

**DEPARTMENT OF PUBLIC SERVICE REGULATION
BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MONTANA**

IN THE MATTER OF NorthWestern Energy's
Application for Authority to Increase Retail
Electric and Natural Gas Utility Service Rates
and for Approval of Electric and Natural Gas
Service Schedules and Rules and Allocated
Cost of Service and Rate Design

REGULATORY DIVISION

Docket No. 2024.05.053

PRE-FILED DIRECT TESTIMONY OF

KYLE UNRUH

ON BEHALF OF

RENEWABLE NORTHWEST

Filed January 17, 2025

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EXHIBITS

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KU-2:	Astrapé Consulting: North Plains Connector Evaluation Final Report (May 24, 2024)
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KU-11:	NorthWestern Energy’s Montana Integrated Resource Plan 2023
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KU-14:	Roth, Sammy, Column: Here are the 32 coal plants still powering the American West, Los Angeles Times (April 25, 2024)
KU-15:	Eggert, Amanda, NorthWestern Energy announces deal to acquire larger share of Colstrip power plant, Montana Free Press (July 31, 2024)

- KU-16: Renewable Northwest: Montana's Place in the New Energy Economy (May 22, 2024)
- KU-17: NorthWestern Electricity Supply Resource Procurement Plan (August 2019)
- KU-18: Pacific Northwest Utilities Conference Committee: Northwest Regional Forecast of Power Loads and Resources August 2024 through July 2034 (May 2024)
- KU-19: Energy Strategies, GridLab: Assessing Resource Adequacy in Montana (December 2023, updated June 14, 2024)
- KU-20: Docket 2022.09.087, Comments of Renewable Northwest (March 27, 2024)
- KU-21: IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change
- KU-22: Eggert, Amanda, EPA finalizes rules to clamp down on pollution from power plants, Montana Free Press (April 25, 2024)
- KU-23: *Held v. State*, No. CDV-2020-307 (Mont. First Jud. Dist. Ct. Aug. 14, 2023) (Findings of Fact, Conclusions of Law, and Order)
- KU-24: Xcel Energy: Xcel Aims for Zero-Carbon Electricity by 2050 (2018)
- KU-25: NorthWestern Energy: Net Zero by 2050

1 **I. INTRODUCTION AND WITNESS QUALIFICATIONS.**

2 **Q: Please state your name.**

3 **A:**My name is Kyle Unruh.

4 **Q: On whose behalf are you testifying?**

5 **A:**I am testifying on behalf of Renewable Northwest.

6 **Q: What are your qualifications?**

7 **A:**I am Deputy Director at Renewable Northwest where I focus on Montana and Idaho's
8 energy systems and west-wide transmission planning. I engage state legislatures,
9 commissions, utilities, and coalitions to facilitate responsible planning and development
10 of transmission and generation. Before joining Renewable Northwest, I worked for
11 NorthWestern Energy ("NorthWestern") where I analyzed day-ahead market options,
12 quantified utilization of the transmission system in peak periods, quantified transmission
13 revenues associated with wheeling activities, investigated Montana's use-cases for energy
14 storage, and modeled flex ramp capability required to balance additional variable energy
15 resources. I was previously Associate Director of Industry Partnerships at University of
16 Colorado Boulder and was Director of Sponsored Programs and Research Development
17 at the University of Montana where I assisted in growing these research enterprises and
18 driving economic growth in Colorado and Montana. I hold a Master of Business
19 Administration (MBA) degree with focuses on energy and finance from the University of
20 Colorado Boulder. My resume is attached as Exhibit KU-1.

21 **II. RECOMMENDATIONS AND SUMMARY OF TESTIMONY.**

22 **Q: What are your recommendations to the Commission?**

1 **A:** I recommend the Commission condition any approval in this docket on NorthWestern
2 addressing the following actions in the context of this rate case and incorporating them
3 into its resource planning and procurement processes:

- 4 • NorthWestern should study and incorporate into its resource planning the cost of
5 capacity brought by new transmission capacity on WECC paths 8, 18, and 80 in a
6 manner which considers the multiple values of new transmission capacity, consistent
7 with best practice among other utilities in the region and across the West;
- 8 • NorthWestern should only constrain energy in its resource modeling insofar as
9 necessary to match transmission constraints after first incorporating efficient
10 transmission capacity expansion solutions;
- 11 • NorthWestern should stick to industry-standard 1 in 10 LOLE resource modeling in
12 its IRPs and to guide resource selection;
- 13 • NorthWestern should procure clean resources when selected in its RFP processes;
- 14 • NorthWestern should adequately account for the evident, substantial economic,
15 reliability, regulatory, and legal risk associated with thermal resources through a
16 company 100% clean energy goal and serious treatment of such a goal in its IRP
17 process, consistent with utility best practice in the West.

18 **Q:** **Please summarize your testimony.**

19 **A:** My testimony addresses industry best practices in resource planning and procurement and
20 describes specific areas where NorthWestern's practices stray from the industry-standard.
21 I also address circumstances particular to Montana whose adequate consideration is
22 necessary to ensure prudent risk-mitigation and procurement of a least-cost, reliable
23 resource portfolio. In particular, I explain why transmission capacity is a necessary

1 component of resource planning and investment, how NorthWestern's resource planning
2 and procurement differs substantially from that of most utilities in the West, and how
3 those differences artificially promote selection of thermal generation over renewables and
4 storage.

5 **III. NORTHWESTERN'S EXCLUSION OF TRANSMISSION CAPACITY**
6 **UPGRADES FROM ITS RESOURCE MODELING RESULTS IN SELECTION**
7 **OF RESOURCES WHICH CARRY UNNECESSARY COSTS AND RISK.**

8 **Q: Is NorthWestern's portfolio of resource investments the result of industry-standard**
9 **resource planning and procurement sufficient to acquire a least-cost, reliable**
10 **resource portfolio?**

11 **A:** No. The portfolio of investments before the Commission is missing key components, the
12 absence of which results in a risky, expensive future for Montana's citizens and industry.
13 Excluding significant transmission capacity upgrades on WECC paths 8, 18, and 80 as
14 well as any investment in renewables or storage while only investing in local
15 transmission upgrades and thermal generation exposes Montana's citizens and industry to
16 unnecessary cost, pollution, and risk. A least-cost, reliable resource portfolio in Montana
17 must include substantial transmission, renewables, and storage capacity investment, just
18 as is empirically true for every other state in the West. While the vast majority of utilities
19 in the region and across the West are making large investments in these areas as a means
20 of increasing reliability, saving money, and reducing risk, I see no evidence of analysis
21 sufficient to identify such investment in this rate case, and, consequently, no such
22 investment being proposed. I also find evidence of unreasonable planning practices which
23 artificially promote selection of thermal resources while also suppressing selection of
24 renewables and storage.

1 **Q: Is NorthWestern’s consideration of transmission capacity in this docket consistent**
2 **with best practices?**

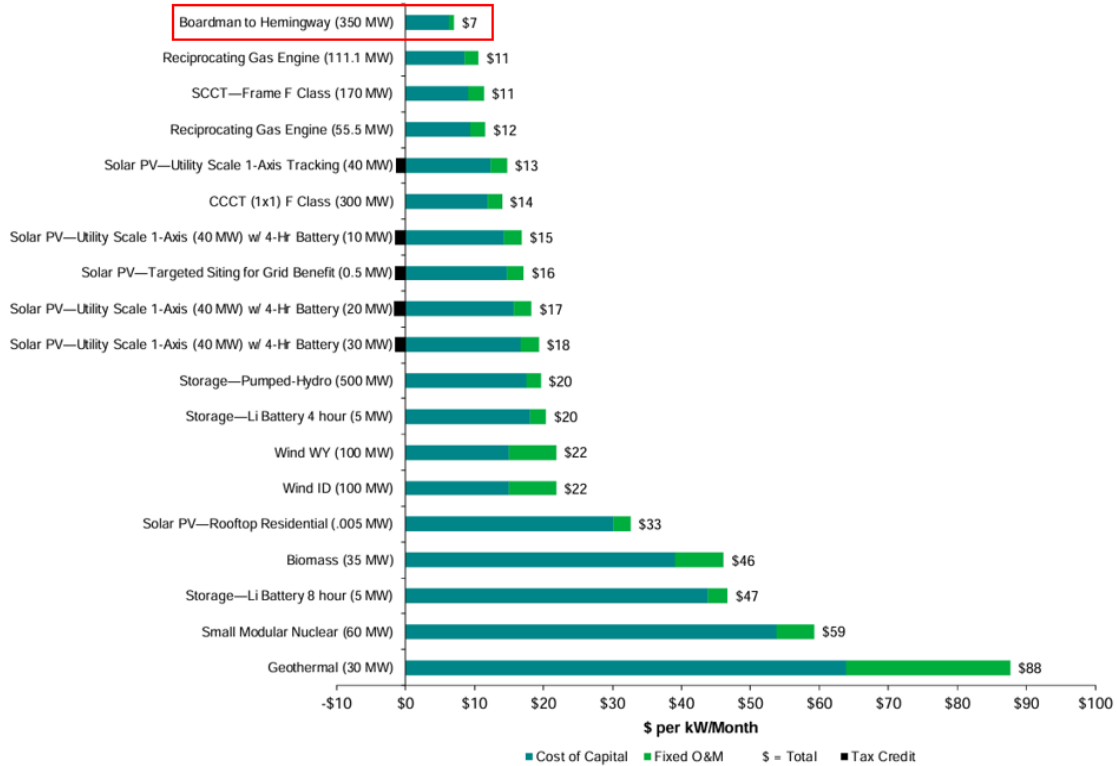
3 **A:** No. NorthWestern has not submitted evidence of planning for or investment in
4 transmission capacity as a means of building its resource portfolio. This is not consistent
5 with best practice in the region or across the West. For numerous reasons I outline below,
6 most utilities incorporate transmission capacity analysis into their resource planning. For
7 example, Idaho Power Company and PacifiCorp have incorporated planning for Gateway
8 West, Boardman to Hemingway (B2H), and Southwest Intertie Project (SWIP) in their
9 IRPs for several cycles. Idaho Power Company has also given transmission a capacity
10 value and cost of capacity to support resource adequacy in their resource plans as
11 depicted below in Figure 1.¹

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[Figure on Following Page]

¹ Idaho Power Company: 2019 Integrated Resource Plan, Figure 7.5, p. 85,
available at
https://docs.idahopower.com/pdfs/AboutUs/PlanningForFuture/irp/2019/2019_IRP.pdf.

Figure 1. Idaho Power Company 2019 IRP Levelized Capacity (fixed) costs in 2019 dollars



For another example, specific to Montana, in its analysis of the North Plains Connector (NPC) for Grid United in May 2024, Astrapé Consulting found sufficient load diversity on either end of the NPC to demonstrate it has an 1,800 MW ELCC on the WECC (West) side and will have a large, beneficial effect on loss of load expectation (LOLE).²

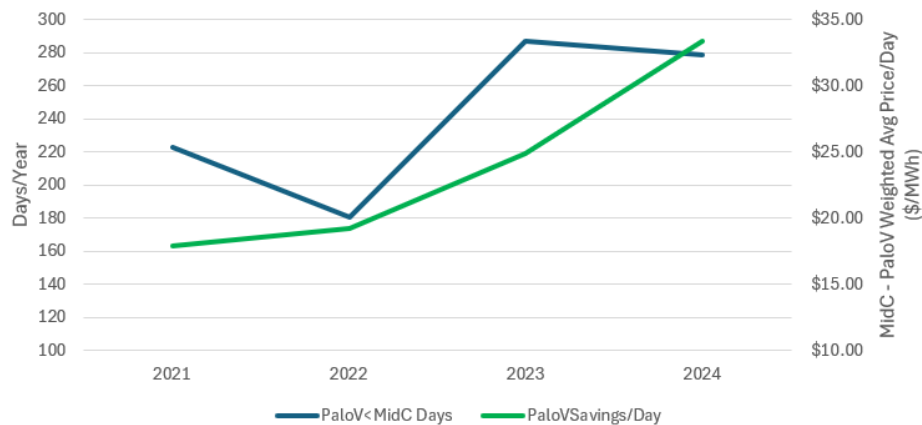
Q: Beyond capacity contributions, are there other benefits of increased transmission capacity and new connectivity?

A: Yes. In addition to capacity contributions, increased transmission capacity and new connectivity, such as those provided by Idaho Power Company's SWIP project and which would likely be provided through upgrades to WECC paths 18 or 80, will provide

² Exhibit KU-2, Astrapé Consulting: North Plains Connector Evaluation Final Report (May 24, 2024).

citizens and industry access to cheaper electricity in most days of the year, and particularly in peak periods. I found the weighted average price of electricity at the Palo Verde Hub is cheaper than the price at the Mid-Columbia Hub most days of the year and that the average difference between the two hubs has increased each of the last four years as depicted in Figure 2.^{3, 4}

Figure 2. The Market Price of Electricity at Palo Verde Hub is Cheaper than Mid-Columbia Hub Most Days and Is Increasingly Cheaper Over Time



Our analysis of the winter event surrounding NorthWestern's BAA peak load in January 2024, during which NorthWestern imported around half of the electricity required to serve its customers,⁵ showed many hours in which non-firm import available transmission capacity (ATC) was zero on paths 18 and 80.^{6, 7} This suggests these paths had full commercial utilization with no ability to schedule additional imports. We also know for all on-peak hours over the four days of this event, the average price at the Mid-

³ NorthWestern Response to RNW-015b.

⁴ Exhibit KU-3, RNW - MidC_PaloV_LMPs.xlsx.

⁵ Exhibit KU-4, Docket 2022.09.087, NorthWestern Cold Weather Response Letter (Feb. 20, 2024).

⁶ NorthWestern Response to RNW-015b.

⁷ Exhibit KU-5, RNW-015b January 2024 Import_RNW Analysis.

1 Columbia Trading Hub (Pacific Northwest) was \$886/MWh while the Palo Verde
2 Trading Hub (Desert Southwest) had an average price of \$140/MWh.⁸ States as near as
3 Idaho and Wyoming had transmission capacity sufficient to enjoy lower prices
4 approximate to the Palo Verde Hub while NorthWestern's customers paid the
5 significantly higher Mid-Columbia price.⁹ Given the large transmission projects now
6 being planned and built between Montana and the Desert Southwest (e.g. Gateway,
7 SWIP, On-Nevada Line, TransWest) it is reasonable to assume upgrades to Paths 18 and
8 80 which connect to these adjacent transmission projects would yield improved access to
9 cheaper electricity from the Desert Southwest, particularly in peak periods.

10 **Q: Would investment in transmission connectivity have a positive impact on**
11 **NorthWestern's ability to cost-effectively achieve resource adequacy?**

12 **A:** Yes. Transmission connectivity can alleviate the concerns regarding wind and solar
13 generation that NorthWestern expressed in its 2020 Supplement to the 2019 Electricity
14 Supply Resource Procurement Plan, where it stated, "[i]f the region experiences a deficit
15 across a wide geographic scale, the ability of short duration (*i.e.*, energy limited)
16 resources to reduce the probability of a loss-of-load on NorthWestern's system will be
17 significantly less, relative to longer duration resources, for loss-of-load events which last
18 more than a few hours."¹⁰ In response to RNW-031, NorthWestern confirmed it has not
19 studied the "deficit across a wide geographic scale" that would be sufficient to impair the

⁸ Exhibit KU-6, U.S. Energy Information Administration: Wholesale Electricity Data (2024), available at <https://www.eia.gov/electricity/wholesale/#history>.

⁹ Exhibit KU-7, CAISO OASIS – LMPs by Node aggregated by GridStatus, available at https://x.com/grid_status/status/1747291471139545163.

¹⁰ Exhibit KU-8, NorthWestern Energy: 2020 Supplement to the 2019 Electricity Supply Resource Procurement Plan at 17 (Dec. 2020).

1 ability of wind and solar resources to reduce the probability of loss-of-load, but
2 nonetheless defines “wide geographic scale” in general terms as “the large area from
3 which NorthWestern would typically import power or share resources.”¹¹

4 A deficit would occur when “this entire multi-state or interconnection-wide region
5 is short on energy at the same time (such as a large-scale weather event suppressing
6 wind/solar resources), preventing NorthWestern from turning to outside resources for
7 help.”¹² It is reasonable to assume that as transmission capacity increases to diverse
8 geographies (e.g. North Dakota, Wyoming, Idaho, or the Desert Southwest), wind and
9 solar generation’s ability to reduce probability of loss-of-load becomes commensurately
10 more robust (i.e. the “deficit across a wide geographic scale” required to impair wind and
11 solar generation’s ability to reduce probability of loss-of-load increases commensurately
12 with transmission connectivity and therefore becomes less probable). Because wind and
13 solar are by far the cheapest sources of energy,¹³ new transmission capacity to diverse
14 geographies will make achieving resource adequacy less expensive. NorthWestern
15 confirmed they “[have] not conducted a detailed study on transmission capacity
16 expansion impacting the probability of loss-of-load as described in [RNW-031].”¹⁴

17 **Q: Should regional transmission projects be considered simultaneously with local**
18 **transmission upgrades?**

¹¹ NorthWestern Response to RNW-031.

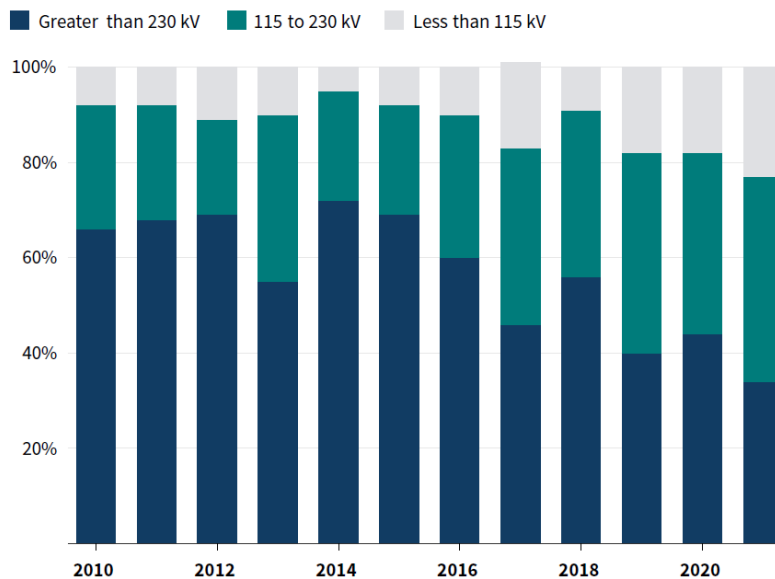
¹² *Id.*

¹³ Exhibit KU-9, Lazard’s: Levelized Cost of Energy + (LCOE+) at 16 (June 2024), *available at*
https://www.lazard.com/media/xemfey0k/lazards-lcoeplus-june-2024-_vf.pdf.

¹⁴ Northwestern Response to RNW-031.

A: Yes. Until NorthWestern incorporates transmission capacity into its analysis, it will also not be able to demonstrate which, if any, local transmission upgrades may be deferred as a result of investment in larger transmission projects. When planned separately, local transmission upgrades and regional transmission projects are likely to cost more than when planned together.¹⁵ Despite this fact and the clear need for increased regional transmission capacity, nationally there has been a substantial shift in transmission spending from regional projects to local upgrades (as depicted below in Figure 3), largely due to the ease of planning and lack of oversight associated with local upgrades.¹⁶

Figure 3. RMI: Share of Total US Transmission Spending by Voltage



Q: Do you have a recommendation for NorthWestern Energy's consideration of transmission capacity?

¹⁵ Exhibit KU-10, Claire Wayner, Kaja Rebane, and Chaz Teplin, Mind the Regulatory Gap: How to Enhance Local Transmission Oversight, RMI, 2024, pg. 27-33, available at <https://rmi.org/insight/mind-the-regulatory-gap/>.

¹⁶ *Id.* at 30 (Exhibit KU-10).

1 **A:** Yes. Given new transmission capacity is likely to bring substantial economic and
2 reliability benefits to NorthWestern’s customers, and must be a central part of least-cost,
3 reliable resource planning, we advise NorthWestern to study and incorporate into its
4 resource planning the cost of capacity brought by new transmission capacity on WECC
5 paths 8, 18, and 80, accounting for the multiple values this investment would bring, in a
6 manner similar to other utilities in the region and across the West as described above.

7 **IV. IN ITS RESOURCE PLANNING AND PROCUREMENT, NORTHWESTERN**
8 **RELIES ON NON-STANDARD PRACTICES WHICH ARTIFICIALLY**
9 **PROMOTE THE SELECTION OF THERMAL RESOURCES WHILE**
10 **SUPPRESSING SELECTION OF RENEWABLES AND STORAGE.**

11 **Q:** **Has NorthWestern’s planning for and procurement of generation resources been**
12 **consistent with other similarly situated utilities in the West?**

13 **A:** No. While most utilities across the West are selecting large amounts of wind, solar, and
14 storage in their least-cost, reliable portfolios, NorthWestern has selected and procured
15 none of these resources from its last two IRP cycles. For reference, Figure 4 depicts 2023
16 IRP outputs from NorthWestern (NWMT)¹⁷ and two utilities comparable to
17 NorthWestern in their size, geography, and transmission system characteristics (Idaho
18 Power Company (IPCO)¹⁸ and Public Service Company of New Mexico’s (PNM)¹⁹):

¹⁷ Exhibit KU-11, NorthWestern Energy’s Montana Integrated Resource Plan 2023, *available at* https://northwesternenergy.com/docs/default-source/default-document-library/about-us/erp-irp/2023_montana_irp_final.pdf?Status=Master/2023_Montana_IRP_Final.pdf.

¹⁸ Exhibit KU-12, Idaho Power: 2023 Integrated Resource Plan, *available at* <https://docs.idahopower.com/pdfs/AboutUs/PlanningForFuture/irp/2023/2023-irp-final.pdf>.

¹⁹ Exhibit KU-13, PNM 2023 Integrated Resource Plan, *available at* <https://www.pnmforwardtogether.com/assets/uploads/PNM-2023-IRP-Report-corrected-2023-12-18.pdf>

Figure 4. Planned Least-Cost Capacity Additions to 2042 from Three 2023 Utility IRPs

	IPCO	PNM	NWMT
Preferred Wind	1,800 MW	1,000 MW	0 MW
Preferred Solar	3,325 MW	2,491 MW	0 MW
Preferred S/T BESS	1,253 MW	1,842 MW	0 MW
Preferred L/T BESS	200 MW	200 MW	0 MW
Preferred DSM/EE	360 MW	219 MW	89 MW
Preferred DR	160 MW	166 MW	0 MW
Preferred Gas	261 MW	0 MW	175 MW
Preferred Coal	0 MW	0 MW	222 MW
Last Coal Exit (year)	2030	2032	2042?
New utility Tx miles	1585	554	0
New merch. Tx miles	0	1987	0

Whereas both IPC and PNM IRP modeling ultimately selected large amounts of wind, solar, storage, and transmission capacity in their least-cost, reliable portfolios, NorthWestern’s IRP modeling selected no wind, solar, storage, or transmission capacity.

It is also notable IPC, PNM, and most utilities in the West have last coal exit dates between now and the 2030s,²⁰ whereas NorthWestern has not committed to an exit date in their IRPs, but has stated publicly it plans to operate the Colstrip Plant until “at least 2042.”²¹

I have already addressed many reasons most other utilities are planning for new transmission capacity in their resource planning processes, and why NorthWestern should do the same. Renewables are now commonplace in least-cost, reliable resource portfolios

²⁰ Exhibit KU-14 – Roth, Sammy, Column: Here are the 32 coal plants still powering the American West, Los Angeles Times (April 25, 2024), *available at* <https://www.latimes.com/environment/newsletter/2024-04-25/column-here-are-the-32-coal-plants-still-powering-the-american-west-boiling-point>.

²¹ Exhibit KU-15, Eggert, Amanda, NorthWestern Energy announces deal to acquire larger share of Colstrip power plant, Montana Free Press (July 31, 2024), *available at* <https://montanafreepress.org/2024/07/31/northwestern-energy-announces-deal-to-acquire-larger-share-of-colstrip-power-plant/>.

1 because they are the cheapest sources of energy without any subsidy²² and, when paired
2 with storage, provide dispatchable generation of sufficient duration to cost-efficiently
3 contribute to a resource-adequate portfolio.

4 Although there is a close connection between lack of transmission capacity and
5 the feasibility of building new generation in Montana,²³ this single factor is not entirely to
6 blame for the discrepancy in resource selection we see between NorthWestern and most
7 other utilities. We must also examine whether the resource planning itself preferred
8 thermal technologies over wind, solar, and storage—as is the case with NorthWestern’s
9 planning practices.

10 **Q: Are NorthWestern Energy’s resource planning and procurement practices industry-**
11 **standard, or do they improperly promote selection of certain generating**
12 **technologies over others?**

13 **A:** In its resource planning and procurement, NorthWestern has used non-standard practices
14 which artificially promote the selection of thermal resources while suppressing selection
15 of renewables and storage. These practices are described below.

16 First, in its 2019 IRP, NorthWestern constrained energy in its portfolio,
17 irrespective of the value of energy sales to its customers or the available transfer
18 capability on its system to move energy to its customers or to the market. Specifically, in
19 the 2019 Electricity Supply Resource Procurement Plan, NorthWestern describes how
20 market sales of energy within PowerSimm were constrained to no more than 10 percent

²² Lazard: LCOE+ at 9 (Exhibit KU-9).

²³ Exhibit KU-16, Renewable Northwest: Montana’s Place in the New Energy Economy (May 22, 2024), available at https://leg.mt.gov/content/Committees/Interim/2023-2024/Energy-and-Telecommunications/Meetings/May-22-2024/RNW_ETIC_2024.05.22.pdf.

1 over annual customer load.²⁴ NorthWestern confirmed the intent of this constraint was to
2 prevent the model from overbuilding resources for the express purpose of selling energy
3 in the market.²⁵ NorthWestern further confirmed that market sales of energy benefit their
4 customers and those benefits do not diminish as sales increase.²⁶

5 Given that market sales of energy directly benefit utilities' customers, and that
6 growth in annual electricity demand is at historically high levels,²⁷ it is not industry-
7 standard to constrain energy in capacity expansion irrespective of transmission
8 constraints as NorthWestern has done; I am not aware of another utility in the Pacific
9 Northwest which is constraining energy *at all* in its resource modeling. The effect of this
10 energy constraint in NorthWestern's 2019 IRP was to undervalue the potential
11 contributions of wind and solar to its resource portfolio. NorthWestern should only
12 constrain energy in its resource modeling insofar as necessary to match transmission
13 constraints after first incorporating efficient transmission capacity expansion solutions as
14 described above.

15 Next, in its 2020 RFP, NorthWestern used three duration tiers, 20-, 10-, and 5-
16 hour, in order of priority, as criteria for resource selection.²⁸ NorthWestern claims that
17 the 2020 Supplement to its 2019 IRP details why using these duration tiers was

²⁴ Exhibit KU-17, NorthWestern Electricity Supply Resource Procurement Plan at 10-3 – 10-4 (August 2019).

²⁵ NorthWestern Response to RNW-012.

²⁶ NorthWestern Response to RNW-005.

²⁷ Exhibit KU-18, Pacific Northwest Utilities Conference Committee: Northwest Regional Forecast of Power Loads and Resources August 2024 through July 2034 at 5 (May 2024), available at <https://www.pnucc.org/wp-content/uploads/2024-PNUCC-Northwest-Regional-Forecast-final.pdf>.

²⁸ Direct Testimony of B. LaFave at p. 14, lines 1-21.

1 necessary²⁹ and provided the “Ride Through Capacity Analysis” it used to select the
2 duration tiers.³⁰ As in the 2020 Supplement, the analysis provided examines “deficit
3 events” and identifies P99.97 as the threshold equivalent to 1 in 10 LOLE.³¹ The analysis
4 does not appear to account for regional resource availability or imports, which is
5 consistent with 3.1.2 in the 2020 Supplement which explains NorthWestern’s analysis of
6 deficit events “*assum[ed] energy imports from market purchases were not available.*”³²

7 NorthWestern also explained in its response to RNW-030 that “overall capacity
8 needs were based on a 1 in 10 LOLE modeling completed by E3 and Ascend
9 Analytics.”³³ Sticking to the “overall capacity needs” identified through industry-
10 standard 1 in 10 LOLE modeling as completed by E3 and Ascend Analytics would have
11 been sufficient for NorthWestern to ensure its resource portfolio maintains a 1 in 10
12 LOLE. Adding a P99.97 duration threshold on top of industry-standard 1 in 10 LOLE
13 modeling has the statistical effect of multiplying one probability by another probability
14 and deviates from the industry-standard 1 in 10 LOLE. Selecting for a portfolio which
15 meets stricter LOLE thresholds is likely to result in procurement of resources, such as
16 natural gas peaking plants, which have capabilities and costs not required to maintain
17 NERC standards for reliable service, and which therefore *do not constitute a least-cost*
18 *portfolio*. This is why neither NorthWestern nor I and my colleagues at Renewable
19 Northwest have observed a single utility in the region or the West that has used a P99.97

²⁹ NorthWestern Response to RNW-017.

³⁰ NorthWestern Response to RNW-030a.

³¹ NorthWestern Energy: 2020 Supplement to the 2019 Electricity Supply Resource Procurement Plan at Figure 15, p. 17 (Exhibit KU-8).

³² *Id.* at 14 (Exhibit KU-8).

³³ NorthWestern Response to RNW-030.

1 duration threshold on top of industry-standard 1 in 10 LOLE modeling to select a least-
2 cost, reliable resource portfolio—this approach is incapable of producing such a
3 portfolio.³⁴

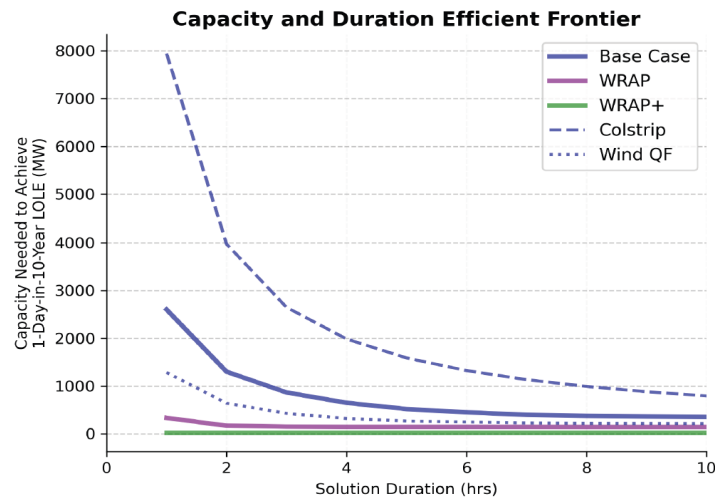
4 Finally, by omitting regional resource availability from its Ride Through Capacity
5 Analysis, NorthWestern severely discounted the regional resource availability that
6 NorthWestern and its customers already enjoy in peak periods (*e.g.* around half of
7 NorthWestern’s retail load was served by imports during the January 2024 event).³⁵
8 When accounting for regional resource availability by 2026 and 2030 for Montana
9 sufficient to maintain a 1 in 10 LOLE in multiple scenarios such as status quo, Western
10 Resource Adequacy Program (WRAP) participation, and Colstrip retirement, Energy
11 Strategies and GridLab found little marginal benefit past a four-hour duration and
12 virtually no benefit past an eight-hour duration, as shown in Figure 5.³⁶

13 **Figure 5. Assessing Resource Adequacy in Montana: 2030 Scenario and Sensitivity**
14 **Results (2023)**

³⁴ NorthWestern Response to MEIC-083.

³⁵ Docket 2022.09.087, NorthWestern Cold Weather Response Letter (Feb. 20, 2024).
(Exhibit KU-4).

³⁶ Exhibit KU-19, Energy Strategies, GridLab: Assessing Resource Adequacy in Montana at 29
(December 2023, updated June 14, 2024).



By deviating from industry-standard 1 in 10 LOLE modeling, constraining energy irrespective of transmission constraints, not adequately accounting for regional resource availability, and using long duration tiers up to 20 hours as selection criteria in its 2020 RFP, it is impossible that NorthWestern would *not* have selected for a higher-cost resource portfolio which prefers thermal generation over renewables and/or storage. I recommend that the Commission require NorthWestern use industry-standard resource modeling in its IRPs and to guide resource selection.

V. NORTHWESTERN HAS SELECTIVELY PROCURED RESOURCES FROM THE PORTFOLIO IDENTIFIED THROUGH THE 2020 RFP.

Q: Why did NorthWestern procure only the Yellowstone County Generating Station (YCGS) even though the Beartooth Battery was also selected in NorthWestern's 2020 RFP?

A: In its response to RNW-026, which inquires why NorthWestern terminated the power purchase agreement with the Beartooth Battery, NorthWestern responded:

“NorthWestern applied to the Commission for preapproval of the Beartooth Battery. 350 Montana filed a complaint requesting that a court find the preapproval statute was

1 unconstitutional. The court held that Mont. Code Ann. § 69-8-421 violated the
2 Constitution. At that time, NorthWestern no longer had the statutory avenue of advanced
3 approval to pursue the addition of this new technology.”³⁷

4 NorthWestern has not explained why it continued to procure YCGS, which,
5 identically to the Beartooth Battery, had no statutory avenue for advanced approval. It
6 also has not explained why it did not procure the Beartooth Battery under the same
7 regulatory conditions it procured YCGS. Therefore, NorthWestern has provided no
8 credible explanation for why YCGS was procured and the Beartooth Battery was not.

9 **VI. NORTHWESTERN HAS NOT PLANNED FOR AND IS EXPOSING**
10 **MONTANA’S RATEPAYERS TO SUBSTANTIAL RISKS BROUGHT BY**
11 **THERMAL RESOURCES.**

12 **Q: Has NorthWestern adequately accounted for evident, material risks associated with**
13 **thermal generation in the interest of Montana’s ratepayers and in a manner**
14 **consistent with utility best practice in the West?**

15 **A:** No. Thermal generation carries substantial economic, reliability, regulatory, and legal
16 risk. Factoring these risks through utility clean energy targets with serious treatment in
17 IRPs is industry standard practice and self-evidently necessary to identify efficient,
18 durable solutions for Montana’s citizens and industry.

19 First, thermal generation carries substantial economic risk. Wind, solar, and
20 storage resources are the cheapest sources of energy,³⁸ have fixed and variable costs
21 whose sum is often less than the marginal operating cost of either coal or natural gas
22 peaking plants,³⁹ are dispatchable with sufficient duration to contribute to least-cost 1 in

³⁷ NorthWestern Response to RNW-026.

³⁸ Lazard: LCOE+ at 16 (Exhibit KU-9).

³⁹ *Id.* at 14 (Lazard: LCOE+ (Exhibit KU-9)).

1 10 LOLE resource portfolios,⁴⁰ have zero marginal fuel cost and extremely low
2 production costs, and are being deployed in the tens of gigawatts across the West each
3 year.⁴¹ In a growing and efficient Western electricity market where least-cost resources
4 are dispatched first, thermal resources with high marginal operating costs such as coal
5 and gas peaking plants are now and will continue to be subject to reduced utilization (i.e.
6 they are at risk of becoming increasingly not used, not useful, or stranded assets).
7 Furthermore, most major load centers and utilities in the West have clean electricity
8 goals, mandates, or carbon prices which are already and will continue to reduce
9 utilization of thermal resources in the market.

10 Second, thermal generation carries reliability risk. On multiple occasions in recent
11 history, both natural gas and coal generation in Montana have been subject to correlated
12 outages and reduced generation in peak load hours. These derates are attributed to limited
13 fuel supply, labor to replace oil lines and cover water lines with blankets, generators
14 tripping off due to extremely cold air intake, and fuel switching to diesel resulting in a
15 10-15% degradation in production.⁴² In the last two winter peak events (i.e. December
16 2022, January 2024), natural gas generation in the Northwestern BAA averaged only
17 73% of its winter accredited capacity in the 44 hours when BAA load exceeded 2000
18 MW, as shown in Figure 6.⁴³

⁴⁰ Energy Strategies, GridLab: Assessing Resource Adequacy in Montana at 18, 29 (Exhibit KU-19).

⁴¹ See WECC: State of the Interconnection - Resources (2024), *available at* <https://feature.wecc.org/soti/topic-sections/resources/index.html>.

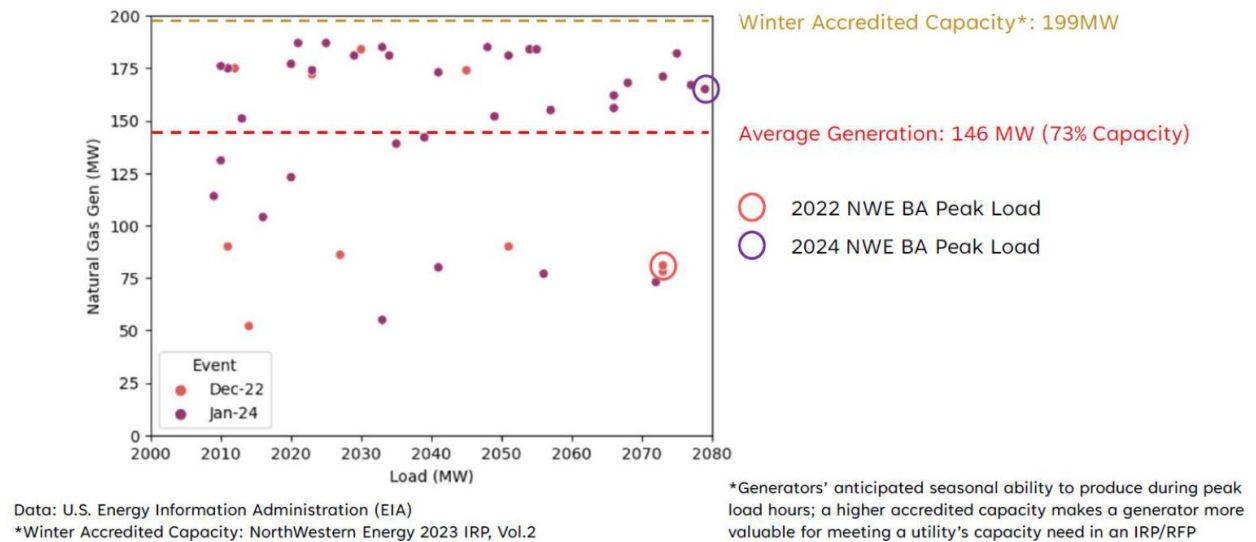
⁴² Docket 2022.09.087, Information Meeting – NorthWestern Energy Presentation (March 2024).

⁴³ Exhibit KU-20, Docket 2022.09.087, Comments of Renewable Northwest at pdf p. 5 (March 27, 2024).

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[Figure on Following Page]

Figure 6. NorthWestern BAA Natural Gas Generation During the Previous Two Winter Peak Events Where Load Exceeded 2000 MW



Third, thermal generation carries regulatory risk. In its Sixth Assessment Synthesis Report (2023), the Intergovernmental Panel on Climate Change concluded,

Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming, with global surface temperature reaching 1.1 degrees C above 1850-1900 in 2011-2020. Global greenhouse gas emissions have continued to increase...Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred. Human-caused climate change is already affecting many weather and climate extremes in every region across the globe. This has led to widespread adverse impacts and related losses and damages to nature and people...Continued greenhouse gas emissions will lead to increasing global warming, with the best estimate of reaching 1.5 degrees C in the near term...Every increment of

1 global warming will intensify multiple and concurrent hazards...Deep, rapid,
2 and sustained reductions in greenhouse gas emissions would lead to a
3 discernible slowdown in global warming within around two decades, and also
4 to discernible changes in atmospheric composition within a few years.⁴⁴

5 Given the IPCC's demonstration that continued greenhouse gas emissions pose serious
6 risks to the health and safety of people in every region, many regulatory bodies are
7 requiring mitigation of greenhouse gas emissions. These regulations have extended to
8 Montana's electricity generation resources. In 2023, the U.S. EPA proposed new
9 Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants. The rules
10 were finalized in 2024⁴⁵ and are expected to impose large compliance costs on the Colstrip
11 Plant.⁴⁶

12 Finally, thermal generation carries legal risk. In response to the fact that continued
13 greenhouse gas emissions pose serious risks to the health and safety of people in every
14 region, including in Montana, a district court in Montana in August of 2023 ruled in favor
15 of the plaintiffs in *Held v. Montana*, finding that emissions from Montana industry, and
16 principally from Montana's energy sector, have a material, deleterious effect on

⁴⁴ Exhibit KU-21, IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001, available at https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf.

⁴⁵ New Source Performance Standards for Greenhouse Gas Emissions From New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions From Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule, 89 Fed. Reg. 39798 (May 9, 2024), available at <https://www.federalregister.gov/documents/2024/05/09/2024-09233/new-source-performance-standards-for-greenhouse-gas-emissions-from-new-modified-and-reconstructed>.

⁴⁶ Exhibit KU-22, Eggert, Amanda, EPA finalizes rules to clamp down on pollution from power plants, Montana Free Press (April 25, 2024), available at <https://montanafreepress.org/2024/04/25/epa-adopts-rules-to-clamp-down-on-pollution-from-power-plants/>.

1 Montana’s environment, depriving plaintiffs of their fundamental right to a clean and
2 healthful environment.⁴⁷ On December 18, 2024, the Montana Supreme Court affirmed
3 the district court, holding that “Montana’s right to a clean and healthful environment and
4 environmental life support system includes a stable climate system, which is clearly
5 within the object and true principles of the Framers inclusion of the right to a clean and
6 healthful environment.”⁴⁸ Further, in its opinion in *MEIC v. Montana Department of*
7 *Environmental Quality and NorthWestern Energy*, issued on the heels of *Held*, the Court
8 determined that the Montana Department of Environmental Quality (DEQ) unlawfully
9 failed to analyze and disclose the greenhouse gas emissions and climate impacts from
10 NorthWestern’s YCGS.⁴⁹ The Court reiterated its rationale in *Held* that the State does not
11 have “a free pass to pollute the Montana environment just because the rest of the world
12 insist[s] on doing so.”⁵⁰ Further, the Court found that even though the YCGS’s GHG
13 emissions “may reach far outside Montana [that] does not allow the agency to completely
14 ignore whether and to what extent they may result in adverse effects on Montana’s
15 environment.”⁵¹ Especially when, as the Court observed in the case of YCGS, DEQ
16 acknowledged that it was in the category of “the largest contributor of greenhouse gases
17 in Montana.”⁵²

⁴⁷ Exhibit KU-23, *Held v. State*, No. CDV-2020-307 (Mont. First Jud. Dist. Ct. Aug. 14, 2023) (Findings of Fact, Conclusions of Law, and Order).

⁴⁸ *Held v. State*, 2024 MT 312, ¶ 30.

⁴⁹ *MEIC v. Mont. Dept. of Env. Quality and Northwestern Energy*, 2025 MT 3, ¶ 61.

⁵⁰ *Held v. State*, 2024 MT 312, ¶ 30.

⁵¹ *MEIC*, ¶ 47.

⁵² *Id.*

1 Given these clear risks associated with thermal generation which apply across
2 every state in the West, most utilities in the West have specific targets for achieving a
3 clean electricity supply which receive serious treatment in their IRPs, even in states
4 where there is no legislative policy mandate. For instance, Idaho Power Company and
5 Arizona Public Service have 100% clean electricity targets. In 2018, Xcel Energy
6 announced its plan to achieve 100% clean electricity for its customers well in advance of
7 policy mandates being enacted in either Minnesota or Colorado.⁵³

8 Not only does NorthWestern's "Net Zero by 2050" goal fall short of 100% clean
9 electricity,⁵⁴ I find no evidence in either NorthWestern's 2019 IRP or its 2023 IRP which
10 could reasonably be construed as planning for a no- or low-emissions resource portfolio.
11 Furthermore, NorthWestern has stated in response to MEIC and RNW data requests that
12 it neither has nor intends to plan for compliance with existing GHG emission
13 regulations.⁵⁵ NorthWestern goes so far as to state publicly that the EPA regulations
14 themselves will "increase the cost of energy service and jeopardize reliability."⁵⁶ If
15 increases are realized in the cost of energy service or reliability is jeopardized in
16 Montana, the evidence in this case shows it will be the result of NorthWestern's poor
17 planning which preferred selection of thermal generation while not adequately factoring

⁵³ Exhibit KU-24, Xcel Energy: Xcel Aims for Zero-Carbon Electricity by 2050 (2018), available at <https://investors.xcelenergy.com/news-events/news-releases/news-details/2018/Xcel-Energy-Aims-for-Zero-Carbon-Electricity-by-2050/default.aspx>.

⁵⁴ Exhibit KU-25 NorthWestern Energy: Net Zero by 2050, available at https://www.northwesternenergy.com/docs/default-source/default-document-library/clean-energy/net-zero/netzero_2050.pdf.

⁵⁵ NorthWestern Responses to MEIC-004, MEIC-008, RNW-022.

⁵⁶ Eggert, Amanda, EPA finalizes rules to clamp down on pollution from power plants, Montana Free Press (April 25, 2024), available at <https://montanafreepress.org/2024/04/25/epa-adopts-rules-to-clamp-down-on-pollution-from-power-plants/> (Exhibit KU-22).

1 the evident risks associated with thermal generation which I have outlined here and
2 which most other utilities in the West have treated seriously in their company goals and
3 resource planning processes.

4 **Q: What conclusions does Renewable Northwest draw regarding the resource**
5 **investments proposed for cost recovery in this rate case?**

6 **A:** The requested cost recovery for YCGS and Colstrip represent investments which are not
7 the product of industry-standard planning or procurement, are highly risky, and do not
8 make economic sense in the absence of robust analysis of and efficient investment in
9 transmission capacity and lower-cost renewable generation and storage. While
10 Renewable Northwest views its role in this case as primarily to bring critical insights
11 based on our expertise in utility best practice across the West, and not necessarily to
12 make specific recommendations with regard to rate recovery, Renewable Northwest
13 believes rate recovery would only be proper in this case contingent on NorthWestern
14 addressing the following actions in the context of this rate case and also incorporating
15 them into its resource planning and procurement processes:

- 16 • That NorthWestern study and incorporate into its resource planning the cost of
17 capacity brought by new transmission capacity on WECC paths 8, 18, and 80 in a
18 manner which considers the multiple values of new transmission capacity similar to
19 best practice among other utilities in the region and across the West;
- 20 • NorthWestern should only constrain energy in its resource modeling insofar as
21 necessary to match transmission constraints after first incorporating efficient
22 transmission capacity expansion solutions;

- 1 • NorthWestern should stick to industry-standard 1 in 10 LOLE resource modeling in
2 its IRPs and to guide resource selection;
- 3 • NorthWestern should procure clean resources when selected in its RFP processes;
- 4 • NorthWestern should adequately account for the evident, substantial economic,
5 reliability, regulatory, and legal risk associated with thermal resources through a
6 company 100% clean energy goal and serious treatment of such a goal in its IRP
7 process, consistent with utility best practice in the West.

8 **Q: Does this conclude your testimony?**

9 **A: Yes.**

*I, Kyle Unruh, verify that my foregoing pre-filed testimony is true
and accurate to my best knowledge, information, and belief.*

/s/ Kyle Unruh