



# **Bonneville Power Administration's Power Function Review Conservation Program Management Level Discussions**

**February 23, 2005**



# BPA Power Function Review: Conservation Programs and Initiatives

## Discussion Outline

- BPA's Strategic Direction Regarding Conservation
- Current (2002-06) and Future (2007-09) Conservation Targets
- BPA's Conservation Staffing History and Allocations (1993-2009)
- Conservation Budget History (1997-2006)
- BPA's Proposed Conservation Budget (2007-09)
- Program Challenges and Risks
- Conservation Cost Management Opportunities
- Post-2006 Conservation Budget Feedback from Workgroup
- 2007-11 Conservation Program Structure (proposed by Workgroup)

## Background Information

- Regional Conservation Accomplishments and Potential
- BPA's Conservation Accomplishments and Expenditures



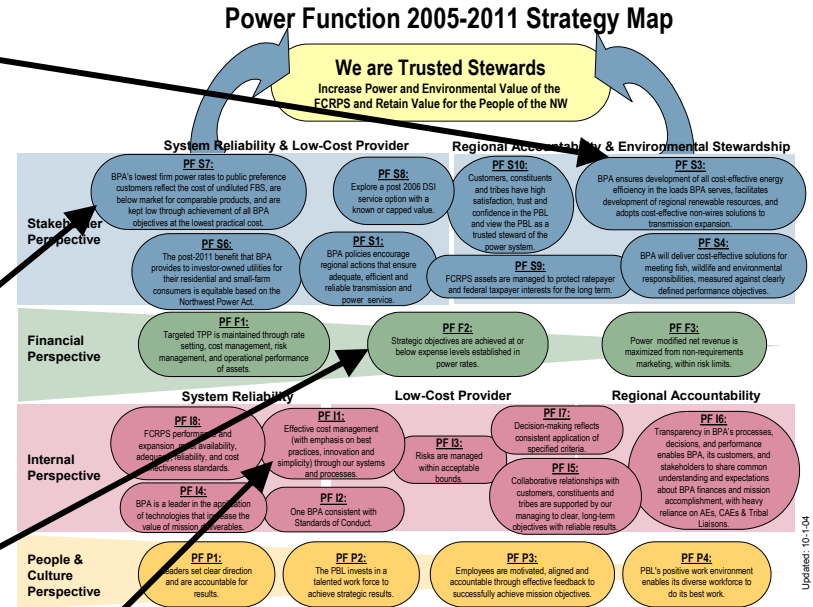
# Power Function Review: PBL Balanced Scorecard Support for the Conservation Program

**PF S3:** ensures development of all cost-effective energy efficiency in the loads BPA serves, facilitates development of regional renewable resources, and adopts cost-effective non-wires solutions to transmission expansion.

**PF S7:** BPA's lowest firm power rates to public preference customers reflect the cost of undiluted FBS, are below market for comparable products, and are kept low through achievement of all BPA objectives at the lowest practical cost.

**PF F2:** Strategic objectives are achieved at or below expense levels established in power rates.

**PF I1:** Effective cost management (with emphasis on best practices, innovation and simplicity) through our systems and processes.





# BPA Power Function Review: Strategic Direction Regarding Conservation

## Agency Strategic Direction

Strategic Objective 3: BPA ensures development of all cost-effective energy efficiency in the loads BPA serves, facilitates development of regional renewable resources, and adopts cost-effective non-construction alternatives to transmission expansion.

## Explanation of S3

BPA will continue to treat energy efficiency as a resource and define our goals in terms of megawatts of energy efficiency acquired. Even if we adopt tiered rates, we are very likely to continue to need limited amounts of new resources. We expect conservation to continue to be a cost-effective resource to meet this limited need, with first priority by law. Accordingly, our goal is to continue to ensure that the cost-effective conservation in the load we serve gets developed, since this amount is very unlikely to exceed our total need. We will ensure this amount is developed with the smallest possible BPA outlay. We will do this through a combination of acquisition of conservation, adoption of policies and rates that support others' development or acquisition of cost-effective conservation, and support of market transformation that results in more efficient electric energy use.



# BPA Power Function Review: Strategic Direction Regarding Conservation

## Conservation Principles in BPA's Regional Dialogue Policy

- BPA will use the Council's plan to identify the regional cost-effective conservation targets upon which the agency's share (approximately 40 percent) of cost-effective conservation is based.
- The bulk of the conservation to be achieved is best pursued and achieved at the local level. There are some initiatives that are best served by regional approaches (for example, market transformation through the Northwest Energy Efficiency Alliance). However, the knowledge local utilities have of their consumers and their needs reinforce many of the successful energy efficiency programs being delivered today.
- BPA will seek to meet its conservation goals at the lowest possible cost to BPA. While it is a given that only cost-effective measures and programs will be pursued, the region can also benefit by working together to jointly drive down the cost of acquiring those resources.
- BPA will continue to provide an appropriate level of funding for local administrative support to plan and implement conservation programs.
- BPA will continue to provide an appropriate level of funding for education, outreach, and low-income weatherization such that these important initiatives complement a complete and effective conservation portfolio.



## Delivered and Planned Savings from BPA's Existing Conservation Programs for the Current Rate Period (in aMW)

**Message: BPA is on schedule to meet 220 aMW target.**

<u>Programs</u>	<u>FY 01</u>	<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>FY 05</u>	<u>FY 06</u>	<u>Total</u>
	-----delivered-----				///	-----planned-----	
C&RD	4.6*+	18.5+	17.8+	13.4+	10.7	?	65.0
ConAug	3.7*	21.8	20.8	14.5	16.6	13.3	90.7
Market Transformation	--	12.0	16.0	14.0	12.0	8.0	62.0
Low Income Wx	--	0.2	0.3	0.2	0.3	0.3	1.3
Fed. Reimbursable (non-ConAug)	--	--	0.1	0.1	0.4	0.4	1.0
Totals	8.3*	52.5	55.0	42.2	40.0	22.0	220.0#
+++++							
<b><i>Rate Period Target (Steady Production)</i></b>	<b>44.0</b>	<b>44.0</b>	<b>44.0</b>	<b>44.0</b>	<b>44.0</b>	<b>44.0</b>	<b>220.0</b>

**Note:** BPA's target from all conservation programs is **220 aMW** minus the **158 aMW** we achieved in FYs 01, 02, 03 and 04 = **62 aMW left to capture**. This means we have to average about 31 aMW/year for FYs 05 and 06 to meet the 220 aMW target.

+ - The **actual** numbers include the aMW savings associated with the C&RD donations to the Alliance and the Energy Trust of Oregon; they exclude the irrigation scheduling savings since they have only a 1-year measure life.

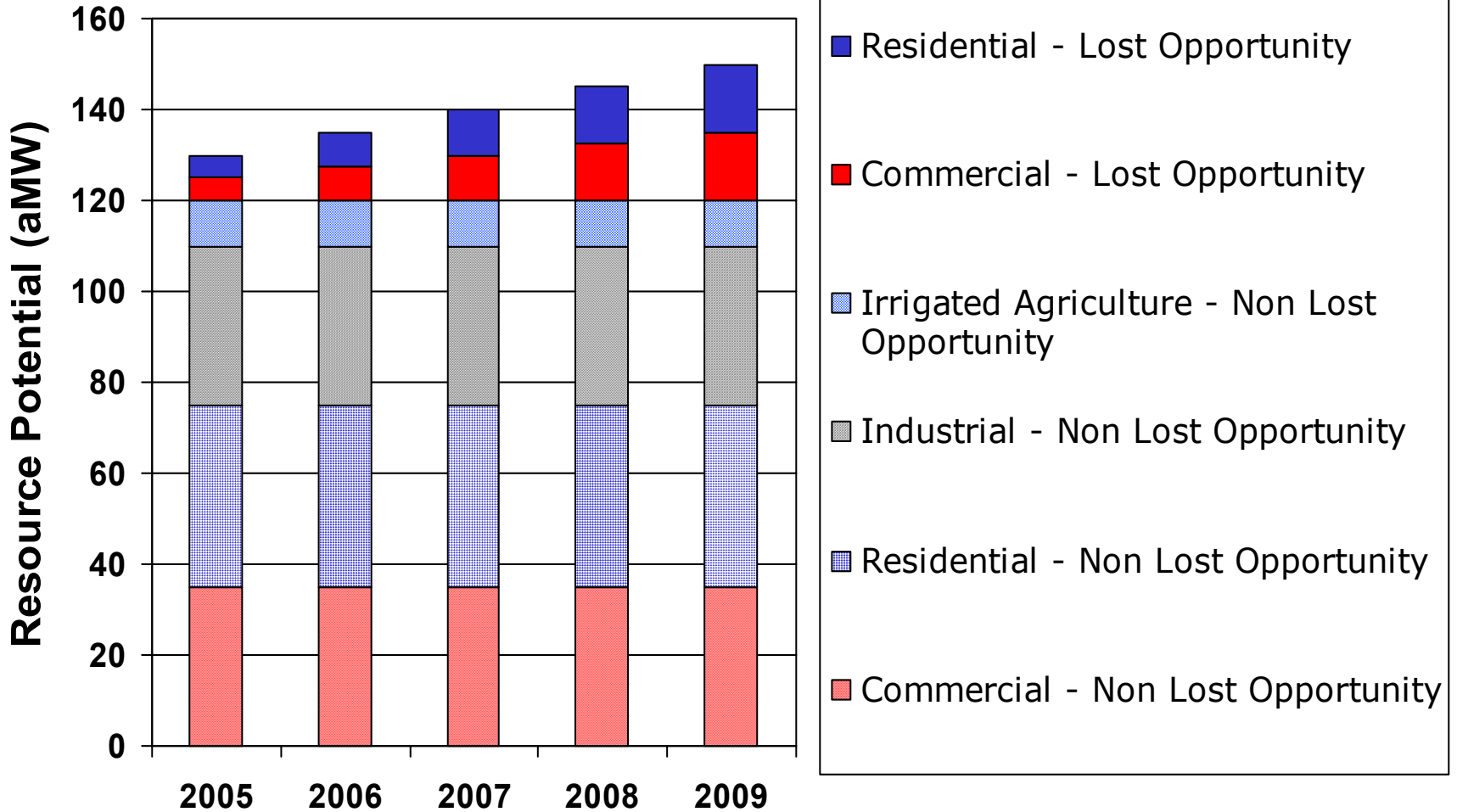
\* - Because of the 2000-01 energy crisis, BPA started these programs 8 months earlier than the planned 10/1/01 launch date.

# - This number represents the potential savings that could result from the approved funding levels for BPA's conservation programs over the rate period. Because all programs will not be completed at the targeted level, these preliminary numbers will be adjusted as we get closer to BPA's 220 aMW target.



# Regional Conservation Resource Acquisition Targets 2005 – 2009 = 700 aMW

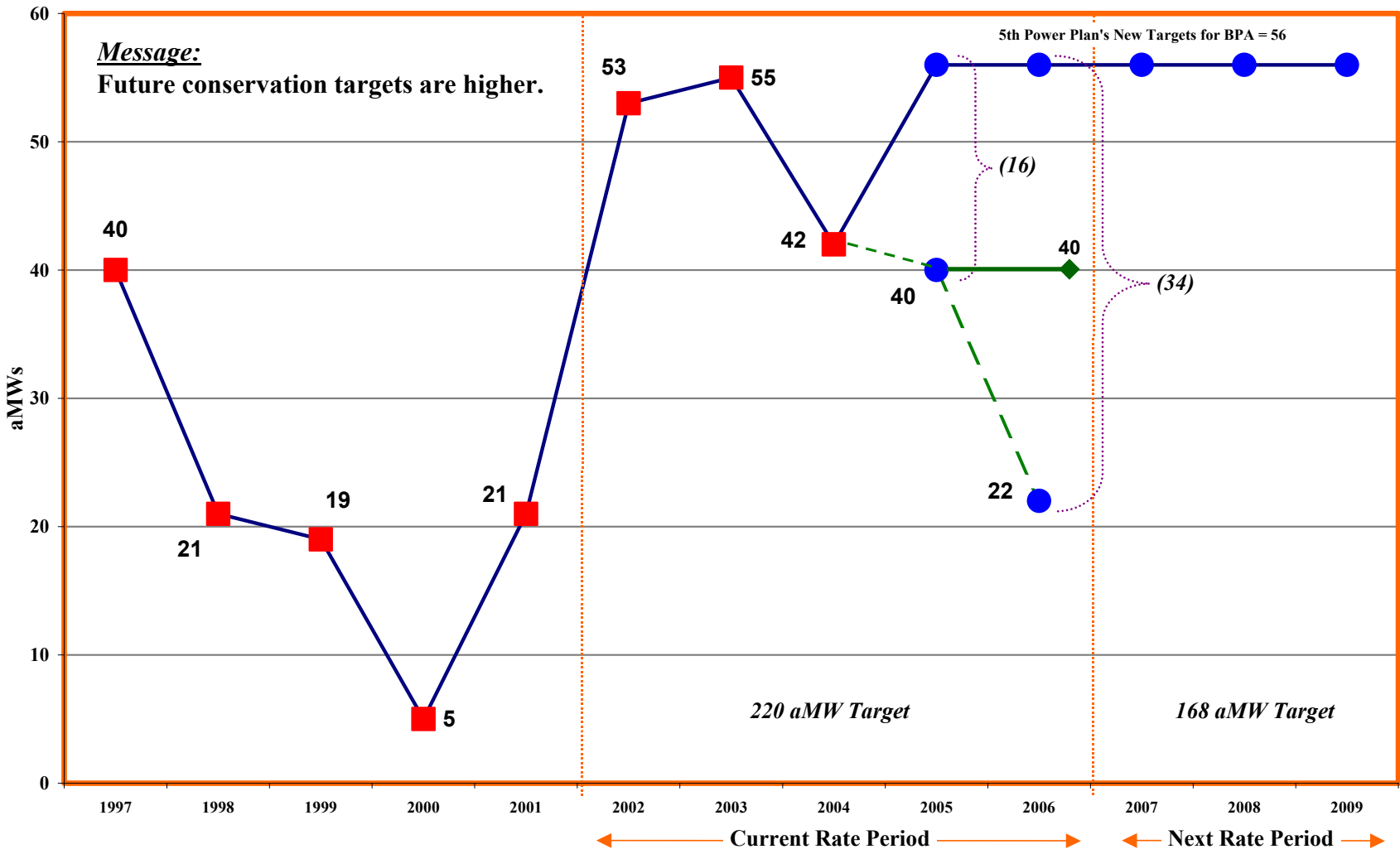
**Note: BPA's share is 40%, or 280 aMW, or 56 aMW/year.**





# BPA Power Function Review: BPA's Annual Delivered Conservation Savings and Targets

Savings ■ Targets ● BPA's FY06 Goal ◆

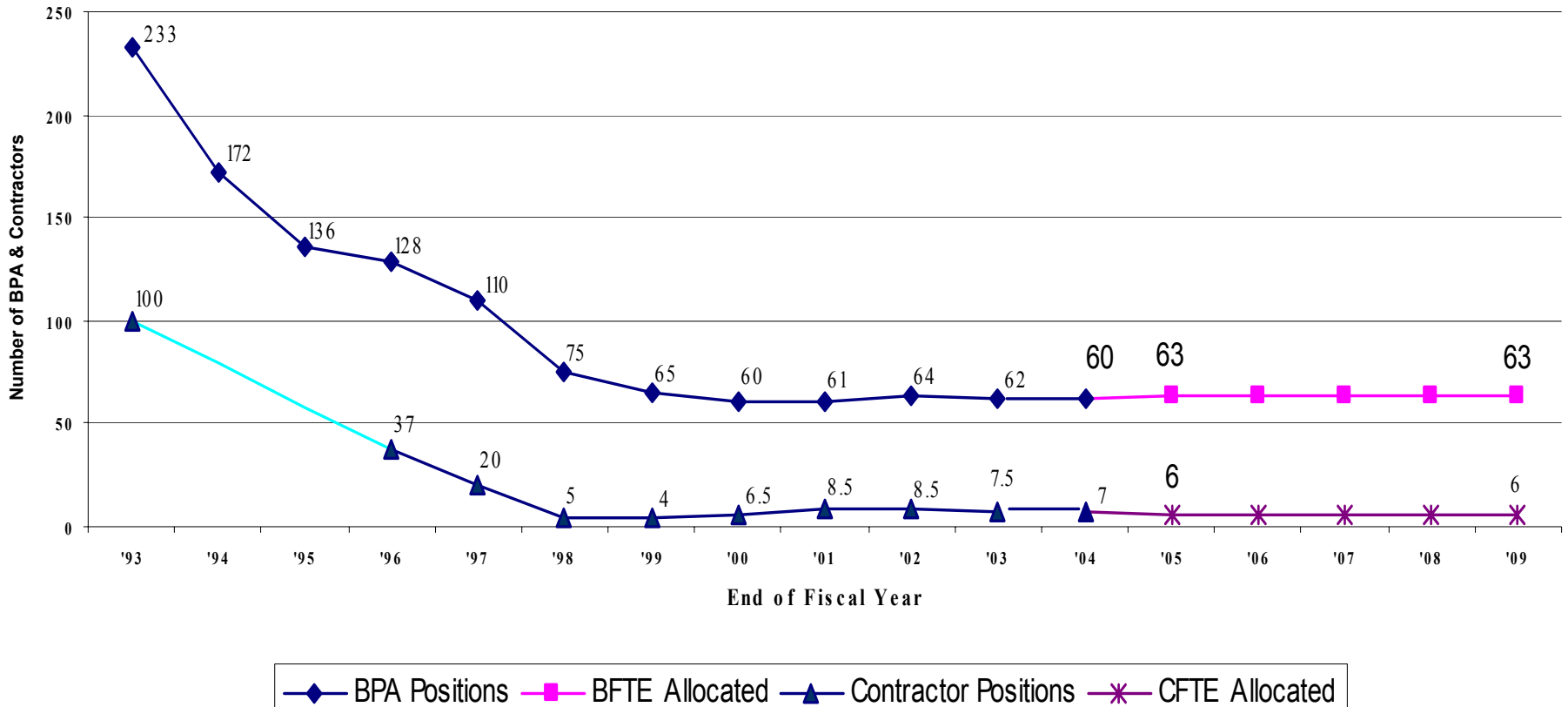






# BPA & Contractor Staffing for Conservation Related Activities

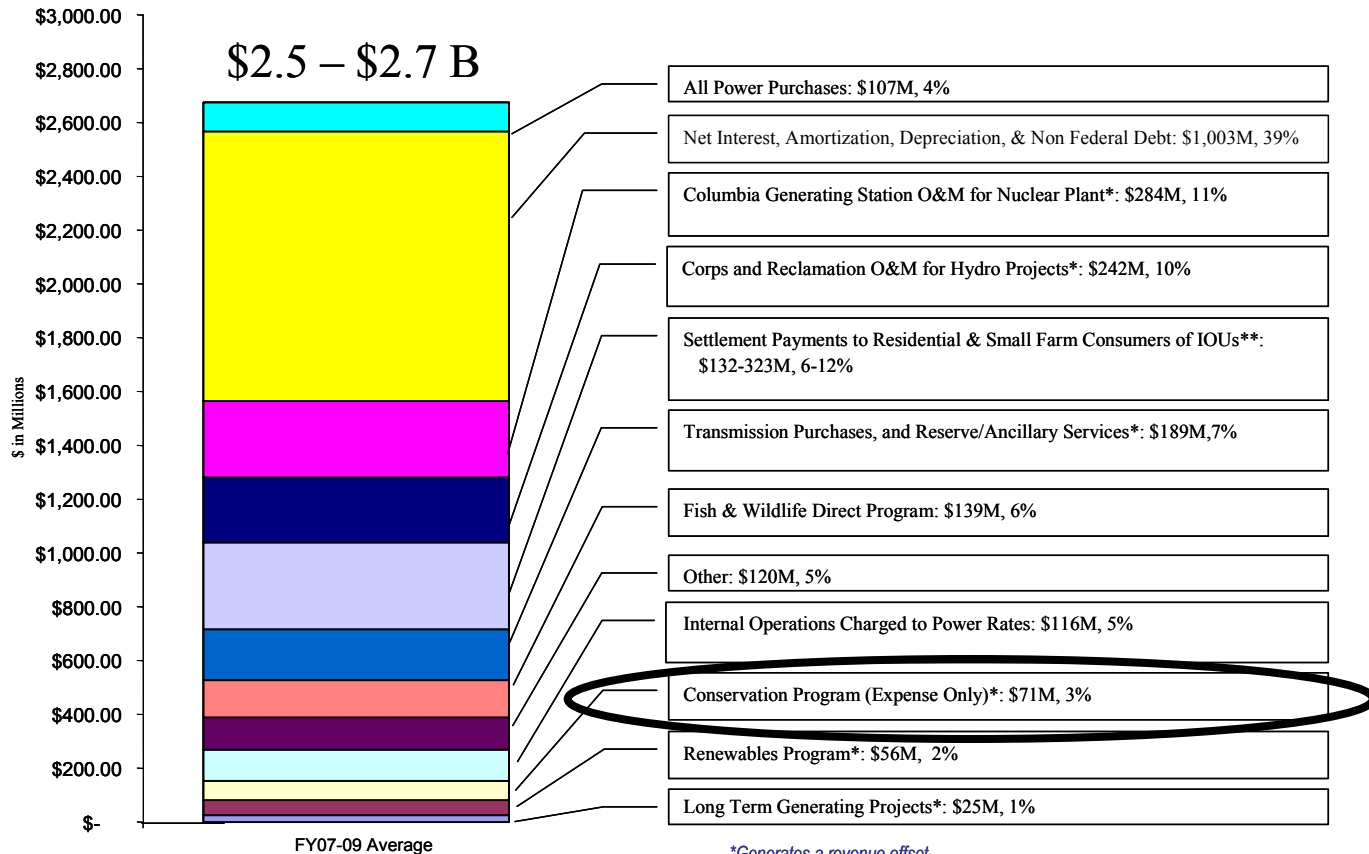
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# Conservation Portion of the Power Expense Structure

The Conservation program costs are included in the revenue requirement of the PBL rate structure.



\*Generates a revenue offset

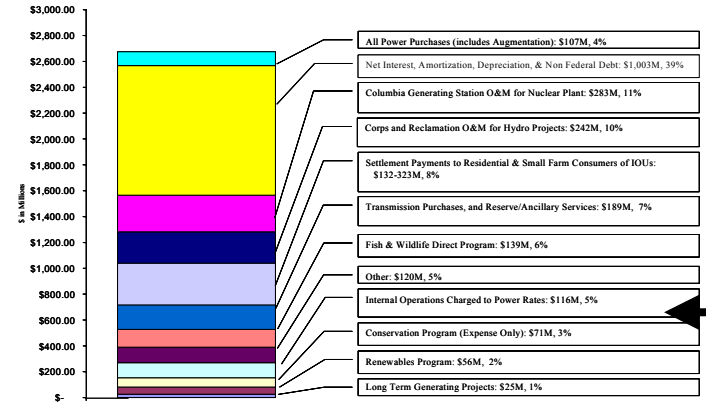
\*\* This level is heavily dependant on forward market prices  
Percentages may not add to 100% due to rounding

\*See BPA's Financial Disclosure Information



# FY07-09 Power Expenses Conservation

	FY97-01 Average	FY02-06 Average	FY07-09 Average
Program Level -Expense	\$22M	\$30M	\$71M
-C&RD	NA	\$30M Conservation \$6M Renewables	NA
Total	\$22M	\$66M	\$71M
Increase/Decrease		\$44M	\$5M
% increase		200%	7%



	FY97-01	FY02-06	Increase	% Increase	FY07-09	Increase	% Increase
<b>Generation Conservation Expenses</b>	<b>22.0</b>	<b>30.4</b>	<b>8.3</b>	<b>37.7%</b>	<b>33.0</b>	<b>2.6</b>	<b>8.6%</b>
EE Development (Reimbursable)	2.8	10.3	7.5		12.9	2.6	
EnergyWeb/Non-Wires Solutions	0.0	0.3	0.3		1.0	0.7	
Technology Leadership	0.6	1.9	1.3		1.3	(0.6)	
Legacy (Contract close-out after FY00)	8.8	4.9	(3.9)		2.8	(2.1)	
Low-Income Weatherization	1.2	3.7	2.5		5.0	1.3	
Market Transformation	8.6	9.3	0.7		10.0	0.7	
<b>Rate Discount (Expense) (Conservation Only)</b>	<b>0.0</b>	<b>30.0</b>	<b>30.0</b>		<b>38.0</b>	<b>8.0</b>	<b>26.7%</b>
<b>Total</b>	<b>22.0</b>	<b>60.4</b>	<b>38.3</b>	<b>174.1%</b>	<b>71.0</b>	<b>10.6</b>	<b>17.5%</b>



# BPA Power Function Review: Historical Perspective of BPA's Conservation Program (in millions of expense \$)

	<u>FY97</u>	<u>FY98</u>	<u>FY99</u>	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>Total</u>
<b>EE Acquisition Expense</b> (includes Market Transformation)	3.9	12.0	5.6	12.0	13.3	43.0	44.1	45.6	46.9	47.0	273.4
<b>Generation Conservation (Expense)</b>	11.5	15.0	14.8	10.9	14.9	21.2	21.2	17.8	21.8	23.3	172.4
Low Income Weatherization	0.0	0.0	0.0	2.7	3.3	3.3	3.9	2.7	4.0	4.5	24.4
EE Development (Reimbursable)	1.0	1.6	2.5	4.5	4.5	9.6	9.2	8.3	12.0	12.5	65.7
Energy Web/Non-Wires Solutions	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.5	0.5	1.5
Legacy (Contract close-out after FY00)	10.5	13.4	10.9	3.4	5.7	5.1	3.8	6.0	4.5	5.0	68.3
Technology Leadership	0.0	0.0	1.4	0.3	1.4	3.2	4.2	0.4	0.8	0.8	12.5
<b>PBL Sales/Support for Cons. (Expense)</b> (includes Planning & Evaluation)	0.0	0.0	0.0	2.0	0.7	1.1	0.4	1.0	1.0	1.5	7.7
<b>Conservation Support (Expense)</b> (Staffing and related expenses)	9.8	7.2	6.5	5.5	5.4	6.7	5.6	6.0	6.0	6.4	65.1
<b>Conservation Debt Service (Expense)</b>	7.0	7.5	7.3	9.5	5.5	4.1	4.1	5.2	5.2	5.2	60.6
<b>Totals</b>	<b>32.2</b>	<b>41.7</b>	<b>34.2</b>	<b>39.9</b>	<b>39.8</b>	<b>76.1</b>	<b>75.4</b>	<b>75.6</b>	<b>80.9</b>	<b>83.4</b>	<b>579.2</b>



## BPA Power Function Review: Components of the Conservation Program for Rate Period FY07-FY09 (in millions of expense \$)

	<u>FY 07</u>	<u>FY 08</u>	<u>FY 09</u>	<u>Total</u>
<b>EE Acquisition Expense (includes \$10m/year for Market Transformation)</b>	<b>48.0</b>	<b>48.0</b>	<b>48.0</b>	<b>144.0</b>
<b>Generation Conservation (Expense)</b>	<b>23.9</b>	<b>22.8</b>	<b>22.3</b>	<b>69.0</b>
Low Income Weatherization	5.0	5.0	5.0	15.0
EE Development (Reimbursable)	12.9	12.9	12.9	38.7
Energy Web/Non-Wires Solutions	1.0	1.0	1.0	3.0
Legacy (Contract Closeouts)	3.7	2.6	2.1	8.4
Technology Leadership	1.3	1.3	1.3	3.9
<b>PBL Sales/Support for Cons. (Expense)</b> (includes Planning and Evaluation)	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>4.5</b>
<b>Conservation Support (Expense)</b> (includes Staffing and related expenses)	<b>6.6</b>	<b>6.8</b>	<b>7.1</b>	<b>20.5</b>
<b><u>Conservation Debt Service (Expense)</u></b>	<b><u>5.2</u></b>	<b><u>5.2</u></b>	<b><u>5.2</u></b>	<b><u>15.6</u></b>
<b>Totals</b>	<b>85.2</b>	<b>84.3</b>	<b>84.1</b>	<b>253.6</b>



# BPA Power Function Review: Conservation Program Capital Budget (in millions of \$)

	<b>Historical Budgets</b>					
	<u><b>FY 97</b></u>	<u><b>FY 98</b></u>	<u><b>FY 99</b></u>	<u><b>FY 00</b></u>	<u><b>FY 01</b></u>	<u><b>Total</b></u>
<b>Legacy Acquisition Programs</b>	20.3	14.3	12.6	0.2	0.0	47.4
	<b>Current Rate Period Budgets (FYs 2002-06)</b>					
	<u><b>FY 02</b></u>	<u><b>FY 03</b></u>	<u><b>FY 04</b></u>	<u><b>FY 05</b></u>	<u><b>FY 06</b></u>	<u><b>Total</b></u>
<b>ConAug (*projected)</b>	29.3	25.3	17.0	32.5*	34.0*	138.1
	<b>Next Rate Period Proposed Budgets (FYs 2007-09)</b>					
	<u><b>FY 07</b></u>	<u><b>FY 08</b></u>	<u><b>FY 09</b></u>	<u><b>Total</b></u>		
<b>Conservation Acquisition</b>	32.0	32.0	32.0	96.0		



# BPA Power Function Review: Conservation Program Challenges and Risks

- C:** Reducing BPA's "willingness to pay" could result in fewer utilities participating in our future programs (i.e., asking customers and end users to cover more of the program costs may limit participation and reduce BPA's ability to achieve the targets).
- C:** Capturing the cost-effective conservation is more expensive in a "roller coaster" approach to funding. A steady, predictable approach over time is the least expensive way to acquire this resource.
- C:** The Council's new target for BPA for the 2005-09 period is 280 aMW (56 aMW/year). However, this target may be adjusted once we understand how much "naturally occurring" conservation is included in the Council's numbers.
- R:** The acquisition budget does not take into consideration inflation. This could result in having to get more aMW with less funds.
- R:** If customers under-perform on the delivered savings they have agreed to provide, BPA will be asked to fill in the amount that was not delivered (i.e., provide the "backstop" for the loads we serve).
- R:** Without an increase in the evaluation budget, it will be difficult for BPA to monitor and verify that accomplishment of the agency's strategic objective related to conservation (ensures development of all cost-effective energy efficiency in the loads BPA serves).



# Conservation Cost Management Opportunities

## Opportunities

Pursuing a “portfolio approach” to achieving the new conservation targets (i.e., design programs that allow savings to be captured by entities best able to achieve the results at the lowest cost).

Establishing any future BPA rate credit mechanism based on what it costs to get measures installed rather than on the value to the system.

Limiting BPA payments to only cost-effective measures (as defined by the 5th Power Plan).

Restricting BPA payments for non-acquisition related activities (only fund efforts that result in direct cost effective energy savings) under any future rate credit mechanism.

## **Working in a collaborative manner to leverage BPA’s funds with other regional entities for**

- program and process evaluations;
- marketing and outreach activities;
- reporting and tracking results;
- RD&D activities; and
- bulk purchasing.

## **Enterprise Project Improvement Project and Revised Staffing Plan.**





# Post-2006 Conservation Budget Feedback

## Workgroup Recommendations

- \$80M/year to acquire the 56 aMW/year conservation target (\$1.43M /aMW, includes administrative support funds).
- An additional \$1.6M/year should be available for infrastructure support.
- Significant concern that budget is not sufficient to achieve the new target.
- Willing to try provided BPA is willing to adjust funding upward if progress toward achieving the target is lagging.

## **A. Zelenka (EPUD), M. Northway (EWEB), S. Price (NEEC), L. Klump (WA CTED), J. Kaufman (ODOE) and S. Weiss (NVEC)**

- Unrealistic to assume that we can achieve new target and stay on the least cost path with the proposed budget.
- A more realistic conservation acquisition cost of \$1.9M/aMW should be used to develop the budget to achieve the new target (\$106M/year).

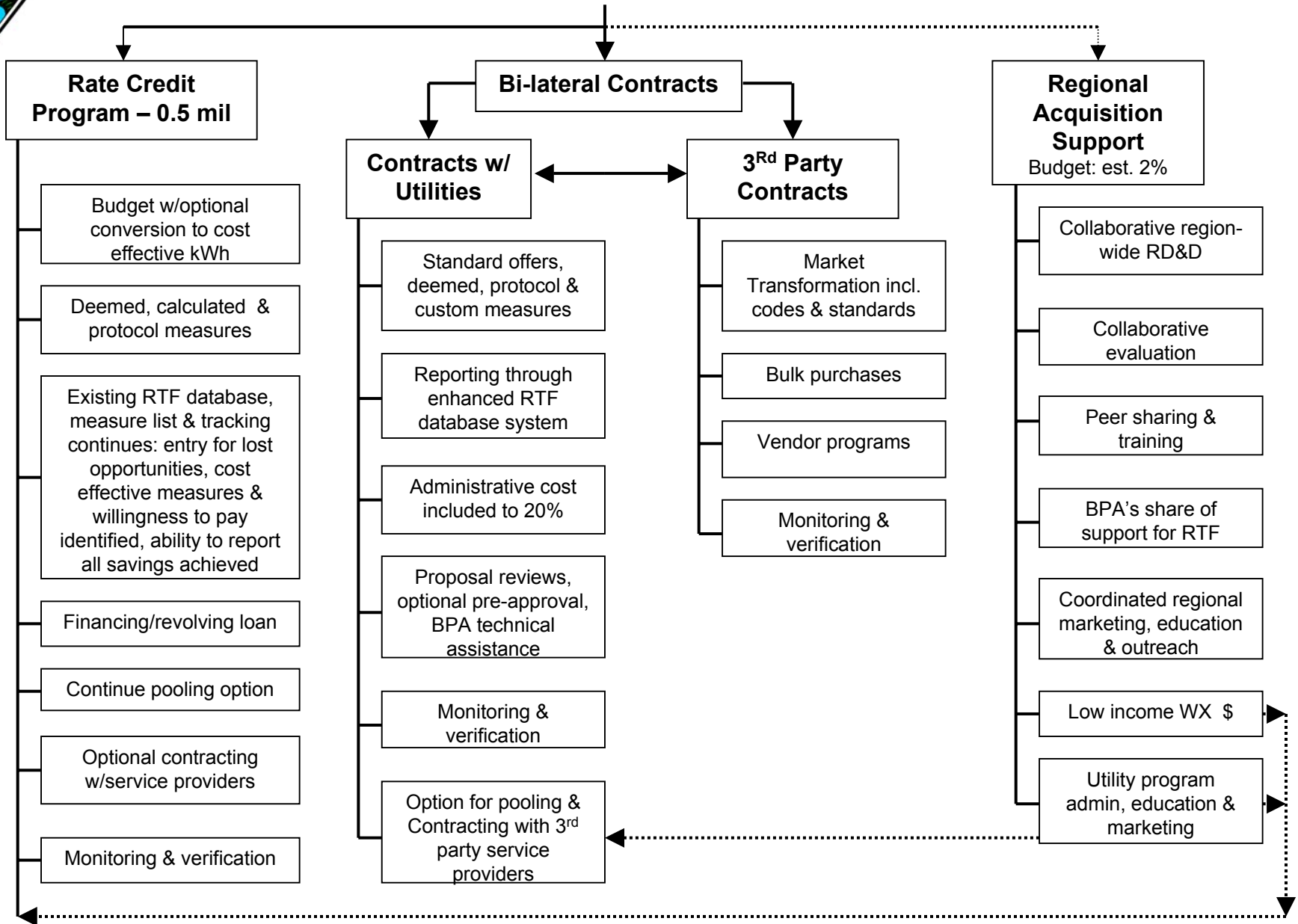
**PPC:** The Workgroup's recommended conservation acquisition budget (\$80M + \$1.6M/year for infrastructure support) should be revisited once the cost-effective measure list is available.

**PNGC:** Supports the Workgroup's recommendation (\$1.43M/aMW); the \$80M proposed budget should be viewed as a ceiling.

**M. Little (SCL):** BPA will have trouble meeting the new target with the proposed budget if they spend part of the \$80M on non-cost effective measures; it would be hard to justify.



# Conservation Workgroup's Proposed Program Structure for Post-2006





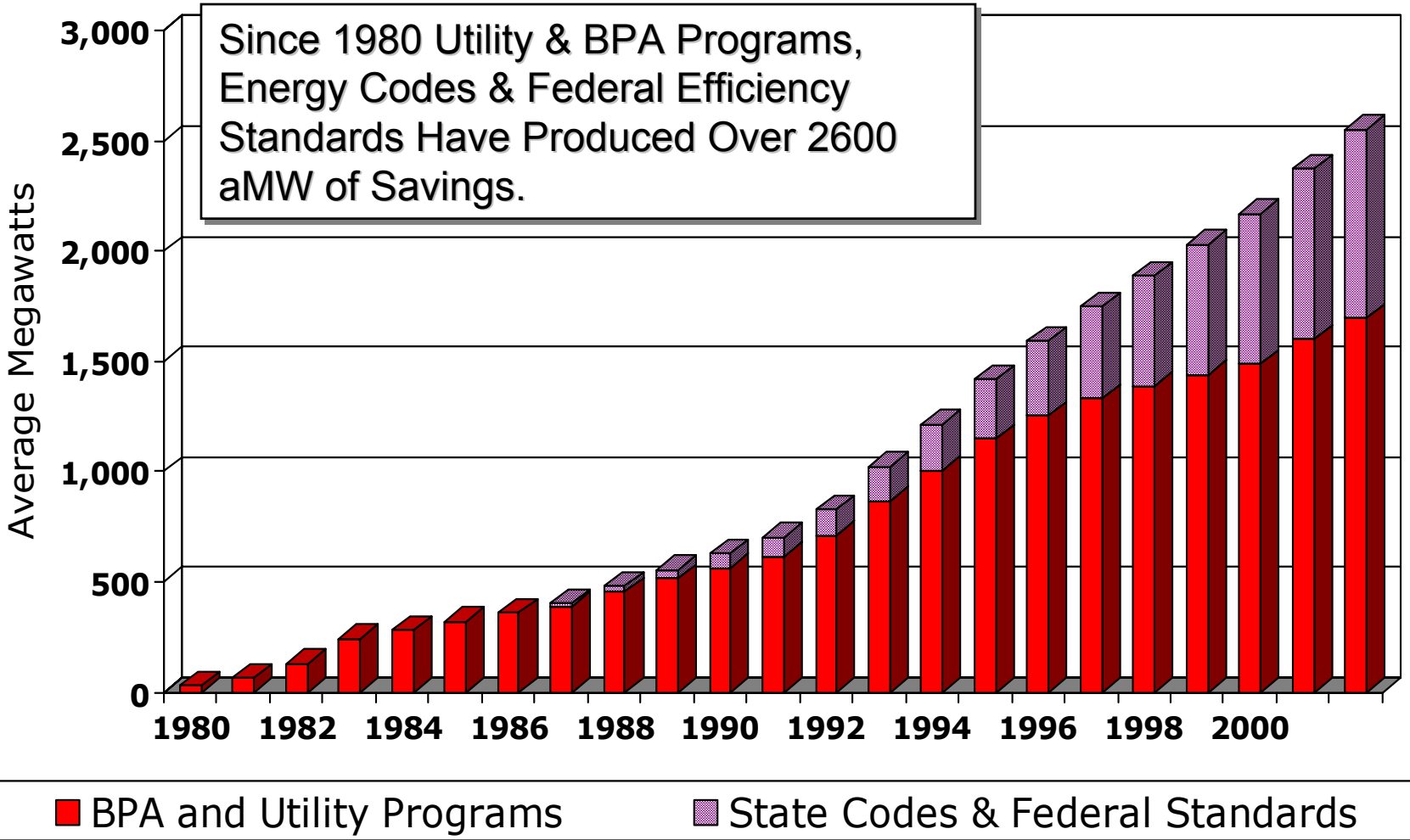
# BPA Power Function Review Conservation Program

## Background Information

- Regional Conservation Accomplishments and Potential.
- BPA's Conservation Accomplishments and Expenditures.

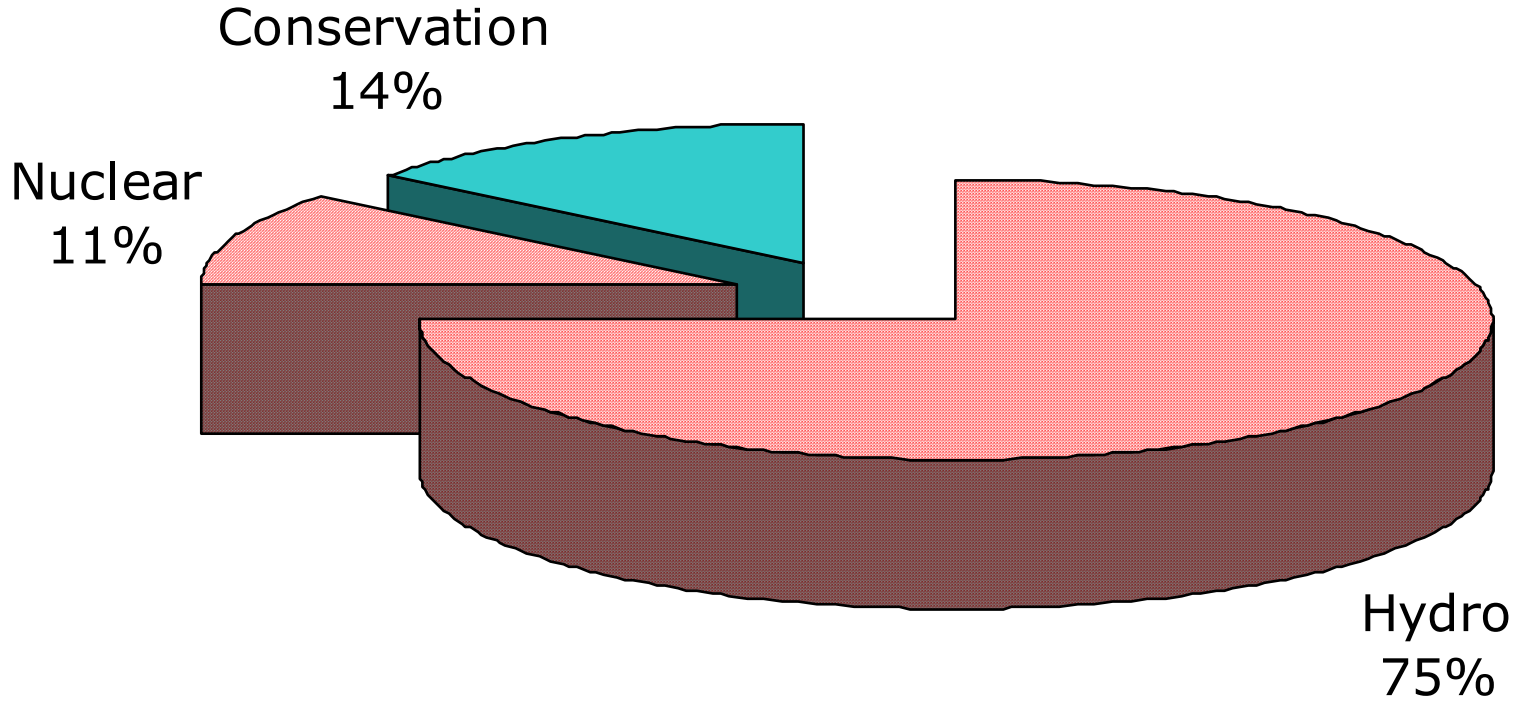


# 20 Years of Progress – Total PNW Conservation Savings





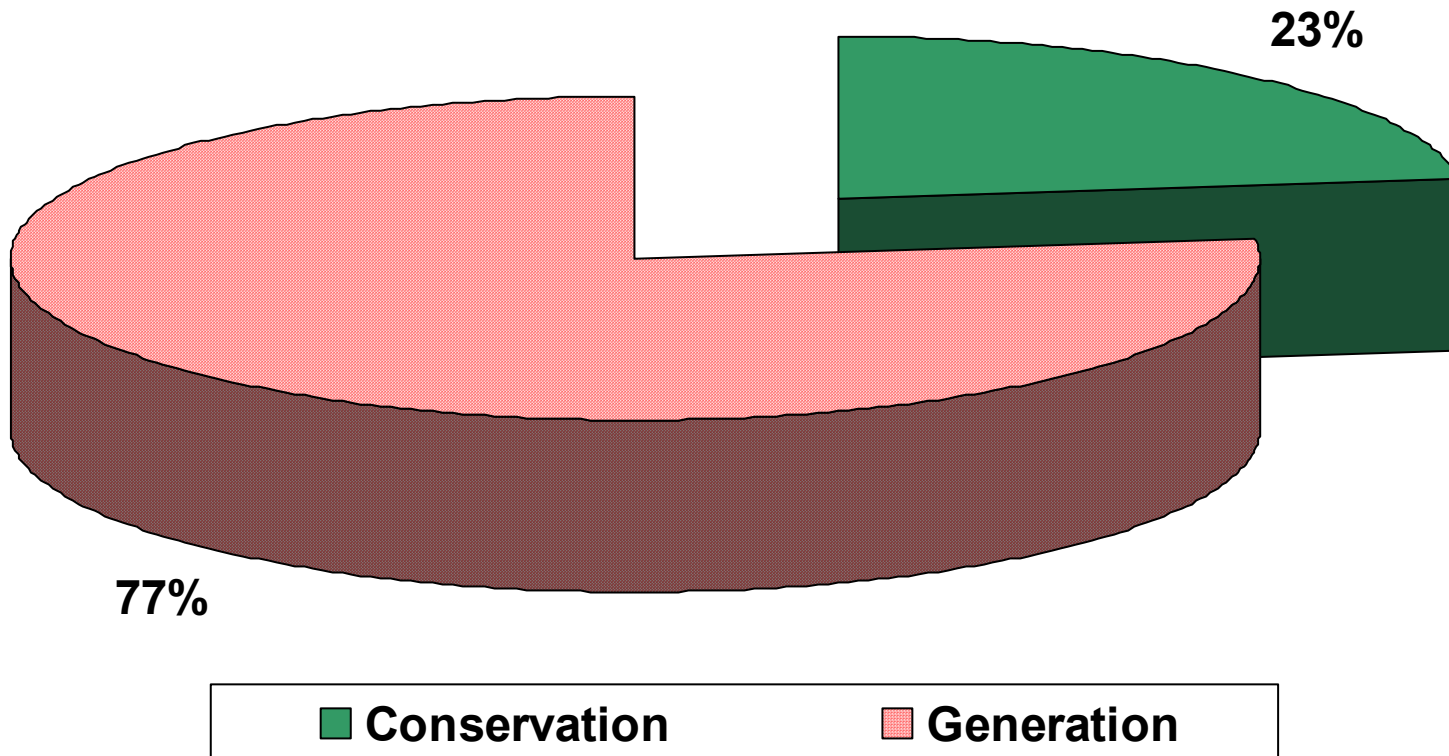
# Conservation Is Now The Second Largest Single Federal Power Firm Energy Resource



The Amount of Energy Savings in Public Utility Service Territories from Conservation Programs, Codes and Standards Is Equivalent to **Three Times** the Annual Firm Energy Output of Bonneville Dam



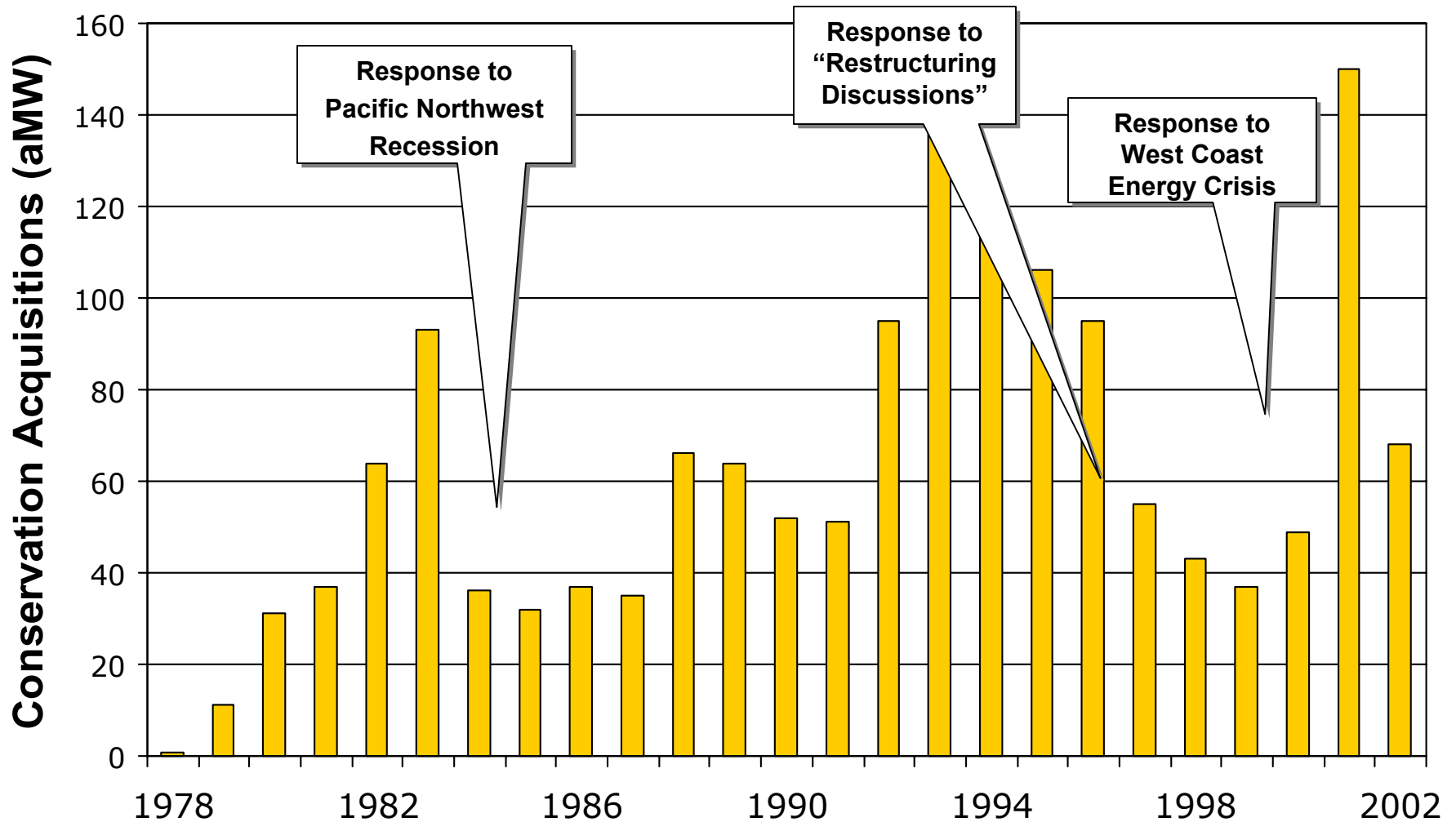
# Conservation Met Approximately 1/4 of the Regional Load Growth Between 1980 - 2002





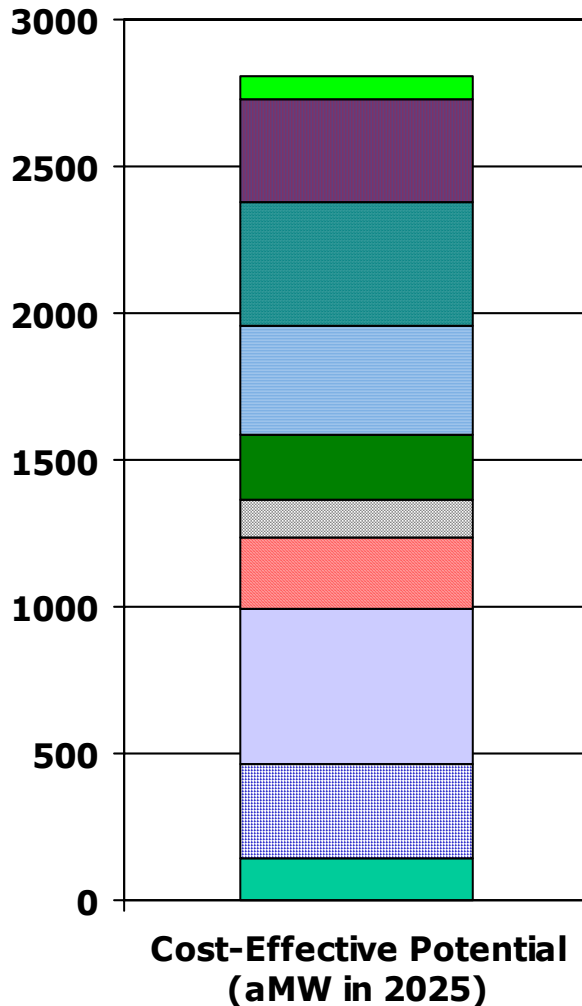
# Regional Conservation Acquisitions Have Also Helped Balance Loads & Resources

*(Creating Mr. Toad's Wild Ride for the Energy Efficiency Service Industry)*





# Cost-Effective and Achievable Conservation Could Meet Over 10% of PNW Loads in 2025 (Medium Forecast)

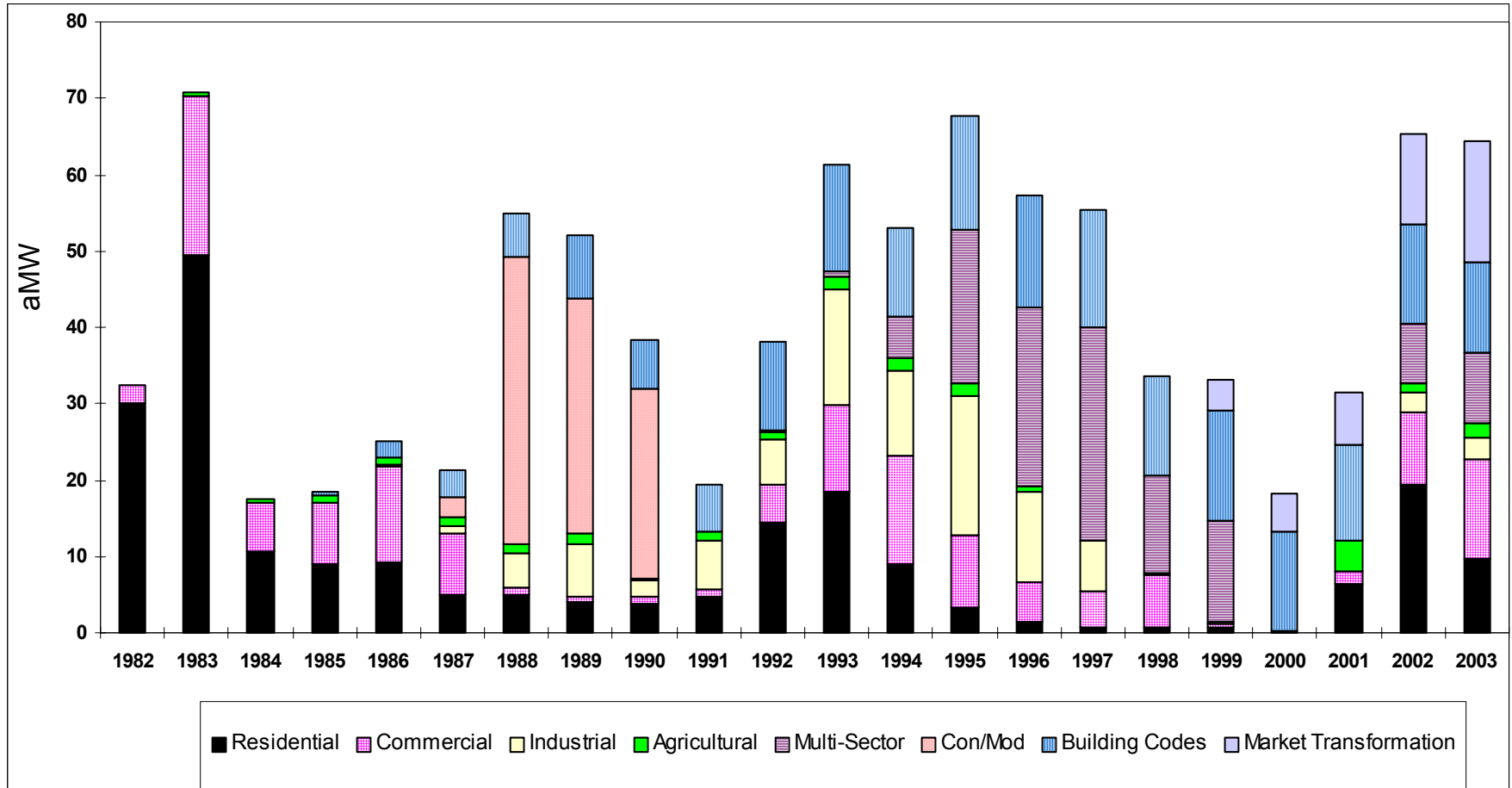


- Agricultural Sector - 80 aMW
- Non-DSI Industrial Sector - 350 aMW
- Commercial Sector Non-Building Measures - 420 aMW
- HVAC, Envelope & Refrigeration - 375 aMW
- New Commercial Building Lighting - 220 aMW
- Existing Commercial Buildings Lighting - 130 aMW
- Residential Space Conditioning - 240 aMW
- Residential Lighting - 530 aMW
- Residential Water Heating - 325 aMW
- Residential Appliances - 140 aMW





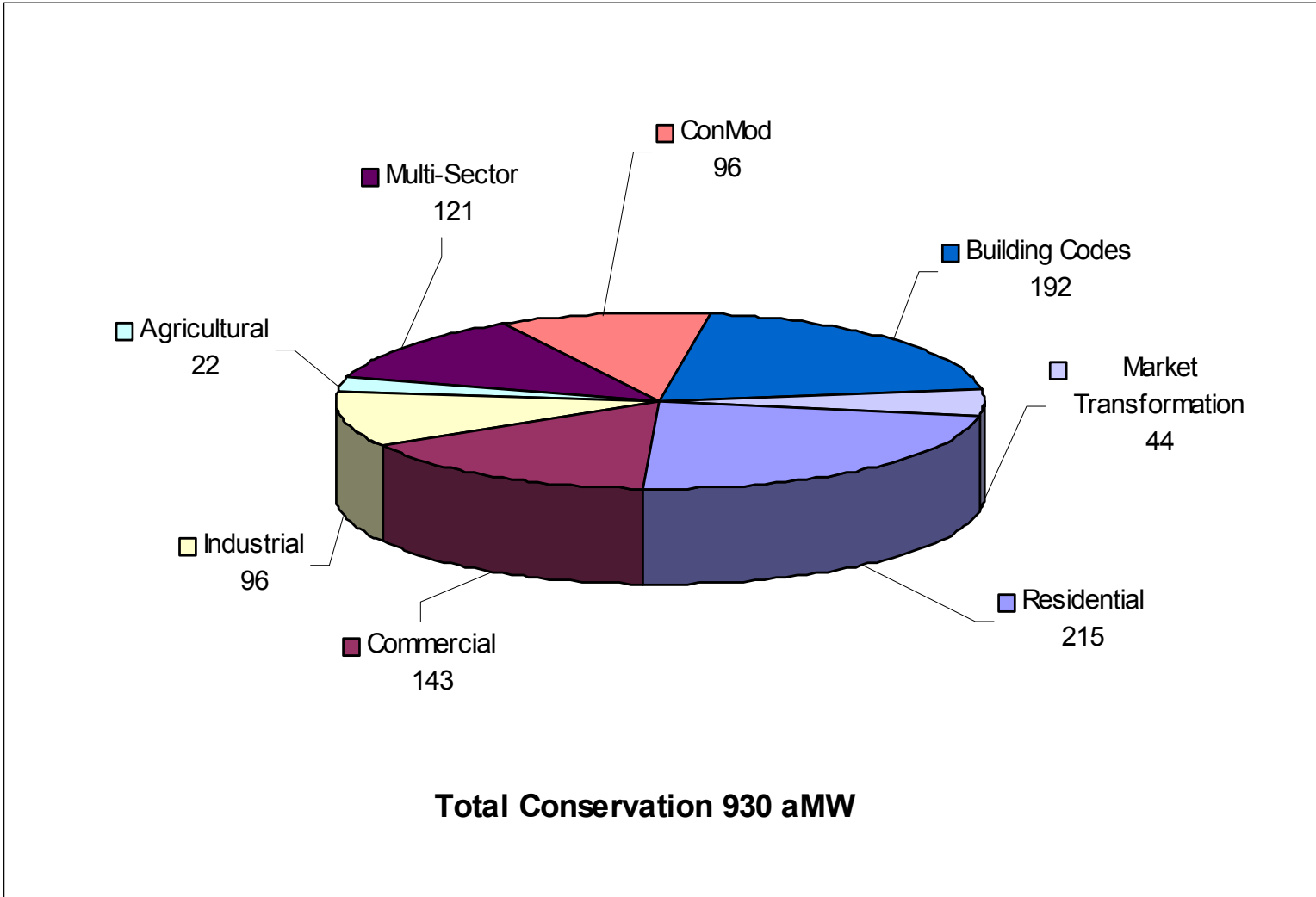
# BPA's Historical Conservation Savings from Acquisition Programs, Con/Mod and Improved Building Codes (FY 1982-2003)



Multi-Sector includes billing credits, BPA system efficiencies, and other cross-sectoral programs

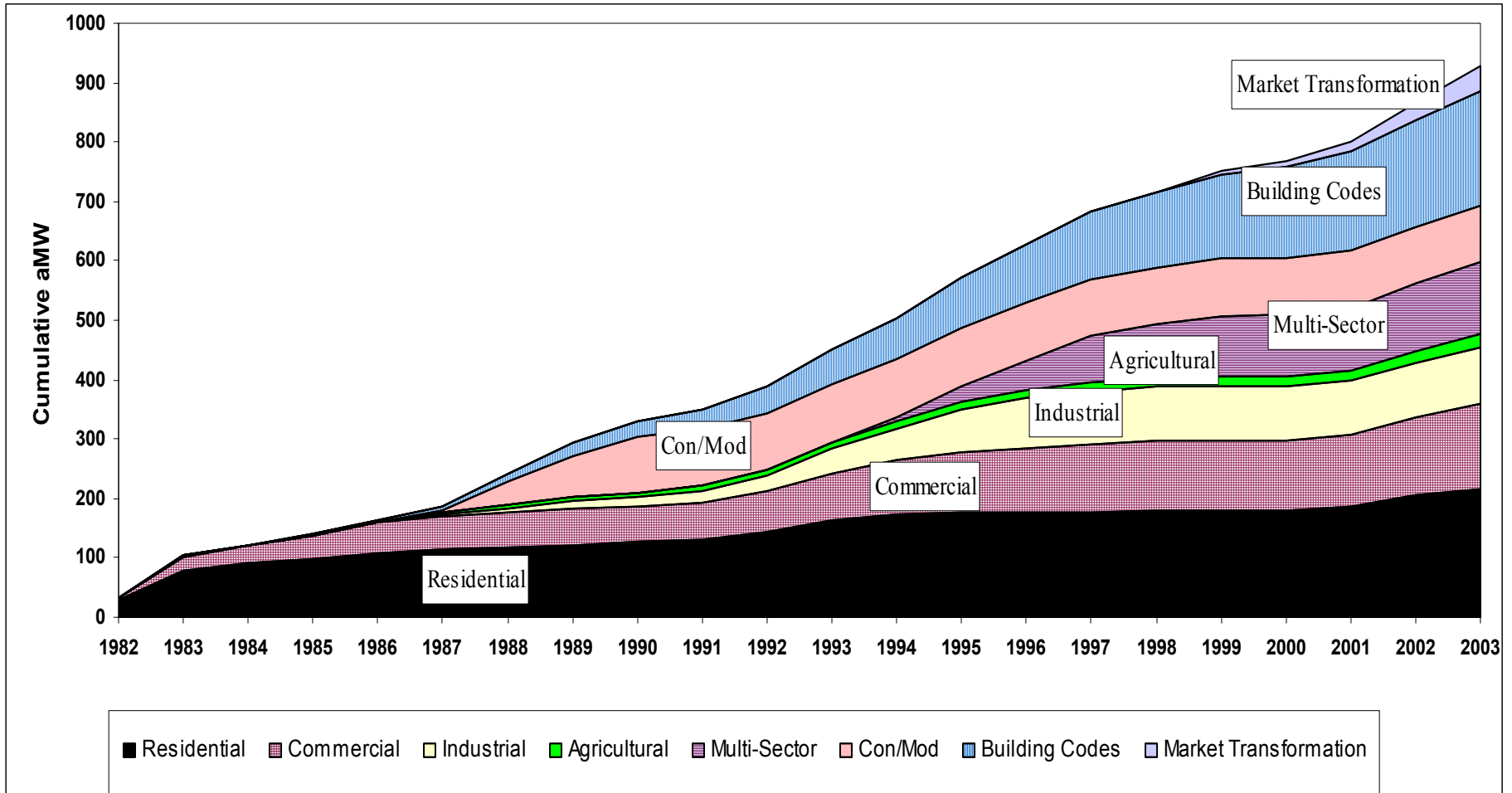


# BPA's Historical Conservation Savings FY 1982 - 2003





# BPA's Historical Conservation Savings from Acquisition Programs, Con/Mod, and Improved Building Codes (FY 1982 – 2003)





## TOTAL BPA CONSERVATION COSTS BY SECTOR

Accrued & Committed

Loaded Nominal Dollars (000's)<sup>1/</sup>

Fiscal Year	Residential	Commercial	Industrial	Con/Mod	Agricultural	Multi- Sector Acq.	Misc. Costs <sup>2/</sup>	Total Incremental Costs	Total Cumulative Costs
1,982	50,346	11,247	0	0	0	0	5,321	66,914	66,914
1,983	162,114	39,892	1,409	0	895	0	2,689	206,999	273,913
1,984	57,374	8,656	513	0	1,309	0	7,242	75,094	349,007
1,985	77,907	26,553	957	0	2,098	0	20,232	127,747	476,754
1,986	79,898	13,007	1,013	0	3,546	0	7,458	104,922	581,676
1,987	60,651	7,546	2,233	0	1,918	0	11,008	83,356	665,032
1,988	40,979	14,144	3,297	1,881	2,166	3,950	8,483	74,900	739,932
1,989	37,269	15,467	5,889	4,726	1,428	3,000	5,479	73,258	813,190
1,990	40,016	18,062	5,681	6,063	1,428	3,232	3,515	77,997	891,187
1,991	49,808	19,554	6,181	6,254	3,257	2,959	3,495	91,508	982,695
1,992	80,949	25,334	8,397	4,553	2,593	6,673	4,134	132,633	1,115,328
1,993	89,241	32,485	13,899	4,179	2,187	7,944	1,977	151,912	1,267,240
1,994	77,726	45,764	22,383	6,462	2,617	17,133	0	172,085	1,439,325
1,995	49,783	23,061	17,346	4,045	1,712	26,676	0	122,623	1,561,948
1,996	29,071	13,540	9,839	4,595	1,227	34,330	3,033	95,635	1,657,583
1,997	11,316	7,770	3,988	2,744	338	16,373	0	42,529	1,700,112
1,998	5,944	10,495	3,674	2,358	173	12,857	2,136	37,637	1,737,749
1,999	4,093	5,888	1,902	280	49	20,438	9,049	41,699	1,779,448
2,000	2,486	85	0	0	5	0	39,901	42,477	1,821,925
2,001	11,801	993	327	0	875	2	35,847	49,845	1,871,770
2,002	33,060	23,483	3,345	0	395	402	45,657	106,342	1,978,112
2,003	24,438	19,427	5,114	0	597	18,440	47,024	115,040	2,093,152
<b>Total</b>	<b>1,076,270</b>	<b>382,453</b>	<b>117,387</b>	<b>48,140</b>	<b>30,813</b>	<b>174,409</b>	<b>263,680</b>	<b>2,093,152</b>	<b>2,093,152</b>

1/ Loaded costs include all direct costs related to these activities, indirect costs, and corporate overhead.

2/ FY 1999 Includes Market Transformation Costs. FY 2000 - 2003 Includes C&RD Donations Credit, C&RD Administration Costs and Market Transformation Costs.