

**REDACTED**

Rocky Mountain Power

Exhibit RMP\_\_ (CAT-3)

Docket No. 20000-\_\_-EA-17

Witness: Chad A. Teply

BEFORE THE WYOMING PUBLIC SERVICE  
COMMISSION

ROCKY MOUNTAIN POWER

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**REDACTED**

Exhibit Accompanying Direct Testimony of Chad A. Teply

Requirements of Commission Rule Section 21(c) for the McFadden Ridge II Proxy Project

June 2017

**Requirements of Commission Rule Section 21(c)  
For the McFadden Ridge II Proxy Project**

**(i) The application shall include:**

**(A) The name and address of the applicant:**

This information is provided in the application.

**(B) The type of plant, property, or facility proposed to be constructed or acquired:**

PacifiCorp proposes to construct an additional approximately 110 megawatts of wind generation capacity adjacent to its existing High Plains/McFadden Ridge I wind generation facility. This lateral expansion project (McFadden Ridge II) is located to the south and exclusively consists of approximately 6,000 acres of wind lease private and state of Wyoming land in Carbon and Albany Counties, Wyoming. Note that the proposed infrastructure will not require the use of any federal public lands, managed by the Bureau of Land Management.

**(C) A description of the facilities proposed to be constructed or acquired, including preliminary engineering specifications in sufficient detail to properly describe the principal systems and components, and final and complete engineering specifications when they become available:**

The McFadden Ridge II facility will consist of wind turbine generator(s) (“WTGs”), an electrical collector system, a collector substation, access roads, tower foundations, fiber optic and/or microwave communication equipment, and supervisory control and operating status data acquisition (“SCADA”) control equipment, and an approximately three-mile interconnecting 230 kilovolt (“kV”) transmission tie-line that will interconnect at the existing Foote Creek Rim substation. The WTGs are anticipated to be purchased from competing suppliers, and the balance-of-project work will be competitively bid and executed under an engineer, procure and construct

(“EPC”) contract.

Maps of the proposed project area are presented in Highly Confidential Exhibit CAT3-1, along with an overview of WTG placement across the site. WTG placement will continue to evolve based on several factors, including: land acquisition, field-identified sensitive environmental areas, field-identified cultural areas, landowner commentary received from future WTG placement reviews, definitive geotechnical site studies, aviation/air space impact reviews, and wind resource characteristics.

Highly Confidential Exhibit CAT3-2 is provided as an example of a scope of supply from a typical WTG purchase agreement.

Confidential Exhibit CAT3-3 is provided as an example of a technical specification for the scope of work included in the balance-of-project EPC contract.

**(D) List the rates, if any, proposed to be charged for the service that will be rendered because of the proposed construction or acquisition:**

The impact of the proposed facilities on the Company’s revenue requirement and the Company’s proposed ratemaking treatment is described in the testimony of Mr. Jeffrey K. Larsen. In addition, the Company will provide service on the Transmission Projects subject to the terms and conditions of its OATT.

**(E) State the estimated total cost of the proposed construction or acquisition:**

At the time of filing, the total estimated project cost for the McFadden Ridge II facility is approximately [REDACTED], including capital surcharge and allowance for funds used during construction. This total estimated project cost includes the associated directly assigned transmission costs, but does not include any incremental interconnection network upgrade costs that are assumed to be the responsibility of the transmission provider. Project cost details are

summarized in Confidential Exhibit CAT3-4.

**(F) State the manner by which the proposed construction or acquisition will be financed:**

The Company intends to finance the proposed wind project and transmission facilities through its normal sources of capital, both internal and external, including net cash flow from operating activities, public and private debt offerings, the issuance of commercial paper, the use of unsecured revolving credit facilities, capital contributions and other sources. The financial impact of the proposed wind and transmission facilities are a significant investment on the part of the Company, the financial impact will not impair the Company's ability to continue to provide safe and reliable electricity service at reasonable rates. In addition, preapproval of the Company's resource decision provides important regulatory support for the Company's current credit rating. This is described in more detail in Ms. Cindy A. Crane's testimony.

**(G) Documentation of the financial condition of the applicant:**

Rocky Mountain Power's ("RMP") current financial condition is on file with the Commission in response to the annual reporting requirements in Commission Rule Section 32 and through RMP's semi-annual earnings. The Company is financially capable of funding this project.

**(H) The estimated annual operating revenues and expenses that are expected to accrue from the proposed construction or acquisition, including a comparison of the overall effect on the applicant's revenues and expenses:**

To address this requirement of the Commission's rules, PacifiCorp provides the economic analysis presented in Mr. Link's testimony and exhibits, which show the revenue stream and expenses associated with the proxy wind projects and demonstrates, which presents that the project is a risk-adjusted, least-cost alternative to serve customer loads.

The approximate operational, maintenance and ongoing capital costs expected as a result

of this project are presented in Confidential Exhibit CAT3-5. Wind lease royalty costs are included in these amounts. Routine maintenance of the WTGs will be necessary to maximize performance and detect potential malfunctions. Operational and maintenance (“O&M”) procedures will be established in accordance with the WTG manufacturer’s recommendations. Scheduled maintenance will be conducted approximately every six months on each WTG. Substations, step-up transformers, and pad-mounted transformers will be maintained as part of normal operating activities. Periodic maintenance of underground collection lines will also be required. No substantial quantities of industrial materials will be brought onto or removed from the site during execution of O&M tasks. Project operation will use lubricants, oils, grease, antifreeze, degreasers, and hydraulic fluids, which will be stored in approved containers and located above ground. During operation, it is also anticipated that hazardous waste generation will be either zero or minimal. A minimal amount of energy will be required to operate the project. O&M costs reported include labor, employee expenses, materials, and contracts.

**(J) The estimated start and completion dates of the proposed construction or date of acquisition:**

PacifiCorp proposes to begin engineering and construction of the project in April 2018. The proposed project commercial operation (in-service) operating date is November 2020, under normal construction circumstances, weather conditions, labor availability, materials delivery, and permit and agreement processing durations. An indicative project execution schedule is provided as Confidential Exhibit CAT3-6.

**(ii) To operate or construct a major utility facility, the application shall include the following information in addition to the requirements of section (21)(c):**

**(A) A description of the proposed site, including the county or counties in which the facility will be located, with a metes and bounds description, and a description of the terrain where the facility will be constructed:**

The project is located in Carbon and Albany Counties, Wyoming, and its footprint spans across [REDACTED]

[REDACTED] The town of McFadden is located [REDACTED]  
 [REDACTED]. The western side of the proposed project is located in Carbon County, and the eastern side in Albany County.

The project lies within the drainage system of Coalbank Creek and its tributaries, which are tributaries to Rock Creek. Rock Creek occurs approximately three miles north of the site. Livestock ranching operations occur on a majority of the proposed project area. The elevation throughout the site ranges from approximately 7,100 to 7,400 feet above mean sea level.

Highly Confidential Exhibit CAT3-7 presents a map of area surface ownership, along with a table that provides the legal description of the project location. The project will be located on leased private fee lands. PacifiCorp will obtain a Special Use Lease from the Wyoming School and Land Board Trust for state-owned parcels within the project boundary.

**(B) A geological report of the proposed site, including foundation conditions, groundwater conditions; operating mineral deposits within a one-mile radius and a topographical map showing the area within a five-mile radius:**

The North Platte River Basin contains a wide variety of geologic formations and structural elements. Geologic formations vary in thickness and range from crystalline bedrock to alluvial

deposits. The project is located in the Laramie Basin, which is a wide intermontane valley situated between the Medicine Bow Mountains to the west and the Laramie Mountains to the east. Bedrock geology in the project area consists of gravel, pediment, and fan deposits; Lewis shale; the Hanna formation; and the Medicine Bow formation. Gravel, pediment, and fan deposits in the project area are dominated by quartzite, with cobbles, pebbles, and gravels, located close to the ground surface. Lewis Shale is a dark gray marine deposit that crops out along the eastern margins of the Great Divide and Washakie basins in south-central Wyoming. It consists of at least twenty depositional sequences that contain isolated sandstone and siltstone beds. Bentonite beds also are present in the lower part of the Lewis Shale. The Hanna Formation is a non-marine sedimentary stratum that was deposited as outwash during the Laramide Orogeny and was subsequently folded and eroded in places, forming a hogback ridge. Its composition varies from shale to sandstone and conglomerate, but within the project area it is dominated by quartzite conglomerate. As with the Hanna Formation, the Medicine Bow Formation occurs at ground surface and is composed of coal, carbonaceous shale, and sandstone alluvial plan deposits.

Confidential Exhibit CAT3-8 presents preliminary geotechnical reports for the McFadden Ridge I and High Plains wind generation facilities that are provided as proxy foundation information for the McFadden Ridge II facility.

The primary aquifer systems used in the project area are described as quaternary (alluvial deposits) and late cretaceous aquifer systems in the northern area and early tertiary aquifer systems in the southern area. The direction of groundwater movement in the alluvium of the stream valleys is generally downstream and toward the stream, and most streams in the area derive some of their flow from groundwater. The primary source of recharge is from infiltration of snowmelt and runoff water. The majority of groundwater use in the area is for agricultural and domestic purposes.

Groundwater wells within the area vary in depth from 40 to 225 feet below ground surface (“bgs”) with static water levels ranging from 12 to 118 feet bgs.

PacifiCorp will continue to assess the impacts of any operating mineral deposits approximately within a one mile radius of the facility. This project is not expected to affect operating mineral deposits or oil and gas leases.

A topographical map showing the terrain of the surrounding area within a five-mile radius of the facility is provided as Confidential Exhibit CAT3-9.

**(C) A description of and plans for protecting the surrounding scenic, historical, archeological and recreational locations; natural resources; plant and animal life; and land reclamation, including: (I) A general description of the devices to be installed at the major utility facility to protect air, water, chemical, biological and thermal qualities; (II) The designed and tested effectiveness of such devices; and (III) The operational conditions for which the devices were designed and tested:**

Confidential Exhibit CAT3-10 provides information on area scenic byways, recreational locations, national parks, and state parks. The Edness Kimball Wilkins, Glendo, Seminoe, and Pathfinder State Parks are located in the region, along with Ayers Natural Bridge and Pathfinder National Wildlife Refuge recreation facilities. To the east of the project site, located along Wyoming Highway 487, is the historic Sand Creek Massacre Trail. The trail was dedicated on August 16, 2006. The trail exists in Wyoming as a memorial to the Arapaho and Cheyenne who lost their lives at the Sand Creek Massacre in Colorado in 1864. Impacts to visual resource concerns should be minimal because of the rural setting of the project. The WTGs are not anticipated to significantly degrade the surrounding scenic quality of the area.

PacifiCorp has preliminarily sited project components to mitigate potential environmental

and natural resource impacts in the project area. This effort will continue as project details emerge.

Highly Confidential Exhibit CAT3-11 provides information on known cultural and paleontological resources at the project site. The preliminary project layout has been arranged to avoid impacts to cultural resources. Additionally, no project-related features will be developed in close proximity to known cultural resources. It is anticipated that no National Register of Historic Places eligible archeological sites will be affected by the project. As part of PacifiCorp's plan for protecting the environment, sensitivity practices would be adhered to and any cultural resources would be afforded appropriate protection if discovered during design and construction.

A wetland delineation report is presented in Confidential Exhibit CAT3-12. Based on the preliminary site layout, it is anticipated that all potential impacts on jurisdictional waters of the U.S. and wetlands are currently associated with the construction of access roads. Therefore, the project will likely qualify for use of U.S. Army Corps of Engineers Nationwide Permit 12 for utility line construction activities, including access roads. Any impact to wetlands and the waters of the U.S. will be minimized using best management practices, including installation of culverts. Cumulative impacts are not expected to be significant.

The project area lies within the Wyoming Basin ecoregion. The Wyoming Basin ecoregion is found in portions of Colorado, Idaho, Montana, Utah, and Wyoming. This ecoregion is a broad intermontane basin dominated by arid grasslands and shrublands supporting bunchgrasses and sagebrush, interrupted by high hills and low mountains. Most of the uplands in the project area are mapped as mixed-grass vegetative community cover-type (a mixture of graminoids, forbs, and shrubs, with less than 25 percent of the canopy cover contributed by shrubs). Additional vegetative community cover types include Wyoming big sagebrush, irrigated cropland, dry-land crop, greasewood, and basin rock soil. Riparian areas are a mosaic of riparian shrubland on Dutton Creek

and small inclusion of riparian forest along Rock Creek. A small area of saltbush community occurs along the southern boundary. No known threatened or endangered plant species or rare vegetative communities exist within the project area; therefore, the project will not contribute to cumulative degradation of these resources. Any introduction of new noxious weeds by construction truck traffic will be controlled using best management practices.

Wild animals including mule deer, whitetail deer, pronghorn antelope, coyotes, chipmunks, prairie dogs, ground squirrels, and rattlesnakes have been observed. Seasonal range maps indicate that crucial winter range of the pronghorn antelope is contained within the northeastern portion of the existing wind generation area, but not continuing into the McFadden Ridge II expansion area. See Confidential Exhibit CAT3-13 for a presentation of the antelope range map. Birds including red-tailed hawks, golden eagles, bald eagles, nighthawks, sparrows, and various songbirds have been observed. Migrating waterfowl, passerines, shorebirds, raptors, upland game birds, and waterbirds travel through and have been observed in the area during spring and fall migration periods. Based on avian use studies conducted, estimated bird mortality at the site would likely be similar or lower than other wind generation facility located in the western U.S. where observed bird collision mortality has been relatively low.

No federally listed wildlife or bat species were observed within the project area while spring and fall 2007 baseline avian surveys and 2008 raptor nest searches were conducted. However, the survey conducted in 2007 and spring 2008 confirmed the presence of one active bald eagle nest along Rock Creek and northwest of the project area.

Surveys for greater sage-grouse were conducted concurrently with avian baseline surveys in 2007 and 2008. The proposed project area and a one mile buffer distance were surveyed by foot and vehicle. There are no documented greater sage-grouse leks within one mile of the project area

boundary, and no leks were found during the 2007 and 2008 avian surveys of the project area. Greater sage-grouse use of the project area appears to be very low, with only two groups totaling 13 individuals being observed. The project area has been historically grazed, and there is a lack of mature sagebrush, and therefore, suitable cover for greater sage-grouse through most of the project area. Due to the low occurrence date and low flight path, greater sage-grouse mortality due to collisions with WTGs is not likely to occur. The incremental amount of habitat lost in the project area should result in minimal impacts to the greater sage-grouse.

A project area avian constraints map is presented as Confidential Exhibit CAT3-14; and the avian baseline use report is presented as Confidential Exhibit CAT3-15.

PacifiCorp is continuing to collect bat data within the project area.

At the end of project life, PacifiCorp will have reserved funds in its asset retirement obligation (“ARO”) account and will use ARO funding to restore the site to near natural conditions.

Lands disturbed during construction would be reclaimed to current conditions to the extent practicable. Ground disturbance would be minimized and best management practices employed by the construction contractors to minimize environmental impacts. PacifiCorp would also employ an environmental inspector(s) to ensure that environmental considerations, and any unforeseen environmental incidents, are appropriately addressed. This individual would ensure prompt and appropriate response to any identified non-compliance situations and ensure environmental protections are appropriately implemented. Periodic environmental audits of the site will also be conducted by PacifiCorp affiliated personnel that are independent of the project team.

During construction, each on-site contractor will be expected to develop, publish, and orchestrate a site and project specific environmental protection plan.

Site specific wildlife management plans will be developed and implemented.

**(D) A description of any potential safety hazards:**

Prevention of safety hazards and impacts from failure of the project's components will be achieved by a combination of planning and controlled site access. By following industry guidelines and WTG certification processes, the most safe and reliable facility will be constructed. WTG are equipped with multiple safety systems as standard equipment. For example, rotor speed is controlled by a redundant pitch control system and a backup disk brake system. Critical components have multiple temperature sensors and a control system to shut the system down and take it off-line if overheating conditions are detected. Lightning protection is a standard feature on the WTGs, and a specially engineered lightning protection and site grounding system will be installed for the project.

Turbine towers, tower foundations, and above ground transmission line support structures will be designed according to applicable building codes and nationally accepted design standards to avoid failure or collapse. The selected WTG and tower combination will be subjected to engineering review to ensure that the design and construction specifications are appropriate for the project. This review will include consideration of code/nationally accepted design standard requirements under various anticipated worst case loading conditions and will provide a high degree of confidence in the structural adequacy of the towers. The WTGs have been preliminarily sited at locations which exceed a reasonable set-back of over one tip-height.

During active construction, PacifiCorp will follow the manufacturers' recommended handling instructions and erection procedures to prevent material damage to towers or blades that could lead to failure. In addition, certification of the WTGs to the requirements of the *International Electrotechnical Commission ("IEC") 61400-1* standard will ensure that the static, dynamic, and defined-life fatigue stresses in the blades will not be exceeded under the combined load

combinations expected at the project site. The standard includes safety factors for normal, abnormal, fatigue, and construction loads. This certification, together with regular periodic inspections, will give a high level of assurance against blade failure during operation.

The WTGs will be sited at locations that exceed a reasonable set-back distance to safeguard against ice throw. Ice throw over long distances has not been documented as a hazard, and no ice throw injury has been reported from existing wind generation projects. Icing is a rare event, and the turbines for this project will be situated in a remote area.

During construction, planned construction safety controls include: (1) a “PacifiCorp Safety Plan,” and (2) the EPC contractor’s “Site Specific Safety Plan.”

The feasibility of the project site from an aviation and airspace point of view continues to be reviewed. The WTGs will be grouped in strings, and some of the WTGs will include aviation warning lights, as required by the Federal Aviation Agency (“FAA”). The number of WTGs with lights and the lighting pattern of the WTGs will be determined through collaboration with the FAA.

**(E) A description of the real property, fuel and water requirements, including any source of water along which the major utility facility will be constructed or from which it will obtain or return water:**

There are no significant fuel, minerals, or process water requirements for this project.

At the time of this filing, it is anticipated that during project construction, water will be obtained from a municipal water source; an existing senior water rights holder and trucked to the site; or a new well with a permit issued by the Wyoming State Engineer’s Office to appropriate groundwater. Once available on-site, water will either be put to immediate use or placed in an on-site temporary water storage tank. Once the project is in operation, only minimal daily domestic water use will be required. The primary domestic water requirement will occur at the shared

existing operations/maintenance building, and will be limited to consumption in restrooms, sinks, washing station(s), showers, internal/external hose use, and as dishwater.

A shared existing septic system and drain field for sanitary sewer waste disposal will be provided at the shared existing facilities.

**(F) The acquisition status, source and location of real property, rights-of-way, fuel and water requirements:**

Property and rights-of-way acquisition status was mentioned previously. There are no fuel acquisition requirements for this project. A groundwater use application will be applied for from the Wyoming State Engineer's Office if a new extraction well is necessary.

**(G) The proposed means of transporting fuel and water requirements:**

There is no process related requirement to transport material quantities of fuel and water for this project.

**(H) A description of all mineral rights associated with the facility and plans for addressing any split-estate issues:**

PacifiCorp will not own any of the subsurface rights at the site. The Company does not believe that any subsurface right holder will be able to unreasonably displace the resource or any portion of the resource.

PacifiCorp has done prudent legal research on its rights as a surface lease holder, as compared to those of subsurface right holders, and is comfortable that the law does not allow subsurface right holders to unilaterally displace the Company's facilities and that any subsurface right holder would be required to enter into good faith negotiations to reasonably accommodate its subsurface extraction objective.

**(J) A statement setting forth the need for the facility in meeting present and future demands for service in Wyoming and other states:**

Development of the proposed wind generation facility in compliance with regulatory requirements is the risk-adjusted, least-cost alternative to meet service obligations in Wyoming and other states as represented in the Company's testimony and exhibits. The Company's prospective generation planning activities are further described in the Company's 2017 IRP which was submitted to the Commission on April 4, 2017, in compliance with Commission Rule Chapter 3, Section 33.

**(K) A description of the commodity or service the facility will make available:**

The project will generate electricity using wind as the renewable energy source. Fossil fuel consumption and waste residual disposal obligations will be avoided.

**(L) A statement of the facilities effect on the applicant's and other systems' stability and reliability:**

This project is not expected to adversely affect the quality, stability, and reliability of the PacifiCorp transmission system or that of other entities. A High Plains proxy large generator interconnection "Facilities Study Report" and McFadden Ridge II status application is provided as Confidential Exhibit CAT3-16 that summarizes the expected impact.

**(M) The status of satisfying local, state, Tribal or federal governmental agency requirements. The applicant shall immediately fill all agencies' final orders:**

A list of the local, state, Tribal, and federal governmental agencies having requirements known at the time of this application, which PacifiCorp must meet in connection with the construction and operation of the project is listed, along with their timing and status, in Confidential Exhibit CAT3-17. Any unforeseen permit requirements will be adequately addressed.

By applying to and working with the various agencies for the construction/operation permits and the Commission, as required by Commission rules at Section 21(c), the major regulatory requirements and critical reviews for the project are being addressed. PacifiCorp's contractors may provide certain permits including permits for construction storm water pollution prevention control, compliance with building regulations through the Carbon County and Albany County Planning and Zoning Commissions, sanitary sewer extensions, and requirements of the Wyoming Department of Transportation. PacifiCorp will monitor and audit the successful completion, maintenance and closeout of all contractor supplied permits.

The following documents included in Exhibit RMP\_\_(CAT-3) are confidential or highly confidential in their entirety:

Highly Confidential Exhibit CAT3-1	McFadden Ridge Proxy WTG Site Layout
Highly Confidential Exhibit CAT3-2	McFadden Ridge I Amended WTG Scope of Study
Confidential Exhibit CAT3-3	Balance of Plant Scope of Work Template
Confidential Exhibit CAT3-4	McFadden Ridge II Proxy Capital Costs Detail
Confidential Exhibit CAT3-5	McFadden Ridge II Proxy Incremental O&M and Ongoing Capital Costs Detail
Confidential Exhibit CAT3-6	McFadden Ridge II Indicative Project Execution Schedule
Highly Confidential Exhibit CAT3-7	McFadden Ridge II Preliminary Project Map
Confidential Exhibit CAT3-8	McFadden Ridge II Geotechnical Report
Confidential Exhibit CAT3-9	McFadden Ridge II Preliminary Topographical Map
Confidential Exhibit CAT3-10	McFadden Ridge II Preliminary Scenic Byways, Recreational Areas, National Parks, and State Parks Review
Highly Confidential Exhibit CAT3-11	Preliminary Cultural and Paleontological Resources Review
Confidential Exhibit CAT3-12	McFadden Preliminary Wetland Delineation Report
Confidential Exhibit CAT3-13	Preliminary Antelope Range Map
Confidential Exhibit CAT3-14	Preliminary Avian Constraints Map
Confidential Exhibit CAT3-15	Preliminary Avian Baseline Use Report
Confidential Exhibit CAT3-16	McFadden Ridge II Interconnection Facilities Study
Confidential Exhibit CAT3-17	McFadden Ridge II Preliminary Local, State, Federal, and Tribal Requirements Review

The confidential exhibits listed above are provided under separate cover.

The highly confidential exhibits listed above contain commercially sensitive information which is considered business confidential information. The Company requests special handling. Please contact Stacy Splittstoesser (307) 632-2677 to make arrangements to review.