Oct. 16, 2026

Re: Renewable Northwest Comments on Draft Ninth Northwest Power Plan

I. INTRODUCTION

Renewable Northwest ("RNW") is grateful to the Northwest Power and Conservation Council ("NWPCC" or "Council") for the opportunity to comment on the Draft Ninth Northwest Power Plan ("Draft Plan"). RNW has long participated in the development of the plan, for the past several planning cycles serving on or attending meetings of the Generating Resources Advisory Committee ("GRAC"), Resource Adequacy Advisory Committee ("RAAC"), and System Analysis Advisory Committee ("SAAC"), meeting with Council Staff, and taking advantage of formal opportunities for written comments.

In these comments, RNW offers support for the Draft Plan at a high level, including an appreciation for the plan-development process and several specific elements of the Draft Plan. RNW goes on to discuss certain developments relating to emerging resources and gas resource costs that have occurred since the planning inputs and approach were fixed. Recognizing that it is not feasible to update the modeling approach midstream, RNW instead reiterates its support for the current model outputs and instead recommends minor additions to the narrative portion of the Draft Plan to address these developments. RNW appreciates Council staff's and the Council's consideration of these comments.

II. COMMENTS

1. General

Overall, RNW supports the Draft Plan as a reasonable reflection of the increasingly complex and challenging dynamics of the Northwest's energy system with a similarly reasonable Resource Strategy and associated recommendations.

The Council is required by 16 U.S.C. § 839b(d) to develop a "regional conservation and electric power plan" at least once every five years. Under 16 U.S.C. § 839b(e)(1), the plan must give priority to conservation and renewable resources. Under 16 U.S.C. § 839b(e)(3)(D), the plan

must include "a forecast of power resources estimated by the Council to be required to meet the [Bonneville Power Administration ("BPA")] Administrator's obligations and the portion of such obligations the Council determines can be met by resources in each of the priority categories referred to in paragraph (1) of this subsection[.]" This forecast must "include regional reliability and reserve requirements," consider "the availability of resources to the Administrator," and "include the approximate amounts of power the Council recommends should be acquired by the Administrator" including "an estimate of the types of resources from which such power should be acquired." 16 U.S.C. § 839b(e)(3)(D). Overall, the plan must present "an analysis of reserve and reliability requirements and cost-effective methods of providing reserves designed to insure adequate electric power at the lowest probable cost[.]" 16 U.S.C. § 839b(e)(3)(E).

This last requirement – that the Council's plan assess how the region can "insure adequate power at the lowest probable cost" – makes the plan something of an integrated resource plan ("IRP") for the region. To that end, in RNW's experience, the plan tends to dominate the conversation around the region's electricity system, and the Council's resource strategy often finds itself reflected in utility-specific IRPs, resulting Requests for Proposals ("RFPs"), and the types of resources that actually get developed and procured.

Also in RNW's experience, Council staff do an excellent job of fulfilling their responsibility to develop such a meaningful plan. Plan development is a lengthy process with multiple workstreams involving many stakeholders. From its longstanding participation in and observation of various Council advisory committees, RNW has deep respect for Council staff and the job they do to prepare the plan. It is no surprise, then, that RNW views the Draft Plan as a reasonable document with a reasonable Resource Strategy and other recommendations.

In particular, RNW appreciates the Resource Strategy's inclusion of 9,000 MW of new renewable resources and 5,200 MW of new storage resources by 2032, as well as the Draft Plan's recommendations to "[i]ncrease the pace of resource development through streamlining permitting and interconnection" and "[m]inimize seams between the two day-ahead markets emerging in the region[,]" and its recognition of "the need for new transmission development to support the addition of resources and meeting projected load growth." *See* Draft Plan at 87, 98 & 101-02. These conclusions and recommendations strongly align with RNW's understanding of the region's needs, and procurement of these resources as a large part of a diverse portfolio should serve to minimize long term cost and risk for the region.[1]

[1] These comments' silence on any aspect of the Draft Plan should not be taken as support or opposition. The Draft Plan covers a lot of ground, and RNW is tailoring these comments to what we view as the most important issues it addresses. RNW also broadly supports the Draft Plan's signal for robust investment in demand-side resources, but lacks expertise sufficient to comment more specifically on efficiency and demand response.

Having established RNW's broad support for the Draft Plan, the remainder of these Comments will focus on changes to certain resource categories since the inputs for the Draft Plan were effectively "locked in". Put simply, in a few cases, real world circumstances have diverged from planning assumptions and, consequently, the Council may wish to observe in the Final Plan that model outputs might be different if modeling were undertaken afresh today with updated inputs. RNW wishes to stress that we are not suggesting the inputs were inappropriate when adopted, arguing that the model outcomes are unreasonable, or advocating for new modeling or for a change to the Resource Strategy itself. Rather, we wish to ensure that the Council is aware of recent developments and provide an opportunity for Council staff or the Council to acknowledge these developments in the narrative portion of the final Ninth Power Plan.

2. Resource Inputs

a. Global Observations

RNW has long served on the GRAC, so we recognize the need to lock down resource inputs relatively early in the modeling process, using the best available data at the time. Timely determining resource inputs was a particularly challenging exercise for this planning cycle, given the need to lock down resource inputs in early 2025, following a change in federal administrations with dramatically different approaches to domestic energy policy and international engagement bearing on energy costs. Even before the change in administrations, the energy sector had been volatile as a result of supply chain disruptions and shifting state and federal policies, among other challenging dynamics. At the same time, some new resource categories have been rapidly approaching commercialization, including in particular long duration storage and enhanced geothermal. Resource inputs for the plan had to be locked in sometime, and Council staff used quality data available in early 2025 to do so.

Since early 2025, however, we have seen long duration storage and enhanced geothermal continue to rush toward full commercialization, while a variety of headwinds have caused gas costs to skyrocket. The next two sections discuss these two key dynamics, followed by a discussion of what these dynamics would likely mean for the Draft Plan if the Council's modeling were based on today's resource inputs.

b. Emerging Technologies

The Draft Plan is bullish on long duration storage resources. The Draft Plan discusses the current state of these resources, noting that "[t]he iron air battery is close to commercial readiness" but classifying the resource as an "emerging technology," meaning "potential new resources that are not yet considered available but might provide value for the system in the long term." Draft Plan at 83-84. The Draft Plan observes that "modeling showed a robust signal for

the value of emerging technology resources", and in particular "[t]he long-duration and medium-duration storage proxies were selected in all sensitivities for which they were an option." Draft Plan at 112. Indeed, most sensitivities that studied a long duration storage proxy hit the "build limit" of 850 MW. Draft Plan Appx. N at 37.

Since the time that the modeling approach for the Ninth Plan was locked in, long duration batteries have continued to become more commercially available. In just 2026, for example, Xcel Energy and Google selected a 300 MW iron air battery from Form Energy to serve a Google data center. *See* Form Energy, "Xcel Energy to power new Google data center in Minnesota (Feb. 24, 2026). Crusoe Energy also procured 12 GWh of iron air batteries from Form to serve its data centers. *See* Form Energy, "Partnership advances speed to power, domestic manufacturing, and U.S. leadership in the AI-energy nexus" (Mar. 24, 2026). Based on the recency and scale of these offtake agreements, RNW views iron air batteries as effectively commercially available.

The Draft Plan also addresses enhanced geothermal. Its discussion of the resource focuses more on the technology than it does the resource's availability. Draft Plan Appx. G at 91. However, the Draft Plan models what it calls "clean baseload" as an emerging technology resource; although the proxy inputs are based on a small modular nuclear reactor, the Draft Plan notes that "[t]here are several emerging resources in development that could provide these characteristics including enhanced geothermal[.]" Draft Plan at 84.

Since the modeling approach for the Ninth Plan was locked in, enhanced geothermal has also become more commercially available. Just last month, for example, Google selected a 396 MW enhanced geothermal resource to serve a Google data center in Utah, with the option to expand to almost 1 GW by June 2030. Fervo Energy, "Fervo Energy and Google Sign 396 MW PPA" (Sept. 1, 2026).

By the next planning cycle, these resources will likely need to be modeled as "reliable and available" resources rather than studied as emerging technologies with long-term potential. *See* Draft Plan Appx. G at 84 (discussing emerging resources). This, in turn, could shape the output of the tenth plan, especially as regional clean energy mandates ramp up.

c. Gas

The Draft Plan's gas resource costs were locked in in January 2025 using 2024 data. *Compare* Draft Plan at 81 *with* Council Staff, "Finalizing Reference Plants for the 9th Plan" at 65 (Jan. 31, 2025). Overall, the Draft Plan explains its approach to gas costs in the modeling underlying the Resource Strategy:

> For combined cycle combustion turbines, the Ninth Plan assumes a capital cost of $1,500 per kilowatt in 2024 dollars. To address pipeline constraints, the Council assumed an added $30 per kilowatt-year in fixed operations and maintenance costs to account for the cost of firming up the fuel supply. The Ninth Plan assumes cost declines of about 15% for this technology over the planning horizon.
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> The capital cost for frame turbines is around $1000 per kilowatt, with the more expensive reciprocating engine turbines at $1800 per kilowatt, both in 2024 dollars. The Council assumed an upfront cost of $78 per kilowatt and ongoing fixed operations and maintenance costs of $5 per kilowatt-year to account for added onsite storage and fuel to ensure firm capacity for new simple cycle plants. The Ninth Plan assumes that both simple cycle technologies' costs will decline by around 20% over the 20-year plan horizon.

Draft Plan at 81.

Real-world circumstances since January 2025, however, have proved much more negative for gas than these inputs reflect. There is some lag in gas data finding their way into published analyses, so it can be hard to quantify exactly how high capital costs are for gas resources today. For example, the 2026 Lazard Levelized Cost of Energy+ Report explains that "market quotes for CCGT [combined cycle generating turbine] projects in early stages of development with post-2028 COD" are in the range of $2,400-$2,600/kW (as opposed to $1,500 modeled in the plan). As to what this means for the Report, Lazard explains that "CCGT capital costs and LCOE increased in this year's study, but they have not yet reached the levels of recently observed quotes, suggesting higher-cost projects may still be in the planning and development phases." Similar figures are reported in recent IRPs, from inside and outside the region including Portland General Electric ($3,080 for combined cycle and $1,840 for CT) Oklahoma Power & Gas ($2,570-$2,760 for combined cycle, $2,460 for CT, and $3,560-$3,760 for reciprocating). PGE CEP & IRP Roundtable 26-3 at 50 (Apr. 8, 2026); Oklahoma Gas & Electric IRP at 14 (2026). Simply put, the most up-to-date sources are consistent in showing that capital costs for gas resources are much higher today than those underlying the Draft Plan.

The same dynamic is generally true for fuel costs, which were locked in in June 2025. Council staff have a robust approach to forecasting gas prices, outlined in Appendix E to the Draft Plan. However, actual prices are already exceeding projected highs in some instances. According to Energy Information Administration data, the monthly Henry Hub spot price for January 2026 was $7.72/MBtu. Across the range of futures assessed in the Draft Plan, the highest modeled monthly Henry Hub spot price for January 2026 was $6.30. The Draft Plan uses 2024 dollars so the numbers are not directly comparable, but the main point is that – as with capital costs for gas

plants – actual fuel costs for gas plants are exceeding even the highest model inputs in at least some instances.

This volatility highlights the risks associated with reliance on gas resources. Not only can fuel costs swing, but also pipeline supply can be interrupted – and there is a heightened risk of interruption during high-need events. *See*, *e.g.*, FERC, NERC, and Regional Entity Staff Report, *Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott* at 120 (Oct. 2023). Gas plants, too, are often assessed for capacity accreditation using historic outage data that does not account for the heightened risk that the plant itself will fail during high-need events. *Id.* at 94. Gas-system issues have repeatedly posed risks to the Northwest's power system as well. *See* Courtney Flatt, "Power utilities say Northwest region needs to better prepare for extreme cold", Northwest Public Broadcasting (Apr. 1, 2024) (discussing January 2024 cold-weather event); Fred Heutte, "Double Squeeze: How the Arctic Express and natural gas constraints are turning the West Coast gas and power markets upside down" (Mar. 6, 2019) (discussing February 2019 cold-weather event). While these risks are not new, they provide important context for how Council staff and the Council should consider the risks associated with gas resources.

3. Plan Outputs

If Council staff were to begin their modeling exercise today, increased availability of emerging clean resources such as long duration energy storage and enhanced geothermal, paired with skyrocketing capital costs and volatile fuel costs for gas resources, may have led to a different resource strategy: one with more renewable and storage resources, and less gas.

The Draft Plan describes a synergistic relationship between long duration storage and renewables and an antagonistic relationship between long duration storage and gas. It explains that the "highest build sensitivities" for long duration storage "include those where there was either generally larger amounts of renewables and/or less natural gas." Draft Plan Appx. N at 37. The clean baseload resource also has a synergistic relationship with renewables and an antagonistic relationship with gas: the resource was "selected in the five sensitivities that have tax credits for renewables, resulting in both an increase in renewable builds and a decrease in total natural gas builds." Draft Plan Appx. N at 38. Again, the clean baseload resource is modeled on a small modular nuclear reactor but is still the category of emerging resource that best reflects the characteristics of enhanced geothermal.

These broad relationships suggest that, if long duration storage and enhanced geothermal had been modeled as available rather than emerging resources, they may have been selected by the model. Basic economics suggest that if gas inputs had been current rather than 2024 values, less of the resource may have been selected by the model. If all three conditions had been met – long

duration storage and enhanced geothermal were available, and gas used 2026 cost inputs – it seems more likely than not that the Resource Strategy would include more renewables and storage, and less gas.

Again, RNW does not suggest Council staff or the Council make these changes in the model and conduct fresh modeling. Council staff's modeling approach was reasonable and robust. Rather, RNW suggests that the present reality has already diverged in certain key respects from the world depicted in the Draft Plan, and recommends that the narrative portion of the plan be updated to observe that: 1) both long duration storage and enhanced geothermal may be considered commercially available; 2) gas costs have exceeded those reflected in the model; and 3) these developments, if reflected in the model, could have changed the Resource Strategy.

III. CONCLUSION

Once again, RNW lauds the excellent job Council staff did under difficult circumstances. RNW broadly supports the Draft Plan, the Resource Strategy, and several of the Draft Plan's conclusions and recommendations. Our only recommendation is that the narrative in the final Ninth Plan be updated to reflect real-world circumstances that have developed since the modeling inputs and approach were locked down, possibly observing that a Resource Plan reflecting these developments would likely have more clean resources and less gas. RNW appreciates Council staff's strong work, and thanks the Council for this comment opportunity.

Respectfully submitted this 16th day of October 2026,

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