2017 State of the Industry

Results based on 271 responses

Much of 2017 has been a year of uncertainty for business in the water and wastewater industry. Despite the mass media attention paid to the happenings in Flint, Mich., and the public's attention to and desire for updated water and wastewater infrastructure, plans have not moved forward quickly.

President Donald J. Trump's infrastructure plan promises a massive influx of funding in the amount of $200 billion allocated in the budget and an additional $1 trillion in private investments, but it is not clear how that money will be allocated between roads, bridges, transportation upgrades, and, of course, water and wastewater infrastructure.

What is clear, however, is the industry's outlook. Compared to 2017, respondents to the Water & Wastes Digest State of the Industry survey are far more optimistic about their business' future in 2018. With that in mind, there are a handful of market areas in water and wastewater that are seeing technological advancements, innovations and growth in adoption. The general trend among all these advancements is greater efficiency, whether that is energy efficiency, water conservation or simply time savings for operators and workers.

Resins & Pipe

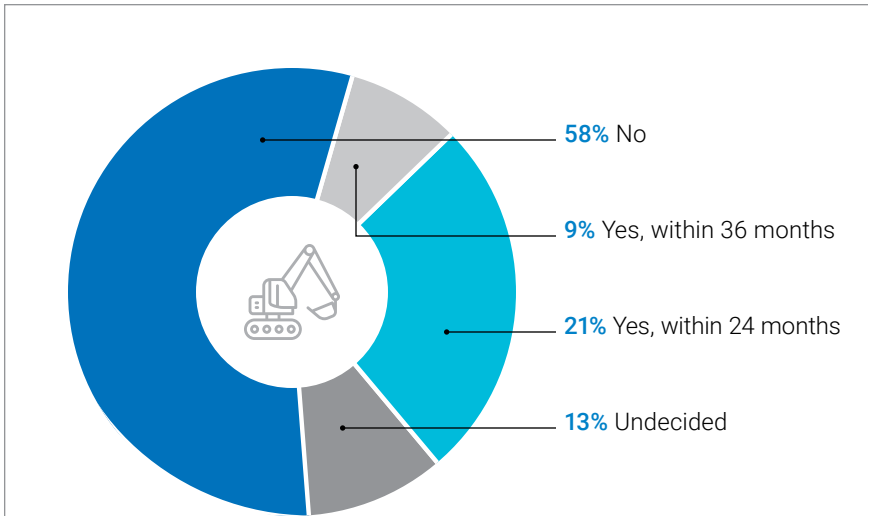
When it comes to pipe, much has remained the same for decades. However, some chemical companies are looking for ways to improve materials used in pipe. Tjerk Lenstra, senior business manager for Noryl resins portfolio in Europe for Sabic, said he sees movement away from metal pipe to allow for more design freedom.

"From an engineering point of view, our growth theme is replacing metal," Lenstra said. "Metal is becoming,

Are you planning new construction of water and wastewater facilities?

More than one-fifth (21%) of respondents are planning construction of new water and wastewater facilities within the next 24 months. An additional 9% have new construction plans within the next 36 months.

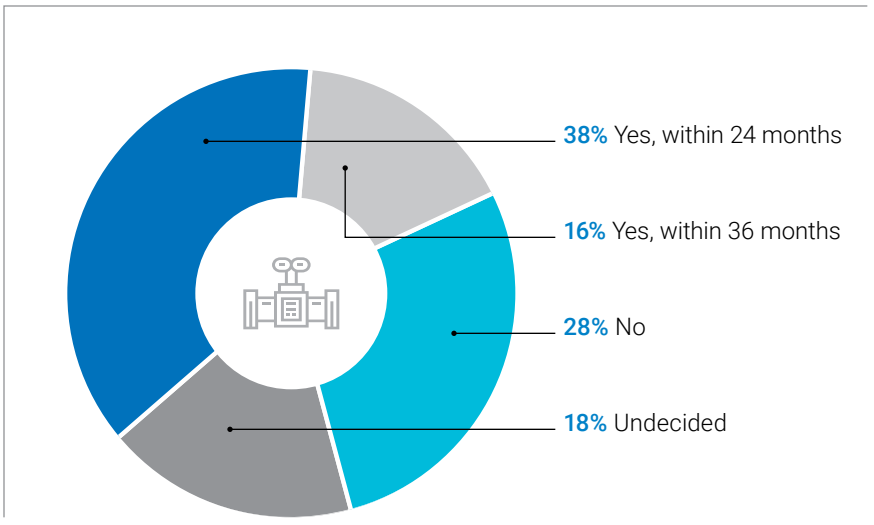
PERCENT OF MENTIONS



Are you planning to upgrade current water and wastewater facilities?

More than half (54%) are planning to upgrade their facilities. Thirty-eight percent plan to do so within the next 24 months, with another 16% planning an upgrade within 36 months.

PERCENT OF MENTIONS



sometimes, more difficult to be used. It's more expensive. There is less design freedom. And plastics, especially the high-end plastics we're talking about here, we have more design freedom."

Among those changes to pipe design are new kinds of plastics, the introduction of specialized plastic weave to handle greater pressures, and infusing pipe with other materials, such as glass, for easier installation, as it does not expand as much. This makes it easier to cut pipe to size for certain applications. Lenstra said all these innovations have been tested in Sabic's labs to meet the needs of those looking for new pipe and to stay ahead of changing regulations.

"We try to follow and be in advance of regulations," Lenstra said. "We try to improve on regulation to provide products that are safe, reliable and can be used by a lot of customers."

Meters

Meeting standards requirements is a big part of developing new pipe and resin technology, and it also could be a big part of metering standards in 2018. In the past several years, players in the market have pushed for a standard for electronic meters, and it seems 2018 may finally see that come to fruition as a standard is open for comment.

John Fillinger, director of marketing for utilities for Badger Meter, said this standard could make a big impact on the industry, particularly for those who were not ready to adopt electronic meters without more information.

"They want to make sure that [the American Water Works Assn.] has weighed in, provided their input and design specs, and that the meters would meet minimum requirements before they purchased them," Fillinger said. "That doesn't mean that mechanical meters (positive displacement meters) will go away any time soon, but it will take some of those utilities who were sitting on the fence [and get them to the other side]."

Mechanical meters measure velocity through moving parts, while electronic meters use ultrasonic technology and other elements of the system to calculate the same information. Over time, accuracy of mechanical meters begins to fall off as the components slow down and wear out. Fillinger was keen to note, however, that mechanical meters will still be desired and purchased in the future because of their tried-and-true engineering; electronic meters simply add another metering option with a longer life span.

Driving the meters market, he added, is remote monitoring of systems to find leaks before they become a major issue. This, he said, ties into utilities' desire to provide better customer service. By finding leaks earlier and fixing them quicker, end users will not be hit with an enormous bill they do not expect.

And when it comes to connectivity for meters, Fillinger said utilities are trending toward fixed network systems that use existing cellular towers to transmit data from meters. That data can be stored and analyzed by utilities to better understand usage and make a complex situation less complex.

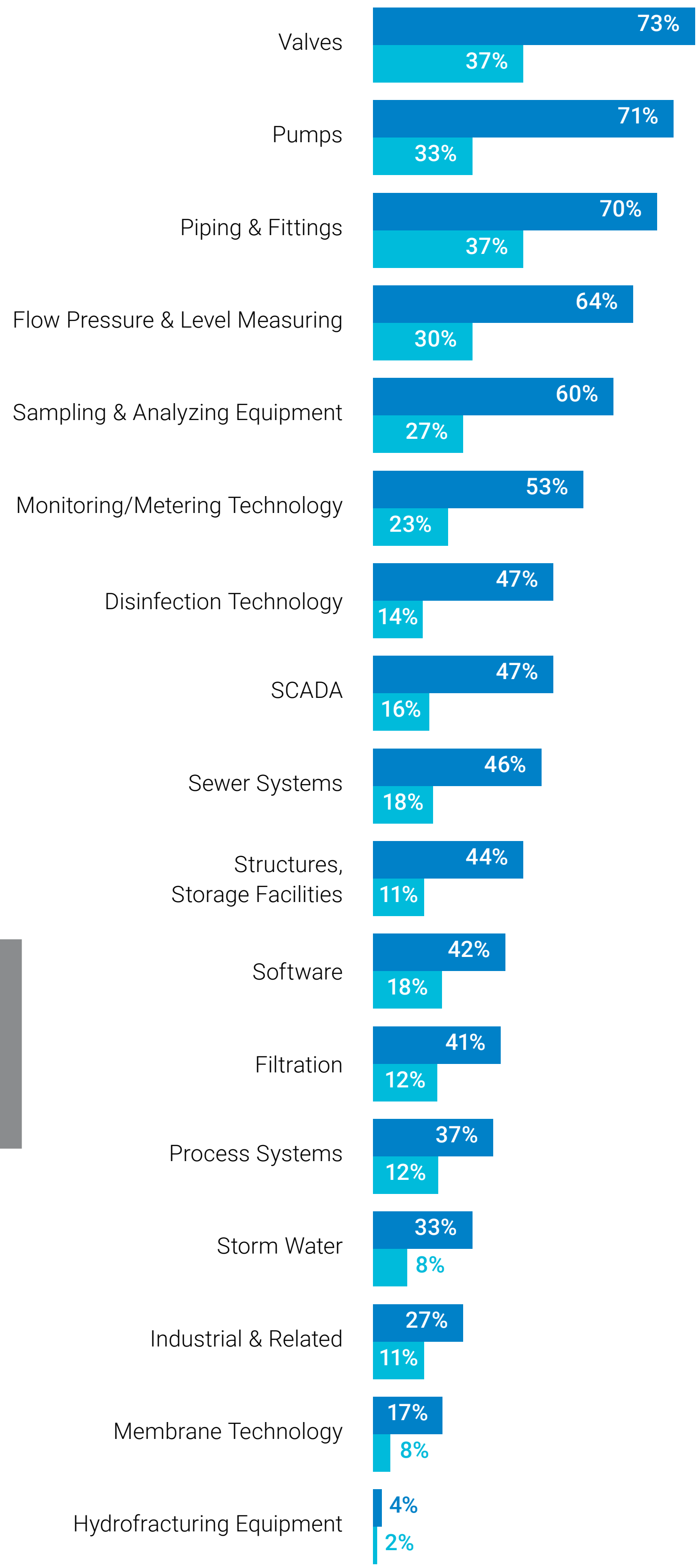
Which of the following product categories do you currently use/specify and which do you plan to purchase within the next 24 months?

Seventy percent of respondents currently use pipe and fittings. More than two-thirds currently use valves and pumps, both with 73% and 71% of mentions, respectively, followed by flow and pressure level equipment (64%) and sampling/analyzing equipment (60%).

More than one-third plan to purchase pipe and fittings, valves, and pumps within the next 24 months.

PERCENT OF MENTIONS

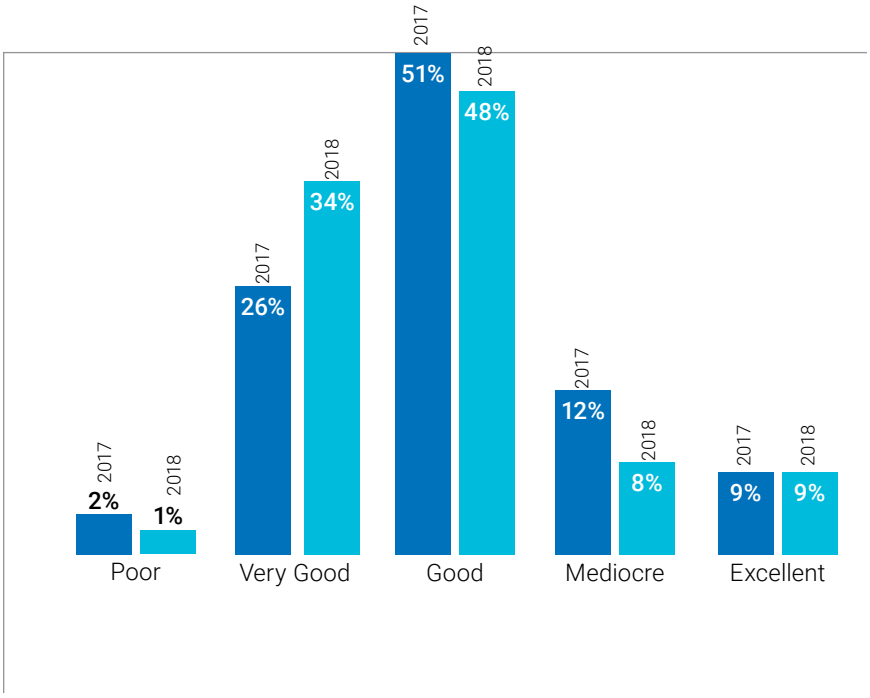
Currently use
Plan to purchase



How do you rate this year (2017) and what do you expect to rate next year (2018) as a business year for your company?

More than eight in 10 (86%) rated this year good or better. Even more rated next year in a positive light with 91% expecting it to be good or better and 9% stated it will be excellent.

PERCENT OF MENTIONS



Human Machine Interfacing

With the advent of cloud computing and cloud data management, human machine interfaces (HMIs) have become an interesting market to follow. Companies are finding ways to make remote monitoring through supervisory control and data acquisition (SCADA) systems the norm.

Communication protocols for equipment, namely OPC Unified Architecture and Distributed Network Protocol, are driving this. Remy Echavarria, PLC/HMI product manager for Delta Products Corp., said these protocols have become a requirement for new products entering the market.

"People are wanting that built-in connectivity. We see a lot of people looking for remote maintenance and remote connectivity," Echavarria said, noting the information can be stored in the cloud, which also has become attractive for customers. "All you do is log into the cloud account and you can access it from anywhere in the world. You can use that to bug issues in your plant or even actually view the status of your plant."

Echavarria said this immediate access to information can cut costs. Plant managers do not need to send an engineer or operator out to a plant when they receive an alarm that something is wrong. They can see where the issue is on their computer, phone, or mobile device and address it remotely.

Combined Heat & Power

In the past five years, combined heat and power (CHP) technologies have been rising in popularity at a speedy rate. Clifford Haefke, acting director of the Energy Resources Center for the University of Illinois at Chicago, said there are several reasons for this, the greatest being regulatory changes and a push toward greater energy efficiency to deal with increasing energy costs.

"We're also seeing treatment plants looking to become net zero," Haefke said. "It's energy efficiency projects. It's also generating your own energy on site whether it's solar—or if the have anaerobic digesters, can they use the biogas to generate electricity and thermal energy for their facilities? For those plants trying to go net zero, CHP definitely seems to be one of the components that they need to achieve this."

According to the Department of Energy Combined Heat and Power Installation Database, there are 220 CHP installations in the U.S., with 64 of those installations occurring in the past five years. Haefke said the growing trend toward CHP does not look to be regional in nature; rather, it seems to find success in smaller plants.

"Part of that is due to receiving high-strength wastes that they're importing in; not just from the normal sewage system, but getting it delivered to the plant—fats, oils and greases—substrates that have high energy content that need to get disposed of," Haefke said. "When it gets brought into a plant, it can help boost the biogas production."

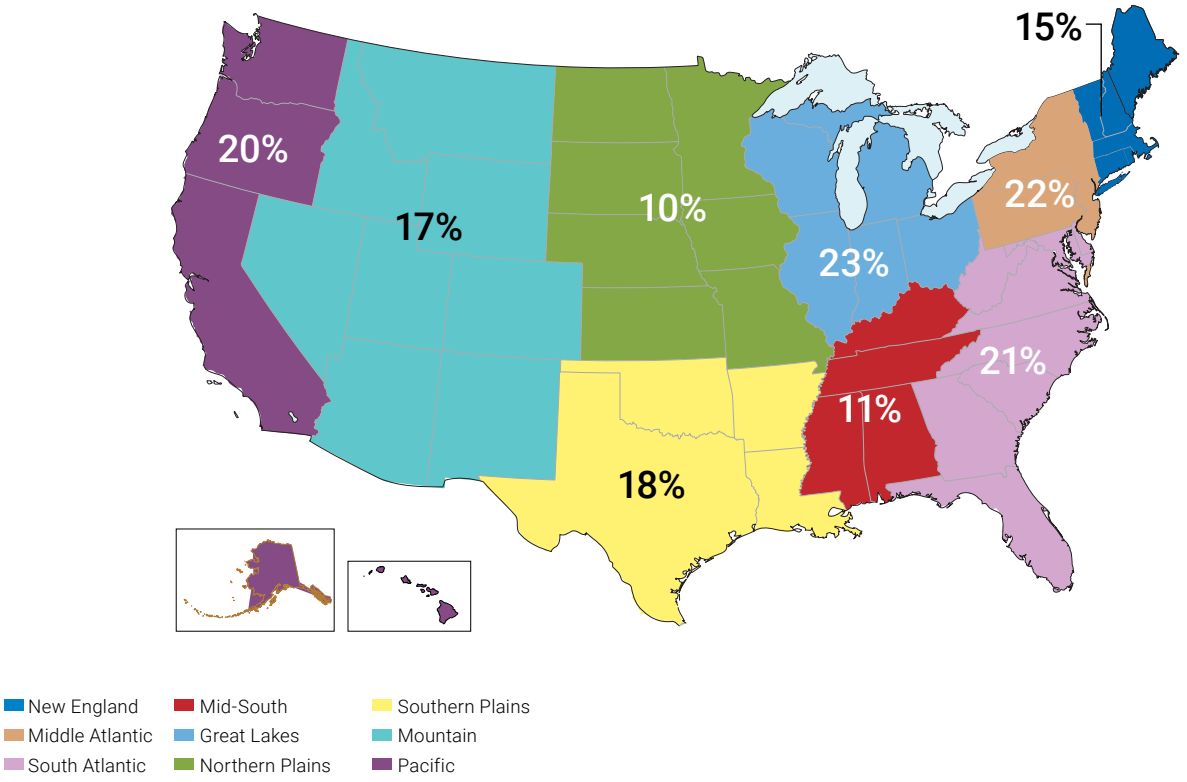
While reusing biogas is the most popular way to incorporate CHP, natural gas also is an option. Haefke said the interest is there for natural gas, but no projects have come to fruition on that front yet.

Lastly, while net zero often is the goal of CHP, there have been instances where plants have overproduced energy

In which area(s) does your organization do most of its work?

The vast majority of projects in the U.S. occur on the coasts or around Lake Michigan. The least common location for work are the mid-South states (11%), which includes Tennessee, Kentucky, Alabama and Louisiana.

PERCENT OF MENTIONS



and sold it back to the grid. This is rare, however, as once energy is resold, a new set of regulations governing power-producing facilities comes into play.

Ultrafiltration & Reverse Osmosis

Ultrafiltration (UF) and reverse osmosis (RO) innovations are trending toward greater efficiencies for better conservation of water and circular systems, following similar reasoning to CHP. Most notable for RO adoption is its growing use in the industrial sector, where minimum liquid discharge (MLD) and zero liquid discharge (ZLD), driven by regulations in China and India, are forcing facilities to adapt.

Eduard Gasia Bruch, region marketing manager for RO and UF for Europe, Middle East and Africa for Dow Water & Process Solutions, said the key trend for RO is wastewater reuse, especially in regions plagued by water scarcity, such as India and Africa.

"Basically, there are competing sources of water, so the withdrawal of water from fresh sources is more expensive, as well as there are increasing trends in regulations for discharge," Bruch said. "So all this leads to wastewater reuse—so maximizing recycling, maximizing the recovery of the use of water and minimizing the waste."

While ZLD is required for Chinese industrial applications, namely power plants, it is an expensive process to maintain, as it must generate a lot of heat for evaporation chambers. As such, Bruch said MLD is gaining popularity elsewhere, as it recovers 95% of water but cuts expenses considerably—up to 50% in some cases.

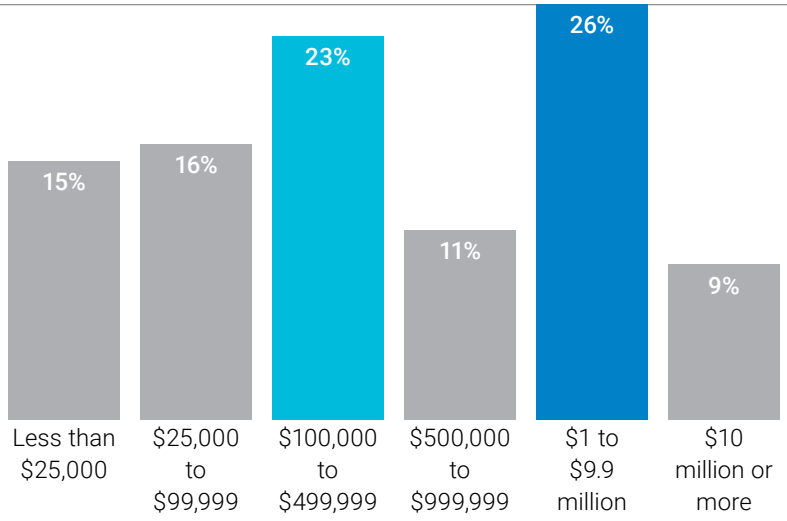
MLD trends also have led to more adoption of UF to pretreat water before it goes through an RO system, Bruch said, but the biggest drivers for UF are seen in the municipal market. New UF technologies improve total dissolved solids and salinity levels for drinking water, he said.

"In the municipal space, we see also a lot of potential in sub-Sahara Africa, in North Africa—in those areas where the drinking water is really scarce," Bruch said. w&wd

What is your company's approximate yearly budget on water-related products and/or services?

The average budget for water-related products and services is currently $2.5 million.

PERCENT OF MENTIONS

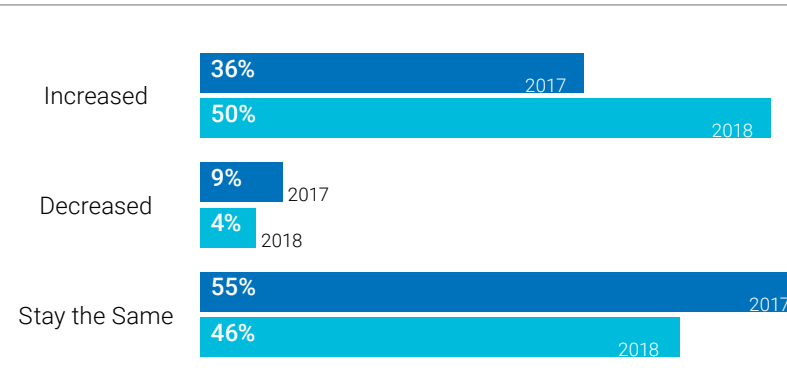


Average annual budget: $2.5 million

How has your organization's revenue changed in 2017 compared to last year, and how do you expect it to change in 2018, relative to 2017?

Compared to 2017, budgets are up. For 2018, fewer respondents indicate their budgets are being cut (4%) and fewer indicate they'll remain the same (46%), leading to a 14-point increase in those seeing budget increases for the coming year.

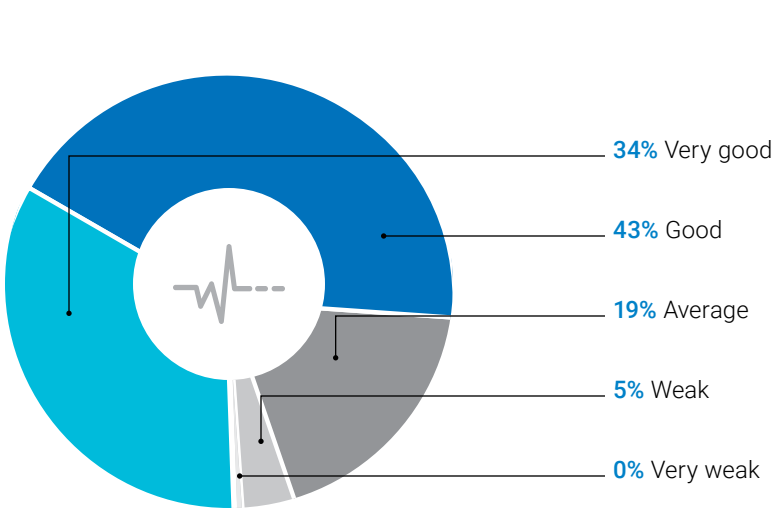
PERCENT OF MENTIONS



How would you rate the overall health of your firm today?

More than three-quarters (77%) of respondents rated the health of their firms good to very good. Just 5% thought current firm health was weak or very weak.

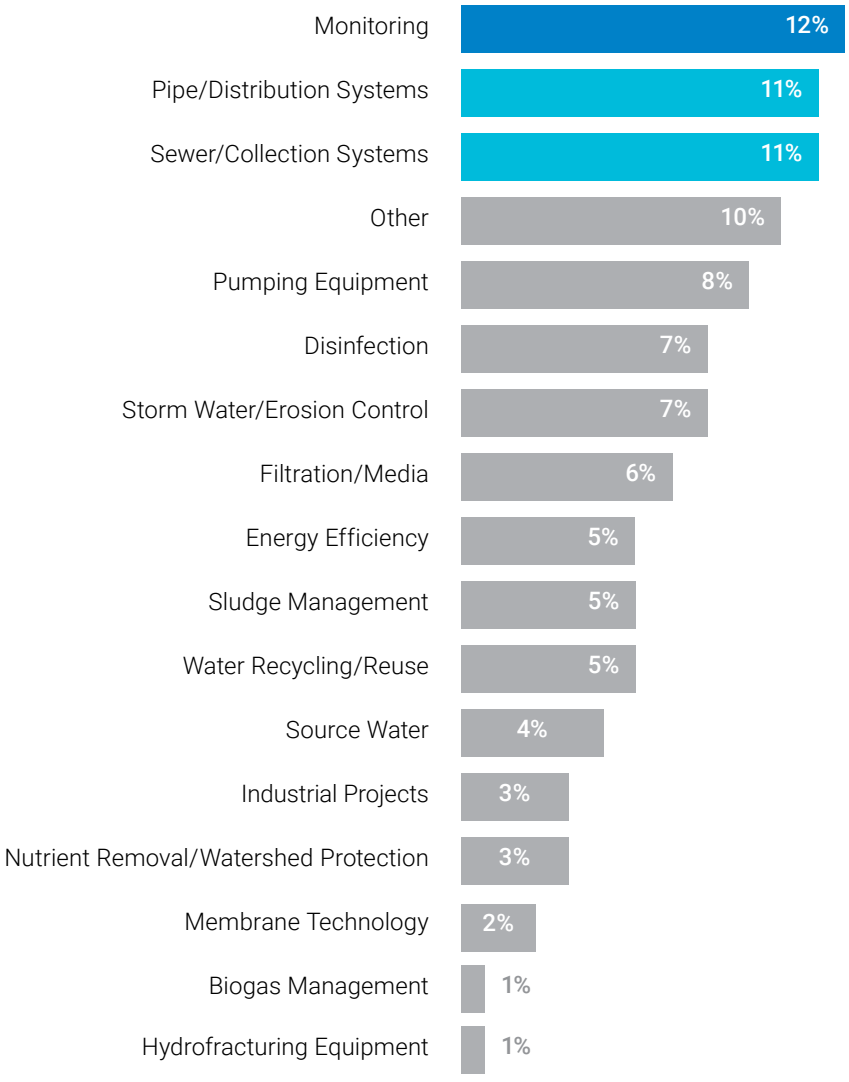
PERCENT OF MENTIONS



What percentage of your budget over the next 24 months will be invested in the following services and/or projects?

The largest percentage of respondents' budgets will be invested in monitoring over the next 24 months. This will account for 12% of budget expenditure. Pipe and distribution systems and sewer and collection systems are the next highest expenditures, with 11% each, allocated over the next 24 months.

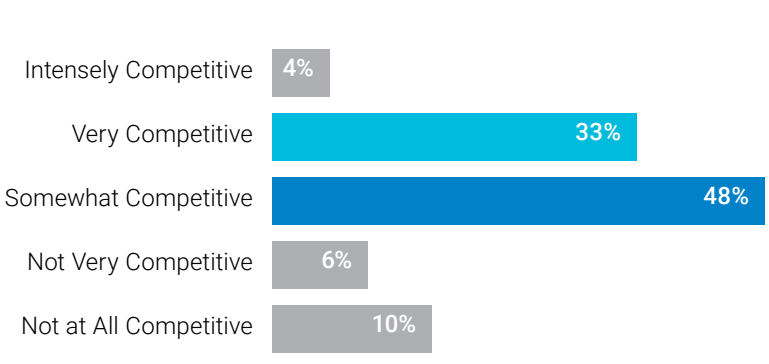
AVERAGE PERCENT



How competitive is the construction/ materials market in which your organization competes?

Competition in the industry may not be intense (4%), but respondents did see competition being competitive, with 33% seeing it as very competitive and 48% seeing it as somewhat competitive. Surprisingly, 10% saw their sectors as not competitve at all

PERCENT OF MENTIONS



Please rate how important each of the following topics will be in the coming year to your plant/facility. (1 to 10 rating, 1=not at all important, 10=very important)

From a list of 22 industry topics, state and federal regulations and compliance were the highest rated in importance. State regulations received an average rating of 8, and federal regulations received an average rating of 7.9. The next most important topic was funding, with a rating of 7.5. Maintenance and upgrades received a rating of 7.4, followed by infrastructure management, with an average rating of 6.9.

AVERAGE OF MENTIONS