ready EV costs in the DSMCA provides a transparent process. The Company will separate the Ready EV costs from the DSM costs. The budgets

will not be co-mingled. Company witness Mr. Gervais discusses the changes proposed to the DSMCA tariff and he describes the filing process and information the Company will include in its filings.

Q. DID THE COMPANY CONSIDER PROPOSING A NEW RECOVERY MECHANISM?

A. Yes, the Company considered proposing a new TEP cost recovery mechanism. However, Southern Colorado is in the early stages of electric vehicle adoption and this is the Company's first TEP. The Company could add a new line item on customer bills for Ready EV, but the rate to recover the specific cost would be very small. In addition, a new line item could add unnecessary complexity to the bill, and it could lead to additional customer confusion and dissatisfaction. In addition, as I will discuss, it could be appropriate to merge TEP and DSM filings in the future.

Q. PLEASE EXPAND ON MERGING TEP AND DSM FILINGS.

A. While the transition to electrification as a fuel source for transportation will increase the Company's energy sales, it is possible to include this type of program in the Company's DSM portfolio in the future. There are many environmental benefits associated with the Company's Ready EV Plan, including the reduction of CO2 emissions. As I discussed above, these environmental related benefits can be converted to an energy equivalent value. The Company believes that future modifications to the DSM programs to include programs that achieve environmental related benefits such as TEPs and/or beneficial electrification programs could be included in the Company's DSM portfolio in the future.

As I discussed above, the Company has presented a method by which the environmental benefits (*i.e.* reduction of CO2) is converted to an energy equivalent value.

This value, as expressed in kWhs, could be included in the Company's overall DSM goals. In addition, the time-of-day rate design provides an incentive to shift energy usage from peak time periods to off peak periods. This results in potential demand savings opportunities and could be included in the Company's DSM goals.

Additionally, smart charging or managed charging programs could be added to capture additional demand and energy savings. At this early stage of EV adoption and given the low number of EVSE in the Company's service territory, the Company does not propose to include the Ready EV Plan in the DSM portfolio. As the EV market matures, the Company may explore future enhancements that could be used and included in the Company's DSM portfolio.

XVI. SENATE BILL 19-077 REQUIREMENTS

Q. IS THE READY EV PLAN DESIGNED TO FOLLOW THE REQUIREMENTS OF SENATE BILL 19-077?

A. At the outset, I clarify that I am not an attorney. That being said, in crafting Ready EV, Black Hills has attempted to address the provisions of Senate Bill 19-077 in the design of Ready EV and through its program offerings.

Q. PLEASE EXPLAIN ELEMENTS OF READY EV THAT WERE DESIGNED BASED ON SENATE BILL 19-077.

A. To simplify this explanation, I provide below in Table MJH-10 a listing of Senate Bill 19-077 provisions and the corresponding Ready EV proposals intended to address those provisions. I do not have a legal opinion on whether Black Hills' proposals comply with

Senate Bill 19-077 requirements. However, these issues were considered in the design and program development of Ready EV.

Table MJH-10: Senate Bill 19-077 Provisions

Statutory Provision	Ready EV Proposal	Black Hills' Witness Direct Testimony
C.R.S. § 40-1-103.3(6): Utility may recover distribution investments of EVSE	Revision to Distribution Line Extension Tariff to provide construction allowances to EVSE and recovering these construction allowances in Ready EV costs	Direct Testimony of P. Grant Gervais at Section V
C.R.S. § 40-1-103.3(6): Retail rate impact cap of TEP costs	Company proposes a budget below the maximum retail rate impact cap	Direct Testimony of P. Grant Gervais at Section VII
C.R.S. § 40-3-116(1)(a): TEP may allow return on investments at WACC, including on rebates	Company proposes recovery of return on investments at WACC on Ready EV rebates provided each year, as well as on construction allowances for EVSE under Distribution Line Extension Tariff	Direct Testimony of Michael J. Harrington at Section IX
C.R.S. § 40-3-116(1)(b): TEP may allow rate recovery mechanisms such as rate adjustments	Company proposes to recover Ready EV costs through DSMCA on annual basis	Direct Testimony of Michael J. Harrington at Section XV and Direct Testimony of P. Grant Gervais at Section VIII
C.R.S. § 40-3-116(1)(c): TEP may allow performance-based incentive returns	Company proposes performance incentive mechanism for Ready EV	Direct Testimony of Michael J. Harrington at Section XIV
C.R.S. § 40-3-116(2): utility must submit proposal for specific EV charging rates for commercial and industrial facilities that encourage charging and support operation of electric grid	Company proposes new time-of-day EV charging rates for the residential, small general, and large power primary rate classes	Direct Testimony of Michael Grubert

C.R.S. § 40-5-107(1)(a): utility must submit TEP before May 15, 2020, including programs to support widespread transportation electrification	Company filed comprehensive Ready EV Plan before May 15, 2020, to support widespread transportation electrification	See all of the Company's Verified Application for Ready EV, supporting testimonies, and the Ready EV Plan in Attachment TAC-1
C.R.S. § 40-5-107(1)(b): TEP must minimize overall costs and maximize overall benefits	The totality of the Ready EV Plan is designed to meet this provision	Direct Testimony of Michael J. Harrington at Section XVI
C.R.S. § 40-5-107(1)(b)(1)(I): TEP may include investments or incentives to facilitate EVSE deployment	Company proposes new rebates for EVSE	Direct Testimony of P. Grant Gervais at Section IV
C.R.S. § 40-5-107(1)(b)(1)(II): TEP may include investments or incentives to facilitate public or fleet electrification	Company proposes stakeholder engagement process to launch new pilots and programs for public and fleet electrification	Direct Testimony of T. Aaron Carr at Section VIII
C.R.S. § 40-5-107(1)(b)(1)(III): TEP may include rate designs/programs that encourage charging that supports operation of electric grid	(1) Company proposes new rebates for EVSE (2) Company new time-of-day EV charging rates	Direct Testimony of P. Grant Gervais at Section IV Direct Testimony of Michael Grubert
C.R.S. § 40-5-107(1)(b)(1)(IV): TEP may include customer education, outreach, and incentive programs to increase awareness and benefits of transportation electrification and encourage greater EV adoption	Company proposes new Customer Education and Communication Strategy for Ready EV	Direct Testimony of Theresa I. Donnelly
C.R.S. § 40-5-107(1)(b)(2)(a): Commission must consider if TEP costs reasonably expected to improve use of electric grid, including	The totality of the Ready EV Plan is designed to meet this provision	See all of the Company's Verified Application for Ready EV, supporting testimonies, and the Ready EV Plan in Attachment TAC-1.

renewable energy integration		
C.R.S. § 40-5-107(1)(b)(2)(b): Commission must consider if TEP reasonably expected to increase access to the use of electricity as a transportation fuel	(1) Company proposes new EVSE charging rates to promote electricity as a transportation fuel (2) Company proposes EVSE rebates to incentivize EV charger build-out, promoting access to EVSE	Direct Testimony of Michael Grubert Direct Testimony of P. Grant Gervais at Section IV
C.R.S. § 40-5-107(1)(b)(2)(c): Commission must consider if TEP designed to ensure system safety and reliability	Company proposes new EVSE charging rates and to incorporate EV load in future distribution system plans	Direct Testimony of P. Grant Gervais at Section VI Direct Testimony of Michael Grubert
C.R.S. § 40-5-107(1)(b)(2)(d)(I): Commission must consider if TEP reasonably expected to improve air quality and reduce greenhouse gas emissions	Company provides analysis on benefits to air quality and reduction in greenhouse gas emissions	Direct Testimony of Michael J. Harrington at Section XIII
C.R.S. § 40-5-107(1)(b)(2)(e): Commission must consider if TEP reasonably expected to stimulate increased customer choices in EV charging and EVSE, attract private investments and high-quality jobs	Company proposes to offer EVSE rebates to stimulate competition for build-out of EVSE infrastructure across its service territory	Direct Testimony of T. Aaron Carr at Section V
C.R.S. § 40-5-107(1)(b)(2)(f): Commission must consider if TEP is transparent and incorporates reporting requirements	Company proposes transparent reports to be filed on annual basis	Direct Testimony of P. Grant Gervais at Section IX
C.R.S. § 40-5-107(1)(b)(2)(g): Commission must consider if TEP reasonable expected	Company proposes new low-income specific programs, including rebates, dedicated budget, and new potential pilots	Direct Testimony of P. Grant Gervais at Section IV

to provide access for low-income customers		
C.R.S. § 40-5-107(1)(b)(3): EVSE work must be performed by statutory defined professionals	(1) Company business approach to provide rebates rather than own and operate EVSE or provide the make-ready investments (2) Customers must also attest in receipt of rebates that they obtain statutory defined professionals for EVSE installation	(1) Direct Testimony of T. Aaron Carr at Section V (2) Direct Testimony of P. Grant Gervais at Section IV

Q. WOULD YOU LIKE TO EXPAND ON ANY OF THESE LISTED COMPANY PROPOSALS THAT WERE CREATED IN RESPONSE TO SENATE BILL 19-077?

A. Yes. As I described, in C.R.S. § 40-5-107(1)(b), it is stated that "an application must seek to minimize overall costs and maximize overall benefits." Black Hills reflected this statutory requirement in the overall design of Ready EV. The following are the primary design elements that reflect this requirement:

(1) The Company has selected a business approach where the Company acts as a facilitator of the widespread adoption of EVs, as opposed to an ownership approach to EVSE. By choosing to not pursue ownership of EVSE, the Company avoids increases to its rate base that would increase costs to customers.

(2) The Company has proposed an initial budget for its first TEP that is approximately 1/3 of the amount permissible under the maximum retail rate allowed, permitting the Company to support widespread transportation electrification, while also avoiding undue customer rate impacts.

(3) The Company will support the widespread adoption of EVs through new rebates for EVSE. With one exception, the rebates are designed to offset EVSE costs, rather than account for the full costs of EVSE, which would increase costs to customers. The one exception concerns rebates for low-income customers, as described by witness Mr. Gervais.

(4) The Company is not proposing to offset all costs associated with distribution line extensions to EVSE. Instead, as witness Mr. Gervais provides, the Company will only offset a portion of the overall extension costs through the payment of a construction allowance. The Company is thus avoiding higher customer costs that could result if the Company proposed to cover the full cost of distribution line extensions.

(5) The Company is proposing new time-of-day rates for EV charging, where long-term system costs should be lowered by encouraging the shifting of load to off-peak hours, where costs to customers are lower.

Q. BESIDES SENATE BILL 19-077, HAS THE COMPANY REVIEWED ANY COMMISSION GUIDANCE IN DESIGNING READY EV?

A. Yes. The Company reviewed the Commission Staff report submitted in Proceeding No. 19M-0574E on February 20, 2020 entitled *Collection of Comments Filed in Proceeding No. 19M-0574E*. This Staff report contains multiple recommendations to utilities to include in their TEP applications.[24] Below, in Table MJH-11, I list how the Company has reflected Staff's recommendations into Ready EV.

[24] See Staff's February 20, 2020 Report in Proceeding No. 19M-0574E at p. 47.

Table MJH-11: Staff TEP Recommendations

Staff Recommendation	Ready EV Proposal
Include detailed descriptions of TEP programs, budgets, expenses, and benefits	The Company's Verified Application includes its TEP programs, budgets, estimated expenses, and descriptions of benefits from programs.
Include estimated costs of TEP programs and cost recovery mechanisms	The Company's Verified Application includes estimated costs of each plan year of Ready EV, as well as a proposed cost recovery mechanism through the DSMCA.
Include cost-effectiveness metrics for the Commission to consider	The Company has presented cost-effectiveness metrics for consideration
Include a social cost of carbon analysis	The Company has included a social cost of carbon analysis.
Include analyses on how TEP meet SB 19-077	The Company has described how Ready EV was designed in light of SB 19-077.
Include stakeholder meeting process similar to DSM	The Company has proposed a stakeholder engagement process similar to that applicable to DSM.
Include ways a TEP should be or not be analogous to other Commission processes	The Company has proposed to follow for Ready EV the Commission process largely applicable to DSM and the rationale for following this process.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Appendix A

Statement of Qualifications

Michael J. Harrington

Mr. Harrington graduated from the University of North Texas in 2003 with a Bachelor of Business Administration with a concentration in Economics. In 2007, Mr. Harrington received a Master's of Business Administration from Texas Woman's University. In addition, Mr. Harrington has attended several utility industry training seminars including utility rate making, regulatory finance, and utility tax.

In 2004, Mr. Harrington began his career as a Property Tax Appraiser for the Tarrant County Appraisal District in Fort Worth Texas. He was responsible for appraising commercial and business personal property for property tax purposes. He negotiated settlements of disputed property values and testified before the Appraisal Review Board.

In 2008, Mr. Harrington was employed by Atmos Energy as a Sr. Rate Analyst. In that role he prepared various regulatory filings including cost of service studies, class cost of service studies, annual earnings reports, gas infrastructure replacement filings, and other various reports for several state regulatory commissions. He also assisted in preparing, writing, and analyzing expert testimony and he represented the company in meetings with state regulators.

In 2010, Mr. Harrington was employed by Xcel Energy as a Principal Rate Analyst. In that role he was responsible for managing the FERC Jurisdictional Formula Rate Templates for Public Service Company of Colorado and Northern States Power - Wisconsin. Mr. Harrington was responsible for preparing other various regulatory filings before the FERC. In addition, Mr. Harrington was responsible for the preparing the cost of service studies for Xcel Energy's New

Mexico jurisdiction. Mr. Harrington represented the Company in numerous presentations, settlement negotiations, and in other meetings with state and federal regulators.

In 2014, Mr. Harrington was employed by SourceGas Utility Holdings, LLC as Manager, Rates and Regulatory. In that role he had overall responsibility for the Company's regulatory filings and tariff management before the Colorado Public Utilities Commission. Mr. Harrington was responsible for implementing the regulatory strategy in Colorado. He represented the Company in numerous presentations, settlement negotiations, and sponsored expert testimony before the Colorado Public Utilities Commission.

In February 2016, Black Hills Utility Holdings, Inc. ("BHUH") acquired SourceGas Utility Holdings and, shortly thereafter, Mr. Harrington assumed the role of Manager - Regulatory for BHUH. In this position, Mr. Harrington is responsible for managing various regulatory filings for Black Hills Colorado Electric, LLC. He represents the Company in stakeholder/regulatory presentations, settlement negotiations, and has sponsored expert testimony before the Colorado Public Utilities Commission.

In December 2019, Mr. Harrington assumed to the role of Sr. Manager of Regulatory & Finance. In this position, Mr. Harrington continued his responsibility for managing various regulatory filings for Black Hills Colorado Electric, LLC. in addition, he is responsible for managing the development, analysis, and interpretation of financial forecasts, including budgets and strategic plans for Black Hills Colorado Electric, LLC.

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO

PROCEEDING NO. 20A – ____E

IN THE MATTER OF THE VERIFIED APPLICATION OF BLACK HILLS COLORADO ELECTRIC, LLC FOR APPROVAL OF ITS TRANSPORTATION ELECTRIFICATION PLAN, READY EV, FOR PROGRAM YEARS 2021 – 2023 AND FOR RELATED TARIFF APPROVALS.

State of Colorado	)	Affidavit Adopting
	) SS.	Direct Testimony and Attachments
City and County of Denver	)	

Michael J. Harrington being duly sworn, states that he is the Michael J. Harrington whose Direct Testimony and Attachments in the above-captioned proceeding accompany this Affidavit.

Michael J. Harrington further states that such Direct Testimony is a true and accurate statement of his answers to the questions contained therein, and that he does adopt those answers as his sworn Testimony in this proceeding. Michael J. Harrington further states that such Attachments that accompany his Direct Testimony are true and accurate.

Michael J. Harrington

On April 24, 2020, appeared Michael J. Harrington, not in my physical presence but rather appearing remotely by means of communication technology from 10306 Mica Way, Parker Colorado, 80134, known to me to be the person who executed the foregoing instrument, and acknowledged that he executed the same as his free act, and deed.

Notary Public

My Commission Expires: August 24, 2020

BLAIR CHRISTINE WETZEL
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20164032458
MY COMMISSION EXPIRES AUGUST 24, 2020