

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

IN THE MATTER OF NorthWestern) Regulatory Division
Energy's 2026 Integrated Resource Plan) Docket No. 2026.04.026

**RENEWABLE NORTHWEST’S COMMENTS ON NORTHWESTERN ENERGY’S
2026 INTEGRATED RESOURCE PLAN**

Filed July 24, 2026

I. Introduction

Renewable Northwest presents these remarks in adherence to Montana Code Annotated Title 69, Chapter 3, Part 12 (MCA § 69-3-12), with regard to NorthWestern Energy’s (“NWE” or “the Company”) 2026 Montana Integrated Resource Plan (“IRP” or “2026 IRP”). In recognizing the significance of comprehensive stakeholder involvement within this IRP process to enhance the clarity of utility resource planning over the long term, Renewable Northwest values the chance to offer these observations.

II. Summary of Comments

- a. Renewable Northwest supports several of NWE's best practices, including its commitment to participating in WRAP, discussion of transmission benefits, improved approach to load forecasting, and discussion of regional resource adequacy and transmission availability.
- b. NWE's technology cost inputs are out of step with today's best estimates for solar, wind, and battery storage. Overestimating such costs likely results in mitigated selection of these resources.
- c. NWE's methods for estimating interconnection costs for new generation are impractical, favoring thermal generators over wind, solar, and storage.

- d. NWE places an arbitrary limit on selection of long-duration energy storage (LDES). This limit should be removed.
- e. NWE cites wind turbine blade disposal as a material consideration for selection of wind generation technologies. Their citation is obsolete (i.e., no longer available through the source cited) and does not consider current information from the same source.
- f. NWE does not make a thorough evaluation of the value of transmission assets for resource adequacy or reduction of loss of load. This is best practice among numerous Pacific Northwest utilities and should be adopted by NWE.
- g. NWE discounts or does not even consider the material, substantial risks brought by thermal generation, on which the IRP's preferred portfolio largely depends.

The IRP ought to include a robust evaluation of numerous risk factors.

II. Comments

A. Renewable Northwest supports NWE's commitment to the WRAP program, taking a regional view, and improving its load forecast.

Participation in the WRAP program is likely to improve reliable operations on NWE's system. The WRAP may also enable more efficient planning for resource adequacy and an eventual planning reserve margin benefit. NorthWestern also rightly considers the transmission benefits and contributions further regional connectivity can bring to its customers.¹ Given the long development timelines for transmission infrastructure, it is prudent to more closely integrate transmission and resource planning functions through the IRP process, as NWE has already begun and plans to accelerate in future years.

¹ Mont. Pub. Serv. Co., Docket No. 2026.04.026, NorthWestern Energy's 2026 Integrated Resource Plan (filed May 4, 2026) (hereinafter "NWE 2026 IRP") at 6.2, *available at* https://reddi.mt.gov/prweb/PRAuth2/app/reddi/69MPqGeS_UTZWHGFH6YedHAuE3yJxESf*/!STANDARD.

We also appreciate the IRP's increasingly sophisticated approach to load forecasting, to include various sources of load growth including electrification. Similarly, we find NWE's discussion of regional resource adequacy and transmission availability prudent, and increasingly important to consider in its IRP planning.

B. NWE's technology cost inputs are out of step with industry-standard estimates.

NWE's cost estimates for wind, solar, and battery are much higher than industry standards. Table 36 of the IRP shows wind and solar resource types receiving estimates anywhere from 13% to 17% greater than the ATB's moderate case. Concerning battery energy storage system (BESS) resources, using 100MW 4hr BESS data as a proxy, NWE estimates Overnight CapEx to be \$2,071 and Fixed O&M to be \$31.63. These numbers, in total, are 50% higher than the industry standard per NREL's most recent 2025 Battery Update.² See Figures 1-2.

² NREL Battery Update (2025), available at <https://docs.nlr.gov/docs/fy25osti/93281.pdf> (reporting a \$2025 adjusted Overnight CapEx of \$1,383 and Fixed O&M of \$55).

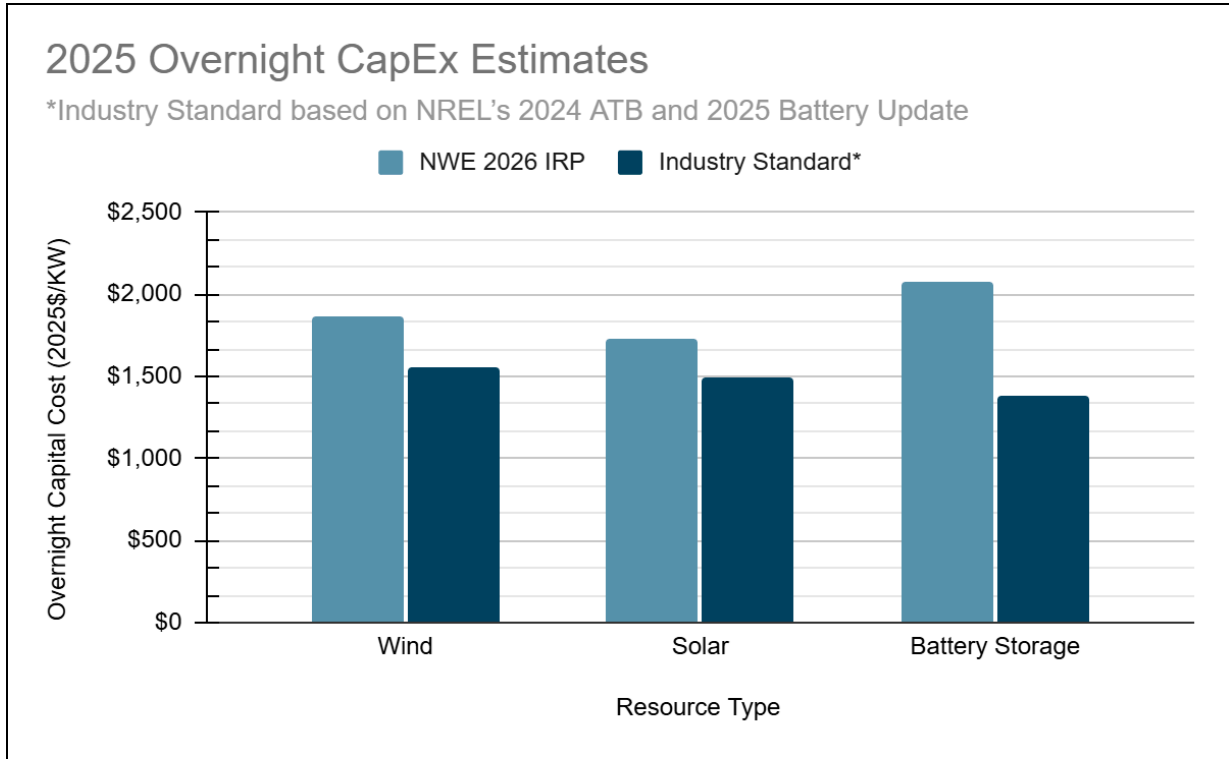


Figure 1: 2025 Overnight CapEx Estimates

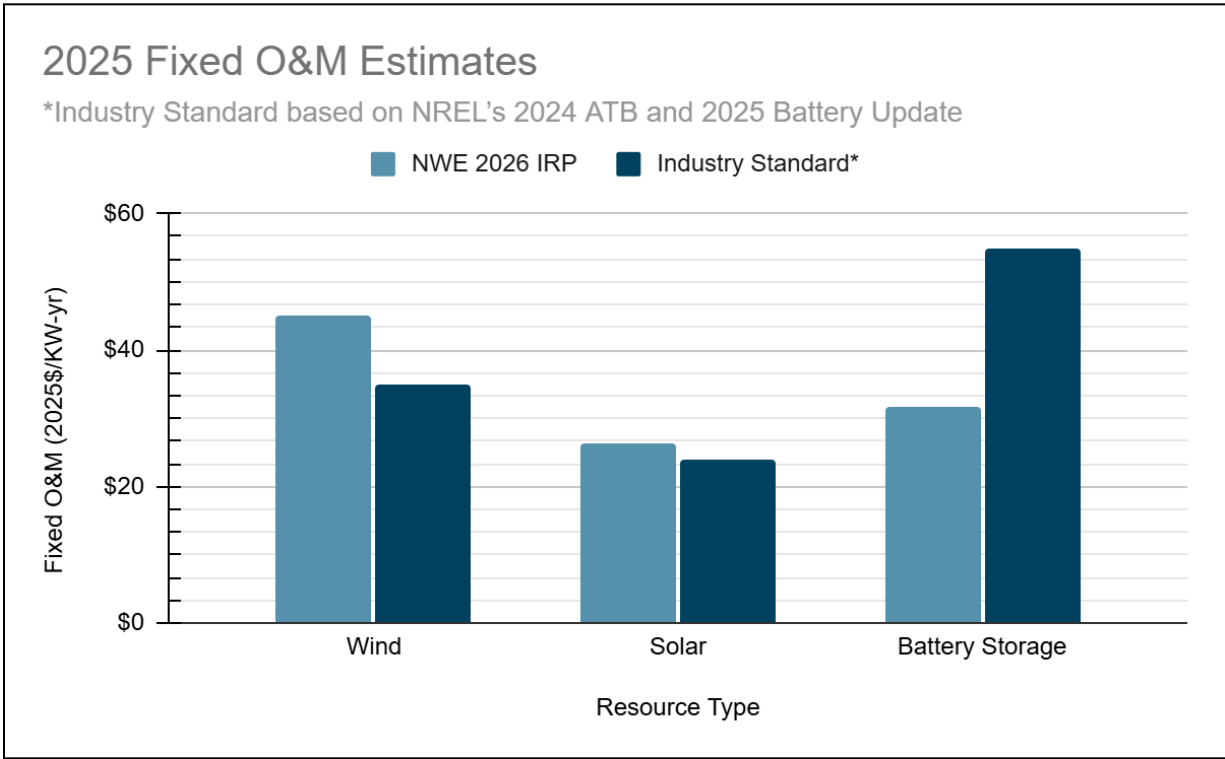


Figure 2: 2025 Fixed O&M Estimates

When we take a step back from the near-term, point-in-time estimates above and consider input assumptions for technology cost curves, NWE’s inputs are even more out of step with industry-standard estimates. Concerning wind generation, there is a complete dislocation between NWE and NREL cost curves. By 2036 (2025\$/kw), the variance is over 43%, with NWE estimating ~\$1,850, and NREL estimating \$1,294.³ The variance for solar generation is over 47%, with NWE estimating ~\$1,250 in the IRP, and NREL estimating \$849. Lastly, in regard to BESS generation costs, the variance between NWE’s estimate of \$1,800 as compared to NREL’s of \$968 is over 86%. See Figure 3.

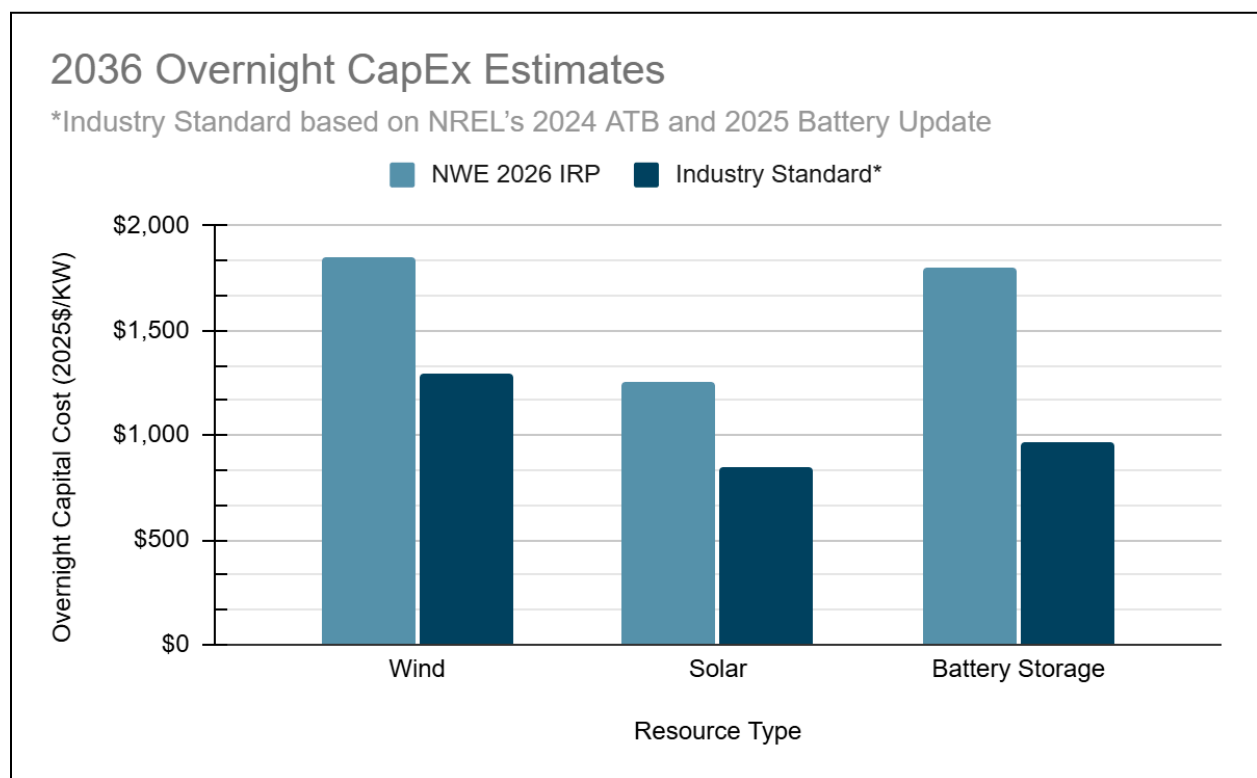


Figure 3: 2036 Overnight CapEx Estimates

These discrepancies show a fundamentally different view of how generation technologies are likely to develop in the next ten years. NREL estimates for wind, solar, and BESS are

³ See NWE 2026 IRP at Figure 51: Candidate Cost Resource Curves

conservative relative to other leading estimates BNEF⁴ which demonstrate declining clean technology costs in this timeframe as is observed in recent years and as global uptake surges. By overestimating costs of clean resource technologies, NWE risks under-selecting these technologies, and over-selecting more expensive thermal or nuclear technologies in its preferred portfolio, which carry serious economic and reliability risks as noted below.

C. NWE's treatment of interconnection costs advantages thermal resources

NorthWestern has effectively used different treatment of interconnection costs for wind, solar, and storage than it has for most thermal resources. It is worth inquiring whether the POI and Network Upgrade costs enumerated below were applied to all candidate resources, or just wind, solar, and storage, as the IRP language is unclear on the matter. In the best case, by selecting candidate resources for stand-alone wind and solar no less than 300MW, the interconnection costs for wind and solar are around six times larger than for a 50MW resource, and are prohibitive. Worst case, wind, solar, and storage are the only resources being assessed for these large costs, arbitrarily inflating those technologies' cost estimates versus other technologies.

Once again, this approach diverges from the industry standard per NREL. For a 300MW wind or solar facility, if a utility chooses to include interconnection costs, NREL recommends adding ~\$38,500,000 to the cost of the resource, NorthWestern's method of a fixed \$9.226M POI charge plus \$1.291M/MW Network Upgrade charge results in ~\$396,500,000 being added to the cost of the resource – this is over ten times the NREL recommendation and is prohibitive for

⁴ Lithium-Ion Battery Pack Prices See Largest Drop Since 2017, Falling to \$115 per Kilowatt-Hour: Bloomberg New Energy Finance, (Dec. 10, 2024), <https://about.bnef.com/insights/commodities/lithium-ion-battery-pack-prices-see-largest-drop-since-2017-falling-to-115-per-kilowatt-hour-bloombergnef/>

resource selection. Indeed most resources of any size would not be built if interconnection costs approached \$400M.

Further benchmarking with regional utilities shows the same pattern. PSE would have assessed ~\$46M for 300MW of wind generation in WA or up to \$139M for 300MW of wind generation located in ID or WY (700-1000mi away from its BAA)⁵.

D. NWE's LDES limit is arbitrary. It should be removed, or its effect should be studied.

We find NorthWestern's 150 MW limit on the volume of LDES that may be selected for the portfolio unnecessary and inconsistent with its treatment of SMR (i.e. there is no limit on SMR despite the technology being even less mature than LDES).⁶ This LDES limit likely resulted in under-selection of LDES in the preferred portfolio. At minimum, a sensitivity should be modeled without an LDES limit.

E. Wind turbine blade disposal

In 7.1.3, NWE included an anecdote regarding disposal of wind turbine blades and that they are largely not recyclable, citing an ACP fact sheet which is not available on the link provided.⁷ This is not consistent with ACP's fact sheet, which claims wind turbine blades are largely recyclable⁸. Insofar as this issue is germane to IRP planning, we recommend NWE update this anecdote and reference current materials as provided here.

⁵ Puget Sound Energy, Generic Resources Capital Costs and Operating Assumptions for the 2023 Electric Progress Report (2022). Available at: https://www.pse.com/-/media/PDFs/IRP/2022/09132022/2022-0913-GenericResourcesUpdate.pdf?sc_lang=en&modified=20220906180617&hash=91F2E9DD01A95C82D31D713D9951297B

⁶ NWE 2026 Montana IRP at 7.1.2–7.1.4

⁷ *Id.* at 7.1.3.

⁸ ACP, Wind Turbine Blade Disposal (2024). Available at https://cleanpower.org/wp-content/uploads/gateway/2022/08/WindTurbine_Disposal_241031.pdf

F. NWE should enhance its integration of transmission development opportunities and their resource adequacy impact into the IRP analysis

Though we understand that, to date, WRAP does not recognize a capacity contribution from interjurisdictional transmission lines sufficient to qualify for the forward showing requirement, we now have ample evidence that such lines, like the NPC or M2I, bring quantifiable capacity and RA benefits which should be factored into IRP planning⁹. We anticipate WRAP will also recognize these benefits and allow capacity credit for such transmission in the near future. See WRAP change requests: 2025-CRF-009, 2025-CRF-010.

G. NWE does not adequately consider the material, substantial risks associated with thermal generation

We found a lack of discussion on the material reliability and economic risks associated with thermal generation, particularly given selection of these resources in the IRP portfolios. Thermal generation carries substantial economic, reliability, regulatory, and legal risk. Factoring these risks through utility clean energy targets with serious treatment in IRPs is industry standard practice and self-evidently necessary to identify efficient, durable solutions for Montana's citizens and industry.

⁹ Grid Strategies, The RA Value of Interregional Transmission (2025). Available at: https://gridstrategiesllc.com/wp-content/uploads/GridStrategies_RAValueInterregionalTx_250601.pdf

First, thermal generation carries substantial economic risk. Wind, solar, and storage resources are the cheapest sources of energy, have fixed and variable costs whose sum is often less than the marginal operating cost of either coal or natural gas peaking plants, are dispatchable with sufficient duration to contribute to least-cost 1 in 10 LOLE resource portfolios,¹⁰ have zero marginal fuel cost and extremely low production costs, and are being deployed in the tens of gigawatts across the West each year.¹¹ In a growing and efficient Western electricity market where least-cost resources are dispatched first, thermal resources with high marginal operating costs such as coal and gas peaking plants are now, and will continue to be, subject to reduced utilization (i.e. they are at risk of becoming increasingly not used, not useful, or event stranded assets). Furthermore, most major load centers and utilities in the West have clean electricity goals, mandates, or carbon prices which are already and will continue to similarly reduce utilization of thermal resources in the market.

Second, thermal generation carries reliability risk. On multiple occasions in recent history, both natural gas and coal generation in Montana have been subject to correlated outages and reduced generation in peak load hours. These derates are attributed to limited fuel supply, labor to replace oil lines and cover water lines with blankets, generators tripping off due to extremely cold air intake, and fuel switching to diesel resulting in a 10-15% degradation in production.¹² In the last two winter peak events (i.e. December 2022, January 2024), natural gas generation in the Northwestern BAA averaged only 73% of its winter accredited capacity in the 44 hours when BAA load exceeded 2000 MW, as shown in Figure 1.¹³

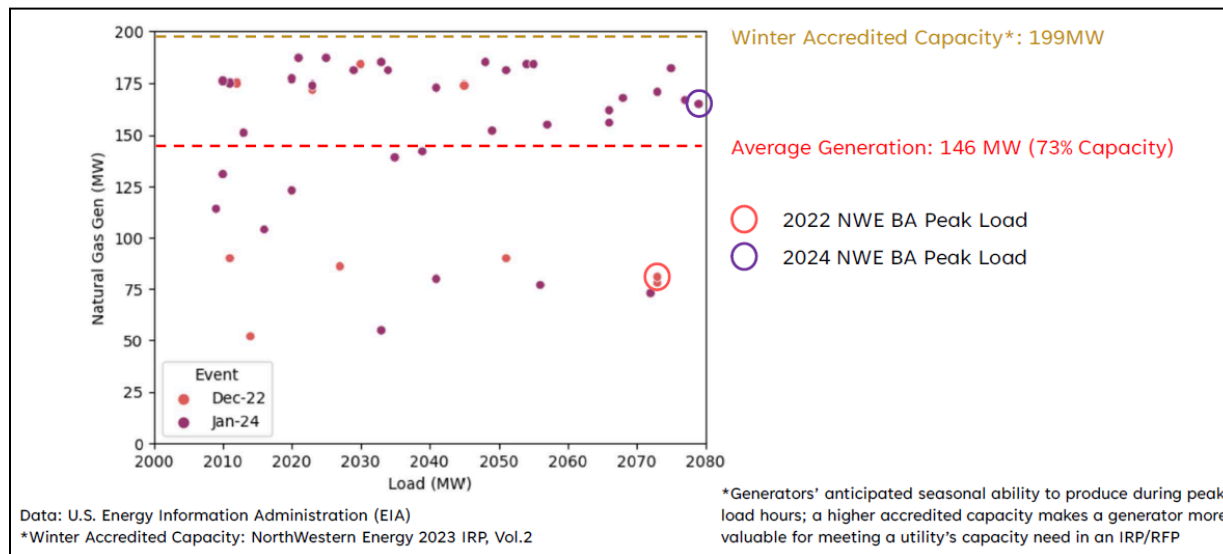
¹⁰ Energy Strategies, GridLab: Assessing Resource Adequacy in Montana at 18, 29 (Exhibit KU-19).

¹¹ See WECC: State of the Interconnection - Resources (2024), available at <https://feature.wecc.org/soti/topic-sections/resources/index.html>.

¹² Docket 2022.09.087, Information Meeting – NorthWestern Energy Presentation (March 2024).

¹³ Docket 2022.09.087, Comments of Renewable Northwest at pdf p. 5 (March 27, 2024).

Figure 1: 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 global warming will intensify multiple and concurrent hazards . . . Deep, rapid, and sustained reductions in greenhouse gas emissions would lead to a discernible slowdown in global warming within around two decades, and also to discernible changes in atmospheric composition within a few years.”¹⁴

Given the IPCC demonstrated continued greenhouse gas emissions pose serious risks to the health and safety of people in every region, many regulatory bodies are requiring mitigation

¹⁴ 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.

of greenhouse gas emissions.¹⁵ These regulations have extended to Montana’s electricity generation resources. In 2023, the U.S. EPA proposed new Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants. The rules were finalized in 2024¹⁶ and are expected to impose large compliance costs on the Colstrip Plant.¹⁷

Finally, thermal generation carries legal risk. In response to the fact that continued greenhouse gas emissions pose serious risks to the health and safety of people in every region, including in Montana, a district court in Montana in August of 2023 ruled in favor of the plaintiffs in *Held v. Montana*, finding that emissions from Montana industry, and principally from Montana’s energy sector, have a material, deleterious effect on Montana’s environment, in turn depriving plaintiffs of their fundamental right to a clean and healthful environment.¹⁸ On December 18, 2024, the Montana Supreme Court affirmed the district court, holding that “Montana’s right to a clean and healthful environment and environmental life support system includes a stable climate system, which is clearly within the object and true principles of the Framers inclusion of the right to a clean and healthful environment.”¹⁹ Further, in its opinion in *MEIC v. Montana Department of Environmental Quality and NorthWestern Energy*, issued on the heels of *Held*, the Court determined that the Montana Department of Environmental Quality

¹⁵IPCC, 2023: 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, 184 pp., doi: 10.59327/IPCC/AR6-9789291691647, available at https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf.

¹⁶ 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>.

¹⁷ 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/>.

¹⁸ 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).

¹⁹ *Held v. State*, 2024 MT 312, ¶ 30.

(DEQ) unlawfully failed to analyze and disclose the greenhouse gas emissions and climate impacts from NorthWestern's YCGS.²⁰ The Court reiterated its rationale in *Held* that the State does not have “a free pass to pollute the Montana environment just because the rest of the world insist[s] on doing so.”²¹ Further, the Court found that even though the YCGS's GHG emissions “may reach far outside Montana [that] does not allow the agency to completely ignore whether and to what extent they may result in adverse effects on Montana's environment.”²² Especially when, as the Court observed in the case of YCGS, DEQ acknowledged that it was in the category of “the largest contributor of greenhouse gases in Montana.”²³

Given these clear risks associated with thermal generation which apply across every state in the West, the vast majority of most utilities in the West have specific targets for achieving a clean electricity supply which receive serious treatment in their IRPs, even in states where there is no relevant legislative policy mandate. For instance, Idaho Power Company and Arizona Public Service have 100% clean electricity targets.²⁴ In 2018, Xcel Energy announced its plan to achieve 100% clean electricity for its customers well in advance of policy mandates being enacted in either Minnesota or Colorado.²⁵

NorthWestern's “Net Zero by 2050” goal falls short of 100% clean electricity and therefore falls short of other utility plans to address these risks.²⁶ Selection of thermal generation

²⁰ *MEIC v. Mont. Dept. of Env. Quality and Northwestern Energy*, 2025 MT 3, ¶ 61.

²¹ *Held v. State*, 2024 MT 312, ¶ 30.

²² *MEIC*, ¶ 47.

²³ *Id.*

²⁴ Arizona Public Service, *APS sets course for 100 percent clean energy future* (Jan. 22, 2020), <https://www.aps.com/en/About/Our-Company/Newsroom/Articles/APS-sets-course-for-100-percent-clean-energy-future>; see Idaho Power, *Clean Today. Cleaner Tomorrow.*, <https://www.idahopower.com/energy-environment/energy/clean-today-cleaner-tomorrow/> (last visited July 23, 2026) (“In 2019, Idaho Power adopted a goal to achieve 100% clean* energy by 2045 from our generation resources,” wherein “clean” was defined as as non-carbon emitting at the point of electricity generation).

²⁵ 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>.

²⁶ NorthWestern Energy: Net Zero by 2050, available at

while also not adequately factoring the evident risks associated with thermal generation outlined here and which most other utilities in the West have treated seriously in their company goals and resource planning processes is likely to compromise reliability and raise the cost of service in Montana.²⁷

https://www.northwesternenergy.com/docs/default-source/default-document-library/clean-energy/net-zero/netzero_2050.pdf.

²⁷ See 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/>