




Real People. Real Commitment.

2016 Annual Report





Our Vision:
KUB exists to serve its customers, improving their quality of life by providing utility services that are safe, reliable and affordable.

Shared Values:

- We value the safety and well-being of our customers and employees.
- We value fairness, and try always to make decisions that provide the greatest good for the most people.
- We are in a position of trust and hold ourselves to high ethical standards.
- We improve the value of our services through efficiency, innovation and communication.
- We value the commitment and hard work of our employees.
- We are environmentally responsible in our operations and support the sustainability of our communities' natural resources.
- We participate in the communities we serve.

Our Mission:

Our mission is to act as good stewards of our communities' resources: utility assets, customer dollars, and the environment. We work to safeguard those resources and enhance their value for the people of the communities we serve and generations to come.

We Measure Our Success by:

Customer Satisfaction	System Performance	Financial Performance	Safety Performance
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Keys to Success:

Managing Our Utility System Infrastructure			
Electric	Natural Gas	Water	Wastewater
Improving The Customer Experience	Managing Our Finances Effectively	Meeting Or Exceeding Regulatory Standards	
Investing In A Skilled, Diverse Work Force	Partnering For Economic Development	Being Environmentally Responsible	

KUB Board of Commissioners:

Nikitia Thompson
Chair

Sara Hedstrom Pinnell
Vice Chair

Jerry W. Askew

Kathy Hamilton

Celeste Herbert

Eston Williams

John Worden



Real People, Real Commitment



When customers think of KUB, most think, “pipes and wires”—and, yes, bills.

I think, people and community—and balance.

“People” for the 950 KUB employees; real people, with real commitment, who work hard each day to deliver safe, reliable, and affordable utility services. And “people” for the more than 445,000 residents in our area who use our services every day.

Our customers aren’t just numbers to us. They are also our families, friends, and neighbors.

We want their utilities to be safe, reliable, and affordable because we use those same services. We work to support our community and protect our environment because we live, work, and raise our families here, too.



One way we’re doing this is our Century II program, which helps keep us on track with systematic, coordinated maintenance and replacement plans for each system. Century II also ensures we budget appropriately for the needs of current and future customers.

In this report, you will see Century II at work and what it’s achieving in each of our utility systems. You will also see our employees’ very real commitment. I appreciate their dedication. And I am pleased to report that a recent KUB survey shows that customers do, too.

Most residential customers (95 percent) and business customers (95 percent) answered “good” or “excellent” when asked to rate KUB employees on professionalism. KUB also got high survey marks for ongoing community and environmental efforts and for helping our community grow.

At its heart, KUB exists to serve our customers. Throughout this report, you’ll see how KUB employees work to do just that. I am proud to say that they embody KUB’s commitment to being good stewards of our utility assets, customer dollars, our community, and our environment.

Mintha Roach



Management

Mintha Roach
President and Chief Executive Officer

Bill Elmore
Executive Vice President and Chief Operating Officer

Mark Walker
Senior Vice President and Chief Financial Officer

Susan Edwards
Senior Vice President and Chief Administrative Officer

Eddie Black
Senior Vice President

Mike Bolin
Vice President

Julie Childers
Vice President

Derwin Hagood
Vice President

Dawn Mosteit
Vice President

Paul Randolph
Vice President

Dennis Upton
Vice President

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ENHANCING VALUE

I wanted to pass on my appreciation to the gentleman who replaced our meters. He was polite, well-spoken, and efficient, and he readily answered my questions about the new electronic meters.
—Vic

Improving the Customer Experience

KUB exists to serve its customers, improving their quality of life by providing utility services that are safe, reliable, and affordable. Our electric system has been recognized as a Reliable Public Power Provider (RP3) by the American Public Power Association. The program recognizes utilities highly proficient in reliability, safety, workforce development, and system improvement. In 2015, KUB achieved Diamond recognition—the highest level of the program—a three-year designation.


KUB increased reliability with the completion of the South Loop natural gas line, a project that provides an inner loop of high-pressure lines in addition to the existing outer loop, strengthening KUB's system.

We are also proud of our excellent water quality and reliability. That reliability contributed to Fresenius Medical Care, the world's largest provider of dialysis products and services, announcing plans to open a manufacturing facility in Knoxville, bringing over 650 jobs to the community. KUB's water quality, testing procedures, and the expertise of our staff were among the reasons cited for choosing Knoxville.

The Century II grid modernization program provides another opportunity to further enhance service and reliability for our customers. After a successful pilot program that ended in 2014, KUB has expanded the program through a four-year project to replace all electric, water, and natural gas meters in our system. These new meters will provide a multitude of benefits to both customers and KUB, including enhanced outage detection capabilities, access to a customer portal, and environmental sustainability improvements [see sidebar].



Advanced Metering by the numbers

80,000
 water meter lids
to be **retrofitted**
and reused
for advanced
meters

500,000
 *fewer miles* will be
driven annually to
read meters and
perform tasks

33,000
 gallons per year
estimated fuel
savings


Improving Reliability



2007



2016

 Annual
Electric
Outages
From
Buried
Cable



ELECTRIC SYSTEM

Thank you, KUB, for your rapid solution to our power outage. I called, and a crew was on site in 10 minutes. Power was restored within 10 minutes of their arrival. I am amazed at your rapid response and efficiency! We have lived all over the country and NEVER had a utility provider respond so quickly!
—Stephen

Modern Technology Supports Reliability

KUB is committed to investing in our electric system to help ensure reliable, affordable service for our customers. That investment includes replacing poles (about 2,600 a year), underground cables, and other vital components, as well as investing in grid modernization [see pg 2].

Since 2006, KUB’s electric reliability has improved by 32 percent. KUB’s Century II maintenance and replacement programs, including tree pruning, play a large part in that. Under Century II, for example, we will completely rebuild and upgrade our 69kV transmission lines by 2026.

KUB will also finish installing fiber optic communication cables—an integral part of grid modernization—to all substations. That will help us continue to efficiently monitor, control, and operate the system.

Under Century II, KUB focuses on upgrading three to four substations a year. By 2026, we will have modernized 100 percent of our older substations.

KUB also added the new East Knox Infeed Substation in fiscal year 2016. It was a joint project with TVA and also serves as a TVA 161kV switching station. It provides power to the eastern portion of KUB’s service area and adds needed flexibility to support upgrading KUB 69kV transmission power lines in the area.



- 32 percent improvement in electric reliability since 2006
- Reliable Public Power Provider since 2015
- 50% critical substations upgraded
- 1 new infeed substation came on line in September 2015

 **94%**
of residential customers

and

 **96%**
of business customers

rated KUB’s electric reliability **good** or **excellent** in this year’s survey.



NATURAL GAS SYSTEM

Two of your skilled, efficient, and friendly employees showed up at our house to fix a small gas leak. They inspected all our gas appliances. It is very comforting to know my utility company is taking such good care of me!
—Susie

Ongoing Renewal Strengthens System

Thanks to a long history of maintenance and replacement efforts that continues under our Century II infrastructure program, about 90 percent of KUB’s gas system is polyethylene (plastic) pipe. That’s a significant change from when we began major replacement efforts in the 1980s, when the system was mostly bare steel, cast iron/ductile iron, and high- and low-pressure coated steel. Today, we are well on the way to being an all plastic and high-pressure steel system.

Newer pipe is lower maintenance and longer-lasting, with a life expectancy of 100 years. That helps hold costs down and strengthens the system.

New infrastructure supports safety, reliability, operating flexibility, and growth. KUB also partners with customers to extend or upgrade service to support growth that is good for them, our system, and the community.

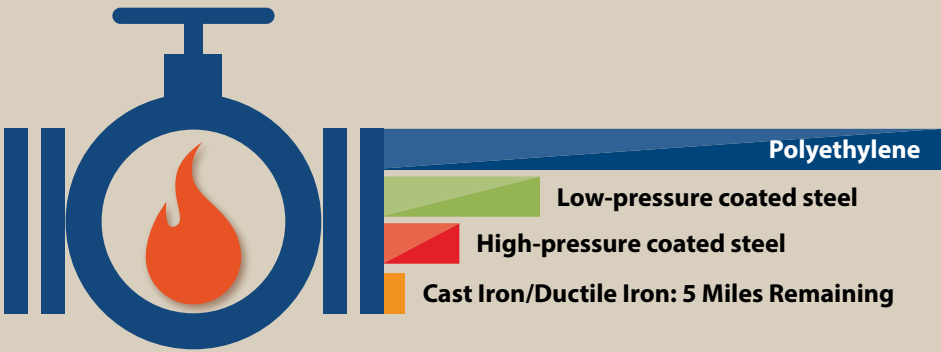
In partnership with Tennova Healthcare, for example, KUB revised Century II plans to coordinate with site planning for a new hospital in West Knoxville. The new gas line in that area will help strengthen KUB’s gas system, provide more reliability, and serve a customer generating new jobs—and providing a vital service.



KUB helps ensure safe delivery of gas through an extensive leak detection program. KUB staff use “sniffer” trucks and Segways® to inspect high-density areas each year. In addition, we check a third of our system each year, surveying a total of 2,400 miles of pipe on a three-year cycle.



2016 System Pipe Composition



WATER SYSTEM

I want to compliment the KUB crew that fixed my water line after hours. They told me over and over "it was our job, and we are happy to do it." They assured me they would correct the problem before they left—and they did.
—Wilma

Investing in Quality and Reliability

Since 1927, KUB's Mark B. Whitaker (MBW) Water Plant has sustained an unblemished record for producing the safe, high-quality drinking water our customers expect. We continue to invest in our plant, our state-of-the-art laboratory, and our water distribution system to uphold that record.

KUB has made numerous upgrades to the plant over the years to meet new requirements and incorporate new technologies. Proposed and ongoing projects focus on improving the operational flexibility of MBW, KUB's only water treatment plant.

Those projects include adding a redundant high service main and replacing the current chlorine gas disinfection process with a liquid injection of sodium hypochlorite. KUB broke ground on a new Bulk Hypochlorite Disinfection Building in May 2016, with completion scheduled for May 2017. The new hypochlorite process will eliminate many maintenance activities and hazards associated with using chlorine gas.

KUB also plans to invest more than \$100 million over the next 15 years for more upgrades to provide redundancy at the plant. That will provide more flexibility for daily operations and maintenance activities.



since 2006
115 miles
of water distribution
system pipe replacement

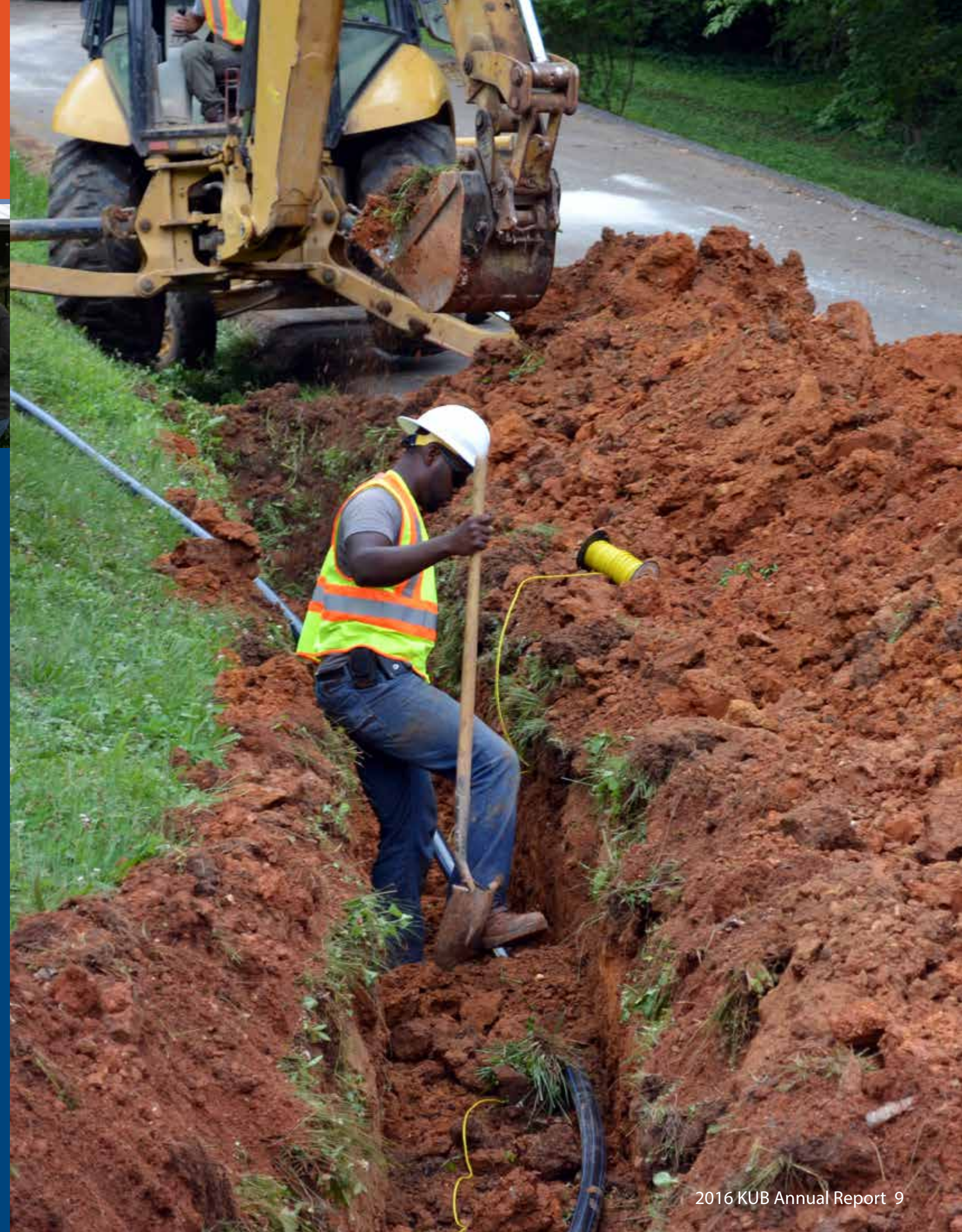
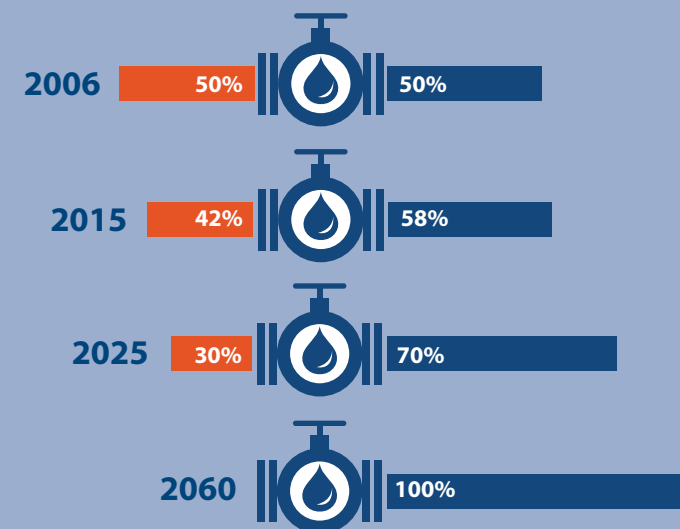


1%
of water pipes
replaced per year

100 year
average life for
new pipes

Water Pipe Renewal

Old Pipe Types
New Pipe Types



WASTEWATER SYSTEM

Thank the Lord for biosolids! Before I had a rock farm, now I have a real farm.
—Farmer's comment during KUB Biosolids Program audit

Renewal Efforts Benefit Customers, Environment

KUB's stewardship helps provide customers with safe, reliable wastewater service to protect the environment. Since 2004, KUB has reduced sanitary sewer overflows (SSOs) by 82 percent, with record low numbers of SSOs in the past two years.

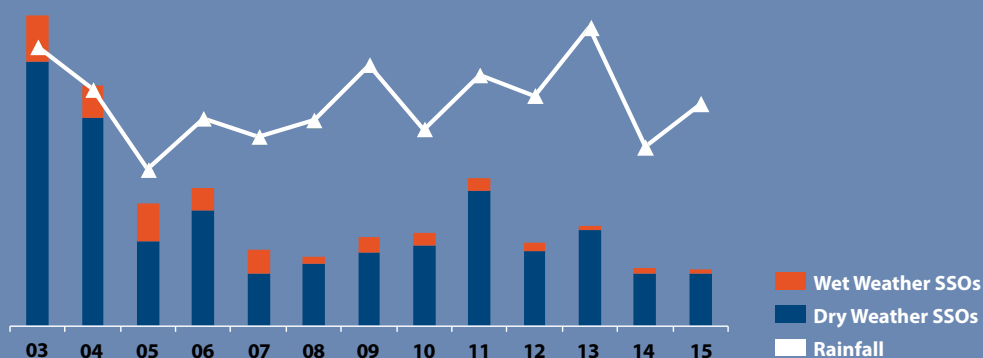
Aggressive rehabilitation/replacement programs tipped the balance of the system so that more than half of KUB's wastewater pipes are newer, longer-lasting materials. KUB plans to continue replacing the system at our current rate of 2 percent (or an average of 25 miles) per year. With funding approved by the KUB Board of Commissioners, that will keep wastewater system replacement on a sustainable 50-year replacement cycle.

KUB also continues to invest in our four wastewater treatment plants, which have a history of excellent compliance with regulatory requirements. Since 2000, the plants have received 52 peak performance awards from the National Association of Clean Water Agencies.

KUB completed Phase 1 of planned wastewater plant improvements in June 2015. Phase 2 improvements at our Kuwahee and Fourth Creek plants include increasing treatment capacity and adding additional treatment processes. KUB is on track to complete Phase 2 by 2021 at a cost of more than \$50 million.

KUB is committed to continued investment in our collection system and treatment plants to help better serve our customers, meet regulatory requirements, and protect our environment.

Sewer Overflows *Decline 82%*



since 2004
335
miles of pipe
rehabilitated/replaced



8,230
manholes
rehabilitated/replaced



6 wastewater storage
tanks **constructed**



ENVIRONMENTAL

"TVA programs [eScore® & EnergyRight Solutions®] are a success because power companies like KUB are willing to provide opportunities to customers. I present a lot of awards, but I've not recognized any other utility for this many!"
—Cindy Herron, TVA Vice President

Environmental Stewardship for Today and the Future

KUB has a long history of making environmental responsibility a priority. In FY 16, that commitment was revitalized with the adoption of a new corporate environmental policy. This policy serves as the foundation for KUB's environmental stewardship with continual improvement through new and expanded programs and initiatives. Included in these programs are opportunities for employees to participate by volunteering at environmentally focused agencies and participating in programs like EarthFest and River Rescue [see photo at right].

The construction of a new compressed natural gas (CNG) fueling station is underway and planned for completion in early 2017. KUB continues to expand its alternative fuel options, and the new station will support our goal to increase our alternative fuel fleet. The station—replacing KUB's current aging station used only by KUB fleet—will be the first in Knoxville to provide this clean fuel to the public.

We are also looking to the future at KUB's Kuwahee wastewater treatment facility. Plans are underway to construct a combined heat and power system for the plant. The system will allow for beneficial reuse of biogas produced as a byproduct of the plant's processes to generate up to 1.4 megawatts of clean energy for consumption by the plant.

 **91%**
of residential customers

and

 **94%**
of business customers

rated KUB's environmental stewardship **good** or **excellent** in the 2016 Customer Satisfaction Survey.



30,000

tons of biosolids



405

tons of recycled concrete



30

million gallons
of water treated per day



38

million gallons
of wastewater treated
per day

52

NACWA Awards



COMMUNITY

I want to thank KUB for the Round It Up program. Over time, high utility bills end up costing Knoxville County residents more. I appreciate KUB's efforts to combat this issue.
—Magee

Participating In the Communities We Serve

KUB is committed to the communities we serve, and we have longstanding relationships in the community to better assist our customers. KUB collaborates with the City of Knoxville and the Knoxville-Knox County Community Action Committee (CAC) on Round It Up and Knoxville Extreme Energy Makeover (KEEM) weatherization programs.

Round It Up is a voluntary program that rounds KUB customers' monthly bills up to the next dollar and 100 percent of that money is sent to CAC's Weatherization Assistance Program to help improve the energy efficiency of homes for low-income homeowners and renters.

In August 2015, the KEEM team, consisting of City of Knoxville, CAC, The Alliance to Save Energy, and KUB, received a \$15 million TVA grant to retrofit at least 1,200 older homes located in low-income communities. These upgrades will result in a 25 percent reduction in each home's electric energy use through whole-home energy retrofits.

KUB's employees are also active in the community. Vol Time, a volunteer time policy, allows KUB employees the opportunity to receive up to eight hours of paid time annually for approved volunteer events.

KUB employees also give back with an annual United Way fundraising campaign. In 2015, our employees set a new record for event attendance at fundraising events, and even surpassed the fundraising goal. With events and payroll contributions, employees raised nearly \$230,000.



over
\$1.2 million
raised for Round It Up since
program's start in May 2015

more than
800
customer homes
weatherized by
KEEM and RIU funds



3,600 hours
 *volunteered* by KUB
employees in 2015

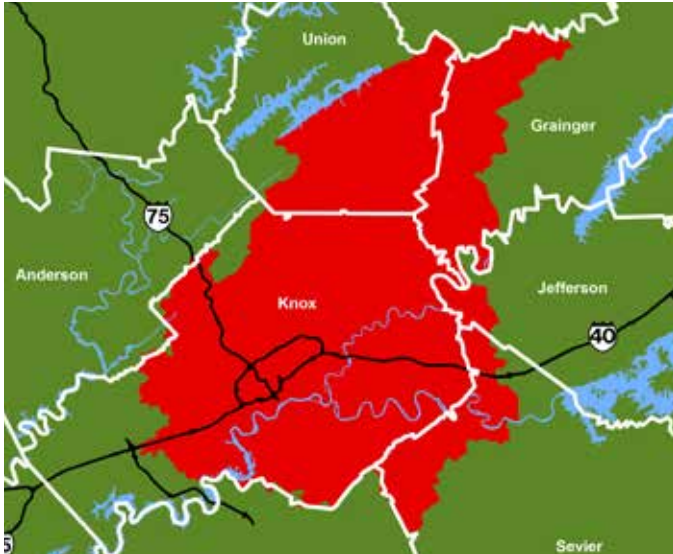
\$229,777
raised in 2015
United Way campaign



Service Area Maps and Statistics

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Electric Service Area



Number of Customers	202,843
Service Area	688 square miles
Service Lines	5,321 miles
Substations	63
Peak Day Demand (kW)	1,328,313 (2/20/15)
Peak Demand Capacity (kVA)	2,600,000
Total Purchased Power (MWh)	5,545,940
Purchased Power Cost	\$403 million
Power Cost as a Percentage of Sales	79%
System Bond Rating	Standard & Poor's AA+, Moody's Aa2

KUB's Typical Residential Electric Customer

Annual Usage (kWh)	12,000
Average Monthly Bill*	\$101.78
Cost per kWh	\$0.102
Average Daily Cost for Electric Usage	\$3.35

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

*Based on monthly rates for 12 months ending June 30, 2016.

Natural Gas Service Area



Number of Customers	99,808
Service Area	284 square miles
Service Mains	2,316 miles
Peak Day Demand (dth)	136,356 (02/19/15)
Peak Demand Capacity (dth)	157,381
Total Purchased Gas (dth)	11,410,521
Purchased Gas Cost	\$41 million
Natural Gas Cost as a Percentage of Sales	47%
System Bond Rating	Standard & Poor's AA, Moody's Aa2

KUB's Typical Residential Natural Gas Customer

Annual Usage (Therms)	586
Average Monthly Bill*	\$52.51
Cost per Therm	\$1.08
Average Daily Cost for Natural Gas Usage	\$1.73

A therm will dry six loads of clothes in a gas dryer.

*Based on monthly rates for 12 months ending June 30, 2016.

Water Service Area



Number of Customers	78,980
Service Area	188 square miles
Treatment Plants	1
Booster Pump Stations	24
Storage Facilities	28
Service Mains	1,411 miles
Rated Capacity (mg)	62.9
Reservoir Capacity (mg)	38.1
Total Treated Water	12 billion gallons
Average Flow (mgd)	32.9
System Bond Rating	Standard & Poor's AAA, Moody's Aa1

Mg equals million gallons. Mgd equals million gallons per day.

KUB's Typical Residential Water Customer

Annual Usage (Gallons)	44,880
Average Monthly Bill*	\$21.45
Cost per Gallon	\$0.006
Average Daily Cost for Water Usage	\$0.71

A customer who uses 1,500 gallons of water a month (for example) pays \$13.50 (or 45 cents a day).

*Based on rates as of June 30, 2016.

Wastewater Service Area



Number of Customers	70,265
Service Area	245 square miles
Treatment Plants	4
Lift Stations	75
Storage Facilities	6
Service Mains	1,317 miles
Rated Capacity (mg)	66.4
Total Treated Water	13.9 billion gallons
Average Flow (mgd)	38.14
System Bond Rating	Standard & Poor's AA+, Moody's Aa2

Mg equals million gallons. Mgd equals million gallons per day.

KUB's Typical Residential Wastewater Customer

Annual Flow (Gallons)	44,880
Average Monthly Bill*	\$53.50
Cost per Gallon	\$0.014
Average Daily Cost for Wastewater Usage	\$1.76

Wastewater is billed on water usage.

*Based on rates as of June 30, 2016.



KUB

www.kub.org