BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION OF ROCKY MOUNTAIN POWER FOR A CERTIFICATE OF CONVENIENCE AND NECESSITY AUTHORIZING CONSTRUCTION OF THE BOARDMAN-TO-HEMINGWAY 500-KV TRANSMISSION LINE PROJECT	))))))	**CASE NO. PAC-E-23-01** **DIRECT TESTIMONY OF RICK A. VAIL** **REDACTED**

ROCKY MOUNTAIN POWER

CASE NO. PAC-E-23-01

January 2023

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I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, business address, and present position with PacifiCorp.

A. My name is Rick A. Vail. My business address is 825 NE Multnomah Street, Suite 1600, Portland, Oregon 97232. My present position is Vice President of Transmission. I am responsible for transmission system planning, customer generator interconnection requests and transmission service requests, regional transmission initiatives, asset management, capital budgeting for transmission, and administration of the Company's Open Access Transmission Tariff ("OATT"). I am testifying on behalf of PacifiCorp d/b/a Rocky Mountain Power (the "Company").

Q. Please describe your education and professional experience.

A. I have a Bachelor of Science Degree with Honors in Electrical Engineering with a focus in electric power systems from Portland State University. I have been employed at the Company since 2001, and have had a range of management responsibility within the asset management group, including capital planning, maintenance policy, maintenance planning, and investment planning. I served as Director of Asset Management from 2007 to 2012. I became Vice President of Transmission in December 2012.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. What is the purpose of your testimony?

A. My testimony supports the Company's application for a certificate of public convenience and necessity ("CPCN") for Energy Gateway Segment H, the Boardman to Hemingway 500-kilovolt ("kV") transmission line ("B2H" or the "Project"). B2H is an approximately 300-mile-long 500-kV electric transmission line with a western terminal at a proposed new switching station near Boardman in north-central Oregon

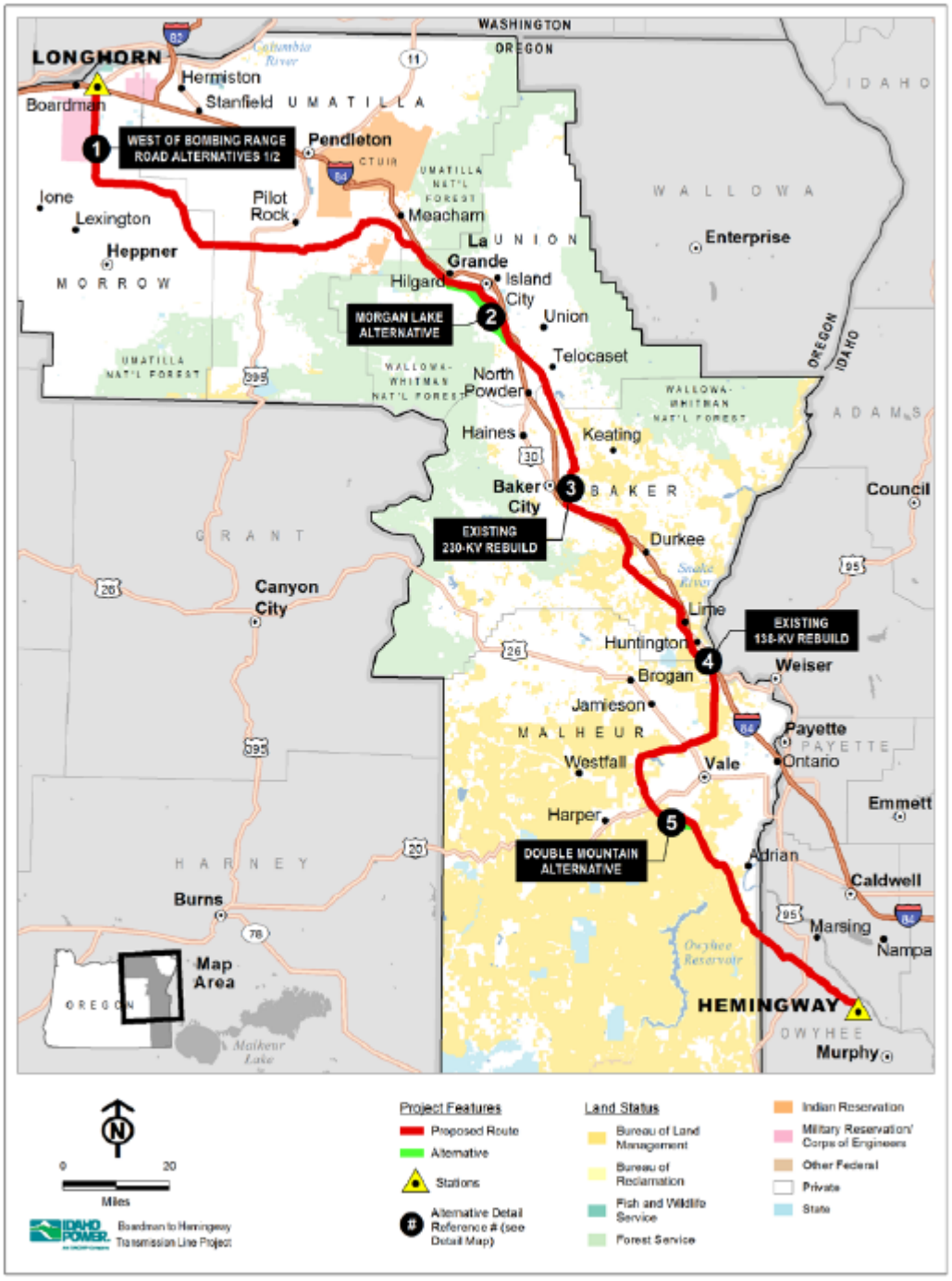
and an eastern terminal at the existing Hemingway substation in southwest Idaho. Twenty-four miles of B2H will be located in Owyhee County in Idaho with an additional 274 miles located in five Oregon counties: Malheur, Baker, Union, Umatilla, and Morrow Counties. The Project consists of:

1. Construction of approximately 271 miles of single-circuit 500-kV transmission line in Oregon;
2. Construction of approximately 24 miles of single-circuit 500-kV transmission line in Idaho; and
3. Removal of 12 miles of existing 69-kV transmission line.

Additionally, construction of B2H will require the following ancillary facilities:

1. A newly constructed switching station proposed to be constructed near Boardman, Oregon;
2. Construction of the Midline Series Capacitor substation;
3. Ten communication stations constructed within the right-of-way of the transmission line;
4. Construction of approximately 206 miles of new access roads; and
5. Substantial modification of approximately 223 miles of existing roads.

The following graphic, which Idaho Power Company ("IPC") prepared in its application for a site certificate from Oregon's Energy Facility Siting Council ("EFSC"), shows the general location of B2H, including the alternative route segments approved by EFSC:



My testimony and exhibits provide information required by Idaho Public Utilities Commission ("Commission") Rules of Procedure 52 and 112 and Idaho Code § 61-526, related to applications for CPCNs, for B2H.

Q. Please summarize your testimony.

A. B2H is necessary for the Company to meet its customers' short- and long-term energy demand and will strengthen the overall reliability of the existing transmission system. While B2H has long been recognized as an integral component of the Company's long-term transmission planning, its construction by 2026 is both necessary and beneficial for customers, as B2H will enable the Company to efficiently deploy new generating facilities and better utilize existing resources to meet projected resource needs. The Company expects generation shortfalls beginning in 2026 and B2H is the most cost-effective means of securing sufficient generation to reliably serve customers.

B2H will provide a much-needed transmission connection between the Company's eastern balancing authority area ("BAA"), PacifiCorp East ("PACE"), and its western BAA, PacifiCorp West ("PACW"). This connection is vital because currently the Midpoint-to-Summer Lake 500-kV transmission line is the only line connecting PACE and PACW. Increasing connections between the Company's BAAs will enable the Company to more efficiently serve customers in both areas using the most cost-effective generation available. Additionally, construction of B2H will provide regional benefits by strengthening the interconnected transmission grid in the West and enhancing resource adequacy.

In addition to construction of B2H, IPC and the Company have agreed to exchange several existing transmission assets. These asset exchanges will enable both the Company and IPC to develop more interconnected transmission systems to serve their respective customers. I discuss the asset exchanges and the agreements that the parties intend to execute to implement these exchanges below.

III. DESCRIPTION OF B2H

Q. Please briefly describe PacifiCorp's transmission system.

A. PacifiCorp owns and operates approximately 17,000 miles of transmission lines ranging from 46 kV to 500 kV across multiple western states. PacifiCorp has over 2 million customers with approximately 88,000 customers located in Idaho. Idaho is located (along with Wyoming and Utah) in PacifiCorp's eastern BAA, PACE, which has over 12,640 circuit-miles of transmission lines and a record peak demand of 9,700 megawatts ("MW"). A new record peak was reached in PacifiCorp's overall system on July 28, 2022 at 13,195 MW. The PACE peak at that time was 9,290 MW.

Q. Is PacifiCorp's transmission system interconnected with any third-party systems?

A. Yes. PACE alone is interconnected with 17 other systems, including Arizona Public Service, Bonneville Power Administration ("BPA"), NV Energy, Los Angeles Department of Water & Power, NorthWestern Energy, Western Area Lower Colorado-Phoenix, IPC, Western Area Colorado Missouri-Loveland, Western Area Power Administration, Black Hills Power, Utah Associated Municipal Power Systems, Utah Municipal Power Agency, Deseret Power Electric Cooperative, Basin Electric Power Cooperative, Intermountain Power Agency, Tri-State Generation & Transmission Association, and Public Service Company of New Mexico.

Q. Please describe B2H.

A. B2H is a high voltage single-circuit 500-kV alternating current transmission line that extends approximately 300 miles from north-central Oregon to southwest Idaho. B2H is also referred to as Segment H of Energy Gateway.

Q. Please summarize the agreements between stakeholders regarding funding and construction of B2H.

A. The initial B2H agreement among IPC, BPA, and the Company was a Joint Permit Funding Agreement, executed January 12, 2012, and amended several times, to jointly support the regulatory processes associated with obtaining necessary permits and other project development work. On January 18, 2022, the parties executed a non-binding Term Sheet as the framework for future agreements, which is included as Exhibit No. 1 to Mr. Rick Link's testimony. I discuss several of the agreements identified in the Term Sheet in detail below.

Prior to execution of the Term Sheet, BPA decided to transition out of its role as a joint permit funding coparticipant and to instead rely on B2H by taking transmission service from IPC to serve its customers, leaving only the Company and IPC as owners of B2H. As a result of BPA's decision to take transmission service from IPC, the Term Sheet stipulates that IPC will acquire BPA's B2H project capacity, which increased IPC's B2H project ownership share to 45.45 percent.[1] Because IPC assumed the entirety of BPA's ownership interest in B2H, BPA's transition did not affect the Company's ownership interest. When B2H is completed, IPC and the Company will jointly own as tenants in common the transmission line and all associated facilities and equipment.[2] Per the Term Sheet, IPC is responsible for federal, state, and local permitting efforts and construction of the Project, except that BPA will be

[1] Exhibit No. 1 - Term Sheet at 24 (Jan. 18, 2022) [hereinafter "Term Sheet"].
[2] *Id.* at 26.

responsible for designing, procuring, and constructing the Longhorn substation and relocating and replacing an existing BPA 69-kV line.[3]

Q. Where does B2H begin and end?

A. B2H begins at the proposed Longhorn substation near Boardman, Oregon. From there B2H extends south and east through Morrow and Umatilla Counties before entering Union County. B2H parallels the corridor for Interstate 84 ("I-84") through Union and Baker Counties. In Malheur County, the route briefly turns to the southwest before finally returning southeast and eventually terminating at the existing Hemingway substation in Owyhee County, Idaho.

Q. Please describe B2H's proposed route.

A. After leaving the proposed Longhorn substation, the transmission line runs south for approximately 19 miles, paralleling existing transmission and pipeline rights-of-way for the first 13 of those miles. At that point, B2H turns east-by-southeast through Morrow and Umatilla Counties and enters Union County.

Beginning at approximately milepoint 90, B2H begins to parallel the I-84 as it approaches the city of La Grande, Oregon. B2H roughly parallels I-84 for the next 110 miles through Union and Baker Counties.

Shortly after entering Malheur County, B2H turns south for approximately 12 miles primarily through land that is managed by the Bureau of Land Management ("BLM"). At approximately milepoint 212 the transmission line turns to the southwest through agricultural and BLM land for approximately 14 miles. Finally, the transmission line turns to the southeast and continues primarily through BLM-managed

[3] *Id.* at 25.

lands. At approximately milepoint 253, B2H enters the BLM's Vale District Utility Corridor, which the transmission line then follows for much of its remaining path through Malheur County as it approaches the Oregon-Idaho state line.

After crossing into Owyhee County, Idaho, the transmission line continues in a southeastern direction until finally terminating at the existing Hemingway substation.

Q. What types of towers and conductors will be used to construct B2H?

A. For the B2H project, structures will primarily be steel lattice tower structures, which provide an economical means to support large conductors for long spans over long distances. These lattice towers will range in height from 109 to 200 feet, with a typical structure height of 160 feet. In select areas tubular steel H-frame towers will be deployed with a height range of about 65 to 105 feet to mitigate potential impacts to visual resources. A structure will be located roughly every 1,400 feet on average.

For a single-circuit transmission line, such as B2H, power is transmitted via three phase conductors (a phase can also have multiple conductors, called a bundle configuration). These conductors are typically comprised of a steel core to give the conductor tensile strength and reduce sag of the aluminum outer strands. Aluminum is used because of its high conductivity to weight ratio. The conductors will have a non-specular finish to reduce visual impacts. Shield wires, typically either steel or aluminum and occasionally including fiber optic cables inside for communication, are the highest wires on the structure. Their main purpose is to protect the phase conductors from a lightning strike.

Q. Will B2H require modifications to any substations?

A. Yes. B2H will require construction of the proposed Longhorn substation near

Boardman, Oregon. The existing Hemingway substation in Owyhee County, Idaho will also require upgrades. Finally, B2H will require construction of a Midline Series Capacitor substation.

Q. Please describe the proposed work at the Longhorn substation.

A. The western terminus for B2H requires the new Longhorn substation to tap into the existing BPA 500-kV transmission network. BPA owns the land for the Longhorn substation and intends to construct the substation to integrate certain wind projects in the immediate area once all environmental compliance laws are met. As agreed under the Term Sheet, BPA will own all equipment and facilities in the Longhorn substation, except B2H-specific equipment and facilities, which will be jointly owned by IPC and the Company.

Q. Please describe the proposed work at the Hemingway substation.

A. The IPC-owned existing Hemingway substation is designed to accommodate the B2H line terminal but will require the addition of new equipment. IPC, as project manager for construction of B2H, is responsible for these upgrades.

Q. Please describe the proposed work at the Midline Series Capacitor substation.

A. The Midline Series Capacitor substation is necessary to reduce simultaneous interactions between the Northwest ("NW") Alternating Current ("AC") Intertie, central and southern Oregon load service, and Path 14 (Idaho to Northwest). The Midline Series Capacitor station was added to the project scope between the 2019 Integrated Resource Plan ("IRP") and 2021 IRP to facilitate the operational needs of the parties, and at this time consists of only a fenced yard and series capacitor.

Q. Will any other stations be constructed as part of B2H?

A. Yes. Ten communication stations will be constructed along the route of B2H. These stations will be built within the right-of-way of the transmission line itself. The typical communication station site will be 100 feet by 100 feet, with a fenced area of 75 feet by 75 feet. A prefabricated concrete communications structure with dimensions of approximately 11.5 feet by 32 feet by 12 feet tall will be placed on the site and access roads to the site and power from the local electric distribution circuits will be required. A standby generator with a liquefied propane gas tank will be installed at the site inside the fenced area. Two separate conduit (underground) or aerial cable routes will be used for each fiber optic cable bundle between the transmission line and communication station. Conduits will be 2-inch-diameter polyvinyl chloride and will be buried three feet below the surface extending from the communication shelter to two different legs of the transmission structure maintaining a 10-foot separation between the cables. All work will occur within the disturbance footprint for either the communication station or the transmission structure to which the cables will attach.

Q. What is the total cost estimate for the Company's share of B2H?

A. The Company estimates that its in-service cost of B2H will be [redacted], including AFUDC. This is the cost estimate used in the Company's economic analysis sponsored by Mr. Rick T. Link.

Q. Has the Company put in place any cost controls for B2H?

A. While the Company and IPC have not yet finalized the definitive terms of the B2H construction funding agreements, the Company is working with IPC, the B2H project manager, to ensure provisions are put in place to control costs.

As explained in testimony IPC filed in support of its own application for a CPCN, IPC has strict project cost controls for internal and external personnel. Regular monthly forecast updates, including the tracking of budgets and schedules, are part of the project controls suite that the project management team employs. During the current preconstruction phase, IPC constructability consultant, Quanta Infrastructure Solutions Group, aided in certain preconstruction reviews and tasks. This early integration of the construction team allows for constructability feedback, identification of risks, and opportunities to economize the design. As the B2H project transitions into the construction phase, all material and construction services will be competitively bid and be pulled into a guaranteed maximum price ("GMP") that will serve as the construction pricing if awarded. This GMP is tied to a schedule that IPC and the construction manager will have developed together that IPC, in consultation with the Company, and as a result of the contract, the construction manager will be responsible for meeting that schedule. Milestone dates will be tied to monetary penalties for the construction manager if key dates slip.[4]

Q. Will the cost of B2H be included in PacifiCorp's transmission rates?

A. Yes. B2H will be considered a network transmission asset under the Company's OATT, and Federal Energy Regulatory Commission ("FERC") precedent for ratemaking supports rolling in the costs of these assets into the Company's transmission rates. Through inclusion in the Company's OATT, part of the costs of B2H will be

[4] *In re Idaho Power Company's Application for a Certificate of Public Convenience and Necessity for the Boardman to Hemingway 500-kV Transmission Line*, Case No. IPC-E-23-01, Direct Testimony of Lindsay Barretto at 40-41 (Jan. 10, 2023).

recovered from third-party transmission customers and included as an offset to the benefit of retail customers.

Q. How will the Company finance the costs of B2H?

A. The Company intends to finance the Project 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.

Q. Will the costs of B2H affect the Company's ability to provide reliable service to its Idaho customers?

A. No. Although the Project will be 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.

Q. When does the Company expect construction of B2H to be complete?

A. As mentioned above, IPC is responsible for constructing B2H. IPC has informed the Company that it expects to complete construction by 2026.

IV. NECESSITY OF B2H

Q. What is the standard for issuing a CPCN in Idaho?

A. I am not an attorney, but my understanding is that the Commission may issue a CPCN if an applicant demonstrates that the present or future public convenience and necessity require construction of the proposed facility.[5]

[5] Idaho Code Section 61-526.

Q. Does the Company have an identified need for the construction of B2H?

A. Yes. B2H is necessary for the Company to cost-effectively serve its growing Oregon loads. Additionally, B2H will increase grid reliability and increase transferability between PACE and PACW.

Q. Has the Company addressed the benefits of B2H in prior filings with the Commission?

A. Yes, the Company has identified the expected benefits of B2H in its IRPs, which are discussed in more detail in the testimony of Mr. Link. To continue to provide reliable and cost-effective service, the Company must invest in a robust transmission system to move resources across and between both PacifiCorp balancing areas. As Mr. Link explains in his testimony, B2H has repeatedly been identified as the most cost-effective means to serve customer demand.

Q. Has the Company further analyzed the cost benefits of B2H since the 2021 IRP?

A. Yes. The Company conducted extensive economic analysis of B2H in preparation for this CPCN filing. That analysis is summarized in the testimony of Mr. Link. As Mr. Link explains, the Company's recent economic analysis further supports the cost-effectiveness of B2H.

Q. How does B2H enhance grid reliability?

A. The Hemingway-to-Summer Lake 500-kV transmission line currently is the only line connecting PACE and PACW.[6] The loss of the Hemingway-to-Summer Lake line has the potential to reduce transfers between the Company's BAAs by 1,090 MW. B2H

[6] PacifiCorp, 2021 IRP, Volume 1 at 90 (Sept. 1, 2021) (available at https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2021-irp/Volume%20I%20-%209.15.2021%20Final.pdf) (last visited Jan. 25, 2023) [hereinafter "2021 IRP"].

will provide redundancy by adding an additional 1,000 MW of capacity between the Hemingway substation and the Pacific Northwest.

Because it is the only 500-kV connection between the Pacific Northwest and Idaho Power, the loss of the Hemingway-to-Summer Lake 500-kV transmission line during peak summer load is one of the most severe possible contingencies the Idaho Power transmission system can experience. Once Hemingway-to-Summer Lake 500-kV disconnects, the transfer capability of the Idaho to Northwest path is reduced by over 700 MW in the west-to-east direction. After the addition of B2H, there will be two major 500-kV connections between the Pacific Northwest and Idaho Power and as a result the Hemingway-to-Summer Lake 500-kV outage would become much less severe to Idaho Power's transmission system.

Additionally, under current conditions the loss of the Hemingway-to-Summer Lake 500-kV line with heavy east-to-west power transfer out of Idaho to the Pacific Northwest would result in significant system impacts. In this disturbance, an existing remedial action scheme (power system logic used to protect power system equipment) would disconnect over 1,000 MW of generation at the Jim Bridger Power Plant to reduce path transfers and protect bulk transmission lines and apparatus. Due to the magnitude of the generation loss, recovery from this disturbance can be extremely difficult. After the addition of B2H, this enormous amount of generation shedding will no longer be required.

Q. If a transmission line connecting PACE and PACW already exists, is B2H proposed merely as redundancy for that line?

A. No. As I stated above, in addition to the extremely important redundancy benefits, B2H will also provide the Company additional transmission capacity to serve customers. The Project will provide the Company 300 MW of additional west-to-east capacity and 600 MW of east-to-west capacity.[7] Additionally, the original permit funding agreement between B2H stakeholders left 400 MW of east-to-west capacity unassigned. The Company and IPC have agreed to divide this unassigned capacity consistent with each company's respective ownership share of B2H. As discussed above, the Company will own 54.55 percent of B2H. As a result, the Company will obtain 218 MW of the unallocated east-to-west capacity. This increases the Company's total east-to-west capacity in B2H to 818 MW.

Q. Are there any other reasons that B2H is necessary?

A. Yes. In addition to the benefits the Company and its customers will receive, B2H will enhance regional reliability by improving the Western transmission grid. NorthernGrid—a planning association aiming to facilitate regional transmission planning across the Pacific Northwest and Intermountain West—has repeatedly identified B2H as a regionally significant project in its biennial regional transmission plans.[8] From a regional perspective, the Project resolves possible system issues as identified in the NorthernGrid 2021 draft regional plan.

[7] 2021 IRP at 89.

[8] *See* NORTHERNGRID, *Regional Transmission Plan for the 2020-2021 NorthernGrid Planning Cycle* at 31 (Dec. 8, 2021) (available at https://www.northerngrid.net/private-media/documents/2020-2021_Regional_Transmission_Plan.pdf) (last visited Jan. 25, 2023).

Relatedly, the Company is participating in the ongoing effort to evaluate and develop a regional resource adequacy program with other utilities that are members of the Northwest Power Pool. B2H is anticipated to provide incremental transmission infrastructure that will broaden access to a more diverse resource base, which will provide opportunities to reduce the cost of maintaining adequate resource supplies in the region.

V. BENEFITS OF B2H

Q. Please describe the benefits associated with construction of B2H.

A. As explained by Mr. Link in his testimony, B2H is the most cost-effective means of serving PacifiCorp's customers. In addition, B2H will provide several benefits to the Company's existing transmission system. These benefits include improved system reliability, redundancy between PACE and PACW, and improved economic dispatch of generation resources.

Q. Please summarize the benefits of a robust transmission system.

A. PacifiCorp's bulk transmission network is designed to reliably transport electric energy from a broad array of generation resources to load centers. There are many benefits associated with a robust transmission network, including:

- Reliable delivery of a diverse energy supply to continuously changing customer demands under a wide variety of system operating conditions;
- Access to some of the nation's best wind and solar resources, which provides opportunities to develop geographically diverse low-cost renewable assets; and
- Protection against market disruptions where limited transmission can otherwise constrain energy supply.

Q. Please describe in more detail how B2H will improve overall system reliability.

A. The transmission grid can be affected in its entirety by what happens on an individual transmission line or path. A single outage on any individual line or line segment due to storm, fire, or other interference can and does cause significant reductions in transmission capacity and can negatively impact the Company's ability to serve customers. Line outages require the Company to significantly curtail generation resources to stabilize system voltages and require less efficient re-dispatch of system resources to meet network load requirements.

In the event of a line outage, particularly an outage on the Hemingway–Summer Lake 500-kV line discussed above, the redundancy provided by B2H will allow the Company to continue to meet native load service obligations and continue to meet other contractual obligations to third parties. Strengthening this transmission and increasing system redundancy with B2H will benefit all customers by reducing the risk of outages and inefficient dispatch resulting from those outages.

In addition, B2H will improve the Company's ability to perform required maintenance without significant operational impacts to the system and will reduce impacts to customers during planned and forced system outages. Transmission line and substation maintenance windows are currently limited because the system is highly used. By relieving congestion and providing additional transmission paths, B2H will allow greater flexibility for the Company.

Moreover, as discussed in a recent paper from Grid Strategies titled "Transmission Makes the Power System Resilient to Extreme Weather," transmission

lines can provide extraordinary benefits to regions experiencing extreme weather.[9] During Winter Storm Uri alone, the paper identifies seven different transmission connections that each could have provided over $80 million of benefits per 1,000 MW of transmission capacity for that single event, with one specific connection that would have provided nearly $1 billion in benefits per 1,000 MW.[10] Extreme events, such as the 2021 Pacific Northwest heat dome, are increasing in frequency, and transmission lines provide a significant regional diversity, reliability, and resilience benefit.

Finally, through the asset exchanges discussed below, the Company will achieve additional capacity to southeast Idaho by receiving from IPC a percentage of the assets that make up the existing 500-kV and 345-kV transmission lines between the Borah, Kinport, Adelaide, Midpoint and Hemingway substations.

Q. Please describe the reliability benefits specific to B2H.

A. Construction of B2H will provide a parallel transmission path from southwest Idaho to the Pacific Northwest connecting generation resources to be transferred to PacifiCorp customers throughout the Company's service area. If one path is out of service, the other path will provide backup transmission service capability, within the limits of the remaining path. This is particularly important in the case of B2H, because currently the Hemingway–Summer Lake 500-kV line is the only 500-kV transmission path connecting Idaho and the Pacific Northwest. Adding a parallel path will improve system reliability by reducing the number and magnitude of transmission schedule reductions during line outage conditions.

[9] Michael Goggin, GRID STRATEGIES, LLC, *Transmission Makes the Power System Resilient to Extreme Weather* (July 2021) (available at https://acore.org/wp-content/uploads/2021/07/GS_Resilient-Transmission_proof.pdf) (last visited Jan. 25, 2023).
[10] *Id.* at 11.

Q. Please describe how B2H can provide cost savings in the form of reduced energy and capacity losses.

A. Reduced energy and capacity losses on the transmission system have the potential to provide significant cost savings over time. Generally, the addition of a new transmission path in parallel with existing lines, like B2H, will reduce the energy and capacity losses by reducing the impedance of the transmission system. Reduced line losses mean more efficient delivery of energy and capacity at reduced costs.

Additionally, B2H will reduce electrical losses. Losses on the power system are caused by electrical current flowing through energized conductors, which in turn creates heat. By constructing B2H, the Company may relieve less efficient, lower voltage transmission lines with very large transfers, which will reduce the electrical current through these lines and dramatically reduce the losses due to heat.

Q. Has B2H been recognized as providing reliability benefits to the broader Western Interconnection?

A. Yes. B2H has undergone an extensive process to be formally included in Western Electricity Coordinating Council ("WECC") path rating studies, which was a critical milestone for the projects, and one that can only occur if a new transmission facility can, at a minimum, reliably operate at its approved rating without negatively impacting other neighboring systems. B2H is not only considered minimally reliable, but regarded as an important transmission project that is necessary to support the long-term transmission expansion planning established in the Western Interconnection plans and in the most recent NorthernGrid regional transmission plan.[11]

[11] *Regional Transmission Plan for the 2020-2021 NorthernGrid Planning Cycle* at 31.

Q. What is involved in the WECC path rating study process?

A. The WECC path rating studies follow a three-phase process established by the Planning Coordination Committee, the predecessor to the existing Reliability Assessment Committee, which uses peer review study groups, made up of the project sponsor and other interested WECC members, to establish a path rating for a given transmission path or set of transmission paths, which may exhibit simultaneous interactions with each other. Path rating studies use a transmission model of the Western Interconnection and will take multiple months to evaluate the performance of the new transmission facilities and to demonstrate that the proposed transmission project will have no negative impacts on previously established transmission path ratings. The path ratings that are established following this process represent the "Maximum Path Transfer Capability" of a transmission path.

Once projects complete the second phase of the path rating studies, they are granted an "Accepted" rating and placed in Phase 3 (construction phase) status. After the Accepted status is granted, other projects currently going through the WECC path rating process must recognize the project in their studies and cannot negatively impact the path rating for the project.

Q. Please describe the WECC path rating study process for B2H.

A. As project manager for B2H, IPC led B2H through the WECC path rating study process. Early in the B2H project development, IPC coordinated with other utilities in the Western Interconnection via the WECC Path Rating Process. IPC worked with other western utilities to determine the maximum rating (power flow limit) across the transmission line under various stresses, and system flow conditions on the bulk power

system. Based on industry standards to test reliability and resilience, IPC simulated various outages, including the outage of B2H, while modeling these various stresses to ensure the power grid was capable of reliably operating with increased power flow. Through this process, IPC also ensured the B2H project did not negatively impact the ratings of other transmission projects in the Western Interconnection. IPC completed the WECC Path Rating Process in November 2012 and achieved a WECC Accepted Rating of 1,050 MW in the west-to-east direction and 1,000 MW in the east-to-west direction. It was determined that the B2H project would add significant reliability, resilience, and flexibility to the Northwest power grid.

VI. ASSET EXCHANGES

Q. Will there be additional modifications to the Company's transmission system relating to B2H?

A. Yes. In addition to the transmission capacity added through the construction of B2H, the Company's transmission system will be modified due to agreed upon asset exchanges with IPC.

Q. What are these asset exchanges?

A. As defined in the Joint Purchase and Sale Agreement ("JPSA"), IPC has agreed to transfer to the Company a percentage of the assets that make up the existing 500-kV and 345-kV transmission lines between the Borah, Kinport, Adelaide, Midpoint and Hemingway substations.[12] Similarly, as defined in the JPSA, the Company has agreed to transfer to IPC a percentage of the assets that make up the existing 345-kV transmission lines connecting the Populus substation to the Four Corners substation.[13]

[12] Term Sheet at 13-14.
[13] *Id.* at 13.

Finally, the Company has agreed to transfer to IPC certain Goshen area transmission assets, which would allow IPC to provide transmission service to all BPA customers in southeast Idaho currently served by the Company.[14]

Q. Has the Company executed agreements for these asset exchanges?

A. No, the Company is finalizing the terms of the agreement with IPC that will memorialize this asset exchange, which is referred to as the Joint Purchase and Sale Agreement. The parties anticipate finalizing and executing this agreement in March 2023.

Q. Is the Company requesting approval of these asset exchanges in this case?

A. No. The asset exchanges will not take effect until energization of the B2H Project which is expected to occur in 2026. The Company does not request approval of these asset exchanges at this time.

Q. Please summarize the asset exchanges between Borah/Kinport, Hemingway, Midpoint, and Borah/Kinport.

A. The transfer by IPC to the Company of Borah/Midpoint West assets will provide ownership to PacifiCorp on the Company's existing transmission system from Borah/Kinport to Hemingway (east-to-west) and from Midpoint 500 to Borah/Kinport (west-to-east), including 500-kV and 345-kV transmission lines creating a path between the Borah, Kinport, Adelaide, Midpoint and Hemingway substations.

Q. Will the Company be responsible for upgrading those transmission facilities?

A. Upgrades will be required across the Borah West and Midpoint West paths to facilitate this portion of the proposed asset exchange. This includes the installation of a series

[14] *Id.* at 14.

capacitor bank on the Kinport-Midpoint 345-kV transmission line. However, IPC will be responsible for these upgrades under the to-be-executed Kinport Capacitor Bank Construction Agreement. I discuss this agreement in greater detail below.

Q. Please summarize the Populus to Four Corners asset exchanges.

A. The Company will assign to IPC ownership of a percentage of the assets that make up the existing PacifiCorp transmission system from Four Corners substation in New Mexico to Populus substation in Idaho. This will include 345 kV transmission lines between the following substations and assets to create a path through each substation: Four Corners, Pinto, Huntington, Camp Williams, Mona, Terminal, 90th South, Ben Lomond and Populus.[15]

Q. Will the Populus to Four Corners asset exchange require upgrades?

A. The Company has not yet determined whether upgrades will be necessary. Consistent with federal processes, the Company and IPC will complete required studies to determine whether recent system upgrades result in a possible increase in existing transmission capacity between Borah and Populus to facilitate IPC's incremental transfer needs associated with this exchange. If determined necessary, the parties will identify revisions to existing agreements, upgrades, modifications, or other options to meet each party's commercial needs between Borah and Populus.

Q. Please summarize the Goshen area asset exchange.

A. The Company will transfer to IPC certain Goshen area transmission assets that will allow IPC to provide transmission service to all BPA customers in southeast Idaho currently served by the Company. The Company and IPC will make best efforts to

[15] *Id.* at 13.

allow IPC to serve these customers with only one leg of firm IPC network transmission service.[16]

Q. Will the Company implement an agreement for the Goshen area asset exchange?

A. The Goshen area assets to be exchanged are part of the Joint Purchase and Sale Agreement discussed above that is being finalized for execution in March 2023.

VII. AGREEMENTS RELATING TO B2H

Q. Do agreements relating to B2H remain outstanding?

A. Yes. The Term Sheet identifies the remaining agreements between the Company, IPC, and BPA. In my testimony, I will discuss eight of these agreements. Four additional agreements are discussed in Mr. Link's testimony.

Q. Which agreements will you be discussing in your testimony?

A. I will discuss the Second Amended and Restated B2H Joint Permit Funding Agreement; the JPSA; the Second Amended and Restated Joint Ownership and Operating Agreement ("JOOA"); the B2H Joint Construction Funding Agreement; the Longhorn Substation Funding Agreement; the Midpoint 500/345-kV Transformer Project Construction Agreement ("Midpoint Transformer Construction Agreement"); the Kinport – Midpoint 345-kV Series Capacitor Bank Project Construction Agreement ("Kinport Capacitor Bank Construction Agreement"); and the Coordination Agreement for the Meridian Series Capacitor Bank Project.

Q. Are there any agreements relating to B2H that neither you nor Mr. Link address in your testimonies?

A. Yes. Neither Mr. Link nor I discuss the agreements to which only BPA and IPC are

[16] *Id.* at 15.

parties. These agreements include: Network Integration Transmission Service Agreement ("NITSA") for Goshen Load; NITSA for Idaho Falls Load; and the Purchase, Sale, and Security Agreement.

Q. Please summarize the Second Amended and Restated B2H Joint Permit Funding Agreement.

A. The Second Amended and Restated Joint Permit Funding Agreement provides definitive terms and conditions by which the Company, IPC, and BPA will jointly support and contribute funds to the processes associated with obtaining necessary governmental authorizations and completing other necessary work to permit, site, and acquire rights-of-way for B2H.

The parties executed the initial Joint Permit Funding Agreement on January 12, 2012. The second amendment recognizes the reallocation of the parties' permitting interest and related funding obligations following the transfer of BPA's permitting interest to IPC. As discussed above, IPC's interest will increase because IPC will assume the ownership interest that had previously been assigned to BPA. Upon execution, IPC's permitting interest will increase to 45.45 percent and PacifiCorp's permitting interest will remain at 54.55 percent.

Q. When does the Company expect to execute the Second Amended and Restated B2H Joint Permit Funding Agreement?

A. Because BPA is a party to the Second Amended and Restated B2H Joint Permit Funding Agreement, the agreement must be submitted through BPA's public notice process. BPA's public process typically concludes within three months of BPA's

provision of notice to the region, and the public process for B2H is expected to be complete by March 2023, and the parties will execute the agreement shortly thereafter.

Q. Has BPA begun the public process for their proposed new role in the B2H project?

A. Yes. On January 3, 2023, BPA provided public notice via their Tech Forum platform to customers and stakeholders announcing their completion of B2H project negotiations and releasing the customer engagement schedule, identifying dates for the comment period, customer workshop, and an expected final decision in March 2023. BPA released its letter to the region formally opening the comment period on January 9, 2023.

Q. Please summarize the JPSA.

A. The JPSA implements the asset exchanges discussed above. The Company and IPC desired to exchange undivided ownership interests in certain transmission assets to provide transmission capacity that better aligns with the current configuration of the parties' respective future needs following the addition of B2H. The JPSA facilitates these asset exchanges and is contingent upon regulatory approvals for both parties.

Q. Which sale provisions are governed by the JPSA?

A. Under the proposed JPSA:

1. The Company will convey to IPC an ownership interest in identified Four Corners/Populus assets;
2. The Company will convey to IPC an ownership interest in identified Goshen area assets,
3. IPC will convey to the Company an ownership interest in identified Borah/Midpoint West assets, and

4. The purchase price of the assets being conveyed will be equal to the conveying party's net book value.

Q. When does the Company expect to execute the JPSA?

A. Although BPA is not a party to the JPSA, the JPSA reflects BPA's decision to remove its ownership interest of B2H. For that reason, the Company and IPC expect to execute the JPSA following the completion of BPA's notice proceedings in March 2023.

Q. Please summarize the Second Amended and Restated JOOA.

A. The Company and IPC will expand the existing JOOA, as amended and restated August 22, 2019, to include ownership, operation and maintenance provisions associated with the B2H project. In addition, the Second Amended and Restated JOOA will include:

1. Operation and maintenance provisions associated with the assets acquired by both parties under the JPSA;
2. The transfer of ownership by IPC to the Company for 300 MW of west-to-east transmission assets between Midpoint and Borah;
3. The transfer of ownership by IPC to the Company for an additional 600 MW of east-to-west transmission assets between Borah and Hemingway; and
4. The transfer of ownership by the Company of 200 MW of bi-directional transmission assets between Populus, Mona and Four Corners.

Q. What will be the expected effective date of the Second Amended and Restated JOOA?

A. The Company and IPC expect the Second Amended and Restated JOOA to take effect upon energization of B2H.

Q. Please summarize the B2H Joint Construction Funding Agreement.

A. This agreement will provide definitive terms and conditions by which IPC and the Company will jointly support and contribute funds for the procurement, construction, and commissioning of B2H to allow for energization of the project by the earliest in-service date needed by the parties. In addition, it appoints IPC as the construction project manager for development and construction of the B2H project.

Q. Which B2H stakeholders are parties to the B2H Joint Construction Funding Agreement?

A. The Company and IPC will execute the B2H Joint Construction Funding Agreement.

Q. Has the scope of the B2H Joint Construction Funding Agreement expanded?

A. Yes. The Midline Series Capacitor Project Funding Agreement identified in § 3(a)(12) of the Term Sheet was initially identified as a separate agreement but construction of the Midline Series Capacity was subsequently incorporated into the overall construction plan for B2H. The work will include installation of the Midline Series Capacitor substation, which is necessary to reduce simultaneous interactions between the NW AC Intertie, central and southern Oregon load service, and Path 14 (Idaho to Northwest).

Q. What will be the expected execution date of the B2H Joint Construction Funding Agreement?

A. The Company and IPC expect to execute this agreement in July 2023, prior to construction of B2H.

Q. Please summarize the Longhorn Substation Funding Agreement.

A. The Longhorn Substation Funding Agreement is an agreement between the Company,

IPC, and BPA detailing the conditions for construction of the proposed Longhorn substation, which is the expected western terminal of B2H. The substation will be constructed on land currently owned by BPA.

Provisions will include:

1. A use-of-facilities charge or other charge pursuant to BPA's OATT to be paid by IPC and the Company to allow the parties to transact across the Longhorn bus in the future; and
2. Ownership, operation, and maintenance of B2H equipment by IPC and the Company, including:
    a. A B2H project-related series capacitor at the Longhorn substation;
    b. The B2H project shunt line reactors at Longhorn; and
    c. Any ancillary equipment required to support the B2H project series capacitor and shunt line reactors.

The agreement will be contingent upon BPA completing its obligations and responsibilities under various environmental compliance laws.

Q. Please summarize the Midpoint Transformer Construction Agreement.

A. The Midpoint Transformer Construction Agreement is an agreement between IPC and the Company detailing the terms for upgrading the Midpoint transmission assets. As discussed above, IPC will transfer to the Company a percentage of the assets that make up the existing Midpoint transmission lines. Under the Midpoint Transformer Construction Agreement, IPC will make capital upgrades to the Midpoint 500-kV and 345-kV transmission substations, including a second 500/345-kV transformer bank and

345-kV tie line. The parties will jointly own the assets as illustrated in Exhibit A of the JPSA and in accordance with the Second Amended and Restated JOOA.

Q. Please summarize the Kinport Capacitor Bank Construction Agreement.

A. The Kinport Capacitor Bank Construction Agreement will be a contract between the Company and IPC detailing improvements to the Kinport transmission assets. As discussed above, IPC will transfer these assets to the Company.

Under the Kinport Capacitor Bank Construction Agreement, IPC will make capital upgrades to the Midpoint 345-kV transmission line, by installing the Kinport-Midpoint 345-kV Series Capacitor Bank. The parties will jointly own the assets as illustrated in Exhibit A of the JPSA and in accordance with the Second Amended and Restated JOOA.

Q. Please summarize the Coordination Agreement for the Meridian Series Capacitor Bank Project.

A. This is an agreement between the Company and BPA. The Company and BPA will draft a coordination agreement that sets forth the agreed process for the Company's intended upgrade, upon BPA notice, of the existing Meridian series capacitor banks on the Company's segment of the Dixonville-Meridian-Klamath Falls-Captain Jack lines in southern Oregon, as detailed in March 2021 report titled "Phase II Joint Study Report (2020-2021), Boardman to Hemingway (B2H) and Incremental Central Oregon Load."

VIII. RECOMMENDATION AND CONCLUSION

Q. Please summarize your recommendation to the Commission.

A. I recommend that the Commission approve the Company's Application. B2H will provide substantial benefits to its customers and the construction of B2H is necessary

and in the public interest. Based on this conclusion, I recommend that the Commission grant the Company a CPCN for B2H no later than June 30, 2023, to ensure IPC may begin timely construction of B2H in time to complete the Project by the expected 2026 in-service date.

Q. Does this conclude your direct testimony?

A. Yes.