Strong Workforce Program
Energy Construction and Utilities
Water Related Careers
Regional Workforce Advisory Meeting Proceedings
October 27, 2023
Hybrid at Folsom Lake College

Introduction

The Los Rios Community College District, in partnership with Valley Vision and in collaboration with Sierra College, Yuba Community College District, and Lake Tahoe Community College, invests in Strong Workforce funding to organize and convene Regional Advisories. The objectives of the Regional Advisories are to build strong relationships between employers, educators, and the workforce that:

- Provide timely information on skills gaps and workforce needs, informing partners on major industry trend information;
- Improve the efficiency of the advisory process for educators and employers;
- Reflect a regional view of workforce needs and assets;
- Provide opportunities for more systemic, ongoing engagement, including workforce partners in key industry sectors.

Regional Advisory meetings help inform decisions on needed investments and enhancements for Career Education (CE) programs to help fill the growing demand for middle-skill positions. This meeting proceedings report includes key findings, best practices, and minutes from the Fall 2023 Regional Advisory meeting focused specifically on careers in the Energy, Construction, and Utilities (ECU) highlighting water related careers.

Valley Vision supports a robust talent pipeline through our multiple 21st Century Workforce initiatives. We prepare our regional workforce for the future by addressing skills gaps, advancing research, aligning efforts, and strengthening systems. Valley Vision's workforce efforts are supported by the Sacramento Employment and Training Agency (SETA), Golden Sierra Workforce Development Board (WDB), North Central Counties Consortium, Yolo WDB, the City of Sacramento, local community college districts, and others.

The Strong Workforce program provides Career Education opportunities to increase social mobility and fuel regional economies with skilled workers.

Key Findings

- Job growth in water careers in the Greater Sacramento region is estimated to rise from 7,150 positions in 2022 to 8,003 by 2027, reflecting a substantial 12% increase over the next five years.
- Projected demand highlights a surge in critical roles like Electrical and Instrumentation professionals, with Maintenance/Repair Workers anticipating a significant 12% increase from 2022 to 2027.
- Water-related professions were identified as providing salaries that meet but often surpass the regional living wage for working adults.
- The water-related career landscape is predominantly male, with 96% representation, and individuals aged 55 years or older making up 27% of the workforce. There is an urgent need to diversify the workforce and plan for knowledge transfer and succession planning within the sector.
- The sector faces a severe shortage of skilled workers, especially in the high-demand field of electricians. Community colleges make up 71% of state educational programs for all water related careers, serve as primary training providers, and are essential in addressing the workforce gap in the Greater Sacramento water industry.
- Employers stressed the importance of updating training programs to align with industry changes. The focus should be on preparing the local workforce for advanced machinery and automated systems by combining traditional craftsmanship with the practical use of digital tools and data recording.
- The industry is frequently affected by policy changes and environmental regulations. The effects of climate change on infrastructure are a challenge for the water industry. The panelists described the importance of integrating sustainable practices and green technologies, including training students on eco-friendly solutions for water management and renewable energy sources.
- Panelists emphasized the importance of agencies investing strategically in internships and grants to provide students with practical experience and financial support. This helps students transition smoothly from education to the workforce.
- The industry demands comprehensive skill sets that include expertise in water treatment processes and distribution systems to irrigation, SCADA (Supervisory Control and Data Acquisition), emergency response protocols, adherence to standard operating procedures, and the operation of pump stations.

Meeting Proceedings

Welcome and Introduction

Hilary Tellesen, Project Leader at Valley Vision, welcomed attendees and introduced the event. Tellesen emphasized the importance of collaboration between colleges and employers in providing quality and relevant workforce training for individuals interested in developing a profession in water careers.

Keynote Speakers

Holistic Approach to Workforce Development in the Water Sector

Ramzi Mahmood, the Director of the Office of Water Programs (OWP) at Sacramento State, delivered a keynote address. He focused on the need for a holistic approach to workforce development in the water sector that incorporates high school through job placement. Mahmood highlighted the significant challenge of an impending wave of retirements in the next 5-10 years, coupled with a national hiring squeeze, making filling critical positions challenging. He emphasized the inadequacy of relying on luck to attract students to water-related careers. He proposed a comprehensive strategy with five key components: early education, training programs, hands-on experience, certification or award, and successful career attainment.

Mahmood stressed the importance of developing interest in water careers, suggesting outreach and education initiatives starting as early as middle and high school. He advocated establishing clear student pathways, including tailored education and training programs aligned with industry needs. Visibility of these pathways and hands-on experiences is essential to capture students' attention and provide practical insights into the field.

Furthermore, Mahmood emphasized the need to integrate hands-on experience into educational institution budgets, making it a core part of the mission of educational institutions. Finally, he addressed the challenge of transitioning from obtaining a certification or award to securing a job, proposing the creation of a seamless pathway for students.

Mahmood's keynote speech stressed the urgency of proactively addressing the impending workforce shortage in the sector. His proposed strategy includes engaging education, clear and visible pathways, sufficient budgetary support for hands-on experience, and a streamlined transition to employment to attract and retain the next generation of professionals in the water industry.

Next Gen Career Pathways Internships

Patrice McElroy, Deputy Administrative Officer for Human Resources at Valley Water, delivered the second keynote address and emphasized the importance of generating interest in

water-related careers among young people. McElroy highlighted the goal of connecting students to the water sector and explained that Valley Water's work was designed with a commitment to Diversity, Equity, and Inclusion (DEI) by partnering with colleges, universities, tribal groups, and high schools. The objective was to develop local talent, expand programs, and foster partnerships.

Valley Water provides students with hands-on experience on real projects and access to support services, networking, mentorship, and workshops through their Next Generation Program. The program is open to students at different career stages and is structured around four pillars:

- Wonder of Water (high school program)
- Discover Valley Water (expansion of their college and trade internship program)
- Water Works (college stipend program)
- Water Educators (teacher externships and partnerships)

The program underscores the importance of fostering a culture of collaboration and knowledge-sharing within the water sector. McElroy expressed Valley Water's commitment to creating an inclusive and supportive environment for employees, ensuring that individuals from diverse backgrounds have equal opportunities to thrive and contribute to the organization's mission. She emphasized the significance of mentorship programs in guiding aspiring professionals through their career journeys.

McElroy concluded her address by encouraging attendees to actively participate in efforts to inspire the next generation of water professionals, fostering a sense of responsibility and stewardship for our most vital resource.

Labor Market Information and Job Posting Insights

During a presentation, Ebony Benzing, the Interim Director of the North Center of Excellence for Labor Market Research, shared labor market data on water-related careers in the Greater Sacramento region. The data presented projected growth in the number of jobs from 7,150 positions in 2022 to 8,003 by 2027. This represents a significant 12% increase in job growth over the five years, as shown in Figure 1.1. The industry analysis included data from five key water industries in Greater Sacramento: water supply and irrigation, sewage treatment, water and sewer line construction, other heavy and civil engineering construction, and site preparation contractors. The industry analysis did not include jobs from state and local government because Greater Sacramento's government sector is 20x the size of the five other water industries combined. However, government jobs were considered in the presentation sections covering CWEA job postings, demand for water careers, and essential skills.

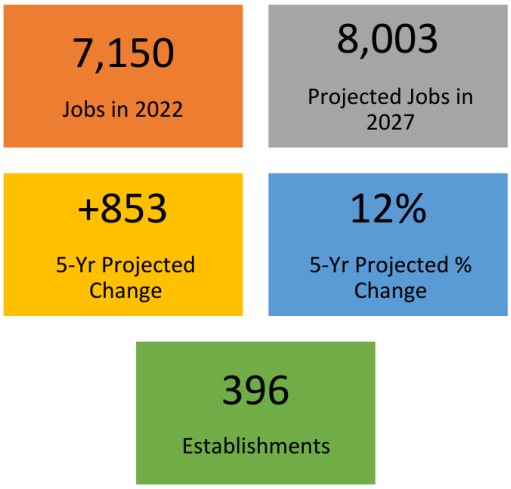

Figure 1.1 Water Industry Projected Growth in Greater Sacramento from 2022 to 2027

Benzing provided a detailed classification of careers, dividing them into three domains: Electrical and Instrumentation, Maintenance, and Operations. The analysis showed strong projected demand, particularly in the Electrical, Maintenance, and Operations categories, with critical roles in the Electrical professions experiencing a significant surge. There will also be a 12% increase for Maintenance/Repair Workers between 2022 and 2027 (Figure 1.2). The diverse roles in the industry require proficiency in trades like plumbing, carpentry, HVAC, construction, and preventative maintenance.

Occupational Category	Occupation	2022 Jobs	2022 - 2027 Projected % Change	2022-2027 Avg. Annual Openings
Electrical & Instrumentation	Electrical and Electronic Engineering Technologists and Technicians	682	8%	86
	Electricians	7,305	18%	1,066
	E&I Subtotals	***7,986***	***17%***	***1,152***
Maintenance	Industrial Machinery Mechanics	1,314	18%	173
	Maintenance and Repair Workers, General	9,655	12%	1,213
	Maintenance Subtotals	**10,969**	**12%**	**1,386**
Operations	Water and Wastewater Treatment Plant and System Operators	1,059	8%	123
	Operations Subtotal	***1,059***	***8%***	***123***
Greater Sacramento Critical Water Occupations Grand Total		**20,014**	**14%**	**2,661**

Figure 1.2 Demand for Critical Water Occupations across Greater Sacramento

Additionally, the Operations domain identified critical roles such as Water and Wastewater Treatment Plant Operators, anticipating increased demand. These professionals are essential in ensuring water treatment facilities are efficiently and safely operated. Benzing emphasized the need for a comprehensive skill set in this domain, as shown in Figure 1.3, ranging from expertise in water treatment processes and distribution systems to irrigation, SCADA, emergency

response protocols, adherence to standard operating procedures, and the operation of pump stations.

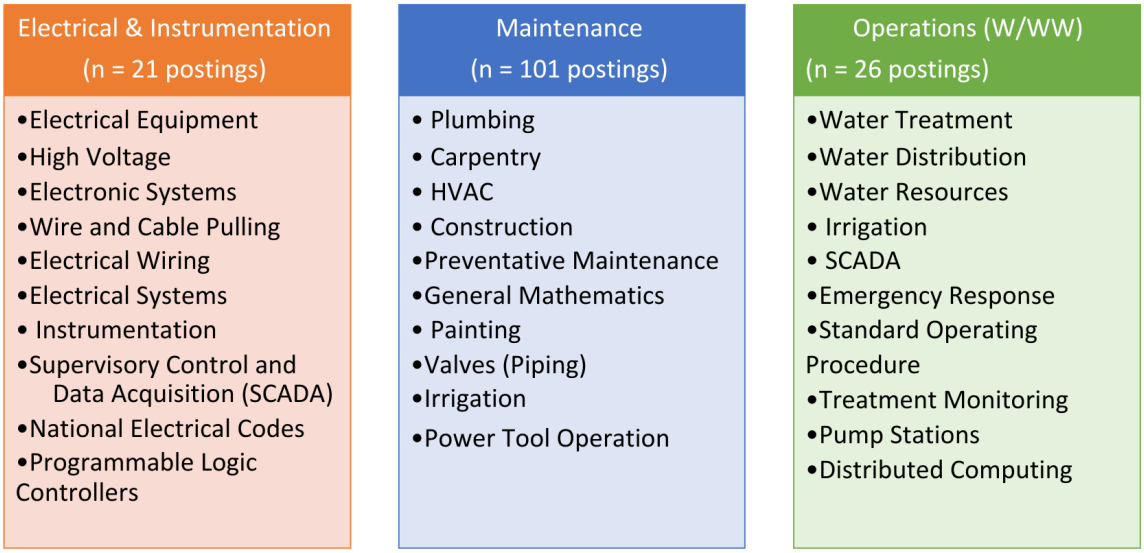

Figure 1.3 Top Skills in Greater Sacramento by Category

After compiling the demographics of water-related careers, Benzing identified that the industry is predominantly male, with 96% representation, as shown in Figure 1.4. Most of the workforce comprises individuals between the ages of 25 to 44. However, it was found that 27% of professionals are aged 55 years or older. It is important to note that the water industry lacks diversity, with a disproportionate representation of Black, Asian, and Native American racial groups. Addressing this issue is crucial for promoting inclusivity, equal opportunities, and a more representative workforce in the water sector. Additionally, this disparity provides an opportunity to engage with new populations for knowledge transfer and succession planning within the sector, which can help mitigate the looming labor shortage.

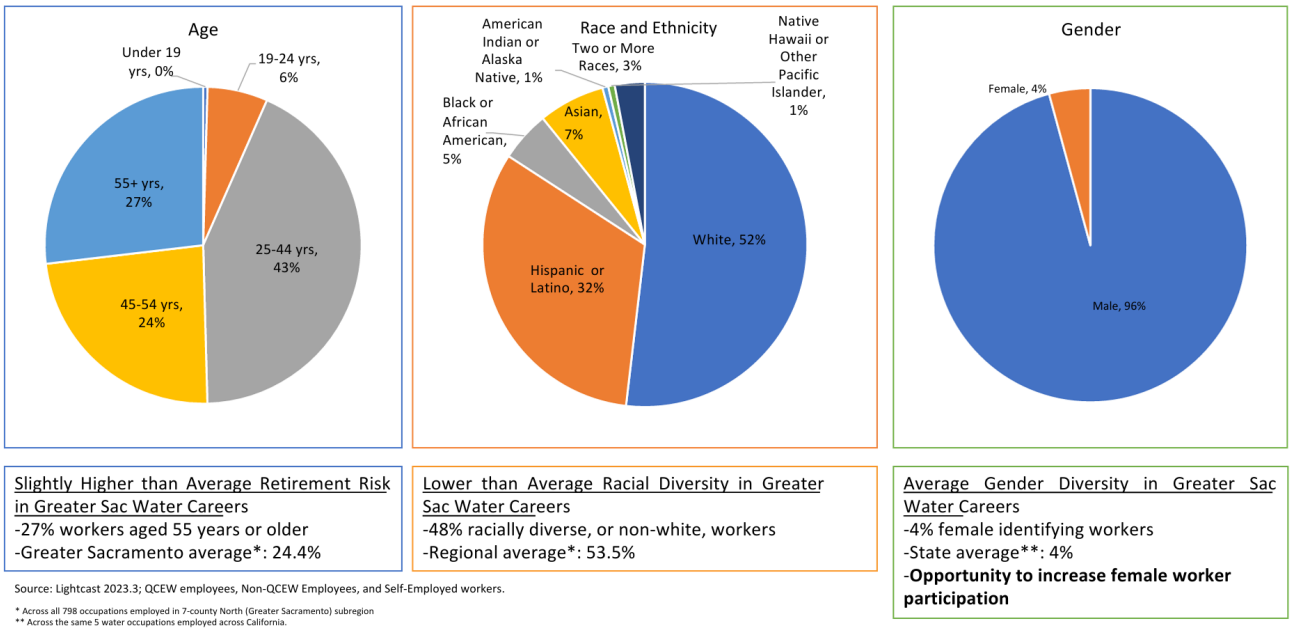

Figure 1.4 Water Careers Worker Demographics

Water-related professions were identified as providing salaries that not only meet but often surpass the regional living wage for working adults, as reported by Lightcast (Figure 1.5). Benzing recognized the industry for meeting this wage criteria, presenting lucrative opportunities for individuals to pursue a financially rewarding career.

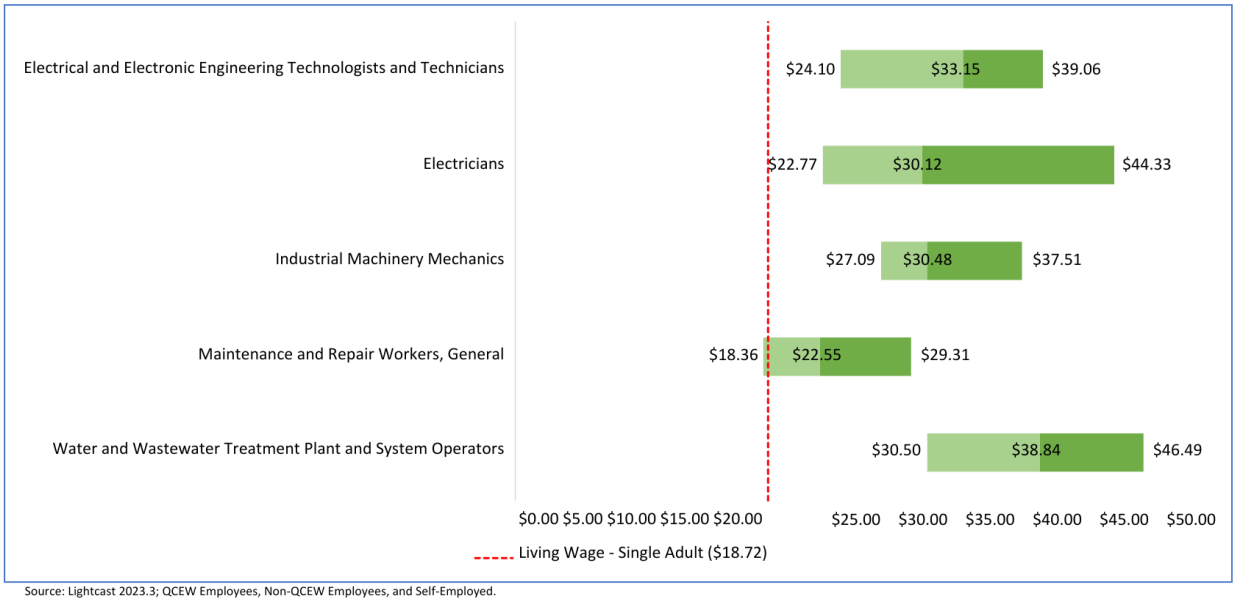

Figure 1.5 Water Careers Wages

The presentation addressed the critical shortage of skilled workers in all five career areas, specifically emphasizing the demand for electricians. Community colleges, accounting for 71%

of state educational programs and serving as primary training providers in the region, were identified as integral in addressing the workforce gap and assisting the sustained growth of the water industry in Greater Sacramento (Figure 1.6).

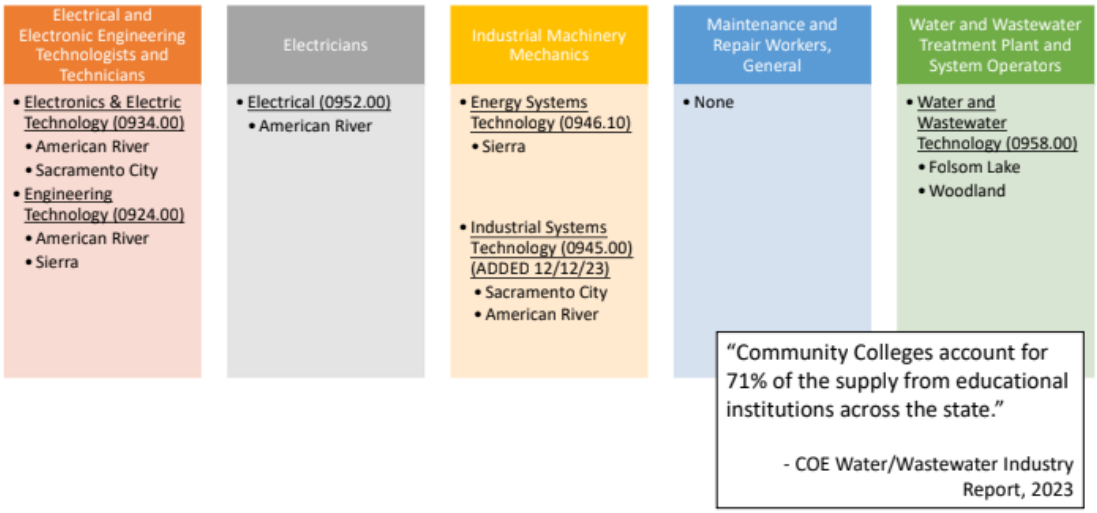

Figure 1.6 Training Pathways by Community College

Benzing's presentation emphasized the role of community colleges in shaping the workforce for these careers, identifying institutions such as American River, Sacramento City, Sierra, Folsom Lake, and Woodland as key contributors (Figure 1.6). Training programs in essential areas such as Electrical and Electronic Engineering, Electricians, Industrial Machinery Mechanics, and Water and Wastewater Treatment Plant Operations were acknowledged for their significance in preparing students for these evolving careers.

Panel Discussion

During the panel discussion, regional employers shared information about the current and changing landscape of the water industry and occupations. The employers represented a variety of water industry agencies from the city, county, and state, as well as the private sector. The panelists included:

- Samantha Blackwood, Talent Management, Division of Human Resources, California Department of Water Resources
- Michele Chapman, Support Services Manager, Department of Utilities, City of Sacramento
- Nichole Morgan, P.E., Board Member, State Water Resources Control Board
- Kari D. Shively, P.E., Senior Vice President Director of Marketing, Business Development and Growth, Stantec

Each agency expressed the need for civil or water resource engineers and specialists while emphasizing significant demand along the entire talent pipeline.

Technology Skills and Training Needs

During the panel, Blackwood highlighted the critical shift towards combining traditional mechanical skills and modern technological expertise, particularly in water supply and electricity. She emphasized industry workers must cultivate a diverse skill set, acknowledging the increasing reliance on advanced machinery and automated systems. The industry's progression toward a more technologically driven landscape necessitates developing a workforce capable of navigating these changes.

Shively reinforced this perspective by describing the demand for Water Resource Engineers and Large Systems Operators. These roles, integral to the functioning of the water industry, require a distinct set of skills that combines traditional know-how with contemporary technological acumen. She highlighted the immediate need for professionals capable of navigating and leveraging advanced machinery and automation, illustrating the growing importance of technical skills within the workforce. Shively brought attention to the transformative influence of technology on the monitoring and managing water and electricity infrastructure. The panel emphasized the surge in data collection capabilities and the importance of the workforce's proficiency in critical data analysis.

Chapman further contributed to the conversation by detailing the persistent skill needs at the City of Sacramento. Acknowledging the ongoing search for individuals with expertise in roles such as machinists, electricians, and instrumentation technicians, her comments emphasized the industry's consistent demand for professionals with critical machinery operation, electrical systems, and instrumentation technology skills. Chapman reinforced the overarching theme of the industry's evolving skill landscape, emphasizing the continuous need for a workforce adept in both traditional and cutting-edge technologies.

Adaptability and Climate Change Awareness

During the panel discussion, Chapman and Blackwood discussed the vulnerability of the water and electricity industries to policy changes and environmental transformations. They specifically focused on the impact of climate change on water infrastructure. Blackwood emphasized the importance of adaptability, stating that workers must be equipped to navigate policy changes and understand and respond to the evolving climate dynamics in their regions, such as fire, drought, or flood.

The panel expanded on this, stressing the industry's responsibility to develop sustainable practices and integrate green technologies. They highlighted the significance of educating students on eco-friendly solutions for water management and renewable energy. Strategies that

address the broader implications of environmental shifts can be developed by increasing awareness of climate change.

Strategic Recruitment and Industry Competition

The panelists discussed strategic recruitment efforts and the challenge of competition with other industries and companies. They highlighted the significance of early engagement with students, stressing the importance of establishing connections to attract potential talent, and recommended building relationships with educational institutions.

Shively and Blackwood mentioned investing in internships and scholarships as notable strategies that provide students with practical experience and financial support, creating a direct pathway from educational settings to the workforce. The panelists discussed that the tight hiring landscape has made new competitors across industry sectors, explaining that with organizations like NASA, Amazon, and Google as competitors for talent such as professional engineers, water agencies need to differentiate themselves to stand apart. The panelists discussed that the agencies may achieve this through unique professional development opportunities, attractive benefits, or aligning their missions with environmental stewardship initiatives that could compel applicants to pursue careers in the water field.

Chapman identified industry-specific employment websites like American Water Works Agency (AWWA) and CWEA for the City of Sacramento job listings and described an internship program with SAC State. Additionally, Chapman shared that the City of Sacramento has an engagement committee of managers in different departments to engage with educators and potential recruits about career opportunities.

The panel discussion touched on the trend of employees desiring remote work but acknowledged that many in-demand utility positions require hands-on operations. Shively noted the importance of addressing this shift and adapting to the changing preferences of the workforce. There was also an emphasis on increasing diversity by adding more women and people of color to the workforce, aligning with broader industry trends promoting diversity and inclusion.

Conclusion

At the end of the advisory, faculty and employers were encouraged to continue to engage with one another to build a stronger pipeline into water careers in the region. For more information about the report and labor market data provided, please contact:

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