

Water Conservation in the Great Lakes

Mary Ann Dickinson
Executive Director
Alliance for Water Efficiency

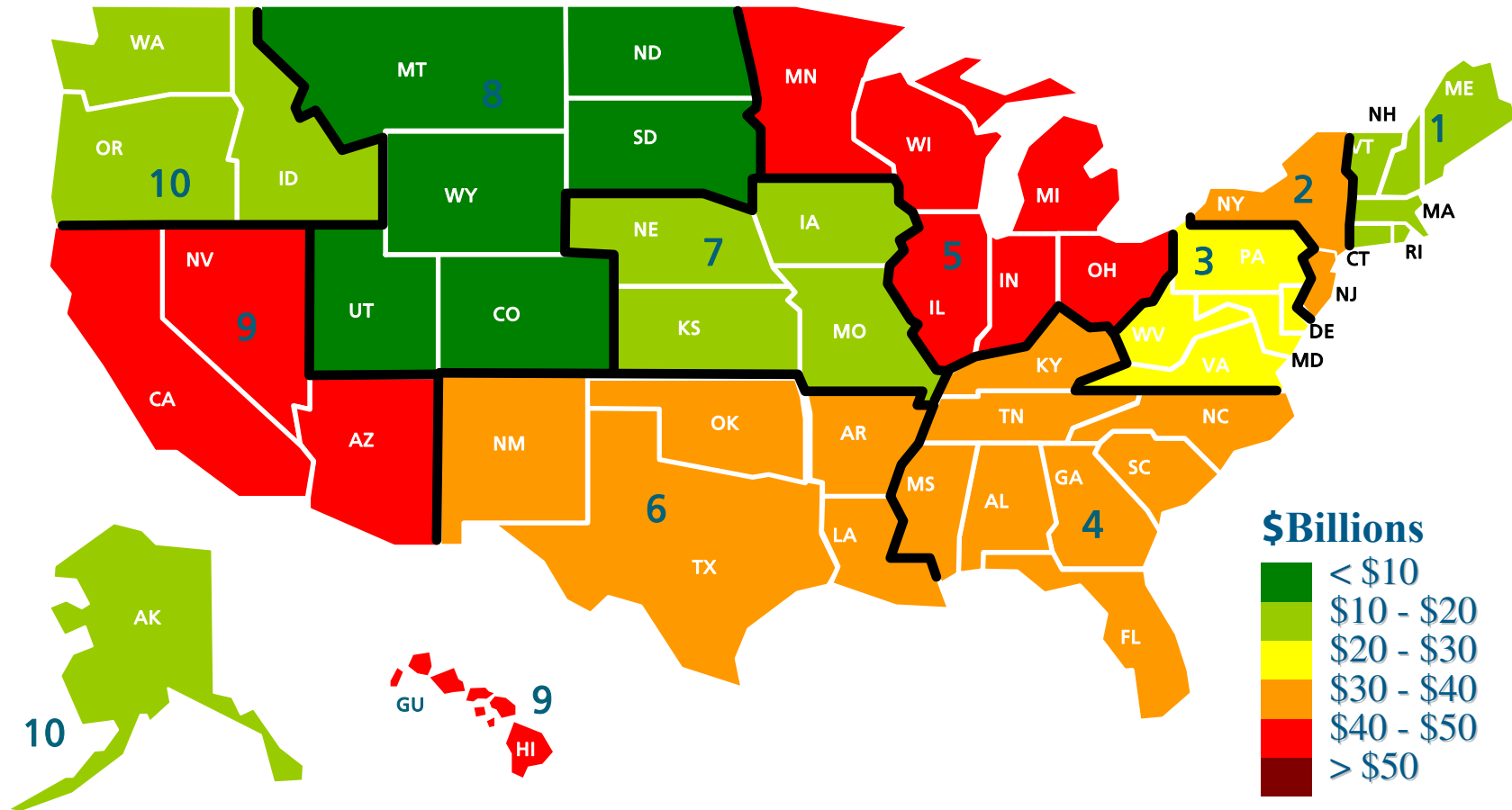


Alliance for Water Efficiency

A VOICE AND
A PLATFORM
PROMOTING THE
EFFICIENT AND
SUSTAINABLE
USE OF WATER

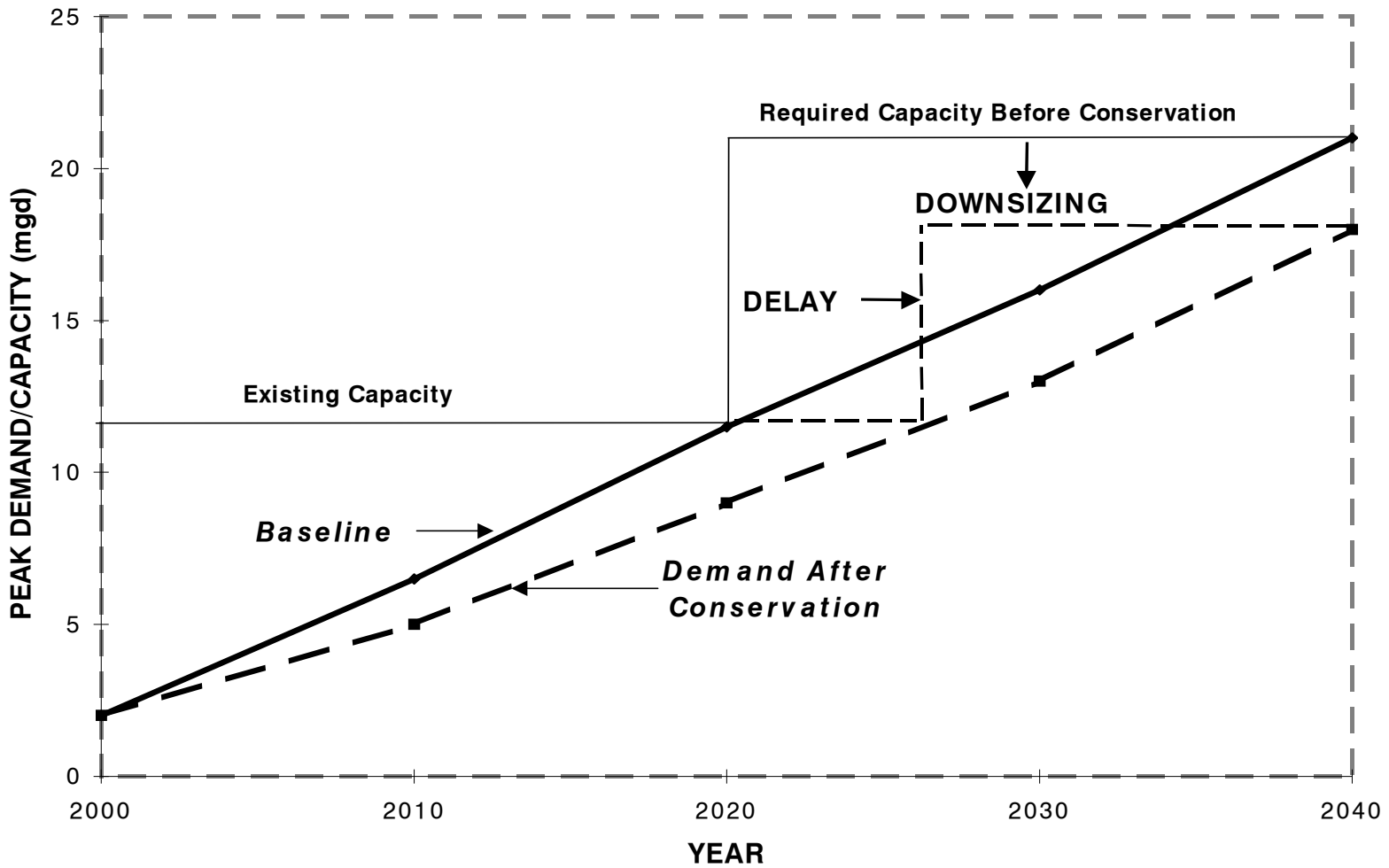


Expensive Infrastructure Bills



20 Year Drinking Water and Clean Water Infrastructure Needs by EPA Region

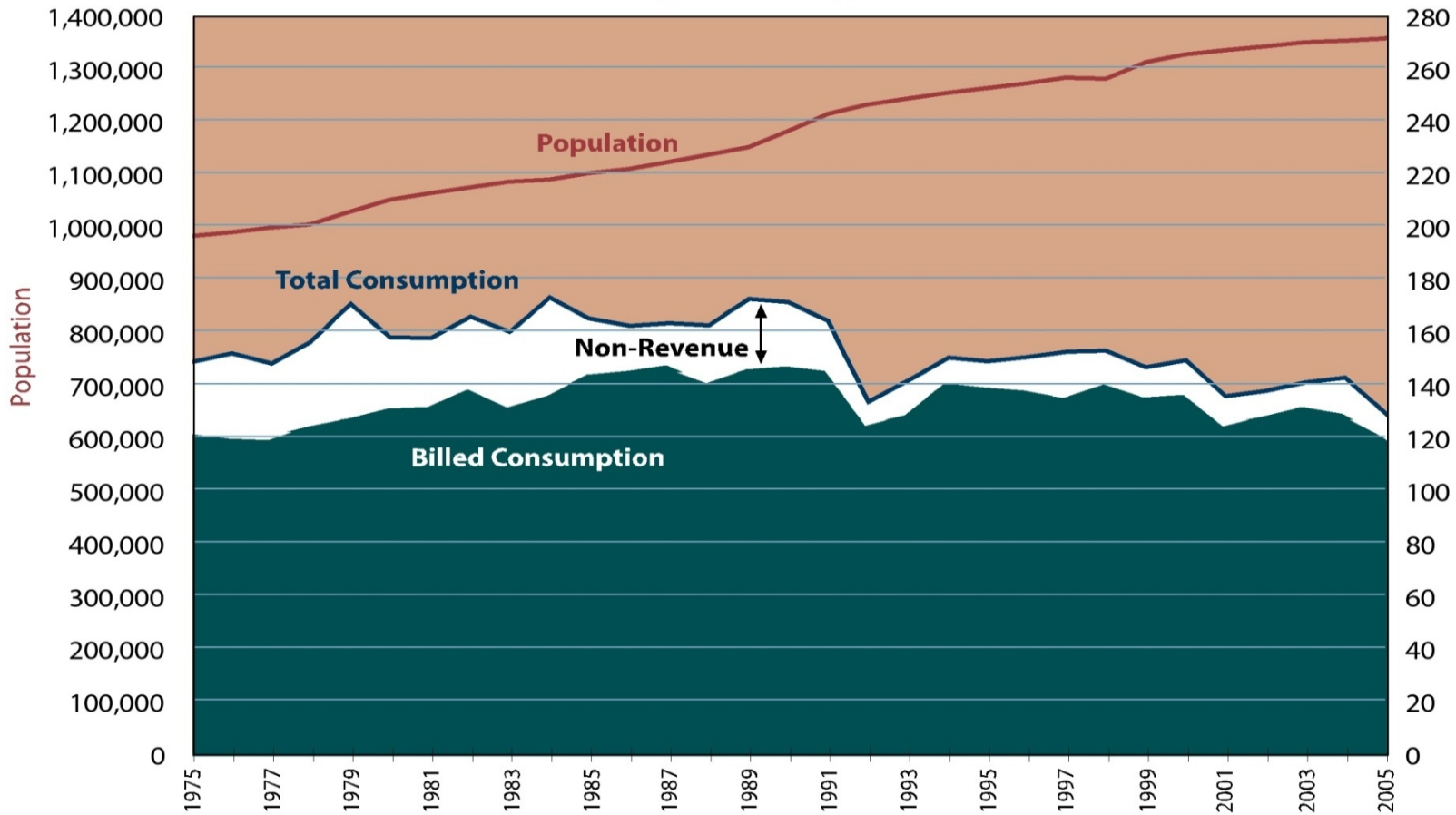
Delay and Downsizing Saves \$



Seattle Example

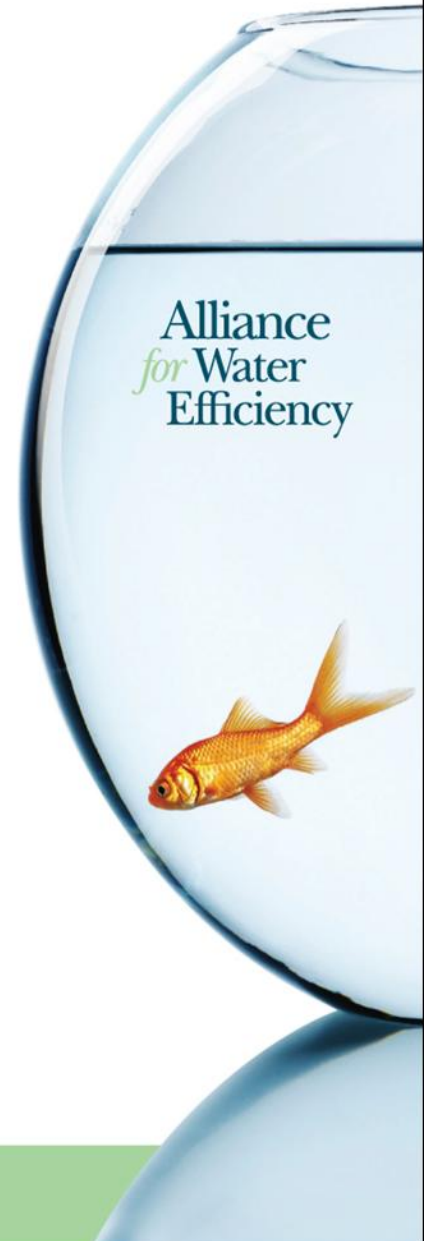
Growth in Population and Water Consumption

Seattle Regional Water System: 1975-2005

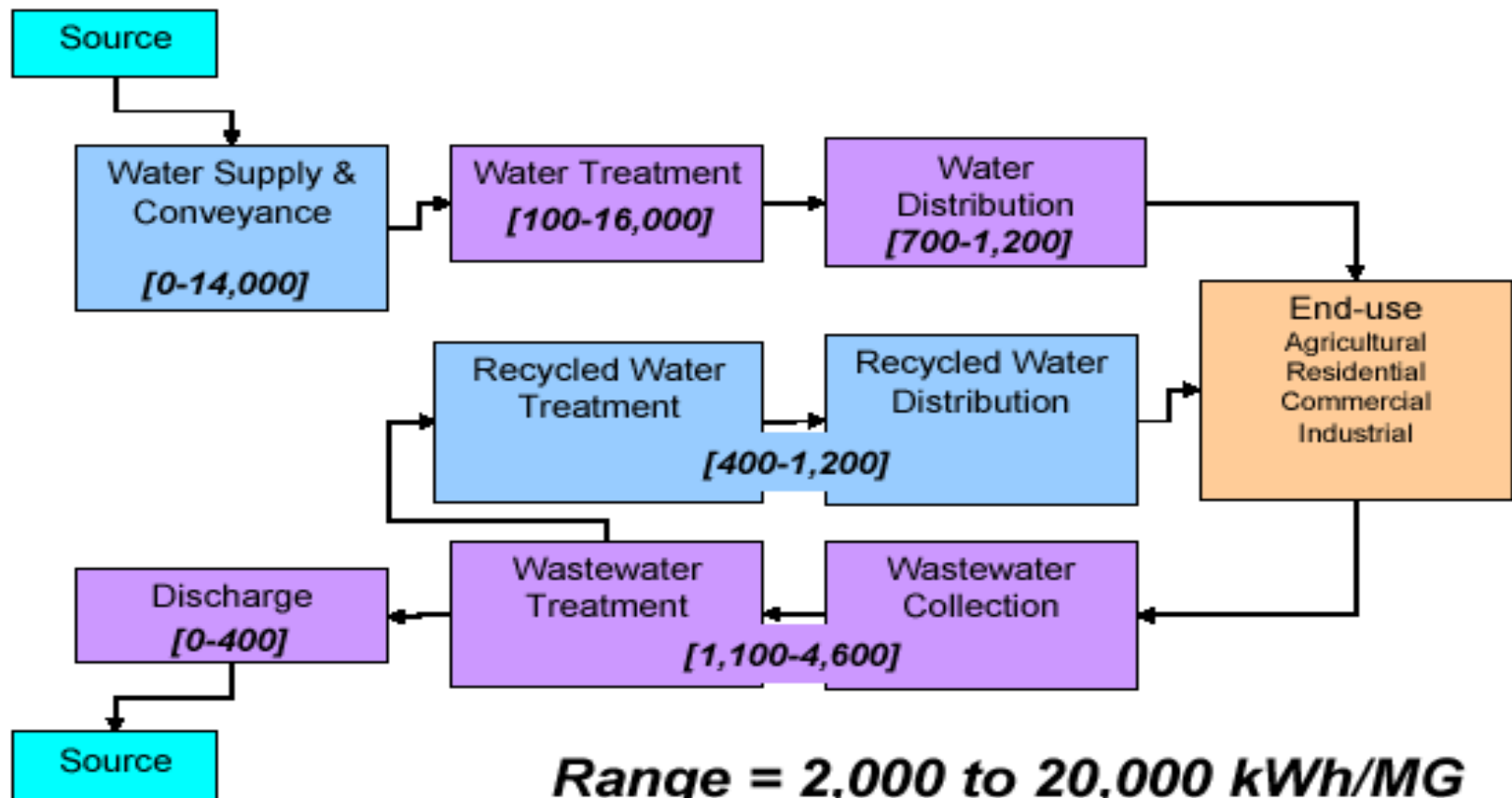


Benefits of Water Conservation

- **Drought** Tool: short-term relief
- **Planning** Tool: lessen gap between demand and available supply
- **Economic** Tool: defer capital facilities for drinking water and wastewater treatment
 - e.g. US will spend a quarter trillion dollars by the year 2020
 - Drinking and Wastewater SRF funds

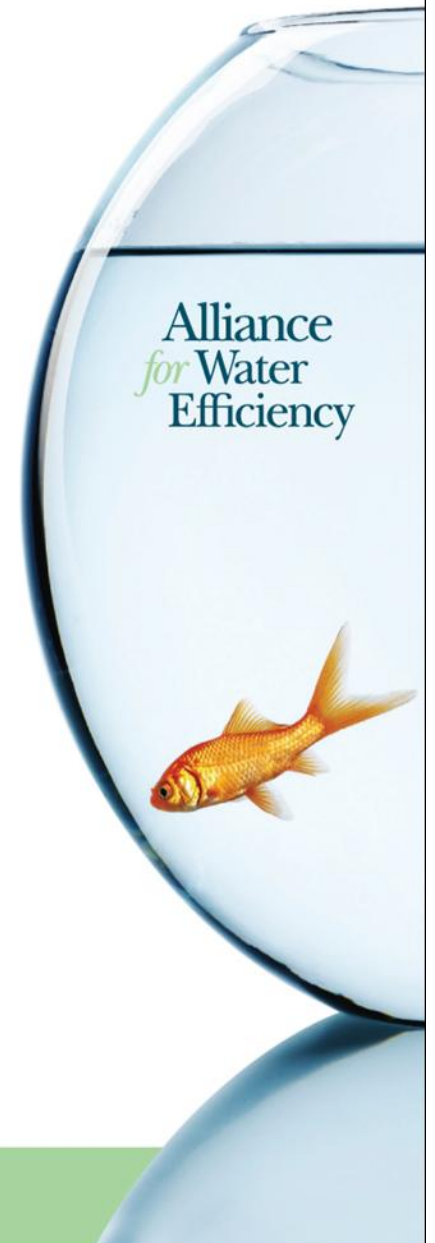


Water and Energy Are Connected



State Conservation Programs

- States with histories of shortage and/or water resource conflicts
- Examples appropriate for Compact
- Elements of programs:
 1. Conservation Planning Requirements
 2. Conservation Implementation Requirements
 3. Reporting Requirements
 4. Funding Requirements
 5. Permit Conditions



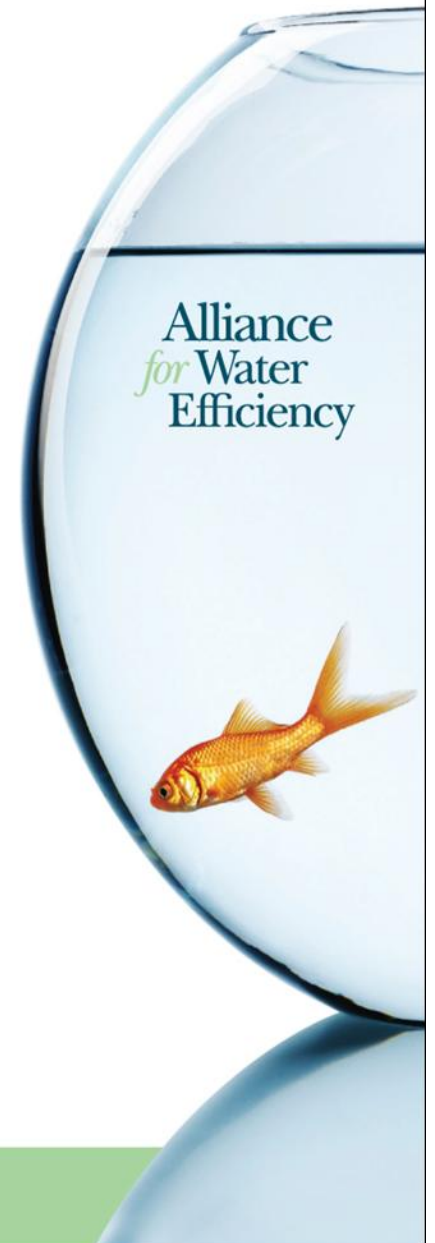
State Conservation Programs

- **Obvious states:**

- *California*
- *Texas*
- *Georgia*
- *Florida*

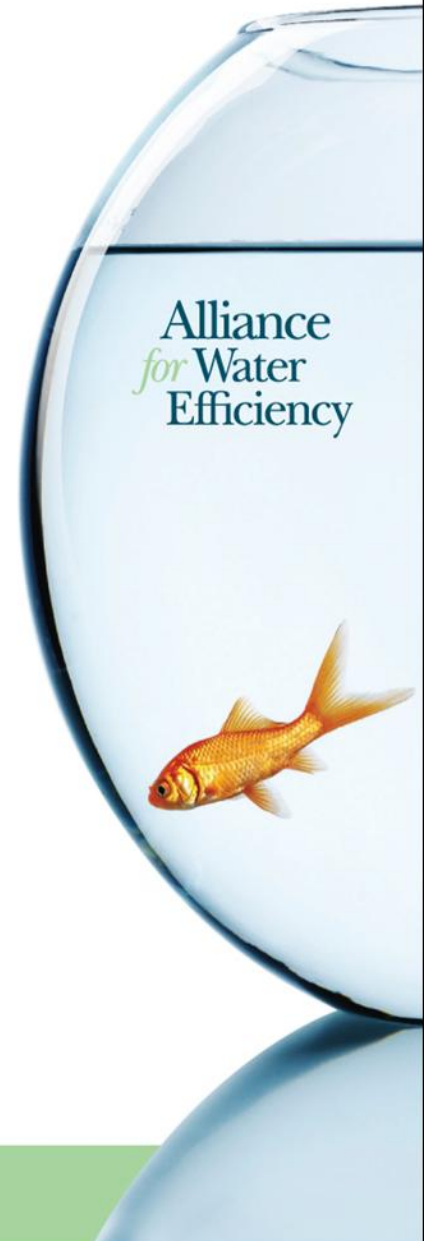
- **Less obvious states:**

- *Connecticut*
- *Washington*
- *Massachusetts*
- *Kansas*



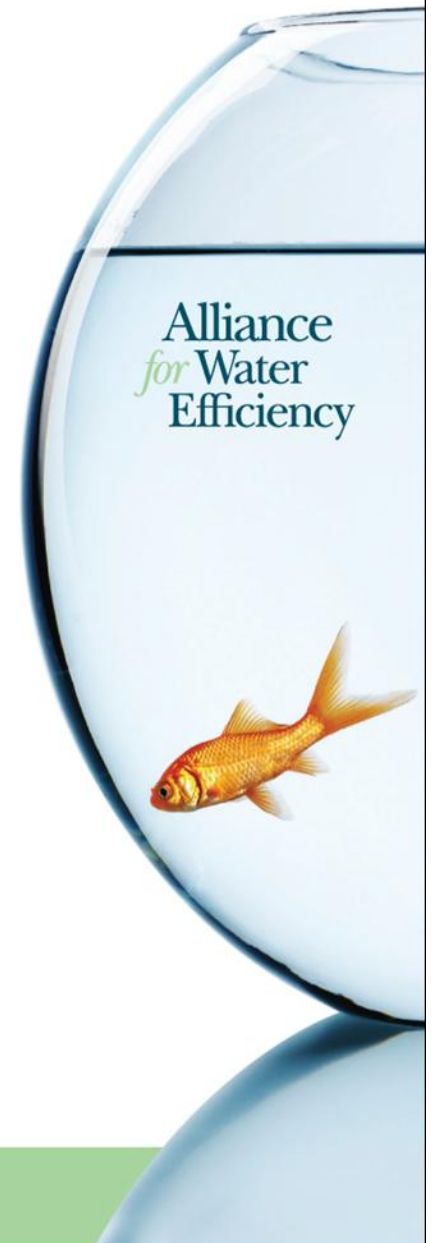
Sample State Actions

- **Enact benchmark reductions as a matter of State policy**
 - Statewide: 20% reduction in per capita water use by 2020 (CA)
 - Local Plans: 5 and 10 year reduction goals for water utilities (TX)
 - Require annual reporting on progress (TX: Beginning May 2010)



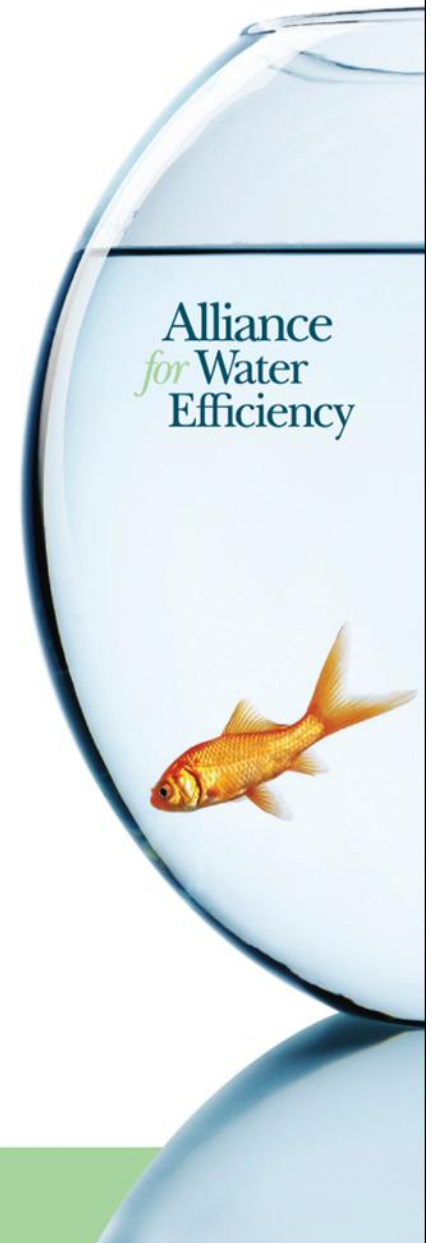
Sample State Actions

- **Pass legislation or regulations for minimum implementation of cost-effective water conservation**
 - FL: 24 BMPs, 4 are mandatory
 - TX: Annual implementation reports
 - WA: Minimum requirements (goals, 10% UAW, annual reporting)
 - CA: 14 BMPs mandatory for planning, cost-effective implementation, documented every 5 years in water supply plans



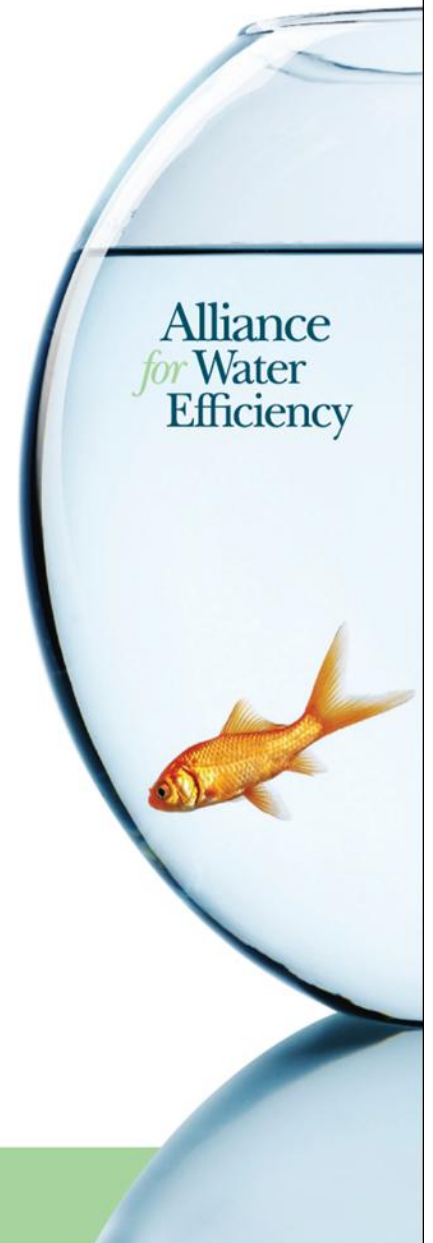
Sample State Actions

- **Embed water conservation implementation requirements in state permits for water supply withdrawal or water rights**
 - Texas
 - Florida
 - Connecticut
 - California



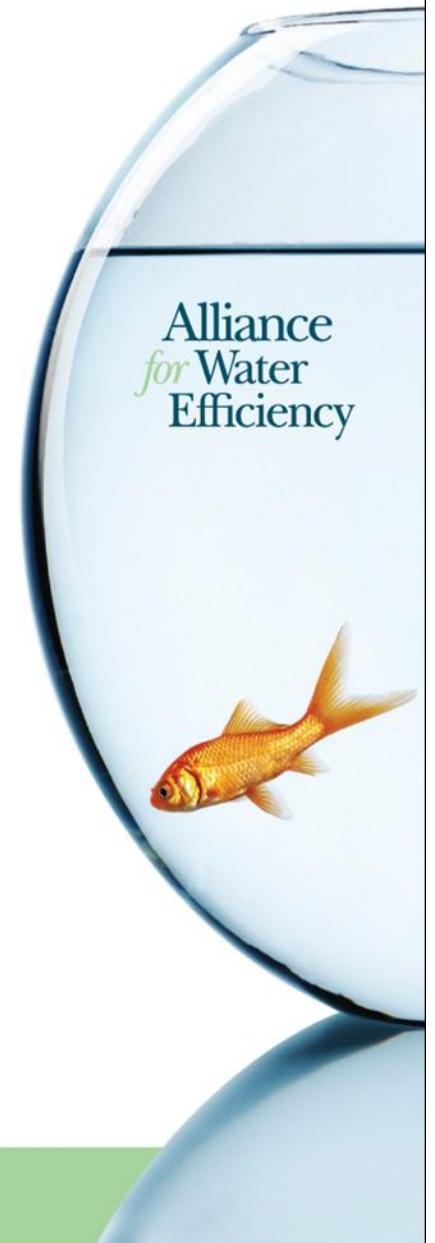
Sample State Actions

- **Tie state investments in water supply and other types of funding to minimum water conservation implementation**
 - TX: Any utility receiving \$500,000 or more in state funding must file water conservation plans and file annual implementation reports
 - CA: Compliance with 14 BMPs is a condition for any funding from state water grants or SRF loans



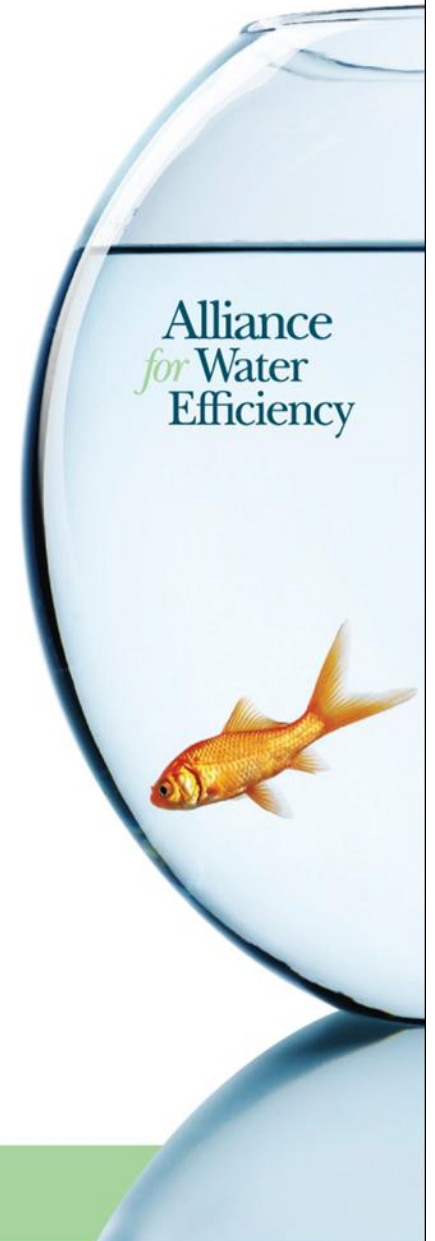
Sample State Actions

- **Require that all utilities audit and report non-revenue water to reduce water loss in utility systems**
 - TX: Detailed water audits every 5 years
 - WA: 10% UAW is mandatory



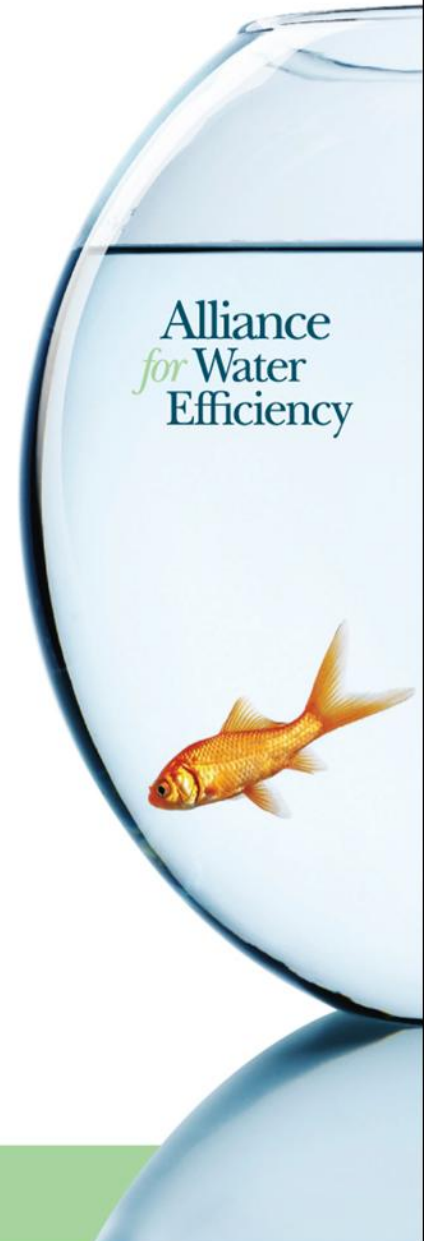
More State Strategies

1. Enact state water conservation plans requiring efficiency at state and local level
2. Enact state legislation mandating high-efficiency plumbing (such as in California and Texas)
3. Enact statewide retrofit on resale law
4. Enact executive orders requiring retrofit of all state and municipal buildings to the new state standards or to WaterSense standards
5. Require water/wastewater utility planning to have integrated conservation programs



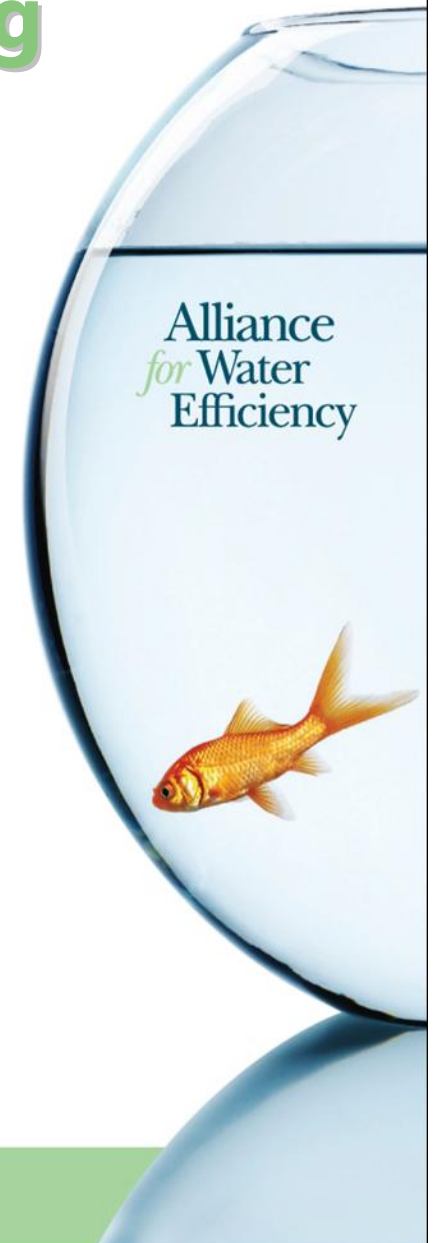
More State Strategies

6. Require conservation pricing in local utility systems
7. Require that water supply permits mandate cost-effective conservation
8. Promote non-potable water for landscape irrigation (gray water and rainwater)
9. Require green building for new public facility development
10. Develop statewide consumer awareness programs



Help from AWE for State Planning

- Non-profit organization based in Chicago serving the US and Canada
- Broad-based membership
- Great Lakes representation and commitment to Compact
- Technical assistance on water efficiency programs
- Training workshops (water conservation, water loss management)
- Detailed web site





Promoting the Efficient and Sustainable Use of Water

- Home
- Calendar
- News
- Resource Library
- WaterSense
- Forum
- Committees
- Join
- About

Energy Bill Balancing Energy Production and Water Efficiency Advances

Congress acted on a comprehensive energy bill last week as the Senate Energy and Natural Resources Committee advanced legislation. The legislation highlights the nexus between water resources and energy production and begins to integrate decision-making related to both resources. [Learn more here.](#)



AWE Testifies Before Senate Subcommittee on Water and Wildlife

The Alliance for Water Efficiency urged Congress to ramp up the funding for WaterSense, the federal government's three-year-old program to promote and label more water efficient appliances and plumbing products. [Learn more here.](#)

American Recovery and Reinvestment Act Signed by President Obama

The Act signed by President Obama allocates \$6 billion for local clean and drinking water infrastructure improvements. For more information on taking action to seek stimulus funding for your water

Calendar of Events



- 7/28/2009 A National Water Policy Event
- 8/18/2009 World City Water Forum 2009
- 9/13/2009 Water/Energy Sustainability Symposium at the GWPC Annual Forum 2009
- 9/21/2009 2009 ENERGY STAR Appliance Partner Meeting
- 10/6/2009 WaterSense & Water Efficient Products Committee Meeting

Latest Information



- Water Efficiency Watch Newsletter July 2009
- Water Use Efficiency Guide for New Businesses
- New 13th Edition MaP and UNAR Toilet Testing Results and Info
- AWE Launches Major On-Line Water Efficiency Information Library
- NRDC Report - Increasing Water Efficiency in California's Oil Sector



Resource Library

Welcome to the Alliance for Water Efficiency's Resource Library. AWE strives to provide the best on-line resources on water conservation and efficiency. Search through our collection and discover the wealth of useful, technical information assembled. Enter keyword(s) in the search box below or select an library section from the list on the right. Search instructions and tips are available here.



Resource Library Search Tool

Use the tool below to search the Alliance for Water Efficiency library:

Basic Search **Advanced Search**

Site

[Definition of Terms](#)

Recent Library Updates

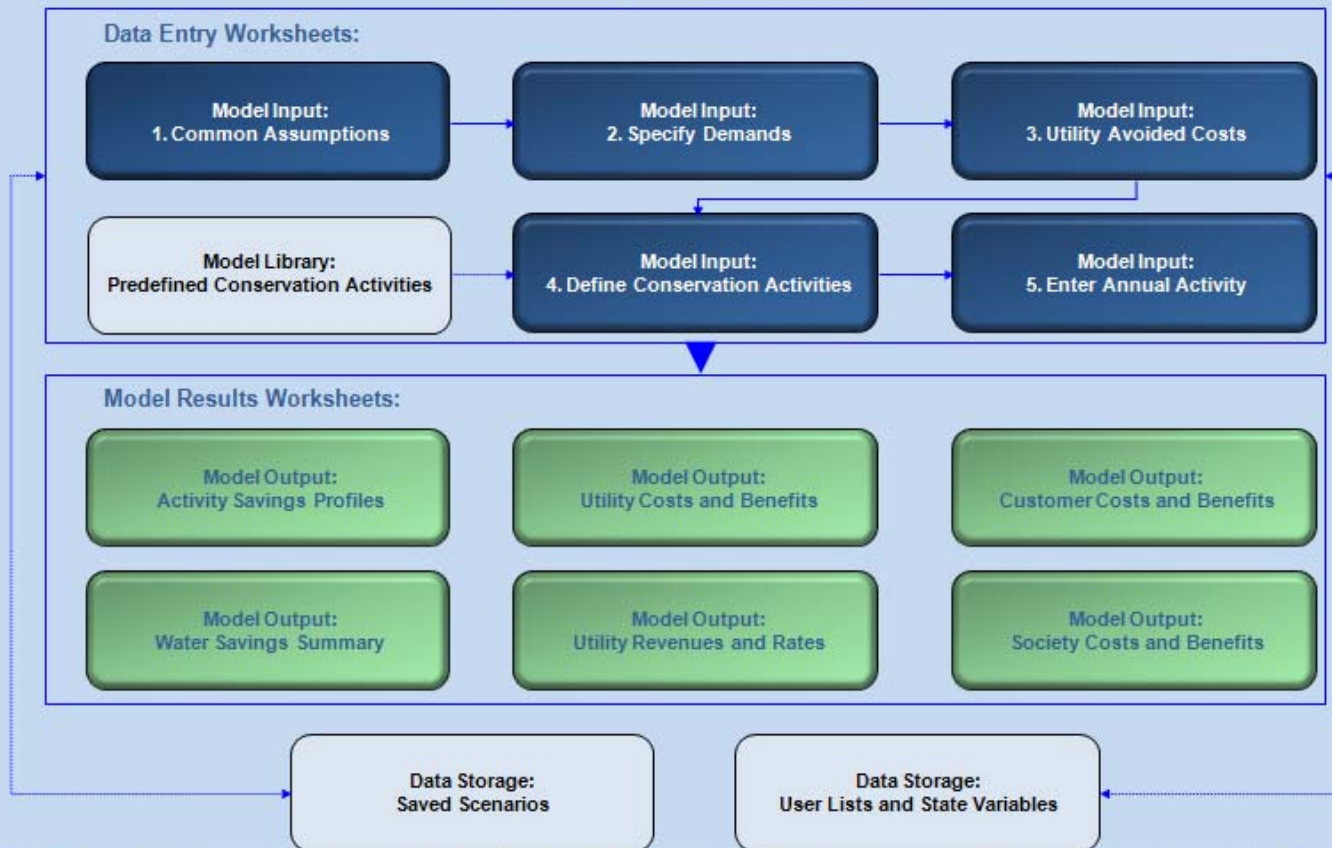
- 10/30/2008 Water Efficiency Watch Listing
- 10/30/2008 Szann, A (2008) Australia - Water Wastage of Instantaneous Gas Water Heaters
- 10/30/2008 Tucson rainwater ordinance
- 10/30/2008 Heinrich, M (2008) New Zealand - Water Use in Auckland Households
- 10/29/2008 Commercial Food Service Introduction

AWE Library Sections

-  Residential Water Efficiency
-  Landscape and Irrigation
-  Commercial Institutional and Industrial
-  Non-Residential Fixtures, Appliances and Equipment
-  Alternate Water Supply
-  Codes and Standards
-  Drought

Getting Started:

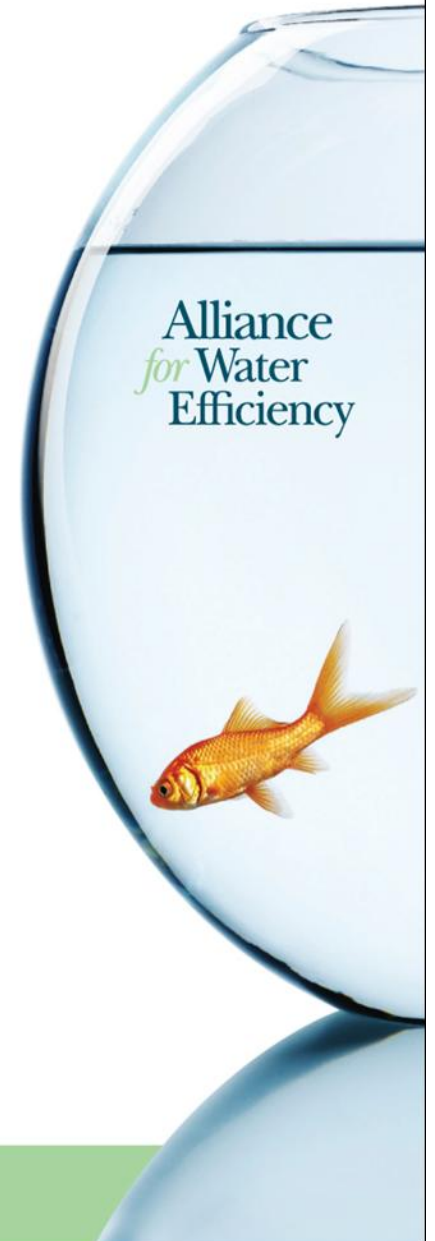
- The model uses a simple worksheet tab color code:
 Blue Tabs = User Data Entry
 Green Tabs = Model Outputs/Results
 Grey Tabs = Data Storage and Library
- First provide information about your system, customers, and water demands. This is done on data entry worksheets 1 thru 3.
- Next define or import conservation activities and set their annual activity levels. This is done on data entry worksheets 4 and 5.
- You can save conservation activity scenarios at any time. You access the scenario manager on the Common Assumptions worksheet.
- You can navigate to model worksheets by clicking on the model schematic below or by clicking on the worksheet tabs at the bottom of the screen.
- Data entry cells on input worksheets look like this: Only enter data in cells with this color coding.



Model Navigation Worksheet

Conservation Tracking Tool

- Analyzes potential water savings, costs, and benefits of conservation measures
- Constructs water conservation portfolios and long-range plans
- Ranks conservation measures
- Tracks implementation, water savings, and costs
- Predicts revenue impact
- Tracks and graphs the benefits of actual conservation activities over time



Benefit-Cost Analysis Tabular Output

AWE CONSERVATION TRACKING TOOL: UTILITY COSTS & BENEFITS WORKSHEET

Show Budget Table

[Return to Navigation Sheet](#) [Report Error](#)

Conservation Program Cost Analysis (2009 Dollars)

Amort. Years: 20

Class	Activity Name	Unit Cost (\$/AF)	PV Cost	Amortized Cost
Single Family	Residential Surveys, SF	\$ 823	\$ 385,395	\$ 25,696
Single Family	Residential HE Toilets, SF	\$ 392	\$ 1,645,145	\$ 109,688
CII	CII HE Toilet	\$ 764	\$ 4,097,411	\$ 273,190
Single Family	Residential Irrigation Controller, SF	\$ 762	\$ 2,997,651	\$ 199,865
Irrigation	Large Land. Irrigation Controller	\$ 189	\$ 440,840	\$ 29,393
Subtotal Conservation Activities		\$ 587	\$ 9,566,442	\$ 637,832
Total With Overhead & Public Information		\$ 587	\$ 9,566,442	\$ 637,832

Conservation Benefit Analysis (2009 Dollars)

Class	Activity Name	Unit Benefit (\$/AF)	PV Benefit	Avoided Supply	Avoided Wastewater	Capacity Benefit
Single Family	Residential Surveys, SF	\$ 600	\$ 281,013	\$ 235,370	\$ 10,347	\$ 35,297
Single Family	Residential HE Toilets, SF	\$ 685	\$ 2,880,261	\$ 2,282,200	\$ 241,010	\$ 357,051
CII	CII HE Toilet	\$ 685	\$ 3,674,135	\$ 2,911,233	\$ 307,438	\$ 455,464
Single Family	Residential Irrigation Controller, SF	\$ 575	\$ 2,264,287	\$ 1,897,607	\$ -	\$ 366,680
Irrigation	Large Land. Irrigation Controller	\$ 567	\$ 1,321,437	\$ 1,121,780	\$ -	\$ 199,658
Total		\$ 639	#####	\$ 8,448,189	\$ 558,794	\$ 1,414,150

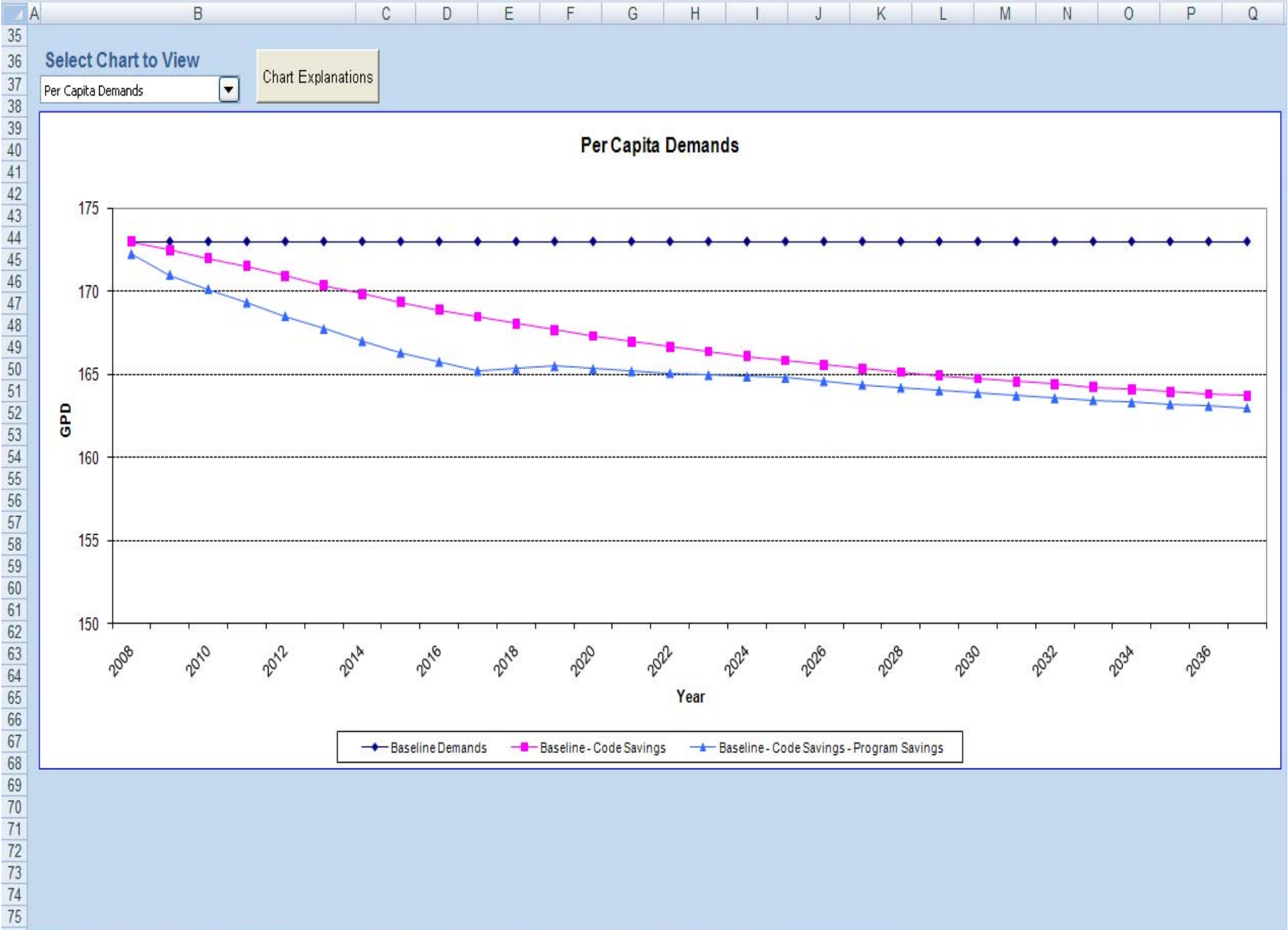
Utility Conservation Program NPV and B/C Ratio (2009 Dollars)

Class	Activity Name	NPV (\$)	B/C Ratio
Single Family	Residential Surveys, SF	\$ (104,382)	0.73
Single Family	Residential HE Toilets, SF	\$ 1,235,117	1.75
CII	CII HE Toilet	\$ (423,277)	0.90
Single Family	Residential Irrigation Controller, SF	\$ (733,364)	0.76
Irrigation	Large Land. Irrigation Controller	\$ 880,597	3.00
Subtotal Conservation Activities		\$ 854,691	1.09
Total With Overhead & Public Information		\$ 854,691	1.09

Select Chart to View

Unit Costs Sorted

Chart Explanations



Example of Capacity Deferral Analysis

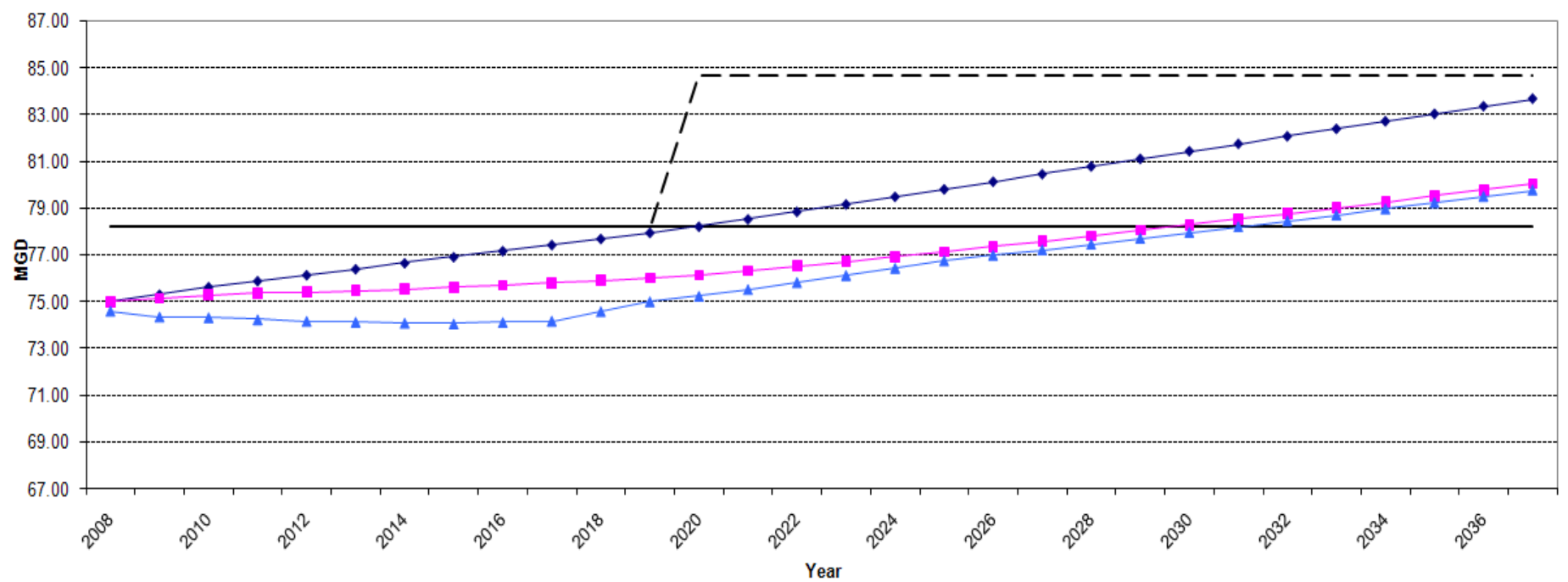
1 AWE CONSERVATION TRACKING TOOL: WATER SAVINGS SUMMARY WORKSHEET

Year forecasted peak season demand equals existing peak season delivery capacity		Deferred Expansion (Years)	Deferred Capacity (MGD)	Benefit of Deferred Expansion (\$)	Avoided Capacity (MGD)	Benefit of Avoided Expansion (\$)
Baseline Demands	2020	N/A	N/A	N/A	N/A	N/A
Baseline - Code Savings	2029	9	6.4	\$7,471,940	0.0	\$0
Baseline - Code Savings - Program Savings	2031	11	6.4	\$8,886,090	0.0	\$0

Select Chart to View

Peak Season Capacity

Peak Season System Capacity



Current System Capacity
 Planned System Capacity
 Gross Peak Season Demand
 Less Passive Savings
 Less Active Savings



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