

KUB

Sale of Surplus Real Property

April 18, 2019



Resolution 1392

Description of Property

- Approximately 6.74 acres south of KUB's Westland Drive Substation
- Property not needed for KUB's electric system or any other utility system



6.74 Acres
Surplus Property

Access Easement

Westland Drive Substation

Resolution 1392

- Declares 6.74 acres surplus real property
- Authorizes President and CEO to sell the property
 - Best interest of KUB and Electric Division
 - Consistent with Procurement Procedures and state law
- Directs proceeds of sale to Electric Division

KUB

FY 2020 Budget Workshop

April 18, 2019





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	

Century II Remains Strong

- Benefits of investments for customers
 - Major improvements in electric reliability
 - Gas system more resilient and growing
 - Water Plant resiliency project and pipe replacement programs on track
 - Sewer overflows reduced by 80% and final Consent Decree project underway
- \$176 million in system investments in KUB's FY 20 budget



Century II Puts KUB Ahead of the Curve



Tennessean.
PART OF THE USA TODAY NETWORK

TN water infrastructure needs \$15.6 billion for repairs, growth: state report

“Both as Mayor and as a Knoxville resident, I very much appreciate the investment KUB is making to replace and upgrade aging infrastructure.....it is absolutely crucial to the future of our city.”

– Mayor Madeline Rogero



MLGW's Underground Electrical Cable: Living on Borrowed Time



After rate hikes not approved, MLGW hopes for ‘storm free summer’

KUB is in a Great Place



Reliable Public Power Provider



ASSOCIATION OF METROPOLITAN WATER AGENCIES

Platinum Award for Utility Excellence



WATER RESOURCES UTILITY OF THE FUTURE



TREE LINE USA

American Public Gas Association



American Gas Association Safety Achievement Award



High Quality Bond Ratings Reflect Financial Soundness of Systems

Current Bond Ratings

	S&P	Moody's
Electric	AA+	Aa2
Natural Gas	AA	Aa2
Water	AAA	Aa1
Wastewater	AA+	Aa2

“Based on S&P’s financial management assessment, we view KUB to be ‘1’ on a scale of 1-6, with ‘1’ being the strongest.”

— Standard & Poor’s (August 2018)

“The Knoxville Utilities Board has a long-standing history of well-managed operations, sound fiscal planning, and a well-developed asset management plan that spans a period of 10 years.”

— Moody’s Investors Service
(August 2018)

FY 20 Highlights

- Century II priorities continue
 - System replacement plans continue to be refined
 - Better data means better decisions
- No changes to previously adopted rate increases
- FY 20 budget totals \$962M

KUB

Electric and Natural Gas System Investments

John Gresham, Vice President



Electric System

Customers: 207,228

Service Territory:
688 square miles

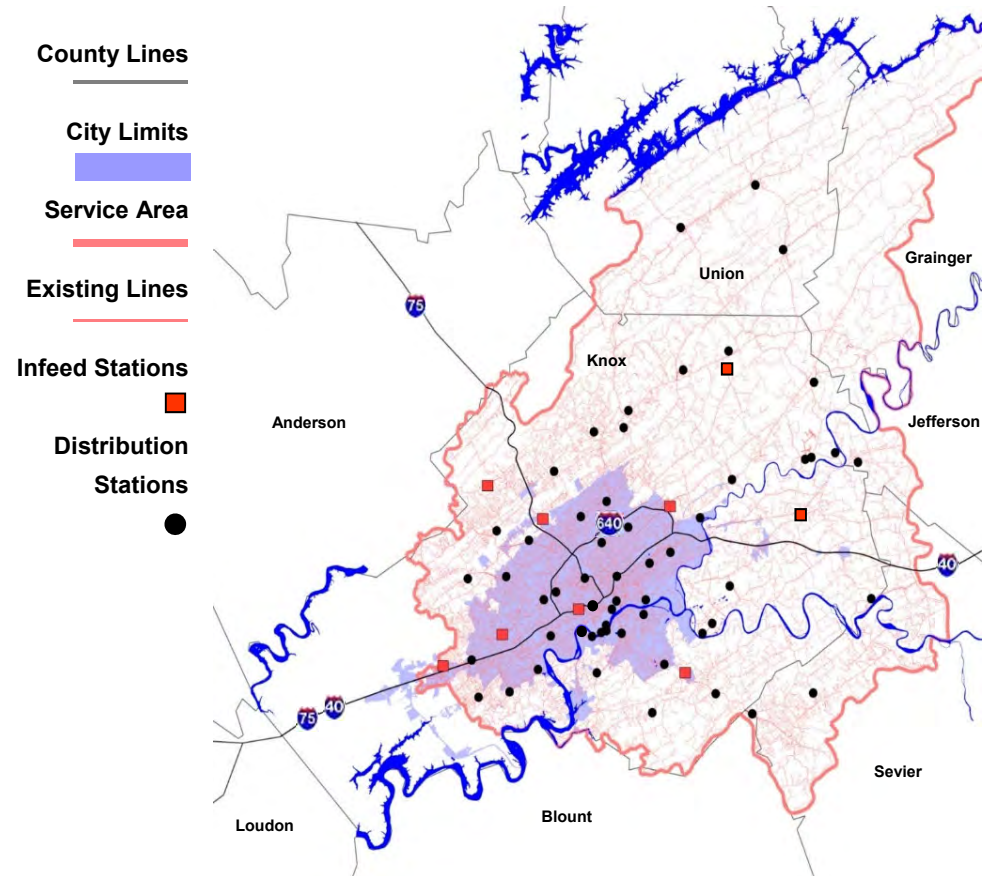
Electric Lines: 5,368 miles
Distribution Overhead: 4,039 miles
Distribution Underground: 1,069 miles
Transmission: 260 miles

Infeed Substations: 9

Substations: 63

System Capacity: 3,030 MW

Peak Hourly Demands:
Winter: 1,332 MW (Feb. 2015)
Summer: 1,235 MW (Aug. 2007)



FY 20 Continues Century II Improves Reliability and Supports Growth

- Capital Investment
 - Asset renewal programs
 - Asset addition and upgrade projects
- Maintenance
 - System asset programs
 - Vegetation management
- Grid Modernization
 - Meter deployment
 - Fiber build-out
 - System automation projects



FY 20 Major Capital Projects

- Substation improvements
 - National Drive: \$3.6M
 - Coster Road: \$500K
 - Walker Springs Road: \$600K
- Transmission line projects
 - \$11M upgrades 17 miles
 - 50% of 260 miles complete
- Distribution system improvements
 - Tazewell Pike: \$700K
 - Union County Highway 370: \$300K

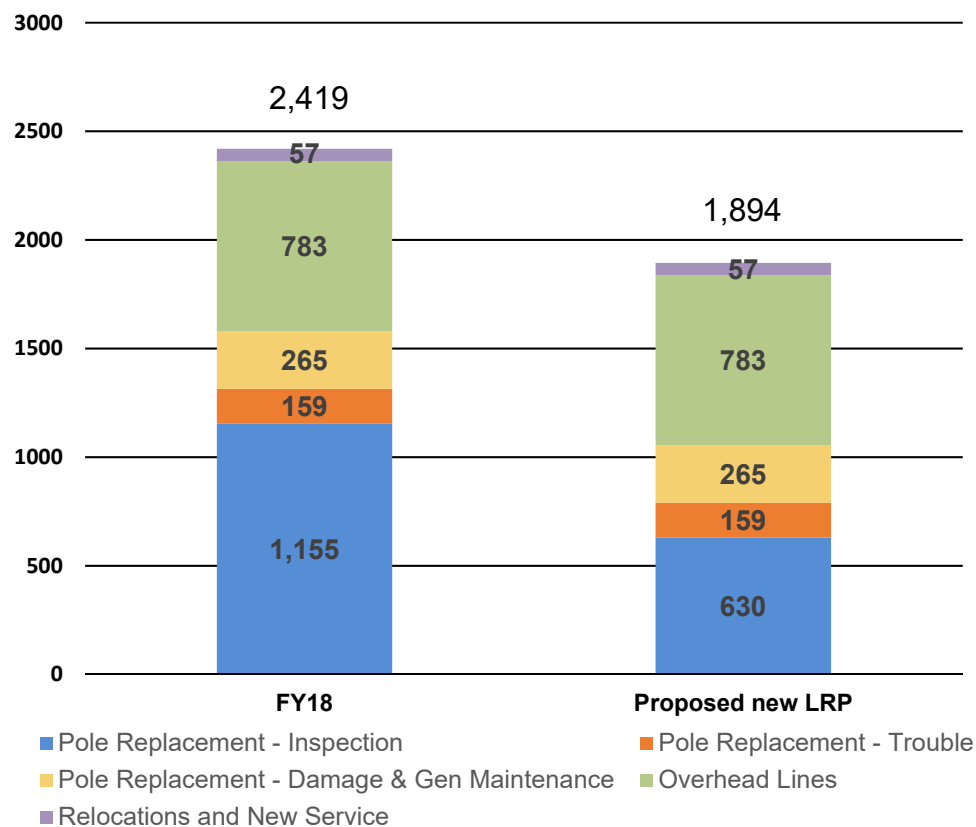


FY 20 Asset Replacement Programs

- Underground cable
 - \$2M replaces 9.5 miles
 - 31 miles remain to be completed by 2023
- 13 kV switches
 - \$500K replaces 30 switches
- Switchgear
 - \$450K replaces five units
 - 10 of 25 units remain
- LED private lights
 - \$2.1M replaces 6,900 lights



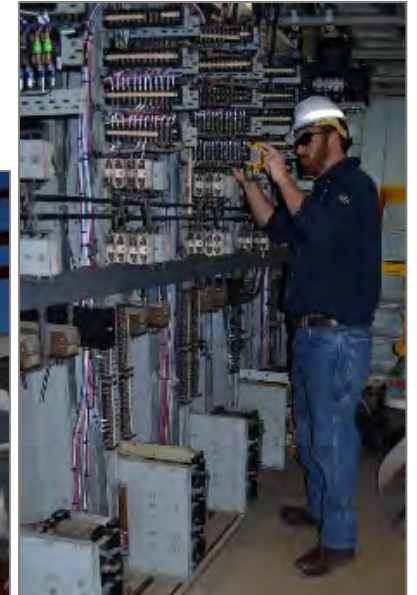
Changes in Pole Replacement Program



- First 12-year cycle of inspection complete
 - Fewer issues
 - Poles in good condition
- Modify inspection method
- Reduce poles replaced via inspection
- Saves \$1.9M in FY 20

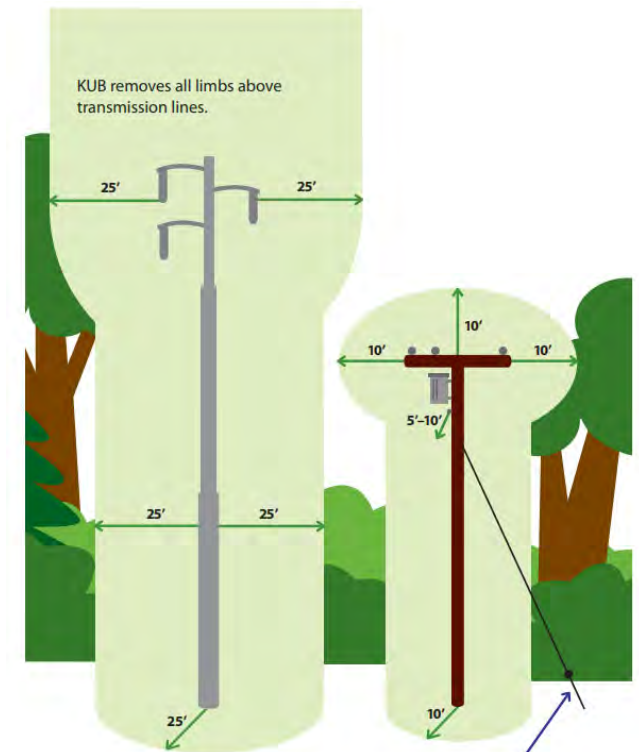
Century II Maintenance Enhances Reliability

- Investing \$4M in FY 20
- Substations
 - Transformers: 4 years
 - Breakers: 4 years
 - Control systems: 3 years
 - Oil analysis: 6 months
 - Control house: 15 years



Vegetation Management Enhances Reliability

- Tree Line USA® Utility since 2001
- Partner with local agencies
 - City of Knoxville Tree Board
 - Trees Knoxville
 - University of Tennessee (UT)
- \$10.5M in FY 20
 - Distribution system: 800 miles \$7.4M
 - Transmission system: 50 miles \$250K
 - Reactive/storm work: \$1.1M



KUB removes all limbs above transmission lines.

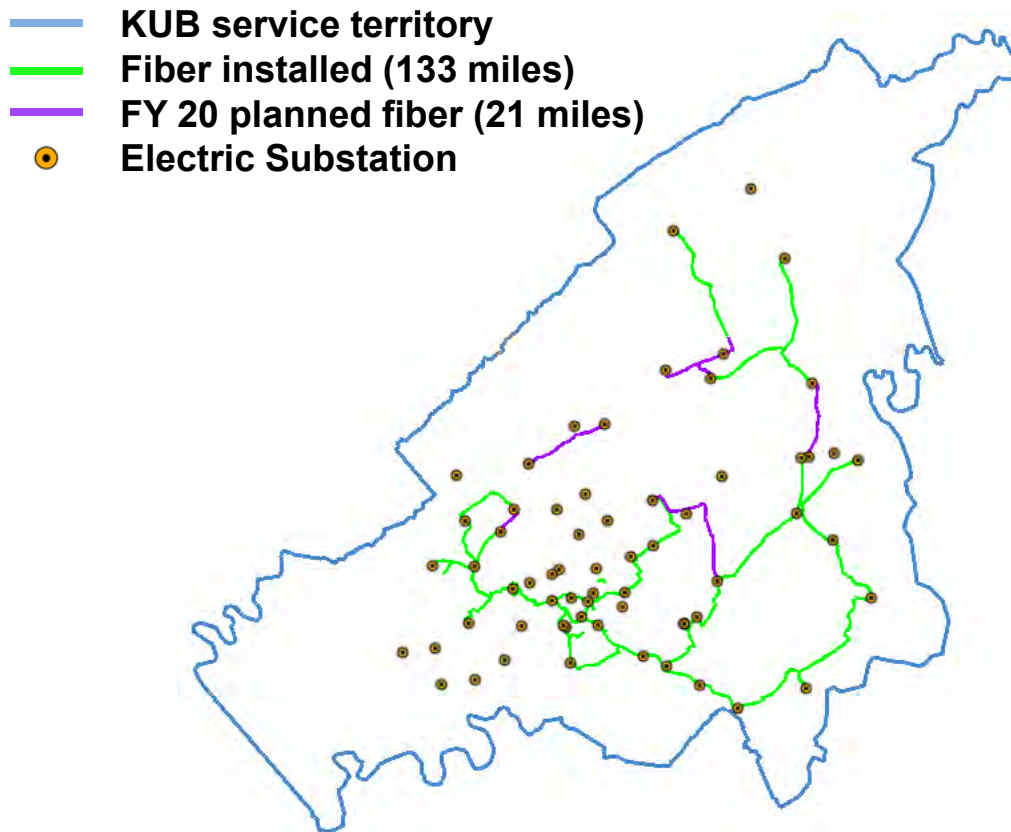
KUB will prune where vegetation is in contact with or threatening to damage down guy wires.

Grid Modernization Meter Deployment

- Final year of four year deployment
- Completes the deployment of all meters
- \$2.2M expected annual savings by end of FY 20

	FY 17–19	FY 20
Dollars Spent/Budgeted	\$34M	\$5M
Meters Deployed	143,898	55,421
Savings to Date	\$1.1M	\$1.07M

Grid Modernization Fiber Buildout



	Deployed	FY 20
Fiber (miles)	48	21
Substations	27	8
Leased circuits eliminated	14	6
Annual savings	\$210K	\$90K

Distribution Automation Reduces Outage Duration

- Smart reclosers
 - Investing \$1M in FY 20
 - 38 devices
- Projected savings of 850,000 minutes of interruption in FY 19
 - 700,000 minutes saved year-to-date
- Implement advanced distribution management system



Growth Continues

- Supporting customer needs
 - Parkwest Medical Center: 2,400 kW
 - Joyson Safety Systems: 1,800 kW
 - UT Student Union Building: 1,500 kW
 - Fresenius: 500 kW
- Serving new development
 - Southside Flats: 1,200 kW
 - Fresenius Warehouse: 1,500 kW
 - Old Kern's Bakery: 1,000 kW
 - Supreme Court Building: 1,500 kW



Hoskins Campus Building Projects

- Engineering Building
 - Complete summer 2019
 - \$823K in FY 20
- Operations Building
 - Begins summer 2019
 - \$2.2M in FY 20

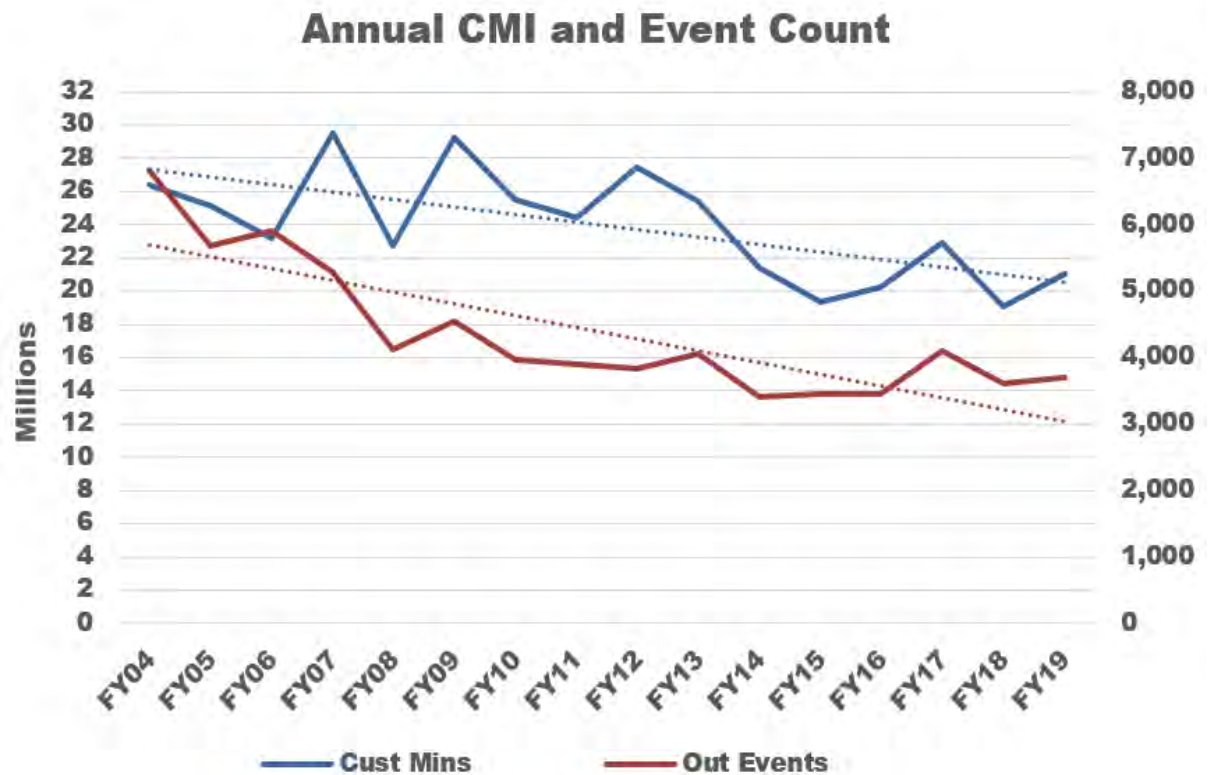


Improving Reliability

- Diamond level RP3 designation
- Focus on reliability
 - Century II programs
 - Technology advancements



American Public Power Association



Natural Gas System

Customers: 102,874

Service Territory:
288 square miles

Mains: 2,444 miles
Distribution
Steel: 174 miles
Plastic: 2,199 miles
Higher pressure: 71 miles

Gate Stations: 3

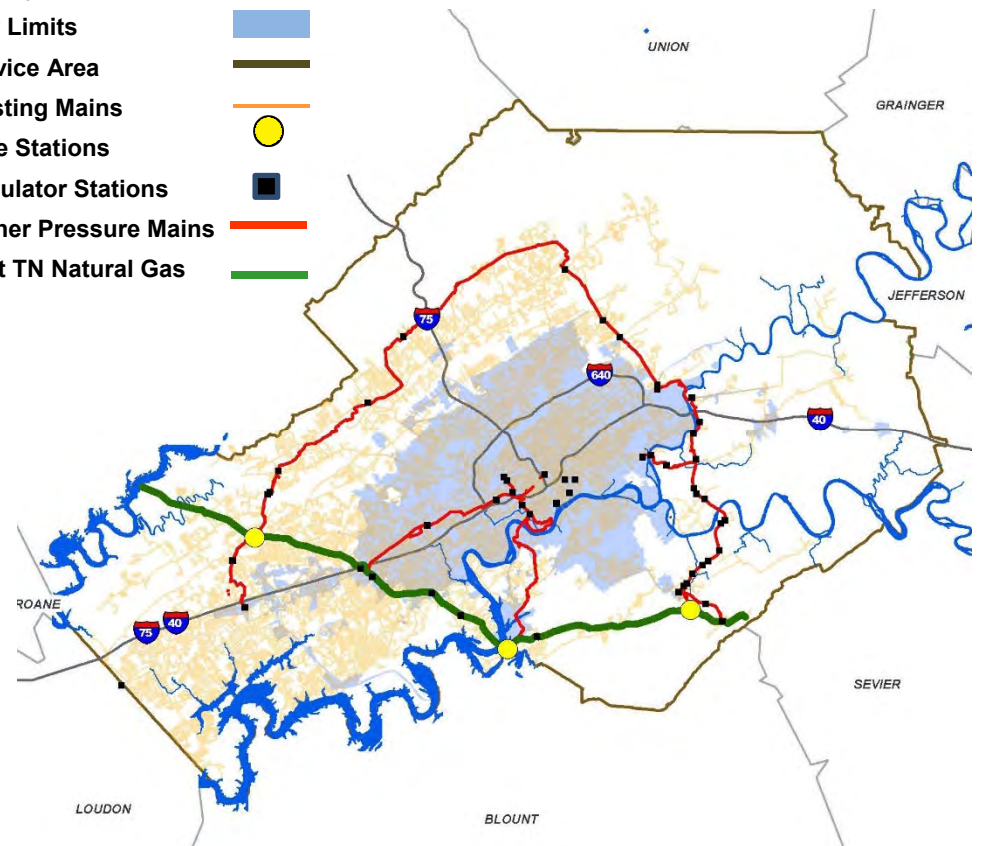
Regulator Stations: 49

System Capacity: 157,381 dth

Peak Demand
140,204 dth (Jan. 2018)



- County Lines
- City Limits
- Service Area
- Existing Mains
- Gate Stations
- Regulator Stations
- Higher Pressure Mains
- East TN Natural Gas



FY 20 Continues Century II Supports Safety, Integrity, and Growth

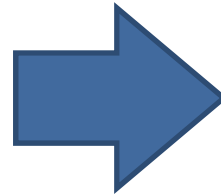
- Regulatory compliance
 - Distribution Integrity Management Program (DIMP) prioritizes investments
 - Strategic shift to holistic system health
- Capital investment
 - System improvements further resiliency, reliability, and enable growth
 - Coordinating with major road projects
- Maintenance
 - System assets
 - Leak detection program



Distribution Integrity Management Program

DIMP Objectives

- Know your system
- Identify risk
- Evaluate and rank priorities
- Identify and implement measures
- Measure and evaluate performance for effectiveness
- Evaluate and improve if needed
- Report results



DIMP Programs

- Low Pressure Steel Replacement
- Resiliency Program
- Leak survey
- Cathodic protection
- Records management

FY 20 Capital Main Projects

- Distribution steel
 - Data driven program
 - \$4.8M replaces 15 miles
- Distribution plastic
 - System model prioritizes resiliency projects
 - \$2.2M installs 3 miles

FY 20 Distribution Steel	
Fountain City Area	13,200 LF
Holston Hills	19,000 LF
Temple Acres	8,250 LF
Deane Hill	5,300 LF
Glen Cove	6,600 LF

FY 20 Resiliency Projects	
Everett Loop	7,400 LF
Pleasant Ridge	3,700 LF
Sterchi Hills	1,800 LF

Road Improvements Impact Capital Budget

■ Tennessee Department of Transportation

- Chapman Highway: \$1M
- Emory Road at Thompson School: \$260K
- Concord Road: \$200K
- Kingston Pike at Watt Road: \$250K
- Alcoa Highway: \$100K



Knox County

■ City of Knoxville

- I-275 Business Park: \$700K

■ Knox County

- Ball Camp Pike: \$100K



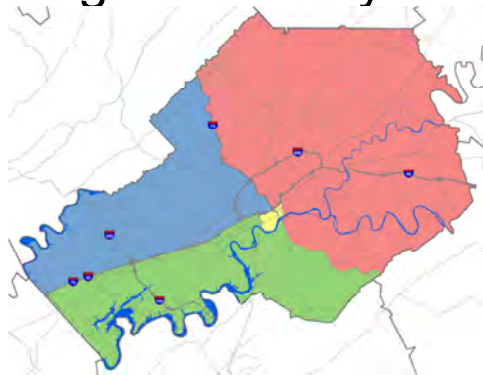
Century II Maintenance Ensures Integrity

- Invest \$1.7M in FY 20
- Programs
 - Regulator stations: annual
 - Control systems: annual
 - Odorization: monthly
 - Bridges: quarterly
 - Critical valves: annual
 - Cathodic protection: annual



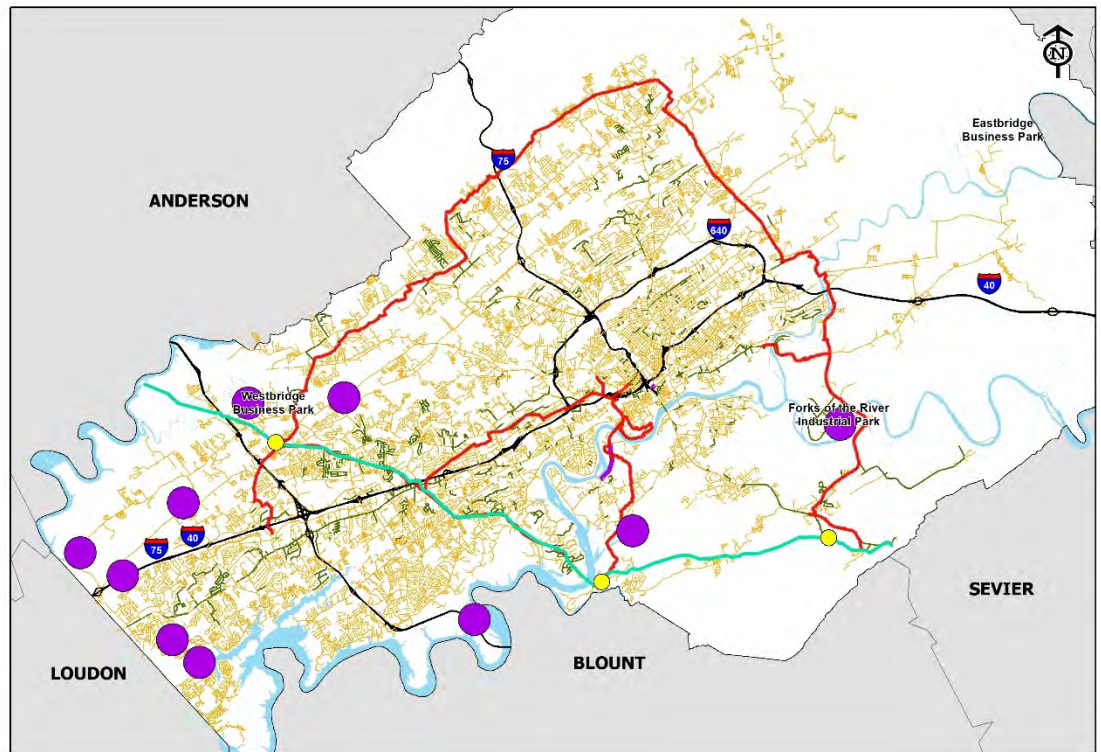
Leak Detection Program Critical for System Integrity

- Mains
- Services
 - Residential: 34,000 per year
 - Non-residential: 12,000 per year
 - Higher pressure: 80 per year
- Targeted surveys



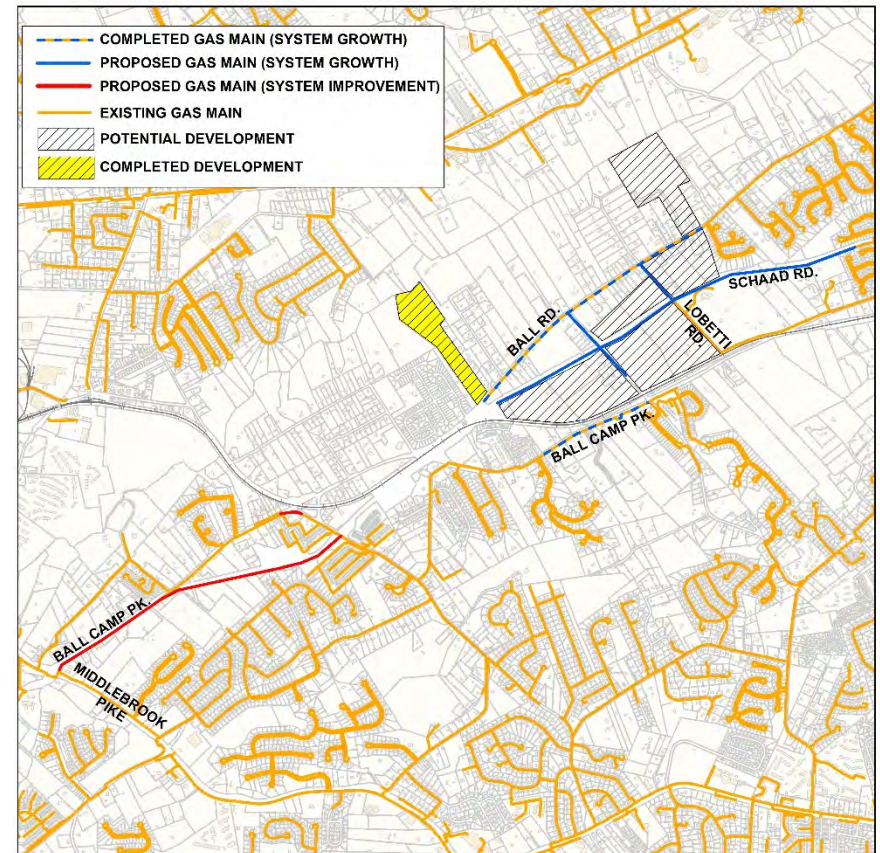
Growth Continues

- Supporting new business
 - Oil extract plant in Westbridge
 - PRI Asphalt in Forks of the River
- Serving new development
 - Maryville Pike
 - Ball Road
 - Campbell Station Road
 - Virtue Road
 - Toole's Bend
- Enabling future growth
 - Choto Road
 - Buttermilk Road
 - Everett Road



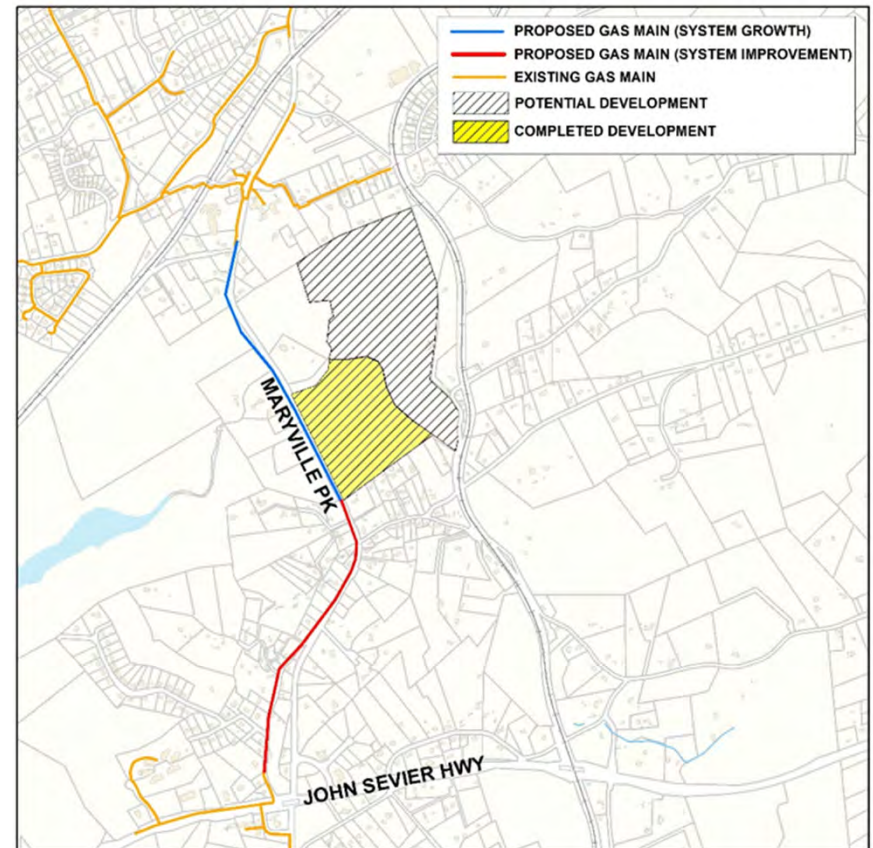
Leveraging Road Projects

- Ball Road at Ball Camp Road
 - 8,300' of 4-inch main
 - Provide service to Carter Cove subdivision with 70 lots
 - Potential for additional development
- Ball Camp Road at Andes Road
 - 6,800' of 4-inch main
 - Improves system resiliency



Maryville Pike Project

- Creates a key system loop
- 6,900' of 8-inch plastic main
- Provides service to Sevier Meadows subdivision
 - 69 lots in first phase



Natural Gas Master Plan

- Comprehensive corrosion assessment
- Data analytics
 - Long-term planning horizon
 - Growth
 - Reliability/resiliency (system integrity)
 - Prioritize future steel projects

Focus on System Management

- Active participation in industry
 - Tennessee Gas Association (TGA)
 - American Public Gas Association (APGA)
 - TN 811 Board of Directors
- Focus on system integrity
 - Regulatory compliance
 - DIMP
- SOAR program recognizes performance
 - System integrity
 - System improvement
 - Employee safety
 - Workforce development

“KUB is recognized as a leader in Operational Achievement through APGA’s SOAR program. Their participation in APGA Committees is valued for system integrity and safety.”

– Erin Kurilla, APGA VP, Operations and Pipeline Safety

KUB

Water and Wastewater System Investments

Billie Jo McCarley, Director



Water System

Customers: 79,908

Service Territory:
188 square miles

Treatment Plant: 1

Pump Stations: 24

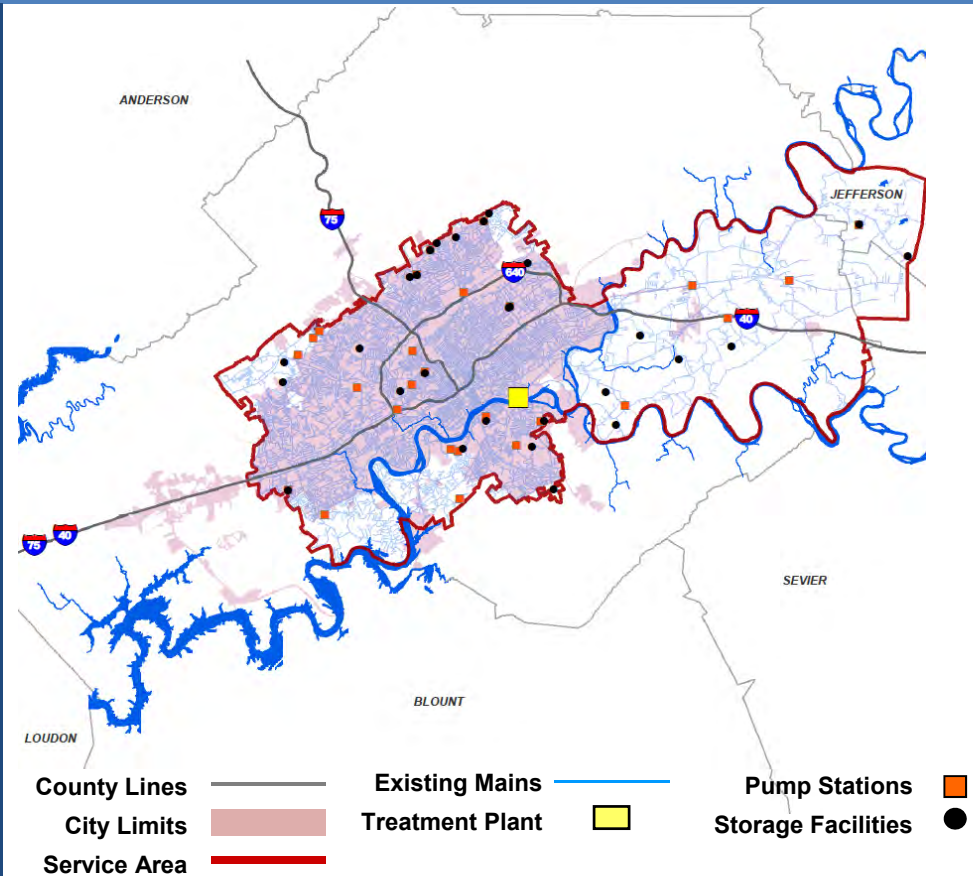
Storage Facilities: 28

Distribution Mains: 1,409 miles

Plant Capacity:
61.2 million gallons/day (MGD)

Reservoir Capacity: 37 million gallons

Treated Water: 12.2 billion gallons annually



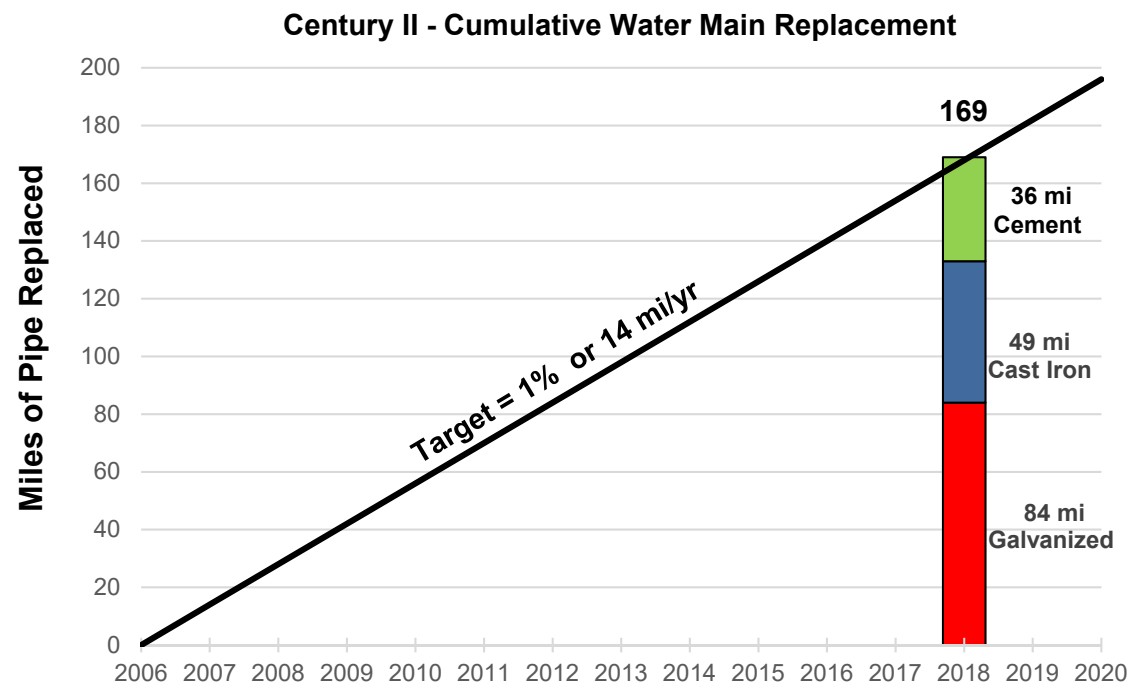
FY 20 Focus on Water Quality and System Reliability

- Century II Capital Investments
 - Pipes and pump station replacements
 - Increased resiliency at Mark B. Whitaker (MBW) Water Treatment Plant and in our distribution system
- Maintenance programs
- System growth
- Smart system/data analytics



Century II Pipe Replacement Program

- American Water Works Association's top quartile infrastructure investment
- All galvanized main replaced by FY 24
- FY 20 investment \$10.9M for 15.4 miles



FY 20 Century II Pipe Projects

- Galvanized projects: \$4.6M
 - Utilizing contractors and KUB crews
 - Program 71% complete with 35 miles remaining
- Cast iron and cement: \$4.1M
 - Atchley Street: \$1.7M
 - Homberg Drive: \$465K
 - KUB crew projects: \$970K

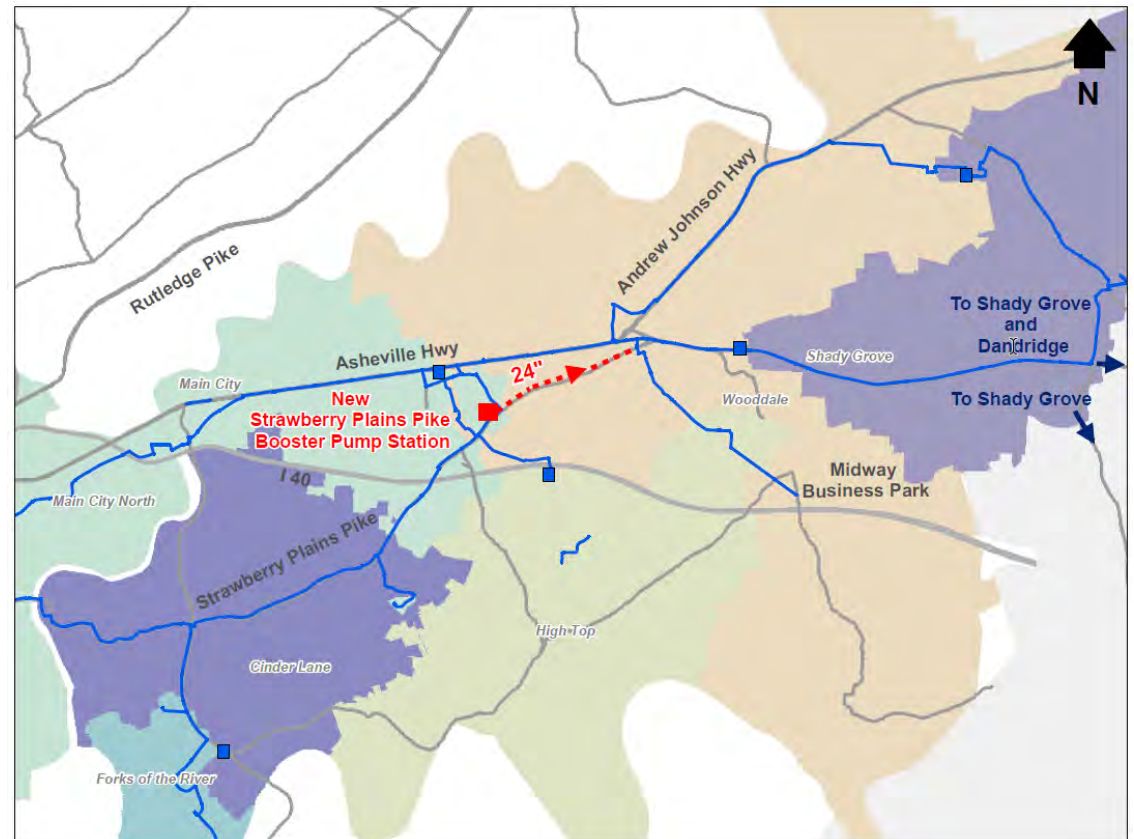


KUB's Topography Requires Pressure Zones



Strawberry Plains Pike Resiliency Project

- FY 20
 - Booster pump station: \$1.1M
 - 24-inch piping: \$1.1M
- Provides secondary feed
- Supports growth



Water Plant Resiliency Plan

Project	Cost	Timing
High Service Main (Complete)	\$4.2M	FY 17-18
Electrical Improvements (Construction)	\$15.4M	FY 17-21
Filters/Clearwell Backwash (Design)	\$42.5M	FY 18-22
High Service Pump Station and piping	\$18.5M	FY 23-26
Intake	\$46.8M	FY 24-27+



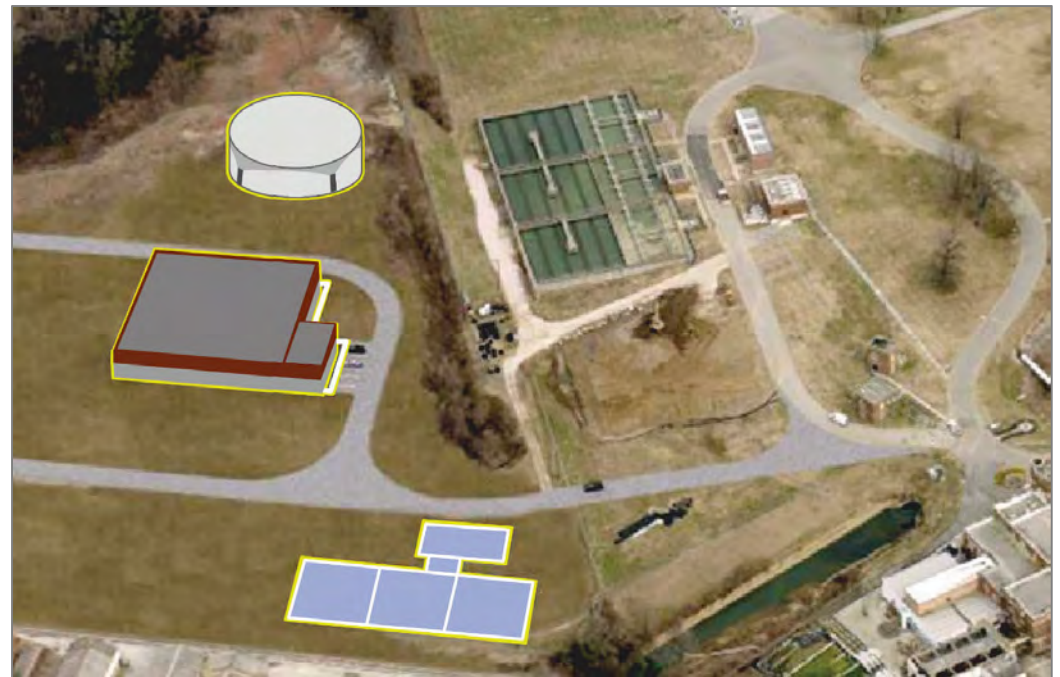
Generators Improve Reliability at MBW

- Three 2,500 kW diesel generators and switchgear
- Housed in new building
- Investing \$6.8M in FY 20



Filter Project Supports Resiliency

- Filter site preparation at MBW
- Fall 2019 construction start
- Six filters in new building, backwash tank, and a four MG clearwell
- Investing \$12.7M in FY 20



Future Water System Growth

- Urban revitalization
- Multi-residential/mixed use
- Adding new customers on existing water lines
 - Supreme Court site
 - Riverfront development
- Fresenius



Water System Maintenance Programs: \$1.1M

- Storage tank painting
- Pressure management
- Transmission valves
- Corrosion protection
- Booster pump stations



Smart System and Data Analytics

- District metering with TaKaDu software
- Grid Modernization
 - 81% of meters replaced to date
 - Completion of water meter upgrades by June 2020
 - Savings to date: \$376K

Fleming Operations Center Improvements

- Underground Construction (UGC) and Laboratory Services
- More space needed for Century II staffing in UGC
 - Two-story addition for assembly and training space
 - Renovations to locker room and foreman/dispatch area
- FY 20: \$4.3M



Investments Support Quality and Reliability



“The Division would like to commend KUB on well exceeding the minimum monitoring requirements in order to further document the quality of the water being produced at the treatment plant and served to customers.”

– Greg Mize, Tennessee Department of Environment and Conservation

Wastewater System

Customers: 71,281

Service Territory:
243 square miles

Treatment Plants: 4

Pump Stations: 70

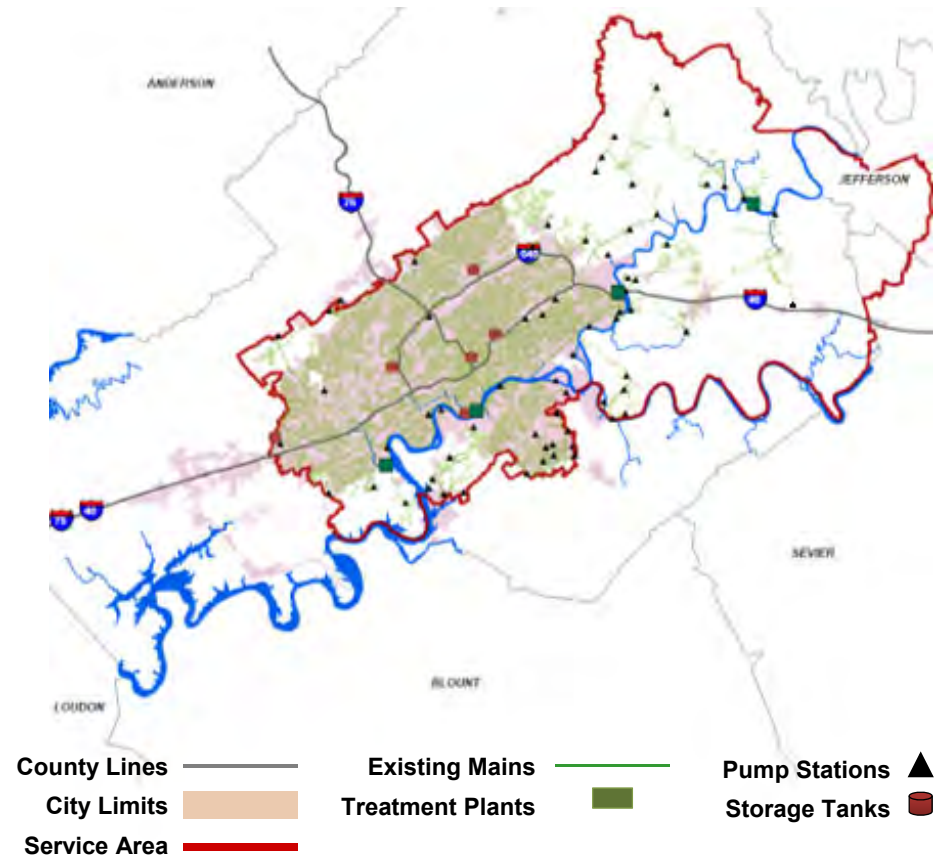
Collection Mains: 1,318 miles

Storage Capacity: 34 MG

Plant Capacity: 178 MGD

Average Flow: 36.5 MGD

Consent Decree: 2005 – 2021



FY 20 Focus on Century II Projects and Regulatory Compliance

- Consent Decree: final project
- Century II: pipes and pumps
- Capacity upgrades: supporting system growth
- Maintenance programs: optimizing asset lifespan
- Improved system performance



Consent Decree Projects on Target

Due Date	Project	Cost	Status
Dec 2012	Kuwahee WWTP – CCP Phase I	\$51M	✓
Dec 2013	Fourth Creek WWTP – CCP Phase I	\$20M	✓
Dec 2016	134 Collection System Projects	\$530M	✓
June 2018	Fourth Creek WWTP – CCP Phase II	\$4.7M	✓
June 2021	Kuwahee WWTP – CCP Phase II	\$48.4M	15%

Kuwahee Wastewater Treatment Plant Biologically Enhanced High Rate Clarification

- Investing \$19M in FY 20
- Mobilized fall 2018
- Progress to date
 - Drilled pier foundations
 - Sludge piping



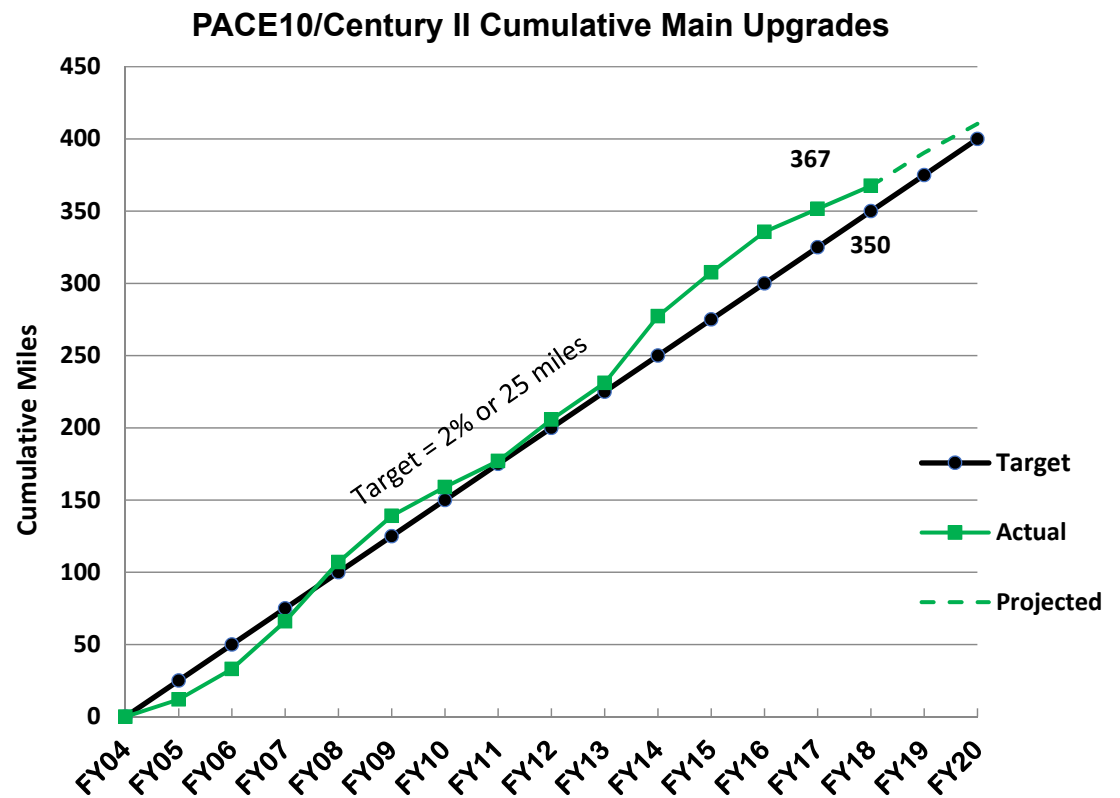
Century II Projects at Treatment Facilities

- Kuwahee secondary sludge pumps and digester heaters: \$1.25M
- Fourth Creek plant water and control room: \$675K
- Loves Creek electric upgrades: \$2.1M



Century II Sewer Rehabilitation Program

- Focus on clay and concrete pipe
- FY 20 investment \$26M for 20 miles



Utilizing Trenchless Rehabilitation

- Reduces cost and neighborhood disruption
 - Cured-in-place liner
 - Pipe-bursting
- Sequoyah Hills Phase 2: \$3.3M
- Atchley Street: \$1.8M
- Loves Creek area: \$5.3M



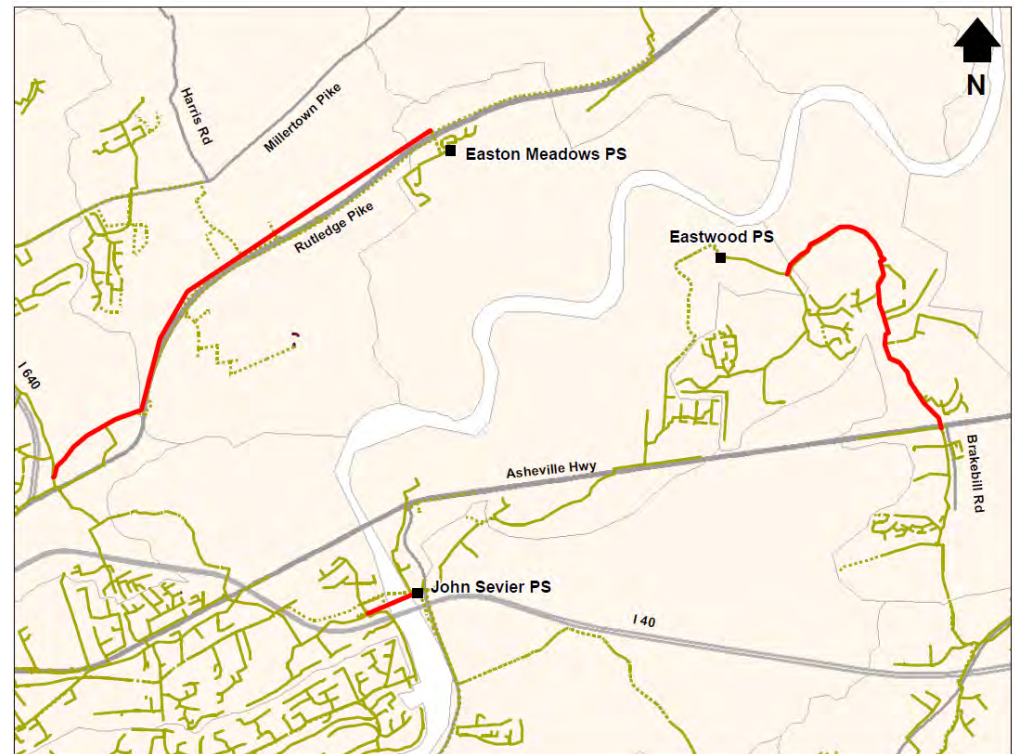
Upgrading Pump Stations

- Jones Street: \$3M
 - New force main under river
 - Serves south Knoxville
- Lyons Creek: \$800K
- Wayland Road: \$200K
- Forks of the River: \$725K



Upgrades Support East Knox County Growth

- John Sevier Force Main upsizes river crossing: \$1.7M
- Eastwood Trunkline increases capacity: \$1.6M
- Rutledge Pike Force Main extends 12-inch force main to larger trunkline: \$2.6M



Wastewater Maintenance Programs: \$3.1M

Asset	Cycle
Pipe cleaning	As needed
Line and manhole inspection	12-year
Pump and motor refurbishment	5-7 year
Gearbox rebuild/replace	25-year
Grinder pumps rebuild/replace	5-year
Variable frequency drive replacement	7-year

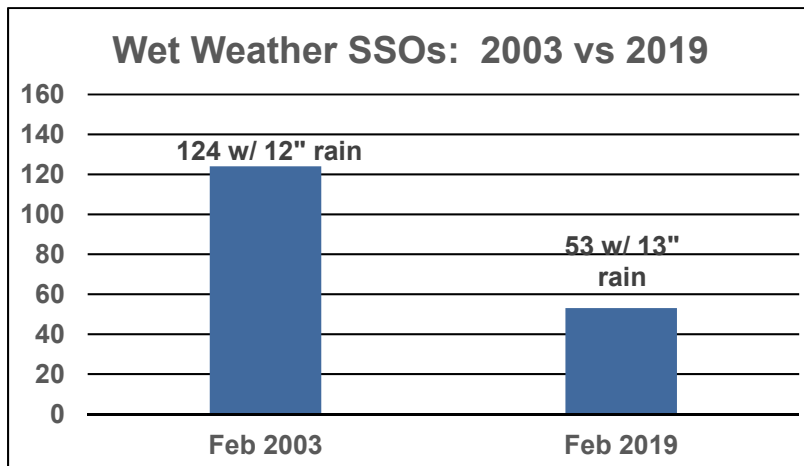


KUB Maintains Platinum-Level National Biosolids Partnership Certification

- KUB biosolids are certified as fertilizer by Tennessee Department of Agriculture
- Program recertified in 2018
- 100% land application of 28,000 wet tons annually



System Investment Improves Performance



“KUB has shown tremendous progress in controlling unpermitted discharges since entering into the Consent Decree.”

– Dennis Sayre, Acting Chief Municipal & Industrial Enforcement Section, NPDES Permitting & Enforcement Branch, Environmental Protection Agency

KUB

FY 20 Budget Request

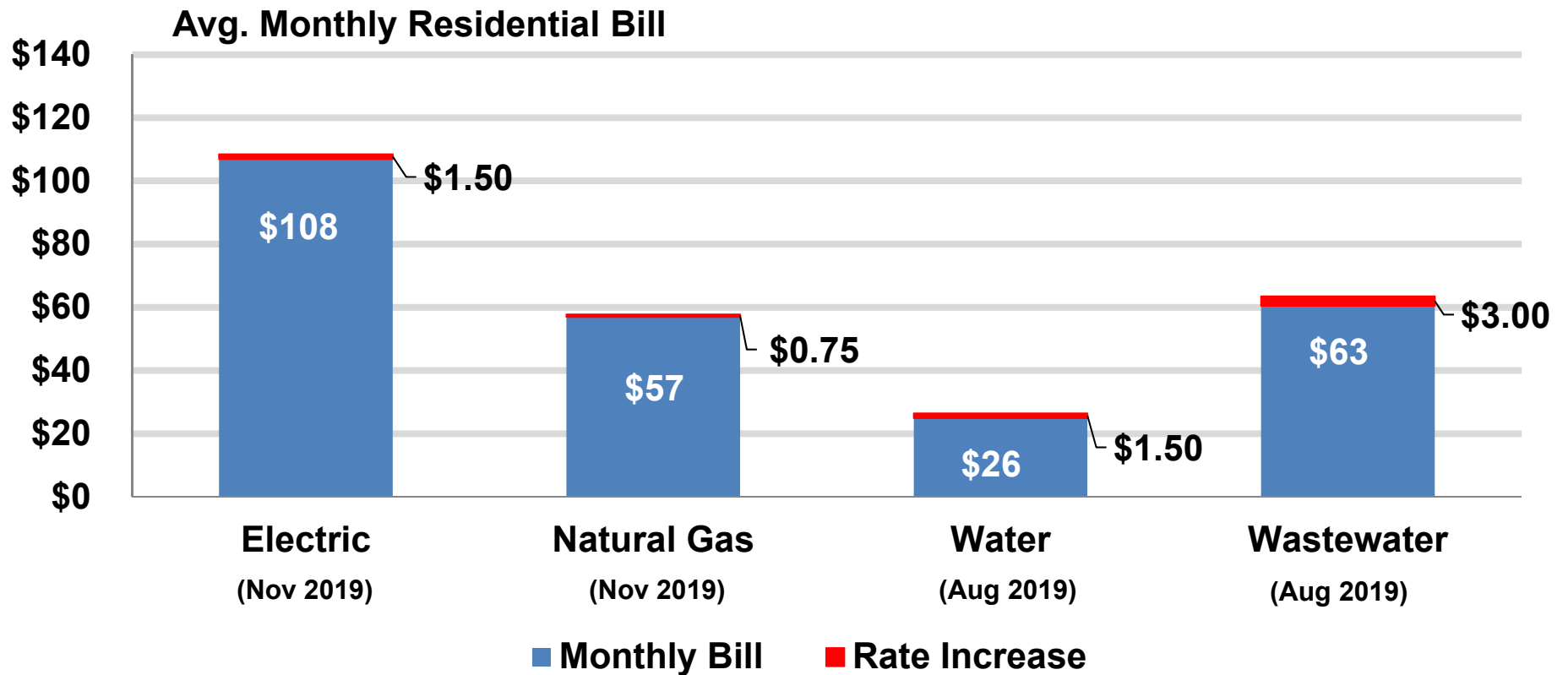
Mark Walker, Senior Vice President and CFO



Proposed Budget Focused on Maintaining Safe, Reliable, and Affordable Services

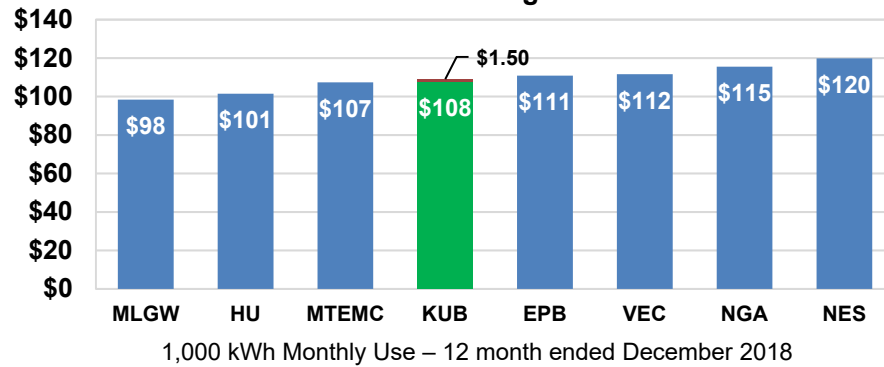
- Proposed budget \$962M
- Flat compared to FY 19 forecast
- Capital budget includes \$105M for Century II and \$15.4M for Grid/Meter Modernization
- \$63M new bonds help fund capital budget
- FY 20 rate increases already adopted

FY 20 Rate Increases Already Adopted

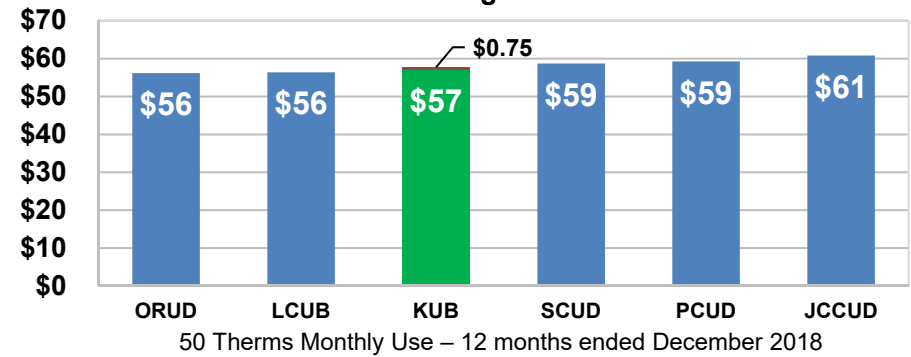


Residential Monthly Bills

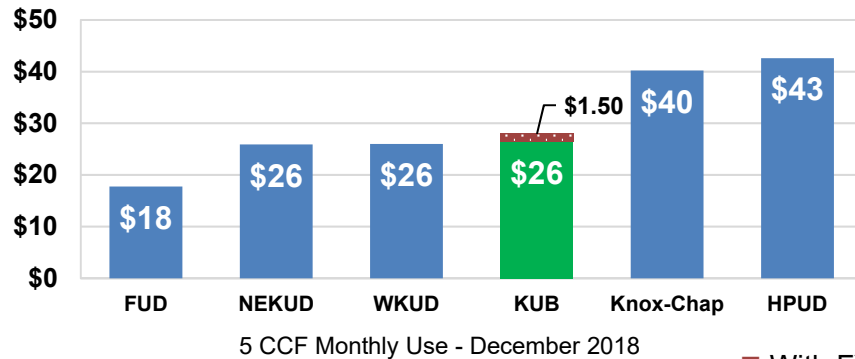
Electric – Big 8



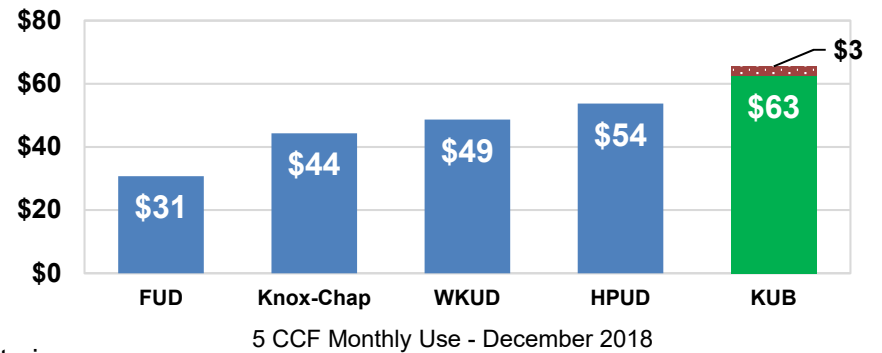
Gas – Regional ETNG



Water – Local



Wastewater – Local



■ With FY 20 rate increases

Proposed FY 20 Budget: \$962M

	Electric	Gas	Water	WWater	Total
Energy Cost	\$429.3	\$52.3	\$ ---	\$ ---	\$481.6
O&M	\$61.3	\$21.2	\$27.1	\$36.2	\$145.8
Capital	\$75.7	\$26.8	\$44.8	\$61.6	\$208.9
Debt Service	\$26.2	\$10.9	\$14.5	\$34.6	\$86.2
Taxes and Equivalents	\$20.6	\$8.6	\$4.9	\$5.7	\$39.8
	\$613.1	\$119.8	\$91.3	\$138.1	\$962.3

\$ in Millions

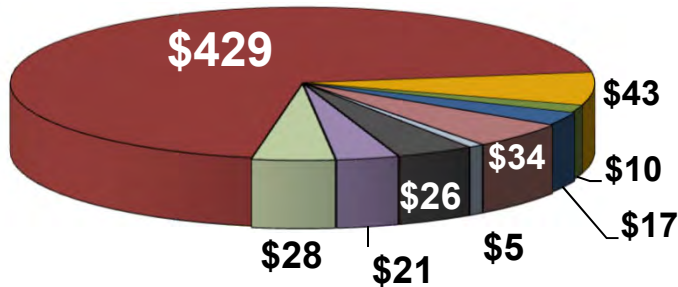
Proposed FY 20 Budget Flat

	FY 20	FY 19	Increase	
	Proposed	Forecast	(Decrease)	
Energy Cost	\$481.6	\$476.3	\$5.3	TVA rate increase and customer growth
O&M	\$145.8	\$141.9	\$3.9	Labor-related costs
Capital	\$208.9	\$224.3	(\$15.4)	Engineering Building construction in FY 19
Debt Service	\$86.2	\$83.1	\$3.1	\$63M in new bonds
Taxes & Equivalents	\$39.8	\$36.9	\$2.9	Investment in utility infrastructure
	\$962.3	\$962.5	(\$0.2)	

\$ in Millions

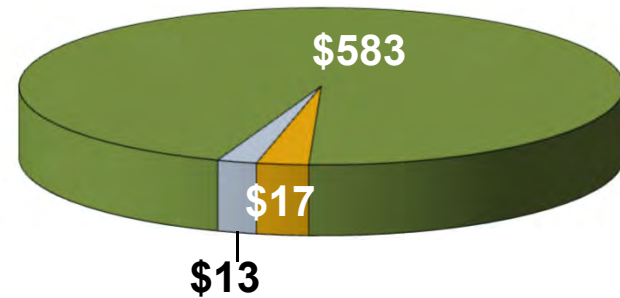
FY 20 Electric Budget: \$613M

Budget Uses



- Purchased Power Cost
- Century II Capital Projects
- Grid/Meter Modernization
- Other Capital
- System Maintenance
- System Growth
- Debt Service
- Taxes & Equivalents
- All Other

Budget Funding



- Revenue
- Bonds
- General Fund Cash

\$ in Millions

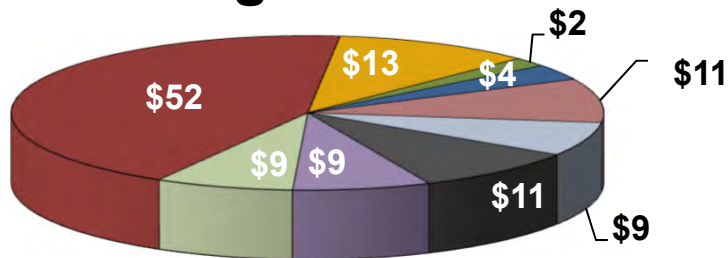
FY 20 Electric Budget

Key Assumptions and Indicators

Net Customer Additions	1,600
Residential Per Capita Use	0.5% decline
Interest Rate on New Debt (30 years)	4.00%
Debt Ratio (Target 45% or less)	44%
Debt Coverage (Target 3.0 or more)	3.40
Debt Ratings	AA+/Aa2
Ending General Fund Cash (Target \$15M)	\$16M

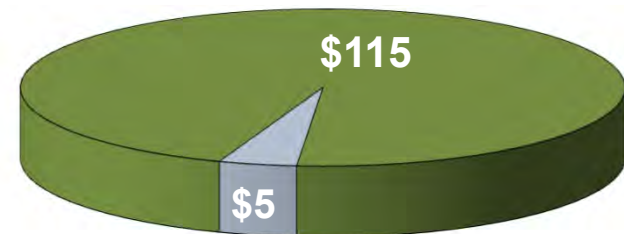
FY 20 Natural Gas Budget: \$120M

Budget Uses



- Purchased Gas Cost
- Century II Capital Projects
- Meter Modernization
- Other Capital
- System Maintenance
- System Growth
- Debt Service
- Taxes & Equivalents
- All Other

Budget Funding



- Revenue
- General Fund Cash

\$ in Millions

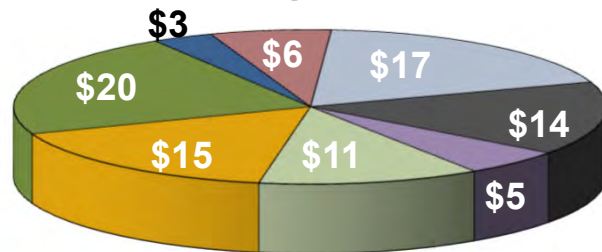
FY 20 Natural Gas Budget

Key Assumptions and Indicators

Winter Weather	6% warmer than normal
Net Customer Additions	1,200
Residential Per Capita Use	1% decline
Debt Ratio (Target 35% or less)	31%
Debt Coverage (Target 3.0 or more)	3.65
Debt Ratings	AA/Aa2
Ending General Fund Cash (Target \$10M)	\$19.2M

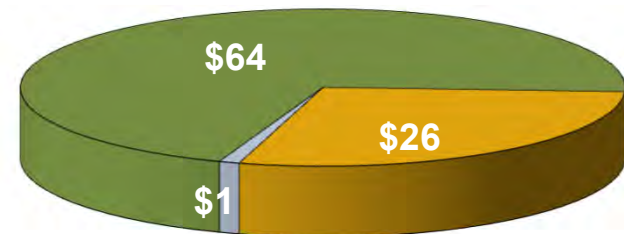
FY 20 Water Budget: \$91M

Budget Uses



- Century II Capital Projects
- Water Plant Resiliency
- Meter Modernization
- Other Capital
- System Maintenance
- Debt Service
- Taxes & Equivalents
- All Other

Budget Funding



- Revenue
- Bonds
- General Fund Cash

\$ in Millions

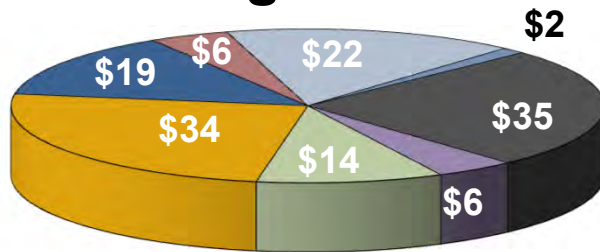
FY 20 Water Budget

Key Assumptions and Indicators

Net Customer Additions	500
Residential and Business Per Capita Use	1% decline
Interest Rate on New Debt (30 years)	4.00%
Debt Ratio (Target 50% or less)	52%
Debt Coverage (Target 2.0 or more)	2.36
Debt Ratings	AAA/Aa1
Ending General Fund Cash (Target \$5M)	\$5.4M

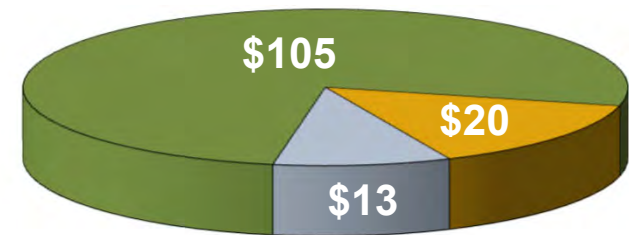
FY 20 Wastewater Budget: \$138M

Budget Uses



- Century II Capital Projects
- Consent Decree - Plants
- Other Capital
- System Maintenance
- System Growth
- Debt Service
- Taxes & Equivalents
- All Other

Budget Funding



- Revenue
- Bonds
- General Fund Cash

\$ in Millions

FY 20 Wastewater Budget Key Assumptions and Indicators

Net Customer Additions	550
Residential and Business Per Capita Use	1% decline
Interest Rate on New Debt (30 years)	4.00%
Debt Ratio (Target 65% or less)	60%
Debt Coverage (Target 1.50 or more)	2.03
Debt Ratings	AA+/Aa2
Ending General Fund Cash (Target \$10M)	\$10.4M

May 2019 Board Meeting: Official Action

- FY 20 budget appropriations
- FY 20 commitment appropriations
- \$63M revenue bonds
 - \$17M electric
 - \$26M water
 - \$20M wastewater

KUB