Montana Public Service Commission
Docket No. 2024.05.053
Electric and Natural Gas Rate Review

DIRECT TESTIMONY
OF MICHAEL R. CASHELL
ON BEHALF OF NORTHWESTERN ENERGY

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Witness Information

Q. Please provide your name, employer, and title.

A. My name is Michael R. Cashell and I am the Vice President – Transmission at NorthWestern Corporation d/b/a NorthWestern Energy ("NorthWestern").

Q. Please provide a description of your relevant employment experience and other professional qualifications.

A. I have worked in the electric and natural gas utility industry for 38 years. I have served as NorthWestern's Vice President-Transmission for over 13 years. In this role, I am responsible for all aspects of NorthWestern's electric and natural gas transmission systems in Montana and South Dakota, including the systems' safe, reliable and efficient operation, transmission services, operations, planning, engineering, and maintenance. I am also responsible for the activities related to transmission and transportation contracts, interconnection agreements, and transmission service under NorthWestern's Federal Energy Regulatory Commission ("FERC") Open Access Transmission Tariff ("OATT"), and compliance activities related to all FERC regulation and North American Electric Reliability Corporation ("NERC") reliability and cyber and physical security standards. I hold a

Bachelor of Science in Engineering Science from Montana Technological University.

Purpose of Testimony

Q. What is the purpose of your testimony in this proceeding?

A. My testimony provides an overview of NorthWestern's electric and gas transmission systems and describes the role they play in ensuring safe and reliable service for our customers. In addition, I describe our major electric and natural gas transmission initiatives and provide the policy objectives behind these initiatives. I also explain why NorthWestern recommends continuing use of the revenue crediting methodology for purposes of setting rates for electric transmission service for our retail customers.

Overview of the Electric Transmission System

Q. Please provide an overview of NorthWestern's Montana electric transmission system.

A. NorthWestern's Montana electric transmission system covers over 97,000 square miles in the western two-thirds of Montana.[1] This integrated system includes about 7,000 miles of transmission lines with voltages ranging from 50 kilovolt ("kV") to 500 kV. The transmission system integrates resources

[1] NorthWestern also serves Yellowstone National Park in Wyoming. The facilities that serve Yellowstone National Park are not in the scope of this rate review.

and loads through 500 kV, 230 kV, 161 kV, 115 kV, 100 kV, 69 kV, and 50 kV lines to efficiently deliver power to the various load centers dispersed throughout NorthWestern's service territory. The 500-kV Colstrip Transmission System ("CTS") operated by NorthWestern extends from the Colstrip Generating Station ("Colstrip") in eastern Montana to western Montana where it interconnects with the Bonneville Power Administration's ("BPA") 500-kV facilities (known as the "Eastern Intertie") at Townsend, Montana. NorthWestern and the other owners of Colstrip (excluding Talen Montana) jointly own the CTS. Exhibit MRC-1 provides a geographic representation of NorthWestern's transmission system.

Q. You mentioned the 500-kV Colstrip Transmission System (CTS). What is the importance of this system to Montana customers?

A. The CTS was built at the time that Colstrip generation plants were constructed in the early 1980s. One purpose of the CTS is to provide the transfer capability needed to deliver the other Colstrip owners' shares of the generation out of Montana to load centers in Washington and Oregon. The CTS is also extremely valuable to Montana customers. The CTS is the backbone of the Montana transmission system, providing a very strong path from east to west and west to east across the state to reliably deliver energy to all of NorthWestern's Montana transmission customers. In addition, the CTS provides Montana customers access to power supplies in the regional market, and provides suppliers' access to Montana customers. The CTS is also extremely important to allow NorthWestern the ability to import power into Montana to reliably serve our customers.

The CTS has also become an important interconnection point for additional generation. The Clearwater Wind Generation Facility ("Clearwater") interconnected at the Colstrip substation and began operation in late 2022. Clearwater is a 750-megawatt ("MW") facility. Currently, 350 MW of the facility is dedicated to Puget Sound Energy ("PSE") and delivered to PSE over PSE's CTS capacity. Portland General Electric ("PGE") has rights to 300 MW of the facility and Avista has contracted for 100 MW of Clearwater beginning in September 2024. The PSE share of Clearwater uses PSE's ownership in the CTS. The PGE and Avista shares of Clearwater use NorthWestern's Transmission Capacity, as we are required to do as a Transmission Provider, to deliver the energy from Clearwater, and service is provided under the terms of NorthWestern's OATT.

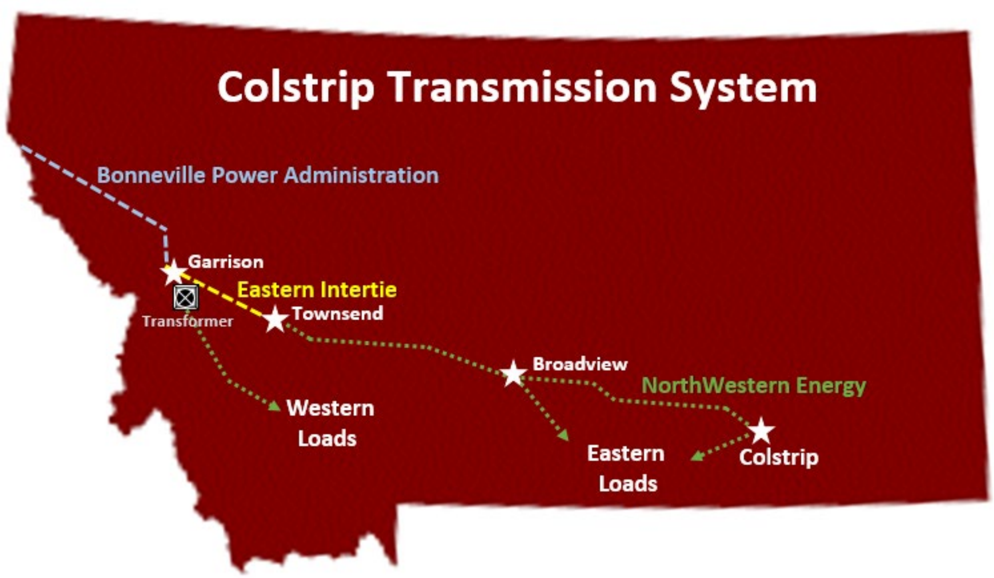
Q. Please explain the Eastern Intertie's importance to NorthWestern's customers.

A. The NorthWestern 500-kV CTS transmission lines run from Colstrip, Montana, to the Broadview Substation in Billings, Montana, and then on to an interconnection with the BPA 500-kV lines at Townsend, Montana. The CTS interconnects to the BPA 500-kV Eastern Intertie at Townsend.

NorthWestern has 420 MW of contracted capacity with BPA for use of the

Eastern Intertie transmission lines from Townsend to Garrison, Montana. This capacity is used to support network transmission capacity across Montana. Without the Eastern Intertie portion of the 500-kV system, there is no connection from the Colstrip / Broadview / Townsend 500-kV system to the western side of Montana at Garrison. This connection to Garrison where NorthWestern's underlying transmission system is connected is important to serving our retail customers. The graphic below shows the CTS and the Eastern Intertie.

Figure 1: Colstrip Transmission System



Q. Please describe NorthWestern's electric transmission customers.

A. NorthWestern's transmission system serves three types of customers – network, point-to-point ("PTP"), and interconnection service customers.

- Network customers include

- NorthWestern, on behalf of its end-use customers taking bundled retail electric service under rates regulated by the Montana Public Service Commission (“MPSC” or “Commission”) (“Bundled Customers”);
- unbundled retail customers that, under Montana’s deregulation statute, purchase electric commodity service from a competitive electricity supplier of their choice (“Choice Customers”);
- electric cooperatives (“Co-ops”); and
- federal power marketing agencies (“FPMAs”).

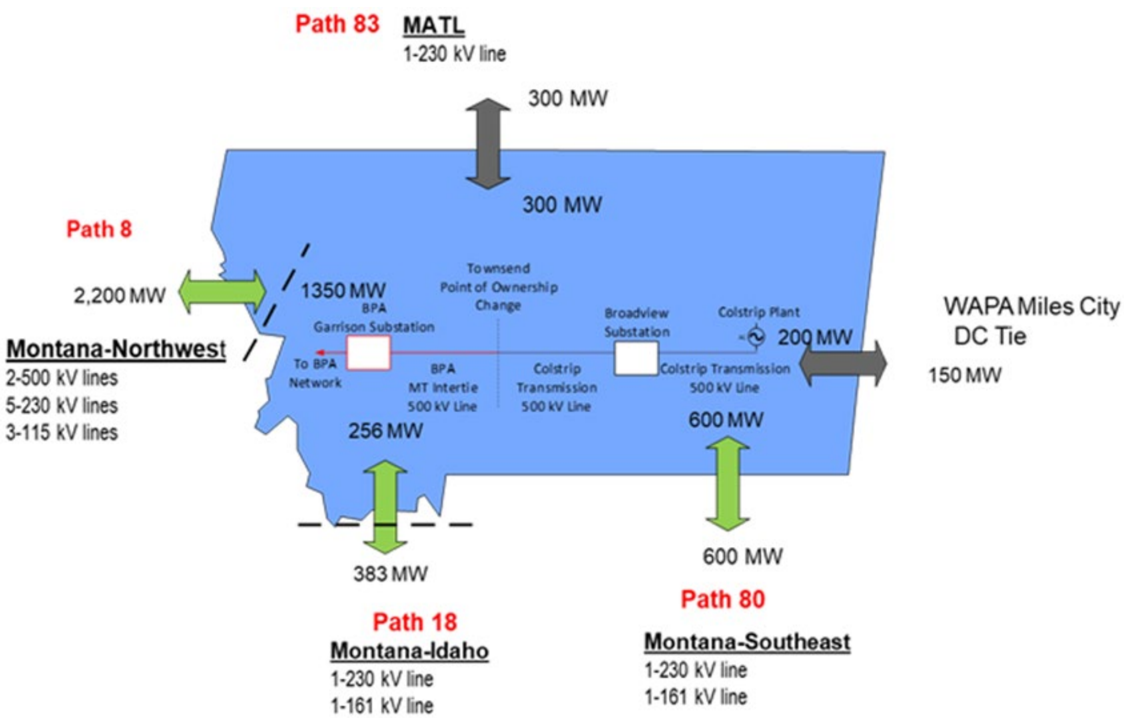
The Network Integration Transmission Service (“NITS”) that Choice Customers, Co-ops, and FPMAs receive under NorthWestern’s OATT permits them to use the NorthWestern transmission system to integrate their loads and resources in the same or comparable manner as NorthWestern does to serve its Bundled Customers. Currently, NorthWestern has approximately 28 NITS customers.

PTP customers use firm (reserved priority) and non-firm (as-available priority) point-to-point transmission service under the OATT to move power out of or through NorthWestern’s transmission system. Currently, NorthWestern has approximately 30 to 40 PTP customers that actively reserve transmission service.

In the rate-making process, the value of transmission service provided to FERC customers is a reduction to the cost of transmission service paid by MPSC jurisdictional customers.

Figure 2 below shows the routes that PTP and Network customers, including NorthWestern for service to retail customers, generally utilize to serve customers both inside and outside of NorthWestern's Balancing Authority. Figure 2 is a representation of Total Transfer Capability, or TTC, on NorthWestern's transmission system. TTC is the total designed and approved transmission capacity of a transmission path. TTC is not what is available for customers' use. Available Transfer Capability ("ATC") is TTC less all commitments as defined in Attachment C of the NorthWestern OATT. ATC for all paths is posted on NorthWestern's Open Access Same-time Information System ("OASIS").

Figure 2: Total Transmission Capability (TTC)



Interconnection service customers are generation customers that have interconnected or are seeking interconnection of their facilities to NorthWestern's transmission system – such as Clearwater. Information from the figure above can also be relevant to interconnection customers as they or their customer(s) would use either Network or Point-to-Point transmission service to deliver their energy to its end use.

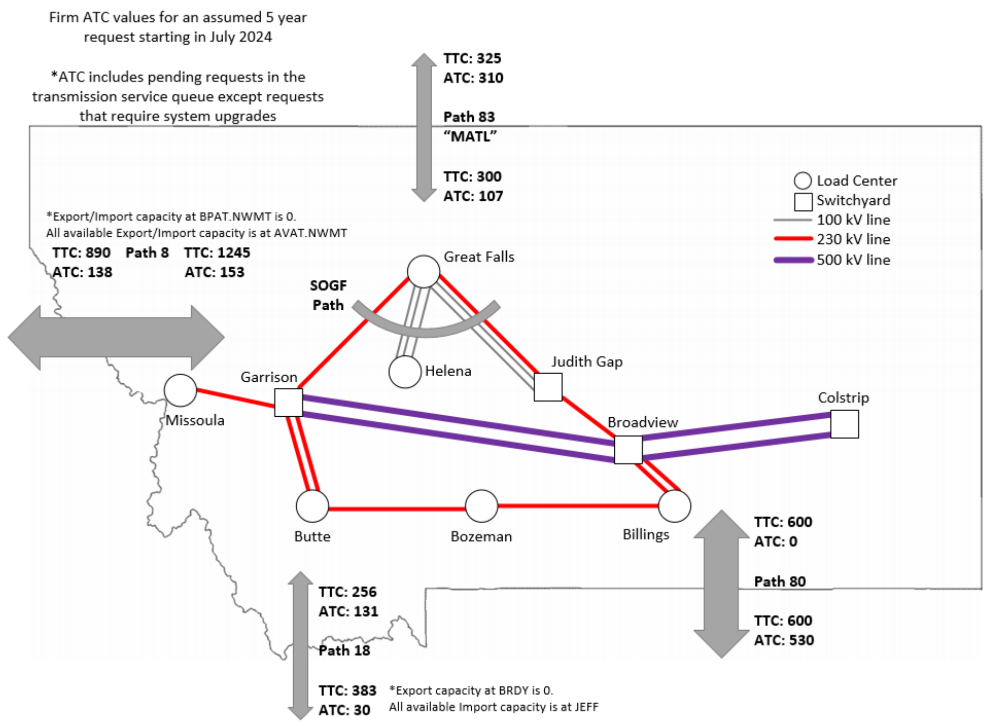
In order to provide reliable transmission service to our customers, NorthWestern transfers power in and out of Montana through Western

Electricity Coordinating Council ("WECC") rated paths to the west and south on Paths 8, 18, and 80, and to the north on Path 83, on the Montana Alberta Tie Line ("MATL"), as shown in Figure 2 above. Referring to Figure 2, the largest single path to the Pacific Northwest and other Western Interconnection markets is Path 8. Path 8 consists of the interconnections with BPA and Avista.

Q. You mentioned ATC above. Can you elaborate on ATC?

A. Yes. ATC is the value of available transmission service for customers' use. Figure 3 below is the current snapshot of long-term ATC at each of NorthWestern's interconnections with other systems. ATC values are very fluid and the amount of ATC can rapidly change.

Figure 3: Available Transfer Capability (ATC in MW)



As noted above, the operation of NorthWestern's transmission system is subject to regulation by FERC in accordance with NorthWestern's OATT. As a result, NorthWestern is required to provide transmission service to all eligible customers described above, which means that there is significant competition for ATC among many potential users of the transmission system which underscores the significance of Figure 3. It is important to note that ATC is very limited at many locations and directions.

Q. Does NorthWestern provide additional electric transmission services benefitting all customers?

A. Yes. NorthWestern manages the transmission system as a Balancing Authority Area ("BAA") operator, with responsibility for ensuring that system supply and demand are in constant balance. To support the continuous flow of electricity, NorthWestern provides ancillary services such as scheduling, system control, and dispatch; regulation and frequency response; and contingency reserves. When demand and supply are not in balance, equipment damages, cascading outages, or blackouts can result, which can affect frequency and stability within the Western Interconnection. As a BAA operator, NorthWestern must meet and operate within NERC's reliability standard requirements.

<u>Electric Transmission System Investments</u>

Q. Since NorthWestern's last electric rate review, which was filed in 2022, has NorthWestern invested in electric transmission plant to ensure reliable service to its customers?

A. Yes. NorthWestern has added approximately $161 million of net additions (i.e., less retirements) to its electric transmission plant from January 2022 through December 2023. We also project additions less retirements of about $71 million in 2024 for a total projected net plant increase of $232 million from 2022 through 2024. This investment in transmission plant is not unusual given our focus in the transmission planning process on maintaining appropriate reliability and capacity levels, meeting compliance requirements, and optimizing the useful life of these assets.

Q. What were the key policy drivers behind that investment?

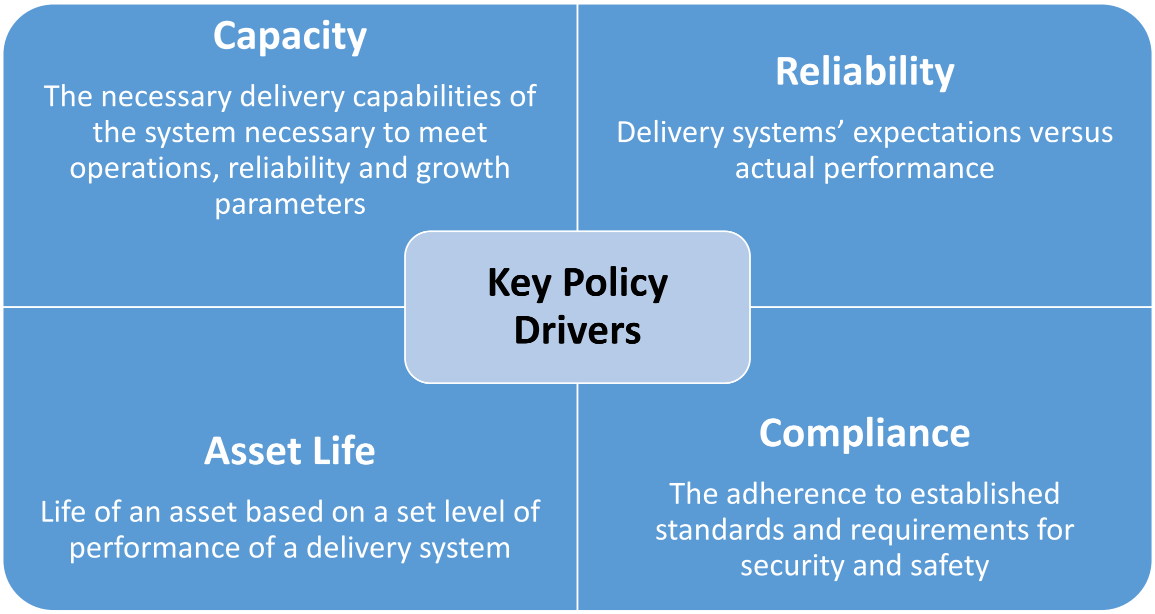
A. Generally, NorthWestern makes investments in its transmission system to:

- Meet capacity requirements;
- Address reliability needs;
- Replace aging infrastructure/address asset life; and
- Satisfy compliance requirements.

In addition, NorthWestern makes investments in response to generation interconnection and transmission service requests in accordance with our FERC OATT.

The graphic below shows the category and a high-level description of investments we make on the transmission system to provide safe and reliable service to our customers.

Figure 4: Key Policy Drivers for Transmission Investment



Q. What do all of these investments have in common?

A. NorthWestern makes each of these investments in order to provide reliable and safe service to our customers.

- Capacity projects are planned and executed to meet the ever-growing customer demand on the transmission system including customer load growth and generation interconnection projects.
    - NorthWestern has experienced record-breaking customer load during recent years. On December 22, 2022, the balancing authority experienced a new peak load of 2,073 MW eclipsing the previous record peak of 1,977 MW set on August 1, 2022. Then, on January 13, 2024, another peak load record of 2,079 MW was set in NorthWestern's balancing authority. Both of

these winter peak events were during extremely cold weather, emphasizing NorthWestern's need to appropriately plan and execute on its capacity initiatives to serve customers during critical demand events.

- Reliability projects are planned and executed to ensure that our customers are able to receive delivered energy when it is needed, even under difficult situations. We plan for contingencies on the system as part of our reliability efforts.
- Asset life/infrastructure projects are planned and executed in order to ensure we are keeping up with aging infrastructure.
- Compliance projects ensure that we are meeting industry standards and other mandated or required criteria for safe and reliable service.

Many of our planned and executed projects actually fall into multiple areas and meet more than one policy driver.

Q. How does NorthWestern determine what capital investments to pursue?

A. Our Transmission Planning group models our transmission system to determine needs for reliability, capacity, and compliance while our Asset Management group collects and analyzes data regarding asset life. NorthWestern utilizes these processes to develop investment plans. Each year, during our capital planning process, NorthWestern identifies and assigns projects to one of the investment categories of capacity, reliability, asset life, or compliance. For budgeting purposes, NorthWestern assigns the projects a priority based upon a number of criteria that are applied to transmission and distribution projects. For example, an emerging reliability or compliance issue may receive a greater relative ranking in the overall annual budgeting process.

In addition, our Asset Management group is charged with developing and maintaining strategies for assessing asset life and planning for appropriate replacement of facilities. Unplanned failures of equipment do occur. However, in order to minimize impact from equipment failures, we conduct inspections of our transmission structures, poles and lines, substations and related equipment, and perform preventive and reactive maintenance while planning for replacements of major components as they near the end of their useful life.

Q. Can you give some examples of the larger investments made to the transmission system since the last rate review?

A. Yes. NorthWestern has made a number of large investments in the projects noted below.

Billings area Rimrock Substation – NorthWestern invested approximately $31 million in transmission facilities and the investment was made for multiple reasons including capacity, reliability, and asset life. The Billings area represents about one-third of the overall load in our BAA. It is the largest single area load. Increasing customer load in this area and reduced eastern Montana generation, including the 2015 closure of the 150-MW J. E. Corette plant in Billings and the 2020 closure of the 614-MW Colstrip Units 1 and 2, made it very difficult to serve the Billings area. As a result, there has been significant transmission planning and resulting upgrades in the Billings area, the most significant of which is the construction of the new Rimrock Substation.

The new substation has two 300-mega-volt-amp ("MVA") transformers, increasing the capacity substantially from the prior approximately 70-MVA transformer capacity and upgrading asset life. Importantly, the new Rimrock Substation also has reduced loading on the Billings Steamplant Substation allowing for more balanced and reliable service in the area as well as resiliency during system outages and other contingencies. The project started in 2019, but most of the expenditure took place over the period of 2021 through 2023. This project was placed into service in 2023. Other planned upgrades will continue in the Billings area.

Laurel Area Upgrades – NorthWestern has upgraded two major substations in the Laurel area. The first was the Laurel Auto Substation, which was a generation interconnection project resulting from the request from NorthWestern's Energy Supply group to interconnect the Yellowstone County Generating Station ("YCGS") to the transmission system. YCGS interconnected at the 100 kV bus. The overall cost of the substation project and related network upgrades was approximately $7.1 million. Transmission provider interconnection facilities (TPIF) cost was about $1.2 million and required transmission network upgrade costs were about $5.3 million. While this was a generation interconnection project, network upgrades required as part of the interconnection also resulted in a modernized and more reliable substation design, a breaker-and-a-half scheme, which is now our standard configuration. These network upgrades benefit all of the transmission customers in that area. Overall, this substation upgrade improves reliability in the Laurel/Billings area for all customers. This project took place between 2021 and 2023 and was placed into service in 2023.

The second major substation upgrade was the Laurel City Substation. NorthWestern designed and constructed a second 100 kV source into the substation by upgrading the Billings 8th Street to Laurel Auto 50 kV line to a 100 kV transmission line and bringing the new line into the Laurel City Substation. This project was both a capacity and a reliability improvement project, and it also provided added maintenance flexibility at the Laurel Auto Substation. Prior to this network investment, Laurel City substation was served radially from Laurel Auto with a single 100 kV line. This new configuration greatly improves reliability and maintenance flexibility at Laurel City substation. In addition, planning studies indicated that predicted load growth in the Billings area would begin to overload the Billings 8th Street to

Laurel Auto 50 kV line in the near-term planning horizon of 3 to 5 years, thus the upgrade to 100 kV was also needed for capacity growth. This network investment was approximately $9.7 million, with about $7 million occurring in 2022 and 2023 and the balance occurring prior to 2022. This project took place over the period of 2020 through 2023 and had delays due to permitting activities. The project was placed into service in 2023.

Line Creek to Red Lodge 50 kV rebuild – This project improved capacity and reliability in the Billings/Red Lodge area by rebuilding approximately 23 miles of 50 kV transmission line. The project provides more reliable service for Beartooth Electric Cooperative and NorthWestern customers. The line was rebuilt with heavier insulators and 556 Aluminum Conductor, Steel Supported ("ACSS") advanced conductor adequate to address future growth as well as to address reliability during adverse weather and wind events. The project included over 200 pole and hardware replacements as well as the reconductoring. This multi-year project was completed in 2023 and cost approximately $11.2 million. The project spanned the period 2021 through 2023 and was fully placed into service by 2023.

Missoula City Substation - The Missoula City Substation is a capacity and reliability project that improved interconnections and balanced load throughout Missoula by increasing capacity in the Missoula City Substation and then reconfiguring the distribution system to improve reliability, implement automation, optimize configuration, support load growth, and mitigate potential consequences of major events. The project included increasing capacity at the substation by replacing the existing transformers with two 42-MVA transformers. The project was also planned to be complementary to the City of Missoula's improvements to Caras Park, which is adjacent to the substation. The multi-year project was placed into service in 2023, and the overall project cost was approximately $11 million, with about $1.8 million invested in 2021 and $9.2 million invested in 2023.

Missoula Miller Creek Substation Rebuild – The existing Miller Creek Substation is currently a sectionalized single bus, single breaker design. In this design, the two 100 kV to 69 kV banks share a differential, and a failure on the bus will completely separate the 161 kV bus at Miller Creek from the 100 kV and 69 kV systems supporting the Bitterroot. This condition results in numerous overloads on the Bitterroot 69 kV system as the 161 kV source at Hamilton attempts to support the entire Bitterroot Valley. The substation is expected be totally rebuilt in 2024 into a breaker and a half scheme on the 161 kV side and a breaker and a half scheme on the 69 kV side to eliminate the contingency that isolates the 100 kV and 69 kV systems. To accommodate future growth in the area, the bus and equipment will all be increased to a rating of 2,000 amps. The new substation will be constructed adjacent to the existing facility, and transmission lines will be re-routed into it. The existing facility will be removed.

Engineering, material payments, and site grading work were completed in 2023. Substation construction, transmission line cut over, and removal of the existing substation are scheduled to be completed in 2024. Energization of the new substation is scheduled to take place in late 2024, and overall costs are expected to be approximately $25 million. This project is a major step in the Bitterroot Valley initiative, which will improve reliability and increase the capacity of the overall 69 kV system from the 30 MVA range to over 60 MVA to serve the growing customer demand in the Bitterroot Valley. The capacity increase will also involve reconductoring a number of the 69 kV segments system with advanced ACSS conductor.

Great Falls 230 kV Sub to Great Falls Eastside 100 kV Upgrade Project – This project is part of the Montana Transmission Capacity Plan and is an element of the South of Great Falls ("SOGF") project upgrade. The SOGF path is currently constrained by Broadview Substation 500/230 kV banks and much of the underlying 100 kV system between Broadview, Butte, and Great Falls. The project will rebuild one of the key underlying 100 kV line segments constraining SOGF capacity. This project will rebuild 5.17 miles of existing 100 kV transmission line between the Great Falls 230 Switchyard and the Great Falls Eastside substation. The rebuild will replace older, smaller conductor with an advanced 795 Aluminum Conductor Composite Core conductor. This project will also include minor substation upgrades at Great Falls 230 kV Switchyard and Great Falls Northeast. The additional conductor capability will be available for potential future capacity needs as required. The objective of the overall SOGF response is to increase system-wide capacity by approximately 600 MW, thereby adding transmission capacity back into the system that has been utilized by organic load growth and, more dramatically, by significant new generation resources that have been interconnected to the system. This project investment is expected to be about $5 million in 2024.

Crow Reservation Easement Renewals (Natural Gas and Electric Transmission)[2] – Three NorthWestern transmission facilities traverse the Crow Reservation in Montana. The easements/permits for each of these facilities had to be renewed in order to continue to provide reliable service to our electric and natural gas transmission customers. The three facilities are described below.

1) Shoshone Gas Transmission Line - 6" line providing service into the Billings area and providing overall gas transmission system support. A 50-year permit/easement expired in 2010; 20.48 miles of the line are on the Crow reservation.
2) Heart Mountain Gas Transmission Line - 8" line providing service into the Billings area and providing overall natural gas transmission system

[2] While this section my testimony discusses major electric transmission projects and I later discuss major natural gas projects, for ease of reference, I discuss both the electric and natural gas aspects of this project here.

support. A 50-year permit expired in 2022; 20.1 miles are on the Crow reservation.

3) Yellowtail 230kV Electric Transmission Line – line providing service into the Billings area and providing overall electric transmission system support and regional transmission interconnection. A 50-year permit expired in 2016; 20.3 miles are on the Crow Reservation.

NorthWestern first initiated renewal discussions with the Bureau of Indian Affairs ("BIA") and the Crow Tribe on the Shoshone line in 2009, prior to the expiration of the permit. However, for various reasons, including facilities on the Crow Reservation that are owned by other parties that were also involved in the negotiations for renewal, discussions and negotiations on the NorthWestern facilities were protracted with various efforts to move the renewal process along.

By late 2019, we were able to meaningfully re-engage with both the Crow Tribe and the BIA, which resulted in ultimate agreement in principle for renewal reached in early 2023. Formal Crow Tribe approval and BIA approval was reached in November 2023 with the execution of the Consent to Rights-Of-Way and Settlement Agreement. The approval results in new, 30-year easements from the Crow Tribe and BIA for each of the three transmission facilities noted above allowing NorthWestern to continue to provide transmission service to our customers using these critical facilities.

The overall cost of this significant initiative, for all three facilities, was approximately $9.7 million and the capital project was completed in December 2023.

Electric Transmission Jurisdictional Cost Study

Q. What is the transmission jurisdictional cost study?

A. As part of Docket No. 2018.02.012, Order No. 7604v, in response to advocacy from the Montana Consumer Counsel opposing the revenue crediting methodology, the MPSC found that:

> NorthWestern is not precluded from advocating for continuation of a revenue credit approach, but must include in its application complete cost-of-service information, including allocations of the cost of service attributable to the transmission function for each of the retail and wholesale rate classes so that parties and the Commission can evaluate the reasonableness of revenue crediting compared to alternatives.

The requirement above has become known as “the jurisdictional cost study”. NorthWestern complied with that requirement and submitted a transmission jurisdictional cost study in Docket No. 2022.07.078.

As a result of the Stipulation and Settlement (“Stipulation”) in Docket No. 2022.07.078, NorthWestern agreed to submit another jurisdictional cost study in its next electric case that also included an analysis of ancillary services. The Commission approved the Stipulation in Order No. 7860y.

Q. Having completed a new jurisdictional cost of service study, is NorthWestern asking the Commission to use this study to determine which customers pay for transmission costs?

A. No. NorthWestern is asking the Commission to maintain the revenue credit methodology discussed below.

Transmission Revenue Credits

Q. Why is NorthWestern recommending to maintain the historical transmission revenue crediting methodology in this docket?

A. NorthWestern is proposing to continue treating transmission revenue credits and the transmission revenue requirement following the past practice accepted by the Commission. The transmission revenue credits are PSC-jurisdictional mechanism intended to provide Montana customers the benefit of the FERC-jurisdictional customer's use of the transmission system. Currently, NorthWestern has a formula rate at FERC that allows for the annual update of FERC-jurisdictional rates whereas NorthWestern updates transmission rates for PSC-jurisdictional customers with rate reviews. The transmission jurisdictional cost of service study reflects a single snap shot in time based on the test-year period with limited known and measurable adjustments. The use of the three-year average transmission revenue credit methodology better reflects the difference in timing that occurs between the PSC and FERC transmission rate updates and better reflects FERC customer usage of the transmission system.

NorthWestern has historically presented 100% of its Montana transmission system costs (plant and expenses) in its revenue requirement calculations in filings made at FERC and at the Commission. The FERC-jurisdictional transmission rates are computed using 100% of the load (both retail and wholesale), but the resulting rates apply only to customers taking service under the FERC OATT, i.e., wholesale customers. In turn, NorthWestern computes the Commission-jurisdictional transmission rates (retail rates) by applying the OATT revenues as a credit toward the Montana revenue requirement. Put another way, 100% of transmission costs are included in the Commission-jurisdictional revenue requirement, and the normalized revenue generated by the FERC OATT customers in the test year is included as a revenue credit that offsets the overall Commission-jurisdictional revenue requirement.

NorthWestern is recommending that the “test year” FERC OATT revenue credits in this case be the average of the actual 2021, 2022, and 2023 FERC OATT transmission revenues received by NorthWestern from wholesale customers. Again, this proposal is consistent with prior practice. We are also proposing to use the three-year average of ancillary services revenues as a credit in the fixed generation revenue requirement.

Q. What is the three-year average transmission revenue credit?

A. The three-year average FERC OATT transmission revenue is $74,513,759.

Q. How does this amount compare to the jurisdictional cost study that you discuss above?

A. The jurisdictional cost study calculates $79,663,591 as the rate schedule revenue required from FERC customers.

Q. Why does NorthWestern propose the three-year average revenue credit over the jurisdictional cost study results?

A. As noted above, NorthWestern believes that the revenue credit approach more closely aligns with actual usage of the transmission system.

NorthWestern proposes this method because we adopted an annual formula rate process for setting our FERC OATT rates in our 2019 FERC rate filing and the three-year average FERC revenue represents the most up-to-date use of the transmission system by FERC customers and costs associated with the system. For instance, the jurisdictional cost study analysis uses the revenue requirement proposed in this filing, which includes a number of limited known and measureable changes to 2024 costs that tend to increase the costs allocated to FERC customers. The jurisdictional study also uses the 12-CP average from the test year to allocate costs, which does not account for year-to-year fluctuations in usage of the transmission system. The Direct Testimony of Glenda J. Gibson discusses the jurisdictional cost study in more detail.

In addition, it is much easier to implement and to understand compared to the complexities involved with the jurisdictional cost study analysis.

While applying the results of the jurisdictional cost study in this rate review may result in more cost responsibility to FERC customers than the three-year average revenue crediting methodology, NorthWestern believes that the revenue crediting method is a more accurate representation of the actual, experienced usage of the transmission system by our FERC customers over time – hence our continued recommendation for use of the revenue crediting methodology.

Q. Why does NorthWestern propose a three-year average to compute the FERC revenue credits?

A. Because both point-to-point and network revenues fluctuate from month to month and year to year, it is reasonable to use a three-year average. NorthWestern's proposal to use a three-year average smooths out the impacts of any short-term increased or decreased fluctuations in the usage of the transmission system by our FERC customers' transmission system usage

Q. Do you believe that NorthWestern's proposal to use a three-year average of transmission revenues is the most appropriate methodology for determining the credit?

A. Yes, for the reasons explained above. This method most fairly assigns costs to the cost-causer while ensuring that the utility recovers all of its costs. Since both wholesale and retail customers use the transmission system, both types of customers should pay their appropriate share of the costs, including investments.

Q. Are there any other reasons the three-year average transmission revenue credit methodology would be a more reasonable method to follow compared to the jurisdictional cost allocation method?

A. Yes. In my testimony in Docket 2022.07.078, I described the relationship between the 3-year average transmission revenue credit and the jurisdictional cost allocation method performed for that case. The result in that analysis was that the jurisdictional cost allocation was *less than* the three-year average transmission revenue. Nonetheless, I still recommended that the three-year average method was the appropriate method to utilize as the credit to transmission costs from FERC customers. The reason for the recommendation is consistent with my continued recommendation in this testimony, which is, the three-year average smooths out the ups and downs in actual experienced transmission system usage and is more reasonable and consistent than a snap shot in time, which is what the jurisdictional cost allocation methodology is. The Commission should avoid selecting a method based simply on a result, as this would be akin to cherry picking for the most advantageous result. However, continuing with a consistent three-year methodology provides the best opportunity to smooth out the variability of transmission system usage and is fair to NorthWestern and our customers by following a method that is based upon actual experience.

Q. What about the ancillary services?

A. Ancillary services are part of the specific service and rate schedules provided to our FERC customers. These services are provided from NorthWestern's generation fleet. As a result, the cost to provide ancillary services to our MPSC customers is embedded within the costs of our generation fleet, which are also being presented in this rate review. As noted above, NorthWestern agreed to conduct a jurisdictional cost of service study specific to ancillary services in our last rate review. The Direct Testimonies of Joseph M. Stimatz, Gene Shlatz, as well as Ms. Gibson discuss this study and its results.

Notwithstanding that study, NorthWestern is proposing to continue to credit the ancillary services revenue that we receive from our FERC customers to our fixed generation revenue requirement. This would be accomplished through a credit to the fixed generation revenue requirement of $3,872,842, and it would be a continuation of the crediting process we conducted for ancillary services revenue in our Montana 2022 rate review. The calculation of the updated revenue credit in this rate review is discussed in more detail in the Direct Testimony of Elaine A. Rich.

FERC Cost Adjustments

Q. Are there certain costs of providing transmission service that are not included in costs recovered under the FERC OATT, but that should be included in the transmission costs associated with transmission service to retail customers?

A. Yes. There are costs included in FERC Account 565, including several contracts with other transmission providers that are used to provide service to NorthWestern's retail customers, that are not included in NorthWestern's FERC Formula Rate calculation. The most significant contracts with other transmission providers include the following:

1. Service Agreement for Network Integration Transmission Service and Network Operating Agreement between Southwest Power Pool, Inc. and NorthWestern Energy (SPP Service Agreement No. 3128). This agreement is needed in order to provide for transmission service to NorthWestern's retail customers that are located within the SPP BAA in northcentral/northeast Montana.

2. Amended and Restated Transmission Agreement between United States of America, Department of Energy, acting by and through the Bonneville Power Administration and Montana Intertie Users (Colstrip Project/Eastern Intertie Agreement) (NorthWestern Rate Schedule No. 185). This agreement is also referred to as the Eastern Intertie Agreement, which I discussed earlier in this testimony.

Q. Are there any other needed cost adjustments to transmission rates for retail customers?

A. Yes. As a result of the 2019 FERC rate filing, a credit was needed to reflect the fact that some of the NorthWestern distribution system is carried on transmission infrastructure as “underbuild”. This means that the transmission poles/structures serve as the distribution conductor carrying infrastructure. This is a benefit to the distribution system as the distribution system does not need its own poles/structures. As one example, this physical alignment can occur when both transmission and distribution is in the same corridor where space is limited. Since this distribution underbuild is an efficient use of the transmission system, in this rate filing, we are including this credit in the jurisdictional cost study and allocating a share to retail (distribution) customers. This is an appropriate cost of providing retail customer service and is a lower cost alternative to building separate distribution infrastructure.

Electric System Loss Studies

Q. Is NorthWestern presenting loss studies in this filing?

A. Yes. NorthWestern conducted transmission and distribution loss studies in order to update loss values that were included in previous rate proceedings. The studies’ purpose and more detail about them are described in the Direct Testimony of Michael S. McGowan.

Overview of the Natural Gas Transmission System

Q. Please provide an overview of NorthWestern's natural gas transmission and storage system.

A. NorthWestern's natural gas transmission system consists of more than 2,100 miles of pipeline and serves more than 133 city gate and meter stations where pressure is reduced to distribution level and measured. Pipeline diameter ranges from 1 inch through 24 inches. NorthWestern provides retail service to approximately 212,000 customers located in 117 Montana communities as well as to several smaller natural gas distribution companies that provide service to an estimated 34,000 customers collectively. There are 82 individual compression units totaling over 82,000 horsepower dedicated to our Montana transmission, storage, and gathering operations. In addition, NorthWestern owns and operates a pipeline, which crosses into Canada through our wholly owned subsidiary, Canadian-Montana Pipeline Company. This pipeline is critical to access Canadian gas as discussed in more detail below. NorthWestern owns and operates three working natural gas storage fields in Montana – Dry Creek in southeast Montana, Cobb Storage north of Cut Bank, and Box Elder Storage near Havre. In our three active storage reservoirs, we cycle about 13 billion cubic feet (Bcf) of natural gas in and out of storage annually. A system map is included as Exhibit MRC-2.

Q. What customers does NorthWestern's natural gas transmission and storage system serve?

A. NorthWestern serves its bundled retail customers with the natural gas transmission and storage system. We also provide transmission delivery service to other customers that, through natural gas deregulation in Montana in the late 1990s, do not receive natural gas supply service from NorthWestern. The Commission regulates transmission services to each of these types of customers.

Q. When does peak deliverability occur on NorthWestern's natural gas transmission system?

A. Peak deliverability needs occur during the heating season – generally November through March. Typically, the colder the weather, the higher the daily deliverability need. However, the natural gas transmission system is also heavily used in the non-heating season as NorthWestern and our customers are busy moving natural gas into our storage fields, doing maintenance on the system, and providing natural gas to gas-fired electric generation facilities.

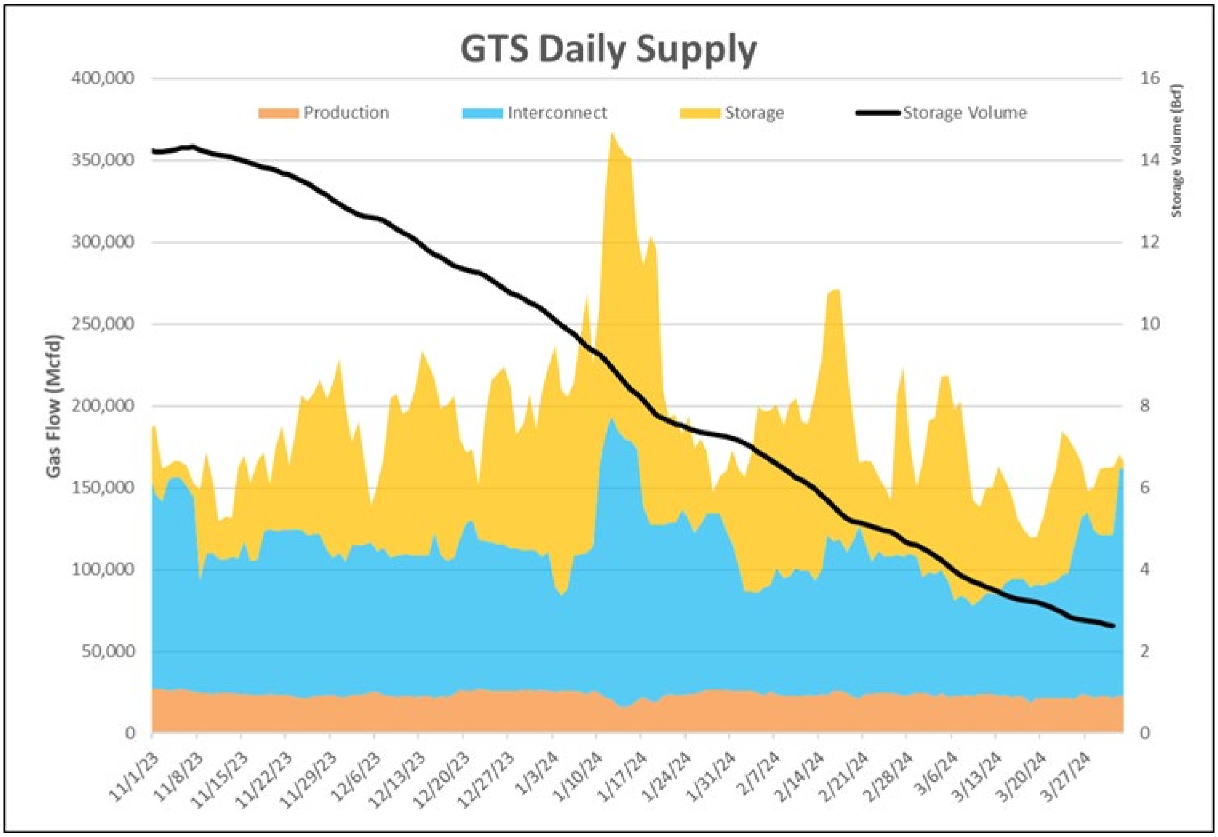
Q. What resources does the natural gas transmission system use to meet customer needs during the heating season?

A. The natural gas supply provided to our customers during the heating season comes from three main sources, and the transmission and storage system is key to delivering this natural gas:

1. Flowing gas (on-system production), which is produced in Montana and has no other place to flow except onto NorthWestern's system;
2. Interconnect gas, which is produced outside of Montana but is delivered under contracts with interconnected pipelines to supply natural gas to NorthWestern's transmission system; and
3. Storage gas, which is brought onto the system typically in the "off season" and injected into NorthWestern's storage fields for use during the heating season.

The graphic below shows the sources of natural gas used to serve our transmission customers during our most recent heating season from November 2023 through March 2024.

Figure 5: Natural Gas Transmission System Operation



Q. Please summarize NorthWestern's natural gas transmission and storage system compliance responsibilities.

A. NorthWestern's natural gas transmission and storage system is regulated by the Pipeline and Hazardous Materials Safety Administration ("PHMSA"). PMHSA develops and enforces regulations for the safe, reliable, and environmentally sound operation of the nation's 2.6 million-mile pipeline transportation system. The Commission is responsible for review, audit, and enforcement of PHMSA's rules and regulations applicable to NorthWestern's natural gas transmission system. PHMSA's Pipeline Safety Regulations Parts 191 and 192 prescribe minimum federal safety standards for:

- materials,
- pipeline and component design,
- welding and construction requirements for pipelines,
- customer meters, service regulators, and service lines,
- corrosion control,
- testing requirements and pressure uprating,
- operations and maintenance,
- personnel qualifications,
- pipeline integrity management, and
- pipeline control room management.

NorthWestern also constructs, operates, and maintains all facilities and equipment in accordance with applicable federal and state air, water, and waste rules and regulations resulting from the Montana Environmental Policy Act and National Environmental Policy Act. NorthWestern works closely with the Montana Department of Environmental Quality regarding air quality compliance at each of our compressor stations.

Finally, NorthWestern provides a safe workplace for employees by complying with standards, rules, and regulations issued under the Occupational Safety and Health Act and providing workplace conditions that conform to applicable Occupational Safety and Health Administration standards.

Natural Gas Transmission and Storage System Investments

Q. Since NorthWestern's last natural gas rate review, has NorthWestern invested in natural gas transmission plant to ensure reliable service to its customers?

A. Yes. NorthWestern has added approximately $157 million additions less retirements to its natural gas transmission plant from January 2022 through December 2023. We also project additions less retirements of about $15 million in 2024 for a total projected net plant increase of $172 million from 2022 through 2024. These expenditures were made in order to maintain appropriate reliability and capacity levels, meet compliance requirements, and optimize the useful life of these assets.

Q. What were the key policy drivers behind that investment?

A. As with our electric transmission system, NorthWestern makes investments in our natural gas transmission system to:

- Meet capacity requirements;
- Address reliability needs;
- Replace aging infrastructure/asset life; and
- Satisfy compliance requirements.

All of the investments made on the natural gas transmission system and to the storage system are to provide safe and reliable service to our customers and to be able to meet customers' increasing needs. Pipeline safety is of particular importance on the natural gas transmission system and accounts for a large portion of our investment and maintenance activity. We are regulated by PHMSA, as noted previously in this testimony, to meet significant safety and reliability standards for our natural gas transmission and storage systems. Existing and emerging compliance requirements are extremely important to NorthWestern and our employees to ensure the safety of our system for employees, customers, and the public in general.

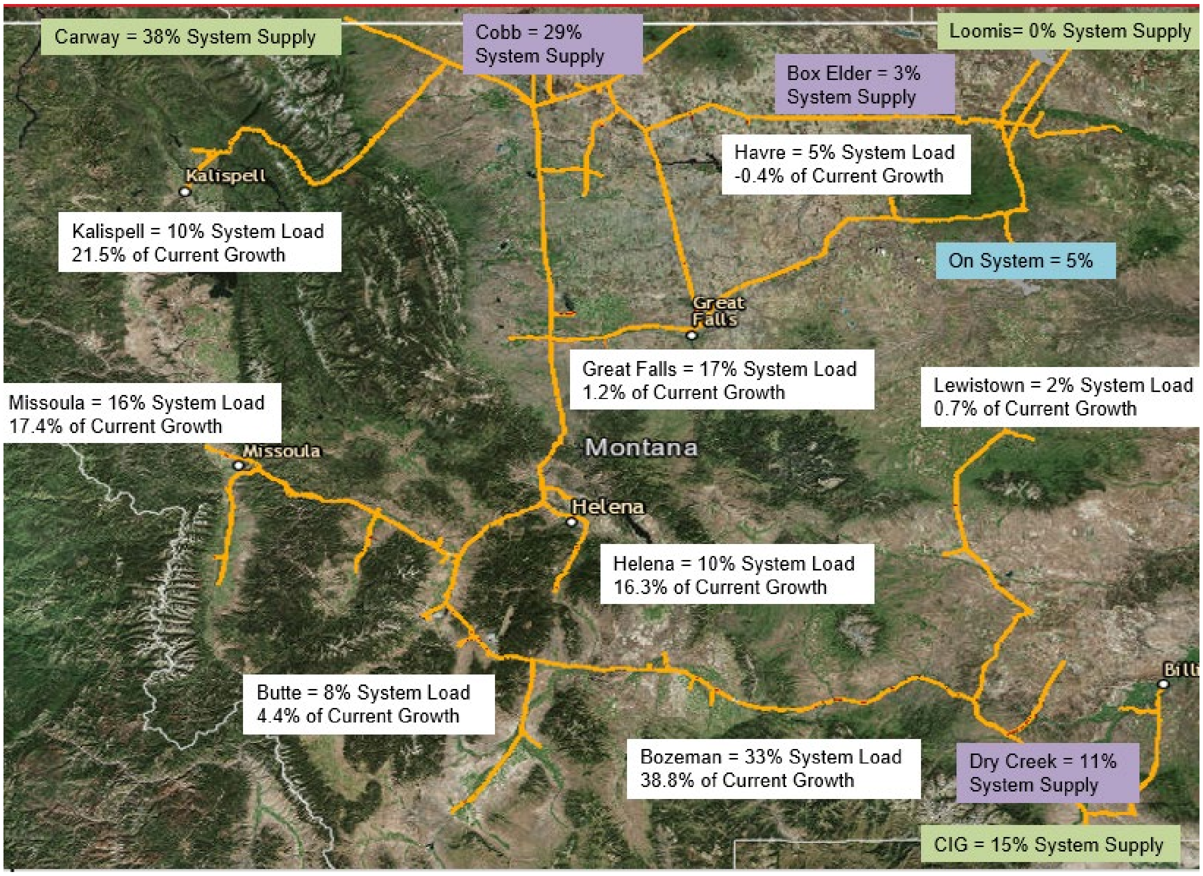
Q. What do all of these investments have in common?

A. As with our electric transmission system, NorthWestern makes each of these investments in order to provide reliable and safe service to our customers.

Q. Please describe NorthWestern's planning process for its natural gas transmission system.

A. As part of the overall planning process, NorthWestern's Gas Transmission department performs hydraulic modeling to assess the pipeline capacity required to meet the expected customer growth on the system. This involves evaluation of the existing pipelines and compression to meet future demands and identify needed improvements. We have been experiencing steady and significant customer growth. The graphic below indicates current load and load growth on a percentage basis across our natural gas transmission system.

Figure 6: Gas Transmission Loads and Growth



As indicated in the graphic, both the largest area load and load growth rate is the Bozeman area, followed by Kalispell and then Missoula. The Bozeman area is a great distance from sources of natural gas and is growing very rapidly making it more and more challenging to serve. Missoula and Kalispell are also more difficult to serve due to the radial nature of the system in those areas.

Q. What are the peak loads in the natural gas system?

A. Below is a figure indicating the peak loads that we have seen on our natural gas transmission system over the last approximately two years. Note that many of the top ten events (measured in million cubic feet per day or MCFD) occurred in the very cold weather during December 2022 and again in January 2024. In fact, five of the top ten events occurred in one cold weather event in January 2024 as shown in the shaded boxes below.

Figure 7: Peak Loads on Natural Gas Transmission System

Top Ten Flows		
	MCFD	Date
1	367,433	1/12/24
2	358,063	1/13/24
3	352,720	12/22/22
4	352,198	12/21/22
5	351,771	1/14/24
6	349,080	1/15/24
7	334,809	1/11/24
8	332,944	2/22/23
9	331,099	2/23/23
10	326,473	12/20/22

As a result, NorthWestern has planned accordingly and is continuing to plan for natural gas transmission upgrade requirements to meet the challenges ahead in the long-term planning horizon.

Q. What are the most difficult capacity needs to serve on the natural gas transmission system?

A. The most difficult capacity needs are related to serving very rapidly growing service areas, reduced on-system natural gas supply, constraints at interconnections with other systems and providing natural gas for gas-fired generation facilities. We must consider our delivery system design as we continue to search for the best natural gas supply sources to meet our customers' needs.

Accordingly, NorthWestern has analyzed and identified a number of options to increase natural gas transmission capacity including expansion of existing on-system storage, new on-system storage, and expanded interconnection capability. The top options for expansion have been:

1. Expansion of our interconnection with TransCanada at Carway which is being executed as described later in this testimony
2. Expansion of storage at our Dry Creek Storage facility in southeastern Montana coupled with a rebuild of the east transmission line that runs from our interconnection with Colorado Interstate Gas Pipeline to Bozeman.
3. We also are planning to connect our west and east line systems together through a pipeline construction addition from the Helena/Townsend area to the Three Forks area, which will enhance the reliability of the system as well as provide needed redundancy

creating the ability to help to serve one area of the system from the other side under contingency or outage situations.

Q. Please describe some of the major investments made since NorthWestern's last rate review.

A. NorthWestern has made a number of large investments in the natural gas transmission projects noted below as well as the one mentioned above about the Crow Reservation easement renewals. A significant portion of the investment has been related to customer growth and therefore falls into the capacity category. While the first three projects discussed below fall into the capacity category, each of the projects have also experienced reliability and asset life benefits as well.

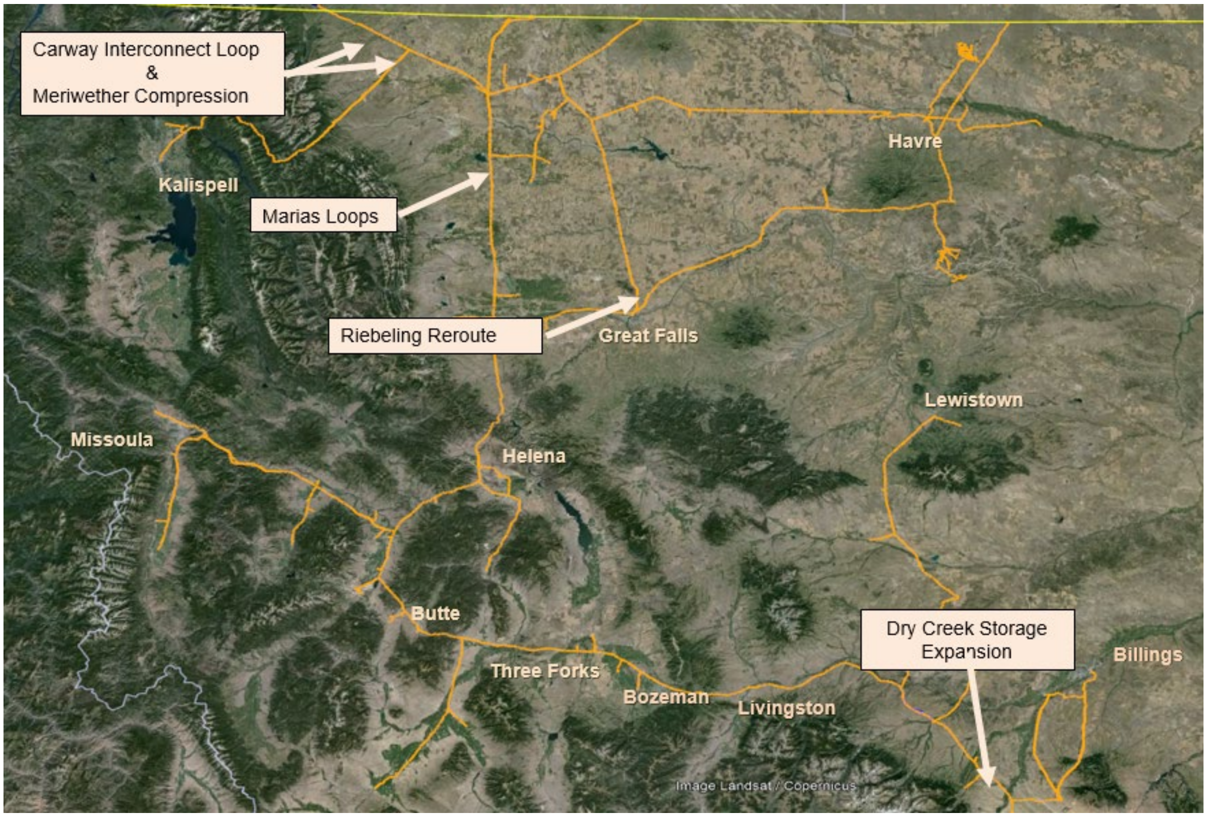
For 10 years, NorthWestern has been working on an expansion of our interconnection with TransCanada at Carway. This interconnection is our single largest source of supply of natural gas (as Figure 6 above shows, about 38% of our natural gas supply comes from Carway). In coordination with work done by TransCanada on its system and contracted delivery capacity on the TransCanada system, NorthWestern was required to upgrade our natural gas transmission system to be able to deliver the added capacity to customer loads. As a result, the first three projects described below (Carway to Meriwether Pipeline Loop, Marias-Valier Loop, and Meriwether Road Compression addition) have been executed and added about 30.5

million cubic feet (“MMCF”) per day of capacity/deliverability in the spring of 2023 and an additional 9.8 MMCF per day for the 2023-2024 heating season.

We will also be completing the Main Line 3 South loop in 2024, which will extend the Main Line looping to approximately 11 miles south of Augusta, Montana (the location of our Main Line 3 Compressor Station), which completes the required pipeline capacity to deliver the TransCanada interconnection contracted capacity south to our load centers as far south as the Bozeman area on the Main Line. We expect to invest about $21.5 million in the Main Line 3 South loop in 2024. It is important to note that we do not expect that any additional pipeline capacity will be available from TransCanada at Carway in the near term without very significant upgrades in Canada. As a result, we continue to plan other solutions beyond these projects to meet growing customer needs.

Figure 8 below is a map representative of the large projects discussed in this section.

Figure 8



Carway to Meriwether Pipeline Loop – This project was completed in November 2023. The capital cost of this project was approximately $28.5 million.

The Carway Pipeline Loop Project added a new pipeline loop. This loop consists of 16.3 miles of 20-inch diameter pipeline that runs parallel to the existing 16-inch pipeline between Carway and Meriwether. Part of the project involved a long horizontal directional drill ("HDD") bore under the Milk River. This technique is used to minimize environmental impact when crossing obstacles like rivers. Finally, the project also included crossing tribal and private land, which required additional planning and complex pipeline easement acquisition.

Marias-Valier Loop – This project was completed in December 2023. The capital cost of this project was approximately $26.6 million.

This loop consists of 12.5 miles of 20-inch diameter pipeline that parallels the existing 16-inch mainline pipeline between Cut Bank and Valier. Part of the project involved a long HDD bore under the Marias River. The project also included crossing several roads and canals, which required additional planning and careful construction techniques to ensure safety and minimize disruption.

Meriwether Road Compression addition – NorthWestern completed this project in December 2023. The capital cost of this project was approximately $6.8 million. This project's objective was to install another needed compressor at the Meriwether Compressor station, along with the two pipeline loops described above, to utilize the added pipeline capacity contracted from TransCanada. This pipeline capacity and compression was critical to serving our customers and was "just in time" in January 2024, when the natural gas transmission system served another new peak load during brutally cold weather in Montana.

This contracted capacity and the addition of the Carway Loop, the Marias Loop, and the added Meriwether compression increased our overall deliverability from Carway from 110.3 MMCF per day to 154.3 MMCF per day. This project added a 2,500-horsepower compressor.

Riebeling Reroute – NorthWestern completed this project in December 2023. The capital cost of this project was approximately $7 million.

The purpose of the Riebeling Reroute was to replace transmission pipe that falls under our Maximum Allowable Operating Pressure verification (“MAOPV”) plan. The MAOPV plan is required by a PHMSA rule for gas transmission pipelines or facilities that are in high population areas that fall under regulatory requirements of Maximum Allowable Operating Pressure Reconfirmation (“MAOPR”). As a result, this project fell primarily under the Compliance category, although there are other benefits to the project.

This project consisted of rerouting approximately 4.64 miles of the Riebeling - Great Falls Line out of heavily populated areas with new 12-inch pipe. This reroute started at the Great Falls City Gate Station #2 and ended at the new location of 15th Street Station, near Great Bear Avenue in Great Falls. The majority of the current pipeline route, approximately 10,570’ of the 14,174’ consists of three high consequence areas and moderate consequence areas that currently require continual assessments under PHMSA requirements. This reroute eliminates these current locations and required assessments.

Telstad Reroute – This project is a multiyear project started in 2023 and scheduled to be completed in December of 2024. The capital cost of this project is estimated to be about $6 million.

The Telstad Reroute was also an MAOPV project. As described above, the MAOPV plan is required by a PHMSA rule for natural gas transmission pipelines or facilities that are in high population areas that fall under regulatory requirements of MAOPR.

This project consisted of rerouting and replacing approximately 2.44 miles of the Telstad - Great Falls Line out of heavily populated areas, where practical, and replacing the remaining pipeline mileage with new 12-inch pipe. This reroute started at the new 15th Street station located north of Great Bear Avenue in Great Falls and ends at Great Falls City Gate #1. The majority of the previous pipeline route consisted of three high consequence areas and moderate consequence areas that currently require continual assessments under PHMSA requirements.

The Riebeling and Telstad Reroute Projects meet regulatory requirements by reducing risk in populated areas, which is one of the goals of PHMSA regulation. These projects will improve the safety and reliability of our natural gas transmission system.

Dry Creek Storage Expansion – As discussed previously in this testimony, NorthWestern has begun the process of expanding our Dry Creek natural gas storage field. The storage field expansion is being done as one of the initiatives to meet our growing natural gas customer needs and will provide reliability and operational flexibility to the eastern portion of our natural gas transmission system and natural gas transmission customers over the planning horizon. The first phase of this plan is to expand the storage capability of the Dry Creek Storage Field followed by other upgrades to the natural gas transmission pipeline from the eastern edge of the system to the Bozeman area. Added Dry Creek storage will provide increased deliverability on the east end of the system during the winter heating season and allow NorthWestern to store summer natural gas (when typically cheaper) to withdraw in the winter, creating added balancing capability during critical operation.

The first new well to be drilled in the expansion had substantial work completed in 2023 with additional work being done in 2024. In addition, above-ground facilities required for the new well still need to be completed in 2024 and 2025. The new well project included a capital expenditure of $9 million that went into service in May 2024.

Since early 2024, the new well has been in the flow back process, which means that the flow rate is being measured and improved. Completion fluids are being flowed back out of the well with associated reservoir liquid petroleum products, as is expected not only in the flow back stage, but also in the operational phase. The well is expected to continue to improve in its deliverability as natural gas is cycled in and out of the well. To date the well has been shown to add about 4-5 MMCF per day of deliverability at Dry Creek Storage. The expected design is to reach about 9-12 MMCF per day of deliverability. This new well is expected to be a good indicator of the overall expansion capability of the Dry Creek Storage Facility. An added benefit of a new well(s) is to provide N-1 contingency/reliability to the field and begin to plan for retirement of assets that are nearing the end of their useful lives.

Conclusion

Q. Please summarize your testimony.

A. My testimony provides an overview of NorthWestern's electric and natural gas transmission systems and describes the role they play in ensuring safe and reliable service for our customers. In addition, I explain why it is essential to continue to invest in our electric and natural gas transmission systems and the importance of NorthWestern's regional transmission interconnections. I also explain why NorthWestern recommends continuing use of the revenue crediting methodology for purposes of setting rates for electric transmission service for our retail customers.

Q. Does this conclude your direct testimony?

A. Yes, it does.

Verification

This Direct Testimony of Michael R. Cashell is true and accurate to the best of my knowledge, information, and belief.

/s/ Michael R. Cashell
Michael R. Cashell