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January 5, 2010

## MEMORANDUM

**TO:** Council Members

**FROM:** Terry Morlan

**SUBJECT:** Power Plan Changes by Chapter

The Council was sent changes to the draft plan in revision mode for all but 5 chapters and 4 appendices. These changes were described and discussed at the December Council and Power Committee meetings. Staff is in the process of accepting the changes in order to move forward on creating a final Sixth Power Plan. Additional changes made in response to discussions in December or incorporating the results of the revised analysis will be shown in revision mode as changes since the chapter and appendix mailings on November 11<sup>th</sup> and 18<sup>th</sup>.

The most significant of the additional changes include:

- A completely new Chapter 10 (key part is attached that describes the resource strategy);
- A revised description of the conservation methodology;
- Incorporating revised estimates of retail average revenues and electric bills in Chapter 10 and Appendix P (now Appendix O);
- A revised Chapter 6 on Generating Resources;
- A summary of the carbon emissions target analysis for Chapter 11, and more detailed discussion for Chapter 10;
- Appendix D on Wholesale Market Prices;

Staff will go through the significant changes made since the November 11<sup>th</sup> and 18<sup>th</sup> emails chapter by chapter. To the extent possible, we will try to agree after each chapter is discussed whether the chapter is ready for the final Power Plan, assuming some additional editing by Public Affairs in some cases.

The attached PowerPoint will highlight the major changes since the draft and since the November revisions.

### Attachments

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# Discussion of Proposed Changes to Chapters and Appendices

Power Committee and Council  
January 12-13, 2010



# Objective

- Summarize major changes sent in November
- Summarize additional changes since November emails
- Seek agreement on each chapter, or identify needed changes

# Council Has Received

- Packet **1** (via email, November 18)
  - Chapters: Overview, 1, 5, 7, 13
  - Appendices: A, H, K, L, M, Q
- Packet **2** (via email, November 25)
  - Chapters: 3, 4, 8, 9, 12, 14
  - Appendices: B, C, E, F, G, N, O
- Remaining:
  - Chapters: Action Plan, 2, 6, 10, 11
  - Appendices: D, I, J, P

# Overview – Nov.

- Reorganized the discussion of the resource strategy?
  - Include conservation, renewables, and other generation within the resource strategy section
- Added carbon reduction effects of conservation, recognition of smart-grid potential and of 3 state carbon reduction goals
- Revised the language describing the effects of the fish and wildlife obligations to conform to Appendix M changes

# Overview Additional

- Revise strategy summary slightly to conform to new Chapter 10 elements
- Conform numbers and language to final Plan analysis

# Action Plan - New

- Minor changes to several CON and GEN actions.
- Expanded discussion of California RPS impacts on the NW power system
- Add action items on the Direct Use of Gas
- Revise BPA-9 on DSI service?
- Stick with BPA-2a on conservation cost primarily in Tier 1?

# Chapter 1: Introduction – Nov.

- Describes purpose, key issues, historical planning context, and Council's vision statement
- Revised conservation role in historical load growth to reflect 2008 and total load instead of non-DSI load
- Added the general carbon reduction goals in states, region and national proposed legislation
- Added meeting carbon reduction goals in WA, OR, MT to vision



# Chapter 1 Introduction: Additional

- No additional changes to propose
- Acceptable for final?

# Chapter 2: Key Assumptions – New

- Includes economic growth assumptions, fuel prices, and electricity price forecasts
- Title changed from Key Drivers of Demand; reflects broader effects of assumptions
- Modest changes to all of the forecasts; incorporation of recession and current conditions
- Revised retail electricity price estimation method described
- Summary of carbon price assumptions
- Summary of RPS assumptions

# Chapter 2: Key Assumptions - Additional

- Summary of carbon price assumptions
- Summary of RPS assumptions

# Chapter 3: Demand Forecast -Nov

- Revised forecast based on key assumption changes
- Add a description of 3 types of demand forecast and their role in planning
- Additional discussion of PHEV analysis in response to comments
- Additional discussion of revenue requirements
- Added discussion of demand forecasts compared to current resources (needs assessment) in response to comments

# Chapter 3: Demand Forecast - Additional

- Revised graphs and numbers in utility perspective needs assessment (last section)

# Chapter 4: Conservation Supply –

## Nov.

2

- Revisions to reflect revised assumptions, demand forecasts, market prices, and new information on conservation technologies
- Included language recognizing CFLs as a conservation measure

# Chapter 4: Conservation Supply – Additional

- Conforming changes for revised analysis, expected to be minor

# Chapter 5: Demand Response

- Comments were generally supportive and staff does not propose any significant changes
- Acceptable for final?



# Chapter 6: Generating Resources and Energy Storage Technologies - New

- Expanded discussion of peaking and balancing generation technologies
- Revised costs to reflect new assumptions about natural gas prices, transmission upgrades, and new information on outages
- Additional information on hydro, CHP, and the role of longer-term resources
- Expanded discussion of modular nuclear reactors
- Revised paragraph on F&W cost for consistency with Appendix M

# Chapter 7: Transmission

- Add clarifying language
- Include selected editorial changes proposed in comments
- Note that chapter numbers will now be increased by one because of changing Chapter 6a to Chapter 7
- Acceptable for final?

# Chapter 8: Direct Use of Natural Gas – Nov.

2

- Propose moving additional analysis using the RPM to the Action Plan
- Next steps in the analysis will be described and covered in the Action Plan [ANLYS-15]
- Additional change to remove Appendix O and references to it in Chapter 8
- Acceptable for final?

# Chapter 9: Developing a Resource Strategy – Nov.

2

- Enhanced explanation of model and how it treats risk
- Additional discussion of the RPM's treatment of capacity and reserves
- Added discussion of testing adequacy outside the RPM
- Describe change in RPS resource treatment

# Chapter 9 - Additional

- Conforming changes for final analysis
- Description of revised method for RPS development
- Change in DSI assumptions and methods

# Chapter 10: Recommended Resource Strategy - New

- Highlight the resource strategy in the first section, add more on capacity, storage, renewable, and long-term resources
- Add discussion of the role of nuclear power and other potential long-term alternatives in the resource strategy
- Focus more of scenario discussions on how they contribute to and help inform the strategy
- Reflect new scenarios on specific carbon goals

# Chapter 11: Climate Change – Nov.

- Mostly editorial changes

# Chapter 11: Climate Change – Additional

- Added short description of EPA ruling about carbon as a pollutant
- Revise Key Findings and last section to reflect carbon target analysis



# Chapter 12: Capacity and Flexibility

2

- Added clarifications to discussion, mostly suggested by comments

# Chapter 12: Capacity and Flexibility - Additional

- Added clarifications to discussion, suggested by Council member comments
- Acceptable for final?

# Chapter 13: Bonneville's Obligations

- Some additional language to recognize Bonneville's draft Resource Program and indicate that it is well aligned with the Council's Power Plan
- Acceptable for final?

# Chapter 14: Resource Adequacy

## Standards – Nov.

2

- A new section was added to describe the difference between adequacy of the power system, and adequacy of a power plan
- Updated assessment of adequacy notes yellow alert status for summer capacity; describes actions being taken
- Added section on utility perspective on loads and resource in the plan

# Chapter 14 - Additional

- Updated graphics and discussion in last section on utility capacity adequacy assessment to conform to final analysis

# Appendices: A, B and C

- Changes to tables, figures and text to reflect revised forecasts in all
- B includes new method for calculating retail price
- C, comparison to 5<sup>th</sup> Plan forecasts removed
- C, added discussion of incorporating conservation savings to derive a “sales” forecast
- Acceptable for final?

# Appendix D: Wholesale Electricity Prices - New

- Appendix has been extensively modified since the draft
- The section on retail prices will be deleted; it was superseded by Appendix P
- Add discussion of price forecast vs. avoided resource cost
- Update for revised wholesale price forecast

# Appendix E: Conservation – Nov.

- An expanded discussion on the cost-effectiveness methodology will be added
  - Expanded discussion on the RPM calculation of market price adders
- Added a summary table (E-1) by sector and major measure bundles



# Appendix E: Conservation - Additional

- Edit conservation methodology description to clarify and update for final analysis

# Appendices F, G and H

2

2

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- These are the MCS, MCS cost-effectiveness, and demand response appendices
- No changes were made to these appendices
- Acceptable for final?

# Appendix I: Generating Resources - New

- Some resources were incomplete in the draft plan; these will be added
- Add an example of the potential cost and benefits of cogeneration
- Describe assumptions about the cost of wind integration

# Appendix J: Resource Portfolio Model

- There may be some technical modifications to reflect final plan data and analyses

# Appendix K: Smart Grid

- A discussion was added about Smart Grid Investment Grant awards to regional utilities
- Acceptable for final?

# Appendix L:

## Global Climate Change Issues

- A new section was added describing the River Management Joint Operating Committee (RMJOC) climate change project
- Acceptable for final?

# Appendix M: Integrating F&W and Power Planning

- In response to comments, the section on calculation of the cost of F&W operations on the power system was modified substantially, only costs shown are as calculated by BPA
- Add clarification that this calculation of cost does not affect the power plan itself, only the operations matter

# Appendix N: Financial Assumptions

- No significant changes, minor changes from interest rate forecasts did not change the discount rate assumptions
- Minor change to inflation rate based on revised Global Insights forecast



# Appendix O: Direct Use of Gas

- This new appendix includes the economic analysis and modeling approach used by a contractor
- As noted in the Chapter 8 discussion, we will not expect to be able to complete the analysis of direct use of natural gas within the RPM in time for the Plan

# Appendix P: Calculation of Retail Rates and Customer Bills

- Clarify that regional averages are not likely to be representative of individual utilities
- Update to discussion and tables to reflect final analysis

# Appendix Q: Method for Calculating Quantifiable Environmental Costs

1

- Comments have pointed out that this required part of the power plan is missing
- A draft of this new appendix has been added
- Acceptable for final?