Guy Norman Chair Washington

Patrick Oshie Washington

Jim Yost Idaho

Jeffery C. Allen Idaho



Doug Grob Vice Chair Montana

Mike Milburn Montana

Ginny Burdick Oregon

January 5, 2022

MEMORANDUM

TO: Power Committee

FROM: Ben Kujala

SUBJECT: Recommendations on response to comment and possible revisions to

the draft plan document and supporting material

BACKGROUND:

Presenter: Power Division Staff

Summary: Staff will revisit the comments received and provide any added context or

recommendations on considerations for responding to the comments in the Statement of Basis and Purpose and Response to Comments document and/or revising the supporting material and plan document.

We will also discuss comments that raise issues that were carefully considered by the members in the draft plan or requests the members commit to future work or make policy-based recommendations to the region. These comments add valuable context and perspective but generally do not impact the underlying analysis. There is either no change from the recommendations we made in the draft plan or no staff-based recommendations, though there may be some opportunities to clarify the approach taken in the draft plan analysis. We will work with the members to explore if the committee wants to make changes based on these comments.

More Info:

All comments received are public and can be viewed here: https://app.nwcouncil.org/energy/powerplan/2021/comments/

We will also provide a detailed table summarizing the comments with staff notes for context on response to the comment and possible revisions recommended.

Recommendations on response to comment and possible revisions to the draft plan document and supporting material

Full comments are publicly posted and available on our website



THE 2021
NORTHWEST

POWER PLAN

FOR A SECURE & AFFORDABLE ENERGY FUTURE

Purpose of this Presentation

This presentation does not cover detailed or specific responses, rather it covers the general type of response recommended by staff falling into one of four categories:

- 1. **Respond in the response to comments:** A response will be prepared and provided in the Statement of Basis and Purpose and Response to Comments document, detailing how the Council considered the comment in crafting the final plan, but we do not recommend changes to the draft plan document or supporting material based on the comment.
- 2. **Revisit supporting material:** We recommend revisiting the supporting material with an eye toward adding, expanding, or clarifying the material based on the comment.
- 3. Revise the draft plan document: We recommend revising the plan document and revisiting associated supporting material based on the comment.
- 4. Committee consideration: We feel the comment raises issues that were carefully considered by the members in the draft plan or requests the members commit to future work or make policy-based recommendations to the region. These comments add valuable context and perspective but generally do not impact the underlying analysis. There is either no change from the recommendations we made in the draft plan or no staff-based recommendation. We will work with the members to explore if the committee wants to make changes based on this comment.



Recall - Themes from the Comments

- A potentially (in)adequate resource strategy when considering the major load impacts
 of decarbonization
- **Regional system adequacy**, particularly from the effects of resource retirements and replacement by renewables
- The **conservation target**
 - Analysis does not fully capture the benefits of conservation and therefore the target should be higher
 - Target is appropriate, though cost-effectiveness should be based on the upper-end of the range
- Value and role of energy storage is not fully captured; storage should have a greater role in the power plan resource strategy (adequacy, capacity)
- Over-reliance on the **flexibility of the existing hydropower system** and the effects on fish and wildlife; if constrained further than anticipated in the resource strategy, what else is needed to maintain resource adequacy (e.g. more of other resources)
- Analyzing the effects on the resource strategy if the Lower Snake Dams were removed
 - Comments that the Council **should and should not recommend removal** of the Lower Snake River dams



Common Misconceptions

• Assessing more costs and benefits for a type of resource would lead to the Council recommending more of that resource be acquired. Statute directs the Council to estimate a need for resources then find the least cost set of resources that reliably meets that need. The statute sets this up as a relative comparison of resources.



Demand Forecast

Climate Change

Respond in the response to comments:

Compare the plan's power system operations under influence of forecast climate change with those under historical climate conditions

- The analysis for the draft plan did contain some historical comparisons and we will reference these in the response
- A broad parallel analysis of hydro and temperature conditions based on historic observations versus climate change models is beyond what we think is possible for this plan and it's unclear how it would inform the resource strategy

Committee consideration:

Include a robust discussion and analysis on planning for extreme and outlier climate events that could have a significant impact on grid resilience and resource adequacy



Decarbonization

Committee consideration and revisit supporting material:

The plan should account for Oregon and Washington's more aggressive greenhouse gas regulations

• We can add context for the magnitude and direction of changes associated with legislation in Oregon and Washington

Committee consideration:

The draft plan does not fully incorporate reasonable decarbonization and electrification assumptions and thus doesn't call for sufficient resource additions

The plan should account for regional utilities' resource planning to achieve decarbonization goals



Greenhouse Gas Policy

Committee consideration and revisit supporting material:

The plan should clarify and update assumptions relating to current and future greenhouse gas policies

• We can add more information to the supporting material on what assumptions were used

Committee consideration:

The plan should modify how the pathways to decarbonization analysis is focused, incorporated and considered



Transportation

Respond in the response to comment:

The plan should include recommendations for BPA and utilities to work to improve the efficiency of electric vehicles.

There is a lack of discussion of EV smart charging and vehicle-to-grid response

The baseline modeling assumptions underestimate the impacts to the system from rapidly emerging transportation policies in Washington and Oregon The load forecast from the High Electric Transportation Case is more realistic than the reference case

 Our DR supply curves included direct load control of an electric vehicle charging system – it cost more than many other DR measures



Regional Reserve & Reliability Forecast

Resource Adequacy

Respond in the response to comment:

For future power plan cycles, examine whether continued resource adequacy work by the Council is necessary now that resource adequacy is being addressed through the Western Resource Adequacy Program (WRAP).

• Statute requires assessing adequacy for the plan

The Council should consider adjusting (lowering) its baseline resource buildout outside of the region to be more reflective of other region's policies and forecasts.

Revisit supporting material:

The plan and supporting material should supply more detail on the Associated System Capacity Contribution (ASCC) methodology, especially since the Council's estimates for wind and solar ASCC are higher than estimates by other entities.

Revise the draft plan document:

The plan's analysis on resource adequacy is not sufficiently vetted and should be heavily caveated or removed with a recommendation to take up further work on adequacy after the completion of the plan.

Committee Consideration:

The plan's recommended resource strategy significantly understates the amount of resource needed to maintain an adequate regional power supply and thus should recommend more resources.

The plan should encourage BPA and other utilities to participate in the WRAP.

THE 2021 NORTHWEST

Resiliency

Revisit supporting material and respond in the response to comment:

The plan should incorporate resiliency into its analysis and recommendations

- Some elements can be added to supporting material on items like Grid-interactive Efficient Buildings
- Most comments are asking for future work or additional analysis, we recommend responding in the response to comments



Conservation Resources & Program

Conservation

Respond in the response to comment:

Initiate a process to re-evaluate the cost-effectiveness methodology for EE

Not fully capturing all benefits (would result in a higher target)

More quantification of environmental benefits of EE

Include more NEIs in the cost-effectiveness (especially for equity)

• We recommend the approach used in the draft, there are opportunities for improvement in future plans

Use the utility cost as the basis for cost-effectiveness

• Differs from definitions provided in the statute for determining resource system costs

Revise modeling approach to adopt EE first, then add in other resources per the Act

• This seems inconsistent with the Power Act

More consistency in comparing EE to other resources: tax credits, capital cost forecast (decline), RECS, dispatchability

• We were consistent with these items where we had good data



Conservation (2)

Revisit supporting material:

Clarify the EE cost-effectiveness methodology

Clarify approach to the portion of EE that is technically achievable

The plan's EE supply curves are missing substantial potential because of the methodology used

• This may be less about methodology than how decarbonization was treated, still we will clarify the methodology and discuss in the supporting material, future work by us and others may allow progress toward this in the next plan

Revise draft plan document:

MCS on "conversion to electric space & water heating" implies the Council is encouraging fuel switching

• We will clarify language to indicate this is not the case



Conservation (3)

Committee Consideration:

Conservation (EE) level (target) should be higher

Conservation (EE) level (target) should be lower

1000 aMW should be the cost-effective level, but the regional target should remain as the 750-1000 range

• Given we use the range, using 1000 aMW as a level for cost-effectiveness raises concerns on consistency with the statute

Point target instead of a range

The plan should explicitly outline what cooperative actions the region, the Council, and Bonneville should take to address a future shortfall in EE acquisition and set forth the conditions that trigger these actions

- The draft does say already to work cooperatively with Bonneville to address any shortfall.
- The Council can request more information from the Administrator related to consistency with the plan at any time, the plan does not need to restate statute.
- The Council is not an enforcement agency.

Council should set utility-specific EE targets and propose a surcharge for those that miss the target

Explicitly include weatherization measures in the target for EE

• The best way to accomplish this would be to increase the lower end of the target to reflect capturing these additional savings

Utilities should weatherize all tribal homes by 2025



New Generating Resources

Renewables Build

Committee Consideration:

The 3,500 megawatts of renewables by 2027 in the draft plan's resource strategy is too low/too high

The plan should include consideration for land use and habitat requirements and impacts of siting new transmission and renewable resources

• There is existing language in the plan and supporting material related to this, is it sufficient?



Generating Resource Wrap-Up

Committee Consideration:

The plan resource strategy should specifically <u>recommend</u> new energy storage, distributed generation (e.g. rooftop solar), geothermal energy, small modular reactor (SMR) nuclear, natural gas + carbon capture and sequestration, pumped storage, offshore wind and ocean energy resources, anaerobic digestion (biogas)

The plan resource strategy should specifically <u>not recommend</u> new nuclear or natural gas

The plan should include a deeper analysis on emerging technology resources which could become viable and even vital in the plan horizon

The plan should recommend getting rid of existing nuclear and GHG-emitting resources

The plan should include R&D items on batteries, ocean & wave energy technologies, electrolytic hydrogen



Demand Response

Demand Response

Respond in the response to comment:

The plan should recommend all non-residential customers be moved to time-of-use

The plan should recommend utility implementation of electric vehicle-togrid capabilities

Committee Consideration:

Plan should require more DR and/or have an explicit target for DR The plan should recommend RTF incorporate equity metrics into DR (and EE) measure analysis

• The RTF PAC is currently exploring whether there are gaps in valuation of DR and EE, and will advise the Council on its findings and any recommendations for future RTF work



Existing Generation

Lower Snake River Dams

Committee Consideration:

The plan should include a scenario that examines removal of the dams

The plan should recommend removal of the dams

The plan should recommend the dams be preserved as an important part of the system

The Council should maintain the draft plan's current approach of not engaging in analysis of the Lower Snake River Dams



Hydro Operations

Committee Consideration:

Concerns around assumptions of flexibility within the FCRPS and Mid-Columbia PUD dams related to fish constraints

Plan should include scenarios with differing operations

The plan should update hydro operations to match the most recent spill agreement for the Federal Columbia River Power System. It also does not consider effects of potential future changes to fish and wildlife hydro operations.

• Any additional analysis on hydro operations would require substantial additional time to both create and sufficiently vet with regional stakeholders for this power plan but could be pursued as future work



Natural Gas

Revisit supporting material:

Council should revisit its natural gas price forecast to ensure that the 2021 Plan adequately captures the risk of higher gas prices on the identified resource strategy

• We can bring in elements from the recent committee presentation to the supporting material to make the case our forecast range covers recent price volatility

Committee Consideration:

Appreciate the effort to include upstream methane emissions, continue to update the assessment of upstream methane emissions - consult with both industry and scientific experts

The Plan understates the potential for renewable natural gas use in the region

• There are opportunities to provide more information and we will explore if that can be captured in the supporting material

Reject new natural gas plants and new building use in the Plan



Methodology for Determining Environmental Cost & Benefits of New Resource

Methodology for Determining Quantifiable Environmental Costs and Benefits

Committee Consideration:

We received several comments concerned that the methodology does not adequately capture the entire scope of environmental costs and benefits of various resources



Bonneville

Bonneville Power Administration

Committee Consideration:

Uncertainty in amount of market exposure needs to be explored further and plan should be clear on BPA's role in a potential RTO

Differing thoughts on 36% assumption of Bonneville's portion of regional energy efficiency target

The plan should recommend BPA incorporate equity in programs and operations



General & Other Comments

Transmission

Revisit supporting material:

The plan's estimate for deferred T&D does not properly reflect value during peak periods

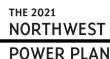
 We will provide more context in the supporting material on how the values were derived

Revise the draft plan document:

The plan should include more explanation and discussion about transmission and distribution system elements that are not part of the planning and analysis process and should provide further explanation of how these omissions impact the resource selection process

Committee Consideration:

The plan should include an integrated review of transmission and generation expansion and/or commit to pursuing that analysis in the next plan The plan should evaluate the use of electrolytic hydrogen production



Equity

Committee Consideration:

We received several comments in support of the work done thus far around equity (e.g. system integration forum on DEI in power planning), with a variety of commenters urging the Council to expand the emphasis



Electricity Markets

Committee Consideration:

Plan should recommend the region integrate piecemeal efforts on markets and adequacy and move toward a comprehensive regional solution, e.g. form an ISO/RTO

The plan should alter its approach to the baseline conditions in the treatment of resource expansion outside the region

• Changing the methodology would require substantial rework of the draft plan, may be work to pursue in the future



Action Plan

Respond in the response to comment:

The action plan period should be extended to 2030

Revisit supporting material:

The plan should include an action plan

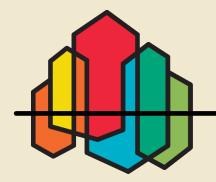
• We can collect a summary of recommendations in the plan for the supporting material





Recommendations on response to comment and possible revisions to the draft plan document and supporting material

Full comments are publicly posted and available on our website



THE 2021
NORTHWEST

POWER PLAN

FOR A SECURE & AFFORDABLE ENERGY FUTURE

Purpose of this Presentation

This presentation does not cover detailed or specific responses, rather it covers the general type of response recommended by staff falling into one of four categories:

- 1. **Respond in the response to comments:** A response will be prepared and provided in the Statement of Basis and Purpose and Response to Comments document, detailing how the Council considered the comment in crafting the final plan, but we do not recommend changes to the draft plan document or supporting material based on the comment.
- 2. **Revisit supporting material:** We recommend revisiting the supporting material with an eye toward adding, expanding, or clarifying the material based on the comment.
- **3. Revise the draft plan document:** We recommend revising the plan document and revisiting associated supporting material based on the comment.
- 4. Committee consideration: We feel the comment raises issues that were carefully considered by the members in the draft plan or requests the members commit to future work or make policy-based recommendations to the region. These comments add valuable context and perspective but generally do not impact the underlying analysis. There is either no change from the recommendations we made in the draft plan or no staff-based recommendation. We will work with the members to explore if the committee wants to make changes based on this comment.



Recall - Themes from the Comments

- A potentially (in)adequate resource strategy when considering the major load impacts
 of decarbonization
- **Regional system adequacy**, particularly from the effects of resource retirements and replacement by renewables
- The **conservation target**
 - Analysis does not fully capture the benefits of conservation and therefore the target should be higher
 - Target is appropriate, though cost-effectiveness should be based on the upper-end of the range
- Value and role of energy storage is not fully captured; storage should have a greater role in the power plan resource strategy (adequacy, capacity)
- Over-reliance on the **flexibility of the existing hydropower system** and the effects on fish and wildlife; if constrained further than anticipated in the resource strategy, what else is needed to maintain resource adequacy (e.g. more of other resources)
- Analyzing the effects on the resource strategy if the Lower Snake Dams were removed
 - Comments that the Council **should and should not recommend removal** of the Lower Snake River dams



Common Misconceptions

- Assessing more costs and benefits for a type of resource would lead to the Council recommending more of that resource be acquired. Statute directs the Council to estimate a need for resources then find the least cost set of resources that reliably meets that need. The statute sets this up as a relative comparison of resources.
- Baseline conditions are the primary inputs and used in formulating the resource strategy. The resource strategy clearly takes into consideration the broad range of analysis done for the plan. Many commenters assume a change in how we approached baseline conditions would lead to a different recommendation. Staff does not agree since baseline conditions were intentionally formulated as a point of comparison.



Demand Forecast

Climate Change

Committee consideration:

Include a robust discussion and analysis on planning for extreme and outlier climate events that could have a significant impact on grid resilience and resource adequacy

Notes from the Committee Conversation:

- <u>Consider recommendations on utility infrastructure and vegetation management being important mitigation for extreme events</u>
- <u>Increasing reliance on electricity for heating and cooling makes an adequate supply of electricity more important during extreme events</u>
- <u>It can be difficult to reach consensus on what constitutes extreme and we need to be clear what is possible if we commit to future work</u>
- Consider recommendations on better utility coordination and planning for these types of events



Decarbonization

Committee consideration:

The draft plan does not fully incorporate reasonable decarbonization and electrification assumptions and thus doesn't call for sufficient resource additions

The plan should account for Oregon and Washington's more aggressive greenhouse gas regulations

• We will also propose supporting material that adds context for the magnitude and direction of changes associated with legislation in Oregon and Washington



Greenhouse Gas Policy

Committee consideration:

The plan should clarify and update assumptions relating to current and future greenhouse gas policies

• We will also propose supporting material that adds more information on what assumptions were used

The plan should modify how the pathways to decarbonization analysis is focused, incorporated and considered



Regional Reserve & Reliability Forecast

Resource Adequacy

Respond in the response to comment:

For future power plan cycles, examine whether continued resource adequacy work by the Council is necessary now that resource adequacy is being addressed through the Western Resource Adequacy Program (WRAP).

• Statute requires assessing adequacy for the plan

The Council should consider adjusting (lowering) its baseline resource buildout outside of the region to be more reflective of other region's policies and forecasts.

Revisit supporting material:

The plan and supporting material should supply more detail on the Associated System Capacity Contribution (ASCC) methodology, especially since the Council's estimates for wind and solar ASCC are higher than estimates by other entities.



Resource Adequacy (2)

Revise the draft plan document:

The plan's analysis on resource adequacy is not sufficiently vetted and should be heavily caveated or removed with a recommendation to take up further work on adequacy after the completion of the plan.

Committee Notes:

- Need to commit to and recommend more work on resource adequacy including looking at the current resource adequacy standard used by the Council
- Also raised concerns that electrification of transportation and building load could impact resource adequacy

Committee Consideration:

The plan's recommended resource strategy significantly understates the amount of resource needed to maintain an adequate regional power supply and thus should recommend more resources.

The plan should encourage BPA and other utilities to participate in the WRAP.



Conservation Resources & Program

Conservation

Respond in the response to comment:

Not fully capturing all benefits (would result in a higher target)

More quantification of environmental benefits of EE

Include more NEIs in the cost-effectiveness (especially for equity)

• We recommend the approach used in the draft, there are opportunities for improvement in future plans

Use the utility cost as the basis for cost-effectiveness

• Differs from definitions provided in the statute for determining resource system costs

Revise modeling approach to adopt EE first, then add in other resources per the Act

• This seems inconsistent with the Power Act



Conservation (2)

Revisit supporting material:

Clarify the EE cost-effectiveness methodology

Clarify approach to the portion of EE that is technically achievable

The plan's EE supply curves are missing substantial potential because of the methodology used

• This may be less about methodology than how decarbonization was treated, still we will clarify the methodology and discuss in the supporting material, future work by us and others may allow progress toward this in the next plan

Revise draft plan document:

MCS on "conversion to electric space & water heating" implies the Council is encouraging fuel switching

• We will clarify language to indicate this is not the case



Conservation (3)

Committee Consideration:

Conservation (EE) level (target) should be higher

Conservation (EE) level (target) should be lower

1000 aMW should be the cost-effective level, but the regional target should remain as the 750-1000 range

• Given we use the range, using 1000 aMW as a level for cost-effectiveness raises concerns on consistency with the statute

Point target instead of a range

The plan should explicitly outline what cooperative actions the region, the Council, and Bonneville should take to address a future shortfall in EE acquisition and set forth the conditions that trigger these actions

- The draft does say already to work cooperatively with Bonneville to address any shortfall.
- The Council can request more information from the Administrator related to consistency with the plan at any time, the plan does not need to restate statute.
- The Council is not an enforcement agency.

Council should set utility-specific EE targets and propose a surcharge for those that miss the target

Explicitly include weatherization measures in the target for EE

• The best way to accomplish this would be to increase the lower end of the target to reflect capturing these additional savings

15

Utilities should weatherize all tribal homes by 2025



Conservation (4)

Committee Notes:

- If an EE target is missed, it should be cause for reexamining the Council's analysis as much as looking at underlying reasons that utilities did not achieve the target set forth
- It is important to stay focused and centered on the Council's statute and not go beyond that



New Generating Resources

Renewables Build

Committee Consideration:

The 3,500 megawatts of renewables by 2027 in the draft plan's resource strategy is too low/too high

The plan should include consideration for land use and habitat requirements and impacts of siting new transmission and renewable resources

• There is existing language in the plan and supporting material related to this, is it sufficient?

Committee Notes:

- <u>Consider adding recommendations that look at the impacts to habitats that cross state boundaries where coordination is particularly valuable</u>
- Concern was raised that this could go beyond the Council's purview



Demand Response

Demand Response

Committee Consideration:

Plan should require more DR and/or have an explicit target for DR



Existing Generation

Lower Snake River Dams

Committee Consideration:

The plan should include a scenario that examines removal of the dams

The plan should recommend removal of the dams

The plan should recommend the dams be preserved as an important part of the system

The Council should maintain the draft plan's current approach of not engaging in analysis of the Lower Snake River Dams



Hydro Operations

Committee Consideration:

Concerns around assumptions of flexibility within the FCRPS and Mid-Columbia PUD dams related to fish constraints

Plan should include scenarios with differing operations

The plan should update hydro operations to match the most recent spill agreement for the Federal Columbia River Power System. It also does not consider effects of potential future changes to fish and wildlife hydro operations.

• Any additional analysis on hydro operations would require substantial additional time to both create and sufficiently vet with regional stakeholders for this power plan but could be pursued as future work



Bonneville

Bonneville Power Administration

Committee Consideration:

Uncertainty in amount of market exposure needs to be explored further and plan should be clear on BPA's role in a potential RTO

Differing thoughts on 36% assumption of Bonneville's portion of regional energy efficiency target

The plan should recommend BPA incorporate equity in programs and operations



General & Other Comments

Transmission

Revisit supporting material:

The plan's estimate for deferred T&D does not properly reflect value during peak periods

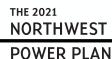
• We will provide more context in the supporting material on how the values were derived

Revise the draft plan document:

The plan should include more explanation and discussion about transmission and distribution system elements that are not part of the planning and analysis process and should provide further explanation of how these omissions impact the resource selection process

Committee Consideration:

The plan should include an integrated review of transmission and generation expansion and/or commit to pursuing that analysis in the next plan The plan should evaluate the use of electrolytic hydrogen production



Equity

Committee Consideration:

We received several comments in support of the work done thus far around equity (e.g. system integration forum on DEI in power planning), with a variety of commenters urging the Council to expand the emphasis



Electricity Markets

Committee Consideration:

Plan should recommend the region integrate piecemeal efforts on markets and adequacy and move toward a comprehensive regional solution, e.g. form an ISO/RTO

The plan should alter its approach to the baseline conditions in the treatment of resource expansion outside the region

• Changing the methodology would require substantial rework of the draft plan, may be work to pursue in the future



Action Plan

Respond in the response to comment:

The action plan period should be extended to 2030

Revisit supporting material:

The plan should include an action plan

• We can collect a summary of recommendations in the plan for the supporting material



