

## Promoting Innovation to Address 21st Century Challenges

The innovation in the municipal clean water utility sector is both exciting and breathtaking. Not long ago, these utilities were content to do their job out of sight and out of mind using traditional operational techniques. But now, they seek to be more active participants in building long-term economic and environmental sustainability in their communities by pursuing new business models, advancing creative ideas to challenging problems, and producing valuable products. At a time when a whole new set of environmental challenges – such as the impacts of climate change, drought, and growing nutrient impairments – never envisioned by the Clean Water Act (CWA) are combining with unprecedented economic and infrastructure pressures to squeeze utilities from all sides, many clean water agencies are finding that innovation is the only way to address these challenges.

Nowhere is this spirit of innovation more evident than in the Utility of the Future (UOTF) concept. At its heart, the UOTF movement is about utilities moving beyond just complying with the CWA to embrace innovative approaches and technologies related to energy production, water reuse, green infrastructure, non-traditional partnerships, and more – all to improve environmental performance while lowering costs and increasing revenue. NACWA is proud to have spearheaded the UOTF movement and worked with other organizations in the water sector to advance the effort.

But the UOTF concept is just part of the innovation that will be critical to helping municipal clean water utilities meet the environmental and economic challenges of the 21st century. NACWA is advancing and fostering this innovation, both through advocacy of smarter legislative and regulatory approaches, but also by ensuring that certain areas remain free of regulation where appropriate to allow for experimentation and new thinking. The following areas exemplify this:

- *Climate Change & Resiliency* – There may be no greater challenge facing the municipal clean water community over the coming decades than climate change. Changing precipitation patterns and more extreme weather events are already upending years of planning and infrastructure investment based on historical data. These changes are impacting different communities in different ways, but all utilities are now putting more thought into resiliency planning to ensure they are prepared to address these unpredictable conditions.

NACWA is advocating for utilities to have the space and flexibility they need to adapt to these changes in innovative ways, advancing efforts in these areas:

- *Green Infrastructure (GI)* – Communities nationwide have found GI to be cost-effective in reducing wet weather overflows while also providing a host of other ancillary community benefits. GI will continue to be an important tool as communities address increasing precipitation and intensity of storm events from climate change. NACWA helped make GI an acceptable regulatory approach and continues to advocate for its use when communities believe it appropriate.
- *Water Reuse & Recycling* – Climate change and drought have made water an even more precious resource, especially in the West and Southeast, and the role of water reuse will only grow in importance. NACWA and its members are playing a leading role in advancing the discussion of water reuse to a higher level in national policy discussions, reinforcing the important link between clean water utilities and sustainable drinking water supplies for the future.
- *Energy* – Utilities are doing incredible work to improve energy efficiency and to produce energy. This helps the utility's bottom line but also minimizes a community's carbon footprint and even helps advance national energy independence goals.

- *Resource Recovery* – Utilities are increasingly recovering materials from the treatment process and selling them as valuable products. This is particularly true around nutrients, with some utilities installing struvite recovery technologies to create a reusable phosphorus-based fertilizer. NACWA is working hard with EPA to ensure that products such as struvite are not inappropriately regulated in a way that could otherwise limit their use, and will continue advocacy to remove barriers around resource recovery opportunities that were never considered by the CWA.
- *Watershed Approaches* – While the CWA has been successful in controlling impairments from point sources, its severe limitations on addressing non-point sources has become increasingly glaring. Nowhere is this more apparent than nutrients. NACWA has been at the forefront of trying to address these issues through approaches that account for all sources of impairment in a watershed. This can include collaborative work up-stream, trading-based solutions, or more direct regulatory/legislative/legal advocacy options to ensure all pollutant sources are at the table. NACWA is pursuing all these pathways within an innovative watershed context to achieve maximum water quality improvement.
- *Technology & Big Data* – The explosion of computing power, increases in the number and type of sensors and monitoring devices, and growing sophistication of analytical tools are providing utilities with an abundance of data and the opportunity to improve operational and management efficiencies at lower costs than ever before. This new analytical power has tremendous promise in enhancing environmental performance, improving water quality, and lowering the cost to the ratepayer. NACWA is working to facilitate utility deployment of this technology, while ensuring that national policies reflect the best uses of these new advances.
- *New Funding Sources* – In the absence of any new meaningful funding sources from federal or state governments, more and more utilities are exploring innovative financing projects with the private finance sector to help shrink the funding gap. These “public-private partnerships” (P3s) are an important new tool in the funding tool box for utilities. NACWA is advancing these partnerships where they make sense for a utility, both by broadening the conversation between the public utility and private finance sector and by pursuing advocacy to facilitate additional use of private finance in a manner that does not undercut more traditional financing tools.