November 16, 2023



Natural Gas Purchasing Authority & Winter Update

Summary of Today's Discussion

Compliance with natural gas purchasing policies Compliance with natural gas risk management policies Wholesale energy prices Customer winter bill projections

KUB In Compliance with Resolution 1447

Board authority required for

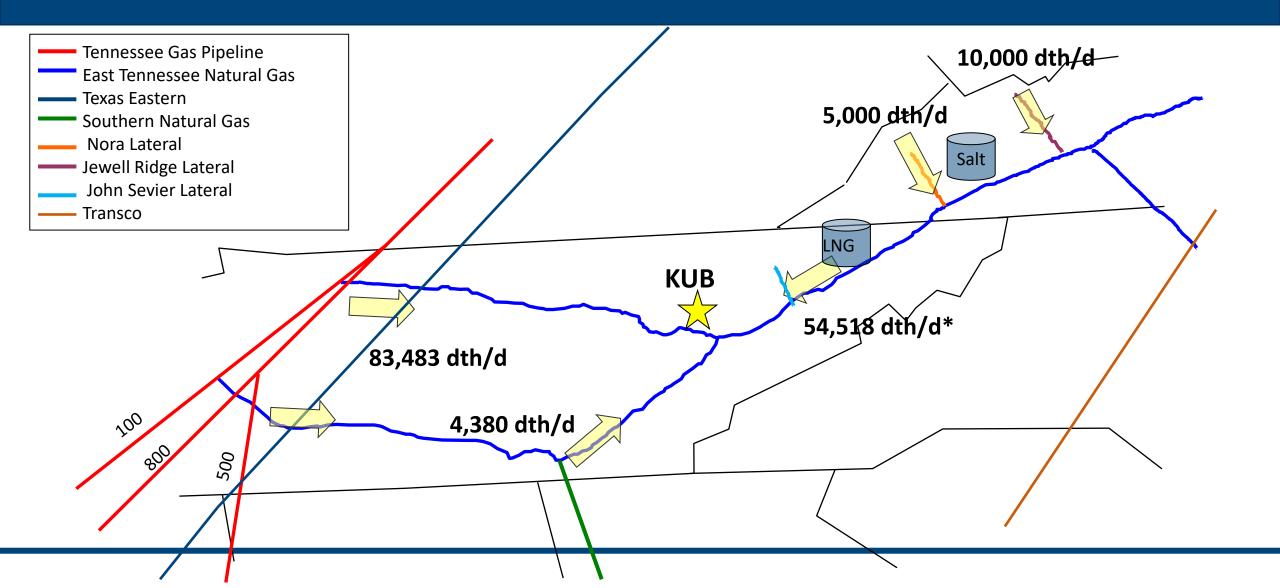
- Contracts in excess of six years and/or volume limits*
- Purchase and transportation: 160,000 Dth/day*
- Storage: 5 million Dth maximum inventory
- Purchasing authority delegated to CEO/CFO for contracts
 - Two years or less
 - Two to six years for purchase and transport up to 15,000 Dth/day*
 - Specific authority regarding ETNG capacity
 - Six years (max) storage for firm withdrawal rights up to 10,000 Dth/day
- Authorizes sale of excess capacity

Supply Contracts

Supplier	Supply Region	Volume	Firm/ Variable	Expiration
BP Energy	Gulf of Mexico	8,000	Variable	10/31/2025
ConocoPhillips	Gulf of Mexico	13,000	Variable Daily	10/31/2025
Shell Energy	Gulf of Mexico	11,000	Variable	10/31/2025
Nextera	Gulf of Mexico	12,500	Variable	10/31/2024
CNX Energy	Appalachia	3,000 s/w	Firm	3/31/2024
Enervest	Appalachia	2,000 s/w	Firm	3/31/2025
Morgan Stanley	Gulf of Mexico	2,800 Average	Pre-Pay Gas	10/31/2051
Goldman Sachs	Gulf of Mexico	2,800	Pre-Pay Gas	08/31/2053

Others					
New Jersey Resources Sequent Energy					
Stand Energy	Texla Energy				
ETNG Auction	TVA				
Symmetry	Neighbor LDC				

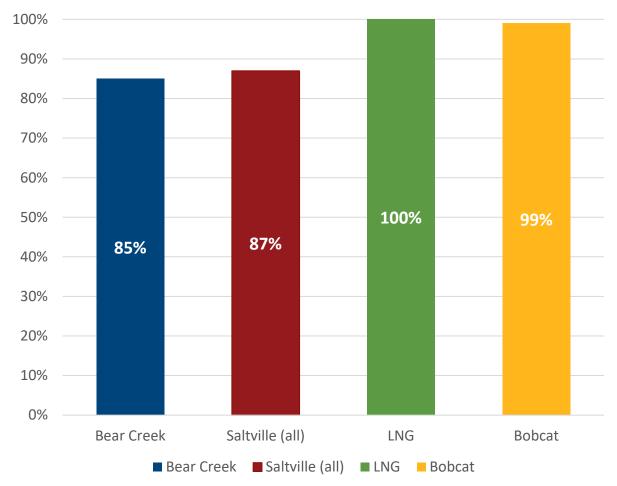
KUB Transportation Portfolio



KUB Storage

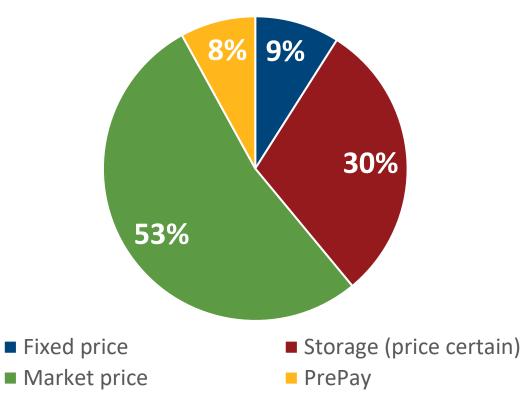
Storage	Pipeline	MSQ (Space)	Expiration
Bear Creek 2014	TGP	3,325,920	10/31/2025
Saltville 00264s	ETNG	200,000	03/31/2028
Saltville 00265s	ETNG	100,000	03/31/2028
Saltville 420031	ETNG	100,000	03/31/2025
LNG 33255	ETNG	412,000	10/31/2025
Bobcat 720336	Tetco	150,000	10/31/2025
		4,287,920	

Storage as of 11/14/2023: 3,729,032 Dth



KUB in Compliance with Resolution 1388

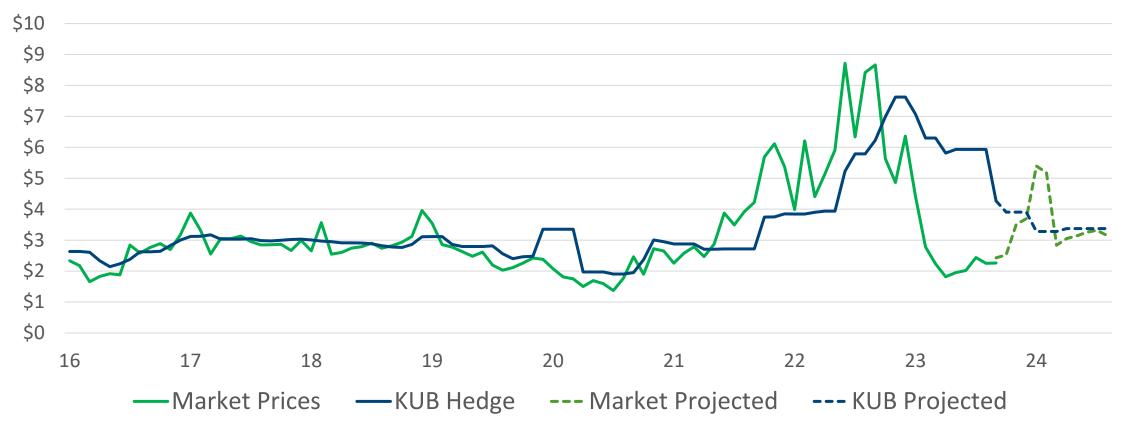
Winter Pricing



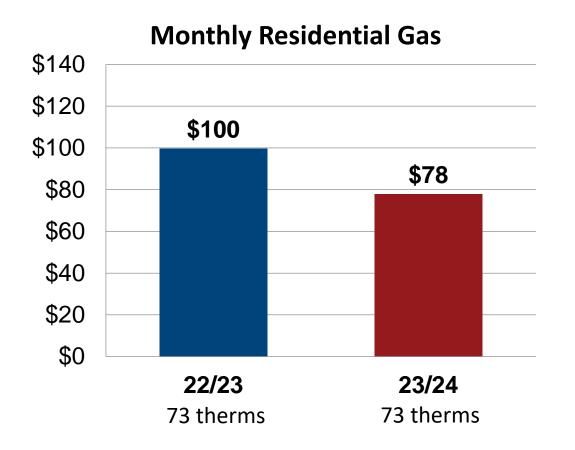
- Price Risk Committee approved current strategy which targets
 25% hedged for near month purchases
- All transactions met requirements for opening and closing positions
- Monthly status reports to Price Risk Committee

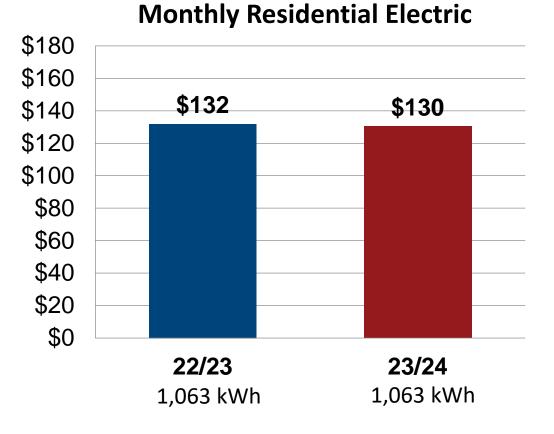
KUB Hedges vs. Market Prices

January 2016 to August 2024



Winter Bill Projections







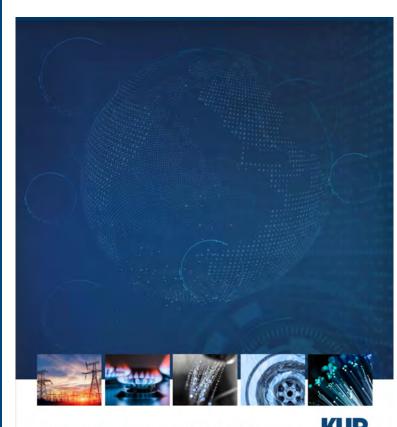
November 16, 2023

American Public Power Association Communications Award



KUB's First ESG Report Earns National Recognition

- Environmental, Social, and Governance (ESG) Report
 - Showcases commitments to sustainability, customer programs, and community engagement
 - Fully produced in-house
 - Pairs with Annual Report
- APPA Excellence in Public Power Communications
 - Award of Merit in Print and Digital category



ENVIRONMENT, SOCIAL, & GOVERNANCE REPORT 2022







November 16, 2023

United Way Campaign Overview

2023 United Way Campaign

- Continues tradition of 30+ years
- Contributions are 100% employeefunded
- Included fundraising events, agency education, and community service
- Employee committee:
 - Grayson Byard, Lauren Brown, Garrett Metz, Marilee Metzger, Daniel Kembel, Liz Hannah, Amelea Everett, Leslye Hartsell



Agency Tours

- Employees visited the following United Way agencies:
 - SPARK
 - Socially Equal Energy Efficient Development (SEEED)
 - Bridge Refugee Services
 - The Community Coalition Against Human Trafficking
 - New Direction Health Care Solutions
 - The Joy of Music School
 - The Restoration House
 - The Change Center
 - CASA of East Tennessee



Week Of Service



94 employees provided 313.5 hours of service to 10 agencies

KUB Proudly Supports United Way

- More than \$191,000 raised for 2023 campaign
- More than \$4 million contributed since 2004
- Campaigns reflect KUB's mission of service and employee commitment to the community





November 16, 2023

Inflation Response Plan Workshop



Agenda for Today

- Inflation Response Plan overview Gabe Bolas
- Inflationary impacts on utility systems John Williams
- Century II infrastructure needs John Gresham
- Potential funding scenarios Mark Walker

Last April...

- Annual budget presentation focused only on FY 2024
- Rate increases already authorized
- Inflationary impact deserved further study

"We've Faced this Challenge Before..."

- Century II launched and paused due to financial crisis in 2008-09
- FY21 and FY22 pandemic-related budget adjustments
 - Deferred/reduced rate increases saved customers \$10.4M over previous plans
 - TVA credits applied to customer assistance \$14M in total
- FY23 modest rate increases adopted for water and wastewater
 - Further slowed pace of replacement work

"...And Yet, This is Different"

- Recession of 2008-09 was a less impactful event
- Pandemic created systemic changes
 - Supply chain and labor markets are challenging
 - Even as inflation eases, baseline costs remain high
- Options are more limited
 - We can't "save" our way out of these economic pressures
 - Current replacement rates not sustainable long term

FY24 Strategic Initiative: Inflation Response Plan

Cross-functional teams

- Reviewed operations and capital budget
- Assessed long-term funding strategies
- Pursued federal, state, and local funding opportunities
- Blueprint values
 - **Balanced** perspective
 - Decisions that consider everyone's needs
 - Provide industry-leading services



We put safety first and take care of each other

· We take pride in our hard work and expertise

• We invest in our people

Our Vision

KUB creates connections and enhances the quality of life in our East Tennessee communities so everyone can thrive.

Our Mission

KUB exists to serve its customers as a trusted partner and steward, providing industry-leading energy, water, and fiber optic services.

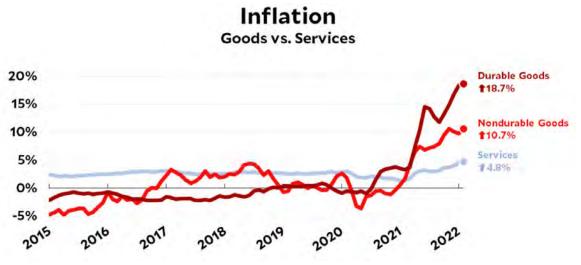
Our Community

- We are committed to a cleaner environment
- We are personally invested in our community
- We help our region grow

- · We always do our best and strive for better every day
- · We hold ourselves to high ethical standards
- We value diversity, equity, inclusion, and belonging for all

Economic Challenges

- Inflation's lasting impact
 - Record highs since summer 2021
 - Coming down, but costs remain high
- \$1.00 in 2021 = \$1.18 today
- Inflationary impacts on KUB
 - \$275M between now and 2030



Source: Bureau of Labor Statistics

KUB's Response to Date

- Continued reduction in Century II replacement rates
 - Experiencing more reactive vs. proactive replacement
- Use of unrestricted cash reserves
- Leveraged savings and grant opportunities
 - Savings from lower staffing than expected due to labor market trends
 - Savings from supply chain/project delays
 - Early wins in grant funding

Organizational Challenges

- Increased reliability expectations
- Increasing technology needs
- Electricity market changes
 - TVA supply constraints
 - TVA contract opportunities
- Regulatory unknowns in all divisions
- Challenging labor market

Organizational Challenges

- Increased reliability expectations
- Increasing technology needs
- Electricity market changes
 - TVA supply constraints
 - TVA contract opportunities
- Regulatory unknowns in all divisions
- Challenging labor market
- Biggest issue: systems continue to age

We Are Not Alone

- Memphis 12% electric rate increase proposed over the next three years
- North Georgia 2.82% electric increase in October
- Chattanooga 4% electric increase in October
- Nashville 3.5% electric increase in fall 2022
- Huntsville 35% water rate increase
- Standard & Poor's (S&P) reports 6% average annual water rate increases

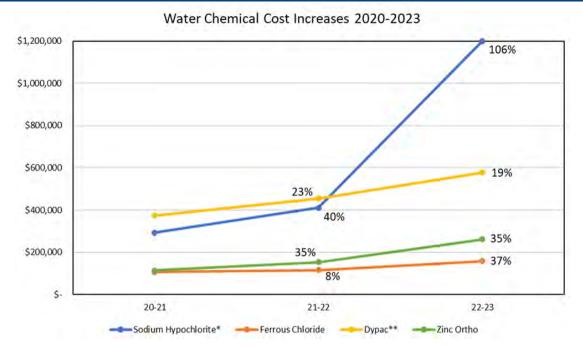


\$113M Electric System Inflationary Impact

Material	FY20 Average Price	Current FY24 Price	Percent Change	Annual Spend
50' Ductile Iron Pole	\$1,531	\$3,261	113%	\$316K
45' Wood Pole	\$243	\$378	56%	\$275K
25 kVA Pad Transformer	\$1,329	\$2,355	77%	\$252K
25 kVA Pole Transformer	\$760	\$1,447	90%	\$123K
795AA Wire	\$1.91/lb	\$3.94/lb	106%	\$1.15M
Underground Cable	\$2.43/ft	\$5.10/ft	109%	\$1.28M



\$55M Water System Inflationary Impact



Material	FY20 Average Price	Current FY24 Price	Percent Change	Annual Spend
8" Ductile Iron Pipe	\$17.65/ft	\$31.37/ft	78%	\$372K
12" Ductile Iron Pipe	\$25.37/ft	\$47.59/ft	88%	\$90K
8" Valve	\$714	\$1,440	102%	\$78K
Contractor Cost/ft	\$155	\$200	30%	

\$69M Wastewater System Inflationary Impact

Holston Hills Pump Station project costs increased by 21% or \$0.84 million



Material	FY20 Average Price	Current FY24 Price	Percent Change	Annual Spend
6" PVC Pipe	\$2.33/ft	\$7.25/ft	211%	\$57K
8" PVC Pipe	\$5.60/ft	\$13.11/ft	134%	\$80K
6" Cleanout Fitting	\$105	\$140	34%	\$48K
8" Saddle Fitting	\$101	\$140	39%	\$28K
8" Tee Fitting	\$49.10	\$105	114%	\$10K

\$38M Natural Gas System Inflationary Impact

Material	FY20 Average Price	Current FY24 Price	Percent Change	Annual Spend
2" Pipe	\$0.84	\$1.33/ft	58%	\$52K
4" Pipe	\$3.14/ft	\$4.68/ft	49%	\$42K
Meter Riser	\$24.60	\$46.67	90%	\$27K
Residential Gas Meter	\$76.10	\$171	125%	\$462K



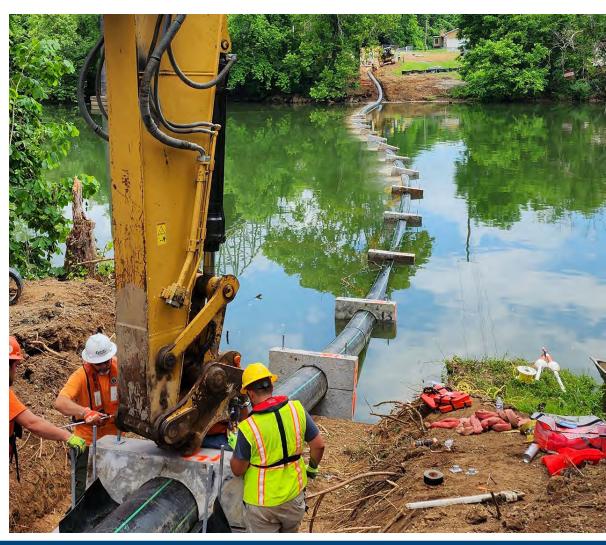
Inflationary Impact Includes \$32M Unavoidable Projects

- Critical succession planning positions
- Staffing for Customer Information System (CIS)
- Distribution transformer inventory additions
- Middlebrook campus stormwater project
- Digestor roof at Kuwahee Wastewater Treatment Plant
- Boyd's Bridge permanent water and wastewater lines

Permanent Replacement Required For Boyd's Bridge Water and Wastewater Lines

• Reactive repairs made in May-June

- Pulled new 18' water line through existing damaged 30" piping
- Placed temporary wastewater force main along river bottom with anchor blocks
- Permanent repairs required for critical river crossing
 - \$3M water main
 - \$2M wastewater force main
- Included with "inflationary" numbers because project was not anticipated



Inflation Adds \$275M to Existing Long-Range Plan (FY23-30)

	Inflationary Impact
Electric	\$113M
Natural Gas	\$38M
Water	\$55M
Wastewater	\$69M
Total Combined	\$275M



Electric System

ELECTRIC

Customers: 218,344

Service Territory: 688 square miles

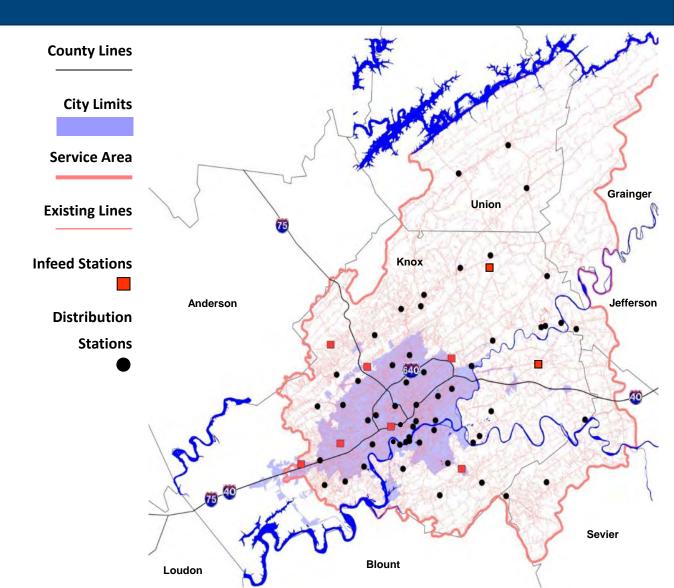
Electric Lines: 5,519 miles Distribution Overhead: 4,083 miles Distribution Underground: 1,170 miles Transmission: 266 miles

Infeed Substations: 9

Substations: 63

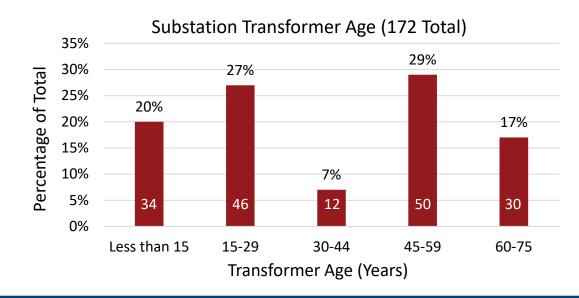
System Capacity: 3,030 MW

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



Electric – Substations \$15M

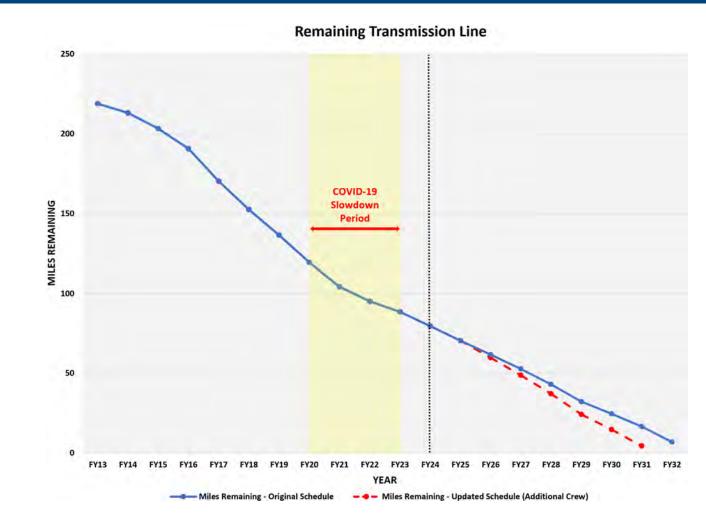
- Experiencing increasing failures
- Replaces two transformers annually
 - Current annual investment \$1.2M
 - Adds \$3M/year
- Maintains spare, emergency unit





Electric - Transmission System \$8M

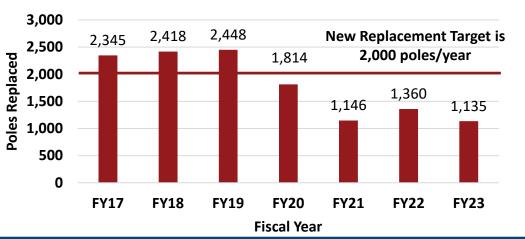
- Line refurbishment
 - Additional crew
 - Increase miles from 9 to 11/year
 - Current annual investment \$11.8M
 - Add \$1.5M/year
 - Program back on schedule to be completed in FY31
- Vegetation management
 - Re-establish three-year cycle
 - Current annual investment \$15.1M
 - Add \$490K/year



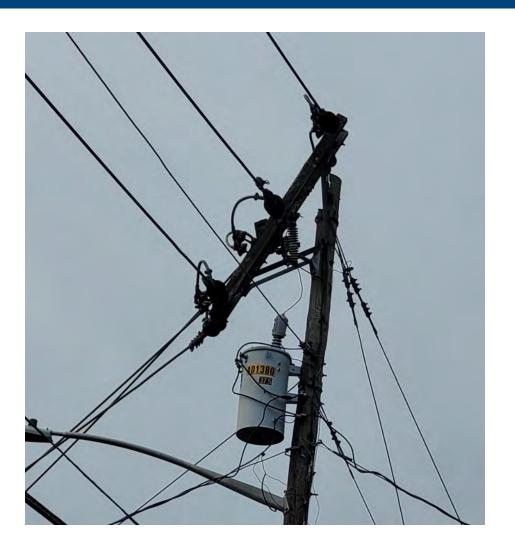
Electric Distribution - Poles \$22M

• Pole Replacement

- 112,500 wooden poles
- Increase pace to 2,000 poles/year
 - Current annual investment \$5M
 - Add \$4.33M/year
 - Additional four construction crews



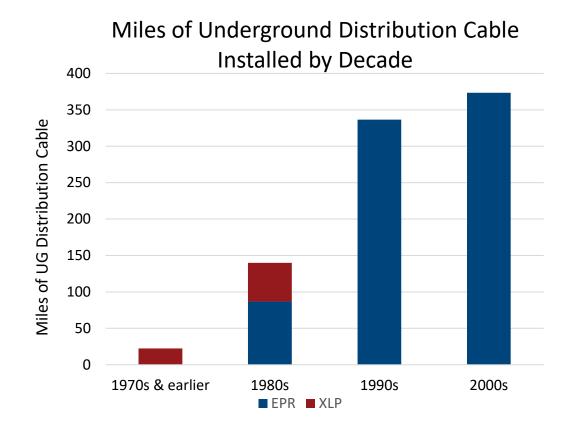
Electric Pole Replacement



Electric Distribution - Wires \$10M

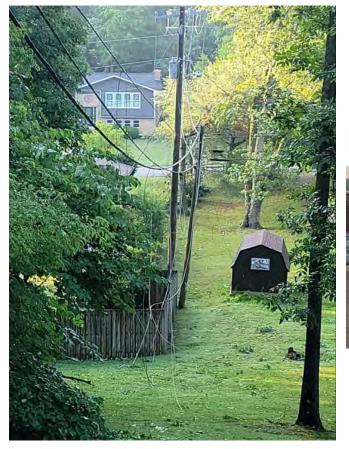
Overhead

- Increase wire size to support system growth and resiliency
 - Current annual investment \$7.7M
 - Add \$1.31M/year
 - Additional construction crew
- Underground
 - Direct buried cable replacement
 - Increase to 8 miles/year
 - Current annual cost \$1.9M
 - Add \$1.1M/year
 - Additional construction crew



Electric System – Modernization \$25M

- Grid Modernization
 - Self-healing grid (FLISR)
 - Voltage optimization
 - Battery storage
 - Demand response
 - Microgrid
- Strategic Undergrounding
 - One to two miles/year
 - Add \$1.5M/year
 - Areas of heavy vegetation
 - Eliminate back lot line construction





Water System

Customers: 82,799

Service Territory: 188 square miles

Treatment Plant: 1

Pump Stations: 26

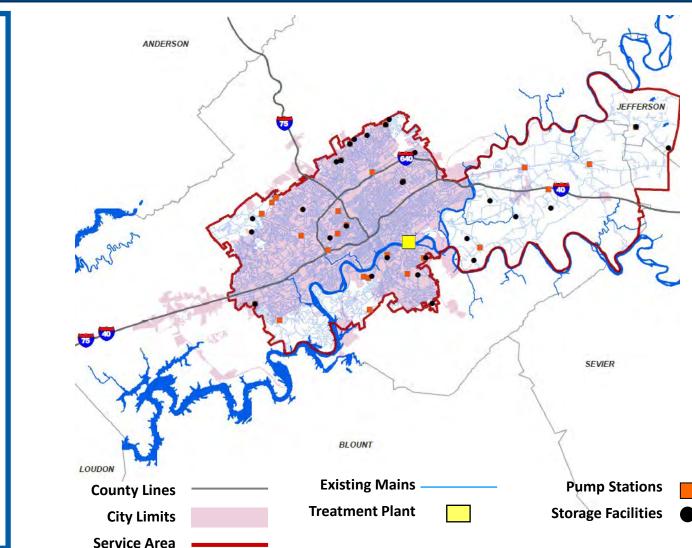
Storage Facilities: 28

Distribution Mains: 1,412 miles

Plant Capacity: 62.9 million gallons/day (MGD)

Reservoir Capacity: 36.9 million gallons (MG)

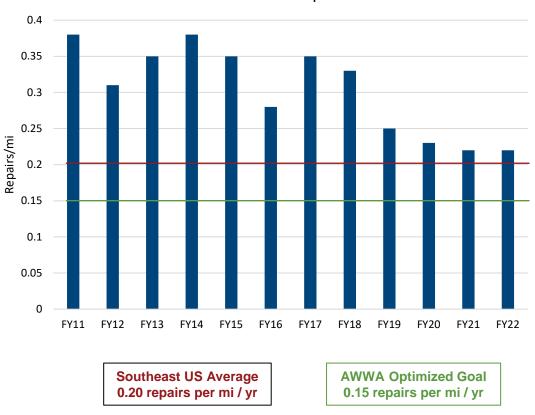
Treated Water: 12.7 billion gallons annually



Water - Distribution System \$8M

• Pipe replacement

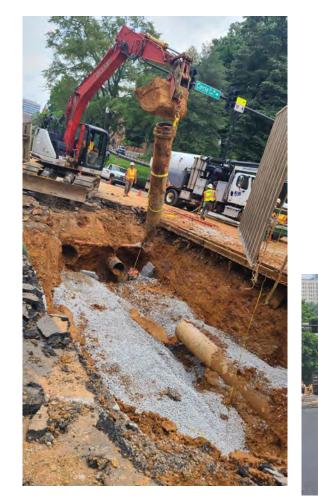
- 33% increase in costs
- Rate of breaks nearing benchmarks
- Increase from 9.7 to 12 miles/year
- Current annual investment \$11M
- Add \$2M/year

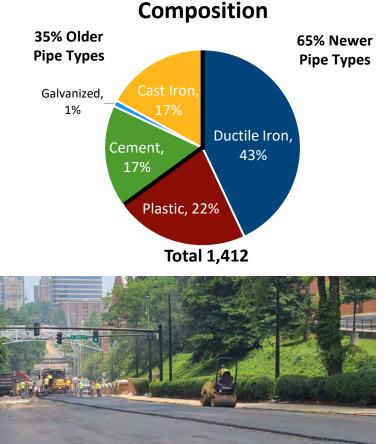


Overall Rate of Repairs

Water Distribution System - Impact

- Focus on older pipe types
 - Cast iron
 - Cement
- Impacts of increased pipe replacement
 - Cumberland Avenue response \$230K
- Proactive replacement is better





Wastewater System

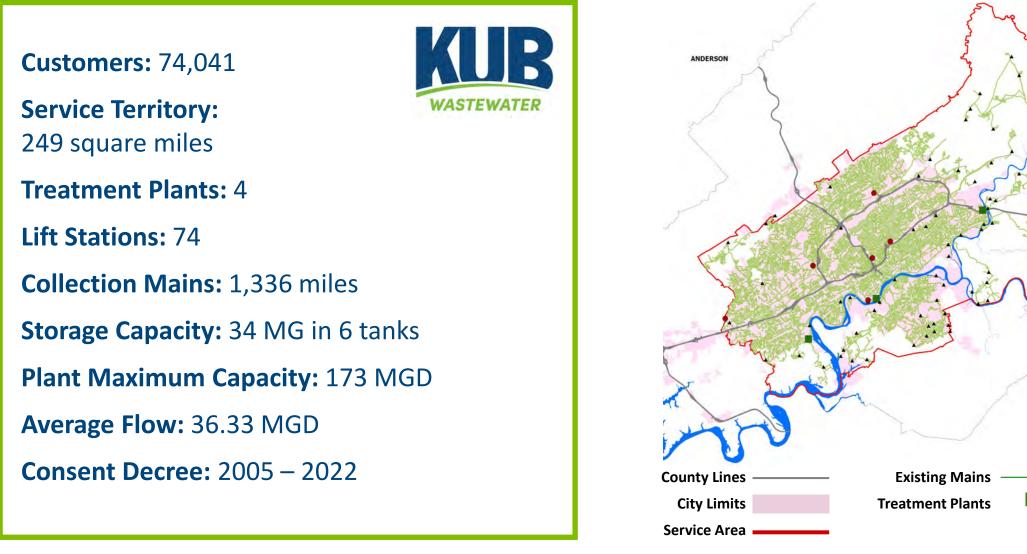
GRAINGER

SEVIER

Pump Stations

Storage Tanks 👅

JEFFERSON



Wastewater – No Changes to Collection System

Wastewater Main Replacement (FY25-FY30)



Wastewater – Treatment Plants \$12M

- Kuwahee
 - Digester roof \$1M
 - Replace centrifuges \$4M
 - Electrical upgrades \$5M
 - Chemical feed building \$400k
- Loves Creek
 - Construct on-site storage \$2M

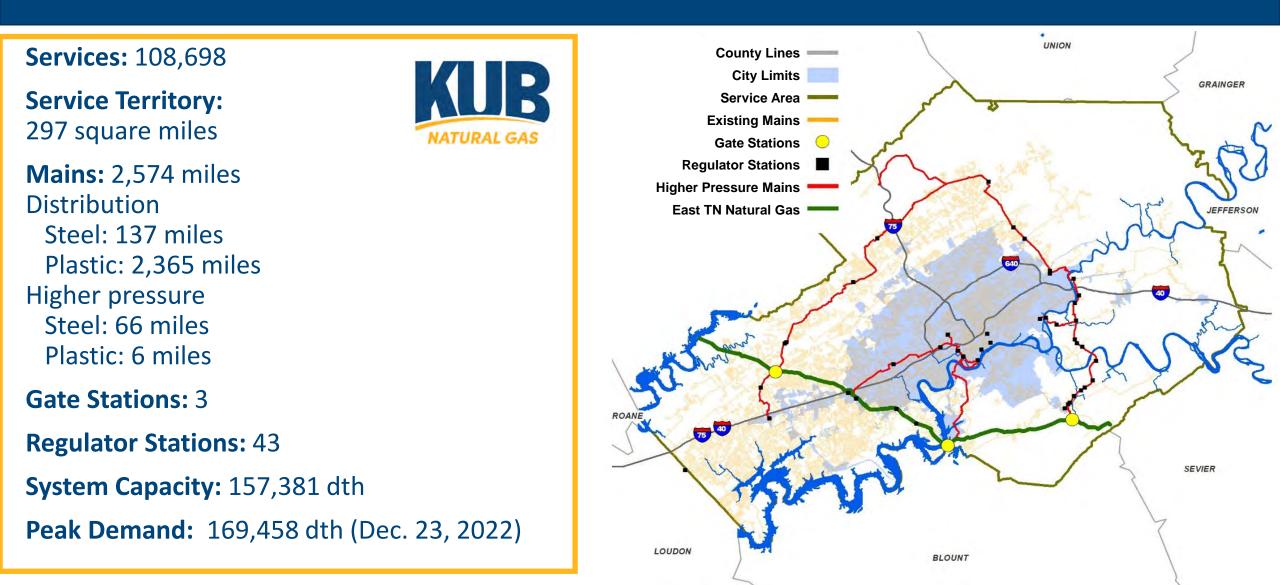






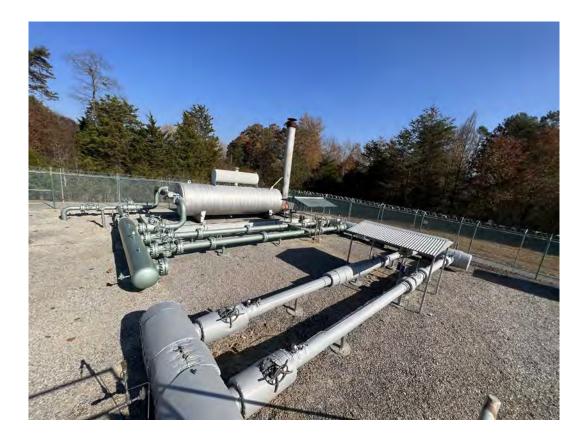


Natural Gas System



Gas - Regulator Stations \$6M

- Lovell Road Gate Station
 - Improve pressure management and metering
- Regulator station improvements
 - Increasing regulatory requirements require upgrades to monitor and measure methane emissions



Gas - Distribution System \$750k

- Vegetation Management
 - Manage right-of-way access
- Retrofit of key valves
 - Eliminates confined space entry
 - 30 valves
- Leak detection and repair rule
 - Improve ability to monitor leaks through proactive surveys
 - Capture methane during projects
 - Repair leaks faster than current requirements



Cross-compression during Lovell Rd project commissioning

Gas Meter Replacement \$20M

- Sonix meter replacement
 - Replace gas meters with advanced technology in eight-year period
 - Meter costs comparable to existing diaphragm meters
 - Provides leak detection and remote shut-off capabilities
 - Approximately 100,000 meters



Combined Impact of Inflation & Needed Century II Work (FY23-30)

	Inflationary Impact	Needed Century II Work
Electric	\$113M	\$128M
Natural Gas	\$38M	\$39M
Water	\$55M	\$13M
Wastewater	\$69M	\$23M
Total	\$275M	\$203M

Total Combined	\$478M
----------------	--------



Potential Funding Scenarios

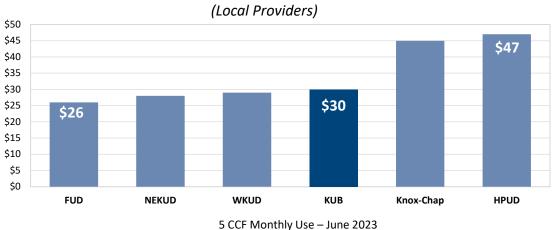
Long-Term Financial Strategy

- Balanced funding approach for Century II and other capital programs
- Maintain competitive rates
- Financially sound utility systems
 - Liquidity
 - Debt funded ratios/Debt coverage ratios
 - Cash reserves
- Lower levels of debt funding over time
- Maintain high-quality bond ratings (AA or higher)

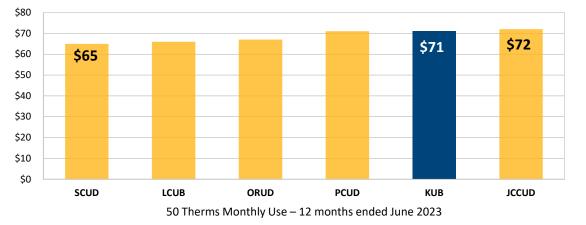
Residential Rates Competitive

("Big 8" TVA Distributors) \$160 \$140 \$136 \$120 \$128 \$120 \$100 \$80 \$60 \$40 \$20 \$0 ΗU MLGW MTE EPB VEC NGA KUB NES 1,000 kWh Monthly Use – 12 months ended June 2023

Electric Bill Comparison



Water Bill Comparison



Gas Bill Comparison (Regional Gas Distribution Companies)

(Local Providers) \$80 \$70 \$68 \$60 \$50 \$40 \$44 \$30 \$20 \$10 \$0 FUD Knox-Chap WKUD HPUD KUB

Wastewater Bill Comparison

5 CCF Monthly Use – June 2023

Debt per Customer Comparison

Electric	Total Debt	Customers	Debt per Customer
KUB	\$370M	218,000	\$1,697
Chattanooga	\$270M	195,000	\$1,385
Nashville	\$475M	437,000	\$1,087
Memphis	\$303M	437,000	\$693
Huntsville	\$78M	209,000	\$373

Water	Total Debt	Customers	Debt per Customer
KUB	\$184M	83,000	\$2,217
Huntsville	\$125M	105,000	\$1,190
Memphis	\$119M	256,000	\$465

Natural Gas	Total Debt	Customers	Debt per Customer
KUB	\$78M	109,000	\$716
Memphis	\$126M	312,000	\$404
Huntsville	\$5M	61,000	\$82

Wastewater	Total Debt	Customers	Debt per Customer
KUB	\$467M	74,000	\$6,311

Financial Modeling Guidelines – All Systems

- Meet minimum operating cash levels
- Maintain 60 days contingency cash reserves
- Build up unrestricted cash reserves
- Meet debt-related targets
- Incorporate grant awards
- Update revenue projections

Changes to Electric Assumptions & Indicators

- Minimum operating cash of \$50M
- \$25M unrestricted cash reserves by 2030
- \$20M in Power Supply Flexibility savings through 2030

Electric Modeling Summary

	Total			FY 30	Rate Increases							
	Funding Increase	New Bonds	Total Bonds	Debt Ratio	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30
FY23 Plan		\$339M	\$491M	40%	3%*	3%*						
Inflation Adjusted Plan	\$110M	\$331M	\$488M	37%	3%*	3%*	3%					
Century II Renewal	\$243M	\$342M	\$498M	35%	3%*	3%*	3%	3%	1%			
Century II Phased	\$211M	\$344M	\$500M	36%	3%*	3%*	3%	1%	1%	1%	1%	1%

Changes to Gas Assumptions & Indicators

- \$15M unrestricted cash reserves by 2030
- Adding new bonds to the plan
- Outstanding debt <= \$50M by 2030
- Debt funded ratio <= 15% by 2030

Gas Modeling Summary

	Total		FY 30	FY 30				Rate In	creases			
	Funding Increase	New Bonds	Total Bonds	Debt Ratio	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30
FY23 Plan			\$33M	8%				2%	2%	2%	1%	1%
Inflation Adjusted Plan	\$42M	\$12M	\$44M	11%			2%	2%	2%	1%	1%	1%
Century II Renewal	\$82M	\$18M	\$50M	11%			4%	3%	3%	2%	2%	2%
Century II Phased	\$73M	\$17M	\$49M	11%			3%	3%	3%	2%	2%	2%

Changes to Water Plan Assumptions & Indicators

- \$10M unrestricted cash reserves by 2030
- Outstanding debt <= \$235M by 2030
- Increased commercial customer/usage projections
- Increased residential usage projections

Water Modeling Summary

	Total		FY 30	FY 30	Rate Increases							
	Funding Increase	New Bonds	Total Bonds	Debt Ratio	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30
FY23 Plan		\$85M	\$203M	36%	5%*	5%*	5%*	6%	6%	6%	6%	6%
Inflation Adjusted Plan	\$54M	\$103M	\$221M	38%	5%*	5%*	5%*	6%	6%	6%	6%	6%
Century II Renewal	\$68M	\$117M	\$235M	40%	5%*	5%*	5%*	6%	6%	6%	6%	6%

Changes to Wastewater Assumptions & Indicators

- \$10M unrestricted cash reserves by 2030
- Reduce contingency cash reserves from 90 to 60 days
- Debt service coverage of 1.75X or greater
- Increased commercial growth/usage projections

Wastewater Modeling Summary

	Total		FY 30	FY 30	Rate Increases							
	Funding Increase	New Bonds	Total Bonds	Debt Ratio	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30
FY23 Plan		\$68M	\$414M	45%	4%*	4%*	4%*	2%	2%	2%	1%	1%
Inflation Adjusted Plan	\$70M	\$68M	\$414M	43%	4%*	4%*	4%*	2%	2%	2%	2%	2%
Century II Renewal	\$92M	\$76M	\$421M	43%	4%*	4%*	4%*	3%	3%	3%	2%	2%
Century II Phased	\$76M	\$75M	\$421M	43%	4%*	4%*	4%*	2%	2%	2%	2%	2%

Potential Rate Actions – FY23 Plan

Rate Incr	eases			
	FY25	FY 26	FY 27	FY 28
Electric				
Natural Gas		2%	2%	
Water		6%	6%	6%
Wastewater		2%	2%	2%

Monthly Bill Impacts				
	FY25	FY 26	FY 27	FY 28
Electric				
Natural Gas		\$1.40	\$1.45	
Water		\$2.00	\$2.10	\$2.20
Wastewater		\$1.45	\$1.50	\$1.55

Potential Rate Actions - Century II Renewal

Rate Incr	eases			
	FY25	FY 26	FY 27	FY 28
Electric	3%	3%	1%	
Natural Gas	4%	3%	3%	
Water		6%	6%	6%
Wastewater		3%	3%	3%

Monthly Bill Impacts				
	FY25	FY 26	FY 27	FY 28
Electric	\$3.70	\$3.80	\$1.30	
Natural Gas	\$2.85	\$2.20	\$2.30	
Water		\$2.00	\$2.10	\$2.20
Wastewater		\$2.20	\$2.30	\$2.35

Potential Rate Actions - Century II Phased

Rate Incr	eases			
	FY25	FY 26	FY 27	FY 28
Electric	3%	1%	1%	
Natural Gas	3%	3%	3%	
Water		6%	6%	6%
Wastewater		2%	2%	2%

Monthly Bill Impacts				
	FY25	FY 26	FY 27	FY 28
Electric	\$3.70	\$1.30	\$1.30	
Natural Gas	\$2.15	\$2.20	\$2.25	
Water		\$2.00	\$2.10	\$2.20
Wastewater		\$1.45	\$1.50	\$1.55

Key Takeaways for Today

- Inflation has had an undeniable impact on KUB and its customers
- Century II strategy continues to be the best way to provide reliable, affordable, and safe service
 - We've lost some ground over the last few years
 - As our systems age, more funding is needed to maintain a sustainable pace
- Rate increases are needed in all systems
 - Water and wastewater are in line with prior plans
 - Gas and electric require larger shifts

Next Steps

- Questions and input from Board
- Continued refinement of plan
- April financial workshop
- May consideration of
 - FY25 budget
 - Rate increases in all systems
 - Bond issues in all systems

