



Smart Management for  
Small Water Systems

# Ask the Expert: *Developing the Water Workforce*

March 27, 2019 | Webinar

[www.efcnetwork.org](http://www.efcnetwork.org)



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# Logistics

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for the duration of the webinar

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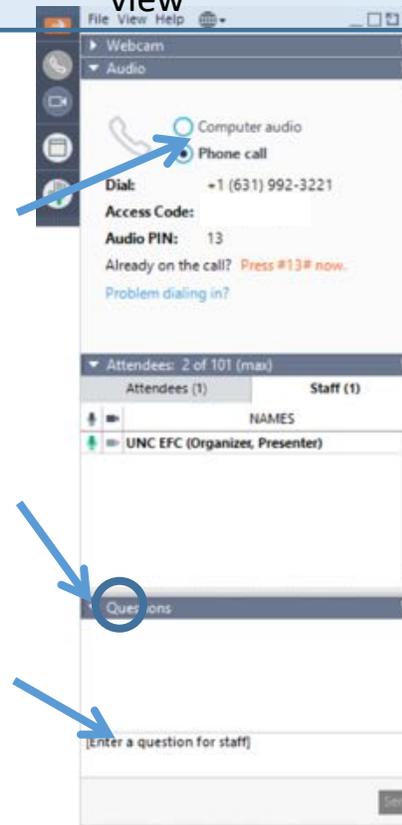
## Using the control panel

**Audio:** please choose between computer audio or phone call

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If you have questions or need assistance, please contact [smallsystems@syr.edu](mailto:smallsystems@syr.edu).



## About the Environmental Finance Center Network (EFCN)

The Environmental Finance Center Network (EFCN) is a university-based organization creating innovative solutions to the difficult how-to-pay issues of environmental protection and improvement. The EFCN works with the public and private sectors to promote sustainable environmental solutions while bolstering efforts to manage costs.

## The Smart Management for Small Water Systems Program

This program is offered free of charge to all who are interested. The Program Team will conduct activities in every state, territory, and the Navajo Nation. All small drinking water systems are eligible to receive free training and technical assistance.

## What We Offer

Individualized technical assistance, workshops, small group support, webinars, eLearning, online tools & resources, blogs



# The Small Systems Program Team

- Environmental Finance Center at The University of North Carolina at Chapel Hill
- Environmental Finance Center at Wichita State University
- EFC West
- Government Finance Officers Association (GFOA)
- Great Lakes Environmental Infrastructure Center
- National Association of Development Organizations (NADO)
- New England Environmental Finance Center at the University of Southern Maine
- Southwest Environmental Finance Center at the University of New Mexico
- Syracuse University Environmental Finance Center
- Environmental Finance Center at the University of Maryland
- Rural Community Assistance Corporation
- Environmental Finance Center at California State University, Sacramento



# Areas of Expertise



Asset Management



Rate Setting and Fiscal Planning



Leadership Through Decision-making and Communication



Water Loss Reduction



Energy Management Planning



Accessing Infrastructure Financing Programs



Workforce Development



Water Conservation Finance and Management



Collaborating with Other Water Systems



Resiliency Planning



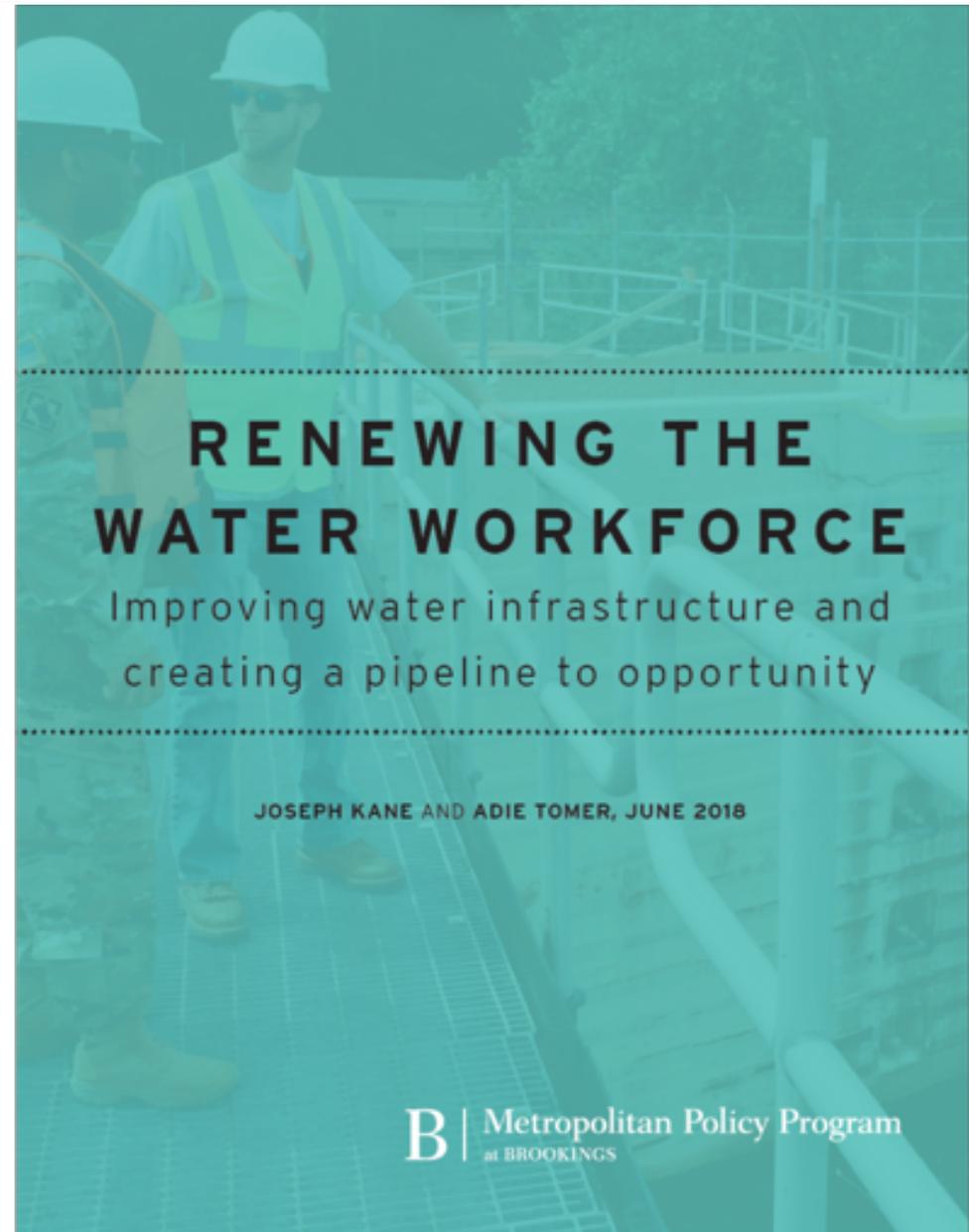
Managing Drought



As the U.S. economy continues to grow, many communities are struggling to translate economic growth into more equitable and inclusive employment opportunities.

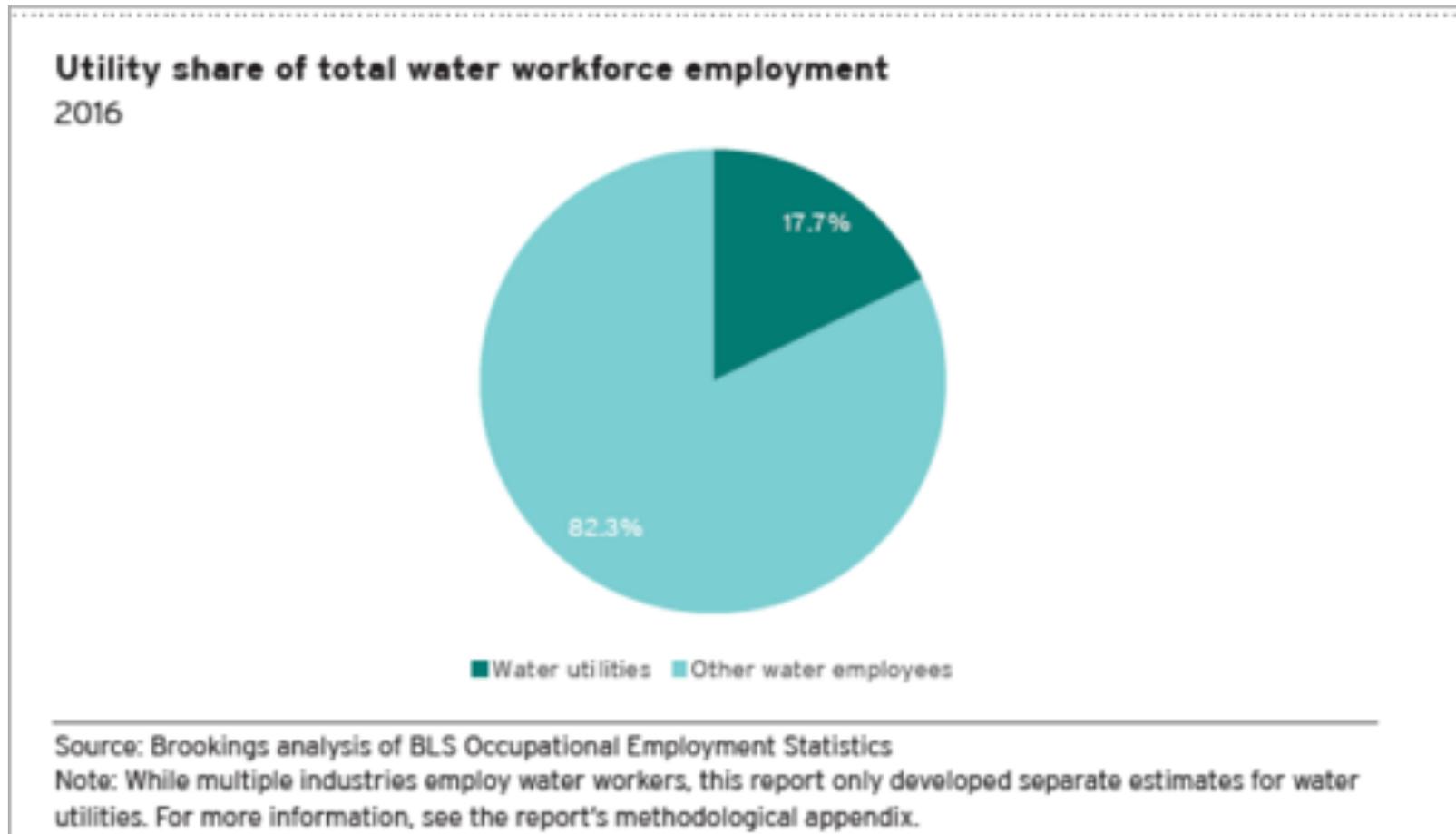
Simultaneously, many of the nation's water infrastructure assets are in urgent need of repair, maintenance, and restoration.

Yet the workers capable of carrying out these efforts are in short supply due to an aging workforce eligible for retirement and the lack of a pipeline for new talent.





In 2016, nearly 1.7 million workers were directly involved in designing, constructing, operating, and governing U.S. water infrastructure, spanning a variety of industries and regions.



## 15 largest occupations, across the entire water workforce and across utilities 2016

Water occupations	Employment	Share of employment
Plumbers, Pipefitters, and Steamfitters	324,500	19.3%
Construction Laborers	149,513	8.9%
Water and Wastewater Treatment Plant and System Operators	115,840	6.9%
Operating Engineers and Other Construction Equipment Operators	79,900	4.8%
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	70,811	4.2%
First-Line Supervisors of Construction Trades and Extraction Workers	56,021	3.3%
Office Clerks, General	47,602	2.8%
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	46,510	2.8%
Heavy and Tractor-Trailer Truck Drivers	38,548	2.3%
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	35,141	2.1%
Electricians	34,800	2.1%
Pipelayers	33,810	2.0%
General and Operations Managers	33,788	2.0%
Hazardous Materials Removal Workers	26,850	1.6%
Septic Tank Servicers and Sewer Pipe Cleaners	26,320	1.6%
<b>Water Workforce Total</b>	<b>1,679,971</b>	



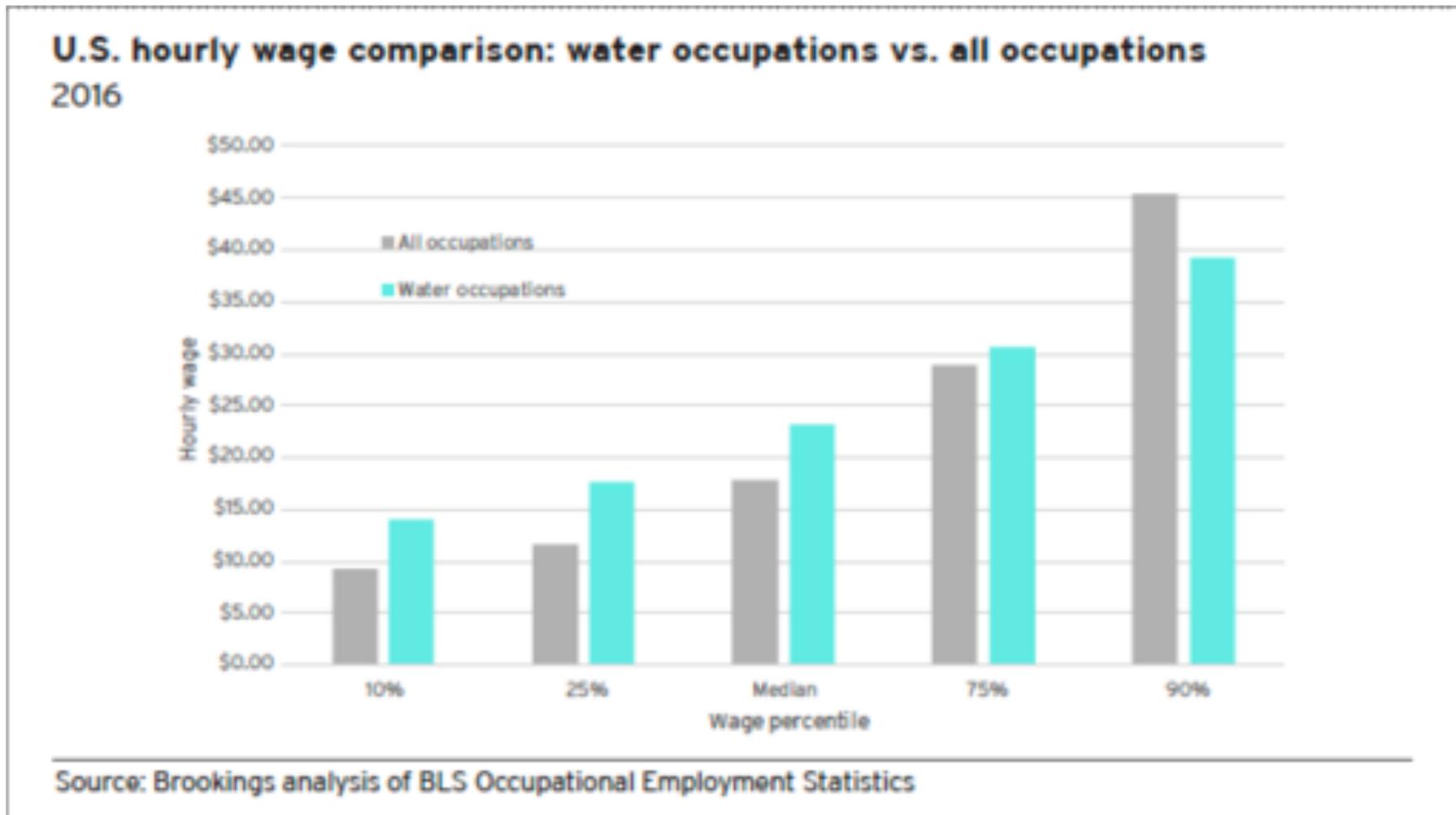
Water utility occupations	Utility employment	Share of utility employment
Water and Wastewater Treatment Plant and System Operators	102,520	34.4%
Meter Readers, Utilities	17,500	5.9%
Electricians	14,900	5.0%
Plumbers, Pipefitters, and Steamfitters	12,850	4.3%
Pipelayers	9,880	3.3%
Industrial Machinery Mechanics	9,870	3.3%
Office Clerks, General	9,654	3.2%
Maintenance and Repair Workers, General	7,820	2.6%
Septic Tank Servicers and Sewer Pipe Cleaners	7,510	2.5%
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	7,080	2.4%
General and Operations Managers	4,441	1.5%
Bookkeeping, Accounting, and Auditing Clerks	4,124	1.4%
First-Line Supervisors of Office and Administrative Support Workers	3,570	1.2%
Landscaping and Groundskeeping Workers	3,537	1.2%
Customer Service Representatives	3,415	1.1%
<b>Water Utility Total</b>	<b>297,787</b>	

Source: Brookings analysis of BLS Occupational Employment Statistics

Note: Workers employed in water utility occupations represent a subset of all workers employed in the water sector. For example, 102,520 of the 115,840 water operators nationally are employed in water utilities.



Water occupations not only tend to pay more on average compared to all occupations nationally, but also pay up to 50 percent more to workers at lower ends of the income scale.





Water workers at lower ends of the income spectrum earn more competitive wages compared to all workers nationally.

Water workers earn hourly wages of \$14.01 and \$17.67 at the 10th and 25th percentiles, respectively, compared to \$9.27 and \$11.60 earned by all workers at these percentiles nationally.

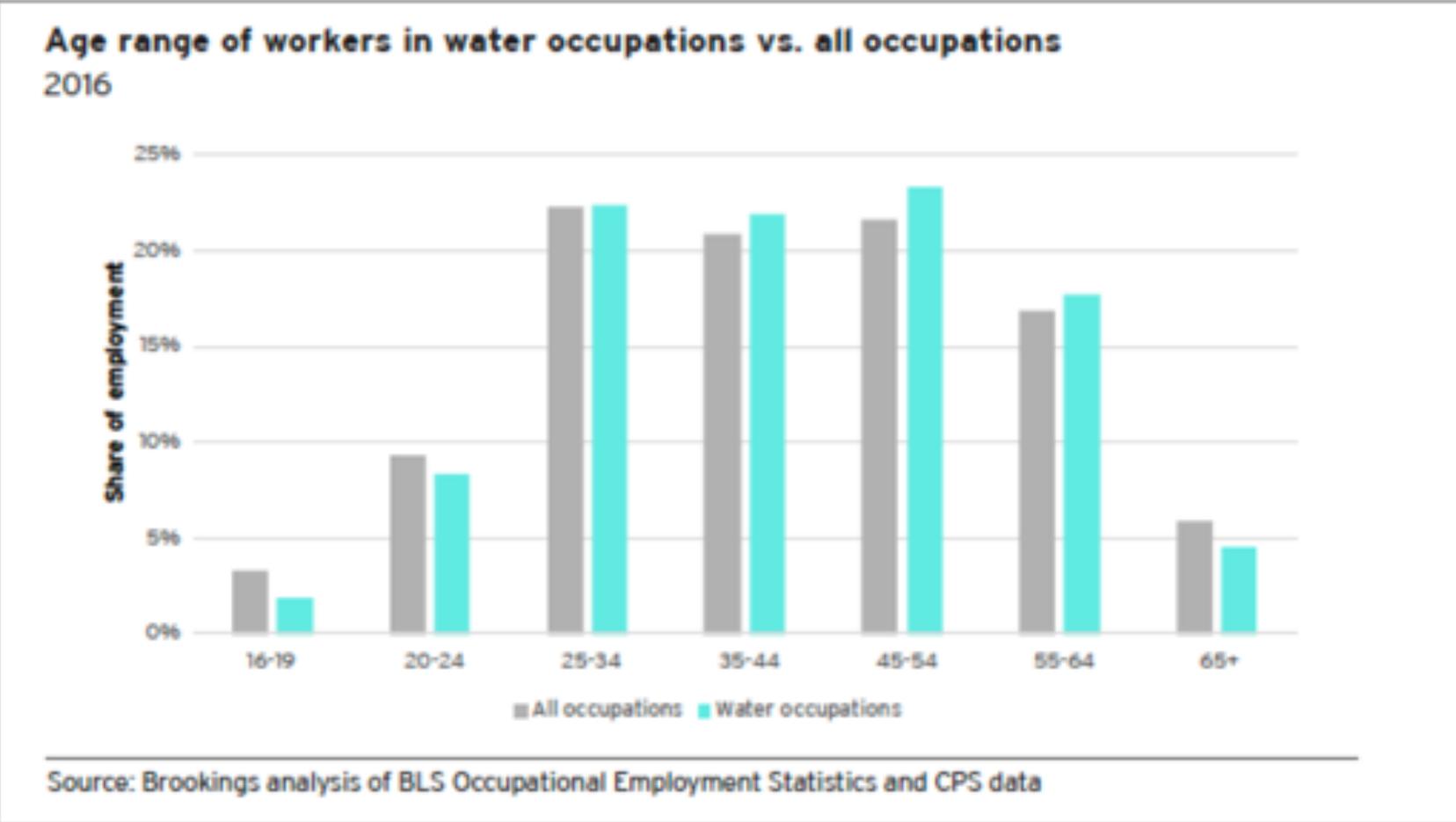
**Selected water occupations with higher wages at the 10th and 25th percentile**  
By educational attainment, 2016

Water occupation	Water employment	Percent with a high school diploma or less	10th percentile wage	25th percentile wage
Operating Engineers and Other Construction Equipment Operators	79,900	71.2%	\$14.29	\$17.19
Carpenters	19,449	68.5%	\$13.02	\$16.24
Pipelayers	33,810	63.0%	\$12.66	\$14.79
Sheet Metal Workers	22,084	62.8%	\$12.81	\$16.50
Septic Tank Servicers and Sewer Pipe Cleaners	26,320	61.4%	\$11.13	\$13.87
Industrial Machinery Mechanics	13,100	52.2%	\$15.52	\$19.10
Control and Valve Installers and Repairers, Except Mechanical Door	2,481	51.1%	\$14.99	\$19.01
Electricians	34,800	45.0%	\$15.29	\$19.02
Water and Wastewater Treatment Plant and System Operators	115,840	43.6%	\$13.25	\$16.96
Meter Readers, Utilities	17,780	42.9%	\$11.03	\$13.77
First-Line Supervisors of Mechanics, Installers, and Repairers	11,651	42.0%	\$18.49	\$23.74
<b>All U.S. Occupations</b>		<b>32.5%</b>	<b>\$9.27</b>	<b>\$11.60</b>

Source: Brookings analysis of BLS Occupational Employment Statistics and Employment Projections data



Water workers tend to be older and lack gender and racial diversity in certain occupations; in 2016, nearly 85 percent of them were male and two-thirds were white, pointing to a need for younger, more diverse talent.



# Recommendations

1. Utilities and other water employers need to empower staff, adjust existing procedures, and pilot new efforts in support of the water workforce

## EMPLOYER-DRIVEN ACTIONS

- ✓ Hire and train dedicated staff to meet with younger students, connect with more diverse prospective workers, and explore alternative recruitment strategies
- ✓ Create a new branding strategy to more effectively market the utility or organization to younger students and a broader pool of prospective workers
- ✓ Account for workforce needs as part of the budget and capital planning process, while creating more detailed and consistent labor metrics
- ✓ Update or create new job categories to provide greater flexibility for potential applicants
- ✓ Develop competency models—or customize existing models—to promote continued learning and skills development among staff
- ✓ Design and launch new bridge programs, including “water boot camps,” to provide ways for younger workers and other nontraditional workers to explore water careers and gain needed experience
- ✓ Implement a formalized mentorship program to provide interns and younger workers a clear point of contact and better monitor their career progression

# Recommendations

## 2. A broad range of employers and community partners need to hold consistent dialogues, pool resources, and develop platforms focused on water workers

### REGIONAL ACTIONS

- ✓ Identify a common regional point person—or organization—to schedule and steward consistent meetings among a broad range of community partners
- ✓ Hold an annual water summit/meet-and-greet where prospective workers, employers, and community partners can connect with one another regionally
- ✓ Out of these dialogues, develop a comprehensive water workforce plan, highlighting regional training needs and avenues for additional collaboration
- ✓ Develop a more predictable, durable channel of funding to support these efforts, driven by public fees and private sector support
- ✓ Strengthen local hiring preferences in support of more minority and women business enterprises
- ✓ Create a new web platform to connect water workers and employers, serving as a simple, consolidated site for regional job postings
- ✓ Launch a new regional academy—designed and run by employers and community partners—in support of more portable infrastructure education, training, and credentials

# Recommendations

## 3. National and state leaders need to provide clearer technical guidance, more robust programmatic support, and targeted investments in water workforce development

### NATIONAL AND STATE ACTIONS

- ✓ Hire or assign specific program staff to serve as common points of contact across relevant federal agencies, with a focus on water workforce development
- ✓ Supported by federal agencies or other national organizations, conduct a series of dialogues and learning sessions in a broad range of markets to assess water workforce needs and priorities
- ✓ Develop a common landing page, or repository, that highlights regional best practices and other innovative water workforce development strategies
- ✓ At a national level, form a “water workforce council” among leading groups to serve as an advisory body, with an eye toward future priorities
- ✓ With guidance from employers, industry associations, and other stakeholders, establish more versatile and streamlined water certifications nationally
- ✓ Expand federal and state funding via existing workforce development programs and educational initiatives, including apprenticeships
- ✓ Expand federal and state funding via newly targeted and competitive grant programs, in support of alternative bridge programs and other innovative training programs

# Human Capital Management





# Messaging

*Tell the Working in Water Story*





# Recruitment





Employees Leave.

They always do.

Preparation for that day is  
Succession Planning



# Evaluate to Retain





# Generation Z is Coming



The image shows two people in silhouette climbing a rocky mountain peak. One person is higher up the rock face, and the other is lower down, reaching up to assist. The background is a bright blue sky with scattered white clouds. The overall scene conveys a sense of teamwork and overcoming challenges.

*You want your staff to become  
you and you want your interns  
to become staff.*

Becky Tuttle  
Wichita City Council Member

Z  $\neq$  Zombie

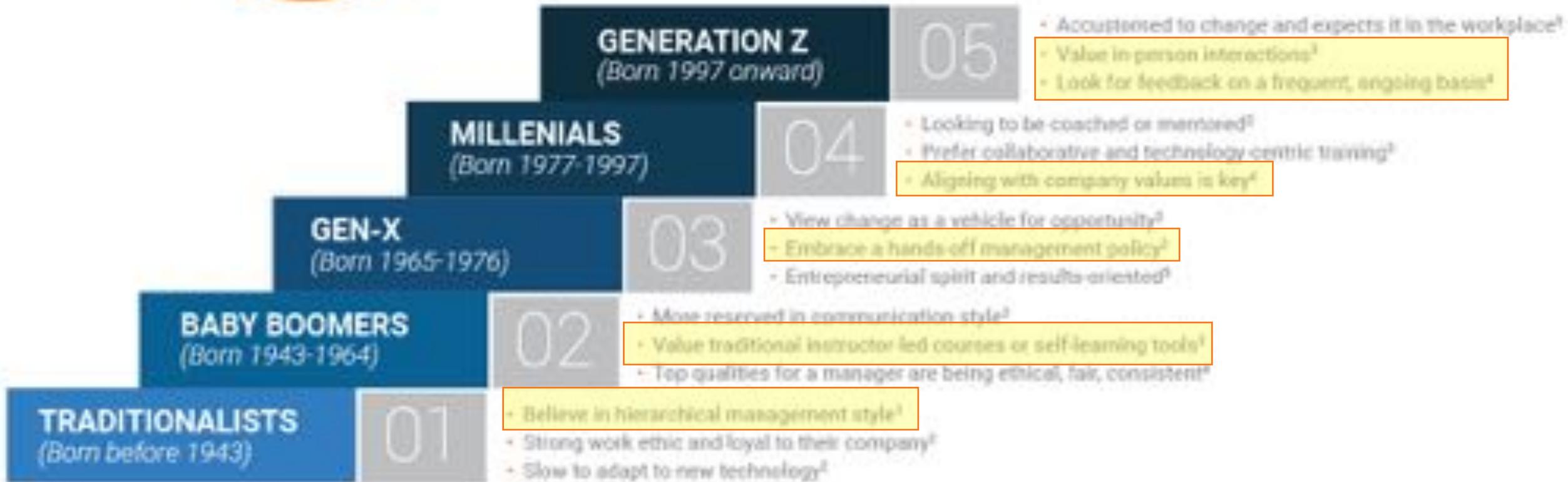
**Yes, this is Taylor Swift.**

**No, she is not a real zombie, nor is she Gen Z.**





# Mind the Gap: Managing Five Generations in the Workplace



# Gen Z: A Product of the Times



Downshifting  
Economy

Seek Financial Security  
Anxious about the Future



Corporate &  
Government  
Scandals

Skeptical  
Less Loyal to Traditions



Social Media  
News-Cycle

Private  
Multi-Taskers  
Hyper-aware & Overwhelmed

# Relating to Gen Z



# Recruiting Gen Z

Gen Zers watched their Gen X parents' median net worth fall by 45% during the Great Recession — now, they want degrees and jobs that offer security

# EMPLOYMENT

- A Stable, High-Income Life -

**WILLING TO WORK HARD FOR A STABLE INCOME**



# Managing Gen Z

Be Trustworthy



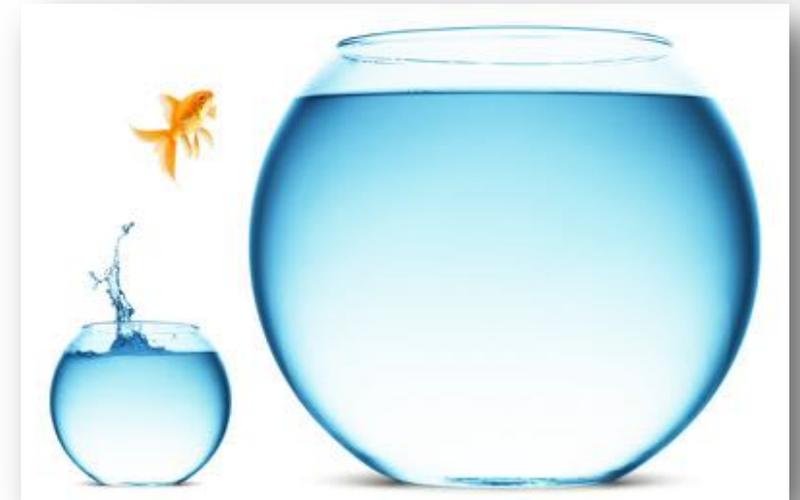
Make Tasks  
Meaningful



Assign  
Interactive Work



Show Job Growth  
Opportunities



# Evaluating Gen Z

Frequent Feedback

Give & Take

Shift the Focus

- What does this job ask of you?
- How can you add value to this job?
- What problem do you want to solve?
- What are the needs or opportunities?



# Book Recommendation!

