

MOVING YOUR  
**EVERYDAY  
FORWARD**



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## MANAGEMENT

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*KUB consolidated audited financial statements are available as an insert, and both the consolidated and full audited financial statements are online at [www.kub.org](http://www.kub.org).*

(Top right) KUB's Safety and Regulatory Services department demonstrates KUB's water quality testing process to Green Magnet Academy students at the school's career fair. (Bottom) KUB's Underground Construction department demonstrates the importance of calling 811 for utility location by showing a real-world example of a ruptured gas line.

# MOVING YOUR EVERYDAY FORWARD



**Gabriel J. Bolas II**  
KUB President and CEO

For the last 80 years, KUB has provided safe, reliable, and affordable utility services to our customers. Now, more than 464,000 customers trust KUB to be there when we are needed. By flipping a switch, turning on a faucet, or adjusting a thermostat, our customers can access dependable, clean, and high-quality utilities to keep their lives on track.



This fiscal year, I am honored to build on a legacy of excellence and lead KUB into our next era of service as President and CEO. I have spent more than two decades growing with this exceptional company, and I could not be prouder of the things we've accomplished. With the knowledge of all our successes over the last 80 years, I look forward to the exciting work ahead of us.

Serving our customers during their everyday lives includes moving forward with them. As our communities embrace a digital future, KUB continuously works to incorporate smarter solutions that make our operations more efficient. We are upgrading technology to better serve our customers. For example, our new advanced meters will soon be deployed to every KUB customer to increase reliability and allow our crews to immediately detect service disruptions. With new technological advancements and the progress we continue to make through our Century II infrastructure replacement and maintenance programs, we are committed to finding new ways to work smarter every day.

As you read this report, I hope you will see how KUB is moving forward to promote sustainable operations that positively impact our customers' dollars, communities, utility assets, and the environment. Honors and awards have recognized our distinguished performance, but our greatest reward has been our customers' satisfaction in continuously improving service and stewardship.

We value our customers' trust in us, and we strive to grow that trust by actively moving forward with the people we serve. I am honored to be a part of KUB's communities in which neighbors, families, and friends work alongside us to make the greater Knoxville area a wonderful place to live, work, and play.

*Gabriel Bolas*

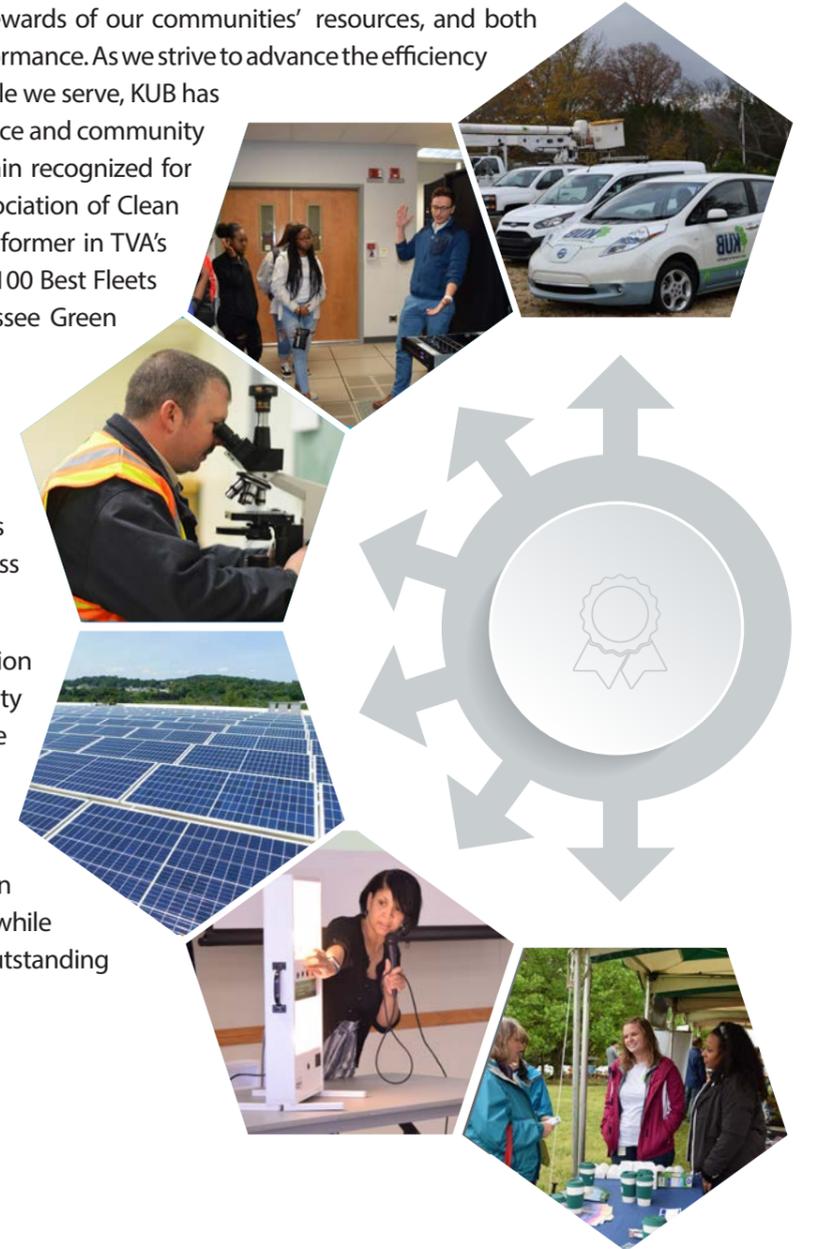


# DISTINGUISHED PERFORMANCE

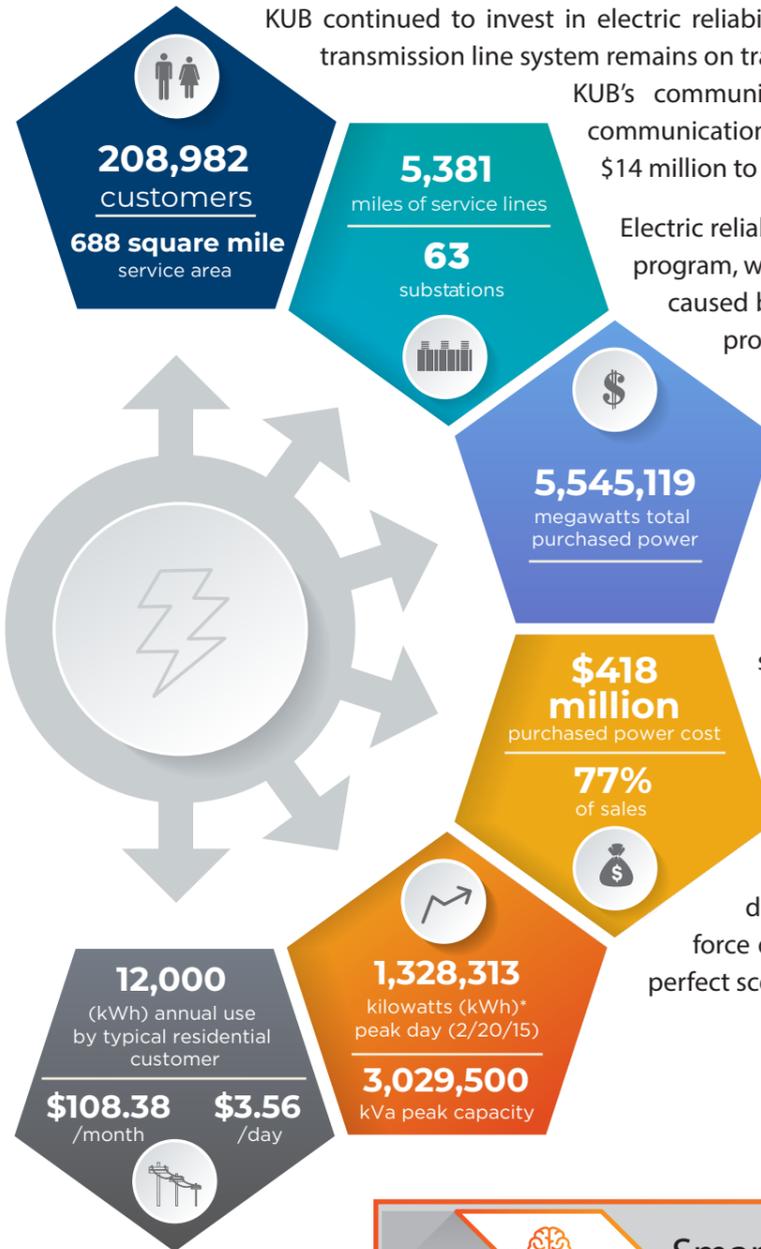
KUB continues to live out our mission to be good stewards of our communities' resources, and both industry and local institutions have recognized our performance. As we strive to advance the efficiency of our everyday work and move forward with the people we serve, KUB has achieved excellence in both our operational performance and community involvement. In Fiscal Year 2019 (FY 19), KUB was again recognized for our wastewater treatment plants by the National Association of Clean Water Agencies (NACWA), as well as named a top performer in TVA's EnergyRight® programs. KUB was again ranked in the 100 Best Fleets of the Americas Program and maintained our Tennessee Green Fleets program certification.

This fiscal year, KUB was recognized locally when we were again voted a "Favorite" in the Knoxville News Best of Knoxville "Green Business" category. KUB has been named a Favorite in the Best of Knoxville/Reader's Choice program every year since the Green Business category was introduced in 2015.

The Tennessee Municipal Electric Power Association (TMEPA) also presented KUB with its Community Service Award in recognition of extraordinary service and commitment to the citizens of Knoxville and surrounding communities. The award recognizes TMEPA utilities that are committed to enhancing the quality of life for the community, both as an organization and through employee involvement, while also demonstrating continuous effort in providing outstanding customer service and elevating Public Power.



# ELECTRIC SYSTEM



KUB continued to invest in electric reliability in FY 19, as the 10-year rebuild of its high voltage transmission line system remains on track. The replacement will improve reliability and upgrade KUB's communication infrastructure with installation of fiber optic communication lines that will link all substations. In FY 19, KUB budgeted \$14 million to update 17 miles of transmission.

Electric reliability is also influenced by KUB's vegetation management program, which works to reduce the number of outages and damage caused by vegetation. In FY 19 KUB budgeted \$10 million for the program with the goal of trimming approximately 1,000 miles of the system each year. KUB has been a Tree Line USA Utility since 2001.

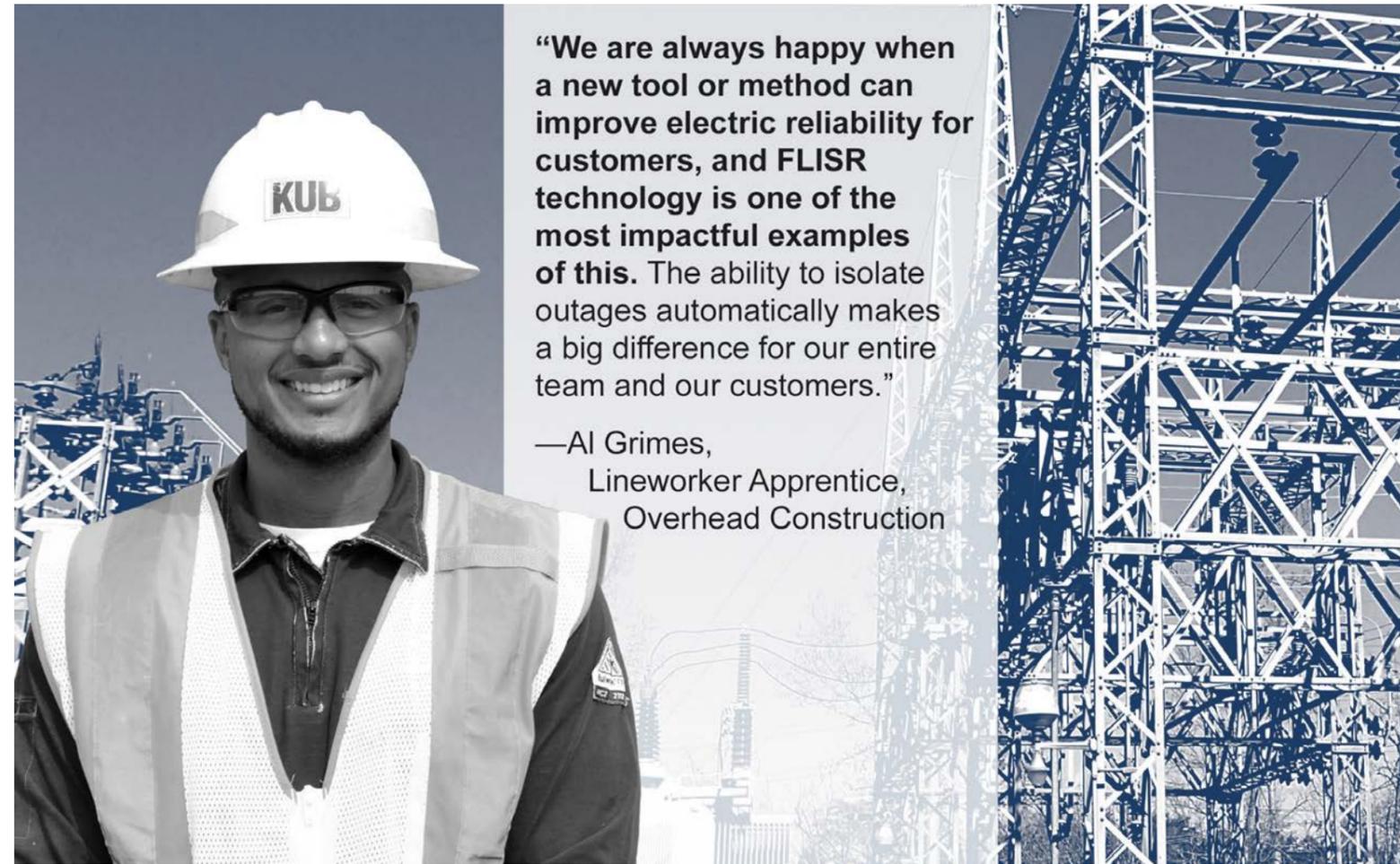
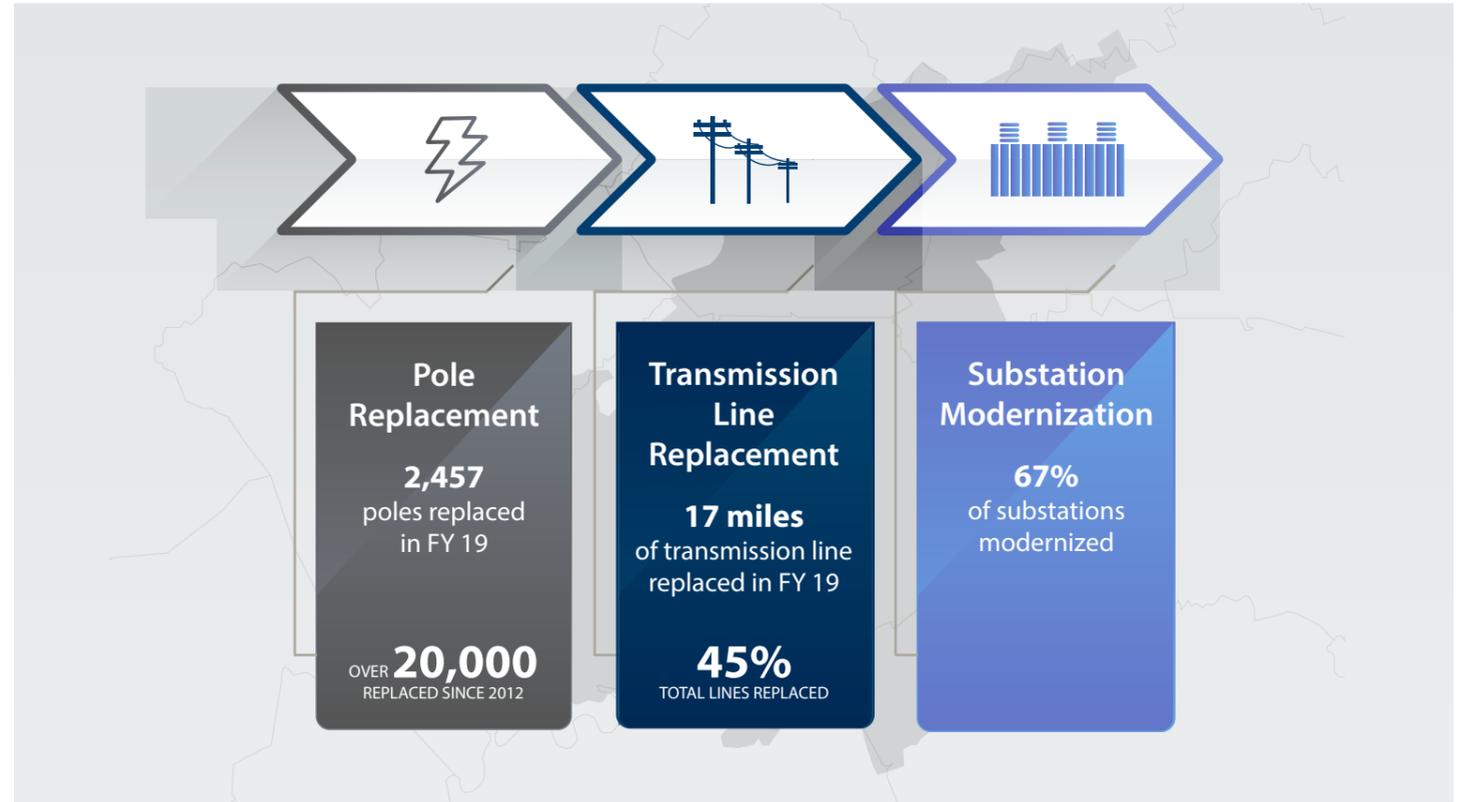
KUB's grid modernization meter deployment remained on track in FY 19. Twenty-five percent of the meters were installed in the first two years of the project. In the third year, FY 19, nearly 140,000 advanced meters were deployed – approximately 10,000 more than scheduled.

Through these and other efforts, KUB achieved Diamond Level status as part of the American Public Power Association's Reliable Public Power Program (RP3). Diamond Level is the highest possible in the RP3 program, which recognizes utilities that demonstrate high proficiency in reliability, safety, work force development, and system improvement. KUB achieved a perfect score in this year's evaluation.

### Smarter Solutions

**Fault Location, Isolation, and Service Restoration (FLISR)**  
KUB is investing \$1 million annually to expand the use of distribution automation to further improve reliability. This technology enhances KUB's ability to automatically isolate outages and reduce customer impact. In FY 19, 38 FLISR devices were installed in South Knoxville, East Knoxville, Holston Hills and Karns. This work completed the third year of a 10 year program to install a total of 300 distribution automation units across KUB's service area to reduce customer minutes of interruption. In FY 19, approximately 1,173,000 customer minutes of interruption were saved because of FLISR technology.

Above: \*A kilowatt-hour (kWh) is the amount of electricity required to burn a 100-watt light bulb for 10 hours.

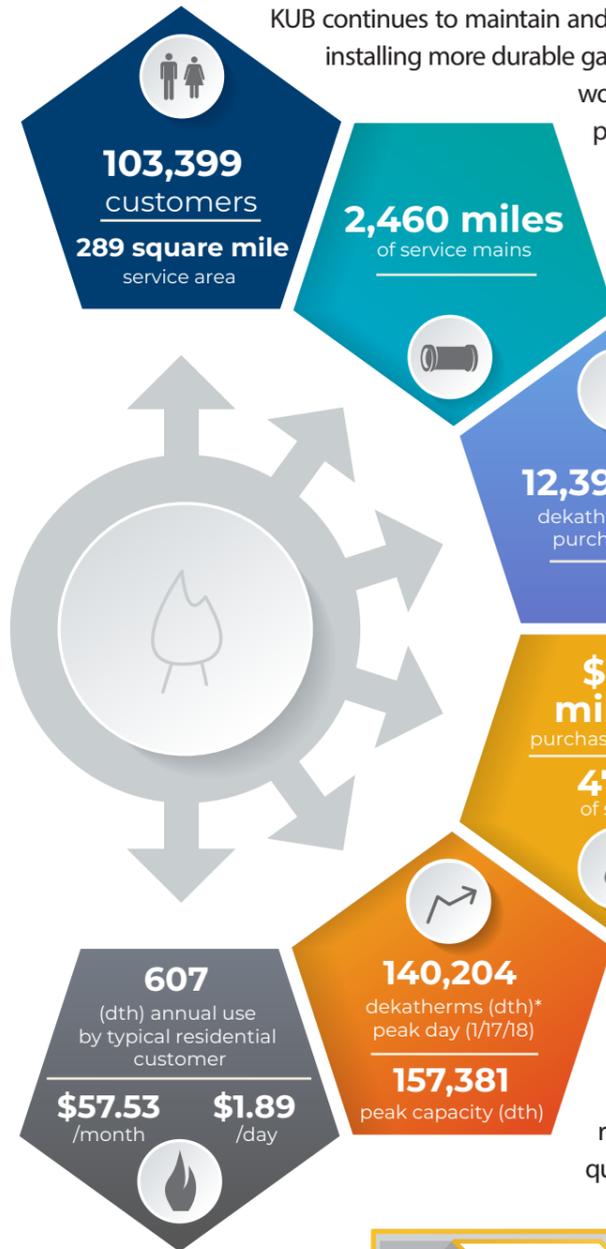


**"We are always happy when a new tool or method can improve electric reliability for customers, and FLISR technology is one of the most impactful examples of this. The ability to isolate outages automatically makes a big difference for our entire team and our customers."**

—Al Grimes,  
Lineworker Apprentice,  
Overhead Construction

# NATURAL GAS SYSTEM

KUB continues to maintain and replace aging infrastructure under the Century II program, which includes installing more durable gas main and preventing costly service interruptions. In FY 19, KUB continued work to complete the Century II program to replace all cast iron mains with polyethylene pipe, which has a longer life and lower maintenance costs.



In FY 19, KUB Underground Construction crews replaced 12,000 linear feet of gas main and reconnected or replaced approximately 120 services within the Suburban Hills subdivision in the Kingston Pike/Walker Springs Road area. Crews also completed installation of approximately 36,700 feet of new natural gas main, along with 366 service connections, in the West Hills area, replacing steel main that was originally installed as early as the 1950s.

This year, KUB also completed the South Knox Natural Gas Gate Station, which replaced the Simpson Road station, and added a higher-pressure line. The new station serves as one of three delivery points from our supplier pipeline to KUB's distribution system, which serves over 100,000 customers in Knox County. The new higher pressure, 5,000-foot pipeline replaced 10,000 feet of pipeline along Chapman Highway, saving approximately \$2 million compared to replacement at the existing location.

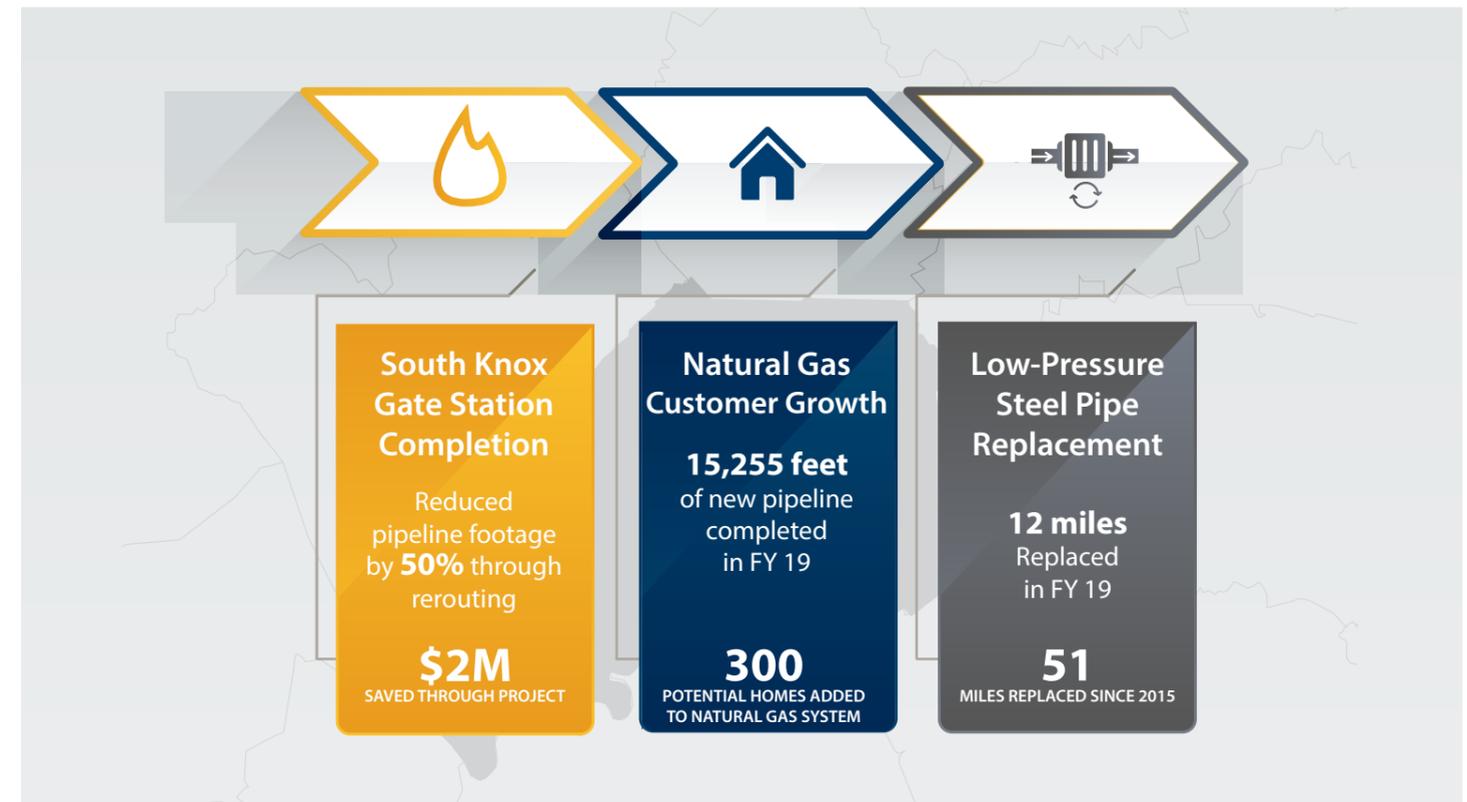
KUB continues to grow its natural gas system. In FY 19, KUB completed strategic system extension projects in West Knox County and Northwest Knoxville to support new customer growth. KUB also continued incentive campaigns in its natural gas service territory, such as the pilot Water Heater Program, which offers the installation of a natural gas water heater to residential customers with inactive gas service as an incentive to connect to KUB's gas system. KUB also continued the Natural Gas Appliance Rebate program for residential customers who convert existing electric or propane appliances to qualifying natural gas appliances.

### Smarter Solutions

**Remote laser methane detectors**

KUB natural gas response technicians are equipped with cutting-edge technology to detect gas leaks. The Gas Trac® LZ30 uses a laser to detect methane gas. It provides fast and accurate readings at distances up to 100 feet so our technicians can pinpoint exact leak origins quickly and efficiently to ensure customers remain safe.

Above: \*A therm will dry six loads of clothes in a gas dryer.



**“I’m glad we can use modern tools like the remote laser methane detectors to be able to quickly help our customers when they suspect there’s a gas leak. I feel good knowing our response technicians are able to ease fears or pinpoint leaks to fix problems fast.”**

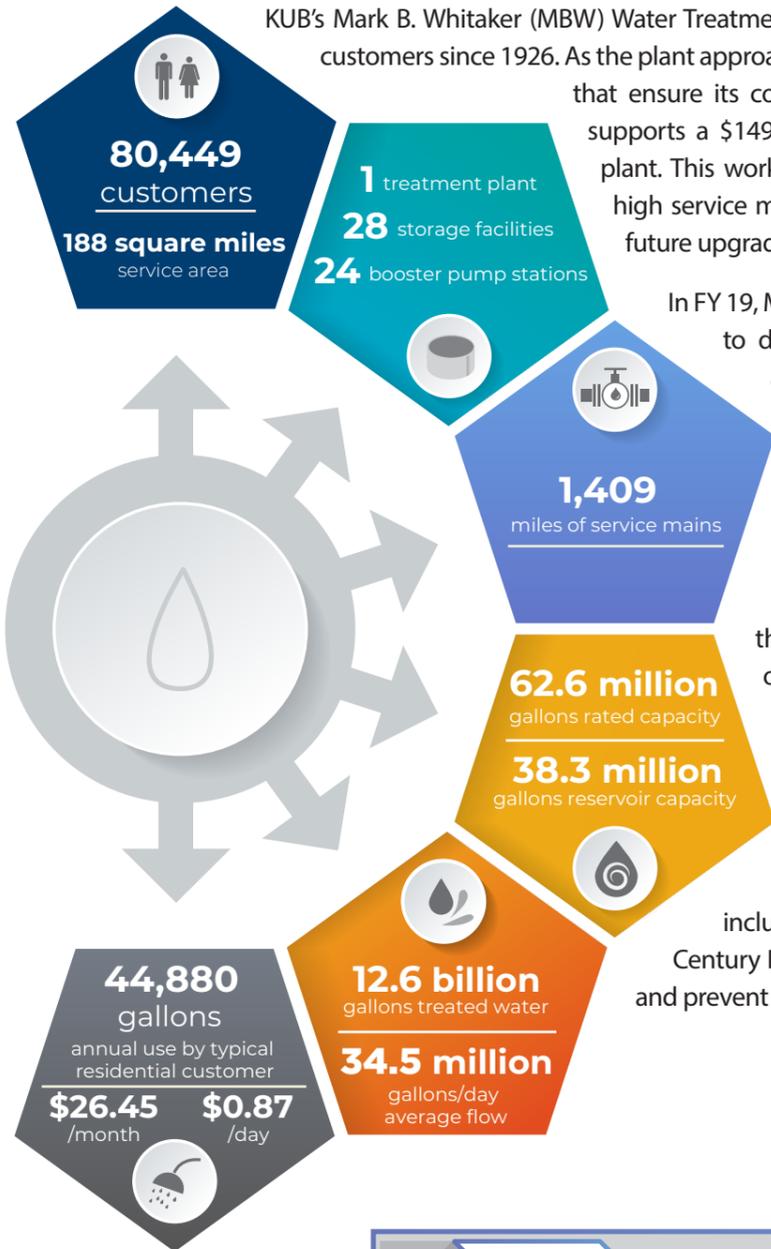
—Dallas Coplin,  
Engineering Associate  
Gas Systems Engineering

# WATER SYSTEM

KUB's Mark B. Whitaker (MBW) Water Treatment Plant has provided safe, high-quality drinking water to customers since 1926. As the plant approaches 100 years of service, KUB is committed to investments that ensure its continued operational excellence. Ongoing work in FY 19 supports a \$149 million long-range plan for additional resiliency for the plant. This work includes upgrades that were recently completed to the high service main, as well as the addition of emergency generators and future upgrades to the plant filtration system.

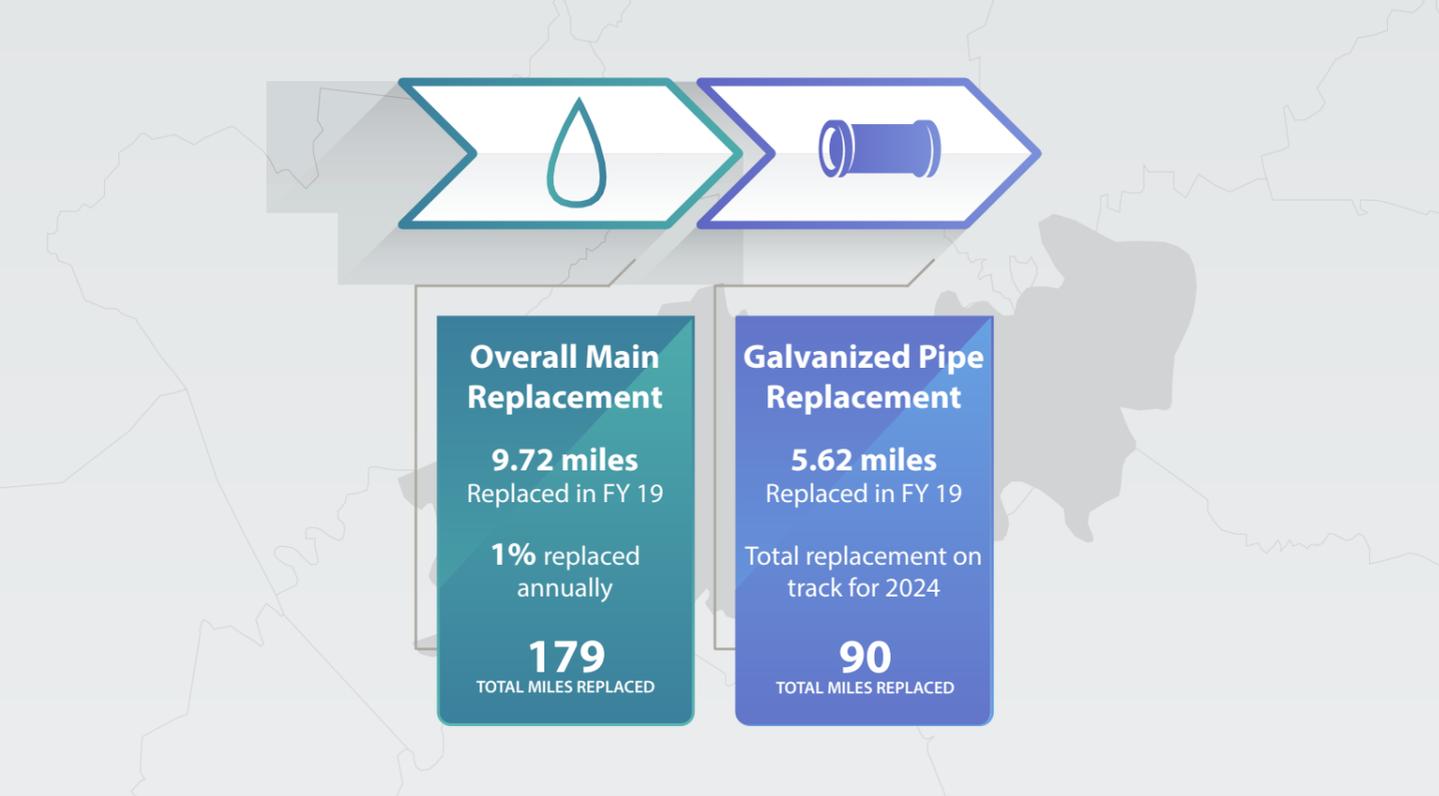
In FY 19, MBW's water network management software was upgraded to display real-time network data more efficiently. KUB has also implemented an intranet dashboard where system data is entered daily and can be accessed securely and separately from the real-time network management system. This dashboard allows KUB to pull both historical and current data in order to pinpoint anomalies in water sources or identify potential large-scale water issues. This helps KUB to more quickly recognize possible problems in the water system and develop solutions to prevent customer outages or safety hazards.

This fiscal year, KUB completed the \$7.2 million Depot Avenue project ahead of schedule. The project included construction of an 8,300-foot water transmission main to help improve reliability and operational flexibility in moving water to the west of MBW. The project also included replacing 3,000 feet of aging distribution mains. Century II projects such as this add resiliency to KUB's water system and prevent costly main breaks or service disruptions.



### Smarter Solutions

**TaKaDu Central Event Management System**  
 KUB is the first utilities provider in North America to use TaKaDu, an innovative software that analyzes water consumption data in order to identify potential system problems. In FY 19, this software alerted KUB to a large leak in the median of Interstate 640. If the leak had not been detected and repaired, a water value of nearly \$19,000 would have been lost over the course of a month. TaKaDu's data analysis technology helped KUB pinpoint the leak location and stop the water loss more quickly.

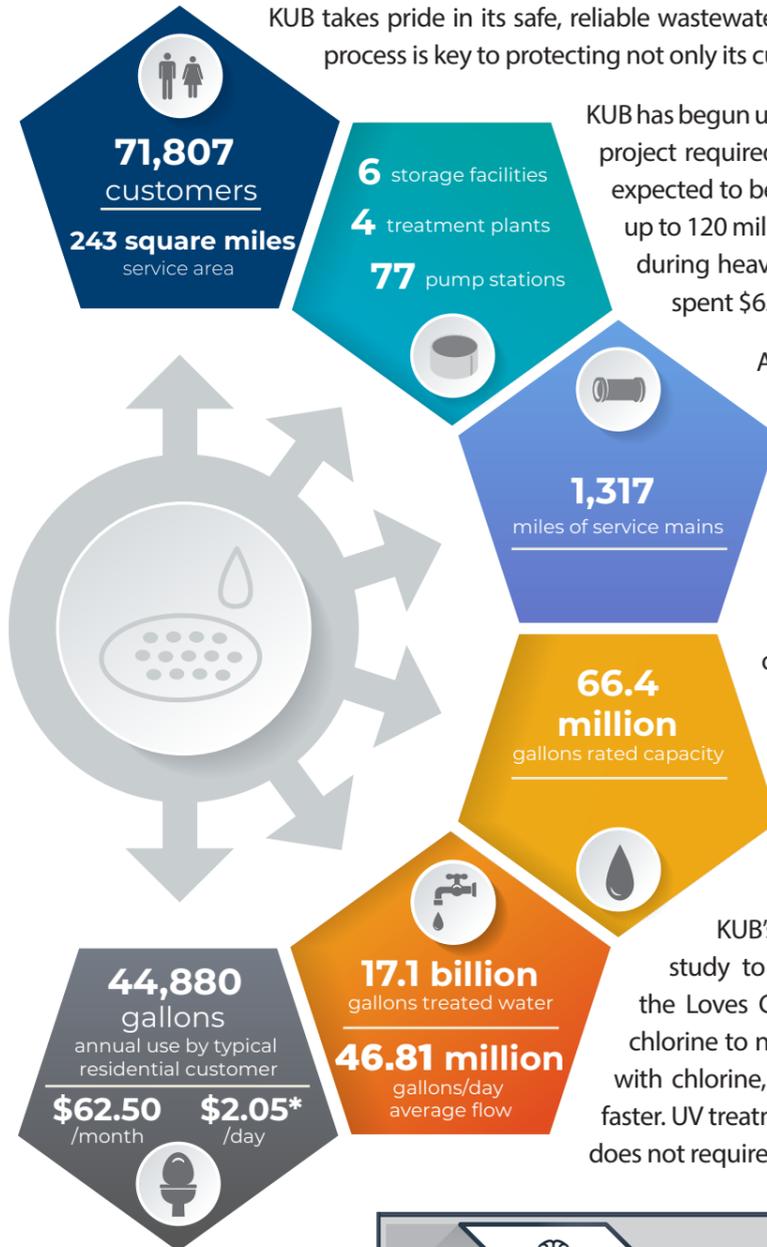


**“The TaKaDu management system is truly advanced data analytics and has become an integral part of our system management. It helps us identify which areas of our system should be targeted for leak detection. As a result, hidden, underground leaks can be located more quickly and scheduled for repair. That allows us to be better stewards of one of our community's most precious resources... water.”**

—Ted Tyree, Engineer, Water Systems Engineering

# WASTEWATER SYSTEM

KUB takes pride in its safe, reliable wastewater system. The care KUB puts into its wastewater treatment process is key to protecting not only its customers, but also the environment.



KUB has begun upgrading the Kuwahee Wastewater Treatment Plant, the final project required by the EPA Consent Decree (CD). The \$50 million project, expected to be complete in 2021, will give the plant the capability to treat up to 120 million gallons of water per day, aiding in the treatment process during heavy rain events. After the project's completion, KUB will have spent \$650 million on projects mandated by the CD.

As part of the Century II sewer rehabilitation efforts, KUB made steady progress in FY 19 in its goal to replace 2 percent of its pipes each year. Prior to the CD in 2004, KUB had approximately 75 percent clay and concrete pipe. Now, more than 50 percent of pipes are plastic or ductile iron. KUB has been able to reduce cost and neighborhood disruptions during this process using trenchless cured-in-place liner and pipe-bursting technologies to rehabilitate old pipe.

KUB's biosolids program was again certified by the National Biosolids Partnership at its highest platinum level, an honor KUB has held since 2011. Rather than send nearly 30,000 tons of biosolids a year to landfills, KUB recycles it as FDA-certified fertilizer through regional farmers.

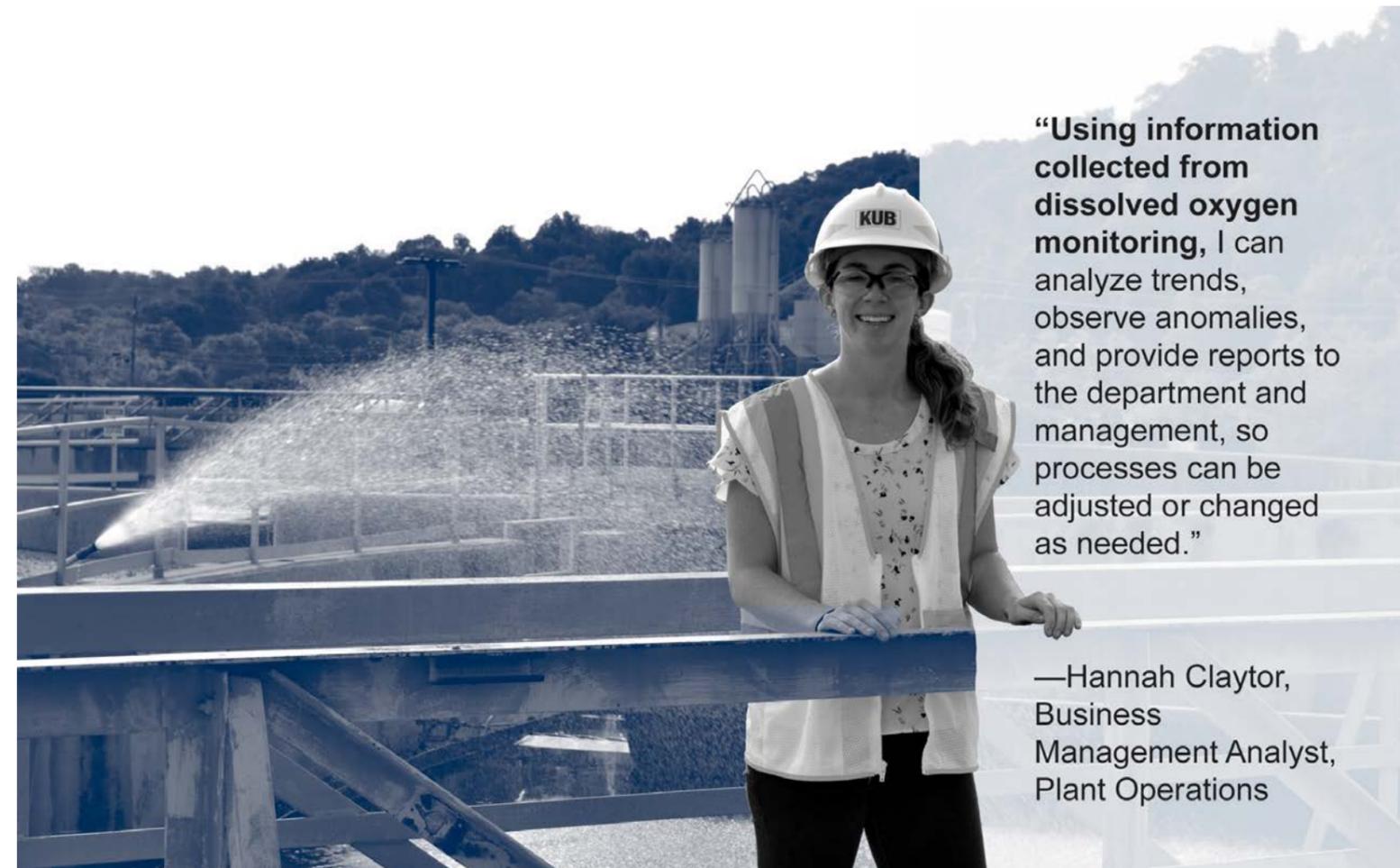
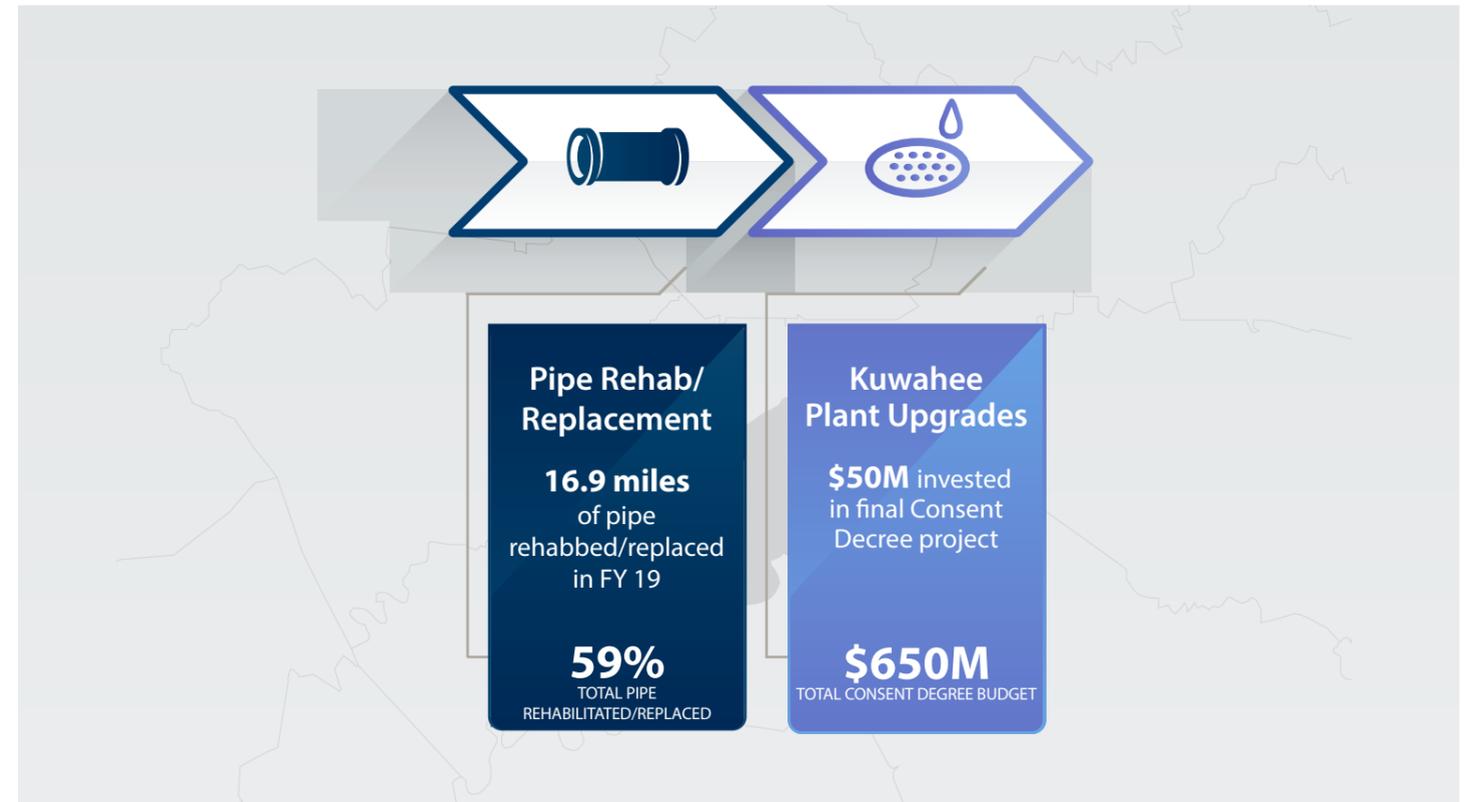
KUB's wastewater treatment plants recently underwent a case study to determine viable disinfection methods, and as a result, the Loves Creek Wastewater Treatment Plant switched from gaseous chlorine to non-contact ultraviolet (UV) disinfection in FY 19. Compared with chlorine, UV treatment is non-toxic to the environment and works faster. UV treatment also reduces fossil fuel use over chlorine, as the process does not require weekly delivery of chemicals.

### Smarter Solutions

**Dissolved Oxygen Monitoring**

KUB's Plant Operators use real-time dissolved oxygen monitoring to regulate aeration in the biological treatment process, which allows for precise control of the aeration system, reducing energy costs for rate payers and improving water quality discharged to the Tennessee River. Operators also continuously monitor ammonia rates, which increases efficiency by providing real-time information on the biological system health, allowing operators to make process adjustments to maintain KUB's goal of meeting or exceeding regulatory requirements.

Above: \*Wastewater is billed on water usage.



“Using information collected from dissolved oxygen monitoring, I can analyze trends, observe anomalies, and provide reports to the department and management, so processes can be adjusted or changed as needed.”

—Hannah Claytor, Business Management Analyst, Plant Operations

# ENVIRONMENTAL COMMITMENT

Moving forward with the people we serve means constantly evolving to find better ways of preserving our communities' resources. Through local and national partnerships, and in conjunction with internal initiatives and programs, KUB continues to work towards a more sustainable future for our customers' environment.



**100**  
bags of trash

Collected through employee community efforts




**275**  
total trees

planted at new Habitat for Humanity homes since 2008




**9 tons**  
of paper

saved annually through paperless billing



KUB employees continue to give their time to support environmental stewardship in the communities we serve. In FY 19, employees participated in Ijams Nature Center's River Rescue, the annual Knoxville EarthFest Earth Day celebration, the Adopt-A-Stream Spring Clean Up event, and Ijams' WaterFest.

In addition to our work outside KUB, we continue to incorporate sustainability into our internal operations and facilities. KUB's Environmental Stewardship Employee Engagement team encouraged departments to "Think Green" for offices and breakrooms by reducing purchases of single-use items and investing in more environmentally friendly supplies. We are also incorporating sustainability features into our facilities, including a new solar panel array at our recently opened Engineering Building. KUB continues to promote initiatives like our Materials Reuse Program as well, which allows for the beneficial reuse of KUB construction materials in the community.

KUB again offered customers a \$5 gift card incentive to enroll in paperless billing. With 14,640 new paperless billing customers this fiscal year, KUB now has over 40,000 customers participating in paperless billing, which saves nearly \$250,000 in paper and postage costs and more than nine tons of paper annually.

Now in its third year of operation, KUB's compressed natural gas (CNG) fueling station is one way KUB promotes the use of alternative fuels. Through outreach and promotion to encourage its use, KUB sold six times more CNG from the station in FY 19 than the year prior.



## Smarter Solutions

**Alternative Fuel Fleets**

KUB incorporates environmental commitment into our everyday operations by actively seeking out technologies that allow us to minimize our environmental impact. KUB uses Compressed Natural Gas (CNG) and electricity to power our alternative fuel fleet vehicles, and we are certified through the Tennessee Green Fleets Program in recognition of our efforts to reduce petroleum consumption and emissions.

# COMMUNITY INVOLVEMENT

KUB takes pride in the communities it serves. That pride is exemplified in the connection we make with the community through volunteer service, outreach events, and multi-organizational partnerships.

KUB, in partnership with TVA's EnergyRight® and City of Knoxville's Savings in the House programs, began in FY 19 offering free Energy and Water Saving Workshops for area community groups. At the workshops, KUB employees present easy and accessible ways to take control of energy and water use demonstrated on interactive displays. Participants also leave with a free Home Energy Starter Kit, which contains tools and materials to help attendees make their home more efficient, and a water conservation kit, which provides easy solutions for cutting back on water use. Since April 2019, KUB has presented workshops to approximately 300 community members.

In partnership with the City of Knoxville, CAC, and TVA, KUB has continued to provide weatherization for low-income families' homes through the Round It Up program. More than 350 homes have been weatherized through the program. KUB customers have donated \$3 million by rounding their bills up to the next dollar, with additional support provided by TVA's Home Uplift program.

KUB's dedication to our communities also shows through the Vol Time program, which gives employees eight hours of paid leave each year to volunteer with approved organizations. In 2018, approximately 40 percent of KUB employees donated more than 3,500 hours volunteering.

KUB employees also show community support through contributing to United Way monthly and during the annual United Way fundraising campaign. Through our 2018 campaign, KUB raised more than \$208,000 – enough to help more than 100,000 people in our community.



**358**  
homes weatherized

**\$3.1 million**  
donated by KUB customers





**3,500**  
employee volunteer hours

**52%**  
of employees volunteered




**\$208,000**  
donated by KUB employees during the 2018 United Way Campaign



## Smarter Solutions

**KUB Cares 'VOL'unteer Fair**

KUB Cares, the employee organization dedicated to facilitating community volunteer efforts, hosted a 'VOL'unteer Fair in FY 19. The University of Tennessee Vol-themed event connected employees with over 20 local charitable organizations, like Friends of Literacy, the Humane Society of the Tennessee Valley, and the Emerald Youth Foundation. Employees could sign up to volunteer for agencies on-site or register to be contacted about future volunteer opportunities.



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