



Industrial Water — 10 Questions Answered

A Q&A with Rodney Aulick, Executive VP of Industrial Water and Wastewater Treatment, Siemens Water Technologies

By Kevin Westerling, Editor, Water Online



Water issues — of availability, quality, and infrastructure, among other concerns — have taken on such import that they are now receiving increased attention in both public and private sectors. The same is true, especially so, in the industrial markets for which water is such a vital component of production. With the rise of water scarcity, energy costs, and government regulations, a sound water policy is vital to the survival of many industries. As the executive VP of industrial water and wastewater treatment for Siemens Water Technologies, Rodney Aulick helps companies not only survive, but thrive in this challenging environment.

I recently spoke to Aulick about the water demands of the industrial sector, the unique needs of differing markets, and the essential elements of a successful water management program.

What is the biggest issue facing the industrial water sector today?

The most significant issue — or opportunity, as I see it — is the quest for sustainability. Many industries have previously enjoyed the benefits of establishing their water and wastewater operations in developed countries where municipal infrastructure complemented their needs. However, as key industries have ventured into developing countries, many are finding the municipal infrastructure to be inadequate or nonexistent.

These same developing regions are where some of the more severe challenges exist in water scarcity and quality. Many governments in these regions have utilized new regulations to create awareness and action within targeted industrial markets, prompting companies to adopt critical new technologies to address these challenges.

How influential have government regulations been in promoting sustainable water management?

Regulations have influenced change, but only from a regional perspective, since the regulations occur in these settings. However, these regional regulations have had broader influence to create a global awareness of the water challenges to industry.

This awareness has enabled companies to actually form water management programs and policies that did not exist before, and is setting the stage for the changes we are beginning to see around such critical topics as recycle/reuse, near zero-liquid discharge, water-positive facilities, etc.

But water reuse regulations are still in their infancy. Currently, reuse is driven by water scarcity, along with specific local economic incentives linked to environmental performance.

What are the technology advancements that will allow companies to meet new, aggressive regulatory requirements?

Membrane advancements of the past 20 years will continue to evolve to further address both the incoming process water applications of industry and tighter industrial wastewater regulations. New developments in electrochemical and advanced oxidation technologies, as well as specific enhancements to well-established technologies such as clarification and ion-exchange, will allow companies to meet current aggressive and future regulatory requirements in an attainable and cost-effective manner.

What impact has the rising cost of water and energy had on industrial operations and sustainability?

It has been very positive to see that sustainability is one of the key strategic levers for most Fortune 1000 companies, and that they envision sustainability as being consistent with their profit mission. For most of these companies, water usage and energy savings are the largest factors in sustainability.

Although “green” has always been industry’s goal, making it economically viable is the challenge. In the past, subsidies and incentives have driven the growth around sustainable actions by companies. Today, sustainability — especially around the close relationship of water and energy — is a major initiative for most of the industrial markets and the leading companies within these markets.

Investing in new technologies such as energy-efficient lighting, building automation programs, and low-energy water treatment technologies are important steps toward meeting their sustainability goals.

Considering its notoriously high cost, is desalination a viable solution to the rising demand for water?

With a fraction of a percent of the global water constituted as fresh water, desalination is quickly becoming the *only* solution for many.

For some regions, desalination has been utilized for many years — typically through large-scale municipal seawater desalination projects. However, technologies are being introduced that expand the solution into other niche markets such as high-recovery desalination from industrial wastewater. This has several markets intensively interested in addressing two of their core sustainability challenges — where to find quality water to meet their processing needs, and what to do with the wastewater generated from their processes — with one solution.

Siemens has been aggressively investing in various technologies that address both ends of this spectrum — from electrochemical technologies that can remove salts from seawater at half the typical energy consumption to deploying the latest membrane technologies that selectively target harmful constituents in wastewater streams.

Are water treatment companies, in general, heavily investing in research and development?

Water treatment companies are not necessarily investing more significantly in R&D compared to other industrial markets, but they are making more strategic investments than in past years. For example, in the past many R&D investments were focused on creating broad-based new technologies that then needed to be refined to meet the changing needs of the markets. Today, these investments are occurring on a much more targeted basis to address the immediate challenges that specific regions and markets are facing.

How does Siemens customize its solutions for varied market segments?

Every industry has its own specific needs and challenges based on how integral water is to their core processes, as well as their physical locations. One fundamental difference from market to market is the balance of risk versus reward in applying sustainability solutions. For example, food and beverage applications can be significantly regulated, which impacts the potential cost of change that new technology for water reuse would bring to their facilities. Siemens develops and deploys technologies to make the risks more manageable and make sustainability an economic reality.

How do you address the demands of high-purity markets such as the semiconductor, pharmaceutical, and laboratory industries?

The high-purity markets tend to be more highly regulated than other markets, further increasing the risk versus reward equation. They still have many of the same fundamental challenges of other markets with sustainability, but with some unique twists. As some in these markets look to outsource what used to be core to their business processes — like manufacturing — standardization of key processes such as water purification and treatment equipment has become a necessity to manage their high standards of quality control. New technologies will continue to be developed, but they must undergo increased due diligence as approvals for their use require additional time and extensive justification.

Is the trend among industrial customers today more toward customized or standardized product solutions?

In the past, industrial customers have enjoyed the ability to specify their own water and wastewater technologies for their specific needs. In most instances, this resulted in a customized solution that the water treatment company would then provide on a project-by-project basis.

Today, these same industrial customers are now looking towards key water technology providers like Siemens to deploy standardized solutions for their needs. This can be attributed to internal customer resource constraints, compressed project schedules, customer requirements for faster access to innovative solutions with reduced lead times, and the lower overall cost of ownership derived from repeatable standard solutions.

What universal benefits can water treatment companies provide to companies seeking a sustainable future?

Although water is a critical component of production, many industries recognize that their core competence is not water. They are relying upon water treatment companies to not only provide the technologies to meet their sustainability and business growth needs, but to also assure this technology performs as expected and cost effectively. This is where service becomes essential.

Service, by definition, is applied locally, but technological advances that Siemens is developing in remote monitoring and performance-based services are transitioning service from reactive events to proactive events — minimizing downtime, improving process efficiencies and costs, and increasing overall sustainability. Leading water treatment companies of the future will not only have technologies and solutions to meet the water challenges of industrial clients, they will also have a service strategy to meet the long-term needs of their clients.