

NACWA, AMWA, WESTCAS, WEF 2007 Water Sector Forum on Climate Change Meeting Summary

The public and all levels of government are becoming increasingly concerned about the issue of climate change, and water sector utilities may need to adapt to environmental changes now and in the future. Federal legislation seeking to mitigate climate change is appearing more likely, and utilities may be affected by the legislation and by the local and regional efforts that are already underway. To focus on these issues, the *2007 Water Sector Forum on Climate Change* was organized by NACWA, the Association of Metropolitan Water Agencies (AMWA), the Water Environment Federation (WEF), and the Western Coalition of Arid States (WESTCAS). Over 40 utility representatives attended the *Forum*, which was held in Albuquerque, December 4-5, 2007. Discussion at the *Forum* centered on how water supply and quality issues must be a primary concern in the climate change debate and what steps will be necessary for utilities and water sector associations to ensure that utilities can continue to provide adequate and safe water supplies and protect the water environment.

Forum Speakers Point to Water as the Most Important Climate Change Issue

The *Forum* opened with keynote speaker Brad Udall, Director of the NOAA Western Water Assessment at Colorado University, who emphasized that water supply problems resulting from a changing climate will have a much larger impact on society than rising temperatures. Udall stressed the need for more research on climate change and its impacts, noting that meaningful research results are more likely if the research is conducted in a coordinated manner rather than by individual investigators who are not communicating with each other. Federal funding for research should be increased, and special efforts should be made to ensure that scientific information is more readily available to decision makers. Udall also expressed concerns about the fractured nature of regulatory and legislative actions on climate change. Although the timing for action is not clear, Udall believes that the state of climate change science will improve in the next five to 10 years, enabling better and more informed decisions in the future.

The climate change impacts on water supply were also a primary topic in the policy roundtable with Martin Heinrich, chairman of the Albuquerque-Bernalillo County Water Utility Authority Board, Jeff Peterson, Senior Policy Advisor in EPA's Office of Water, Art Baggett of the California State Water Resources Control Board, and Barry Bitzer, Chief of Staff for Mayor Martin Chavez of Albuquerque. According to roundtable participants, water management approaches will need to change, since historical data and current models may not apply to future conditions and climate change effects. Climate change will likely result in greater variability in precipitation patterns and water supplies, and this variability, not just average conditions, must be considered in local and regional planning. The public must be educated on these issues to build essential support for water conservation and funding of infrastructure improvements, which are vital components of improved water management and climate change adaptation for the water sector. California and Albuquerque were cited as examples of progress in water management: although population has increased, water conservation and better management have kept demands on water supplies stable.

Utilities Provide Perspectives on Climate Change Impacts and Adaptation Needs

The utility representatives at the *Forum* provided their perspectives on how climate change issues will affect their utilities, and the discussion revealed the close relationships between the issues of environmental changes, water supply, and energy use. Most of the utilities represented at the *Forum* have already begun to consider these issues and in some cases, have started taking steps to address them.

Many scientists predict that climate change will result in changes in the amount and intensity of precipitation, but the exact effects that climate change will have on precipitation are unknown. This

uncertainty and possible increased variability in precipitation make long-term planning difficult for stormwater, water supply management programs, and the design of wastewater infrastructure. This uncertainty is likely to cause new challenges for utilities as populations grow, resulting in increased stormwater runoff, increased potable water demand, and the need for more treatment capacity. Utility representatives recognized that innovative methods for dealing with stormwater, such as green infrastructure, will likely be needed to a much greater extent. Water conservation is becoming a concern in more locations, as is the need to diversify water sources, and utilities may need to explore balancing groundwater and surface water supplies, as well as look to alternative sources such as water reuse and desalination. Public education in conservation efforts must continue, and education will be essential to overcome the “yuck factor” often expressed in regards to water reuse.

Moving water from different sources to reservoirs and treatment facilities and ultimately to consumers is an energy-intensive process, and water reuse often requires advanced treatment methods that require more energy. Thus, there may be an increased need to balance water transport and treatment methods with energy demands, especially given that energy will likely become more expensive in the future as greenhouse gas emission reduction requirements increase the cost of electricity. Increased energy use by utilities will also contribute to greenhouse gas emissions and climate change, so net environmental costs and benefits must be considered. Utilities may need to increase their energy efficiency measures and look to alternative energy sources, such as reuse of methane and biosolids produced in the wastewater treatment process.

For clean water agencies, these alternative energy sources may also help reduce their greenhouse gas (GHG) emissions. Although GHG emissions are not currently regulated, clean water agencies may become a regulated industry in the future, depending on the structure of state and national legislation. The U.S. Environmental Protection Agency (EPA) lists the wastewater treatment category – which includes industrial and domestic wastewater treated in both centralized systems and septic tanks or other on-site systems – as the seventh largest emitter for methane and the sixth largest emitter for nitrous oxide. If GHG regulation does occur for the wastewater category, clean water agencies should receive credit for the early reductions in emissions that they have already made. Government incentives or requirements for increased use of renewable energy sources may also affect clean water agencies by making the methane produced in the treatment process more valuable as a fuel source, either for the treatment facility itself or for sale to outside purchasers.

Changes are Needed for Effective Response to Climate Change Challenges

Forum participants identified many examples of utilities that are already addressing climate change challenges, but acknowledged that more action is needed to enable the water sector to continue to provide its high-quality supply and treatment services while responding to these challenges.

The water sector must work to make government and the public understand that “water is water,” allowing water and wastewater industries to work together on water supply issues and water reuse. This has happened in areas where severe drought has resulted in a water supply crisis, such as Australia, and in places where water supply is seen as a security issue, such as Singapore. Water reuse happens implicitly when inland utilities discharge to rivers that have drinking water intakes downstream, and regulatory agencies and the public must accept the same type of reuse for high-quality effluent that is currently discharged into oceans. Some utilities have already had success in partnering on reuse programs, while others have faced insurmountable roadblocks. The water sector must work with government, media, and researches to deliver the message and show that water reuse is not only a viable option, but an essential tool for maintaining water supplies into the future.

The water sector must also seek improved coordination between government agencies and regulations. In some parts of the U.S., regional water planning is being established to find the best management options for limited water supplies, and drinking water, wastewater, and stormwater agencies are forming partnerships to deal with water supply, reuse, and quality issues. Actions are often limited by regulations and jurisdictional issues, though. Agencies such as the Army Corps of Engineers, Department of the Interior, Bureau of Reclamation, and EPA may have conflicting priorities, limiting innovation in water resource management. The Safe Drinking Water Act, Clean Water Act, and Endangered Species Act may all factor into management decisions, resulting in limited options for adaptation.

Forum participants felt strongly that with the federal legislation that has been introduced for climate change mitigation and adaptation, the water sector must speak with one voice to ensure that the interests and needs of the sector are reflected in the legislation. Any approved bills should recognize the importance of water issues in climate change, not just energy issues, and funding for adaptation efforts for the water sector should be included in the legislation. Ideally, wastewater treatment would not fall under GHG reduction requirements, and wastewater associations should continue their current work with EPA to revise GHG emissions estimates for the industry to more accurately reflect actual emissions. The opportunities for utilities to benefit from methane reuse and use of biosolids as fertilizer or a fuel source should also be maximized.

Because of the uncertainties surrounding climate change and its effects, more research and technology development are needed on all the impacts of climate change on the water sector. More accurate climate models need to be developed on a regional basis, allowing utilities to make better long-range plans for water supply and stormwater management. Temperature effects on reservoir evaporation, water quality, and treatment processes also need to be better understood. Research and technology development are needed to address issues with water reuse, such as removal of emerging contaminants, to build confidence in this supply option. Alternative energy sources must continue to be explored, both to improve the energy efficiency of treatment operations and to improve methane and biosolids reuse. The water sector must push for federal funding on these and other research and technology development needs.

Next Steps for Water Sector

The next steps for the water sector regarding climate change issues were discussed at the conclusion of the *Forum*. Actions that were recommended centered on the water sector speaking with a unified voice to bring water to the forefront of climate change issues. Water issues should be viewed from an economic standpoint, not just as an environmental issue. The water associations are currently developing a statement of policy principles focused on adaptation and research needs that will be shared by the sector to help keep a consistent message during advocacy efforts. NACWA, WEF, AMWA, and WESTCAS will continue to work together on climate change issues and work to involve other water sector associations in these efforts.