RENEWABLE ADVANTAGE.

A path to a clean energy future in Southern Colorado

Black Hills Colorado Electric, LLC

2016 Electric Resource Plan Amendment
2019 RFP

November 22, 2019

Black Hills Energy
Ready

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1.0 Introduction

Pursuant to Commission Rule 3619, Black Hills Colorado Electric, LLC ("Black Hills" or the "Company") is filing this Amendment to its 2016 Electric Resource Plan ("ERP Amendment") to facilitate the holding of a competitive solicitation for up to 200 MW of renewable energy and storage from individual projects ("Renewable Advantage"). The Company proposes pursuing Renewable Advantage as a novel project focused on significantly increasing the renewable penetration on the Company's system and with providing immediate and annual savings to customers. As proposed by the Company, after hosting a competitive solicitation and evaluating the competitive bids, the Company will report to the Commission whether any acquisitions can take place that will ensure savings to customers. Through the ERP Amendment, the Company is able to efficiently determine whether it is in the best interest of customers to acquire new renewable and storage resources on an expedited basis.

For this ERP Amendment, the Company is requesting the following approvals:

1. Approval of the ERP Amendment to conduct Renewable Advantage; and
2. Approval of the presumption of prudence provided pursuant to Rule 3617(d) to the Company's acquisition of any bids approved by the Commission in this proceeding.

2.0 Regulatory Background

On June 3, 2016, Black Hills submitted its last ERP and Renewable Energy Standard ("RES") Plan in Proceeding No. 16A-0436E. The Company's 2016 ERP Phase I evaluation used a 25-year Planning Period from 2016-2040. The Phase I identified that the Company did not need to acquire any capacity resources during the Resource Acquisition Period ("RAP"), which covered the period of January 2016 through December 2022. However, the Company's 2018-

2021 RES Plan showed that additional eligible energy resource acquisitions were necessary for the Company to stay in compliance with RES in 2019 and beyond. To meet this shortfall, the Company's 2016 ERP Preferred Portfolio included the acquisition of 60 MW of eligible energy resources by 2019. The Company's Action Plan in the 2016 ERP to implement the Preferred Plan involved conducting a Phase II competitive solicitation to determine if eligible energy resources of up to 60 MW could be acquired at a cost providing savings for customers and generating sufficient Renewable Energy Credits ("RECs") such that Black Hills would comply with Colorado's 30 percent RES requirement from 2020 to 2025.

On January 17, 2017, the presiding Administrative Law Judge issued Recommended Decision No. R17-0039, granting the Company's ERP and RES Plan, as modified by a settlement agreement. The Phase I became effective by operation of law. Pursuant to Recommended Decision No. R17-0039, the Company's approved RES Plan runs through the end-of-year of 2021.

On February 6, 2017, the Company began the Phase II process. The Phase II process involved a competitive solicitation, otherwise known as the Eligible Energy Resources Request for Proposal ("EER RFP"), which was issued on June 23, 2017. The competitive solicitation included two RFPs: (1) Eligible Energy Resources, and (2) RECs in conjunction with Eligible Energy Resource Bids.

In the EER RFP, the Company received over 100 individual bids from multiple project developers, including wind, solar (PV), waste to energy facilities, and a number of bids that offered battery storage technology in combination with solar (PV) facilities. Bid pricing included power purchase agreements ("PPA"), build transfers, and PPAs with a build transfer

option. As the evaluation results reflected, the Company received many competitive eligible energy resource offers. Table 1 provides a specific comparison of the 2017 EER RFP to the Company's 2014 RFP ("2014 All-Source RFP") of the types of technology that were offered, number of bids evaluated, and the range of prices of the bids that were evaluated as represented by the bid's levelized cost of energy.

Table 1: Comparison of Bids Evaluated*

Type	Number of Bids		Size Range (MW)		LCOE Cost Range ($/MWh)	
	2014 All-Source RFP	2017 EER RFP	2014 All-Source RFP	2017 EER RFP	2014 All-Source RFP	2017 EER RFP
Solar (PV)	31	54	10 – 60	20 - 60	$57 – $90	$29 – $68
Wind	7	10	30 – 60	50 - 60	$48 - $75	$28 - $54
Solar (PV) + Energy Storage	0	7	-	60		$38 - $102
Other**	1	3	10	11 - 33	$53.50	$34 - $99

*Bids advanced to computer-based modelling
**Waste to Energy and Heat Recovery

On February 9, 2019, the Company filed its 120-Day Report. Based on the results of the evaluation process, the Company recommended as its Preferred Portfolio the approval of the acquisition of Bid 1117-1, representing 60 MW of wind through a PPA. The below table, taken from the 120-Day Report, shows the bid evaluation criteria scoring for Bid 1117-1.

Table 2: Bid 1117-1 Bid Evaluation Scores

Bid	Economic Evaluation		Non-Economic Evaluation				Total Score
	NPVRR Score (0-67.5)	Net Incr. Cost/Savings Score (0 - 22.5)	Transmission Plan Score (0-2.5)	Development Experience (0 to 2.5)	Environ-mental Plan (0 to 2.5)	Real Property Acquisition Plan (0 to 2.5)	
1117-1	67.5	22.5	2.5	1.8	2.5	2.5	99.30

On June 14, 2018, in Decision No. C18-0462, the Commission approved the Company's recommendation in its 120-Day Report to acquire the project represented by Bid 1117-1, which

is known as the Busch Ranch II Wind Project. Following the Commission's decision, the Company entered into a PPA for the Busch Ranch II Wind Project, which will achieve commercial operation prior to 2020.

3.0 New Developments

On May 24, 2019, Public Service Company of Colorado ("PSCo") submitted in Proceeding No. 16A-0396E a request to, among other things, conduct a targeted competitive solicitation for replacement solar and/or solar with storage projects as part of an ERP amendment filing. On July 17, 2019, in Decision No. C19-0623-I, the Commission granted PSCo's request, authorizing the targeted competitive acquisition process. On September 30, 2019, PSCo submitted in Proceeding No. 19A-0530E for Commission approval its ERP amendment filing, which included the results of its recent competitive solicitation. Those results show that PSCo received 133 bids, with a median price of solar generation of $24.00/MWh, and a median price of solar plus storage of $36.30/MWh.[1] Of the 133 bids, 73 came from bidders in Pueblo County.

In addition, year 2019 represents the phase-out of the production tax credit and investment tax credit for renewable resources. After 2019, assuming no "safe harbor," developers will not be able to claim the production tax credit, and they will only be able to claim a reduced investment tax credit. Developers have options to retain the tax credits at the year 2019 levels if they undertake "safe harbor" activities, which are related to continuing development work or undertaking continued development costs until project completion.

Moreover, the State of Colorado, Governor Polis, and certain communities served by Black Hills have committed to aggressive carbon-reduction goals.

[1] *See* Direct Testimony of James F. Hill, Proceeding No. 19A-0530E.

The recent low prices received from the PSCo competitive solicitation, the multitude of those bids being located in Pueblo County, the fact that existing tax credits are expiring, and state and local carbon-reduction goals justify Black Hills conducting Renewable Advantage for renewables and storage to determine if new renewable and storage resources can be acquired, which provide annual and immediate savings to customers. Importantly, Renewable Advantage will not involve the use of any funds from the Renewable Energy Standard Adjustment.

4.0 ERP Amendment Proposal

The Company's ERP Amendment is necessary to facilitate Renewable Advantage. Renewable Advantage will allow a competitive bidding process for renewable and storage resources of up to 200 MW from individual projects. The competitive bidding process will support bids that include: (1) power purchase agreements, (2) build-transfer arrangement, (3) utility self-build; or (3) power purchase agreements that include a future sale to the Company. Black Hills does not have an immediate need for new capacity to meet load requirements, nor does it have a need for new energy to meet the State's RES requirements. Renewable Advantage is thus solely focused on whether the opportunistic window represented by the recent PSCo competitive solicitation and the phase-out of tax credits will permit Black Hills to significantly increase renewable and storage resources with savings to customers. Renewable Advantage will use and rely on the Commission-approved data and assumptions from the 2016 ERP, updating where necessary those data and assumptions, and then using the Commission-approved modelling framework from the 2016 ERP to assess impacts and select winning bid(s).

The normal ERP process is a two-phase process that takes roughly two years to complete. Phase I of the ERP involves an assessment of the utility's load and resource balance over a 20- to

30-year planning horizon. Following that assessment, if the utility requires additional resources either to serve growing demands from its customers, to replace aged generation facilities (or expiring purchase agreements), or to comply with the state's Renewable Energy Standard, the utility will undertake a competitive solicitation, known as Phase II.

Different from that normal process, through this ERP Amendment the Company can complete Renewable Advantage, resulting in a signed PPA with the winning bidder(s), in a more rapid timeframe of approximately 12 months. The Company will seek Commission approval for the Company to enter into a PPA with the winning bidder(s) from Renewable Advantage through the standard 120-Day Report.

The specific timeline and associated milestones for Renewable Advantage are presented in Table 3 below.

Table 3: Schedule

Date	Action/Deadline
12/6/19	Pre-Bid Conference
12/13/19	Issuance of RFP
2/15/2020	RFP Bids Due
2/15/2020	RFP Bid Evaluation Begins
5/19/2020	Any Necessary Bid Refresh
6/22/2020	120-Day Report (Rule 3613(d))
7/13/2020	Independent Evaluator Report
7/27/2020	Intervenor Comments on 120-Day Report
8/10/2020	Company Response Comments
9/9/2020	Commission Decision
11/9/2020	Execution of Agreement(s)

5.0 Revised Modelling Inputs and Assumptions

The ERP Amendment revises certain of the modelling inputs and assumptions that are no longer reasonable from the approved 2016 ERP due to the change in time and circumstances. Updating these inputs and assumptions is necessary to have an appropriate "base case" analysis for the evaluation portion of the competitive solicitation. These updated criteria include (1) the Planning Period and the RAP; (2) the load and resource balance; (3) renewable resource parameters; (4) fuel and market energy prices; (5) spinning reserve requirement; and (6) excess

supply costs. These are discussed in detail below. In addition, listed here is a summary table of the general planning assumptions.

Table 4: General Planning Assumptions

Item	Assumptions
Capacity credit for solar at 200 MW	23%; See Section 8 of ERP Amendment
Capacity credit for wind at 200 MW	19%; See Section 8 of ERP Amendment
CO_2 price forecast	See Section 14 of ERP Amendment
Cost of integrating renewable resources	See Section 8 of ERP Amendment
DSM forecast	See Section 7 of ERP Amendment
Financial parameters	Appendix F of 120-Day Report filed in Proceeding No. 16A-0426E
General inflation rate	Appendix F of 120-Day Report filed in Proceeding No. 16A-0426E
Interconnection costs applied to bids	Estimated during Evaluation Process
Load forecast	See Section 7 of ERP Amendment
Market prices	Confidential ABB 2019 WECC Fall Reference Case
Natural gas prices	Confidential ABB 2019 WECC Fall Reference Case
Owned unit operating characteristics and costs	See Table 5-1 of 2016 ERP Report; and Section 7 of ERP Amendment
Owned unit retirement dates	See Table 5.1 of 2016 ERP Report
Planning period	24 years
Planning reserve margin	15% minimum
Power purchase contracts	Varies by resource

Renewable Resource Parameters	See Section 8 of ERP Amendment
Resource Acquisition Period	4 years
Seasonal firm market purchases	Confidential ABB 2019 WECC Fall Reference Case and Section 9 of ERP Amendment
Spinning reserve requirement	WECC requirements

6.0 Planning Period and the RAP

In the 2016 ERP, the Planning Period was from 2016-2040, with a RAP of January 2016 through December 2022. For the ERP Amendment, the Company has revised the Planning Period to a 23-year period from 2020-2043, with a RAP from 2020-2023.

7.0 Load and Resource Balance

The ERP Amendment has updated the Company's load and resource balance based on an updated load forecast and an updated list of existing resources. Concerning the load forecast, the ERP Amendment updates the forecast consistent with the methodology approved for the 2016 ERP. The peak demand and energy sales forecasts used in the ERP Amendment, as compared to the 2016 ERP, are shown below in Table 5.

Table 5: Updated Load Forecast

Year	2016 ERP Annual Energy (MWh)	2019 RA Annual Energy (MWh)	Annual Energy Difference (MWh)	2016 ERP Peak Demand (MW)	2019 RA Peak Demand (MW)	Peak Demand Difference (MW)
2020	2,156,324	2,134,971	(21,353)	401	415	14
2021	2,157,010	2,140,977	(16,033)	401	418	18
2022	2,145,097	2,180,526	35,429	397	426	29
2023	2,152,368	2,184,688	32,320	398	426	28
2024	2,173,886	2,174,856	970	401	427	26
2025	2,194,817	2,183,359	(11,458)	404	429	26
2026	2,216,110	2,192,193	(23,917)	406	432	26
2027	2,237,165	2,201,389	(35,776)	409	434	26
2028	2,258,860	2,210,361	(48,499)	411	437	26
2029	2,280,431	2,219,222	(61,209)	414	439	26
2030	2,300,541	2,227,513	(73,028)	416	442	25
2031	2,319,801	2,234,778	(85,024)	419	444	25
2032	2,338,428	2,241,073	(97,355)	421	446	25
2033	2,356,329	2,248,118	(108,210)	423	448	25
2034	2,374,779	2,255,110	(119,668)	426	451	25
2035	2,393,173	2,262,508	(130,665)	428	453	25
2036	2,411,213	2,270,043	(141,170)	430	455	24
2037	2,427,570	2,276,981	(150,589)	432	457	24
2038	2,443,671	2,283,543	(160,128)	435	459	24
2039	2,460,146	2,289,612	(170,534)	437	461	24
2040	2,476,553	2,295,315	(181,237)	439	463	24
2041		2,300,939			465	
2042		2,306,833			467	
2043		2,312,639			469	

The forecast completed predicts that the long-term peak demand growth will be higher than forecasted in the 2016 ERP, but that energy will be lower than what was predicted in the 2016 ERP. For the years 2020 through 2043, the demand forecast is an average of 24 MW higher (6%) than the 2016 ERP demand forecast primarily driven by large customer growth in

accordance to peak months. Over the same time period, the energy sales forecast is an average of 73,000 MWh per year lower (-3%) than the 2016 ERP energy sales forecast.

The forecast results provided above include the assumption of 100 percent achievement of the Company's 2019-2021 Demand Side Management ("DSM") Plan, which was approved by Decision No. R18-1017-I in Proceeding No. 18A-0279E. The load reductions from the DSM Plan were assumed to be 100 percent coincident, with the result that the projection of kW savings for each program year subtracted in total from the Company's load forecast. The energy was prorated over the hours of the year to sum to the total energy savings in a program year. The peak demand and annual energy savings goals approved in the Company's DSM Plan are shown below:

Table 6: DSM Savings

	2019	2020	2021	Plan Total
DSM Demand Reduction (MW)	4.47	4.14	5.18	13.79
DSM Energy Reduction (MWh)	25,911	25,989	25,901	77,801

Having updated the load forecast, the ERP Amendment also updates the Company's existing resources. The update includes the following Company-owned resources:

- Two LMS-100 natural gas units (90 MW each) at the Pueblo Airport Generating Station ("PAGS")
- One LM-6000 natural gas unit (40 MW) at PAGS
- Three diesel plants (28 MW total) located in Rocky Ford and Pueblo, Colorado
- Eight wind turbines (14.5 MW total) at the Busch Ranch wind facility
- Thirty-four wind turbines (60 MW total) at the Peak View wind facility

The update also includes the following PPAs that the Company has entered into:

- PPA to purchase all of the energy and capacity from two 100 MW combined cycle natural gas-fired units located at PAGS that expires in 2031
- PPA for 14.5 MW of wind energy and RECs from Busch Ranch
- PPA for up to 60 MW of wind energy and RECs from Busch Ranch II.
  Firm power purchases through the Missouri Public Service Agreement, providing 5 MW of firm capacity and energy that expires in 2024.

With the load and resources updated, the updated load and resource balance for the ERP Amendment as compared to the 2016 ERP is presented in the following Table.

Table 7
Load and Resource Balance

2016 ERP	2020	2021	2022	2023
Peak Plus 15% Planning Reserve (MW)	461	461	457	458
Total Resources & Purchases (MW)	480	480	480	480
Resource Need (MW)	20	20	24	22
2019 Renewable Advantage (RA)	**2020**	**2021**	**2022**	**2023**
Peak Plus 15% Planning Reserve (MW)	477	481	490	490
Total Resources & Purchases (MW)	487	487	487	487
Resource Need (MW)	10	6	(3)	(3)
Difference	**2020**	**2021**	**2022**	**2023**
Peak Plus 15% Planning Reserve (MW)	17	21	33	32
Total Resources & Purchases (MW)	7	7	7	7
Resource Need (MW)	(10)	(14)	(27)	(25)

The 2016 ERP load and resource balance did not show a resource deficit during the RAP. The change in the ERP Amendment is primarily driven by the increase demand forecast. In addition, a net 6.8 MW increase in resource capacity exists in the ERP Amendment due to the following: (1) the capacity contribution from the new Busch Ranch II Wind Project; (2) a reduced

diesel capacity contribution; and (3) reduced capacity from termination of interruptible contract capacity.

While the load and resource balance provides a small capacity deficit beginning in 2022, the annual deficiencies during the RAP occur in a single month (July). The Company regularly purchases seasonal firm energy to cover short-term capacity requirements. Resource deficiencies beyond the RAP will be addressed in future ERPs. Accordingly, the Company is not seeking to procure a specific capacity need.

8.0 Renewable Resource Parameters

For the ERP Amendment, the Company is not proposing to deviate from the approved 2016 ERP accreditable capacity of levels of wind and solar resources. For convenience, the Company provides the Effective Load Carrying Capability ("ELCC") Table 9 from the 2016 ERP below.

Table 8
Incremental Wind and Solar ELCC

Type	Total Incremental (MW)	ELCC (%)
Wind	30	30
Wind	60	27
Wind	90	23
Wind	120	20
Wind	150	19
Solar	30	45
Solar	60	37
Solar	90	31
Solar	120	27
Solar	150	23

Renewable Advantage is for up to 200 MW of renewable generation, which is greater than the maximum incremental MW included in the table above. Therefore, the Company will use the ELCC for the 150 MW addition of both wind and solar. The ELCC assumptions for a 200 MW wind and solar resources will be 19 percent and 23 percent, respectively.

Different from accreditable capacity, the Company is updating for the ERP Amendment renewable integration costs. The updated estimate is based on charges under Schedules 3 and 16 of PSCo' Open Access Transmission Tariff ("OATT"), escalated at 2.8% per year for inflation. Table 10 below contains the Schedule 3 and Schedule 16 components and the resulting monthly charge per kW of an applicable new resource:

Table 9
Schedule 3 and Schedule 16 Costs

2020 Rate Components	Schedule 3	Schedule 16
Reserve Obligation (%)	2.07	12.05
Ancillary Service Delivery ($/kW-month)	6.8238	5.6517
Monthly Cost per kW-month	0.0207 x 6.8238 = $0.1413	0.1205 x 5.6517 = $0.6812

Per the PSCo OATT, Schedule 3 is applicable to all variable energy resources, while Schedule 16 is only applicable to wind resources. Therefore, Schedule 3 costs will be applied to all wind and solar bids received, while Schedule 16 costs will only be applied to wind bids. Table 11 below contains the wind and solar integration costs that the Company will use.

Table 10
Integration Costs

	Schedule 3 ($/kW-month)	Schedule 16 ($/kW-month)
Wind	$0.1413	$0.6812
Solar	$0.1413	$0.0000

9.0 Fuel and Market Energy Prices

As an update to the 2016 ERP, the ERP Amendment will use the natural gas price forecasts from ABB Group's 2019 WECC Fall Reference Case, as adjusted to reflect the basis differential between the Henry Hub and the regional supply centers and adjusted from 2019 dollars to nominal dollars. Table 11 below shows the price ranges of Henry Hub natural gas prices from 2019 through 2043 that the Company will use.

Table 11
Natural Gas Prices

Average Annual Henry Hub Gas Prices (2019 $/MMBtu)		
	2020	**2043**
Base Case	2.50	5.11
Low Gas Case	2.12	3.08

Similarly, the ERP Amendment updates diesel oil prices by using ABB's 2019 WECC Fall Reference Case.

The ERP Amendment also updates the price of seasonal firm market power and the price of economy energy. For seasonal firm market power, the ERP Amendment uses the ABB Group's WECC 2019 Fall Reference Case energy price forecast for the Palo Verde, Arizona market area, plus a 20 percent premium and transmission adders, is used as a proxy for the cost of seasonal firm market power. For the price of economy energy, the ERP Amendment uses ABB Group's WECC 2019 Fall Reference Case forecast for the Colorado-East and Palo Verde (PV) spot markets.

10.0 Spinning Reserve Requirement

In the 2016 ERP, the Company modelled carrying 13 MW spinning reserves. For the ERP Amendment, the Company will not model the carrying of spinning reserves. At the time of

the 2016 ERP, Black Hills was a member of the Rocky Mountain Reserve Group ("RMRG"), which with ceased reserve operations on September 3, 2019. Prior to RMRG ceasing reserve operations, PSCo (the Company's balancing authority) joined the Northwest Power Pool ("NWPP") Reserve Sharing Group ("NWPP RSG"). The NWPP RSG participates with the WECC Waiver of Enforcement of BAL-002-WECC-2a, Requirement R2. This Waiver eliminates the Company's requirement to carry spinning reserves, even with the addition of up to 200 MW of renewable energy and storage. As such, the Company will not model spinning reserves.

11.0 Excess Energy and Curtailment Costs

The ERP Amendment includes a new identified cost that occurs when must-take resources are producing supply that is greater than load. In practice, the system is not able to avoid the excess energy. Excess energy must either be sold to the market or must-take resources must be curtailed to reduce generation to match load. During the 2016 ERP, the Company's modelling addressed this excess renewable supply costs by not allowing sales to the market. For the ERP Amendment, the Company will apply the following schedule of curtailment costs to excess supplies.

Table 12
Excess Supply Costs

Year	Wind Unit	Curtailment Cost ($/MWh)
2020	Busch Ranch I Wind Project	23.30
2021	Busch Ranch I Wind Project	23.77
2022	Busch Ranch I Wind Project	24.24
2023	Busch Ranch I Wind Project	24.73
2024	Busch Ranch I Wind Project	25.22
2025	Busch Ranch I Wind Project	25.73
2026	Busch Ranch I Wind Project	26.24
2027	Peak View Wind Project	0.85
2028	Peak View Wind Project	0.85
2029	Peak View Wind Project	0.86
2030	Peak View Wind Project	0.87
2031	Peak View Wind Project	0.88
2032	Peak View Wind Project	0.89
2033	Peak View Wind Project	0.90
2034	Peak View Wind Project	0.91
2035	Peak View Wind Project	0.92
2036	Peak View Wind Project	0.93
2037	Peak View Wind Project	0.94
2038	Peak View Wind Project	0.95
2039	Peak View Wind Project	0.96
2040	Peak View Wind Project	0.97
2041	Peak View Wind Project	0.99
2042	Busch Ranch II Wind Project	35.76
2043	Busch Ranch II Wind Project	36.83

The table above represents the lowest cost or penalty cost the Company would pay in the event that the Company had to curtail production associated with its wind generating facilities during the planning horizon. Curtailing excess generation is a conservative approach to determining customer savings. Evaluating bids in relation to curtailing excess generation increases the likelihood that forecasted savings are realized by customers.

12.0 Renewable Advantage

Renewable Advantage involves a Request for Proposals ("RFP") pursuant to the requirements of the Commission's rules. The RFP will be released to bidders on December 13, 2019. Before that release, on December 6, 2019, the Company will host a pre-bid conference at the Company's office in Denver, Colorado. At the pre-bid conference, bidders will have the opportunity to ask questions about the RFP. After the pre-bid conference, the Company will e-mail to all prospective bidders a summary of the pre-bid conference. After release of the RFP, the Company will accept bids until 4 p.m. Mountain Time on February 15, 2020.

The RFP is open to eligible energy resources, as defined in C.R.S. § 40-2-124, including section 123 resources, as well as storage. Proposals may be for new, to-be-built resources or for existing resources. Proposals may include stand-alone storage projects or storage facilities that are combined with renewable generation projects. However, the maximum output of any renewable project that includes storage at any given time shall be limited to the lesser of: (a) the nameplate capacity of the renewable generation facility, and (b) a maximum of 200 MW.

Black Hills will use an Independent Evaluator throughout the RFP process. The Company will work cooperatively with the IE and will provide the IE immediate and continuing access to all documents and data reviewed, used, or produced by the Company in the solicitation and evaluation process.

Importantly, in the Company's 120-Day Report, it will make a recommendation to the Commission on the resources, if any, that can be acquired with savings to customers. If the 120-Day Report demonstrates that any acquisition will raise customer costs, the Company will recommend the Commission defer any acquisition until the Company's next ERP filing.

13.0 Bid Evaluation

The bid evaluation process is a key component of Renewable Advantage, as the Company will only recommend acquisition of resources that ensure savings to customers every year. The Company will evaluate bids in the RFP in a similar manner undertaken in the Commission-approved 2016 ERP. Specifically, bids will be evaluated on two primary components: (1) economic evaluation criteria and (2) non-economic evaluation criteria. Of the entire bid evaluation criteria, the economic analyses constitutes 90% of the evaluation and the remaining 10% represents a non-economic analysis. The non-economic evaluation criteria will assess non-price factors of a bid and include four categories of criteria with each having the same weight of 2.5% (of the 10%). Table 13 provides an explanation of and the weighting for all of the bid evaluation criteria.

Table 13
Economic Bid Evaluation Criteria

Economic Evaluation Criteria	90% of Total Weight
Evaluate portfolios using computer modelling to determine relative financial values	90%

Non-Economic Evaluation Criteria	10% of Total Weight
Development, construction and operation experience including ability to use tax advantage	2.5%
Transmission access plan feasibility and arrangements	2.5%
Real property acquisition/site control progress and plan	2.5%
Environmental compliance and status of permitting — environmental, land use permitting, zoning and other permits	2.5%

Concerning storage and the economic evaluation criteria, the Company will evaluate bids based on the capacity value an energy storage project may provide and the benefits of price-

arbitraging (the energy storage system stores low-cost power and sells it at a later time for a higher price). The Company will apply generation capacity credits to energy storage bids based on the project's duration as shown in Table 14 below.

Table 14
Storage ELCC Values

Duration (Hours)	ELCC (% of Nameplate MW)
1	40
2	55
4	75
8	95
10	98

For storage combined with eligible energy resources, the ELCC attributed to the storage component will be added to the ELCC of the accompanying eligible energy resource for a combined project ELCC. The combined project ELCC will be limited to a maximum of 100 percent of the eligible energy resource nameplate capacity. For example, a 100 MW 8-hour storage device would receive a 95 MW capacity credit. If it were paired with a 100 MW solar facility, the solar facility would receive a 23 MW capacity credit. The combined capacity credit would be 118 MW. However, since that amount is greater than the eligible energy resource nameplate capacity, the capacity credit will be reduced to 100 MW.

Energy-arbitrage benefits will be calculated within the ABB Group's model through logic that allows the storage device to charge during low-cost periods and discharge during high-cost periods. The Company will consider the level of restrictions on the Company's ability to

dispatch the charging and discharging of the energy storage device in the determination of the energy-arbitrage benefits.

The Company will credit 30-minute start energy storage facilities a value of $0.20/kW-month and 15-minute start energy storage a value of $0.22/kW-month. In order to receive the credit, bidders must inform the Company of the fast-start capability of their energy storage facility in the bidding process and the Company must not be restricted from dispatching the energy storage facility.

The Company will not evaluate any potential benefits of energy storage on ancillary services because the Company is subject to PSCo's OATT under which the Company purchases balancing, frequency response and regulation services from PSCo.

14.0 Scenario Analysis

After conducting the baseline model run, the Company will apply two different modelling scenarios to assist the evaluation process. In the first scenario, the Company will include one additional gas cost scenario using ABB's low gas price forecast. If no bids are received that will reduce customer costs under a low gas scenario, the Company will not recommend to the Commission the acquisition of any resources in Renewable Advantage.

The second scenario addresses the societal cost of carbon. The Company will include a scenario run that assesses the societal cost of carbon by applying a metric of $46/short ton of carbon dioxide. This scenario will provide an additional framework upon which to evaluate bids.

If multiple bids result in reduction of customer cost, the Company will present alternative bids with and without storage for the Commission to consider.

15.0 Separation Policy

On September 30, 2019, the Company issued a Separation Policy. This policy included detailed standards of conduct for employees involved in the bid evaluation process and affiliate employees that may work on responses to the RFP. Importantly, no employees of any entity that will potentially bid into the RFP are authorized as members of the bid evaluation team. Each member of the bid team and evaluation team signed acknowledgement forms indicating that they had reviewed and understood the applicable standards of conduct. The Company has also instituted limits on its network to prevent members of the bid team from accessing materials of the evaluation team and vice-versa.

16.0 Conclusion

The Company asserts the ERP Amendment is in the public interest to facilitate Renewable Advantage that has the potential to increase renewables and storage on the Company's system with savings to customers. The Company's 120-Day Report will provide the Commission a complete report on the results of Renewable Advantage and a recommendation for procurements.