

Docket No. 20000-\_\_-EA-18  
Witness: Chad A. Teply

BEFORE THE WYOMING PUBLIC SERVICE  
COMMISSION

ROCKY MOUNTAIN POWER

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Direct Testimony of Chad A. Teply

September 2018

1 **Q. Please state your name, business address, and present position with PacifiCorp**  
2 **d/b/a Rocky Mountain Power (the “Company”).**

3 A. My name is Chad A. Teply. My business address is 1407 West North Temple, Suite 310,  
4 Salt Lake City, Utah. My position is Senior Vice President of Strategy and  
5 Development.

6 **QUALIFICATIONS**

7 **Q. Briefly describe your education and professional experience.**

8 A. I have a Bachelor of Science Degree in Mechanical Engineering from South Dakota  
9 State University. I joined MidAmerican Energy Company (a Berkshire Hathaway  
10 Energy affiliate company) in November 1999, and held positions of increasing  
11 responsibility within the generation organization. In April 2008, I moved to Northern  
12 Natural Gas Company (a Berkshire Hathaway Energy affiliate company) as Senior  
13 Director of Engineering. I joined PacifiCorp in February 2009. In my current role as  
14 Senior Vice President of Strategy and Development, my responsibilities encompass  
15 strategic planning, regulatory support, stakeholder engagement, development and  
16 execution of major generation resource additions, major environmental compliance  
17 projects, and major transmission projects.

18 **Q. Have you testified in previous proceedings?**

19 A. Yes. I have provided testimony in many dockets before the Wyoming Public Service  
20 Commission (“Commission”). I have also provided testimony before other public  
21 utility commissions in our six-state service territory.

1 **Q. Please explain the responsibilities of the resource development staff within your**  
2 **organization.**

3 A. My resource development staff is responsible for developing generation resource  
4 options that the Company can potentially implement, if determined to be least-cost on  
5 a risk-adjusted basis. Resource development staff is also responsible for developing  
6 and providing performance and cost information related to supply side resource options  
7 used in the Company's integrated resource planning process, and maintaining data on  
8 existing resource capacities, performance, and costs. Resource development staff also  
9 maintains cost and performance information on current and emerging environmental  
10 regulations that may affect the operation of the Company's thermal generating assets.

11 **PURPOSE OF TESTIMONY**

12 **Q. What is the purpose of your testimony?**

13 A. My testimony:

- 14 • Describes the process used by the Company to develop estimated economic lives  
15 for the thermal generation resources that are incorporated into the Company's new  
16 depreciation study submitted with Mr. John J. Spanos's testimony as Exhibit  
17 RMP\_\_\_(JJS-2) (the "Depreciation Study") in this filing.
- 18 • Provides an overview of the recommended changes to the depreciable lives of the  
19 Company's thermal generation resources based on the Company's assessment of  
20 major factors and changes since the 2013 depreciation study.
- 21 • Presents the Company's recommendations on decommissioning costs, which were  
22 developed from updated studies and applied on a plant-by-plant basis.

1                                   **DEVELOPMENT OF DEPRECIABLE PLANT LIFE**

2   **Q.    Why is it necessary to estimate the economic life of a generation asset to develop**  
3   **depreciation rates?**

4   A.    One component of the Company’s cost of service is the recovery of capital investment.  
5        This recovery is accomplished through depreciation expense over the life of each  
6        resource. Because depreciation rates spread a certain amount of cost over a certain  
7        period of time, it is necessary to have a reasonable estimate of the economic life of a  
8        resource at the time it is placed into service to properly calculate its depreciation  
9        expense. The estimated plant economic life of a generation asset is the period of time  
10       that begins when the asset is placed in service and starts generating electricity and ends  
11       when the asset is removed from service. In other words, it is the period of time during  
12       which customers benefit from the asset.

13 **Q.    Is a plant’s estimated economic life permanently set when the plant is placed into**  
14 **service?**

15 A.    No. For depreciation purposes, all generation asset economic lives are estimates that  
16        may be adjusted over time as circumstances warrant. The Company reevaluates its  
17        economic life estimates each time it performs a depreciation study. In this case, the  
18        Company provided estimated generation plant depreciable lives information to  
19        Mr. Spanos for his use in preparing the Depreciation Study.

20 **Q.    Are you also providing the Company’s estimated thermal generation plant**  
21 **economic lives information for this docket?**

22 A.    Yes. Exhibit RMP\_\_\_\_(CAT-1) accompanying my testimony contains a complete list of  
23        PacifiCorp’s thermal generation plants and their recommended depreciable lives.

1           **DEPRECIABLE LIVES FOR THERMAL GENERATION RESOURCES**

2   **Q.   Please describe the process the Company used to assess the depreciable lives of its**  
3   **thermal generation resources.**

4   A.   The Company began with the estimated retirement years from the 2013 depreciation  
5   study. The Company then considered capital expenditures, impacts to ongoing  
6   operating and maintenance expenses, and the potential for accelerated timelines for  
7   resource planning decisions. These factors were considered in the following context:  
8   (1) major equipment condition; (2) fuel cost and availability; (3) environmental  
9   compliance obligations; and (4) policy and market drivers.

10                 Based on the unique circumstances that affect individual units at a given plant,  
11   the Company also modified its current practice of using a single retirement year for a  
12   plant, and instead proposes changes in this study to reflect the depreciable lives of the  
13   individual coal-fired generation units at each plant.

14   **Q.   Please explain how major equipment condition can affect the depreciable life of a**  
15   **thermal generation resource.**

16   A.   Major equipment condition is influenced by the planned outage schedule. Thermal  
17   resources, including the coal-fired, gas-fired, and geothermal resources involving the  
18   production and transport of steam, normally undergo overhauls on four-year cycles,  
19   eight-year cycles or 12-year cycles. The Company establishes outage schedules for  
20   coal-fired resources based on its industry operating experience. It establishes overhaul  
21   schedules for gas-fired combustion turbine-based resources based on the number of  
22   operating hours and starts of the units and the recommendations of the original  
23   equipment manufacturer. Major equipment or component replacements, such as

1 replacing cooling towers, condenser re-tubing, replacing turbine components, re-  
2 winding generators, or replacing steam generator components, may be required at these  
3 overhaul milestones. These periodic milestone replacements are important to the  
4 ongoing operation of the resource, and if capital investment is required, the resource  
5 may no longer be economic to operate, depending on the level of investment and  
6 expected remaining life.

7 **Q. Please explain how fuel cost and availability can affect the depreciable life of a**  
8 **thermal generation resource.**

9 A. Fuel cost, availability and, to an extent, fuel quality can influence the economic life of  
10 a thermal generation resource. Significant changes in the cost, availability, or quality  
11 of the resource's fuel supply can drive major capital expenditures or result in increased  
12 run-rate costs that could make the resource uneconomic to operate. Issues at captive  
13 mines that serve the Company's resources are likely to have more direct impacts,  
14 depending upon the availability of alternative competitive market suppliers. Switching  
15 to a different fuel source, and procuring and delivery of this alternate fuel, could require  
16 major capital expenditures, or result in increased run-rate fuel costs, which can also  
17 drive economic life decisions for individual resources.

18 **Q. Please explain how environmental regulations can affect the depreciable life of a**  
19 **thermal generation asset.**

20 A. Existing, evolving, and emerging air emissions standards, water intake and effluent  
21 discharge standards, and solid waste regulations may have impacts on the economics  
22 of operating an asset. New regulations or changes to existing air, water or solid waste  
23 regulations influence the timing of capital expenditures for compliance and the

1 subsequent operating and maintenance costs. Capital expenditures include air pollution  
2 controls, water intake infrastructure modifications, discharge constraints, cooling  
3 system changes, and new or upgraded coal combustion waste infrastructure to transport  
4 and store bottom ash, fly ash, and scrubber waste. Capital expenditures, once made,  
5 must be recovered over the remaining life of the asset. If a major capital investment is  
6 required to meet a new environmental standard and the investment is not feasible or  
7 economic over the remaining life of the asset, this could result in the early retirement  
8 of the resource.

9 **Q. Have any significant new environmental regulations or compliance obligations**  
10 **been implemented since the Company's last depreciation study that could affect**  
11 **thermal generation resource depreciable lives?**

12 A. Yes. Several environmental regulations and compliance obligations have been  
13 implemented since the Company's 2013 depreciation study. First, the United States  
14 Environmental Protection Agency ("EPA") and the states of Arizona, Colorado, Utah,  
15 and Wyoming have continued to implement their Regional Haze state and federal  
16 implementation plans. Since 2013, the Company has taken steps to install emissions  
17 control equipment, negotiate alternative compliance outcomes for certain units,<sup>1</sup> and is  
18 currently supporting ongoing requests for reconsideration and, in some instances

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<sup>1</sup> In 2014, installation of new low NOx burners, a scrubber upgrade, and new baghouse at Hunter Unit 1. In 2015, installation of selective catalytic reduction ("SCR") systems at Jim Bridger Unit 3 and Hayden Unit 1. In 2016, installation of SCR systems at Jim Bridger Unit 4 and Hayden Unit 2. Also in 2016, an SCR alternative for Dave Johnston Unit 3 was approved by EPA. In 2017, an SCR system was installed at Craig Unit 2 and an SCR alternative for Cholla Unit 4 was approved by EPA. In 2018, an SCR alternative for Craig Unit 1 was approved by EPA. The Company is in discussions with the Wyoming Department of Environmental Quality and the EPA regarding an SCR alternative for Jim Bridger Units 1 and 2.

1 litigation, of other implementation plan requirements.<sup>2</sup> These efforts and outcomes  
2 affect several of the Company's wholly-owned or partially-owned generation  
3 resources. The Company generally assesses its compliance obligations and alternatives  
4 as part of its regular integrated resource plan ("IRP") filings, the most recent of which  
5 are the 2017 IRP and the 2017 IRP Update, which are available on the Company's  
6 website. Detailed discussion of the Company's completed compliance projects and  
7 upcoming compliance decisions is included in the referenced IRPs and reflected in the  
8 proposed depreciable lives for individual units discussed further in this filing.

9 Second, since 2013 the EPA has initially proposed, partially litigated, rescinded,  
10 and now proposed replacement of the Clean Power Plan focused on reduction of carbon  
11 dioxide ("CO<sub>2</sub>") emissions from the United States energy sector. While no specific  
12 greenhouse gas compliance expenditures were pursued in response to the Clean Power  
13 Plan, the Company's IRP continues to incorporate assumptions and sensitivities  
14 regarding potential greenhouse gas policy outcomes.

15 Finally, since 2013 the EPA has proposed, partially litigated, and modified its  
16 Coal Combustion Residual regulations as part of the Resource Conservation and  
17 Reclamation Act, as well as its Effluent Limitation Guidelines as part of the Clean  
18 Water Act. These regulations require utilities with coal-fired generation facilities to  
19 meet certain compliance obligations for ash and coal residue handling, infrastructure,  
20 and storage facilities, as well as their process wastewater streams. PacifiCorp's  
21 depreciation study recommendations consider these environmental regulations as well,

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<sup>2</sup> The EPA is currently in the process of reconsideration of Utah Regional Haze compliance requirements and litigation of EPA's Regional Haze federal implementation plan requirements for Hunter Units 1 and 2 and Huntington Units 1 and 2. Litigation of EPA's Regional Haze federal implementation plan requirements for Wyodak and Naughton Units 1 and 2 is also still on-going.



1 but are not significantly impacted at this time by anticipated compliance obligations in  
2 these areas.

3 **Q. Was extending thermal generation resources lives the basis for the Company's**  
4 **capital expenditures for environmental compliance?**

5 A. No. While the Company has made capital additions since 2013 on a number of its coal-  
6 fueled generation assets to comply with environmental regulations, the Company's  
7 analysis and justification of these investments assumed that the plant lives would not  
8 be extended, rather the compliance expenditures would allow the individual unit to  
9 operate through their respective currently approved depreciable lives.

10 **Q. Please explain how emerging policy and market drivers affect the estimated**  
11 **depreciable lives of generation resources.**

12 A. Since the Company's 2013 depreciation study, policymakers in the Company's service  
13 territory have continued to propose, consider, and promulgate state-specific policies  
14 affecting the Company's generation resource planning. The Company's long-term  
15 resource planning and estimated depreciable lives of thermal generation resources are  
16 influenced by a variety of policy and market drivers including wholesale power and  
17 natural gas prices, public policy and regulatory initiatives and events and trends  
18 affecting the economy.

19 One notable public policy example is Oregon Senate Bill 1547-B, which was  
20 signed into law by the governor of Oregon on March 8, 2016. Senate Bill 1547-B, the  
21 Clean Electricity and Coal Transition Plan, extends and expands the Oregon Renewable  
22 Portfolio Standard requirement to 50 percent of electricity from renewable resources  
23 by 2040 and requires that coal-fueled resources are eliminated from Oregon's allocation

1 of electricity by January 1, 2030.

2 This and other planning environment drivers are discussed in detail in Chapter  
3 of the Company's 2017 IRP, which is publicly available.

4 **Q. Based on these considerations, what major changes does the Company propose to**  
5 **the depreciable lives of its thermal generation resources?**

6 A. The Company is proposing several changes to its thermal generation depreciable lives  
7 based on its analysis of the various factors described earlier in my testimony.

8 First, the Company recommends accelerating the depreciable life of Cholla Unit  
9 4 from 2042 to 2025 to align with the unit's approved Regional Haze Rule compliance  
10 obligation timeline. This compliance date was established in settlement discussions  
11 between the facility joint owners, state and federal agencies, and stakeholders in 2015  
12 and 2016; approvals were received through subsequent state and federal agency public  
13 processes in 2017 and 2018. Cholla Unit 4 will be 44 years old in 2025.

14 The second recommended change is to accelerate the depreciable lives of Jim  
15 Bridger Units 1 and 2 from 2037 to 2028 and 2032, respectively, to align with the  
16 Company's 2017 IRP preferred portfolio. The 2017 IRP preferred portfolio reflects the  
17 Company's analysis of potential alternate Regional Haze Rule compliance outcomes  
18 for Units 1 and 2 that result in a least-cost, least-risk outcome for customers when  
19 compared to installation of major emissions control equipment retrofits in 2021 and  
20 2022, as currently required in the Wyoming Regional Haze state implementation plan,  
21 as approved by EPA. Approval of these accelerated depreciation dates facilitate  
22 alternate Regional Haze compliance decision-making for Units 1 and 2. The Company  
23 has not yet received state or federal agency approvals of this alternate Regional Haze

1 compliance outcome for Jim Bridger Units 1 and 2, but has engaged the agencies in  
2 discussions regarding potential alternative compliance. Jim Bridger Unit 1 will be  
3 54 years old in 2028, and Jim Bridger Unit 2 will be 57 years old in 2032.

4 The third recommended change is to accelerate the depreciable life of Craig  
5 Unit 1 from 2034 to 2025 to align with its approved Regional Haze Rule compliance  
6 obligation timeline. This compliance date was established in settlement discussions  
7 between the facility joint owners, state and federal agencies, and stakeholders in 2015  
8 and 2016; approvals were received through subsequent state and federal agency public  
9 processes in 2017 and 2018. Craig Unit 1 will be 45 years old in 2025.

10 The fourth recommended change is to accelerate the depreciable life of Craig  
11 Unit 2 from 2034 to 2026 to facilitate least-cost, least-risk analysis, decision making,  
12 and planning as Craig Unit 1 approaches retirement in 2025, as currently expected, and  
13 Craig Unit 2 economics and joint owner business planning decisions are made in the  
14 interim. The Craig Unit 2 joint owners and stakeholders have not approved accelerated  
15 retirement of the unit, nor has formal engagement on that potential outcome been  
16 initiated. Craig Unit 2 will be 47 years old in 2026.

17 The fifth recommended change is to accelerate the depreciable life of Colstrip  
18 Units 3 and 4 from 2046 to 2027 to facilitate least-cost, least-risk analysis, decision  
19 making, and planning as announced retirements of Colstrip Units 1 and 2 (non-  
20 Company resources) in 2022 approach, and Colstrip Units 3 and 4 economics and joint  
21 owner business planning decisions are made in the interim. The Colstrip Units 3 and 4  
22 joint owners and stakeholders have not approved accelerated retirement of those units,  
23 nor has formal engagement on that potential outcome been initiated. However, certain

1 joint owners (Avista – 15 percent and Puget Sound Energy – 25 percent) have reached  
2 agreements with their respective regulators to establish 2027 as the new depreciable  
3 life for the units. Colstrip Units 3 and 4 will be 43 years old and 41 years old,  
4 respectively, in 2027.

5 For the Company’s remaining thermal generation resources, I recommend to  
6 maintain the current depreciable lives consistent with prior depreciation studies.

7 **Q. Has the Company changed the depreciable lives for its natural gas-fired simple**  
8 **cycle combustion turbine resources?**

9 A. No. The Company is not recommending any change to the depreciable lives of its  
10 simple cycle natural gas combustion turbines. The simple cycle combustion turbines in  
11 the Company’s fleet are aero-derivative combustion turbines and operate when  
12 economic and/or when required for system reliability purposes. Operating profiles and  
13 assumptions pertaining to outage schedules and equipment longevity for these units  
14 have not materially changed. Moreover, fuel availability for the simple cycle gas  
15 combustion turbine units has not changed. The original equipment manufacturer’s  
16 30-year useful life recommendation has not changed and remains consistent with the  
17 2013 depreciation study.

18 **Q. Has the Company changed the depreciable lives for its natural gas-fired combined**  
19 **cycle combustion turbine resources?**

20 A. No. The Company is not recommending any change to the depreciable lives of its  
21 combined cycle gas combustion turbines. These plants operate when economic and/or  
22 when required for system reliability purposes. Since the 2013 depreciation study, the  
23 operating profiles and assumptions pertaining to outage schedules and equipment

1 longevity for these units have not materially changed. Moreover, fuel availability for  
2 the combined cycle gas combustion turbine resources has not changed. The original  
3 equipment manufacturer's 40-year useful life recommendation has not changed and  
4 remains consistent with the 2013 depreciation study. However, it is feasible with  
5 continued maintenance investment and technology advancements that these facilities  
6 could operate economically beyond the original equipment manufacturer's 40-year  
7 useful life recommendation.

8 **DECOMMISSIONING/DEMOLITION COSTS**

9 **Q. Is the Company proposing changes to decommissioning costs in the Depreciation**  
10 **Study for the Company's thermal generation resources?**

11 A. Yes. The Company performed updated decommissioning cost studies in the 2014 to  
12 2016 timeframe on a selection of its thermal generation resources considered  
13 reasonable proxy resources for extrapolation across the fleet. These studies were used  
14 as the primary basis for the decommissioning costs in this filing, with certain updates  
15 made to reflect plant specific attributes and updated commodity and scrap market costs.  
16 As such, the Company proposes to replace the previously approved decommissioning  
17 cost of \$40 per kilowatt for all coal-fueled plants with the plant-by-plant  
18 decommissioning costs provided in Exhibit RMP\_\_(CAT-2). The Company also  
19 proposes to replace the previously approved decommissioning cost of \$15 per kilowatt  
20 for all natural gas-fueled plants with an updated decommissioning cost estimate of  
21 \$10 per kilowatt.

22 The Company hired a third-party engineering firm to complete the baseline  
23 decommissioning studies. The decommissioning costs in Exhibit RMP\_\_(CAT-2),

1 include plant demolition, ash pile and ash pond abatement and closure, asbestos and  
2 other hazardous materials abatement and remediation, and final site cleanup and  
3 restoration as applicable to each plant.

4 **Q. Does this conclude your direct testimony?**

5 A. Yes.

BEFORE THE WYOMING PUBLIC SERVICE COMMISSION

IN THE MATTER OF ROCKY MOUNTAIN POWER'S APPLICATION FOR AN ORDER AUTHORIZING A CHANGE IN DEPRECIATION RATES APPLICABLE TO ELECTRIC PROPERTY

DOCKET NO. 20000-\_\_-EA-18 (RECORD NO. \_\_\_\_)

AFFIDAVIT, OATH AND VERIFICATION

Chad A. Teply (Affiant) being of lawful age and being first duly sworn, hereby deposes and says that:

Affiant is the Senior Vice President of Strategy and Development for PacifiCorp, which is a party in this matter.

Affiant prepared and caused to be filed the foregoing testimony. Affiant has, by all necessary action, been duly authorized to file this testimony and make this Oath and Verification.

Affiant hereby verifies that, based on Affiant's knowledge, all statements and information contained within the testimony and all of its associated attachments are true and complete and constitute the recommendations of the Affiant in his official capacity as Senior Vice President of Strategy and Development.

Further Affiant Sayeth Not.

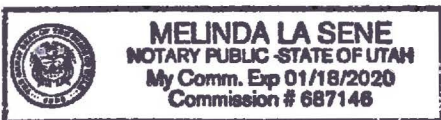
Dated this 4th day of September, 2018

[Handwritten signature of Chad A. Teply]

Chad A. Teply Senior Vice President 1407 W. North Temple, Salt Lake City (801) 220-4715

STATE OF Utah ) ) SS: COUNTY OF Salt Lake )

The foregoing was acknowledged before me by Chad A. Teply on this 4th day of September, 2018. Witness my hand and official seal.



[Handwritten signature of Notary Public]

My Commission Expires: 11/18/2020