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Phil Rockefeller, Chair
Northwest Power and Conservation NWPCC
851 SW Sixth Ave., Suite 1100
Portland, OR 97204

RE: PPC Comments on the NWPCC's Draft 7th Power Plan

Dear Chairman Rockefeller,

Thank you for the opportunity to comment on the Northwest Power and Conservation Council's (NWPCC) 7th Power Plan. As representatives of BPA preference customers, the Public Power Council (PPC) and its members actively participated in the development of the plan. This plan's development was considerably more collaborative and transparent than previous plans due to the use of advisory committees as well as the redesign of the Regional Portfolio Model (RPM), which allowed the region to both inform the NWPCC and better understand the analytical results. This outreach to regional experts is visible in many aspects of the Draft Plan.

As context for these comments, we offer that the Northwest public power and cooperative community is committed to providing reliable, efficient electricity service to consumers and members at the lowest possible cost. Energy efficiency is and will continue to be an important part of this effort.

While the 7th Power Plan will serve the entire region as a guide for resource acquisition, it can uniquely impact BPA's consumer-owned utility customers when BPA takes actions consistent with the final plan. As such, public power wants to ensure that the plan is as accurate as possible to most appropriately guide BPA resource acquisitions. While the Draft Plan has many strong elements, the NWPCC should continue to apply constructive input that it received from the region during the comment period to correct some inaccuracies and allow for unforeseen future

circumstances.

After all the hard work that has been completed, it would be disappointing to see the NWPCC not make essential refinements to the final plan. PPC believes that by considering and implementing the following comments, the 7th Power Plan can potentially provide the region with the guidance and flexibility it needs for the effective life of the plan.

General Issues

Regional Nature of the Power Plan

By definition, the NWPCC power planning effort is based at the regional level. As such, the modeling and recommendations of the Power Plan can provide a useful reference to utilities and BPA, but individual and local variations will ultimately play a key role in how the plan is implemented and resources are acquired. To this effect, PPC strongly supports the acknowledgement that:

The plan also recognizes that individual utilities, which have varying access to electricity markets and varying resource needs, may require near-term investments in resources to meet their adequacy needs. (Draft Plan, p. 1-1)

This is a crucial frame to interpreting the recommendations of the Power Plan and ultimately implementing resource acquisitions consistent with its guidance. BPA must strictly adhere to a variety of express Congressional mandates. Therefore, it is essential for the NWPCC to recognize that BPA must balance all of its various statutory obligations, specific load-resource situation, and other factors as it determines how to implement the final plan and makes resource decisions.

The legislative history of the Northwest Power Act also supports the purpose of the NWPCC power plan as a regional policy document, rather than a specific prescription to BPA or other regional utilities:

The Committee recognizes the administrative difficulties which would be involved if the plan became a highly detailed operational document. It is intended that the plan will not be a highly detailed operational document but instead will be a broad policy document which addresses major issues involved in planning and development of resources including conservation. S. Rep. No. 96-272, at 24 (1979).

Need For Resources

The primary purpose of the NWPCC's power planning process is to identify least-cost strategies for the acquisition of new resources on a regional basis. As such, it is important to understand the drivers for new resource development in the modeling process. In broad terms, resources must be built for either energy or capacity needs. The Draft 7th Plan shows a strong likelihood that the region is adequately supplied from an energy perspective for at least the first 10 years of the planning horizon. Regional capacity, however, quickly becomes limited in some situations starting in 2021 as regional coal facilities such as Boardman, Centralia, and Valmy begin to phase out.

More specifically, it is regional winter peaking capacity and loads that are of concern during the months of December, January and February. Given this nature of resource need, the final plan should focus its resource recommendations on winter peaking capability and flexibility.

Given the importance of these inputs, PPC urges the NWPCC to carefully evaluate its demand forecasts as it prepares the final version of the 7th Plan. In particular, the loss of 700-800 aMW of aluminum smelter load in the region relative to the current inputs in the Draft Plan needs to be carefully assessed. The NWPCC should also continue to evaluate its demand forecasts relative to its recent resource adequacy reports and other regional forecasts such as PNUCC's Northwest Regional Forecast.

Overall Resource Strategy

Given the resource needs identified in the Draft Plan, the overall recommended resource strategy is reasonable. This overall resource strategy consists of energy efficiency development, demand response, and natural gas generation (both redispatch of existing resources as well as potential new builds). The Draft Plan appropriately does not recommend development of resources that do not match the needs of the regional system as a whole, such as extensive development of additional utility scale wind and solar beyond the currently applicable renewable portfolio standards (RPS).

Given the resource needs identified, the Draft Plan's conclusions regarding the most economic and feasible ways to reduce carbon emissions at a regional level are also reasonable.

The Draft Plan resource recommendations also appear consistent with other regional utility planning efforts, which call for various mixes of energy efficiency, demand

response, natural gas, and market purchases (along with RPS compliance) depending on specific service territory needs.

Conservation Target Should Be a Range, Not a Single-Point Target

The NWPCC has recommended that the region acquire a minimum of 1400 aMW of conservation resources by 2021. We are concerned by the use of a single point for the recommended target because it is inconsistent with the modeling results in the Draft Plan. Specifically, the use of a single-point target does not reflect the range of outcomes of the different scenarios analyzed. The NWPCC acknowledges this range on page 1-9: “in all scenarios tested... the amount of cost-effective efficiency developed averaged between 1,300 and 1,450 average megawatts by 2021...” However, on page 3-13, the NWPCC states: “In all of the scenarios and sensitivity studies examined by the NWPCC, similar amounts of improved efficiency were found to be cost-effective.” While one could say that 1300 aMW and 1450 aMW are “similar”, they are certainly not the same. In fact, the Draft Plan scenario analysis results in a range more closely resembling 1250 to 1450 aMW of conservation measure acquisition across the different scenarios. Therefore we believe a target matching the range of the scenario results would be the most accurate and prudent recommendation for the region in the 7th Power Plan.

Figure 1 attached to these comments provides a representative illustration of the range of energy efficiency acquisition of various scenarios modeled in the Draft Plan.

For example, the NWPCC’s baseline Scenario 1B (existing policy, with no carbon risk) takes a central value of 1325 aMW. In Sensitivity S9, which is the baseline scenario with the transmission and distribution credit removed from conservation benefit valuation, the central value is 1250 aMW, a noticeable difference. There is also a stark difference between the conservation acquired in the “low gas price” scenarios and their “existing policy gas price” counterparts. Scenario 2C (carbon risk) has a central value of 1425 aMW of conservation acquisition, close to the NWPCC’s recommendation of 1400 aMW. However, Sensitivity S2.1 (a tuning of Scenario 2C with low gas prices) results in 1275 aMW of conservation acquisition, a 150 aMW difference over six years. Furthermore, describing the base set of natural gas price distributions as an actual baseline would be inaccurate. The “low gas price” set of distributions are more reflective of the current market situation in the near future than those of the base set. Additional comments on natural gas prices are offered below.

Also, forecasting is inherently uncertain and judging the region’s conservation acquisition successes by a single-point target ignores the actual shape of the outcomes.

Thirteen hundred to 1450 aMW represents a range of averages, or central values. Each scenario results in a probability distribution associated with different bins of conservation acquisition. While at a basic level the central value of that distribution represents the outcome of a scenario, it does not capture the full set of possible outcomes, or even the majority. In fact, no scenario had a central value with greater than a 45% likelihood of occurring within that scenario.

Additionally, from a logistical standpoint, a single-point target does not reflect the nature of conservation acquisition. Conservation is not acquired “smoothly,” but comes in bursts due to the nature of program implementation. This sporadic timing does not align well with a fixed single-point target at either a fixed date six years after the plan’s release or at each of the two-year “milestones.”

Natural Gas Price Assumptions are Outdated and Inaccurate

Given that natural gas generation competes directly with energy efficiency and other resources, it is important that the input prices of natural gas are accurate and reflect the actual market situation. The NWPCC’s natural gas price forecasts which were adopted in late 2014, are outdated and do not reflect the current market. Other forecasts made since the one applied in the Draft Plans differ significantly.

Looking at the median of the NWPCC’s base forecast over the life of the Draft Plan compared to other forecasts, the NWPCC’s starts at about \$4.00/MMBtu (2012 constant dollars, henceforth) while BPA’s April 2015 forecast starts at about \$3.00/MMBtu, and futures market prices in the first quarter of the Plan’s time period are at about \$2.00/MMBtu. The NWPCC’s forecast general stays above those two forecasts for the life of the Plan and through the entire 20-year period; especially current futures prices. The NWPCC’s forecast is generally in line with the 2014 EIA Reference Case (which starts at \$3.75/MMBtu), but well above the 2014 EIA High Oil and Gas Production Case (which starts at \$3.25/MMBtu); both were released close to the same time as the formulation of the NWPCC’s forecasts.

As of the time of these comments, current prices for natural gas at Henry Hub are below \$2/MMBtu. Compared to CME Group Futures prices from December 15th, 2015, it is apparent that the NWPCC’s forecast does not reflect the current state of the market. The futures market at Henry Hub does not approach \$4.00/MMBtu over the period of available data to 2025, the same price at which the median of the NWPCC’s base forecast begins. In Q1 of 2025, the seasonal peak of the final year of the available futures market data, the market is at about \$3.25/MMBtu, whereas the median of the NWPCC’s base forecast is at \$5.00/MMBtu. While commodity markets can be

volatile, the NWPCC’s base forecast’s interquartile range (the inner 50% of the distribution of prices for a given time period) never includes the futures market price for a given quarter and is substantially above it for the duration of available futures prices. On an average basis from 2016 to 2025, the Draft Plan base forecast is 58% higher than current futures prices.

Table 1. Draft Plan “Existing Policy” Forecast and Current Futures Prices (\$2012/MMBtu)

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
"Existing Policy" Forecast	3.85	3.90	3.97	4.06	4.25	4.38	4.49	4.60	4.72	4.94
Avg. Futures Price	2.16	2.52	2.64	2.72	2.81	2.85	2.92	3.00	3.06	2.58

Figure 2 attached to these comments provides a graphical representation of the Draft Plan natural gas forecasts compared to other sources.

If the price of natural gas is inaccurately high as an input to the model, it will result in an artificially low amount of natural gas generation in the modeling and acquisition of other resources that would not have been cost-effective.

Alternative forecasts such as the 2014 EIA High Oil & Gas Production Case (which aligns closely with current futures prices) and BPA’s April 2015 forecast come in solidly below the NWPCC’s base forecast. Given that, PPC hopes the NWPCC will recognize this and update its natural gas prices in full as it has indicated, such that they reflect the actual market, when available. It is important that the NWPCC re-runs any scenarios that play into 7th Power Plan recommendations with the updated prices.

While the low gas price forecast appears drastic relative to the base over the entire 20-year period (gas prices start lower than the existing policy case and decline consistently in real terms over 20 years), during the life of the Plan. The low gas price forecast, in fact, more closely resembles the current state of the futures market than the base forecast does. As previously noted, scenarios that were run with the low gas prices have substantially less conservation acquired. PPC is concerned that setting a single-point target that reflects the results of only the upper end of the range of conservation acquisition across scenarios would be detrimental to the regional decision-making. If in reality the true cost-effective level of energy efficiency and other resource acquisition is closer to what is represented by the low gas price scenario results, “failure” to meet a 1400 aMW single-point target might actually be the correct course of action. Therefore it seems reasonable to account for this uncertainty through

the implementation of a target range that accounts for the variance inherent in the natural gas price market. This would also account for the considerable possibility that gas prices will stay low, making natural gas generation at times preferable to energy efficiency or other resource acquisition.

PPC recommends that the final 7th Power Plan include updated gas prices with a central tendency that closely matches current market data.

Demand Response Recommendations

The Draft Plan places a great deal of emphasis on the potential of demand response as a tool to meet peak capacity needs within the region. BPA and utilities throughout the region are currently engaged in a variety of productive pilot programs and research around demand response potential and implementation. PPC supports these ongoing efforts.

PPC also supports not including a specific target for demand response measures in the 7th Power Plan. The demand response inputs for potential and cost are heavily based on a single consultant report and have not received nearly the level of regional feedback and scrutiny as other inputs to the modeling.

Encouraging the development of demand response infrastructure along with further research and evaluation is an appropriate position for the final 7th Power Plan.

Peak Capacity Contribution of Energy Efficiency

Given the importance of capacity needs in the Draft Plan resource strategy and recommendations, the consideration of how energy efficiency contributes to winter peak capacity needs is important. The Draft Plan assumes that energy efficiency measures will provide approximately 2 MW of winter peak reduction for every 1 aMW of energy savings (i.e. a 2 to 1 peak to energy ratio). This ratio is further increased to 2.4 to 1 when accounting for associated system capacity contribution.

The data that forms the basis of the 2 to 1 peak ratio relies on estimates from the 1980s, well over 20 years ago. Significant changes in consumer use of electricity have taken place since that time, which may have a significant effect on the assumption. Also, it is our understanding that other regional utilities such as Avista and Puget Sound Energy have recently incorporated lower assumptions, closer to 1.5 to 1, in their resource planning processes.

To the extent that the peak to energy ratio of energy efficiency is overstated in the 7th Power Plan modeling, it could understate the need for other capacity related resource options such as new natural gas generation or market purchases. The NWPCC should correct this to ensure greater accuracy, or at least acknowledge there may be a greater need for other capacity resources than indicated in the Draft Plan modeling results.

Transmission and Distribution Credits

The Draft Plan's assumptions regarding transmission and distribution credits for energy efficiency measures are concerning. Transmission and distribution credits represent the value of avoided costs of new investment in transmission and distribution as a result of reduced electricity demand from energy efficiency.

The Draft Plan incorporates expansion costs for transmission and distribution from a seemingly arbitrary group of utilities with much of the data coming from sources outside of the Pacific Northwest. Data from BPA, the largest provider of transmission in the Northwest, is notably absent.

The approach is also inconsistent with the evaluation of costs from generation resources. Generating resources in the Draft Plan include the costs of delivering energy from the location of generation to point of distribution based on applicable point-to-point transmission rates.

It is additionally problematic that the Draft Plan universally assumes that all energy efficiency avoids incremental investment in new transmission and distribution infrastructure. In fact, the potential for avoided transmission and distribution expansion as a result of energy efficiency is highly dependent on the specific location of implementation. Many transmission and distribution facilities in the Northwest are far from full capacity.

The universal use of transmission and distribution credits at the average cost of assorted system expansion is also problematic in the context of the slow regional load growth projected in the Draft Plan. The current transmission and distribution system has proven capable of meeting peak loads substantially above those projected even in "high" case demand forecast for many years. If transmission and distribution service providers are not able to modify expansion plans due to energy efficiency programs, then no savings will result. The final 7th Power plan should include a mechanism so that only those costs that are actually avoided are credited to energy efficiency or any applicable resource.

Figure 3, attached to these comments, provides a graphical representation of the relative levels of historical and projected regional peak loads from the Draft Plan.

For these reasons, PPC strongly recommends that the NWPCC further study regional-specific transmission and distribution expansion plans and costs, as well as the degree to which such expansion can be avoided by energy efficiency before those costs are incorporated into the recommendations for regional energy efficiency targets.

Energy Efficiency Cost-Effectiveness Calculation (Appendix G)

Appendix G of the Draft Plan contains a very specific and prescriptive methodology for calculating the cost-effectiveness of energy efficiency measures. The appendix presents a recommended formula for cost-effectiveness, defines the variables and states on page G-21 that “Conservation program managers, the Regional Technical Forum, and regulators should use the benefit/cost method outlined below to determine cost effectiveness.”

Recommending that all utilities, conservation managers, and regulators use this formula with the variables as defined by the regional modeling results and projections from the Power Plan is not practical. At a minimum, if using the suggested formula, individual action entities must be able to use their own inputs for key variables. As discussed previously, the NWPCC’s planning efforts are inherently regional in nature and unable to account for the specific utility load-resource situations, avoided costs, and risks. Utilities that can demonstrate equivalent or better methodologies to the NWPCC Power Plan should be able to use utility-specific methodologies and data.

Variables in the formula that individual utilities or other entities may need to consider adapting to specific situations and needs (in addition to instances in which the Power Plan assumptions prove incorrect through time) include but are not necessarily limited to the following:

- Market price forecast
- Carbon cost forecast
- Risk mitigation credit for stochastic variation in inputs
- Deferred transmission capacity credit
- Deferred distribution credit
- Deferred generation capacity credit

In addition, the final 7th Power Plan should explicitly endorse the possibility that utilities or other entities may engage in other methods for determining the cost

effectiveness or avoided cost standard of energy efficiency measures. For example, use of an integrated resource plan or portfolio modeling approach based on an entity's own load-resource balance, avoided costs, and risks may be appropriate. This type of approach would be consistent with the NWPCC regional method, but tailored to individual circumstances that the approach in the Draft Plan is inherently unable to address.

Regional Resource Use

PPC has several comments regarding the obliquely titled section "Regional Resource Use" contained on pages 1-12 to 1-13 of the Draft Plan. This section makes assertions regarding the use of BPA resources, the allocation of benefits of the Federal Columbia River Power System (FCRPS) among regional consumers, and the relative rate levels of consumer-owned and investor-owned utilities (IOUs) in the region.

The Draft Plan seems to recommend that BPA enter into capacity or energy contracts with IOUs for the purpose of avoiding new resource builds and minimizing total regional power costs.

Putting aside that BPA needs to analyze a variety of factors before offering any contract, BPA does not have firm resources to offer such contracts. The FCRPS is fully subscribed and per the analysis presented in Chapter 5 the Draft Plan itself, BPA does not have surplus firm energy or capacity products to sell on a long-term basis that would avoid the need for resource development.

Further, the section makes the assertion that the absence of such contract offers from BPA to the IOUs of non-existent resources "will likely continue the trend that shows that electricity rates of IOUs increasing while public utility rates have remained flat over the past several years." Draft Plan, p. 1-13.

As a first matter, the statement regarding the flat rates of public utility rates is simply incorrect. BPA's wholesale power rates have gone up approximately 30% from 2007 to the present. Further, the average delivered cost of power for public power utilities actually increased by 17% during the 2007 to 2013 timeframe which the Draft Plan claims public revenues per kWh remained based on analysis of EIA data.

Although the goal of minimizing regional costs and minimizing new resource builds is laudable, comparison of regional rates and allocation of the costs and benefits of federal resources is entirely outside the purview of the NWPCC's planning process. IOU costs and rates in the Northwest are regulated by their respective state commissions. The rates of public power entities and cooperatives are set by their

elected commissions and legal processes. Finally, the costs and rates of the FCRPS are determined by the Administrator of BPA in a formal ratemaking process and pursuant to the express statutory mandates of the agency.

PPC recommends that the “Regional Resource Use” section of the Draft Plan be removed from the final 7th Power Plan because it is both factually dubious and outside the purview of the NWPCC.

Fish and Wildlife

As adopted by the power plan, the Fish and Wildlife Program is the Power Plan’s environmental consideration and fish mitigation strategy. The program is the largest of its kind and has had a tremendous positive impact on salmon and steelhead returns as well as benefits to many other species throughout the Columbia Basin. That is not to say, however, that there are no efficiencies that should be found by the NWPCC.

The NWPCC has a statutory obligation in its plans to provide for an adequate, efficient, economic, and reliable power supply. Merely repeating this language from the Northwest Power Act in its plans is not enough. The NWPCC has included “emerging priorities” in its Fish and Wildlife Program and has given some consideration to funding these through existing budgets. The NWPCC must hold its program accountable to this consideration. Where new projects arise, it should retire outdated and ineffective projects.

Action Plan Items

In addition to the general issues raised above, PPC has comments on several particular action items discussed in Chapter 4 of the Draft Plan.

BPA-6

A regional power plan should not detail BPA’s business management. BPA-6 says BPA should, “commission a study” to evaluate its energy efficiency program. This item could be read to intrude on BPA’s decision-making and business management. BPA and its customers regularly consider elements of BPA’s business that impact rates. If the NWPCC is concerned about how BPA’s energy efficiency program is implemented, there are open BPA processes in which the NWPCC should participate.

BPA-7 and COUN-7

These action plan items should be removed from the final 7th Power Plan. Action item REG-4 will provide the NWPCC with all the data needed to accurately model operating reserves going forward. Balancing authorities already must comply with reliability standards for operating reserves. Additionally, various utility and regional processes already exist to optimize the cost of operating reserve deployment.

F&W-1

A proposal to evaluate the impacts to fish and wildlife of renewable resource development was raised during the development of the Environmental Methodology for the 7th Power Plan. Utility representatives commented then and still believe that this action is inappropriate for the power plan and is duplicative of several state and federal agencies' responsibilities. Existing regulatory agencies have the statutory responsibility to conduct extensive processes to assess the impact of new energy projects on fish and wildlife resources and each of those processes includes public participation and comment. If this action item remains part of the Power Plan, the NWPCC should specifically identify the need for and scope of any study it undertakes. Furthermore, any study should have a specific duration.

Conclusion

Public power appreciates the NWPCC's collaborative and transparent development of the Draft 7th Power Plan and believes that with the critical changes outlined above, the final 7th Power Plan will serve the region well as its guide for resource acquisition. We look forward to continuing to work with the NWPCC as it seeks regional participation in its processes.

Sincerely,



Scott Corwin
Executive Director
Public Power Council

Figure 1: Distributions of EE Acquisition Across Scenarios by 2021

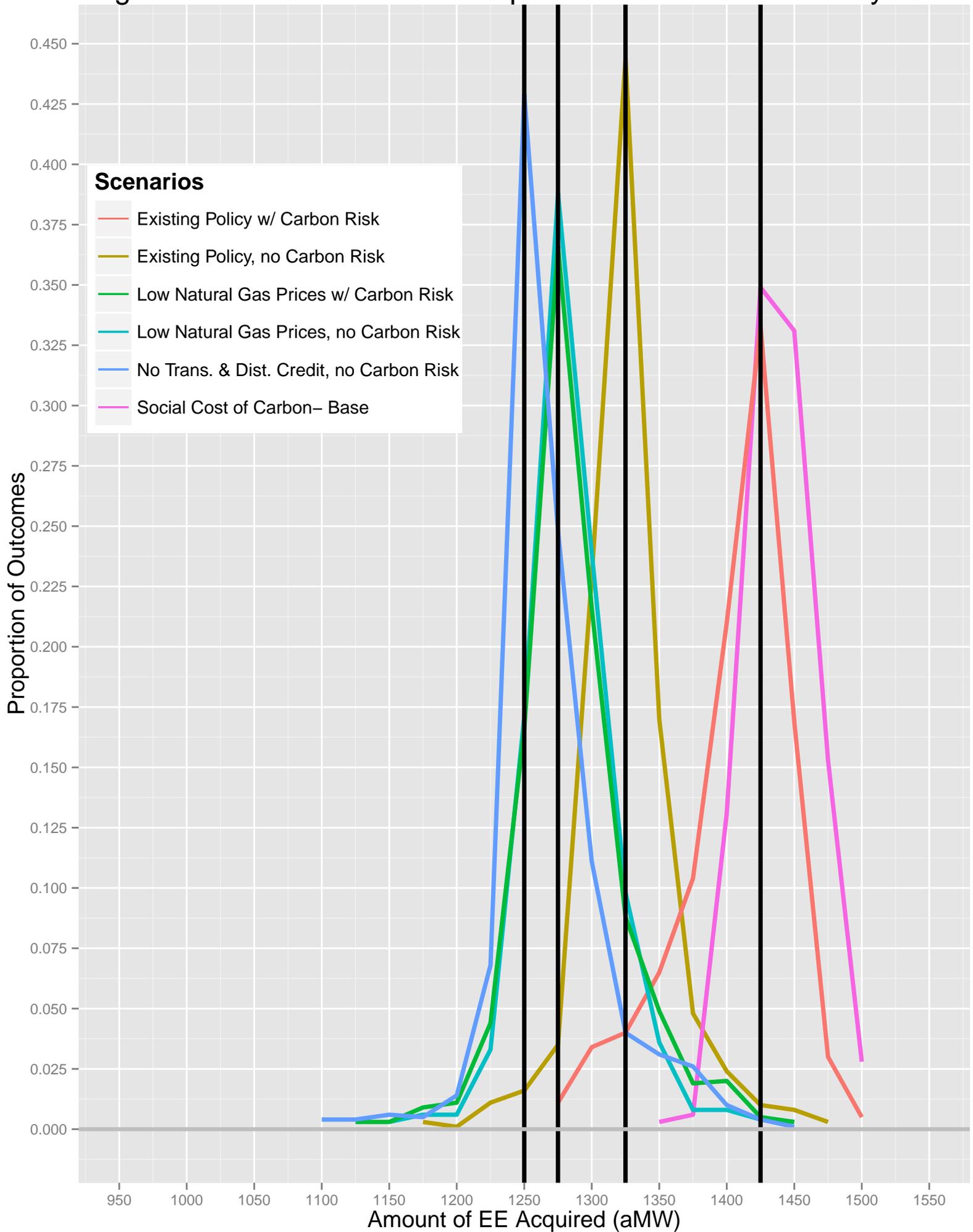


Figure 2: Natural Gas Price Distributions in the 7th Power Plan:
EXISTING POLICY with Alt. Forecasts

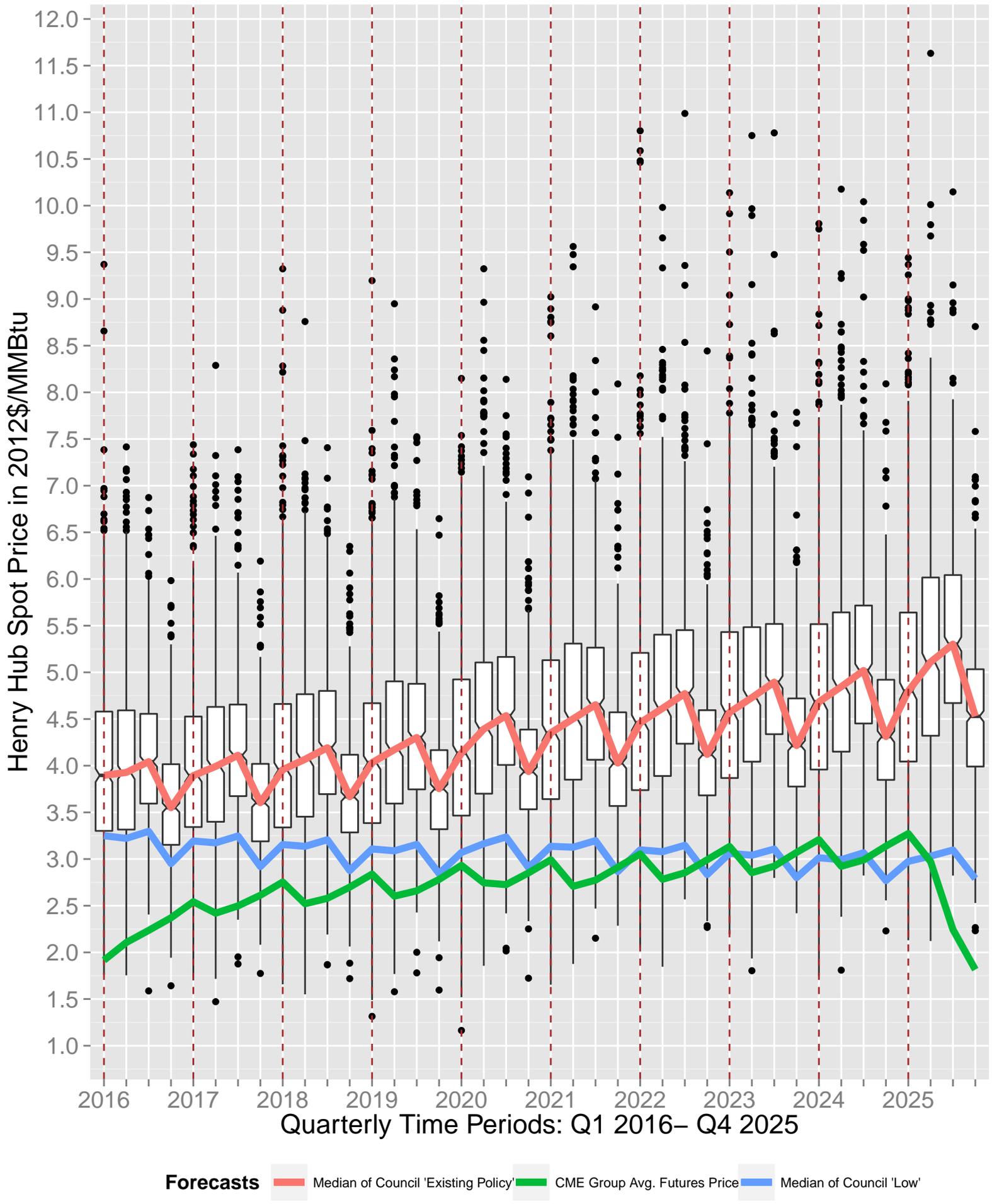


Figure 3: Historical and Forecast Winter Peak Load 1986–2035

