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July 30, 2013

MEMORANDUM

TO: Council Members

FROM: Charlie Grist and Tom Eckman

SUBJECT: Briefing on Bonneville Energy Efficiency Business Case

Bonneville's vice president of energy efficiency, Richard Gécécé, and Josh Warner, manager of efficiency planning and evaluation will brief the Council on the recently released "Case for Conservation". The case for conservation is series of documents and analyses that Bonneville prepared which looks at the financial justification for funding conservation. At the Council meeting in August, Bonneville will present and discuss various pieces of the work, including the value of conservation compared to wholesale market power purchases and a generic look at the financial benefits of conservation from the utility perspective.

For the wholesale analysis, Bonneville looked at its conservation expenditures and acquisitions over the ten years from 2001 to 2011. Then the analysis compared the cost of those energy savings to the value of wholesale spot market power purchases or sales over the life of the conservation to produce an estimate of the net effect on Bonneville costs. Bonneville's analysis found a net present value savings in the range of \$750 million to \$1.3 billion over a 20-year analysis period, depending on the assumptions.

Bonneville consulted with Council staff on the development of the analysis. Staff believes the analysis effectively portrays tangible financial impacts that sometimes get overlooked. The methodology Bonneville uses is reasonable, but conservative. Staff believes conservative input assumptions on the persistence of savings, and future market prices significantly diminish the high end range of the financial impacts. Nonetheless, even using conservative assumptions, the value of conservation acquisitions by Bonneville is a large net benefit to customers. To view BPA's report on Conservation and a support spreadsheet visit the Conservation Resource Advisory Committee page on the Councils website and click on the appropriate links in the Top Issues section on the right hand side of the page.

<http://www.nwcouncil.org/energy/crac/home/>



BPA's Case for Conservation

Richard Génécé
Vice President, Energy Efficiency





Background and Objective

- Several drivers have led BPA to see a need to provide its public power utility customers with analyses and tools to help make a “case for conservation”:
 - Economic downturn = no/low load growth
 - 25%, on average, utility self-funding
 - Tier 1 head room for some utilities
 - EEI budgets higher than historical expenditures for some utilities
- Objective: assist BPA’s customers with making a “case for conservation”
- Package contents:
 - Currently available – “EE vs. Mid-C Analysis” and “A Utility Business Case for Conservation”
(http://www.bpa.gov/Energy/N/pdf/CaseForConservation_Final.pdf)
 - Available in early autumn – “Conservation Financial Impact Model”



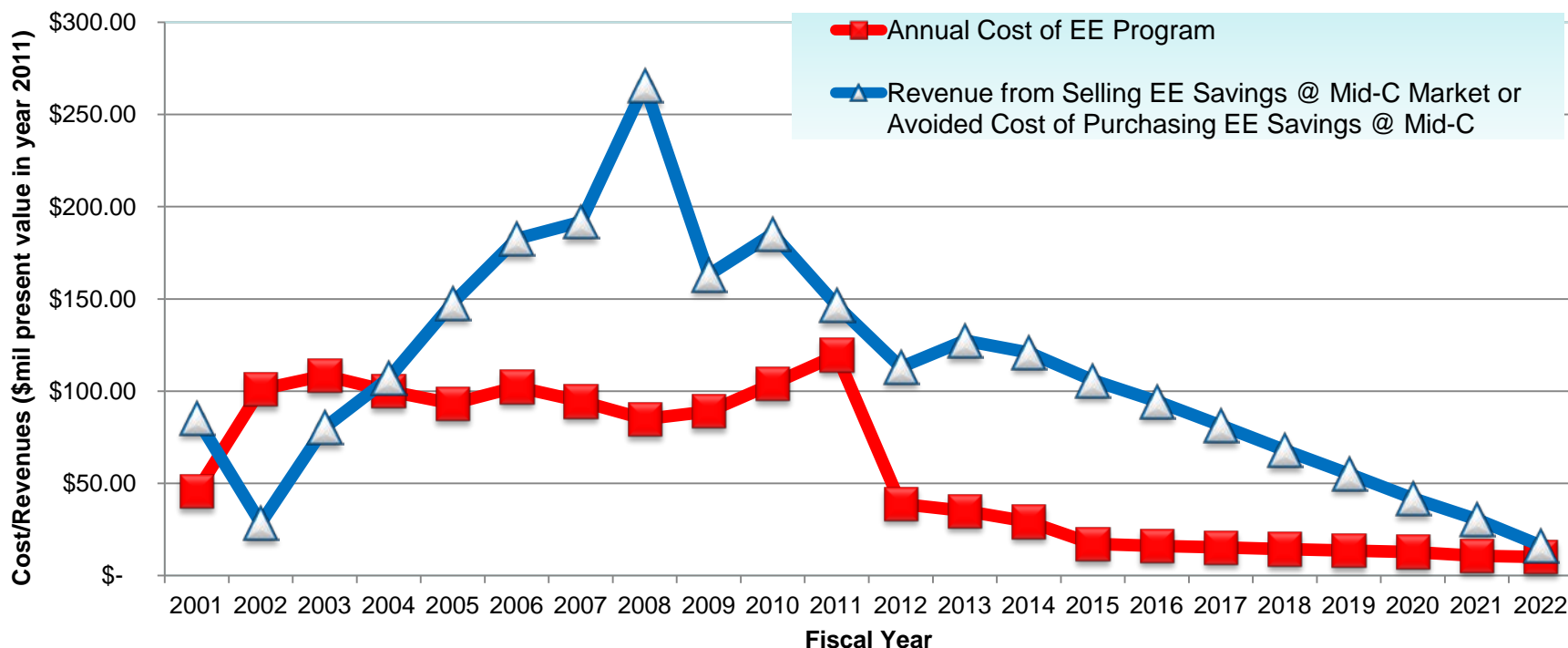
“EE vs. Mid-C Analysis”

- **Objective:** evaluate the value of energy efficiency investments made from 2001 – 2011 by answering the following hypothetical question:
 - Were BPA’s costs lower as a result of investing in energy efficiency rather than purchasing the equivalent amount of energy from the market via power purchases?
 - **Answer:** in the absence of the 2001-2011 investments, BPA’s estimated costs would be *higher* by **approximately \$750 million to \$1.7 billion** (net present value in year 2011) for the period 2001-2022
 - Regional benefit perspective, is retrospective only, and can’t be exactly replicated for investments after 2011 because of BPA’s new Tiered Rates Methodology --- *It is not a rate impact analysis*
- Deliberately make conservative assumptions
- Contents: general overview, written analysis and Excel file



“EE vs. Mid-C Analysis”

Annual Value of Bonneville's 2001-2011 Energy Efficiency Investments Over Their Expected Measure Life



The graph above compares the annual cost of BPA’s EE program and investments to the avoided cost/excess power revenue provided by annual EE savings. The cumulative difference between the two results is a forecast cost savings of approximately **\$1.18 billion** (net present value in year 2011, assuming a nominal 6 percent interest rate, 12-year measure life, zero savings persistence, flat annual average Mid-C prices, and flat energy savings)



“A Utility Business Case for Conservation”

- **Objective:** demonstrate that it does make sense, under the Tier Rates Methodology, from a *retail perspective* to invest in conservation under both basic situations:
 - For a utility that has its entire net requirement served at Tier 1 rates and
 - For a utility that must either purchase Tier 2 power from BPA or purchase additional nonfederal resources
- **Contents:** written analysis with generic calculations and explanations
 - Not applicable to slice customers



“Utility Business Case”

Situation one – Utility “A” has its entire net requirement served at Tier 1 rates

Retail	
<u>Utility A</u>	\$/MWh
Levelized Cost of Conservation	\$ (27.17)
Transmission Savings	\$ 2.58
Distribution Losses Savings	\$ 1.70
Customer Charge Savings (critical shape)	\$ 32.03
Load Shaping Credit/(Cost)	\$ (0.24)
Utility Net Benefit	\$ 8.90
Wholesale	
<u>BPA Savings</u>	\$/MWh
Customer Charge Revenue Change	\$ (32.03)
Load Shaping Revenue Change	\$ 0.24
Change in Balancing Costs	\$ (0.24)
Transmission Revenue Change	\$ (2.58)
Forecast Mkt Value of Flat Block	\$ 28.85
BPA Net Benefit/	\$ (5.76)
Total Net Benefit	
	\$ 3.14

Situation two – Utility “B” is exposed to Tier 2

Retail	
<u>Utility B</u>	\$/MWh
Levelized Cost of Conservation	\$ (27.17)
Transmission Savings	\$ 2.58
Distribution Losses Savings	\$ 2.10
Above RHWL Savings	\$ 39.82
Load Shaping Credit/(Cost)	\$ -
Utility Net Benefit	\$ 17.33
Wholesale	
<u>BPA Savings</u>	\$/MWh
TOCA Revenue Change	\$ -
Load Shaping Revenue Change	\$ -
Tier 2 Costs	\$ 39.82
Tier 2 Revenue	\$ (39.82)
Transmission Revenue Change	\$ (2.58)
BPA Net Benefit	\$ (2.58)
Total Net Benefit	
	\$ 14.75



Supporting Points

- Additional points in support of investing in conservation are provided:
 - Market price expectations
 - Conservation can be viewed as an insurance policy/hedge against higher market prices in the future
 - Customer satisfaction
 - Helps lower bills and gives customers a sense of control over their bills
 - Lost opportunities
 - Ensuring new residential and commercial buildings are energy efficient makes economic sense because they will be consuming electricity for many years
 - Cumulative benefit of conservation
 - 1 MWh of conservation acquired today translates into 1 MWh that does not need to be purchased for the duration of the life of the measures while market purchases of the 1 MWh would have to be made every year
 - Other benefits
 - O&M savings; economic development; T&D savings; avoided peak losses; reduced RPS compliance costs; staying out of Tier 2



“Utility Service Area Conservation Financial Impact Model”

In Beta-testing

- Objective: provide a financial tool based on utility-specific inputs and assumptions to help customers think about the quantitative impacts of conservation investments from a *service territory perspective* (the utility and its end-users)
 - The model is based on comparing the cost of energy savings against power purchases and could be used by boards, GMs, and staff to think through levels of investment
- Excel model and accompanying report
 - Not applicable to slice and direct serve customers; load following customers only
- Release date: Beta-testing underway and then general roll out in early autumn
 - The tool will be used one-on-one by BPA and its customers