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October 3, 2017

MEMORANDUM

TO: Power Committee

FROM: Ben Kujala, Charlie Grist

SUBJECT: Update on value of conservation white paper

BACKGROUND:

Presenter: Ben Kujala, Charlie Grist

Summary: In September, staff presented an outline for a white paper of the value of conservation. The goal of this white paper is to explore the impacts of conservation on different utilities with a focus on Bonneville customer utilities. With the feedback received, staff revised the original outline and added annotations to further clarify the intent of each section of the white paper.

With further direction from the Power Committee, staff would like to get an acceptable draft of the outline to move forward with putting together a plan on how to draft, get thorough and appropriate review and revise the white paper. Staff would bring this project plan back to the Power Committee in November.

Relevance: The 7th plan had several action items directed at understanding the value of conservation.

Workplan: A. Implement the 7th Power Plan and related Council priorities.

Background: The 7th Plan provides analysis of the value of conservation from a regional perspective. While this gives a good view of how conservation impacts the region as a whole, it can miss details about the impact individual utilities or groups of utilities.

1. Executive Summary

2. Background

- a. Energy Efficiency as a resource, regional and long-term perspectives
- b. Problem statement: The costs and benefits of energy efficiency can fall disparately on utilities. The paper will identify how revenue requirements are impacted by development of energy efficiency and how the benefits flow back through utilities in differing positions and to their ultimate consumers with a focus on the Bonneville system.

The Seventh Plan analysis provides assessment of regional value, including energy, capacity, deferred distribution and transmission cost, non-energy impacts, and CO2 risk. But, it did not look at how these values were distributed within the region. This analysis will focus on the distribution of benefits where the share for each that accrues to individual utilities differs.

A key focus of the paper will be on the distribution of impacts on Bonneville and its customer utilities. The Council's Action Plan recognized that the adverse distribution of costs versus benefits of efficiency across the Bonneville system could inhibit its development and called for analysis of the value to Bonneville and identification of barriers created by either the way Bonneville implements its energy efficiency program or the way it recovers costs through its power and transmission rates (Action items BPA-5, BPA-6 and BPA-7).

3. Context of the Bonneville system

- a. Description of Bonneville's current power and transmission rate structures
- b. Description of Bonneville's current process for recovering and administering energy efficiency (EEI) funds and historical context to why we are here today

The purpose of this section is to provide a foundational understanding of how Bonneville funds energy efficiency. Bonneville has funded energy efficiency (EE) through multiple mechanisms through time. In addition to both capitalizing and expensing the cost of EE, BPA has required individual utilities to self-fund *all* (e.g., through their rate credit/discount

programs) or *only a portion* (e.g., through their conservation cost-sharing agreements). The agency has also recovered the cost of EE across all customers without regard to individual utility purchases from BPA. Understanding these mechanisms is critical to understanding how the benefits of energy efficiency flow back to Bonneville customer utilities.

4. Value Stream of Energy Efficiency (Macroeconomic Perspective)

- a. Description of different value streams such as
 - i. Avoided energy
 - ii. Avoided capacity and reserves
 - iii. Deferred transmission
 - iv. Deferred distribution
 - v. Carbon reduction
 - vi. Avoided RPS
 - vii. Risk reduction
 - viii. Environmental impacts
 - ix. Consumer non-energy impacts
- b. Relative value of the value streams, from 7P perspective

The purpose of this section is to provide an understanding of the regional benefits provided by energy efficiency. This section will leverage information from the Seventh Plan analysis, which provides an assessment of regional value, including energy, capacity, deferred distribution and transmission cost and CO₂ risk. Each of these are considered from a regional perspective. The relative value of the components from the regional perspective will be summarized from various scenario analyses conducted in the Seventh Plan. This section will also take a historic look at where the region would be, in terms of regional revenue requirements, if the region had not acquired the existing levels of efficiency.

5. Utility-Specific Value of Energy Efficiency (Microeconomic Perspective)

- a. Description of how utility value of EE depends on utility position with respect to loads and resources, contracts, and on energy and capacity markets
- b. Analysis of the economics from illustrative perspectives of utilities in differing perspectives

This section would include description of the flow of the revenue requirements from efficiency investments and the revenue reductions from efficiency outlined in the previous section. The paper would quantify these flows - where possible - over the short & long-term and include an assessment of risk. This would be done for illustrative utility positions with respect to loads and resources, contracts, and access to energy and capacity markets. Key utility positions to be analyzed include:

- i. Relative load growth: growing, shrinking, flat
- ii. Immediacy of resource need: both capacity and energy

- iii. Immediacy of transmission and distribution needs as well as T&D congestion hot spots
- iv. Differential energy efficiency potential and capability to develop efficiency
- v. Bonneville-specific contract positions and rate structures: Partial and full requirements customers, product class (Slice, Block, Slice/Block), rate tier (Tier 1, Tier 2, High Water Mark Headroom), peak demand position, and efficiency self-funding levels

Resources for this analysis would include the rate-impact model developed by Bonneville and an expanded rates and bills module of the Council's Regional Portfolio model. The expanded RPM rates and bills module would capture elements of risk and uncertainty in the RPM futures that are not in the BPA model. It would also allow examination of revenue flows from perspectives on Bonneville as a wholesaler, Bonneville's utility customers, and the retail end use consumers of electric energy. Impacts on individual utility retail rate structures would not be modeled due to the plethora of retail rate designs but generic metrics of revenue and rate impacts would be included. Quantifying the value of some components may not be possible. In those cases, a qualitative discussion would be included.

- 6. Explore how the findings from the analysis may illuminate barriers to energy efficiency

This section could touch on a variety of issues that emerge from the analysis. These issues could include, wholesale market structures, Bonneville product valuation, design aspects of Bonneville's equity model for energy efficiency, retail rate design, or regulatory incentive structures.

- 7. Conclusion

- a. Summary of the values from a macro perspective
- b. Summary of key drivers that increase/decrease relative value from a micro perspective
- c. Identification of barriers and possible solutions