



MANUEL P. TEODORO AND TRAVIS E. WHISENANT

# Water utility executive leadership, Part 1: Who our CEOs are

THIS ARTICLE IS THE FIRST  
OF THREE THAT DISCUSS  
THE FINDINGS OF THE WATER  
RESEARCH FOUNDATION  
REPORT WATER UTILITY  
EXECUTIVE LEADERSHIP FOR  
THE 21ST CENTURY.

Success or failure in any organization can hinge on executive leadership. A 2008 study on effective utility management (EUM), sponsored by the US Environmental Protection Agency (USEPA), AWWA, and other related organizations, identified leadership as the “first key to management success” (USEPA et al, 2008). Yet despite the centrality of management leadership to utility effectiveness, very little is known about utility chief executive officers (CEOs) and the executive leadership of US utilities in general (Gerstberger & Gromala, 2010). A study sponsored by the Water Research Foundation (WRF), *Water Utility Executive Leadership for the 21st Century*, begins to address this lack of knowledge and research.

This article, the first in a series of three on water utility executive leadership in *JOURNAL AWWA*, is based on the WRF study. The study uses a new scientific survey of water utility CEOs and six case studies to capture the demographics, educational qualifications, professional backgrounds, career paths, attitudes, and behaviors of the CEOs who lead US utilities. This information reveals the characteristics of water utility CEOs and identifies important patterns of behavior among CEOs by assessing the degree to which



A full report of this project, *Water Utility Executive Leadership for the 21st Century* (order 4342), is available for free to Water Research Foundation subscribers by logging on to [www.waterrf.org](http://www.waterrf.org).

CEOs' self-perceived strengths and weaknesses align with utilities' present and long-term challenges. As basic research, this project's primary contribution is in laying the groundwork for improved training, recruitment, and promotion of water utility management.

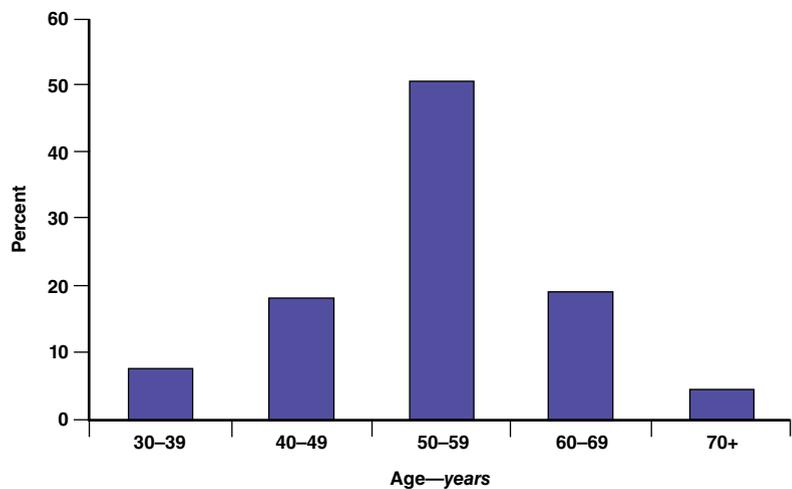
This first article provides a descriptive summary of the US water utility executive corps and begins at a demographic level, describing the ages, genders, races, ethnicities, and family statuses of CEOs who lead the drinking water community. The discussion then turns to the education, disciplinary/professional backgrounds, and career paths of water utility CEOs. These findings will tell us who water utility CEOs are and the paths from which they emerge.

## UNDERSTANDING THE METHODOLOGY

A clear and consistent definition of the term CEO is essential to a valid, useful study on executive leadership. A clear definition is especially important because water utility CEOs work under a variety of titles (e.g., general manager, executive director, director). The great diversity of organizational forms under which water utilities operate can cause confusion in identifying the CEO of a given utility. This study defines a water utility CEO as "an organization's highest-ranking professional who directs the drinking water utility, exclusively or in combination with other utilities and/or services." Excluded from this definition are elected officials and general purpose city managers; however, public works directors who manage water utilities alongside other services are considered CEOs for purposes of this study.

The empirical centerpiece of this study is a semistructured telephone interview survey of CEOs who lead US water utilities that gathered a variety of information on CEOs' backgrounds, demographics, behavior, and attitudes. The survey data allow for rigorous and flexible anal-

**FIGURE 1** Utility chief executive officers by age group ( $n = 120$ )



Source: Teodoro, 2013

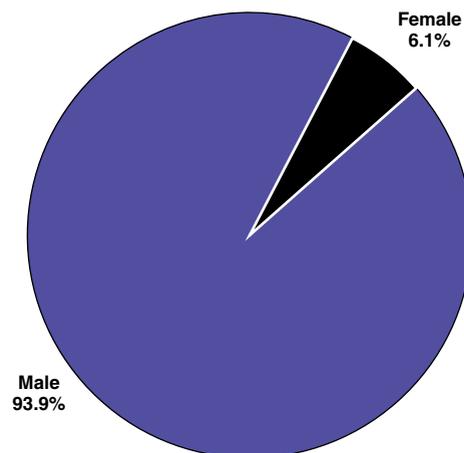
Unweighted distribution is shown.

ysis of utility CEOs by using a randomized, stratified sample of 300 US utilities—drawn from the USEPA's Safe Drinking Water Information System—whose CEOs were invited to participate. Because the goal was to learn about the entire country's CEOs, random sampling was essential to the generalizability of the findings. However, the sample was

stratified to ensure inclusion of CEOs from around the United States and from agencies of many sizes.

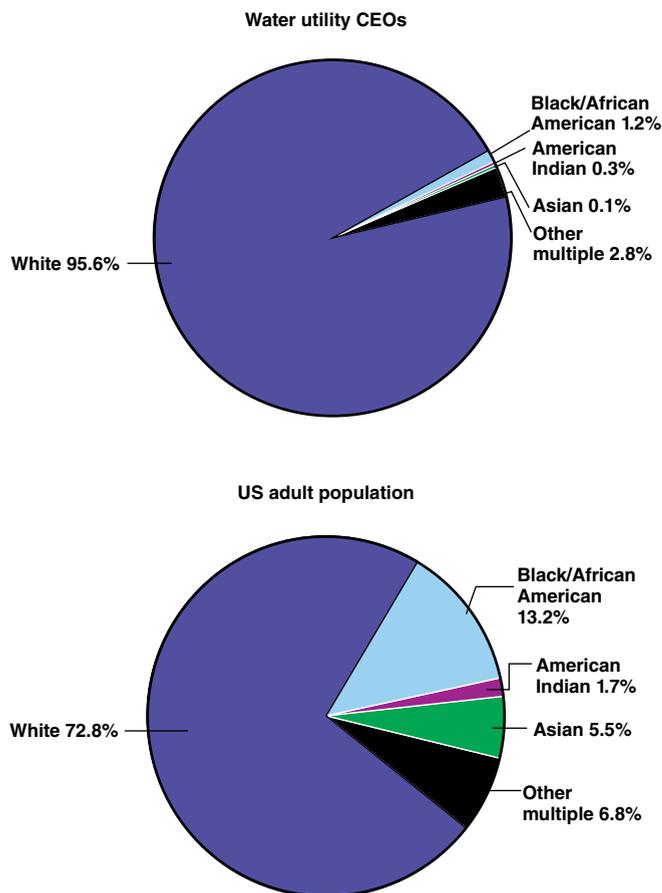
Utilities that serve more than 3,300 customers serve the overwhelming majority of the US population. However, a similarly large majority of utilities is very small, serving populations of fewer than 3,300. A simple random sample of

**FIGURE 2** Utility chief executive officers by gender ( $n = 297$ )



Source: Teodoro, 2013

**FIGURE 3** CEOs by race ( $n = 122$ ) compared with general population



Sources: Teodoro, 2013; US Census Bureau, 2010

CEO—chief executive officer

utilities would overrepresent these very small utilities and yield little data on CEOs from the medium and large utilities that serve most of the US population. Therefore the present study stratified the sample by size to draw inferences about utility management in general (Dziegielewski & Opitz, 2004). Poststratification weights were then applied in the analytical phases of the study to correct for potential sample biases caused by stratification.

A total of 169 CEOs participated. This overall response rate was very strong, with interview participation

of 57.9% of valid cases and 56.3% of total cases. Among the participants, 120 completed the online questionnaire for a completion rate of 71.0%. These levels of response are very high relative to most studies of CEOs, which typically garner a 20–30% response.

In addition to the survey, a series of six in-depth CEO profiles was undertaken, which are used to provide illustrations of the many issues that utilities face and the ways that CEOs address them. The CEOs were chosen for their broad appeal and ability to capture a range of utility leadership,

with an emphasis on selecting CEOs whose utilities face situations and challenges that are likely to resonate with many utility managers. The six CEOs profiled are

- Roger Bailey, San Diego Public Utilities; San Diego, Calif. (since the WRF study, Bailey has become the general manager and CEO of Central Contra Costa Sanitary District, Martinez, Calif.);
- Anthony Bellitto, North Penn Water Authority, Lansdale, Pa.;
- Ray Hoffman, Seattle Public Utilities, Seattle, Wash.;
- Randy Moore, Iowa American Water, Davenport, Iowa;
- John Renfrow, Miami-Dade Water and Sewer Department, Miami, Fla.; and
- SuEllen Staggs, Sugar Land Public Utilities, Sugar Land, Texas (since the WRF study, Staggs has become the Woodlands division manager at San Jacinto River Authority, Conroe, Texas).

## REVIEWING CEO DEMOGRAPHICS

As a group, water utility CEOs are relatively homogenous and generally not representative of the US adult population in demographic terms.

**Age.** The ages of water utility CEOs are approximately normally distributed at a weighted mean of 53.8 years (Figure 1). Utility CEOs range in age from 32 to 76 years, with a median age of 54 years. Nearly three quarters of CEOs are older than age 50. The average water utility CEO therefore is approximately 15 years older than the average US adult (US Census, 2010) and 10 years older than the average utility worker (Grant et al, 2008).

**Gender.** Water utility CEOs are overwhelmingly male; just 6.1% are female (Figure 2). This gender distribution is clearly disproportionate with respect to the broader population, but such gender imbalances are typical among CEOs across many fields. For example, business corporations show a similar gender distribution: in 2012, just 4.2% of businesses included in the *Fortune* 500 had a female CEO (Sellers, 2012).

However, the proportion of women CEOs across fields and professions has increased significantly over the past decade, and the proportion of female water utility executives is likely to increase in the future. Together with the findings on the age of utility CEOs discussed previously, trends in the gender composition of the drinking water community suggest that “in the coming years the proportion of female general managers [CEOs] in water utilities will significantly increase” (LaFrance, 2012). Several surveys across a period of years would be required to confirm this apparent trend.

**Race and ethnicity.** Water utility CEOs are also overwhelmingly white and non-Latino: 95.6% of CEOs are white and just 1.3% identify as Latino or Hispanic (see the sidebar on page 26). As shown in Figures 3 and 4, these proportions are significantly disproportionate relative to the US adult population. However, the racial and ethnic makeup of water utility CEOs is similar to that of *Fortune* 500 CEOs (Zweigenhaft & Domhoff, 2011).

**Marital and family status.** Water utility management appears to be a marriage-friendly job, or perhaps it attracts people who are likely to be married. As Figure 5 shows, a tremendous majority of water utility CEOs are married, especially in comparison with similarly aged adults in the United States. The percentage of CEOs who are parents of minor children (35.9%) is similar to the percentage for the US adult population (33.1%).

### EXPLORING CEO PROFESSIONAL BACKGROUND

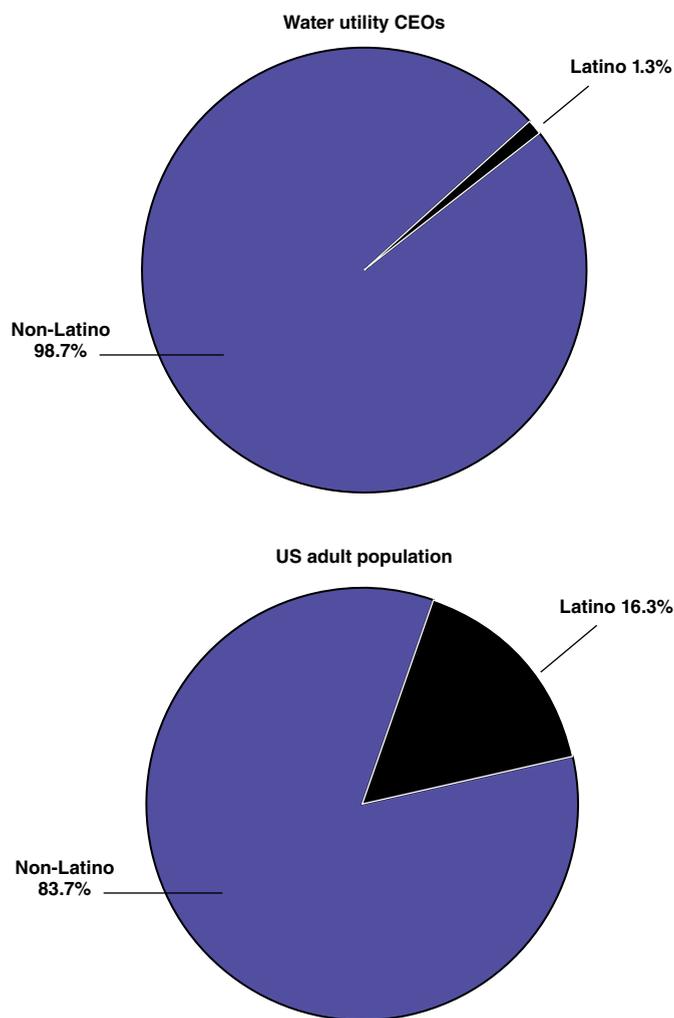
As a group, US water utility CEOs are very highly educated. They come from a variety of disciplinary and professional backgrounds, and they advance to the CEO position from a variety of career paths.

**Level of education.** All surveyed utility CEOs had earned at least a high school degree, and 46% of utility CEOs have bachelor’s degrees,

compared with just 28.2% in the US population as a whole. Even though relatively few water utility CEOs hold professional or doctoral degrees, they are still more than twice as likely to hold a master’s degree. Also there is a pronounced positive relationship between utility size and CEO educational attainment, as the unweighted averages in Figure 6 show.

CEOs in the smallest sampled utilities (serving populations of 3,300–10,000) have an average educational attainment of 13.7 years, or slightly less than an associate’s degree, and more than one third of them have only a high school degree. By contrast, CEOs of utilities in the largest stratum of sampled utilities (population > 250,000) have an average educational attain-

**FIGURE 4** CEOs by ethnicity (Latino and non-Latino) ( $n = 122$ ) compared with general population



Sources: Teodoro, 2013; US Census Bureau, 2010

CEO—chief executive officer

# Race, Ethnicity, and Leadership

The extent to which race and ethnicity inform a chief executive officer's (CEO's) approach to his or her job varies according to several factors. Executives' ideas about their racial or ethnic identities may lead them to address diversity issues directly and proactively. For example, as an African-American professional who has built a career in a majority-white industry and serving majority-white communities, Iowa American Water President Randy Moore is especially sensitive to his standing in the minority community. "I have a personal commitment to give back to the community," he says. "I especially want to give back to the African-American community in whatever way I can because of the opportunities that I had. I want to give financially and with service, but the best way that I can do that is to be a positive example." Moore's concern for civil rights and opportunities for minority workers extends beyond utility management into active community

involvement. He was an executive board member of the Black Heritage Council and currently serves as an Iowa Civil Rights Commissioner.

Community, institutional, and workforce contexts can condition the effects of CEOs' racial and ethnic identities as well. Director of Miami-Dade Water and Sewer Department John Renfrow's Latino ethnicity may be an important part of his personal identity, but it does not figure prominently in his organizational leadership. The community that Renfrow serves is majority Latino (64.5%); not surprisingly, Latinos are strongly represented at every level of his organization. "Most of our technical folks here are from South American or Cuban backgrounds; they're Hispanic," says Renfrow. "[Ethnic diversity] hasn't been a problem here . . . that just reflects the population, the community." This context may help explain why Renfrow's approach to his work as utility CEO is largely unconnected with his ethnic identity.

ment of 17.2 years (between a bachelor's and master's degree). Analysis of career paths also indicates that CEOs who were hired from outside are, on average, more highly educated than those who were promoted from within (this is discussed later in the article in more detail).

These results indicate at least two important things about utility executive jobs. First, leading a water utility

does not require a specific level of education—for example, advanced graduate degrees are relatively uncommon—but the job is sufficiently complex that those without a high school degree do not hold it. Second, a bachelor's degree is an effective requirement for the CEO in large- and medium-sized utilities; every surveyed CEO in the highest stratum held at least a bachelor's

degree, and about half had advanced graduate degrees.

**Field of education.** Table 1 shows CEO education levels by discipline. Among CEOs with college degrees, a large majority hold degrees in applied fields, such as engineering, finance, law, or administration. About 30% hold degrees in the natural sciences (e.g., biology, chemistry, physics) or mathematics. Only 6.2% of CEOs hold degrees in the social sciences (e.g., economics, political science, psychology), and less than 1% hold degrees in the humanities (e.g., art, literature, philosophy, history). Almost 30% of CEOs have formal education as engineers. Figure 7 shows the share of CEOs with and without engineering degrees.

**Service, tenure, and selection.** The median tenure of currently serving CEOs is six years, although average tenure is 9.9 years, indicating that relatively few long-serving CEOs

**TABLE 1** Chief operating officer college degrees by discipline ( $n = 122$ )

Degrees by Discipline	Weighted Percent
Applied fields (e.g., administration, engineering, finance, law)	87.8
Natural sciences and mathematics	29.7
Social sciences	6.2
Humanities	0.9

Source: Teodoro, 2013

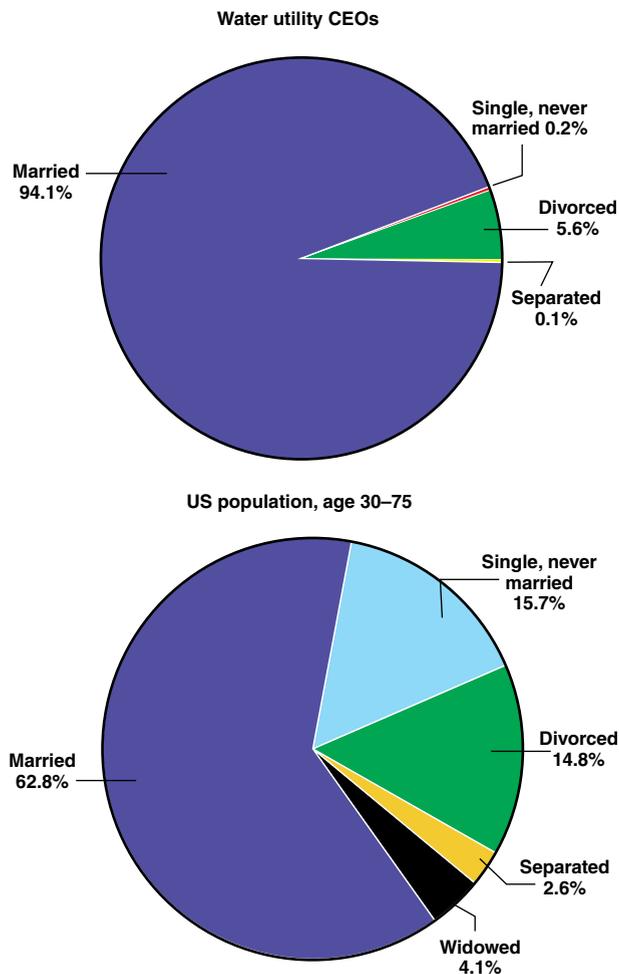
Total percentages are greater than 100 because chief operating officers may have degrees in multiple disciplines.

drive up the average. Most CEOs have long service in the utilities field, although there were exceptions: a handful of CEOs—including some who lead the largest utilities in the country—had no utilities experience before assuming their current positions. Most CEOs had lengthy experience in the public sector and comparatively little in the private sector. This finding is unsurprising because the water utilities that serve approximately 89% of the US population are owned and operated by the public sector. Table 2 shows these and other aspects of CEOs' career service and tenure. In addition, nearly two thirds of utility CEOs were promoted from within the organizations that they currently lead, with slightly more than one third were hired as CEO from outside the company.

**Career paths.** Do individuals with different backgrounds and characteristics take different paths to the CEO job? Are CEOs who were promoted from within different from those who were hired from outside? The WRF study examined the relationships between career path and gender, race/ethnicity, age, marital status, education, public sector experience, and private sector experience. Engineers' career paths were also analyzed to determine whether they were significantly different from those of nonengineers (see the sidebar on page 28).

Four individual-level variables were found to be significantly correlated with career path: age, education, private sector experience, and marital status. On average, CEOs who were hired from outside are six years older and have 7.2 years more private sector experience than those who were promoted from within. These findings most likely indicate that CEOs are hired from outside based in significant part on their experience in other organizations. Educational attainment displays an association with career path, because CEOs who were hired from outside have,

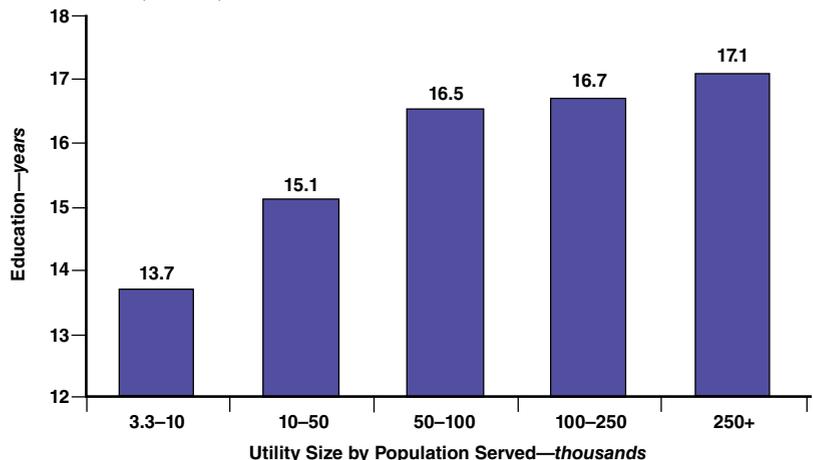
**FIGURE 5** CEO's marital status ( $n = 117$ ) compared with general population



Sources: Teodoro, 2013; US Census Bureau, 2011

CEO—chief executive officer

**FIGURE 6** Average chief executive officer educational level by utility size ( $n = 122$ )



Source: Teodoro, 2013

on average, about one year more education than those who were promoted from within. This result suggests that educational credentials are especially important qualifications for utilities that are evaluating CEO candidates from outside the organization, a finding that is consistent with past research on executive career paths (Teodoro, 2011; Datta & Guthrie, 1994).

It is interesting that among CEOs who had been hired from outside, engineers were significantly more mobile as executives. Among CEOs hired from outside, engineers had been CEO in an average of 1.25 utilities before arriving at their current positions, compared with 0.43 previous CEO jobs for non-engineer CEOs. Married CEOs were significantly more likely than their

unmarried colleagues to have been promoted from within. This result likely reflects the increased social and economic costs of job mobility that accompany marriage. However, this finding should be viewed with caution because only 10 of the sampled CEOs were unmarried at the time of the survey. Additional research may be able to further explore this relationship.

## Engineering and Organizational Leadership

North Penn Water Authority (NPWA) Executive Director Anthony Bellitto is an engineer by training, one who identifies strongly with his profession. From business cards to annual reports, the abbreviation "PE" (professional engineer) follows Bellitto's name on virtually every official document on which it appears. He speaks passionately of engineering as a public service calling and has published articles in engineering journals, including an *Issues in Engineering* essay that calls for engineers to "preserve the integrity of our profession" (Bellitto, 1982).

In his 1989 classic of organizational theory, *Bureaucracy*, James Q. Wilson observed that the engineering profession emphasizes quantitative measurement, technology-based solutions, and systems design in addressing organizational challenges. Bellitto's leadership of NPWA reflects his professional background and Wilson's observation in several ways. He is systematic in his approach to managing and mentoring employees, and stresses efficiency and systems design in a major reorganization of the utility. The influence of Bellitto's engineering sensibilities on his leadership is perhaps clearest in his emphasis on water quality. "Everybody knows that water quality is job number one," he says.

Throughout the organization, NPWA staff members stress water quality when discussing their work. The most important priority at NPWA is "First, last, and always water quality," said Director of Engineering

and Operations Daniel Preston. Preston pointed to NPWA's participation in the Partnership for Safe Water as an example of how "water quality drives our business." He also highlighted Bellitto's decision to maintain a laboratory at NPWA's treatment plant, even though many utilities of comparable size outsource their quality testing to independent laboratories. Preston observed that NPWA's laboratory and its personnel act as "champions for water quality" in the organization. In this way, Bellitto uses the organization itself as a means of communicating his priorities to the entire staff. Interviews with other NPWA staff members resulted in similar emphases on water quality with remarkable consistency at every level and function within the organization:

- "We don't just want to meet [US Environmental Protection Agency] standards, we want to go beyond them."
- "Water quality is our main concern."
- "Our most important message to the public is that the number one priority is always water quality."
- "We're trying to grow in a way that allows us to maintain water quality."

Despite this singular stress on water quality, "Quality is the thing that I worry about least," Bellitto notes with a smile, "because we have the right people and systems in place." Ever the engineer, Bellitto approaches NPWA itself as a system that he has aligned to produce and deliver high-quality water.

## ASSESSING CEO RESPONSIBILITIES

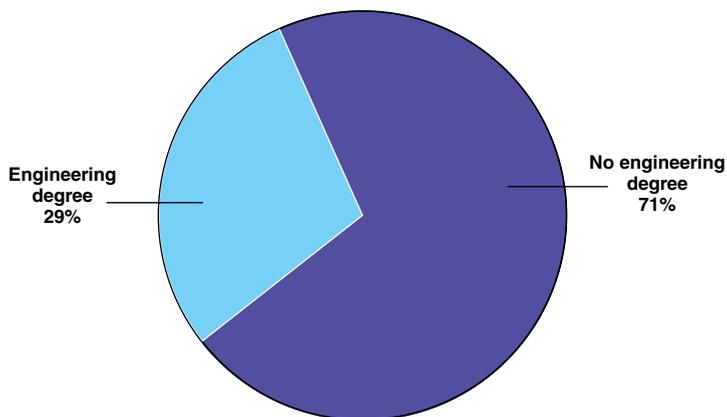
Finally, in the United States, many water utilities are part of organizations that provide other functions, so CEOs of water utilities have functional responsibility for other services. Figure 8 shows the range of services other than drinking water that the surveyed executives manage. A large majority of water utility CEOs also lead sewer utilities, and a substantial proportion manage stormwater and streets services. Overall, 78.7% of water utility CEOs have responsibility for services other than drinking water.

## CONCLUSION

This article provides a detailed view of who water utility CEOs are in demographic, educational, and professional terms. Water utility CEOs are as a group demographically homogenous—in age, marital status, race and ethnicity, and gender. However, when water utility CEOs' educational background and work experience are examined, diversity, not homogeneity, is the main finding. CEOs arrive with a variety of degrees from various fields, experience in utilities, and in the private sector. Recognizing this diversity can affect water utility leadership searches drastically. There is no universal "ideal candidate" or dominant career path for water utility CEOs; rather there are several paths and backgrounds, each with its own merits, which are explored more fully in the subsequent articles in this series. In addition, this information serves to guide those aspiring to top executive posts in utility management. By understanding the varied backgrounds of water utility CEOs, potential candidates can make more informed decisions when shaping their careers.

To the extent that the drinking water community believes that diversity in its management ranks is valuable in serving an increasingly diverse population, the homogeneity of water utility CEOs presents a challenge.

**FIGURE 7** Chief executive officer professional education: engineer versus nonengineer ( $n = 120$ )



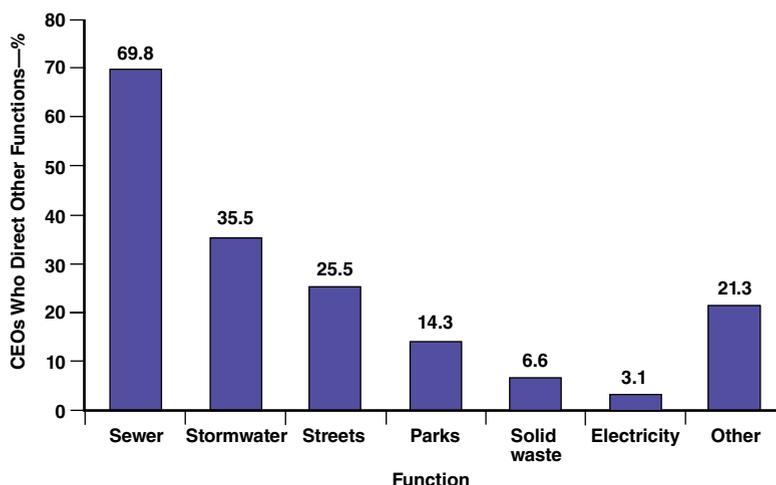
Source: Teodoro, 2013

**TABLE 2** Chief executive officer length of service and tenure ( $n = 169$ )

	Mean	Standard Deviation	Minimum	Maximum
Tenure in current job—years	9.9	7.1	0.5	34.0
Past jobs in any field	4.3	2.1	1.0	12.0
Past jobs as chief executive officer	0.3	0.8	0.0	4.0
Years in utilities industry	23.9	9.5	2.0	44.0
Years in public sector	24.5	9.9	0.0	55.0
Years in private sector	5.1	8.8	0.0	35.0

Source: Teodoro, 2013

**FIGURE 8** Other functions supervised by water utility chief executive officer ( $n = 121$ )



Source: Teodoro, 2013

This initial study helps define a starting point and frame the discussion and development of different recruitment, hiring, professional development, and promotional practices to address demographic diversity. Similar studies in the future can help monitor how CEO demographics, educational qualifications, and work backgrounds are changing with the evolving needs of water utilities and the communities that they serve.

The two subsequent articles in this series will relate other key findings from the WRF study. Part 2 “What Water Utility CEOs Think,” to be published in the April 2014 issue, will explore the priorities, sensibilities, and attitudes that water utility executives bring to their jobs. Part 3 “What Water Utility CEOs Do,” to be published in the August 2014 issue, will examine the ways that water utility executives allocate their time and interact with people inside and outside of their organizations. Using this series of articles, water utilities can make informed decisions about what type of candidate fits their needs best. This study’s findings offer mid-career professionals a sense of what the drinking water community’s executive ranks look like and what the job in the corner office entails.

## ABOUT THE AUTHORS



*Manuel Teodoro (to whom correspondence should be addressed) is an associate professor at Texas*

*A&M University, 2010 Allen Building, College Station, TX 77843 USA; mteodoro@tamu.edu. His research focuses on executive leadership and innovation in public organizations. He earned the 2013 American Society for Public Administration Best Book Award for his book *Bureaucratic Ambition*, which explores the ways that executive career systems shape management behavior and organizational outcomes. He has*

*more than 16 years’ experience in utilities policy and research, has served on AWWA’s Rates and Charges Committee, and currently serves on its Workforce Strategies Committee. Travis E. Whisenant is a doctoral student at Texas A&M University, where his research focuses on public administration and public policy.*

## REFERENCES

- Bellitto, A.J., 1982. The Ethics of Serving Two Masters: An Engineer’s Dilemma. *Issues in Engineering*, 108:4:238.
- Datta, D.K. & Guthrie, J.P., 1994. Executive Succession: Organizational Antecedents of CEO Characteristics. *Strategic Management Journal*, 15:7:569.
- Dziegielewski, B. & Opitz, E., 2004. Water Demand Analysis. *Urban Water Supply Management Tools* (L.W. Mays, editor). McGraw-Hill, New York.
- Gerstberger, R.L. & Gromala, K.A., 2010. How Effective is Utility Leadership? *Journal AWWA*, 102:1:46.
- Grant, R.C.; Dodds, E.; Bhattarai, R.; James, D.; Love, N.; Rowland, K.; Settles, P.; Taylor, T.; & Watson, L., 2008. *Final Report, Task Force on Workforce Sustainability*. Water Research Foundation, Denver.
- LaFrance, D., 2012. Generational Changes: The New Team’s Gender Balance. *Journal AWWA*, 104:6:6.
- Sellers, P., 2012. Fortune 500 Women CEOs Hit a Milestone. <http://postcards.blogs.fortune.cnn.com/2012/11/12/fortune-500-women-ceos-3/> (accessed Oct. 11, 2013).
- Teodoro, M.P., 2013. *Water Utility Executive Leadership for the 21st Century*. Water Research Foundation, Denver.
- Teodoro, M.P., 2011. *Bureaucratic Ambition: Careers, Motives, and the Innovative Administrator*. The Johns Hopkins University Press, Baltimore, Md.
- Teodoro, M.P., 2010. Contingent Professionalism: Bureaucratic Mobility and the Adoption of Water Conservation Rates. *Journal of Public Administration Research and Theory*, 20:2:437.
- US Census Bureau, 2011. American Community Survey. [www.census.gov/acs](http://www.census.gov/acs) (accessed January 2012).
- US Census Bureau, 2010. Age and Sex Composition, 2010. [www.census.gov/prod/cen2010/briefs/c2010br-03.pdf](http://www.census.gov/prod/cen2010/briefs/c2010br-03.pdf) (accessed January 2012).

USEPA (US Environmental Protection Agency), Association of Metropolitan Water Agencies, American Public Works Association, American Water Works Association, National Association of Clean Water Agencies, National Association of Water Companies, & Water Environment Federation, 2008. *Effective Utility Management: A Primer for Water and Wastewater Utilities*. USEPA, Washington.

Wilson, J.Q., 1989. *Bureaucracy: What Government Agencies Do and Why They Do It*. Basic Books, New York.

Zweigenhaft, R.L. & Domhoff, G.W., 2011. *The New CEOs: Women, African American, Latino, and Asian American Leaders of Fortune 500 Companies*. Rowman & Littlefield, Lanham, Md.

<http://dx.doi.org/10.5942/jawwa.2013.105.0170>

## ADDITIONAL RESOURCES

Leadership Competency Modeling: Creating a Framework for Effective Leadership Development (PDF-PowerPoint). Gerstberger, R., 2012. AWWA Annual Conference. Catalog No. ACE\_0077101

Water Utility Executive Leadership for the 21st Century: Who Our CEOs Are and How They Work (PDF-PowerPoint). Teodoro, M., 2012. AWWA Annual Conference. Catalog No. ACE\_0076920.

Visit the AWWA store at [www.awwa.org/store](http://www.awwa.org/store) for more.



JOURNAL AWWA welcomes comments and feedback at [journal@awwa.org](mailto:journal@awwa.org).