This presentation premiered at WaterSmart Innovations

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Transforming Water:

Water Efficiency as Infrastructure Investment

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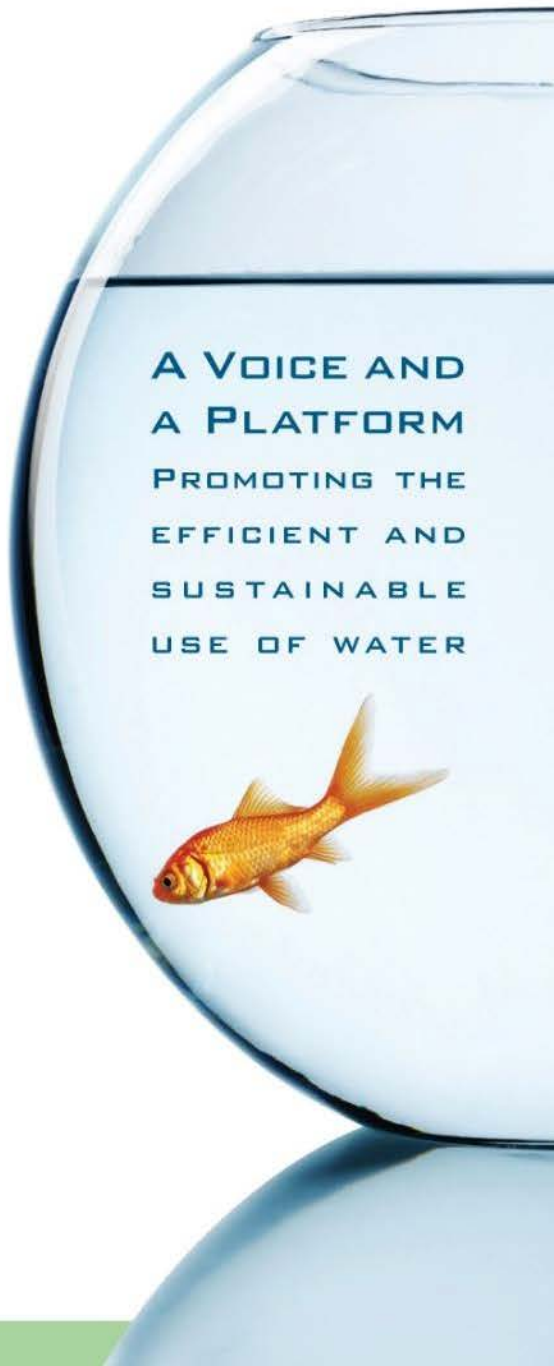
President and CEO

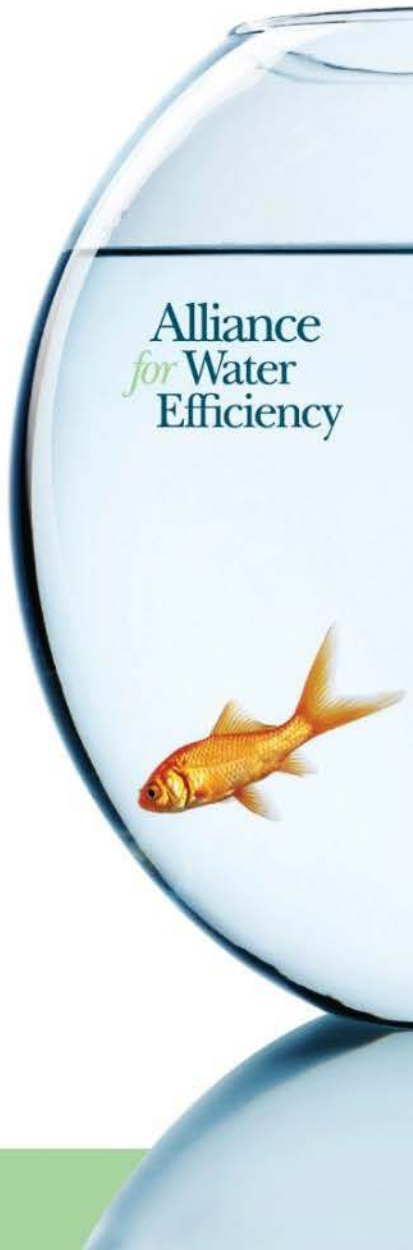
2018 Water Smart Innovations Conference



Alliance *for* Water Efficiency

A Voice for Water Efficiency

- Since 2007 the premier North American organization with a sole mission to promote the **efficient** and **sustainable** use of water.
- Stakeholder driven: uniting water suppliers, plumbing, appliance and irrigation manufacturers, advocates, government and academia to develop programs.
- Collaborative policy advocacy, education, tools, and research at www.a4we.org.
- 450+ member organizations across US and Canada. In 2018 created the first state Chapter in California.



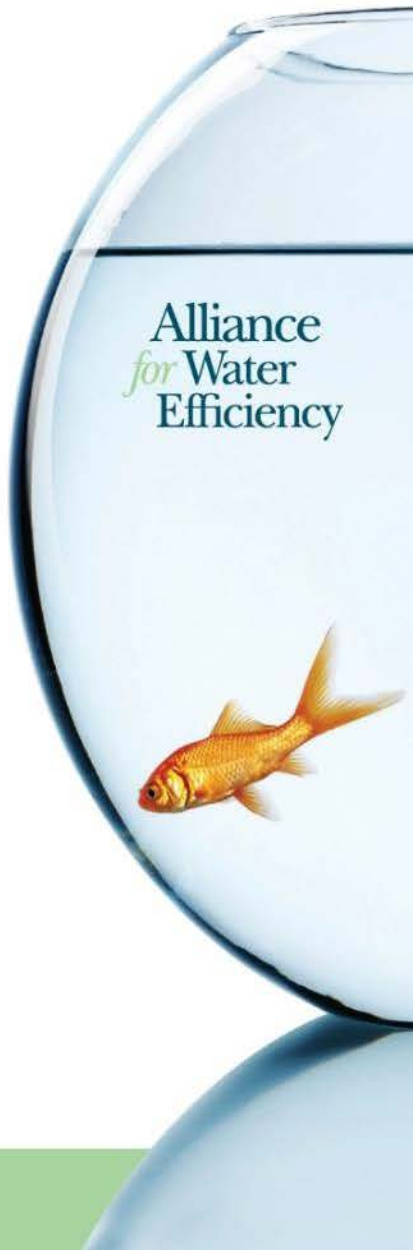
Vision: A Sustainable Water Future

What We Do

- Tackle issues of critical importance for water managers to provide multiple member benefits
- Projects are collaboratively designed to meet member needs:
  - ✓ Net Blue: Water Neutral Growth
  - ✓ Outdoor Water Savings Research Initiative
  - ✓ Graywater research
  - ✓ Water and Energy Policies

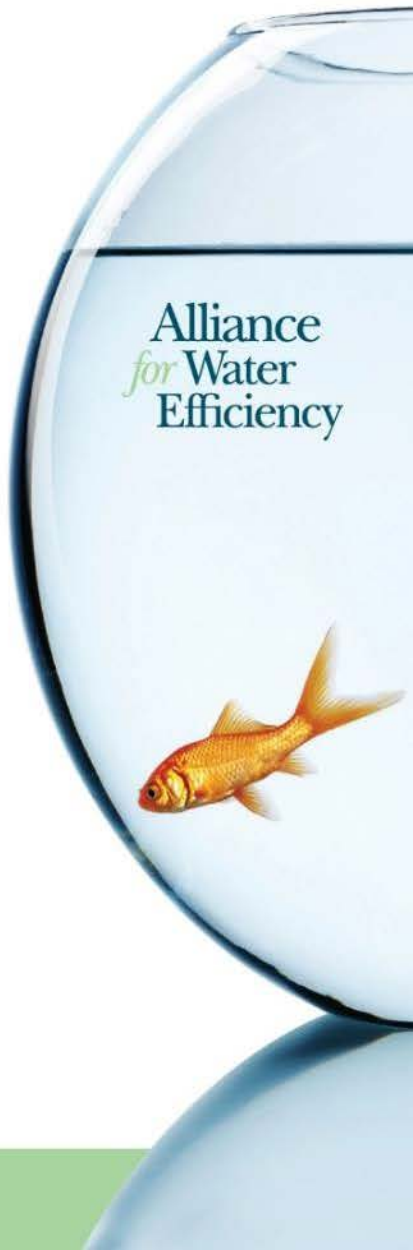
Efficiency Investment Research

- Water efficiency investments should be considered alongside traditional water infrastructure projects, but they usually aren't.
- These investments have economic benefits which usually aren't quantified in the aggregate.
- To remedy this, AWE undertook research in 2008 to quantify the national economic benefits of water efficiency investment
- Research was at the request of the transition team for President-Elect Obama, to be done in three weeks!



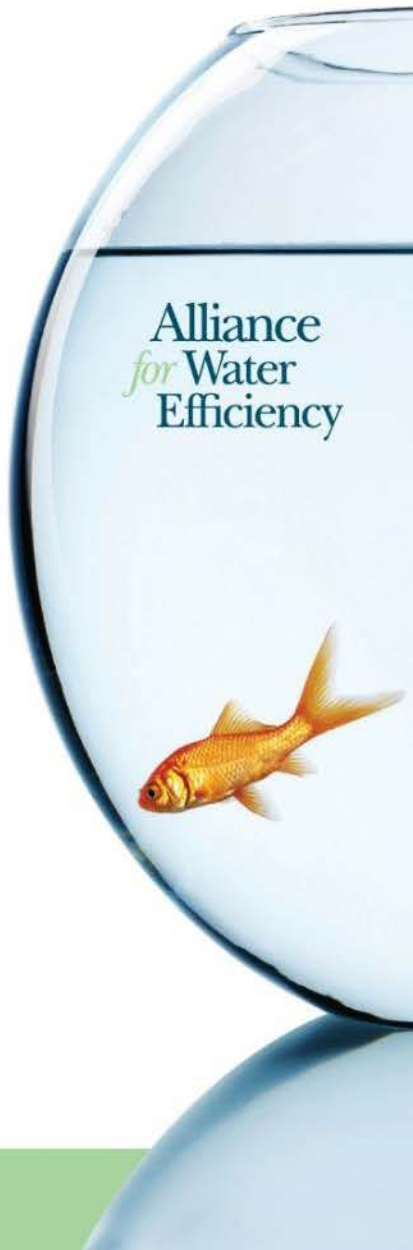
Transition Team Request

- Stimulus bill was under development to aid the ailing recessionary economy in 2008.
- Energy efficiency investments around $17 billion were being contemplated.
- Request to AWE: what might be the benefit of a similar $10 billion investment in water efficiency?
- AWE hired the economic team of David Mitchell of MCubed and Thomas Chesnutt of A&N Technical Services.
- AWE also prepared a "shovel ready" list of water conservation projects totaling $10 billion to prove that the money could be quickly spent if awarded



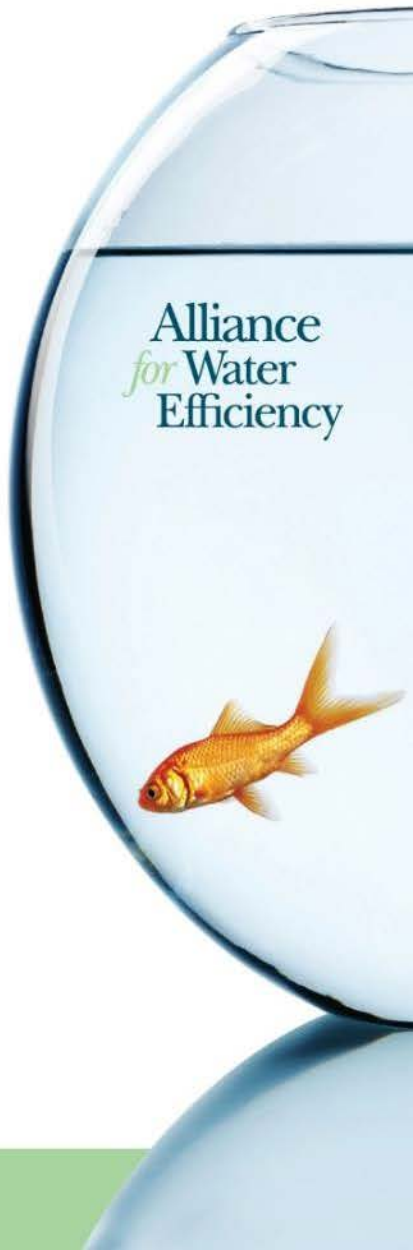
Methodology of the Research: 1

- Input-output (I-O) model of the U.S. economy used to evaluate the near-term economic benefits of large-scale investments in water efficiency programs.
- Near-term economic benefits were measured in terms of creation of jobs and labor income, and contribution to gross domestic product (GDP) and national output.
- Impacts were evaluated with IMPLAN I-O modeling software and the 2007 national data file.



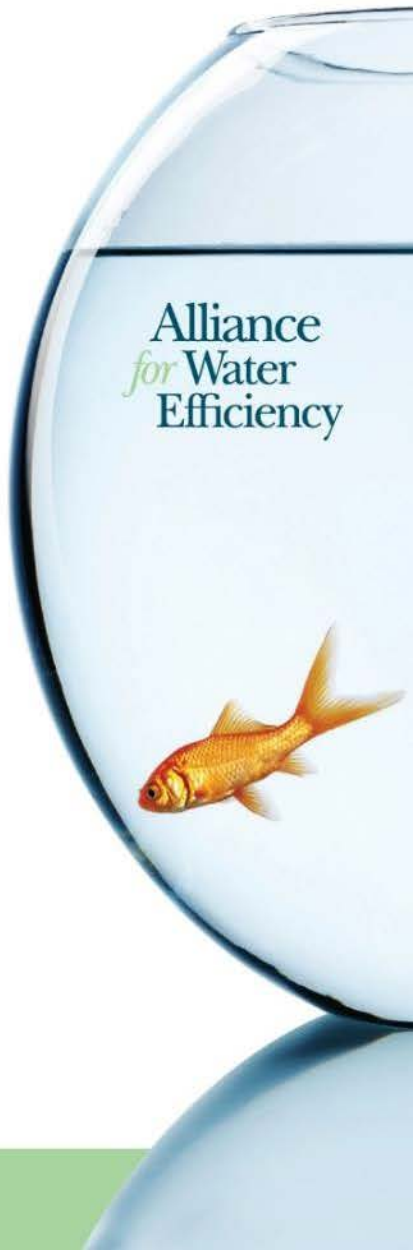
Methodology of the Research: 2

- Several types of water efficiency program investments were evaluated:
  - ✓ Rebate and direct install programs to replace high flow plumbing and appliance stock
  - ✓ Outdoor water use programs involving landscape surveys and equipment upgrades
  - ✓ Commercial/industrial cooling tower retrofits
  - ✓ Industrial process water improvements
  - ✓ Water utility leak detection and system water loss reduction programs
- Program specs and cost estimates based on actual water efficiency programs undertaken by municipal water utilities.



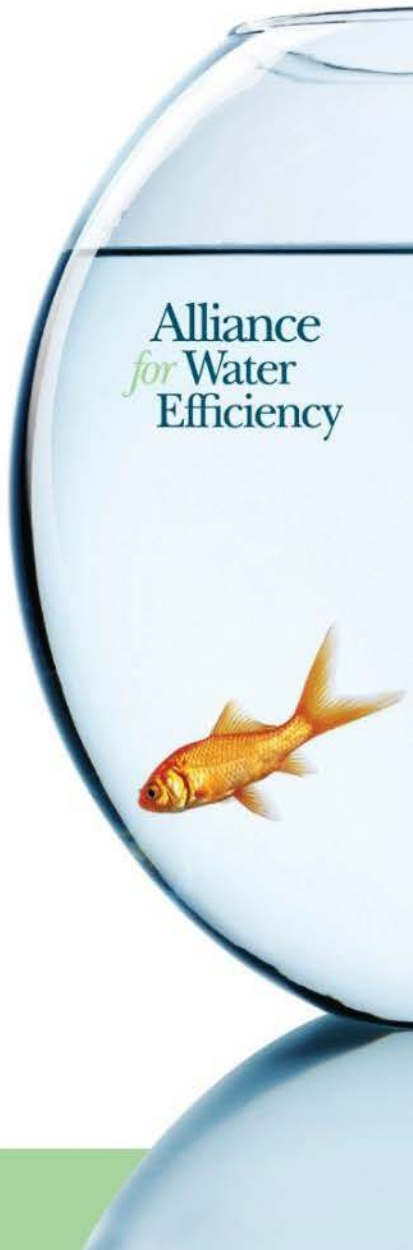
Methodology of the Research: 3

- Program expenditures were subdivided into the following categories:
  - ✓ Repair, maintenance and new construction
  - ✓ New physical assets
  - ✓ Site inspections, installation, and other services
  - ✓ Program administration
- Category-specific unit expenditures were developed for each program (e.g., physical asset costs per toilet replaced or per cooling tower retrofitted).



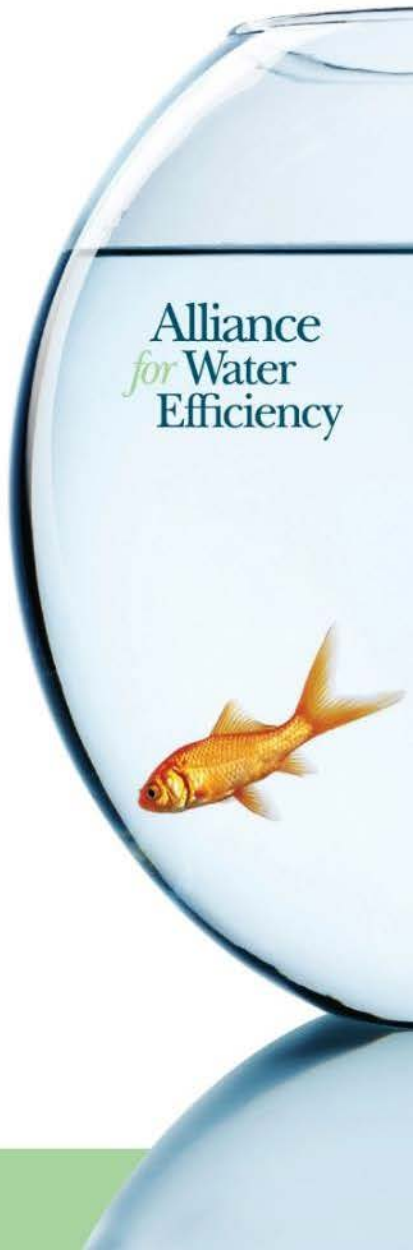
Methodology of the Research: 3

- The category-specific unit expenditures were then mapped to the appropriate economic sectors in the IMPLAN I-O model.
- Unique mappings were done for each water efficiency program to account for the different expenditure patterns across the programs.
- Where program expenditures involved purchases from retail or wholesale suppliers, IMPLAN's margining capability was used to account for the entire value chain from manufacturing to transportation and warehousing and then to wholesale and retail distribution.



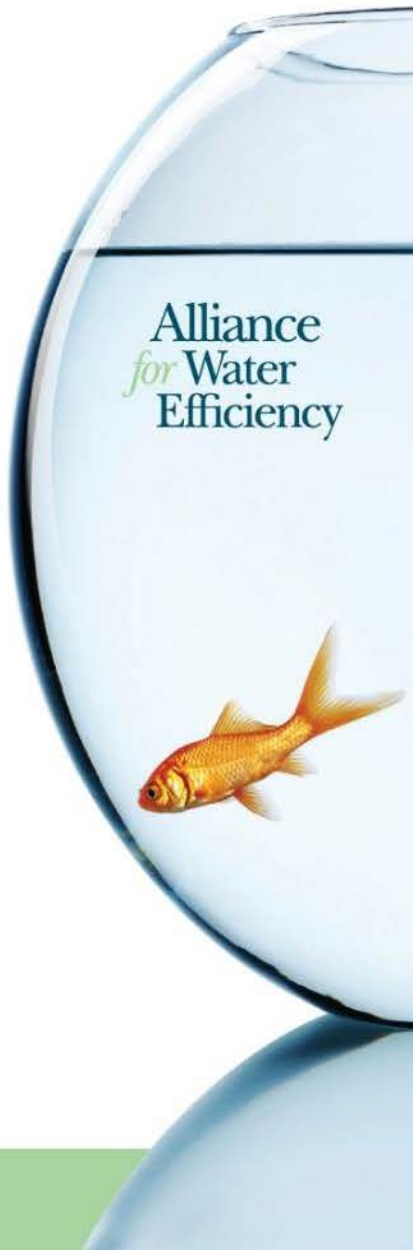
Methodology of the Research: 4

- In situations where product manufacturing involved multiple stages or processes, expenditures were further divided to account for all manufacturing steps (e.g., high-efficiency toilets involve ceramic, plate metal, plastic, and possibly wood manufacturing sectors).
- The analysis assumes that federal funding of water efficiency programs would be structured to support domestically produced products (e.g., toilets, irrigation equipment) to benefit the U.S. manufacturing sector.



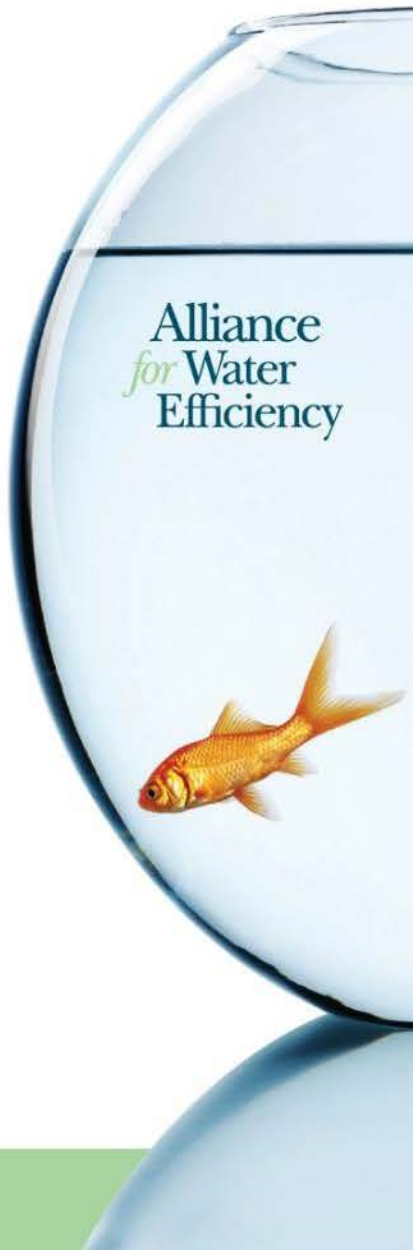
Methodology of the Research: 5

- In cases where programs involved cost-sharing with end-users (e.g., a rebate program that covers half the cost of a new appliance or water using device) it was assumed that end-users would offset program-induced expenditures by an equivalent reduction in expenditures on other goods and services.
- In other words, the analysis took the conservative stance that these programs would redirect business and household expenditure into efficiency investments, but not increase overall spending beyond already planned or anticipated levels.



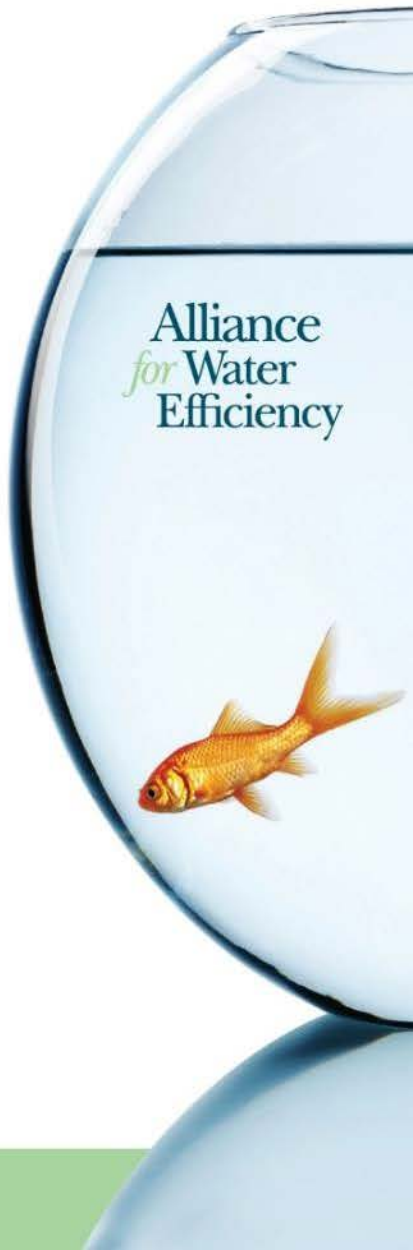
Methodology of the Research: 6

- In this way, the methodology only counted the economic benefits associated with direct investment from the water efficiency program expenditures, and does not double count benefits from economic activity that would likely have occurred anyway.
- The changes to sector final demands resulting from the program mappings were run through the IMPLAN I-O model to determine the impacts to employment, income, GDP, and national output.



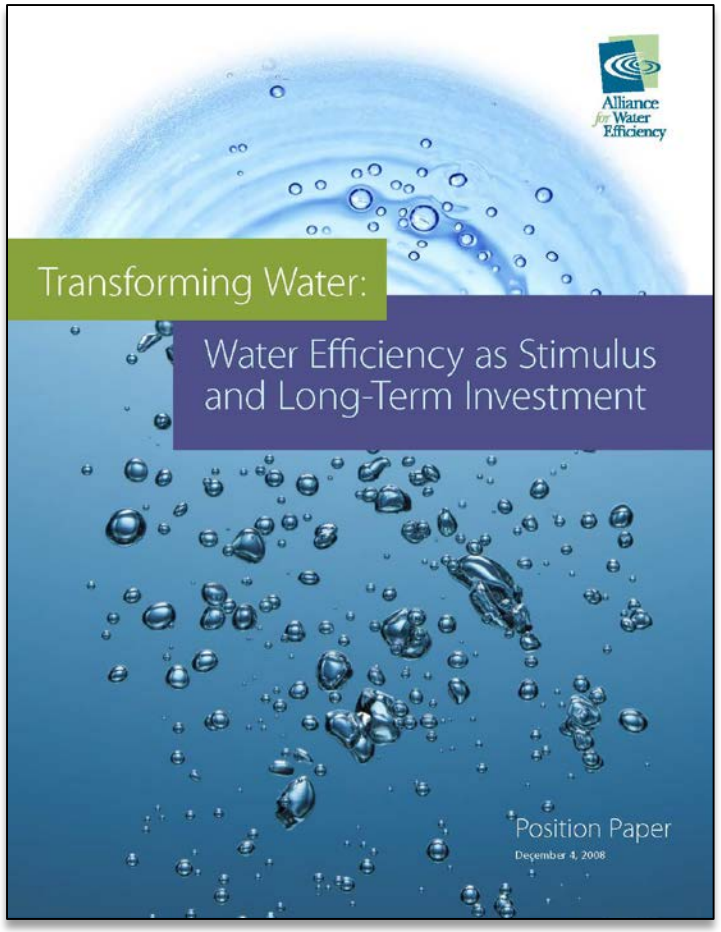
Methodology of the Research: 7

- Total impacts estimated with the model consist of the direct and indirect impacts of program expenditures.
- The direct impacts include jobs, labor income, and output associated with the direct spending by the water efficiency programs. The indirect impacts result from the ripple effect of this spending on related industries and disposable household income.



Results?

- The economic output benefits range between $2.5 and $2.8 million per million dollars of direct investment.
- GDP benefits range between $1.3 and $1.5 million per million dollars of direct investment.
- Employment potential ranges between 15 and 22 jobs per million dollars of direct investment.
- Report published December, 2008 and submitted to Obama's transition team

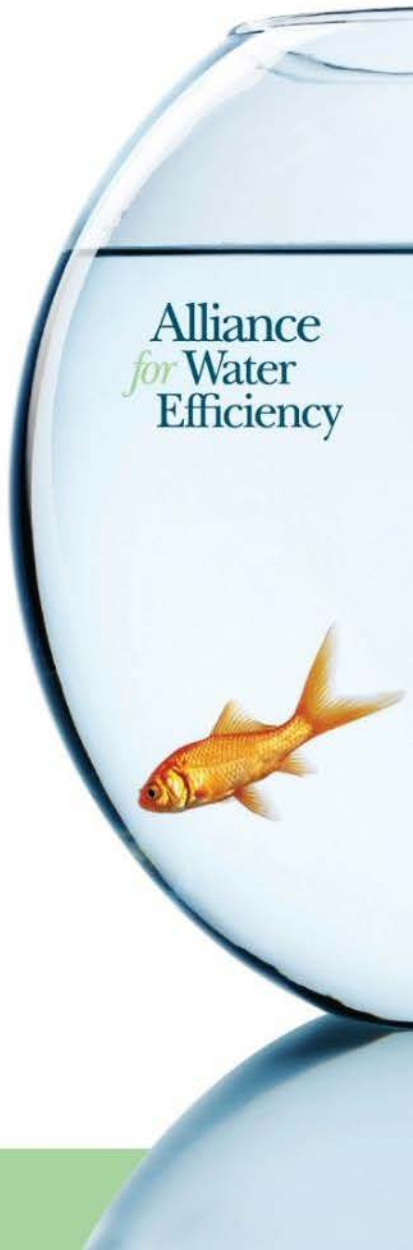


So What Happened?

- ARRA Stimulus Package Funding (2009)
- $787 Billion overall
- $17 Billion awarded for energy efficiency programs
- Zero awarded for water efficiency programs
- $6 Billion for water and wastewater overall
- “Green project” set-aside: 20% for water efficiency, energy efficiency, & storm water manmgt

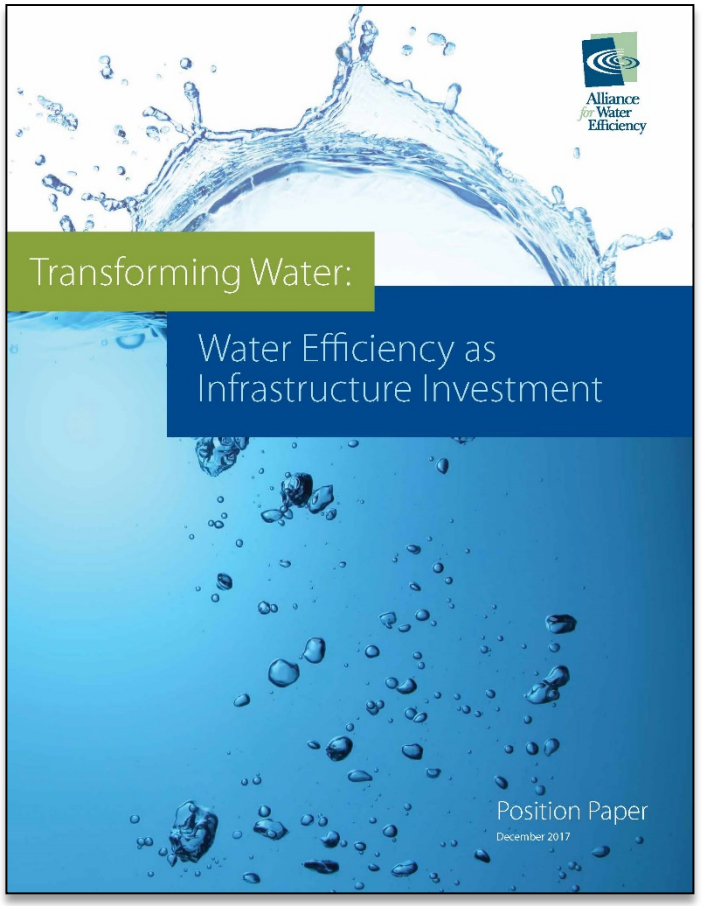
Fast Forward……

- 2017 President Trump discusses possible national infrastructure bill.
- AWE decides to update the 2008 analysis and remove all references to "stimulus" and the prior administration.
- New analysis undertaken by David Mitchell of MCubed, repeating the same steps but with the updated 2015 national data file.
- Intent was to distribute to members of Congress to promote the idea of federal water efficiency investments.
- Published December, 2017.



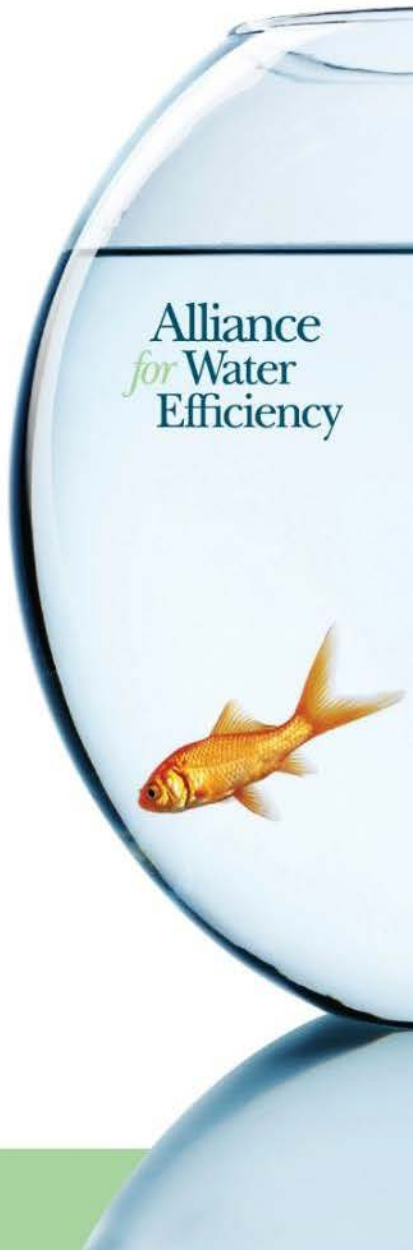
Results?

- Economic output benefits range between $2.5 and $2.8 billion per billion dollars of direct investment (the same).
- GDP benefits range between $1.3 and $1.5 billion per billion dollars of direct investment (the same).
- Employment potential ranges between 12,000 and 26,000 jobs per billion dollars of direct investment (higher range).



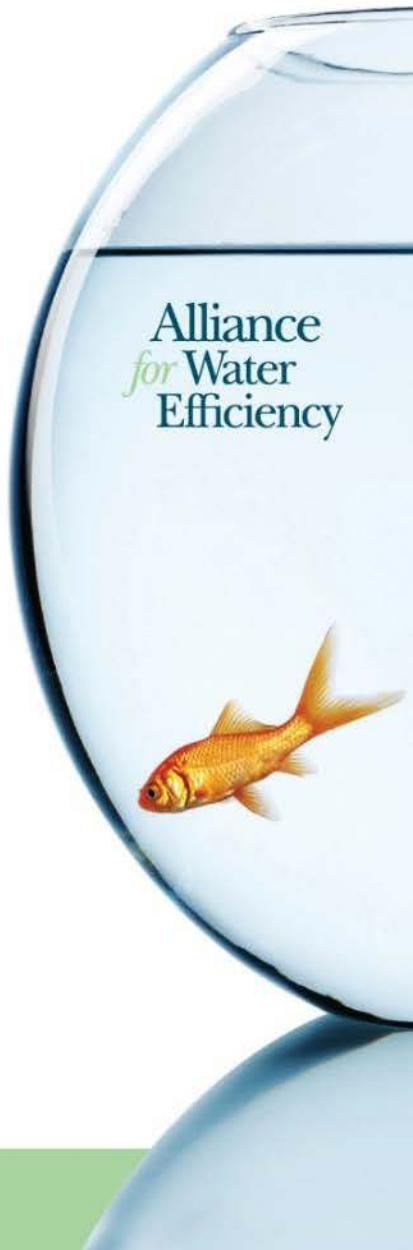
$10 Billion in Water Efficiency

- Can save between 6.5 and 10 Trillion gallons of water
- Can be deployed in short time frames
- Can be readily scaled according to need
- Can be implemented in lower-income areas where appliance stocks tend to be older and less efficient
- Can have long-term economic, social, and environmental benefits
- Are “no-regret” investments

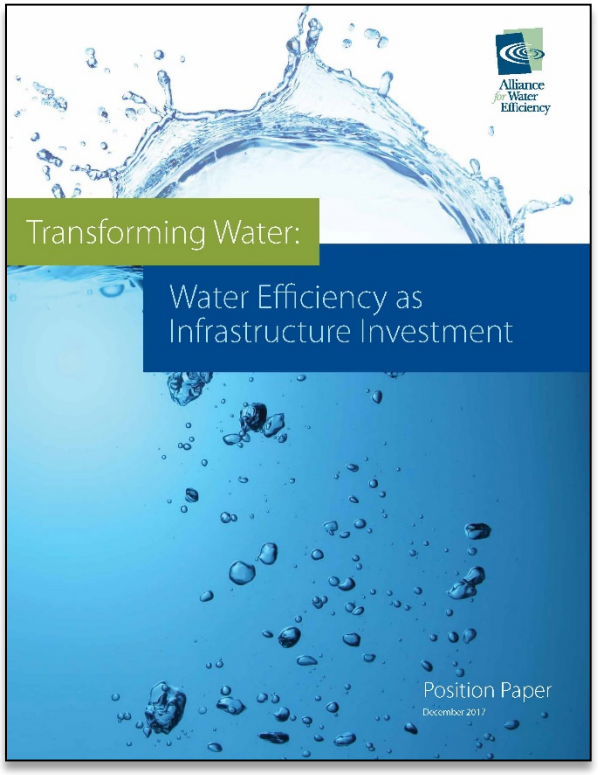


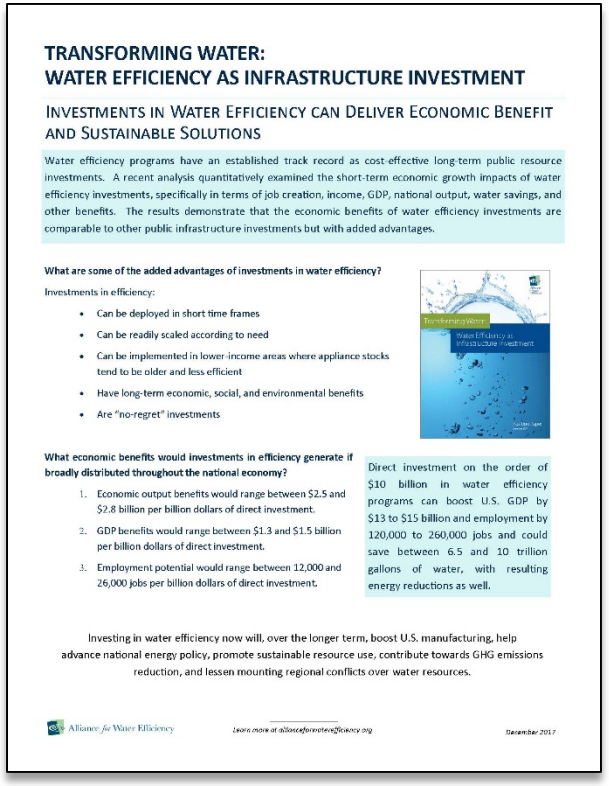
Conclusion

- Investing in water efficiency now will, over the longer term, boost U.S. manufacturing, help advance national energy policy, promote sustainable resource use, contribute towards GHG emissions reduction, and lessen mounting regional conflicts over water resources.
- Analysis can also be done on a state scale using the same methodology



How to Get Report and Fact Sheet?





TRANSFORMING WATER:
WATER EFFICIENCY AS INFRASTRUCTURE INVESTMENT

INVESTMENTS IN WATER EFFICIENCY CAN DELIVER ECONOMIC BENEFIT AND SUSTAINABLE SOLUTIONS

Water efficiency programs have an established track record as cost-effective long-term public resource investments. A recent analysis quantitatively examined the short-term economic growth impacts of water efficiency investments, specifically in terms of job creation, income, GDP, national output, water savings, and other benefits. The results demonstrate that the economic benefits of water efficiency investments are comparable to other public infrastructure investments but with added advantages.

What are some of the added advantages of investments in water efficiency?

Investments in efficiency:

- Can be deployed in short time frames
- Can be readily scaled according to need
- Can be implemented in lower-income areas where appliance stocks tend to be older and less efficient
- Have long-term economic, social, and environmental benefits
- Are "no-regret" investments

What economic benefits would investments in efficiency generate if broadly distributed throughout the national economy?

1. Economic output benefits would range between $2.5 and $2.8 billion per billion dollars of direct investment.
2. GDP benefits would range between $1.3 and $1.5 billion per billion dollars of direct investment.
3. Employment potential would range between 12,000 and 26,000 jobs per billion dollars of direct investment.

Direct investment on the order of $10 billion in water efficiency programs can boost U.S. GDP by $13 to $15 billion and employment by 120,000 to 260,000 jobs and could save between 6.5 and 10 trillion gallons of water, with resulting energy reductions as well.

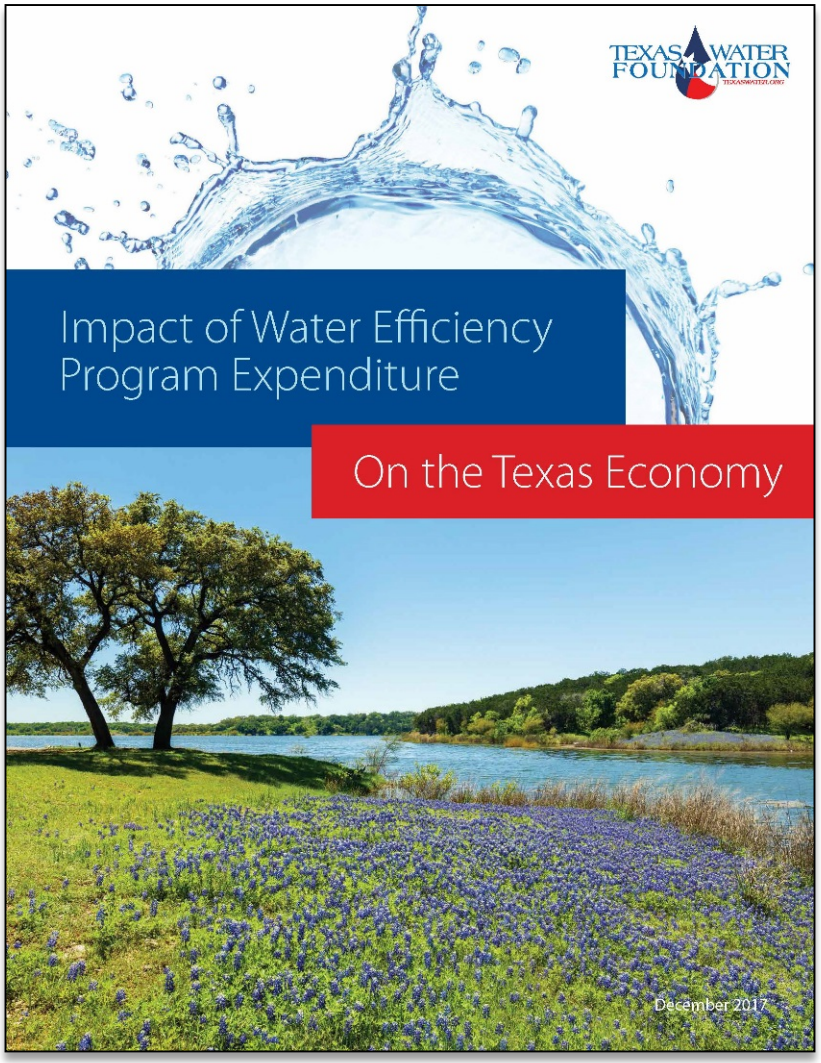
Investing in water efficiency now will, over the longer term, boost U.S. manufacturing, help advance national energy policy, promote sustainable resource use, contribute towards GHG emissions reduction, and lessen mounting regional conflicts over water resources.

Alliance for Water Efficiency — Learn more at allianceforwaterefficiency.org — December 2017

- www.allianceforwaterefficiency.org/Transforming-Water.aspx

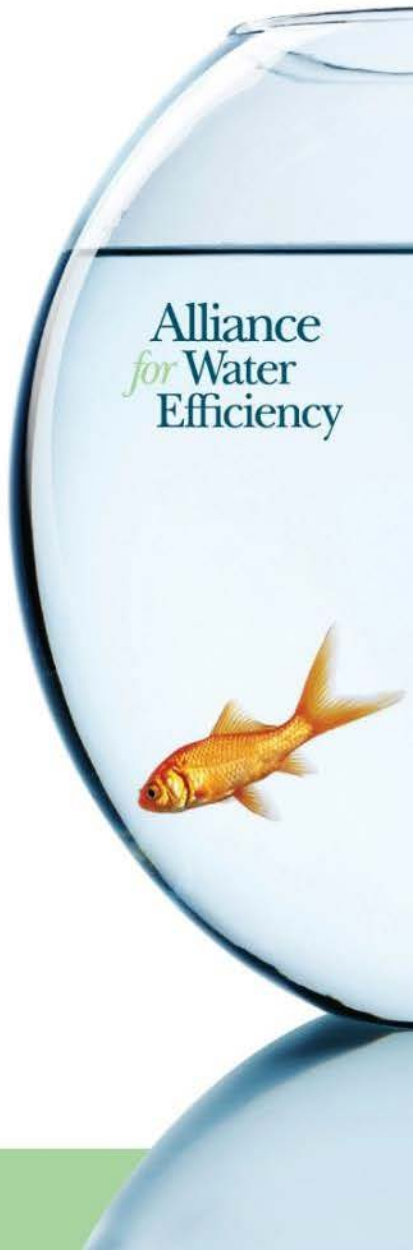
Texas Report

- Published December, 2017 by AWE and Texas Water Foundation
- $2 Billion analyzed
- Each dollar of direct investment in water use efficiency programs adds $1.3 to state output and $0.8 to gross state product.
- Each million dollars of direct investment supports 8.7 job-years in the state.



Summary Results for Texas

- $2 billion over 5 years would generate approximately $2.6 billion in state output and support 17,400 job-years.
- The corresponding increase in gross state product would be $1.6 billion.
- Statewide water use would be reduced by 300 to 400 million gallons per day (MGD) with water savings having an average duration of about 10 years
- This is roughly enough water to serve 1.2 to 1.6 million single-family homes in Texas for 10 years.



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