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August 7, 2018

### MEMORANDUM

**TO: Council Members**

**FROM: Charlie Grist, Kevin Smit, Jennifer Light, and Tina Jayaweera**

**SUBJECT: Draft Value of Conservation White Paper and Proposed Next Steps**

### BACKGROUND:

Presenter: Ben Kujala

Summary: Staff have completed drafts of Sections 3, 4, and 5 of the Value of Conservation White Paper. Discussion of these draft sections with the Power Committee is the next milestone in the development of the paper. Staff plan to present on the content in these sections, the review process to date, and proposed next steps.

Relevance: Throughout the development of the Seventh Plan, utility general managers presented to the Council on the challenges they face in implementing energy efficiency. In part a response to this, the Seventh Plan identified three action items for Bonneville to quantify the value of conservation, explore different efficiency implementation approaches, and identify barriers to conservation acquisition (BPA-5, BPA-6, and BPA-7). While not directly tied to these Action Items, Council staff have been working on a white paper outlining the value of conservation, with a focus on how those benefits flow back differentially to utilities.

Workplan: A.1.2. Engage with Bonneville to ensure the value of conservation is included in budgeting discussions.

**Background:** The Seventh Plan highlights the value of conservation to the region. This includes direct value to the utility system, as well as to end use customers and the society at large. It is clear, however, that energy efficiency does not provide equal value to all utilities. The purpose of this paper is to explore the broad value of energy efficiency, as well as how that value flows back differentially to utilities.

Council staff worked with the Power Committee to develop an outline and project plan for the development of this paper. As described in the project plan (linked below), the first step for staff was to draft Sections 3 and 4 and present to the Power Committee for comment. Section 3 focuses on context about the Bonneville system, including its rate structure and energy efficiency funding mechanism. Section 4 provides a high-level overview of the various value streams of energy efficiency, focusing on the regional perspective. Staff shared these draft sections with the Conservation Resources Advisory Committee (CRAC) at its June 5 meeting. The CRAC provided some comments on these sections, which staff incorporated into the updated document.

In addition, staff has been working on Section 5, which starts to explore the utility specific values of energy efficiency. As outlined in the project plan, the first step was to develop a qualitative analysis that informs the impact on these values. Four utilities volunteered for interviews to provide their individual perspectives. The purpose of capturing this qualitative analysis was to inform on whether developing a quantitative model to further investigate these impacts was fruitful.

At the August Power Committee meeting, staff will share these draft sections and discuss the next steps for this white paper.

**More Info:** Draft Value of Conservation White Paper: Sections 3-5

Value of Conservation White Paper Outline:

<https://nwcouncil.box.com/s/6k708e3j24aln7dtqlq177k34q64ggc4>

Value of Conservation White Paper Project Work Flow:

<https://nwcouncil.box.com/s/xo5dumc11tyjq6o3mi6m5keuqswfp5np>

# Value of Energy Efficiency White Paper

Power Committee Meeting  
August 14, 2018

## What is "The Value of EE White Paper"?

**Problem Statement:** The 7P assesses the value of energy efficiency regionally, but does not look at distribution of the costs and benefits across different utilities

**Purpose of the Paper:**

- Provide an overview of value of energy efficiency broadly
- Analyze how:
  - Revenue requirements of utilities are impacted by the development of efficiency
  - Benefits flow back through the utilities in different positions
- Focus is on Bonneville utilities

## Why We are Doing This

- **Response to Public Utility Concerns**
- **Related 7<sup>th</sup> Plan Action items:**
  - **BPA-5: Quantify value of conservation in financial analysis & budget setting forums**
  - **BPA-6: Assess BPA's current EE implementation model and compare to other implementation approaches**
  - **BPA-7: BPA and the Council should develop a report that identifies barriers to conservation acquisition by BPA's customer utilities with recommended strategies to eliminate or minimize such barriers**

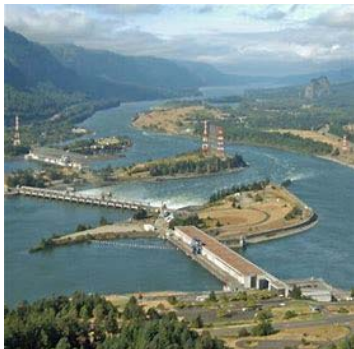
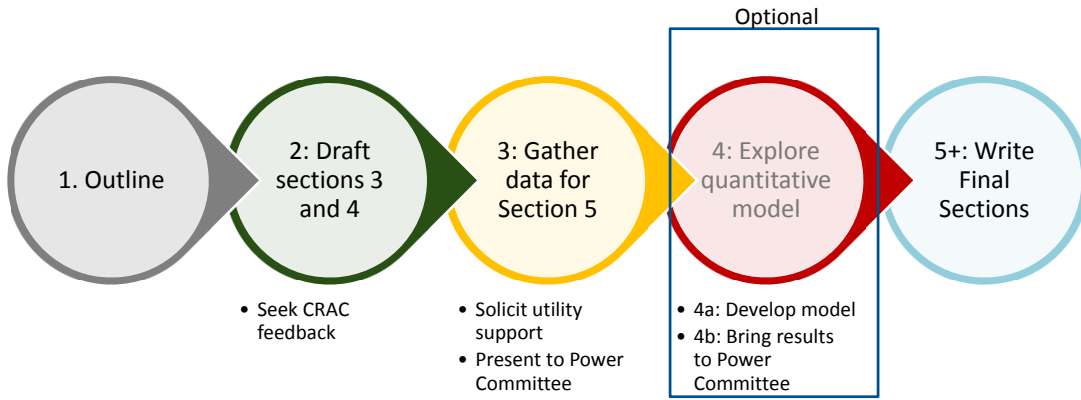
[https://www.nwcouncil.org/sites/default/files/7thplanfinal\\_chap04\\_actionplan\\_12.pdf](https://www.nwcouncil.org/sites/default/files/7thplanfinal_chap04_actionplan_12.pdf)



## White Paper Outline

1. Executive Summary
2. Background
3. Context of the Bonneville System Discussed with CRAC
4. Value Stream of EE
5. Utility-specific Value of EE Qualitative
6. Findings on Barriers to EE
7. Conclusion

# White Paper Development Process



Value of EE White Paper – Section 3

## CONTEXT OF THE BONNEVILLE SYSTEM

## Context

- In order to understand the value of EE, we are providing background information in two areas:
  - Bonneville Rates
  - Bonneville EE Program Structures
- These items provided the basis for collecting revenue (including EE funds) from BPA customer utilities and then distributing the EE funding back to utilities (i.e., how the money flows)



## BPA Rates

(Source: Emily Traetow, BPA)

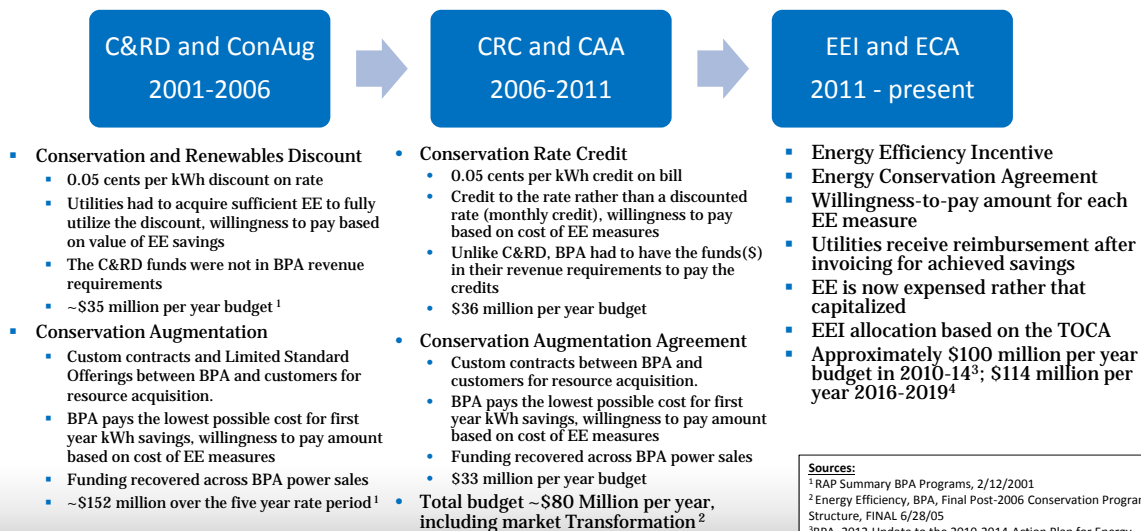
- **Tiered Priority Firm (PF) Rates**
  - Establishes a two-tiered PF rate design applicable to net requirements power for Publics
  - Determines the amount of power a customer is eligible to purchase at Tier 1 rates by establishing a Rate Period High Water Mark (RHWM)
  - A customer cannot buy more power than its net requirement, regardless of its RHWM.
- **Cost Differentiation**
  - Differentiates between the costs of service associated with existing Tier 1 System Capability (Tier 1 Rates) and the incremental costs of power needed to serve any portion of a Public's annual net requirement not served at a Tier 1 Rate (i.e. Tier 2 Rates).
- **Allows customer to choose between buying from BPA at a Tier 2 rate and purchasing from other sources of power**
  - Sends marginal price signals to the bulk of BPA's customers
  - Promotes energy efficiency and resource development

## BPA Rates

<b>Tier 1 Charges</b>	Customer Charges	Includes the customer rates and billing determinants, which is based on the Tier One Cost Allocation (TOCA), aka Composite Charge
	Demand Charges	Applies to Load Following and Block with Shaping Capacity customers. Monthly demand charge (\$/kW).
	Load Shaping Charge	Applies to Load Following and Block customers. The charge could be a charge or credit. Load shaping rates for High Load Hours (HLH) and Low Load Hours (LLH) (mills/kWh)
	Product Conversion Charge	Customers that have converted from the Slice product to a Non-Slice product (monthly charge)
	Spill Surcharge	Applies to Load Following, Block, Slice/Block (block portion). Specified in General Rate Schedule Provisions (GRSP) Appendix C.
<b>Tier 2 Rate</b>	Load Shaping Charge	Applicable to customers that have elected to serve Above-RHWM Load with purchases at Tier 2 rates.
	Short Term Charge	Applicable to customers that have elected to purchase power at the Tier 2 Short-Term Rate, as specified in the customer's CHWM Contract
	Load Growth Charge	Applicable to customers that have elected to purchase power at the Tier 2 Load Growth Rate
	VR1-2014 Charge	51.4 mills/kWh
	VR1-2016 Charge	46.5 mills/kWh

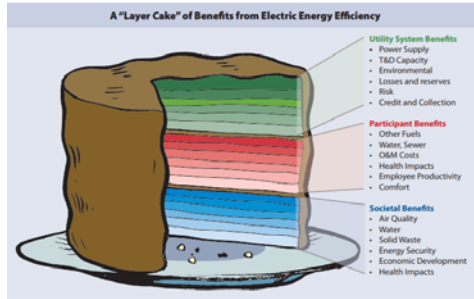
VR=Vintage Rate

## Recent BPA Energy Efficiency Programs



- Conservation and Renewables Discount
    - 0.05 cents per kWh discount on rate
    - Utilities had to acquire sufficient EE to fully utilize the discount, willingness to pay based on value of EE savings
    - The C&RD funds were not in BPA revenue requirements
    - ~\$35 million per year budget <sup>1</sup>
  - Conservation Augmentation
    - Custom contracts and Limited Standard Offerings between BPA and customers for resource acquisition.
    - BPA pays the lowest possible cost for first year kWh savings, willingness to pay amount based on cost of EE measures
    - Funding recovered across BPA power sales
    - ~\$152 million over the five year rate period <sup>1</sup>
- Conservation Rate Credit
    - 0.05 cents per kWh credit on bill
    - Credit to the rate rather than a discounted rate (monthly credit), willingness to pay based on cost of EE measures
    - Unlike C&RD, BPA had to have the funds(\$) in their revenue requirements to pay the credits
    - \$36 million per year budget
  - Conservation Augmentation Agreement
    - Custom contracts between BPA and customers for resource acquisition.
    - BPA pays the lowest possible cost for first year kWh savings, willingness to pay amount based on cost of EE measures
    - Funding recovered across BPA power sales
    - \$33 million per year budget
  - Total budget ~\$80 Million per year, including market Transformation <sup>2</sup>
- Energy Efficiency Incentive
  - Energy Conservation Agreement
  - Willingness-to-pay amount for each EE measure
  - Utilities receive reimbursement after invoicing for achieved savings
  - EE is now expensed rather than capitalized
  - EEI allocation based on the TOCA
  - Approximately \$100 million per year budget in 2010-14<sup>3</sup>; \$114 million per year 2016-2019<sup>4</sup>

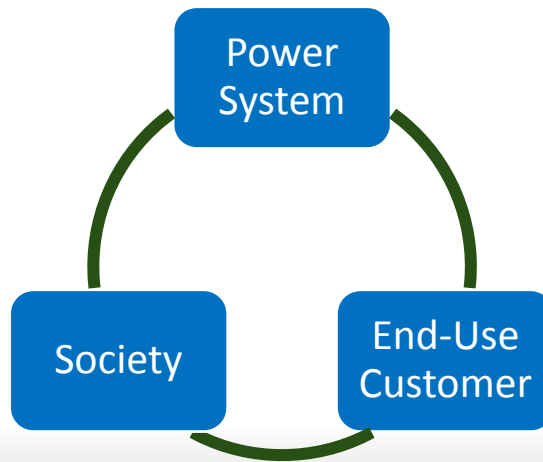
**Sources:**  
<sup>1</sup>RAP Summary BPA Programs, 2/12/2001  
<sup>2</sup>Energy Efficiency, BPA, Final Post-2006 Conservation Program Structure, FINAL 6/28/05  
<sup>3</sup>BPA, 2012 Update to the 2010-2014 Action Plan for Energy Efficiency, March 1, 2012  
<sup>4</sup>BPA 2016-2021 Energy Efficiency Action Plan, March 2017. Includes Market transformation and Infrastructure.



Value of EE White Paper – Section 4

## VALUE STREAMS OF ENERGY EFFICIENCY

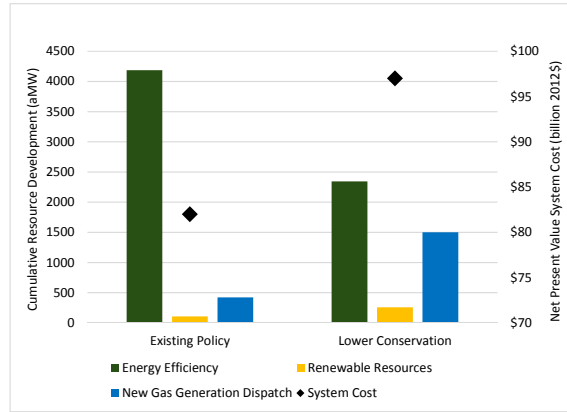
### Value Streams Included





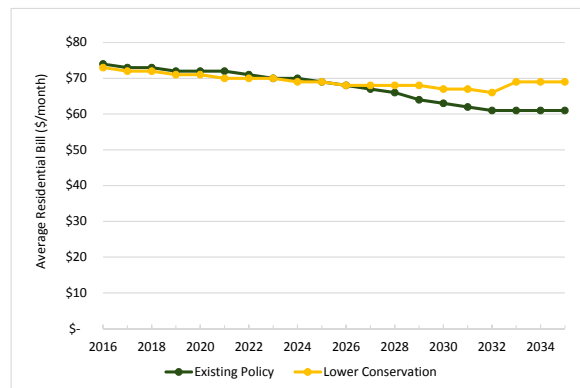
## Values: Power System

- **Reduced Cost**
- **Avoided energy and capacity**
- **Avoiding other power system costs**
  - Deferred transmission and distribution
  - Avoided reserves
  - Avoided renewable portfolio standards
- **Reduced risk**
  - Market price risk
  - Avoiding stranded assets
  - Potential carbon pricing policies



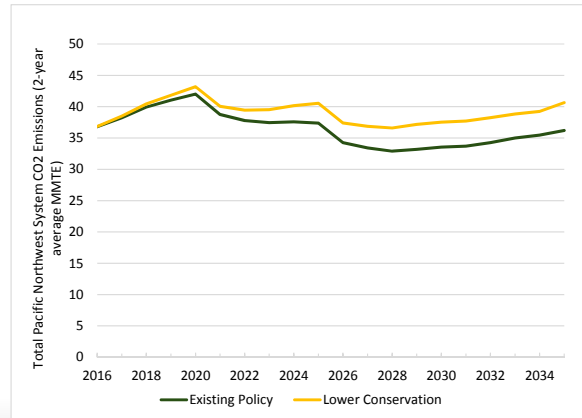
## Values: End-Use Customers

- **Reducing customer bills**
- **Operations and maintenance**
- **Reduction in supplemental fuels**
- **Consumer non-energy impacts**



## Values: Societal

- Reductions in carbon and other emissions
- Health benefits (example: wood smoke emissions)



Value of EE White Paper – Section 5

## UTILITY-SPECIFIC VALUE OF ENERGY EFFICIENCY

## Section 5 - Outline

- **Description of how utility value of EE depends on utility position, such as:**
  - Load growth (positive, flat, negative)
  - Immediacy of resource need
  - Immediacy of T&D needs
  - Differential between EE potential and capability
  - BPA contract positions/rate structures
- **OPTIONAL: Analysis of the economics for (illustrative) utilities in differing perspectives**

## Results of Interviews

- **Interviewed four utilities (thank you!):**
  - Lane Electric
  - Central Lincoln PUD
  - Idaho Fall Power
  - Northwestern Utilities
- **Summary:**
  - Difficult to justify cost of EE given flat/declining load projections and low market prices
  - Capacity value of EE may help with demand charges
  - Customer service value is of paramount importance
  - Recognize long-term value of EE given uncertainties in future prices and loads

## Section 5 Project Plan

### Steps:

1. Gather info and source material
2. Create a qualitative analysis that informs impacts of utility specific values of EE
3. Identify the value of developing a quantitative model to investigate impacts of utility specific value and present to P4

## Next Steps

- Option 1 – Finish white paper with qualitative assessment and bring back to Council for release
- Option 2 – Pursue quantitative assessment of individual utility impacts of conservation
- Under both options remaining sections to be drafted:
  - Executive Summary
  - Background
  - Barriers to EE
  - Conclusion