BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

IN THE MATTER OF THE APPLICATION OF ROCKY MOUNTAIN POWER FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE GATEWAY SOUTH TRANSMISSION PROJECT	))))))	**Docket No. 21-035-54**

DIRECT TESTIMONY OF P. JAY CASPARY

HEARING EXHIBIT ___

FILED ON BEHALF OF THE INTERWEST ENERGY ALLIANCE

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INTRODUCTION

Q. Please state your name and job title.

A. P. Jay Caspary, and I am Vice President at Grid Strategies, LLC, a consulting firm based in the Washington, D.C. area.

Q. For whom are you testifying in this proceeding?

A. I am testifying on behalf of the Interwest Energy Alliance.

Q. Have you previously testified before state regulatory commissions?

A. Yes, I have submitted testimony on renewable energy and transmission-related issues before state utility commissions in Arkansas, Colorado, Illinois, Kansas, Missouri, North Carolina, Oklahoma, Texas, and Wyoming. Many of these cases involved the proactive development of transmission to access renewable resource areas.

Q. What is your background and educational experience?

A. I have worked in the utility industry for over forty years. At Grid Strategies, I am responsible for providing analysis and strategic guidance on transmission grid planning and operations to support a clean energy portfolio. Prior to joining Grid Strategies last fall, I worked at Southwest Power Pool ("SPP") for almost 20 years where I directed the development of regional planning processes and approval of major transmission expansion projects, as well as facilitated collaborative interregional planning efforts. During my career at SPP, I served as Senior Policy Advisor for the U. S. Department of Energy's Office of Electricity Delivery and Energy Reliability ("OE") as part of the Obama Administration, with a focus on grid modernization. Prior to SPP, I served in several staff and managerial roles at Illinois Power.

In the course of my career, I have been actively involved in the bulk power industry where

I have had the opportunity to provide leadership in collaborative planning efforts such as the recent National Renewable Energy Laboratory's ("NREL's") Interconnections Seam Study ("NREL Seams Study");[1] served as a technical reviewer for numerous national laboratory reports, academic articles, and renewable integration studies; and published academic articles and conference presentations on renewable integration and transmission issues. I have served on the Board of Directors for the Utility Wind (Variable-generation) Integration Group (now Energy Systems Integration Group, or "ESIG") for over a decade, been a member of the North American Reliability Corporation's Integrating Variable Generation Task Force and served as chair on several industry-utility research collaboratives including the Power Systems Engineering Research Center ("PSERC"). I have a Bachelor of Science degree in Electrical Engineering with an emphasis in Power Systems from the University of Illinois – Urbana / Champaign and have completed the course requirements for a Master's degree in Engineering from Iowa State University. My resume is filed with this testimony identified as Attachment PJC-1.

Q. Please summarize your testimony.

A. My testimony supports Rocky Mountain Power's application to build the Gateway South transmission project. Specifically, Rocky Mountain Power plans to construct the following: Energy Gateway South (Segment F), a 416-mile, 500-kilovolt ("kV") overhead transmission line between the Aeolus Substation, near Medicine Bow, Wyoming, to the Clover substation near Mona, Utah ("Gateway South"). First, I explain that this project is essential for accessing low-cost renewable energy and achieving economic benefits, and that the line will provide other

[1] NREL Interconnection Seams Study (2021), available at: https://www.nrel.gov/analysis/seams.html.

benefits for Utah. Second, I discuss how the lines benefit Utah ratepayers by connecting diverse renewable resources and areas of electricity demand, reducing the cost of planning and operating the power system. Finally, I explain how the proposed facilities build a valuable foundation for the future which provides additional access to market Utah's own diverse sources of supply and demand to and from other locations around the West.

DECADES OF PLANNING BROUGHT US TO THIS POINT

Q. How long has Rocky Mountain Power been planning the Energy Gateway projects?

A. Rocky Mountain Power initially launched the Energy Gateway expansion plan in 2007, nearly 15 years ago.[2] The Gateway South project Environmental Impact Statement began in 2008 and Public Scoping began in 2011.[3] This long lead-time is not unusual for large transmission projects and illustrates the complexity and difficulty in getting a large transmission project to the stage of a CPCN filed with the Public Service Commission of Utah ("Commission").

In the 2019 Rocky Mountain Power Integrated Resource Plan ("IRP"), Gateway South was selected for the first time as a least cost, least risk resource in the IRP Preferred Portfolio. This modeling selection is a natural outcome of the quantitative and qualitative benefits that Gateway South will bring to the Rocky Mountain Power system.

Q. Have the plans for the Gateway South project been sufficiently developed so that they are ready for Commission approval under good regulatory practices?

A. Yes. PacifiCorp has spent years planning and permitting the Energy Gateway projects. The

[2] *See* https://www.pacificorp.com/transmission/transmission-projects/energy-gateway.html
[3] *See* https://www.pacificorp.com/transmission/transmission-projects/energy-gateway/gateway-south.html

resources to be interconnected have been identified and mostly acquired, subject to pending regulatory approvals. The Commission can be assured that these lines will be fully subscribed based on these ancillary activities and PacifiCorp's sound practices developing this line. The installation is undergoing final approval and installation after selection of the specific resources to be interconnected. Rather than the usual pattern where a utility will plan, design and install the transmission in advance of identifying the interconnecting resources, in this particular situation the utility already has 13 executed contracts that require construction of one or both of the Transmission Projects and the OATT requires the 2,500 MW of interconnection and transmission service requests to be fulfilled. Therefore, the need and economic justification for the lines has been well-established by Rocky Mountain Power, and the remaining uncertainties as to tax credit availability simply drives the timing and the utility's request that the lines be built as soon as possible.

Q. Are there substantial risks that permitting will cause undue and costly delays?

A. Not under the current conditions as described by Rocky Mountain Power. Rocky Mountain Power has worked with the local property owners to resolve difficult permitting issues, which has the benefit of providing localized influence over these Transmission Projects along most if not all of the right-of-way ("ROW"). While regional influences and transmission planning are appropriate, local influence for the actual on-the-ground location is a realistic expectation to gauge and respond to local government and landowner concerns, and these interests appear for the most part to be served by this process.

Q. Will the Gateway South project benefits extend beyond 2040?

A. Yes. Rocky Mountain Power shows a present-value revenue requirement differential

("PVRR(d)") of at least $128 million through 2040 when assuming the costs of the transmission is unavoidable.[4] In fact, the Gateway South project will continue providing benefits and reducing generation costs for many decades. Rocky Mountain Power's economic analysis, like most industry assessments, only captures the first 20 years of the benefit of this project. The average age of U.S. transmission equipment is 40 years, and over a quarter is more than 50 years old.[5] Once the equipment reaches the end of its useful life, it can even be rebuilt at a significantly lower cost than greenfield transmission development. Much of transmission's value is in the ROW, particularly given the increasing difficulty of securing permits to develop new transmission ROW.

Proactive transmission development solves the so-called "chicken and egg" timing mismatch problem in which renewable generators are not built because there is no transmission, and transmission is not built because generators are not built yet.[6] It takes a few years at most to plan and build a renewable power plant, while it takes many years to plan, permit, and build transmission. Proactive transmission development in anticipation of renewable generation development solves that problem.

THE GATEWAY SOUTH PROJECT BENEFITS UTAH RATEPAYERS AND ECONOMY

[4] RMP's Direct Testimony of Rick T. Link, at 6:133.
[5] C. Oumansour, et al., *Modernizing Aging Transmission*, Public Utilities Fortnightly, (April 2020), available at: https://www.oliverwyman.com/our-expertise/insights/2020/dec/energys-eleventh-hour/modernizing-aging-transmission.html.
[6] American Wind Energy Association, *Grid Vision: The Electric Highway to a 21st Century Economy*, at 72, (May 2019), available at: https://www.awea.org/Awea/media/Resources/Publications%20and%20Reports/White%20Papers/Grid-Vision-The-Electric-Highway-to-a-21st-Century-Economy.pdf.

Q. Does Rocky Mountain Power promote these lines for their economic benefits reflected in the new bids that will interconnect?

A. Yes. Rocky Mountain Power has analyzed the economic benefits in terms of cost savings provided by the lines in conjunction with new generation resources to be interconnected to these lines. Rocky Mountain Power's direct testimony reflects their analysis based on the new bids selected in the 2020 All Source Request for Proposals ("2020AS RFP"). These results are summarized in testimony from Rick Vail as follows:

> Construction of Gateway South will enable the Company to more efficiently use existing generation resources in Wyoming to serve its customers in Utah, Wyoming, Idaho and the Pacific Northwest. Gateway South will also better position the Company to interconnect and integrate future resources in southeastern Wyoming and more efficiently serve expected customer load."[7]

A significant portion of the savings is derived from new wind projects to be developed or expanded within Wyoming, which can tap into the 60% federal Production Tax Credit ("PTC") eligibility to provide lower purchase power agreement rates, as further discussed below. The projects provide cost savings for electricity consumers under medium fuel cost assumptions over the planning period, as well as providing other economic development benefits. Developing a more diverse array of generation assets operating in the PacifiCorp footprint can help to create a reliable source of power for commercial and residential customers which can be exported for use by electricity customers around the West. The new renewable projects will also generate renewable

[7] RMP's Direct Testimony of Rick A. Vail, at 5:82-86.

energy credits which can be sold in the market to create additional revenues.[8]

Q. Can you be more specific about how the federal tax credits can benefit Utah consumers?

A. Federal tax credits can yield large savings for PacifiCorp ratepayers. Legislation enacted in December 2020 extended the federal renewable tax credits, allowing solar projects to receive higher value tax credits so long as they are online by the end of 2025.[9] Solar and solar-battery projects received a two-year extension of the Investment Tax Credit ("ITC"), so projects that start construction before the end of 2022 can receive an ITC for 26% of up-front project costs, and 22% for projects that start construction before the end of 2023. The solar/hybrid ITC deadline for qualifying projects to be placed in service was also extended two years, from the end of 2023 to the end of 2025. Time is of the essence due to the PTC and ITC deadlines, and increasing risks related to regulatory decision-making will likely increase financing costs, and therefore ultimate costs to ratepayers.

Wind projects received a one-year extension and can now start construction through the end of 2021 and qualify for the $15/MWh (or 60% of the full $25/MWh value) PTC, so long as they are online by the end of 2024, which drives Rocky Mountain Power's need to request a prompt Commission decision so they can begin construction by June 2, 2022.[10]

Q. Do the Transmission Projects fulfill other transmission service obligations?

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[8] RMP's Direct Testimony of Rick T. Link, at 5:105-107.
[9] Jeff St. John, *Congress Passes Spending Bill With Solar, Wind Tax Credit Extensions and Energy R&D Package*, (December 22, 2020), available at: https://www.greentechmedia.com/articles/read/solar-and-wind-tax-credit-extensions-energy-rd-package-in-spending-bill-before-congress.
[10] RMP's Direct Testimony of Rick A. Vail, at 23: 469.

A. Yes. I am not an attorney, but in my experience leading transmission planning as well as directing tariff services for SPP, I acquired some familiarity with the regulatory requirements guiding this work. Federal Energy Regulatory Commission ("FERC") rules often create minimum size requirements and trigger construction or expansion of existing lines. Rocky Mountain Power asserts that these investments will enable PacifiCorp to meet its legal obligations in 13 executed interconnection service and transmission contracts and the 500 megawatts of firm point-to-point ("PTP") transmission service that requires Gateway South, as is part of the obligations of any transmission provider under FERC requirements.[11] The economic benefits based on the 2020AS RFP results are well-outlined by Rocky Mountain Power's Direct Testimony. In the next section I provide some more regional perspective on how new high voltage transmission lines can benefit Utah electricity customers and citizens by helping to provide resilient and reliable power supplies to help support the increasingly diversified Utah economy.

Q. Do transmission lines generally provide overall economic benefits and lower costs over the long run?

A. Yes. As shown by the Competitive Renewable Energy Zone ("CREZ") in the Electric Reliability Council of Texas ("ERCOT") and the Midcontinent Independent System Operator ("MISO") Multi-Value Projects, implementing a cost-effective, flexible, and robust transmission network to meet a state or region's long- and near-term needs will create economic benefits while capturing economies of scale. Wind and solar projects, such as those identified in the 2020AS RFP, also benefit from economies of scale through lower operations and maintenance costs which

[11] RMP's Direct Testimony of Rick T. Link, at 3:13-18.

reduce overall levelized costs passed on to consumers. Wind plants benefit from large economies of scale, with a 17% reduction in installed cost in moving from 5-20 MW projects to projects larger than 200 MW,[12] so newly accessed 2020AS RFP resource areas are able to support lower-cost, larger projects.

Many recent bulk power planning studies like the NREL Interconnections Seam Study demonstrate the value of increased connectivity to better integrate diverse renewable resources in a least cost manner.[13] Unlike other components of the bulk power system, transmission lines are very long-lasting assets that provide flexibility and optionality to accommodate many scenarios regarding future power supply options. The benefits of a robust high-capacity electric transmission network include, but are not limited to, adjusted production cost savings due to more efficient commitment and dispatch of resources, reduced capacity costs due to reduced transmission losses, avoided and delayed reliability projects, mitigation of transmission outage costs, reduced marginal energy losses, reduced operating and planning reserve considerations, and increased wheeling revenues.

The London Economics study *How Does Electric Transmission Benefit You?* found a number of economic benefits and lower costs to consumers from two hypothetical large-scale transmission projects which they modeled to analyze their impacts to the power system and regional economies over their first 15 years of operation.[14] For example, the study found short

[12] R. Wiser et al., *Wind Energy Technology Data Update: 2020 Edition*, (August 2020), available at: https://emp.lbl.gov/wind-technologies-market-report.
[13] NREL Seams Study, *supra*, fn. 1.
[14] Julia Frayer et al., *How Does Electric Transmission Benefit You? Identifying and Measuring the Life-Cycle Benefits of Infrastructure Investment,* at 40, (January 2018), available at:

term benefits from the significant transmission investments through local spending on construction-related services, which was not limited to the construction period due to the "ripple effect" of these investments.[15] The study found medium term economic benefits including lower costs of electricity by allowing more cost-effective energy and capacity resources to reach consumers, as follows:

> Transmission investments can paradoxically both lower the market price paid by consumers for electricity and increase some generators' revenues. This can be explained by the overall efficiency improvement in the energy market brought about by transmission investment and the expansion of the market that system operators can use to optimize dispatch of resources.[16]

Finally, the London Economics study found that well-planned transmission investments bring significant reliability value over the longer term. This reliability includes avoiding higher energy costs, avoiding supply interruptions and other costly unexpected events.[17]

Q. Are these overall economic benefits and lower costs evident in the Gateway South project?

A. Yes. The benefits of the Gateway South project, as well as the related complimentary projects associated with Gateway West Segment D.1 to efficiently integrate new

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https://wiresgroup.com/wp-content/uploads/2020/06/2018-01-08-London-Economics-Intl-How-Does-Electric-Transmissiunexpectedon-Benefit-You.pdf.

[15] *Ibid.,* at Sec.1.3.1, p. 17/147.

[16] *Ibid.*, at Sec. 1.3.2, p. 17/147.

[17] *Ibid*., at Sec. 1.3.3, p. 19/147.

Wyoming wind resources into the PacifiCorp portfolio extend beyond adjusted production costs savings which capture PTCs associated with high quality wind developments and reduced system losses. As the table reproduced below shows, electricity system benefits associated with transmission expansion include production cost savings, reliability and resource adequacy benefits, generation capacity cost savings, as well as benefits associated with market facilitation, environmental, public policy and other project-specific such as wild-fire resilience.[18]

TABLE 5. ELECTRICITY SYSTEM BENEFITS OF TRANSMISSION INVESTMENTS

Benefit Category	Transmission Benefit
1. Traditional Production Cost Savings	Adjusted Production Cost (APC) savings as currently estimated in most planning processes
2. Additional Production Cost Savings	i. Impact of generation outages and A/S unit designations
	ii. Reduced transmission energy losses
	iii. Reduced congestion due to transmission outages
	iv. Reduced production cost during extreme events and system contingencies
	v. Mitigation of typical weather and load uncertainty, including the geographic diversification of uncertain renewable generation variability
	vi. Reduced cost due to imperfect foresight of real-time system conditions, including renewable forecasting errors and intra-hour variability
	vii. Reduced cost of cycling power plants
	viii. Reduced amounts and costs of operating reserves and other ancillary services
	ix. Mitigation of reliability-must-run (RMR) conditions
	x. More realistic "Day 1" market representation
3. Reliability and Resource Adequacy Benefits	i. Avoided/deferred cost of reliability projects (including aging infrastructure replacements) otherwise necessary
	ii. (a) Reduced loss of load probability or (b) reduced planning reserve margin
4. Generation Capacity Cost Savings	i. Capacity cost benefits from reduced peak energy losses
	ii. Deferred generation capacity investments
	iii. Access to lower-cost generation resources
5. Market Facilitation Benefits	i. Increased competition
	ii. Increased market liquidity
6. Environmental Benefits	i. Reduced expected cost of potential future emissions regulations
	ii. Improved utilization of transmission corridors
7. Public Policy Benefits	Reduced cost of meeting public policy goals
8. Other Project-Specific Benefits	Examples: increased storm hardening and wild-fire resilience, increased fuel diversity and system flexibility, reduced cost of future transmission needs, increased wheeling revenues, HVDC operational benefits

[18] J. Caspary et al, *Transmission Planning for the 21st Century: Proven Practices that Increase Value and Reduce Costs*, Brattle Group/Grid Strategies at 34, available at https://www.brattle.com/wp-content/uploads/2021/10/2021-10-12-Brattle-GridStrategies-Transmission-Planning-Report_v2.pdf. Provided as Attachment PJC-3.

Other transmission benefits beyond electric system impacts are critically important since they typically capture more local impacts such as employment and economic stimulus benefits as well as increased health benefits. [19]

TABLE 6. TRANSMISSION BENEFITS BEYOND ELECTRICITY SYSTEM IMPACTS

Benefit Category	Transmission Benefit
9. Employment and Economic Stimulus Benefits	Increased employment and economic activity; Increased tax revenues
10. Increased Health Benefits	Lower fossil-fuel burn can result in better air quality

ALTERNATIVES ARE NOT ADEQUATE

Q. Can lower-capacity transmission additions provide the same benefits-to-cost comparison as a 500-kV line as proposed by Rocky Mountain Power?

A. No. Just like for generation, there are large economies of scale for transmission development, with higher-voltage lines like the Gateway South project providing much greater transfer capacity per dollar invested. Higher-voltage lines also greatly reduce transmission losses, as the power transfer capacity of a line is generally proportional to the voltage times the current (or amperage), while losses generally increase in proportion to the square of the current.[20] Building higher-capacity transmission lines once a need is identified at minimal additional cost, when compared with lower capacity lines reduces the likelihood of having to later rebuild the line or build a new line. Building a new line is exceedingly time intensive and difficult, with much greater

[19] *Ibid*., at 35.
[20] American Electric Power, *Transmission Facts*, at 4, (n.d.), available at: https://web.ecs.baylor.edu/faculty/grady/_13_EE392J_2_Spring11_AEP_Transmission_Facts.pdf.

expense likely, permitting delays likely, and with less efficient land use planning. Planning now for future growth is especially prudent when accessing renewable resource areas, given state clean energy requirements, potential regional market integration, and that renewable development cost decreases continue to exceed expectations.

Q. Can solutions like battery storage and demand response replace the need for transmission?

A. No. Increasing renewable energy deliverability is an issue of moving energy across geographic space, which only transmission can do. Analysis has shown that storage located on the same side of transmission congestion as renewable generation can work as a complement to transmission expansion by moving surplus energy to periods of lower wind output when more transmission capacity is available.[21] However, energy storage by itself cannot move energy across geographic space and cost remains a consideration at higher penetrations.

Demand response, energy efficiency, distributed storage, and other customer-sited resources are located in electricity demand centers, which are generally far from where renewable resources are located. These distributed resources cannot alleviate transmission constraints limiting the delivery of renewable generation because they are located on the demand side of the constraint and not the renewable resource side of the constraint.

[21] University of Minnesota's Energy Transition Lab, Strategen Consulting & Vibrant Clean Energy, *Modernizing Minnesota's Grid: An Economic Analysis of Energy Storage Opportunities*, at 260, (July 2017), available at: http://www.vibrantcleanenergy.com/wp-content/uploads/2017/07/Modernizing_Minnesotas_Grid_LR.pdf.

THE GATEWAY SOUTH PROJECT CAPTURES DIVERSITY BENEFITS

Q. What are diversity benefits?

A. A foundational principle of the power system is that a networked aggregation of many customers and sources of supply greatly reduces costs because changes in individual sources of electricity supply and demand are not perfectly correlated. The total electricity demand is always smaller than the sum of every user's peak demand because these fluctuations are not perfectly correlated, and many cancel each other out, reducing the system's need for supply. Similarly, the odds of several power plants over a large geographical footprint experiencing an unanticipated outage at the same time are very low. When millions of customers and hundreds of power plants are aggregated on a large power system, the statistical diversity is even greater, significantly reducing the cost of building and operating the power system.

With variable renewable resources like wind and solar, these diversity benefits are even larger. Even a relatively small amount of geographic distance between them is enough for the output profiles of two wind plants[22] or two solar plants[23] to be less than perfectly correlated, as local weather phenomena no longer affect both plants simultaneously. As a result, a geographically diverse portfolio of renewable resources has more constant output, ensuring a higher level of output is available during times of peak demand.

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[22] H. Holttinen, et al., *Design and Operation of Power Systems with Large Amounts of Wind Power*, at 15, (2009), available at: https://community.ieawind.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=c7a0f97c-b01c-713b-b51a-46f33d62b5db&forceDialog=0.

[23] Andrew Mills & Ryan Wiser, *Implications of Wide-Area geographic Diversity of Short-Term Variability of Solar Power*, Lawrence Berkeley National Laboratory (September 2010), available at: https://emp.lbl.gov/sites/all/files/presentation-lbnl-3884e-ppt.pdf.

Diversity benefits reduce the cost of building the power system, as less power plant capacity is needed to reliably meet peak demand if diverse resources are available. Diversity benefits also reduce the cost of operating the power system, as lower variability reduces the need for flexible resources to quickly change their level of output.

Q. How does the Gateway South project affect the value of renewable energy by accessing diverse resources?

A. As PacifiCorp's system reaches higher levels of renewable energy use, the Gateway South project will increase the value of each renewable energy asset in the PacifiCorp portfolio. The Transmission Projects will increase the geographic diversity of high-quality wind, solar and storage resources on the PacifiCorp system. This will in turn increase the value of each unit of energy and capacity provided by its renewable resources by reducing their variability. PacifiCorp's existing transmission system is too constrained, especially in areas which have the potential to access geographically diverse projects. This benefit will become more important as renewable penetration rates grow. Homogeneous resources can be a big challenge in grid operations and must be addressed via prudent planning and transmission expansion.

The supply and demand diversity benefits will be even larger if PacifiCorp is able to increase access to imports and exports from its neighbors at some future date when the transmission plan is further expanded. As demonstrated by several recent industry studies,[24]

[24] *See, e.g., Macro Grids in the Mainstream: An International Survey of Plans and Progress,* available at: also Brown and Botterud, *The Value of Inter-Regional Coordination and Transmission in Decarbonizing the U.S. Electricity System* (2020), available at: https://www.cell.com/joule/fulltext/S2542-4351(20)30557-2;
also Americans for a Clean Energy Grid, *Consumer, Employment and Environmental Benefits of Electricity Transmission Expansion in the Eastern U.S.* (2020), https://cleanenergygrid.org/wp-

renewable output diversity and load diversity is even greater over a larger geographic area. In addition, expanded ties to neighboring power systems provides greater access to flexible resources that will become critical at higher penetrations of renewable energy.[25] The bulk power grid must be built to extend beyond the scope of extreme weather patterns to ensure system reliability and resilience in the long term. Installing the networked 500-kV lines and equipment provides a foundation for future connections by resolving contingency concerns and providing a more strongly connected bulk power system which was noted as being critical in the Utah Electric Transmission Study performed by Energy Strategies.[26]

> Based on the analysis of existing resource plans and load forecast data, the Utah transmission system may need to accommodate between 1.7 and 2 GW of new resources by 2025, between 3.5 and 5.1 GW by 2030, and 5.5 to 9 GW of new capacity by 2040.

Q. Does this generation resource diversity tend to produce lower costs and risks for consumers?

A. Yes, because the market prices for power sources are not always predictable, so the

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content/uploads/2020/10/Consumer-Employment-and-Environmental-Benefits-of-Transmission-Expansion-in-the-Eastern-U.S..pdf.

[25] *Western Flexibility Assessment,* Energy Strategies for Western Interstate Energy Board (2019), available at: https://westernenergyboard.org/wp-content/uploads/2019/12/12-10-19-ES-WIEB-Western-Flexibility-Assessment-Final-Report.pdf.

[26] Energy Strategies, *Utah Transmission Study: A Study of the Options and Benefits to Unlocking Utah's Resource Potential*, (2021), p. 27/87, available at https://energy.utah.gov/wp-content/uploads/2021-Utah-Transmission-Study-Technical-Report-FINAL-210121.pdf. Provided as attachment PJC-5.

diversity brought by an expanded transmission system operates as a hedge. Transmission enables new power plants to be built to take advantage of unexpected shifts in the economics of different energy sources. Because it takes much longer to plan, permit, and build transmission than generation, it is often not possible to wait for economic and policy shifts to occur before investing in the transmission needed to optimally respond to them. The SPP *Value of Transmission* study mentioned previously analyzed the value of transmission for providing optionality to hedge against uncertainty in future fuel prices, the generation mix, and other factors.[27] Additional analysis has shown the optionality value of transmission to be very large and has found that standard transmission planning methods greatly underestimates the value of transmission.[28]

THE GATEWAY SOUTH PROJECT WILL PROMOTE RESILIENCE AND RELIABILITY

Q. How does transmission make PacifiCorp's power system more reliable and resilient?

A. In the recent grid resilience proceeding at FERC, the RTOs unanimously and strongly agreed that transmission should be a primary focus of any efforts to increase resilience. For example, the New York grid operator noted "the critical importance of maintaining and enhancing grid interconnections. These interconnections support and bolster reliability and resilience by

[27] SPP, *The Value of Transmission*, at 15, (January 2016), available at: https://www.spp.org/documents/35297/the%20value%20of%20transmission%20report.pdf.
[28] *See e.g.*, F. Munoz, et al., *Optimizing Your Options: Extracting the Full Economic Value of Transmission When Planning Under Uncertainty*, The Electricity Journal, 28(5), (June 2015), available at: https://www.sciencedirect.com/science/article/pii/S1040619015001025, B. Hobbs, et al., *Assessing Transmission Investments Under Uncertainty*, (August 2013), available at: http://energy.gov/sites/prod/files/2013/09/f2/1-2013RMReview-Hobbs.pdf.

creating a larger and more diverse resource pool available to meet needs and address unexpected and/or disruptive events throughout an interconnected region."[29] SPP also noted how "[t]his additional transmission has enabled resources of all fuel types to help meet customer demand during a range of potential threats to reliability and resilience."[30]

Transmission expansion also plays a critical role in addressing local reliability needs, such as preventing overloads or stability problems on existing lower-voltage lines. SPP's *Value of Transmission* analysis confirms that investing in transmission expansion improves electric reliability and resilience, noting that Kansas utility Westar has reported that transmission expansion has been associated with a 40% reduction in transmission-related customer outages.[31]

The cost of an inadequate transmission system can be quite high. The 2003 blackout in the Northeast U.S. and Canada, which largely resulted from a congested transmission system and inadequate transmission maintenance, caused an estimated $7-10 billion in economic losses.[32] A congested transmission system with poor coordination in transmission system planning and operations was also a contributing factor to the 2011 blackout that affected parts of Southern

[29] NYISO, *Response of the New York Independent System Operator, Inc.*, at 10-12, Docket No. AD18-7, (March 2018), available at: https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14838205.
[30] SPP, *Comments of Southwest Power Pool, Inc. on Grid Resilience Issues*, at 3 & 5, Docket No. AD18-7, (March 2018), available at: https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14838087.
[31] SPP, *The Value of Transmission*, at 15, (January 2016), available at: https://www.spp.org/documents/35297/the%20value%20of%20transmission%20report.pdf.
[32] Electricity Consumers Resource Council (ELCON), *Economic Impacts of August 2003 Blackout,* (February 2004), available at: https://elcon.org/wp-content/uploads/Economic20Impacts20of20August20200320Blackout1.pdf.

California and Arizona.[33]

Q. Does transmission protect against extreme weather and other unexpected events?

A. Yes. When extreme events of any type affect any source of supply or demand on part of the grid, transmission capacity also protects consumers and reliability by enabling more electricity to be delivered to regions that are experiencing a shortage. Again, as the New York grid operator noted in comments to the FERC, "[t]hese interconnections support and bolster reliability and resilience by creating a larger and more diverse resource pool available to meet needs and address unexpected and/or disruptive events throughout an interconnected region."[34]

By enabling the delivery of electricity from other regions, including the various wind- and solar-rich areas within Wyoming, transmission plays a particularly important role in keeping electricity reliable and affordable when unexpected events such as extreme weather affect part of the system. Weather and other extreme events tend to be geographically limited in scope so one region is almost never experiencing an extreme supply shortfall at the same time as all neighboring regions, even within the same state.

The London Economics *How Does Electric Transmission Benefit You?* study evaluated the value of transmission for making the power system more resilient to extreme events. The researchers found that a large transmission project in the Western U.S. saved over $100 million

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[33] FERC and NERC, "Arizona-Southern California Outages on September 8," (April 2012) available at: https://www.nerc.com/pa/rrm/ea/September%202011%20Southwest%20Blackout%20Event%20Document%20L/AZOutage_Report_01MAY12.pdf.

[34] NYISO, *Response of the New York Independent System Operator, Inc.*, at 10-12, Docket No. AD18-7, (March 2018), available at: https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14838205.

per year by reducing electricity price spikes during shortage events.[35] The study of portfolio performance under 2 hypothetical projects found additional economic savings of $566 million annually from the transmission project from improved operations with substantially reduced occurrences of widespread blackouts.[36]

Researchers have also modeled theoretical power systems and demonstrated that strengthening the grid by adding network paths significantly increases the system's resilience to damage and prevents power outages.[37] Similar modeling of the United Kingdom's power system has demonstrated that investing in stronger transmission infrastructure as well as additional backup paths for power significantly reduces the risk of a power outages due to windstorms.[38] This value would be of particular importance across a widespread windy area with disparate areas of commercial and industrial activity which rely on consistent power supplies.

Other regions have seen large economic and reliability benefits from strong transmission ties. For example, during the Bomb Cyclone event in early January 2018, the low temperatures were far more extreme in eastern PJM than in western PJM, causing wholesale electricity prices

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[35] Julia Frayer et al., *How Does Electric Transmission Benefit You? Identifying and Measuring the Life-Cycle Benefits of Infrastructure Investment,* at 40, (January 2018), available at: https://wiresgroup.com/wp-content/uploads/2020/06/2018-01-08-London-Economics-Intl-How-Does-Electric-Transmission-Benefit-You.pdf.

[36] *Ibid.*, at at Sec. 4.3.2, p. 50/147.

[37] Harsha Nagarajan et al., *Optimal Resilient Transmission Grid Design*, (n.d.), available at: http://public.lanl.gov/rbent/pscc_resilience.pdf.

[38] M. Panteli, et al., Power System *Resilience to Extreme Weather: Fragility Modeling, Probabilistic Impact Assessment, and Adaptation Measures*, IEEE Transactions on Power Systems, (September 2017), available at: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7801854.

in eastern PJM to be about three times higher than in western PJM.[39] Largely as a result, PJM transmission congestion costs in the first half of 2018 tripled to nearly $900 million relative to a year earlier. Greater west-to-east transmission capacity in PJM, and an ability to import more power from MISO, would have saved PJM consumers hundreds of millions of additional dollars during the Bomb Cyclone event alone. PJM has documented how its transmission ties with its neighbors were heavily utilized during the Bomb Cyclone.[40] From January 1st through 7th, PJM was able to export power to its southern neighbors as they dealt with record cold, while PJM saw large swings in transfers with MISO and New York Independent System Operator ("NYISO") as those regions and PJM experienced high demand at different times. Similarly, in 2019 a polar vortex-related cold snap caused extreme electricity demand and power plant failures in northern MISO. MISO was able to import nearly 12,000 MW over its transmission ties with neighboring power systems. Over half of those imports came from PJM, which was experiencing near-record wind output.[41]

[39] PJM, *The Benefits of the PJM Transmission System*, at 37, (April 2019), available at: https://pjm.com/-/media/library/reports-notices/special-reports/2019/the-benefits-of-the-pjm-transmission-system.ashx?la=en.

[40] *Ibid*.

[41] M. Goggin, *How Transmission Helped Keep the Light on During the Polar Vortex*, (February 2019), available at: https://cleanpower.org/blog/transmission-helped-keep-lights-polar-vortex/.

Q. Does the recently released *Transmission Makes the Power System Resilient to Extreme Weather*[42] report help to quantify the value of "insurance" measures that need to be considered as part of planning for a robust transmission network?

A. Yes. Recent extreme weather events including Storm Uri in mid-February 2021 have had devasting effects on customers in ERCOT, as well as MISO South and SPP. Unprecedented heat waves in the Pacific Northwest have demonstrated the impacts of climate change on the needs for the bulk power system which exceeds the traditional deterministic planning criteria which extrapolated history to project future conditions. While those past practices have served the industry well for decades, it does not seem appropriate going forward as we consider future power system demands which will increase due to electrification of buildings, industrial processes, and transportation. It's uncertain if unprecedent periods of extreme heat, drought, and wildfires in the West will continue to adversely impact grid operations, but recent trends are concerning. Our bulk power system must be planned and designed to address these additional future needs. Transmission can provide a number of benefits including this "hedging or insurance value" which are not historically quantified or properly acknowledged in transmission planning and state approval processes.[43]

Q. What other types of risk will the projects like Gateway South protect against?

A. Over its multi-decade lifetime, transmission protects consumers against the many types of uncertainty that affect the power system. Transmission allows greater flexibility in shifting from

[42] M. Goggin, *Transmission Makes the Power System Resilient to Extreme Weather,* Grid Strategies, LLC & ACORE (July, 2021), available at https://acore.org/wp-content/uploads/2021/07/GS_Resilient-Transmission_proof.pdf. Attached as Attachment PJC-2.
[43] *Ibid.,* at 5.

one form of generation to another as fuel prices fluctuate, power plant capacity is added and retired, and electricity demand changes.

As utilities and state regulators confront growing uncertainty due to fuel price volatility, uncertain policy changes, rapid technological improvements, and large changes in the generation mix, transmission provides valuable flexibility and optionality to respond to unexpected changes. A robust network ensures customers can access low-cost power under a wide range of scenarios. Transmission is an important mechanism to protect consumers against the inherent but unpredictable volatility in the price of fuels used to produce electricity for as long as commodities are used to fuel generators. While natural gas price volatility has been a traditional concern in the past planning studies, scarcity pricing regarding all fuels can be problematic during extreme weather events and needs to be considered in long range planning assessments. Transmission can alleviate the negative impact of fuel price fluctuations on consumers by making it possible to buy power from different generators in other regions where power is less expensive, even if more remote. This increased flexibility also helps to modulate swings in fuel price, as it makes demand for fuels more responsive to price because utilities can respond to price signals by decreasing use of an expensive fuel and instead importing cheaper power produced from other sources. As utilities Xcel and ITC Midwest LLC noted in a recently approved application to build a transmission line in Minnesota, "[a] robust regional transmission system is also key to enabling access to a diverse mix of generation resources, which in turn allows customers to access the least expensive power available at any given time."[44]

[44] Northern States Power Company and ITC Midwest LLC, *Application to the Minnesota Public Utilities Commission for a Certificate of Need for the Huntley-Wilmarth 345 kV Transmission*

GATEWAY SOUTH PROJECT SIZE AND FUTURE OPPORTUNITIES

Q. Is the Gateway South project appropriately sized to deliver the maximum benefits discussed above?

A. The Gateway South project is sized to serve Rocky Mountain Power's current needs, but I generally recommend that new transmission lines be "right-sized" to meet reasonably foreseeable future needs. Current best practices show that planning must be done in the context of a growing electrification need and movement to develop a national macrogrid. In order to efficiently interconnect with the macrogrid, the layout for new extra high voltage (*i.e.*, ≥ 345-kV) ("EHV") substations should allow for future connections to capitalize on the benefits of large transfers of energy and essential reliability services which address resilience requirements as well as facilitate large power transfers to remote regions enabled by high capacity high-voltage direct current ("HVDC") networks. Networks like the bulk power grid offer significant economies of scale, with initial investments reducing the cost and increasing the benefits of subsequent investments, so larger up-front investments yield positive externalities.

Q. Please provide more information about what you see developing as the "macrogrid."

A. The macrogrid I am referring to is a proposed network of high-capacity transmission facilities which has been identified by many recent studies[45] as the optimal transmission design to

Line Project, at 8, MPUC Docket No. E-002, (January 2018), available at: https://www.huntleywilmarth.com/staticfiles/microsites/hw/HW-Certificate-of-Need-Application.pdf.

[45] *See e.g.* Debbie Lew, Jordan Bakke, Aaron Bloom, Patrick Brown, Jay Caspary, Christopher Clack, Nicholas Miller, Antje Orths, Alison Silverstein, John Simonelli, Robert Zavadil, *Transmission Planning for 100% Clean Electricity*, IEEE Power & Energy Magazine, (November/December 2021), available at https://www.ieee.org/ns/periodicals/PES/Articles/PE_NovDec2021-Transmission.pdf

capitalize on the diversity benefits associated with load patterns, as well as optimal renewable developments to minimize overall power system costs associated with heavy decarbonization scenarios which leverage the best wind and solar resources available across the U.S. Although additional analysis is required to create a shared vision for a macrogrid and its connections to existing and planned bulk power system, the consensus of national experts and transmission policy planners is that a macrogrid will be based primarily on high capacity HVDC links and substations which use Voltage Source Converter ("VSC") technology to support enhanced controls and flexibility to support grid operations which have been demonstrated in designs around the world. Existing plans for EHV transmission facilities have yet to consider the implications and opportunities that will result from a macrogrid. A least regrets strategy for new EHV transmission facilities like the Transmission Projects should consider substation layouts and even expanded ROWs in key corridors to support a macrogrid and access to facilitate significant interconnects in

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Figueroa-Acevedo, A. L., A. J. Ardakani, H. Nosair, A. Venkatraman, J. D. McCalley, A. Bloom, D. Osborn, P. J. Caspary, J. Okullo, J. Bakke, and H. Scribner, *Design and Valuation of High-Capacity HVDC Macrogrid Transmission for the Continental U.S.* IEEE Transactions on Power Systems. Doi: 10.1109/TPWRS.2020.2970865. Available at https://ieeexplore.ieee.org/document/8977392

Interconnections Seam Study | Energy Analysis | NREL

Midcontinent Independent System Operator, *Renewable Integration Impact Assessment*,(2017), available at https://www.misoenergy.org/planning/policy-studies/Renewable-integration-impact-assessment/#t=10&p=0&s=&sd=.

Pfeifenberger, J., S. Newell, and W. Graf, *Offshore Transmission in New England: The Benefits of a Better Planned Grid* (2020), available at https://newengland.anbaric.com/wp-content/uploads/2020/07/Brattle_Group_Offshore_Tranmission_in_New-England_5.13.20-FULL-REPORT.pdf

Vibrant Clean Energy, *ZeroByFifty*, Presentation at the Energy Systems Integration Group technical workshop (online), (November 11, 2020), available at https://www.vibrantcleanenergy.com/wp-content/uploads/2020/11/ESIG_VCE_11112020.pdf.

the next 10-20 years.[46]

Q. Do the Transmission Projects as designed fulfill these recommendations?

A. Yes, for the most part, but I would have preferred to see the ROWs of 500' be procured for key corridors which would support a macrogrid. While a 200' ROW for the 500-kV Gateway South project is appropriate for the current needs identified by Rocky Mountain Power to support the noted interconnections and transmission service requests, it seems prudent to acquire land lease options for additional ROW associated with new transmission facilities in select corridors that can be expected to accommodate the long-term needs associated with a U.S. macrogrid. Procuring ROW is difficult enough, and it is imperative that we get the best lines in the best ROW sooner rather than later. It's important to think ahead and take steps with minimal time, effort, and cost now that can provide tremendous value and optionality in the long term.

I also hope that Rocky Mountain Power has procured land lease options for expansion of the Coyote and Little Snake substations shown in Exhibit RAV-1 pages 8 and 10, respectively, to support large connections with high-capacity transmission ties for long term regional or interregional needs since Gateway South provides opportunities to interconnect to neighboring regional systems or a future macrogrid. It is my understanding that Rocky Mountain Power is

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[46] *See e.g.* A. Bloom, L. Azar, J. Caspary, D. Lew, N. Miller, A Siverstein, J. Simonella, R. Zavadil *Transmission Planning for 100% Clean Electricity*, Energy Systems Integration Group (ESIG), (2021) available at https://www.esig.energy/wp-content/uploads/2021/02/Transmission-Planning-White-Paper.pdf. Attached as Attachment PJC-4.
P. Brown, A. Botterud, *The Value of Inter-Regional Coordination and Transmission in Decarbonizing the U.S. Electricity System* (December 11, 2020), available at https://www.cell.com/joule/fulltext/S2542-4351(20)30557-2?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS2542435120305572%3Fshowall%3Dtrue#%20

designing these substations for future expansion and interconnections to new local resources or transmission connections with neighboring systems. I commend PacifiCorp for designing these Gateway projects to support future needs with respect to service reliability as well as resilience which is becoming a more critical factor in utility design and operations.

Q. Do you recommend the Commission consider Grid Enhancing Technologies when evaluating the Gateway South project?

A. Yes. Capacity and energy losses need to be given proper consideration when it comes to conductor selection for a major backbone project such as Gateway South. While Rocky Mountain Power is recommending the use of 1272 Bittern ACSR conductor for this project, I think the application of advanced conductors needs to be considered to demonstrate if the benefits of lower losses and less sag will offset the cost premium associated with advanced conductors. Conductors that provide lower losses and less sag requires shorter towers or longer spans, as well as much higher short-term emergency ratings to address resiliency needs.

Other Grid-Enhancing or Advanced Transmission Technologies ("GETs" or "ATTs") like Dynamic Line Ratings, Topology Optimization, or Advanced Power Flow Control are not a substitute for large transmission expansion projects like Gateway South that have been evaluated for over a decade and identified as the optimal reliable and economic project to address expected conditions and support service requests. Although GETs or ATTs cannot displace large high-capacity EHV transmission projects, I recommend Rocky Mountain Power consider some, or all, of these technologies now. GETs can be very cost-effective in improving grid operations and congestion management for both new and old transmission facilities and constraints due to outages, shifts in load, and/or shifts in generation patterns in the future.

Q. Do you recommend the Commission consider future resource development potential when evaluating proposals for transmission expansion?

A. Yes. PacifiCorp's footprint has rich wind and solar generation potential and it could plan for a more diverse economic future by tapping into these resources, which will require more transmission capacity. A proactive approach to transmission planning and development can stimulate economic development activity in a state where renewable energy developers can rely on interconnection and transfer capacity for their projects**.** Proceeding with the projects will signal to renewable developers to continue resource prospecting and other development work for generation projects along these routes.

The Utah Transmission Study highlighted the substantial financial benefits to Utah of transmission expansion which will enable new renewable energy.[47] In addition, The Western Way has identified the $5.3 billion which renewable energy development has bought to Utah's economy, and this trend can continue through transmission which will act as a pipeline to bring the generation from these resources to the wider market.[48]

[47] Energy Strategies, *Utah Transmission Study: A Study of the Options and Benefits to Unlocking Utah's Resource Potential*, (2021), sec. 8.1 p. 61/87, available at https://energy.utah.gov/wp-content/uploads/2021-Utah-Transmission-Study-Technical-Report-FINAL-210121.pdf. Provided as attachment PJC-5.

[48] The Western Way, *Utah's Rural Renewables Bring $5.3 Billion in Economic Output*, (October 6, 2021), available at: https://www.thewesternway.org/tww-blog/2021/10/14/utahs-rural-renewables-generate-53-billion-in-economic-output .

REGIONAL COORDINATED TRANSMISSION PLANNING

Q. Is Rocky Mountain Power staff engaged in WestConnect's Colorado Coordination Planning Group initiatives that could benefit from the Gateway South project?

A. Yes. Coordinated planning is a critical success factor to design an efficient and effective future grid. The Colorado Coordinated Planning Group ("CCPG")[49] under the WestConnect Regional Planning Authority has several initiatives underway which are in close proximity to the Gateway South project, as well as other related Rocky Mountain Power projects. These include the current Western Slope Subcommittee[50] as well as the North by Northwest Task Force,[51] which are examining options regarding interconnection, transfer capacity, and transmission expansion to maximize the value of all transmission in the area in light of coal retirements at the Craig and Hayden stations in northwest Colorado. These are potential venues for more discussion about the benefits of regional transmission planning, and offer an avenue for Utah stakeholders and parties to this docket to gain more information about the reliability benefits of transmission expansion.

Q. Are other Western utilities using proactive transmission development as well?

A. The Nevada Public Utility Commission entered an order on March 22, 2021 approving the design, permitting and ROW acquisition for Nevada Energy's ("NVE's") Greenlink North projects which will create a 525-kV overlay within Nevada which leverages existing EHV facilities and facilitates the integration of high quality diverse renewable energy projects to allow NVE to

[49] https://doc.westconnect.com/Documents.aspx?NID=16822
[50] https://doc.westconnect.com/Documents.aspx?NID=17374
[51] https://doc.westconnect.com/Documents.aspx?NID=20571

achieve Nevada's decarbonization goals.[52] Elsewhere in the West, the TransWest Express project is being developed to deliver 3,000 MW of wind from Wyoming to load centers to the Southwest.[53] Xcel Energy's subsidiary Public Service Company of Colorado has presented a settlement agreement in its Colorado Power Pathway to the Colorado Public Utilities Commission to gain approval for new lines to access new wind and solar resource zones on the Eastern Plains of Colorado.[54]

The New Mexico Renewable Energy Transmission Authority has also driven proactive transmission development. The Western Spirit transmission line is now delivering wind from remote eastern New Mexico to the Albuquerque load center,[55] while the proposed SunZia project would deliver New Mexico wind and solar westward to Arizona.[56] As demonstrated by these recent projects, backbone EHV projects in the West are much bigger in terms of nominal voltages and rated capabilities than the majority of the transmission projects that make up the existing bulk power network.

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[52] Nevada Public Utilities Commission, Order, J*oint Application of Nevada Power Company d/b/a/ NV Energy and Sierra Pacific Power Company d/b/a NV Energy for approval of the fourth amendment to its 2018 Joint Integrated Resource Plan to update and modify the renewable portion of the Supply-Side Action Plan and the Transmission Action Plan,* Docket No. 20-07023 (March 22, 2021).
See also: https://www.nvenergy.com/cleanenergy/greenlink.

[53] Camille Erickson, *Renewable energy projects forge ahead in Wyoming despite pandemic*,(May 2020), available at: https://trib.com/business/energy/renewable-energy-projects-forge-ahead-in-wyoming-despite-pandemic/article_d1cadc40-21d5-5aa9-8386-934bee7ddb15.html

[54] Colorado Public Utilities Commission, Docket No. 21A-0096E.

[55] PRNewswire, *Pattern Energy Closes Financing and Starts Full Construction of Western Spirit Wind Projects in New Mexico*, (January 2021), available at https://www.prnewswire.com/news-releases/pattern-energy-closes-financing-and-starts-full-construction-of-western-spirit-wind-projects-in-new-mexico-301200043.html. *See also* https://nmreta.com/transmission-lines/.

[56] SouthWestern Power Group, *SunZia Southwest Transmission Project*, (March 2019), available at: https://www.wecc.org/Reliability/SunZia%202019%20APR.pdf.

Q. What has been the outcome of proactive transmission development in other regions?

A. Transmission has helped drive renewable energy development with its associated economic development benefits in a number of remote rural areas around the country. Proactive transmission is generally quickly fully-subscribed with new renewables from more remote regions. MISO's Multi-Value Projects have driven significant expansion of wind generation across MISO. MISO's periodic reviews show that the net benefits continue to exceed initial expectations, which already showed highly favorable benefit-to-cost ratios.[57]

SPP also implemented a proactive transmission planning effort which led to the construction of the "Priority Projects" and other transmission upgrades. SPP's *Value of Transmission* study published in 2016 found its members and their customers had already realized significant net benefits from this transmission investment.[58] A recent update by SPP demonstrates the conservative results of the 2016 study and now shows that the benefit to cost ratio for transmission expansion exceeds 5:1.[59] Electricity prices in SPP continue to be the lowest of all organized markets in the U.S. as a result of its transmission expansion and the resulting wind development over the past decade. The transmission expansion in SPP has facilitated the integration of large amounts of wind resources and will help SPP capitalize on the benefits of integrating major solar resources into its footprint as a result of proactive transmission expansion

[57] MISO, *MTEP17 MVP Triennial Review*, (September 2017), available at https://cdn.misoenergy.org/MTEP17%20MVP%20Triennial%20Review%20Report117065.pdf.
[58] SPP, *The Value of Transmission*, (January 2016), available at https://www.spp.org/documents/35297/the%20value%20of%20transmission%20report.pdf.
[59] See slide 495-498 of SPP Strategic Planning Committee January 2022 Meeting Materials posted at https://spp.org/documents/66284/spc%20materials%20january%2012,%202022%20spc%20public%20meeting%20v3.pdf.

into New Mexico that was justified to serve load expansion associated with Permian Basin oil and gas development. [60]

CONCLUSION

Q. Do you have any final comments about the proposed projects?

A. Under the circumstances of this filing, Rocky Mountain Power has laid the groundwork for transmission lines which will be fully subscribed soon after the 2024 in-service date. The costs and risks appear to be in line with other transmission lines being built across the country, based on the intended use and economics of the overall PacifiCorp portfolio as summarized by the Rocky Mountain Power witnesses. In fact, the resources to be acquired by PacifiCorp itself to serve its customers which require the subject Gateway projects for interconnection and power transfer will also increase reliability, providing benefits to all customers within the PacifiCorp footprint. Under the PacifiCorp cost-recovery system, a significant portion of the costs of these facilities will be borne by out-of-state transmission users, which is appropriate and is consistent with a "beneficiary pays" cost allocation system.[61]

Q. Please summarize your recommendations.

A. I recommend the Commission approve the Certificate of Public Convenience and Necessity within the timeline requested by Rocky Mountain Power in its application so the utility can proceed

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[60] SPP, *High Priority Incremental Load Study Final Report* (2014), pp. 10-11, available at: https://spp.org/documents/22998/final_hpils_report_for_bod_04-22-2014_clean_final.pdf.

[61] See, e.g., J. Pfeifenberger, The Brattle Group, *Transmission Cost Allocation, Principles, Methodologies, and Recommendations,* (November 16, 2020), Slides 4,5, available at: https://brattlefiles.blob.core.windows.net/files/20508_transmission_cost_allocation_-_principles_methodologies_and_recommendations.pdf.

to timely completion of the Gateway South project. Preparation for future expansion of the line in accordance with regional transmission planning principles would be appropriate, to prepare to interconnect the lines to neighboring system or the macrogrid to be developed across the United States.

Q. Does this conclude your testimony?

A. Yes.

BEFORE THE PUBLIC UTILITIES COMMISSION OF UTAH

DOCKET NO. 21-035-54

APPLICATION OF ROCKY MOUNTAIN POWER FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE GATEWAY SOUTH TRANSMISSION PROJECT

AFFIDAVIT OF P. JAY CASPARY

ON BEHALF OF

THE INTERWEST ENERGY ALLIANCE

I, P. JAY CASPARY, being duly sworn, state that the Direct Testimony filed for the Interwest Energy Alliance on January 25, 2022 was prepared by me or under my supervision, control and direction; that the statements in the Direct Testimony are true and correct to the best of my information, knowledge and belief; and that I would give the same testimony orally and would present the same attachments if asked under oath.

Dated at Farmington, AR, this 21 day of January, 2022.

P. Jay Caspary
Vice President
Grid Strategies, LLC

Subscribed and sworn to before me this 21 day of January, 2022.

Notary public

My commission expires: 9-1-2022

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