

# PROVIDING SAFE, SECURE AND SUSTAINABLE SOLUTIONS FOR AMERICA'S WATER NEEDS

Reuse and Desalination: Reliable Supplies, Economic Well-Being and Public Health Protection



This document was prepared by the WaterReuse Association, a non-profit association formed to advance the beneficial and efficient use of water resources. The Association represents more than 180 water agencies, wastewater agencies, and water management districts across the U.S. serving more than 40 million people.

This document includes ideas and solutions for immediate action by Congress and President-elect Obama that provide sustainable water management in a manner that promotes a healthy environment, public health and rapid economic recovery.

# WHAT THE EXPERTS HAVE TO SAY ABOUT IMPENDING WATER SHORTAGES

**“People pay attention to hurricanes. They pay attention to tornadoes and earthquakes. But a drought will sneak up on you.”**

David E. Stooksbury  
State Climatologist of Georgia  
*New York Times, October 15, 2007*

**“Our focus is oil, but the critical need for water is going to make water the most significant natural resource that we’re going to have to worry about in the future.”**

Larry Fillmer  
Executive Director  
Natural Resources Management & Development Institute  
at Auburn University  
*CNN, December 15, 2008*

**“Generally in Southern California, there’s a sea-change recognition that if we’re all waiting to get more water from Northern California, it isn’t going to happen. To maintain our great economy, we need to protect our sources here.”**

Richard Atwater  
General Manager  
Inland Empire Utilities Agency, Chino, CA  
*Los Angeles Times, February 25, 2008*

**“Clearly we’re on a collision course between supply and demand.”**

Brad Udall  
Director of the Western Water Assessment at the University of Colorado.  
*Associated Press, December 5, 2008*

**“People being thrown out of work are the ones who can least afford it. \$1.6 billion in agriculture-related wages across California’s San Joaquin Valley will be lost in the coming months because of dwindling water.”**

Richard Howitt  
Professor of Agriculture Economics at the University of California-Davis  
*Associated Press, December 12, 2008*

**“We have the time to change. Do we have the will to change? I don’t know.”**

Tim Barnett  
Marine Geophysicist  
Scripps Institution of Oceanography  
*Time, December 4, 2008*



## Sustainable Water for America

*Water reuse and desalination are the “new” sustainable water supplies needed to stimulate the economy while providing reliable supplies for America’s communities. Water reuse and desalination provide Americans with the tools to more effectively address the challenges of growth, climate change, environmental degradation, and energy usage and to provide a safe and reliable water supply.*

Throughout the United States, the water resources that support the economy are under unprecedented stress from droughts and increasing demands on fixed available supplies. The nation’s water supplies are now nearly or already oversubscribed to a degree that many metropolitan regions are unable to reliably meet current demands. Since less than 3% of the world’s water is available for consumption, expansion of historically proven reuse strategies must be pursued to stretch the availability of water. This imperative is compounded by climate change, which is manifested by droughts and shifting or reduced storm events that decrease precipitation. Waters that are used, treated, and ultimately returned to streams constitute an important historic source of increasingly scarce water supply. Without increased education, awareness and support for water reuse and other renewable water supply strategies, greater scarcity of water is inevitable. An enlightened national water policy and program that targets water scarcity, the ability to meet municipal (potable), industrial, agricultural, energy, environmental, and recreational demands is needed. Americans understand that a safe and reliable water supply enhances their standard of living and the nation’s well being. However, increasing demands on precious water resources will only exacerbate the economic instability being faced by America today.

***Water is, has always been, and will always be nature’s wonderful, renewable resource. How will our generation and our community best use this precious resource?***

Global warming and the dwindling water supply sources around the country require the examination of creative options for present and future water needs. Today’s advanced treatment technologies allow for water reuse and desalination. Water treatment technologies have improved health and extended lives of people throughout the world and at home. Some communities, such as those in Orange County, California, use treatment processes to produce highly purified water for indirect potable reuse. We can efficiently reuse water throughout the United States. Water is much too valuable to be used only once.

Water reuse and desalination projects offer a path to an environmentally protective water supply by utilizing proven technologies. Appropriate reuse and desalination can create potable supplies as well as reduce demands imposed on potable water supplies; shift current demand away from over-appropriated rivers, lakes, and groundwater; reduce discharges into receiving waters; and restore critical habitats and wetlands. The total energy required to produce water reuse supplies is often less than the energy required to develop, treat, and convey traditional water supplies long distances, which in turn reduces greenhouse gas emissions.

An example of a highly successful federal program that has established a strong partnership with local governments to develop water reuse and desalination projects is the U.S. Bureau of Reclamation Title XVI program. We strongly urge that this program be expanded and that other federal agencies also develop partnerships with local governments to encourage water use efficiency, reuse, and desalination of impaired local supplies. This “new” federal partnership with state and local governments will assist in securing a safe and reliable water supply throughout the nation.

A recent survey by the WaterReuse Association of its more than 390 organizational members for the purpose of identifying water reuse and desalination projects that are permitted and “ready-to-go” demonstrates that: 1) there is a robust demand for water reuse and desalination projects; and 2) communities across the U.S. are in need of federal support to undertake these projects. The survey identified more than 270 projects in 11 states with aggregate construction costs amounting to more than \$5 billion. This level of construction activity would, if fully funded, translate into as many as 185,000 new jobs. These new drought-proof supplies will provide a long-term reliable supply for the economic future of these communities and at a lower cost than depending on expensive imported water supplies from other watersheds.

A new federal vision for supporting and enhancing the nation’s water supply should include the following elements:

- Coordination among federal agencies to support comprehensive approaches to water supply shortages and water quality impairments;
- Continued and expanded programs and research to support improved treatment and production technologies, public education and acceptance, and reduced energy consumption;
- Increased federal grant assistance to construct projects; and
- Enhanced federal assistance to support capital formation and leverage investment by local agencies to develop projects and water supplies.

## **Solutions**

The WaterReuse Association believes that the following recommendations should be incorporated into a federal response to ensure a safe, reliable, and environmentally sustainable water supply for the nation.

### **Solution 1: Create a Federal Coordination Role to Enhance Collaboration**

- Within the Office of the President (Council on Environment Quality), create an Office of Water Policy and Coordination to ensure that the Administration’s initiatives on water policies (and executive orders) are consistently implemented by all federal agencies.

## **Solution 2: Strengthen Existing Water Development-Related Programs**

- Amend the Bureau of Reclamation’s water recycling program to reflect the changes in western water resource needs by:
  - Elevating the program to a new office within the Department of the Interior to avoid competition with other programmatic demands within the Bureau of Reclamation.
- Amend the Clean Water Act and Safe Drinking Water Act to:
  - Ensure that priorities are established to permit funding through the State Revolving Loan Fund Program (SRF) for projects that utilize treated effluent for beneficial uses, including landscaping, habitat creation, and potable water supplies;
  - Elevate water recycling and desalination project construction as a federal priority for SRF assistance that enhances the delivery of safe, reliable and sustainable water supplies; and
  - Increase yearly authorization and appropriations levels to at least \$5 billion to address documented project need funding gaps.
- Reauthorize the U.S. EPA’s water supply program under the Alternative Water Sources Act and increase authorized funding levels from \$75 million to \$500 million to provide grants assistance to support water reuse and desalination projects.
- Amend the Department of Agriculture’s programs to provide for priority assistance to water projects that can directly address rural community and drought-related water supply shortages:
  - Direct Rural Utilities Services Water and Wastewater Infrastructure Assistance Program to make reuse and desalination programs priorities;
  - Target Environmental Quality Incentives Program (EQIP) to fund reuse and desalination water projects that support watershed-based approaches to improve receiving waters and conservation of farmland and ranching activities;
  - Ensure Agricultural Extension Service Programs support reuse and desalination research and demonstration projects to aid critical sectors affected by drought, such as vineyards and other crop production activities; and
  - Encourage the Department of Agriculture to establish a partnership with the WateReuse Foundation, the WateReuse Association’s sister organization, whose mission is to conduct applied research in water reuse and desalination.
- The production of reliable energy supplies depends on a readily available water supply to ensure efficient exploration, recovery, refining and utilization. Department of Energy programs should be targeted to support the goal of energy independence and the greening of America:
  - Provide \$50 million to the Department of Energy’s renewable energy programs to develop renewable energy technologies to produce reuse and desalinated water supplies;
  - Expand the Department of Energy’s Office of Fossil Energy to provide for federal assistance to support the recovery and treatment of produced waters for use in irrigation or recharge of groundwater supplies;
  - Expand the application of reuse supplies for cooling water supplies through incentives; and
  - Dedicate \$50 million per year of oil royalty payments to support the development and construction of water supply projects related to produced waters and to support the management and disposal of concentrates.

- Expand the Department of Commerce’s technical assistance programs to provide technical and R&D support to promote the development of water reuse and desalination projects to improve economic stability and growth at home and abroad through the development of green technologies that produce water supplies while reducing greenhouse gases.

### **Solution 3: Financing Infrastructure**

- Expand the use of financing tools available to water supply project development:
  - Eliminate state volume caps on water and wastewater private activity bonds to leverage financing of water recycling and desalination facilities through public-private partnerships;
  - Fund industrial projects that can reduce demand for potable water supplies and achieve compliance with federal mandates;
  - Provide tax credit financing of water production facilities to reduce project construction costs of water recycling and desalination facilities;
  - Provide accelerated depreciation for acquisition of technologies to produce alternative water supplies;
  - Provide loan guarantees, credit insurance and other bond-related mechanisms to facilitate capital formation for project construction; and
  - Develop a new federal authority to address water infrastructure needs such as an infrastructure bank that would make loans, loan guarantees, and grants assistance to projects.

### **Solution 4: Create Federal Incentives to Promote Alternative Water Production**

- Adopt by Executive Order performance standards for federal agencies to reduce water consumption demand;
- Require by Executive Order that the General Services Administration facilitate use of recycled water supplies through installation of dual plumbing to allow for the use of recycled water;
- Require by Executive Order that new and renovated federal offices shall be located in buildings that use recycled water to supplement potable demand or to offset demand, where appropriate;
- Provide federal grants and other technical assistance to states, regional and local governments to implement codes and other guidance governing the consumption of water through potable water supplies and encourage water reuse and desalination;
- Ensure that sufficient applied research funding is made available to appropriate federal agencies, non-profit research organizations, and universities to address critical issues such as: 1) the energy/water nexus; 2) salinity management and concentrate disposal; 3) pharmaceuticals, endocrine disrupting compounds, and other trace organic chemicals in water; 4) membrane efficiency and effectiveness; 5) greenhouse gas emissions and the likely impacts of climate change on water supplies and 6) public education and outreach to ensure that there is broad understanding of what is in our water, how the water is treated to make it safe, and using the right water for the right uses;
- Establish a comprehensive research and development and technology demonstration program to advance the public and scientific understanding of technologies, including membranes, to encourage alternative water supply production; and

- Establish federal tax incentives to support U.S. companies in the development of new water technologies that can lower production costs, address byproducts such as concentrates, and enhance public acceptance of such alternative supplies.

**Solution 5: Support Efforts by the U.S. EPA, U.S. Trade and Development Agency (USTDA), and U.S. Department of the Treasury to Promote National Water Interests Globally**

- As part of the U.S.-China Strategic Economic Dialogue, the U.S. EPA, USTDA, and the U.S. Department of the Treasury will: 1) fund a U.S. water trade association presence in China; and 2) fund 12 workshops to make the Chinese aware of the environmental and economic benefits of U.S. advanced water and wastewater technologies. This will both improve the global environment and promote U.S. trade abroad. Consequently, the U.S. should expand this model to other countries and regions of the world (e.g., India, Africa, and the Middle East).



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