

Confidential Per WAC 480-07-160
Exh. RDM-1CTr
Docket UE-230172
Witness: Ryan D. McGraw

**BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP dba
PACIFIC POWER & LIGHT COMPANY

Respondent.

Docket UE-230172

PACIFICORP

REDACTED DIRECT TESTIMONY OF RYAN D. MCGRAW

March 2023 (REVISED April 4, 2023, and REFILED April 19, 2023)

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ATTACHED EXHIBITS

Exhibit No. RDM-2C Energy Yield Assessment for Rock Creek

Exhibit No. RDM-3HC Rock Creek I and II Build-Transfer Agreement

Exhibit No. RDM-4C Rock Creek I Large Generator Interconnection Agreement

Exhibit No. RDM-5C Rock Creek II Large Generator Interconnection Agreement

1 **Q. Please state your name, business address, and current position with PacifiCorp**
2 **d/b/a Pacific Power & Light Company (PacifiCorp or Company).**

3 A. My name is Ryan D. McGraw. My business address is 1407 West North Temple,
4 Suite 310, Salt Lake City, Utah. My position is Vice President of Project
5 Development.

6 **I. QUALIFICATIONS**

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

8 A. I have a Bachelor of Science Degree from the University of California at Davis, a
9 Juris Doctorate from the Willamette University College of Law, and a Master of
10 Business Administration from Willamette University's Atkinson Graduate School of
11 Management. My career in energy began in 2003, including positions at Pacific Gas
12 and Electric Company and the Bonneville Power Administration. Prior to joining
13 PacifiCorp in July 2020, I was Vice President of Development for Orion Renewable
14 Energy Group LLC, a developer of renewable energy facilities across the United
15 States. To date, I have helped to develop, construct, and operate over 4,000
16 megawatts (MW) of wind and solar facilities across the United States. In my current
17 role at PacifiCorp as Vice President of Project Development, my responsibilities
18 encompass strategic planning, regulatory support, stakeholder engagement, and
19 development and execution of major generation resource additions.

20 **II. PURPOSE OF TESTIMONY**

21 **Q. What is the purpose of your testimony in this case?**

22 A. I provide a general description of the Rock Creek I and Rock Creek II Wind Projects
23 (Collectively the Rock Creek Projects) that the Company is requesting rate recovery

1 on in this proceeding, provide an update on the development and status of the
2 projects, and discuss general project costs.

3 **Q. Why did the Company pursue the Rock Creek Projects?**

4 A. As further described in the testimony of Company witness Thomas R. Burns, the
5 Company's 2021 Integrated Resource Plan (IRP) preferred portfolio, and 2021 IRP
6 Update, identified a resource need based on a near-term capacity deficit. The
7 Company conducted the 2020 all-source request for proposal (2020 AS RFP) to
8 identify cost-effective resources to fill this need. Bids were received from third
9 parties for resources in the form of build-transfer agreements (BTAs), power purchase
10 agreements, and tolling agreements. The Rock Creek Projects were bid by a third-
11 party developer (Invenergy) as BTAs, and these bids were identified among the most
12 economical assets to meet the Company's identified resource need.

13 **III. GENERAL DESCRIPTION OF THE ROCK CREEK PROJECTS**

14 **Q. Please describe the Rock Creek Projects.**

15 A. Invenergy is currently developing two separate facilities—the 190 MW Rock Creek I
16 and 400 MW Rock Creek II facilities. Equipment at each facility will include: Wind
17 turbine generators (WTG) with associated foundations and base pads, electrical
18 collector systems, collector substations, access roads, operations and maintenance
19 buildings, fiber optical and/or microwave communication equipment, supervisory
20 control and operating status data acquisition control system, main power
21 transformers, meteorological evaluation towers, and overhead transmission tie-lines
22 from the collector substations to each project's respective point of interconnection.
23 The point of interconnection will be at the existing Foote Creek substation in Carbon

1 County at 230-kilovolts (kV) for Rock Creek I, and the existing Aeolus substation in
2 Carbon County at 230-kV for Rock Creek II. Both Rock Creek I and Rock Creek II
3 are in Carbon and Albany counties in southeast Wyoming on a combined total of
4 approximately 47,000 acres of private and state-owned lands.

5 **Q. Have preliminary evaluations of the wind potential been performed for the Rock**
6 **Creek Projects?**

7 A. Yes. Studies completed by Invenenergy indicate that the Rock Creek I and Rock
8 Creek II sites are suitable for wind facilities.¹ Moreover, the sites are adjacent to the
9 Company's existing High Plains/McFadden Ridge and Foote Creek wind facilities.
10 Wind data collected from existing operations and the area of the project indicate that
11 these sites have favorable wind regimes suitable for high performance wind
12 resources.

13 **Q. What are the expected operational lives of the Rock Creek Projects?**

14 A. The Rock Creek Projects have anticipated operational lives of 30 years, which aligns
15 with the Company's currently approved depreciable life for wind resources.

16 **Q. Has the Company received certificates of public convenience and necessity**
17 **(CPCN) for the Rock Creek Projects?**

18 A. Yes. The Company filed a CPCN application with the Wyoming Public Service
19 Commission (Wyoming Commission) in August, and the Wyoming Commission
20 approved the application during public deliberations held on February 28, 2023.²

¹ Exhibit No. RDM-2C Energy Yield Assessment for Rock Creek.

² Docket No. 20000-623-EN-22, Record No. 17154. This application was approved during deliberations; the written order is not yet available. The public deliberations can be listened to via <https://psc.wyo.gov/calendar/audio-recordings>.

1 **IV. DEVELOPMENT AND STATUS OF THE ROCK CREEK PROJECTS**

2 **Q. What is the current development status of the Rock Creek Projects?**

3 A. The Rock Creek Projects are in the advanced stages of development. Invenergy, as
4 the project developer, has undertaken multiple years of wind resource analysis and
5 substantial wildlife and environmental analyses. Invenergy also has significant
6 amounts of land under control to host the necessary facilities, signed interconnection
7 agreements, and approved conditional use permits in Carbon and Albany Counties.
8 Invenergy is responsible for the final development and construction of the project in
9 accordance with all permitting and technical requirements.

10 **Q. Has PacifiCorp conducted due diligence to confirm the development status of the**
11 **Rock Creek Projects?**

12 A. Yes. As part of the 2020AS RFP and throughout the subsequent negotiations with
13 Invenergy, PacifiCorp has conducted due diligence to confirm the on-time
14 development of various items including interconnection status, wind resource
15 performance, production tax credit (PTC) eligibility, site control, permitting status,
16 and conformance to technical specifications. This due diligence informed the
17 Company's negotiations with Invenergy on the scope, schedule, cost, and other terms
18 to establish mutually agreeable BTAs.

19 **Q. Has the Company executed BTA's for the Rock Creek Projects?**

20 A. Yes. The Company and Invenergy executed arm's-length binding BTAs for Rock
21 Creek I and Rock Creek II on February 28, 2023, that includes provisions for the
22 supply of WTGs and service for construction of the balance of plant, and managing
23 the complete construction of the Rock Creek Projects. See Exhibit No. RDM-3HC.

1 **Q. Please explain the key terms and customer protections of the BTA.**

2 A. Under the BTA, Invenergy is obligated to develop, engineer, procure equipment for,
3 construct, and transfer ownership of Rock Creek I to the Company. The proposed in-
4 service dates are December 2024 for Rock Creek I, and September 2025 for Rock
5 Creek II, assuming normal construction circumstances such as weather conditions,
6 labor availability, materials delivery, and permit and agreement processing durations.
7 PacifiCorp is obligated to pay a defined purchase price to Invenergy under the BTA.
8 The purchase price is fixed, but can be amended based on certain events, however any
9 increased costs are mitigated by additional risk and cost-sharing mechanisms.

10 Examples of cost mitigation protections include:

- 11 a. [REDACTED]
- 12 [REDACTED]
- 13 [REDACTED]
- 14 [REDACTED]
- 15 b. [REDACTED]
- 16 [REDACTED]
- 17 [REDACTED]
- 18 [REDACTED]
- 19 [REDACTED]
- 20 [REDACTED]
- 21 [REDACTED]
- 22 [REDACTED]
- 23 [REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]

8 c. Liquidated Damages: In the event that the project is delayed, Invenergy is
9 required to pay liquidated damages to PacifiCorp.

10 **Q. Who is responsible for construction of the Rock Creek Projects?**

11 A. Invenergy is responsible for construction of the Rock Creek Projects and will likely
12 utilize and manage multiple contractors for different aspects of the construction.
13 Invenergy is managing the construction progress with PacifiCorp oversight until
14 construction is complete.

15 **Q. Who will be responsible for supplying WTGs for the Rock Creek Projects?**

16 A. The Company anticipates that the WTGs will be purchased and delivered according
17 to the terms of a turbine supply agreement to be negotiated and executed by
18 Invenergy. The project is currently expected to utilize WTGs manufactured by
19 [REDACTED] with a nominal nameplate capacity of [REDACTED] MW each and rotor
20 diameter of [REDACTED] meters. The final selection of WTG manufacturer and model remains
21 subject to change by Invenergy. Any changes to these selections would be reviewed
22 by PacifiCorp.

1 **Q. When will construction begin and end?**

2 A. The Company anticipates construction will commence in the second quarter of 2023
3 for the Rock Creek Projects. The proposed in-service dates are December 2024 for
4 Rock Creek I, and September 2025 for Rock Creek II, assuming normal construction
5 circumstances such as weather conditions, labor availability, materials delivery, and
6 permit and agreement processing durations. The Company will provide construction
7 updates as necessary in future testimony.

8 **Q. How will the Company oversee construction of the Rock Creek Projects to**
9 **maintain the proposed in-service date?**

10 A. PacifiCorp's Owner's Engineer will oversee construction to ensure the project will be
11 completed on time. This will include reviewing all design submittals to ensure they
12 meet the technical specification and performance requirements outlined in the BTAs,
13 and make periodic site visits to ensure that critical infrastructure is installed per the
14 design documents and has passed acceptability testing.

15 PacifiCorp will also use full-time on-site inspector(s) to ensure that Invenergy
16 adheres to the project schedule and builds the project consistent with the terms of the
17 BTAs. This includes monitoring Invenergy's day-to-day activities, attending daily
18 site meetings, and providing inspection services as needed. The Company will also
19 hold weekly or bi-weekly project status meetings with Invenergy, where Invenergy
20 will report on the status of the project, discuss critical issues that impact schedule, and
21 address the status of any recovery plans as needed.

22 **Q. Who will operate and maintain the Rock Creek Projects?**

23 A. After the projects are complete, a qualified third-party is expected to provide certain

1 operations and maintenance services for the first five years of operation. During the
2 initial five-year period, the Company will oversee the third-party to ensure
3 compliance with all relevant agreements, and may self-perform any operations and
4 maintenance activities that are not included in the scope of the third-party's work.

5 Beginning in the sixth year of operation, the Company expects to take over all
6 operations and maintenance activities at the Rock Creek Projects. The Company has
7 an experienced team of personnel that are qualified to operate and maintain Rock
8 Creek. The Company currently owns, operates, and maintains an extensive wind
9 generation fleet that includes the High Plains/McFadden Ridge, Foote Creek I, Seven
10 Mile Hill I and II, Ekola Flats, TB Flats I and II, and Dunlap in this region of
11 Wyoming, amounting to over 1,240 megawatts of wind generation. Once construction
12 is complete, the wind turbine supplier will provide a warranty for the Rock Creek
13 Projects for a period of time, during which any significant repairs will be conducted
14 by the wind turbine supplier. In addition, the wind turbine supplier or other third
15 parties may be engaged from time to time to help operate and maintain the Rock
16 Creek Projects.

17 **Q. Has Invenergy obtained the necessary local permits for the Rock Creek**
18 **Projects?**

19 A. Yes. Carbon County issued a Conditional Use Permit for the project on November 16,
20 2021, and Albany County issued a Conditional Use Permit for the project on
21 January 18, 2022. In addition, the Industrial Siting Council approved Invenergy's
22 application for an Industrial Siting Permit on April 15, 2022. A Certificate of Public
23 Convenience and Necessity was granted by the Wyoming Commission on

1 February 28, 2023. Invenergy has also been collaborating with the U.S. Fish and
2 Wildlife Service in developing and implementing the project. Rock Creek remains
3 on-track for completion and an in-service date of December 2024 and September
4 2025 for Rock Creek I and Rock Creek II, respectively.³

5 **V. COSTS OF THE ROCK CREEK PROJECTS**

6 **Q. What is the estimated capital cost for the Rock Creek Projects?**

7 A. The estimated capital costs for the Rock Creek Projects are [REDACTED]

8 [REDACTED]
9 [REDACTED]
10 [REDACTED].

11 Company witness Sherona L. Cheung’s direct testimony discusses these costs for
12 Washington rates in more detail.

13 **Q. How did the Company estimate construction and operations and maintenance
14 (O&M) costs for the Rock Creek Projects?**

15 A. Project costs are based on negotiations with Invenergy. Interconnection costs were
16 informed by the cost estimates included in each Wind Project’s executed Large
17 Generator Interconnection Agreement (LGIA), the provisional LGIA for Rock
18 Creek II, and the interconnection studies that informed the interconnection

³ See, e.g., *Carbon County Conditional Use Permit – Resolution No. 2021-41, Wyoming County Clerk, Book 1381, p. 50* (November 16th, 2021); *Albany County Conditional Use Permit – WEC-01-21 (January 18th, 2022; to be recorded); Wyoming Department of Environmental Quality, Industrial Siting Council - Industrial Siting Permit - Docket No. DEQ/ISC 21-07* (April 15th, 2022); *Department of the Air Force, Siting and Mitigation Agreement for Rock Creek Wind Project in Rock River, WY* (February 18th, 2021); *Department of Defense, Mitigation Response Team Letter of No Adverse Impact* (February 24th, 2021); *Carbon County Road Use Agreement, approved by Carbon County Board of County Commissioners* (November 28th, 2022); *Albany County Road Use Agreement, approved by the Albany County Board of County Commissioners* (January 3rd, 2023); *Wyoming Department of Transportation Road Use Agreement, approved and executed by the Transportation Commission of Wyoming and the Wyoming Department of Transportation Chief Engineer* (January 10th, 2023).

1 agreements.⁴ The Company’s costs for engineering, legal, internal project
2 management, and allowance for funds used during construction were estimated based
3 on the Company’s experience with development and construction of past wind
4 facilities. O&M cost estimates were developed based on the Company’s experience
5 with wind resource O&M budgets and third-party contracts for the Company’s
6 existing wind facilities.

7 **Q. Will Rock Creek qualify for federal PTCs?**

8 A. Yes. Under the Inflation Reduction Act (IRA), the Company believes that Rock
9 Creek qualify for 100 percent of the PTC available for projects placed into service
10 after 2021. For projects placed in service after 2022, the IRA also provides for an
11 additional 10 percent bonus credit if the project is located in an “energy community.”
12 This definition includes census tracts, or any directly adjoining census tracts, in which
13 (1) after 1999 a coal mine has closed, or (2) after 2009 a coal-fired electric generating
14 unit has been retired. The Company understands that the Rock Creek Projects satisfy
15 this definition.

16 With an expected in-service date of 2024 for Rock Creek I and 2025 for Rock
17 Creek II, the Company expects the Rock Creek Projects to qualify for a PTC equal to
18 110 percent of the full credit available. This credit will be returned to customers in the
19 Company’s annual Power Cost Adjustment Mechanism filing.

20 **Q. Did the Company assess the customer benefits provided by the Rock Creek**
21 **Projects?**

⁴ Exhibit No. RDM-4C Rock Creek I Large Generator Interconnection Agreement; Exhibit No. RDM-5C Rock Creek II Large Generator Interconnection Agreement

1 A. Company witness Burns provides a detailed description of the Company's customer
2 benefits assessment in his testimony. The methodology used to perform the economic
3 analysis of the Rock Creek Projects is consistent with the methodology used to
4 perform the economic analysis from the Wyoming CPCN application. The economic
5 analysis reflects significant benefits from the acquisition of the Rock Creek I and
6 Rock Creek II Wind Projects.

7 **VI. CONCLUSION AND RECOMMENDATION**

8 **Q. Please summarize your testimony.**

9 A. The Company successfully negotiated BTAs with Invenergy that prudently manages
10 risks, mitigates costs, allows effective oversight, and ensures that the Rock Creek
11 Projects remain on schedule. The Rock Creek Projects will provide significant
12 benefits to Washington customers, and I recommend the Commission approve the
13 inclusion of these facilities in the Company's retail rates as prudent.

14 **Q. Does this complete your direct testimony?**

15 A. Yes.