

PIECING TOGETHER WATER'S FUTURE

By Alanna Maya, Assistant Editor
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How have the events of the last year shaped the municipal water industry, and what does our past mean for the future of the market? Industry analysts and insiders agree that technology is the answer to where we've been *and* where we're going.

"In terms of the past year, the big topics have been disinfection or membrane filtration; desalination; efficiency and optimization; and reuse and recycling, which we expect to [continue to be a big topic] going forward," said Seth Cutler, senior industry analyst for energy and environment with Frost & Sullivan.

Water utilities and industry are looking at ways to use new technology to their advantage. When it comes to monitoring, the networks are getting smarter and better at communicating the data that the public wants and needs to feel secure in the safety of their water supply.

There's been a lot of discussion in recent months about the presence of prefluorinated compounds in certain water supplies across the country. Communities, such as Hoosick Falls, N.Y., and Merrimack, N.H., are trying to understand the impacts of these compounds and how to best eliminate them from their water supplies. Evoqua's John Lombardo weighs in on some of the preferred technologies for treating these emerging contaminants.

"One of the bigger talking points obviously is water quality and lead, and essentially utilities taking a much bigger investigative stance and trying to test the water for more things," Cutler said, "Things that maybe they weren't testing for before, taking a much more holistic look at water quality. [Previously,] you weren't necessarily looking for some of the contaminants that we are looking at now. New industrial actions or runoff changes the water quality [and we are being exposed to things] that we weren't really exposed to before."

With the events of Flint, Mich., and Sebring, Ohio, still on the forefront of everyone's minds, the focus on increased monitoring is likely to continue. Consequently, the industry will respond with more monitoring devices and technology than ever before. Sensors, both to test water quality in distribution lines or at manufacturing plants, are now being hooked up to information systems to alert and monitor water quality remotely and continuously, and this technology will continue to be developed in the coming year.

"[People are looking at] not just water quality but smart chemical dosing, so ... there is a real monetary value that you will get back through optimization, but when you talk about water quality, certainly there is a reduction in risk which could be valued itself in a certain way," Cutler said. "Public health is something that you want to make sure is always tackled and that the quality of water that people are receiving for drinking and bathing and cooking is really where it should be."

The ultimate driver of the industry will continue to be regulation. In the wake of the Flint crisis, President Barack Obama signed a \$5 million emergency measure for the city and the EPA ordered the state and city to take steps to counteract lead contamination and disclose information regarding outcomes of



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testing to the public. In September, the Senate passed the Water Resources Development Act (WRDA), authorizing funding for infrastructure improvement projects throughout the U.S. The Senate bill stipulated that water utility companies would be required to notify customers within 15 days of an excess lead level, and EPA would notify the public after 15 days if a utility had not already done so. The House passed its own version of the bill and the legislation is currently in committee awaiting consideration.

“Where compliance is required, everyone is going to be reacting pretty quickly,” Cutler said. “If you add in the risk factor, water quality for some municipalities may start to be seen as a monetary factor and as a driver for investment that can respond to legislation or other factors.”

It is unclear how President Elect Donald Trump’s policies will impact the industry, but a Bloomberg News article from November suggested, “Under Trump, the Environmental Protection Agency and the Interior Department will probably use a lighter hand to enforce Obama-era rules regulating drilling on public land and limiting methane emissions from oil and gas sites ... Trump already signaled the approach, vowing to ‘refocus’ the EPA on what he called its core mission ‘of ensuring clean air and clean, safe drinking water for all Americans.’” Trump has said he will increase government spending on infrastructure improvements, including waterways and pipelines, while also pledging to repeal the Clean Water Rule.

“On regulation, we may see things relax,” Cutler said when asked about how the new administration might affect the market. “Regarding the shift from coal to natural gas power plants, that may slow. This will decrease investment in water treatment technology for the new plants. There may also be further decreases in public sector funding, with an increased expectation of revenue generation or private financing.”

Kevin Yttre, managing director at Grace Matthews, an investment bank that exclusively focuses on the chemicals and advanced materials industry, echoes that sentiment, citing budget cycles as being the main roadblock to investments in this area on the public utility side.

“For years, people have echoed infrastructure problems and population growth, but for me the fundamentals are that the public utilities and their budget cycles - and how they actually operate - make it very difficult for companies to come in and provide a total cost or total solution,” Yttre said.

“That recipe makes it harder for investors to buy utilities rather than industrial applications because it is just a much harder selling process. So, when you talk about investments on the public utilities side, you still see investments more from compliance and regulatory mandates than from anything else. On the industrial side, it’s run more like a business, but that is not really a fundamental change.”

Yet, despite finding challenges, innovation in the water sector continues to grow. Data analytics, new instrumentation and meter-reading applications and services continue to flood the market. “When you look at the macro trends in the water industry, the fundamentals definitely have a recipe for growth,” Yttre said. “[In terms of products] there are clearly a lot of unmet needs in the marketplace, so you will continue to see more of these businesses pop up. Now, how many of these survive, who knows, but you will see more and more of it, which is a good sign of a healthy market dynamic.”

One of the biggest areas for growth in the product market has been metering and meter reading software. Gone are the days of reading meters by hand (in most areas of the U.S.) and using a pen and paper to keep track of figures and billing. At the forefront of this technological revolution is Badger Meter. The company’s BEACON Advanced Metering Analytics (AMA) cloud-based software suite offers managed, traditional fixed network, mobile, and consumer engagement solutions to supply utilities meter reading and reporting needs.

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“What we have seen over time is a reluctance [on the part of] water utilities to want to take on the ownership of a fixed network system,” said John Fillinger, director for utility marketing for Badger Meter. “They want the benefits, they want the ability to get hourly reads, they want the ability to provide additional value and benefits to their end customers, but they are not in a position with the reduction in staff to support a proprietary network or to load the software and maintain the network going forward.”



Water testing will continue in the coming year as laboratory technology becomes more advanced.
Photo Credit: US EPA

Instead, Fillinger said, utilities have been quick to embrace public network technology, including the use of cellular endpoints and communications through the cellular network. This eliminates the utility having to manage a proprietary network and install gateways.

“We offer a managed solution, so we as the manufacturer are responsible for managing the software, which is all hosted in the cloud. Utilities are now able to see updates continuously or as they are made,” Fillinger said. “The utility is able to have as many users as they want or need, and now the data is available to be shared, not only with those in the utility but with end consumers. They can provide the data to the end customers through consumer engagement tools, and now utilities can partner with their end water users to be able to understand, monitor and control their water usage.”

With ongoing drought conditions in parts of the western U.S., controlling water usage and managing recycling and reuse is certainly where we are headed. Increased water rates in parts of California, for instance, which is in the midst of a five-year drought, will drive the reuse sector.

“As water becomes more expensive, [users] don’t just want to see that go down the drain, they are going to start to capture it and reuse it,” Cutler said.

Desalination technologies are viewed as a stable investment, and green infrastructure projects help to capture as much water as possible for reuse in cities across the country. In an op-ed for the *Sacramento Bee*, Timothy Quinn, executive director for the Association of California Water Agencies, wrote, “A permanent shift in the way Californians use water is apparent ... local water agencies and their ratepayers have been investing heavily in water-use efficiency and drought-resilient supplies for the past two decades.”

The power of data analytics and optimization will continue to grow, too, as utilities find new ways to operate within the Internet of Things (IoT).

“I think everyone is pretty quick to understand that [IoT is where we are headed],” Cutler said. “But, putting it into practice and understanding how it is going to be digested and deployed and used has always been problematic, whether it is the vast amount of data that you are going to generate or connecting disparate data points between cities that might have different systems, where the different systems might have the same data point labeled differently.”

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He pointed out that there are a lot of practical issues that make it difficult to link up utilities with smart analytics and IoT but added, "I think we are starting to round a bend where there is a good partnership between organizations that sell a lot of these technologies and solutions to incorporate them into the utilities themselves.

"Understanding how utilities operate and consume data will be big in the coming year for manufacturers of these types of systems," he continued, "and utilities will need to be able to understand the differences in the systems available to them to make the best choices. We are already starting to see changes in the



space happen. The acquisition of Sensus by Xylem, for example; and Verizon's move into the water space with their analytics platform reflect a greater interest in the space and the potential for greater revenue."

But not all is rosy, according to Cutler.

"What will probably be a barrier in the future is the fragmentation of the landscape of different types of solutions or different companies that provide similar solutions," he said.

"Utilities are trying to think about how they will actually integrate it all into one efficient system. The whole point of IoT is that the greater connectivity is going to increase efficiency. But we should also be thinking about how those link up to provide an even more connected utility. One of the changes I think that is going to be interesting going forward is some of the first big mergers and consolidations and people building out a consolidated platform that can be a single go-to organization, or perhaps you'll have integrators out there that can take all the various platforms that utilities work with and start to integrate them into a singular system or at least an umbrella system so that they can speak to each other."

As the market changes and grows, responding to the needs of various small to medium systems will be a challenge, but mergers over the last year have shown that this is an area that is important to the landscape. Until then, utilities will continue to try to accomplish more with less.

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