FY 2022 – The Year in Review

• Significant challenges
  • Covid impacts continue...but moderating
  • Inflation/supply chain pressures increase
  • Two significant, preventable safety incidents

• Significant accomplishments
  • Eliminated WW rate increase for a second year
  • Reduced Water rate increase
  • Continued strong operational performance
  • Fiber Division established
  • Completion of BEHRC

• Overall, a strong foundation to build on for FY 2023
Our Vision:
KUB exists to serve its customers, improving their quality of life by providing utility services that are safe, reliable and affordable.
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Organizational Goals

Financial
• O&M
• Cash Generated
• Debt Service Coverage
• Bond Ratings

Safety
Rate Competitiveness
Electric Reliability
Century II Infrastructure

Environmental
Stewardship

Workforce Development
Customer Growth
Customer Experience
Customer Affordability
<table>
<thead>
<tr>
<th>Organizational Goals</th>
<th>Fiscal Year 2023 Strategic Priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
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- Century II Infrastructure
- Environmental Stewardship
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- Customer Affordability

Fiscal Year 2023 Strategic Priorities

Launch Fiber Division

Major Construction
Major construction of fiber network in Phase I areas

Build Support Processes
Develop processes to support services to customers

Marketing Plan
Develop a marketing plan to support fiber rollout

Develop Low-Income Program
Working with partners, develop a plan to provide low-income students free/low-cost internet

Connect Customers
Connect the first broadband customers by the end of 2022
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Fiscal Year 2023 Strategic Priorities

- Continue Century II Investments
  - Begin MBW Filter project
  - Begin construction of the next – and largest – component of the water supply master plan
  - Implement a post-consent decree infrastructure plan for the wastewater division
  - As Consent Decree requirements are completed, refocus planning on long-term WW system needs
  - Pursue federal, state and local infrastructure funding
  - Seek funding from American Recovery Program and Federal Infrastructure program as guidelines become available
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</tr>
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<td>Customer Growth</td>
<td><strong>Implement Diversity, Equity and Inclusion Strategy</strong></td>
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<tr>
<td>Customer Experience</td>
<td>Education/Skills Development</td>
</tr>
<tr>
<td>Customer Affordability</td>
<td>Equip all employees with the tools to create an inclusive culture, through comprehensive training for employees at all levels of the company</td>
</tr>
<tr>
<td></td>
<td><strong>Community Partnerships</strong></td>
</tr>
<tr>
<td></td>
<td>Build and nurture partnerships to promote KUB’s commitment to serve as a trusted partner providing valuable careers, resources and services to the community</td>
</tr>
<tr>
<td></td>
<td><strong>Talent Management</strong></td>
</tr>
<tr>
<td></td>
<td>Develop recruiting strategies to build a rich pipeline of diverse applicants, and provide opportunities for current employees to develop in their careers</td>
</tr>
</tbody>
</table>
FY 2023 Long Range Plan Highlights

- First KUB budget to exceed $1 billion
- Continued investments in Century II
  - $2.3B Capital plan over next 10 years
- Continued cost management efforts
- Rate increases minimized
  - Electric increases previously adopted
  - No Gas increase needed
  - Water increase lower than expected
  - Wastewater increase as expected

<table>
<thead>
<tr>
<th>Long-Range Plans – Actual/Proposed Rate Increases *</th>
<th>FY21</th>
<th>FY22</th>
<th>FY23</th>
<th>FY24</th>
<th>FY25</th>
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</thead>
<tbody>
<tr>
<td>Electric</td>
<td>-</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>-</td>
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<tr>
<td>Natural Gas</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Water</td>
<td>5%</td>
<td>5%</td>
<td>2%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Wastewater</td>
<td>3%</td>
<td>3%</td>
<td>4%</td>
<td>4%</td>
<td>4%</td>
</tr>
</tbody>
</table>
Today’s Agenda

- Fiber update – Jamie Davis
  - Implementation update
  - Student Internet Access Program update
- Century II – Derwin Hagood/Brooke Sinclair
  - Water system long range plan
  - Wastewater system long range plan – post-consent decree
  - Other Century II/infrastructure needs
- Funding plan – Mark Walker
Fiber Division FY23 LRP

• The first Fiber Division 10-year LRP
• Transition from Fiber-to-the-Home business case
• Business case model remains valid
• Update on fiber network for the electric system
• Update on construction and Phase One availability
• Next steps and service availability
Fiber-to-the-Home Overview

- **Electric**
  - $97.4M Operations and Maintenance
  - $523.8M Capital

- **Fiber**
  - $451.1M Operations and Maintenance
  - $36.2M Capital

- LRP is consistent with previously approved plan
- Inflation impacts are contained within the LRP
Fiber network will be fully constructed by FY29
- Total Capital: $523.8M
  - Network construction: $265.6M
  - Smart switches: $42.4M
  - Electronic equipment: $28.1M
  - Service connections: $187.7M (at 35% subscription rate)
- Total Operations and Maintenance: $97.4M
  - Network operations labor, fiber maintenance, and warehousing

300 miles of fiber a year planned in initial stages; peaks at 800 miles per year

Average of 30,000 customers made eligible for service each year
Fiber Division LRP Details

• Fiber services will be available to all electric customers by FY29
  • Total capital: $36.2M
    • Facilities: $13.5M
    • Internet service infrastructure: $8M
    • Information technology investments: $7M
    • Vehicles: $4.7M
  • Total operations and maintenance: $451.1M
    • Access and Utilization Fees: $223.8M
    • Shared expenses: $88.7M
    • Labor: $55.3M
    • Marketing and advertising: $17.0M
    • Stock: $15.1M
    • Internet service access: $11.1M
Loan from the Electric Division

- Total loan amount of $35M to be repaid by FY30
- FY23 loan draw of $20M
- $8M in interest paid over the life of the loan
- Final payment of $5M in FY30
## American Rescue Plan Grant from the State

<table>
<thead>
<tr>
<th>County</th>
<th>Households</th>
<th>Total Project</th>
<th>Grant Request</th>
<th>Local Match</th>
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</thead>
<tbody>
<tr>
<td>Knox</td>
<td>791</td>
<td>$5,795,500</td>
<td>$4,056,850</td>
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<tr>
<td>Union</td>
<td>2619</td>
<td>$9,317,300</td>
<td>$6,522,110</td>
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<tr>
<td>Grainger</td>
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<tr>
<td>Sevier</td>
<td>1494</td>
<td>$4,547,000</td>
<td>$3,182,900</td>
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<tr>
<td>Jefferson</td>
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<td>$1,337,500</td>
<td>$936,250</td>
<td>Yes</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>7,194</strong></td>
<td><strong>$29,140,800</strong></td>
<td><strong>$20,398,560</strong></td>
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## Grant Funding Outlook

<table>
<thead>
<tr>
<th>Agency</th>
<th>Funding</th>
<th>Purpose</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN Dept of Economic &amp; Community Development (ARP)</td>
<td>$400M</td>
<td>Infrastructure deployment in unserved areas</td>
<td>Awards to be announced late summer 2022</td>
</tr>
<tr>
<td></td>
<td>$100M</td>
<td>Digital inclusion, adoption</td>
<td>TBD</td>
</tr>
<tr>
<td>Federal Communications Commission</td>
<td>$30/month per qualifying household</td>
<td>Affordability Connectivity Program and customer subsidy for broadband service</td>
<td>Expected to be available by launch</td>
</tr>
<tr>
<td>National Telecommunications &amp; Information Administration</td>
<td>$42B total $100M min for TN</td>
<td>IIJA broadband funding for infrastructure deployment and digital inclusion</td>
<td>Awaiting guidelines and expecting an application by summer 2022</td>
</tr>
</tbody>
</table>
Community Access and Connectivity

• Offering affordable access to quality internet

• Programs
  • FCC Affordable Connectivity Program (ACP)
    • $30/month subsidy for qualifying households in KUB service area
    • 200% of federal poverty guidelines, or $53k for a 4-person household
  • Student Internet Access Program
    • Free 1G symmetrical internet for Knox County customers qualifying for ACP and who have children enrolled in K-12 education
    • Seeking financial commitments from City of Knoxville and Knox County governments
    • Will pursue federal and state grants for additional funding
Phase One of Network Construction

- Construction progressing as planned
- Support systems are being developed
- New employees are joining the team
- Products and marketing strategies being developed
- Global supply chain issues are apparent in some areas
Network Construction Progress

• 100 miles of the planned 290 miles completed for FY22
  • 60 of 60 miles completed for Mohawk/Park City area
  • 40 of 125 miles completed for Arlington/Fair Drive area
  • 0 of 105 miles completed for Dolltown area
Network Construction Progress

- Various construction methods have been utilized
- Global Communication is the primary contractor
- Piloting modified customer outreach
  - Targeted communication
  - Option to stay connected and express interest
  - Preparing construction crews to serve as brand ambassadors
Network Construction Progress

• Three of four huts planned for FY22 are installed
  • Remaining hut to be installed in May
• Four huts planned in FY23
• 20 total huts planned for the network
A Closer Look at Fiber Huts
Staffing the Fiber Division

- 29 of 45 planned hires made for FY22
- 38 hires planned for FY23
- Positions in several areas of expertise have been filled
New Fiber Customer Portal

• Allows online order and service requests and availability finder

• Customers will have access to all account information in portal

• Fiber bill is designed to be simple and transparent

• Customers will be billed separately for fiber services

• Paperless billing is the preferred and default method
Phase One Service Availability

• Incremental availability in all three zones
• Outreach will target eligible and soon-to-be eligible customers
• 25,000 customers will have access to KUB Fiber services by the end of 2022
Phase One Service Availability

- Timelines could change with grant funding
- 60,000 customers will have access to KUB Fiber products by December 2023 (approximately 25% of KUB’s electric customers)
Brand Development for KUB Fiber

- Focused on values and product differentiation in the market
- Tracking brand awareness through research
- Planned product launch to focus on building community awareness
- Marketing efforts will target neighborhoods with access
- Information about availability timeline coming soon to kub.org
Customers: 80,096

Service Territory: 188 square miles

Treatment Plant: 1

Pump Stations: 27

Storage Facilities: 28

Distribution Mains: 1,415 miles

Plant Capacity: 62.9 million gallons/day (MGD)

Reservoir Capacity: 36.9 million gallons (MG)

Treated Water: 12.0 billion gallons annually
Century II for Water

- Operations & Maintenance - $371M
- Capital - $387M
- Improving resiliency of water treatment plant
- Transmission line improvements for distribution system resiliency
- Leveraging technology/analysis for pipe replacement
- O&M programs ensure quality and reliability
- In-house laboratory ensures water quality
## Water Treatment Resiliency

<table>
<thead>
<tr>
<th>Phase</th>
<th>Project</th>
<th>Timeframe</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase 1 Complete</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>High Service Main</td>
<td>FY17 – FY18</td>
<td>$2.2M</td>
</tr>
<tr>
<td></td>
<td>Ph 1 Electrical Upgrades</td>
<td>FY17 – FY18</td>
<td>$2.3M</td>
</tr>
<tr>
<td></td>
<td>Generators</td>
<td>FY19 – FY21</td>
<td>$12.9M</td>
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<tr>
<td><strong>Phase 2 Underway</strong></td>
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<td></td>
<td>Filters</td>
<td>FY22 – FY25</td>
<td>$50M</td>
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<tr>
<td><strong>Phase 3 Future</strong></td>
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<td></td>
<td>Raw Water Distribution Box &amp; Ph 2 Electrical</td>
<td>FY26 – FY27</td>
<td>$12M</td>
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<td>Low Pressure Pump Station &amp; Intake</td>
<td>FY28 – FY30</td>
<td>$20M</td>
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<td></td>
<td>High Service Pump Station &amp; Clearwell</td>
<td>FY30 – FY32</td>
<td>$30M</td>
</tr>
</tbody>
</table>
MBW Filters Project

- Largest construction project in KUB history
  - Cornerstone project of Water Supply Master Plan
  - Postponed two years due to pandemic
  - Six new filters, 38 MGD capacity
  - $20M ARPA funding - City of Knoxville and Knox Co.
- Procurement process accommodates pandemic related challenges
- Construction Schedule: ~ FY23 – FY25 (May vary depending on proposal chosen.)
Water Plant Maintenance/Improvements

• Nearly 100-year-old plant requires maintenance and upgrades
  • Brick turret repairs – $0.5M
  • Roof deck repairs – $1.5M
  • Roof truss repairs – $0.6M
  • Repointing of brick façade – $4M

• Equipment improvements
  • Pipe coating inspection
  • Valve maintenance
  • Pump inspections/upgrades
  • Electrical upgrades
Reduction in Pipe Repairs

- Century II for water in 2006
- Over 50% reduction in repairs since 2008
- Eliminate 20 miles of galvanized pipe by 2027
  - Pipe type needing most repairs
  - 2-inch size – least costly replacement
- 480 miles of cast iron and cement pipe remain
  - Older pipe types
  - 6- to 30-inch pipe
  - More costly to replace
Pipe Replacement Pace Reduced

- Target – 14 miles/year
  - Achieved rate of 1% of system per year
  - 100-year pipe life expectancy pace
- Reducing pace to 10.3 miles/year in LRP
  - $150M for treatment and transmission system resiliency
  - $111M for water main replacement
- Increase pace outside LRP
  - Nearly 500 miles older pipe types remain
  - Maintain target pace long-term
  - Match pace to life expectancy
Maintenance Programs
Ensure System Performance

• Transmission & distribution valve inspection
  • Confirm accessibility and operability
  • Repair or replace as needed
  • 5-year cycle for distribution, 2-year cycle for transmission

• Test hydrants for fire flow requirements
  • Ensure hydrant performance
  • Evaluate system conditions
  • Repair or replace as needed
  • 3-year cycle
Leak Prevention, Detection, and Repair

• Leak prevention program is key
  • Pressure reduction program
  • Soft start/stop pump equipment

• Leak detection reduces breaks
  • District metering for automated data collection
  • Analysis detects potential areas for leaks

• “Find and Fix” proves effective
  • Technology pinpoints leaks
  • Repairs made before breaks occur
  • Cost - $1M per year
Laboratory and Water Quality Assurance

• State-certified laboratory
  • Over 100K tests annually
  • 150 parameters
• Water quality programs and continuous monitoring
  • Daily analysis at plant and distribution system
  • Customer WQ program
  • Cross connection prevention
  • Routine flushing
Century II for Water is Evolving

• Projects for MBW resiliency continue
• Transmission system improvements provide growth and resiliency
• Pipe replacement pace is a long-term approach
• Programs evolve for improved results
• Technology and data continue to drive priorities
Customers: 73,017
Service Territory: 243 square miles
Treatment Plants:
Lift Stations: 63
Collection Mains: 1,327 miles
Storage Capacity: 34 MG in 6 Tanks
Plant Maximum Capacity: 173 MGD
Average Flow: 37.75 MGD
Consent Decree: 2005 – 2022
Century II for Wastewater

- Operations & Maintenance - $457M
- Capital - $396M
- Continued investment in treatment plants
- Pump station upgrades for reliability/growth
- Preventing/reducing repeating overflows
- Employing technology for pipe replacement prioritization
- O&M programs ensure quality and reliability
- Laboratory monitors pretreatment and quality
## Major Century II Plants Projects

<table>
<thead>
<tr>
<th>WWTP</th>
<th>Project</th>
<th>Year</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuwahee</td>
<td>Disinfection</td>
<td>FY24 – FY27</td>
<td>$7.4M</td>
</tr>
<tr>
<td>Kuwahee</td>
<td>Digester Cover Replacements</td>
<td>FY26 – FY29</td>
<td>$8M</td>
</tr>
<tr>
<td>Kuwahee</td>
<td>Nitrification Blowers</td>
<td>FY28 – FY30</td>
<td>$6M</td>
</tr>
<tr>
<td>Fourth Creek</td>
<td>Aeration Flow Distribution</td>
<td>FY27 – FY28</td>
<td>$1.6M</td>
</tr>
<tr>
<td>Fourth Creek</td>
<td>Grit System Replacement</td>
<td>FY29 – FY31</td>
<td>$3.3M</td>
</tr>
<tr>
<td>Loves Creek</td>
<td>Preliminary Treatment Upgrades</td>
<td>FY28 – FY30</td>
<td>$3.9M</td>
</tr>
<tr>
<td>Loves Creek</td>
<td>Waste Force Main Replacement</td>
<td>FY30 – FY32</td>
<td>$5.5M</td>
</tr>
<tr>
<td>Eastbridge</td>
<td>Generator Upgrades</td>
<td>FY26 – FY27</td>
<td>$1.3M</td>
</tr>
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Recently Completed $45M BEHRC Project at Kuwahee
Jones St. Pump Station and Force Main

- Existing pump station and force main – 1950’s vintage, oldest on system
- Increases capacity from 9 MGD to 15 MGD
  - Addresses growth and reduces overflows
  - New force main across river now in place
- Total cost of $16.7M, complete FY23
Walker Springs Pump Station and Force Main

• Existing pump station and force main - 1970s vintage
• Increasing capacity from 4.3 to 6.6 MGD
  • Addresses largest repeating overflow
  • Designing new pump station instead of upgrades to existing building
• Construction phase
  • Force main FY23: $3.2M
  • Pump Station FY24 – FY25: $8M
2004 Repeating Overflows
2004 Repeating Overflows
Reduction in Overflows

- Overflow reduction from 2003
- Rainfall impacts system performance
  - Intensity and duration
  - Ground saturation level
  - Flooding
- 450 miles of older pipe remain
  - Clay and concrete pipe
  - Increased rainfall impacting overflows

![Graph showing reduction in overflows over time.](image-url)
• Increased overall overflows due to excessive 2-year storm events
• Abnormal “2-year” storm frequencies
  • Expect five 2-year storms in 10 years
  • Expect two 2-year storms in 4 years
  • Averaged 1 per year past 10 years
Pipe Replacement Pace Reduced

- Consent Decree avg 25 miles/year
  - Achieved rate of 2% of system per year
  - 50-year pipe life expectancy pace
- Reducing pace to 15 miles/year in LRP
  - Funding pump stations and plants
  - $257M for sewer rehab and replacement
- Increase pace outside LRP
  - 450 miles of older pipe types remain
  - Maintain target pace long-term
  - Match pace to life expectancy

![Miles of Pipe Replacement in LRP](chart.png)
System Inspections and Cleaning Improve Performance

- $2.5M/year for inspections and cleaning
- Video inspections assess pipe condition
- Manhole inspections detect defects
- Smoke testing locates potential sources of inflow/infiltration
- Blockage abatement clears pipelines from root intrusions/blockages
- Programs work together to reduce overflows
Pretreatment and Protection

- **Industrial Pretreatment Program**
  - Prevention of industrial discharges that interfere with plant operation
  - Inspect and monitor 23 permitted industries

- **Grease Control Program**
  - Prevention of grease entering the system
  - Compliance achieved by capturing grease
  - Inspect over 900 food service facilities
  - Public awareness program for all customers
Century II Continues to Evolve

- Utilize monitoring and modeling for prioritization and cost-effective solutions
- Match sewer rehabilitation projects to system needs
  - Focus on reducing SSOs (especially repeat locations)
  - Continue to remove older clay and concrete pipe
- Monitor overflows and adjust rehabilitation and maintenance as needed
- Optimize O&M programs to extend asset life
April 21, 2022

Electric Long Range Plan
**Electric System**

**Customers:** 213,008

**Service Territory:** 688 square miles

**Electric Lines:** 5,466 miles
- Distribution Overhead: 4,068 miles
- Distribution Underground: 1,132 miles
- Transmission: 266 miles

**Infeed Substations:** 9

**Substations:** 63

**System Capacity:** 3,030 MVA

**Peak Hourly Demands:**
- Winter: 1,332 MW (Feb. 2015)
- Summer: 1,235 MW (Aug. 2007)
Century II for Electric

- Operations & Maintenance - $864.6M
- Capital - $281.3M
- Redundancy, resiliency, and contingency planning is key to electric reliability
- Substations
  - Adding new stations and building capacity in existing stations
- Transmission system
  - Pole, wire, and component replacement
- Distribution system
  - Pole and cable replacement with vegetation management
- Fiber enables further automation
Reliability Takes a Multi-faceted Approach

• Redundancy
  • Having additional or spare equipment or lines in case of a single point of failure

• Resiliency
  • Having the equipment, capacity, resources, and automation to recover quickly

• Contingency
  • Having options for back up circuits and capacity
Significant Influencers to Reliability

- Vegetation
  - 65% out of ROW vs. 35% inside ROW

- KUB equipment
  - 30% drop in customer outage minutes vs. FY20

- Third party
  - Increased MVAs on system starting in FY21

- Unknown
  - Most likely unconfirmed vegetation

### FY21 Customer Minutes Out

- Vegetation: 56%
- KUB Equipment: 17%
- Lightning: 4%
- Third Party: 13%
- Unknown/Other: 8%
- Animals: 2%

- 65% out of ROW vs. 35% inside ROW
- 30% drop in customer outage minutes vs. FY20
- Increased MVAs on system starting in FY21
- Most likely unconfirmed vegetation
Building Redundancy and Contingency within Substations

- New Infeed Substation ($21.3M) - Western Ave. (FY22-23)
- New distribution substations ($34.1M)
  - Rays Gap (FY25)
  - Halls (FY28)
  - Greenway (FY30)
- Upgrading 16 existing substations ($42.6M)
- Increasing capacity in 3 substations ($7.3M)

Western Ave. Substation Site Development – March 23
Resilient Transmission System Is Key

- Line upgrades ($107.8M)
  - 155 of 266 miles complete
  - Averaged 10 miles/year of rebuild
  - Fiber installation in parallel
- Extended rebuild completion
  - Moved from FY30 to FY32
  - Due to cost impacts of poles and wire
- Maintaining vegetation clearance ($13M)
  - Average ~50 miles/year
  - Defined 5-year trim cycle
Substations and 69kV Transmission Lines to be Upgraded per 10 YR LRP
Mitigating Distribution Impacts Through Vegetation Management

- Accounts for 56% of outages minutes annually
- Vegetation Management Program ($163.1M)
- Proactively addressing hazardous trees
- Ramping up in FY24 to a 4-year trim cycle
- Monitoring cost impacts
Pole Replacement Hardens Distribution System

• Critical system component
• Detailed pole assessment (FY23-27)
  • Move to 5-year cycle
  • Condition assessment
  • Replacement priorities
• Plan – 1,400 poles/year
  • 50-year life expectancy
  • Evaluate after Year 1 of condition assessment results
Distribution Cable Replacement Plan

- Targeted direct-buried XLP cable ($4.0M)
  - Completion in FY24
  - Failures significantly decreased
- Move to direct-buried EPR cable ($15.8M)
  - Failures are minimal currently
  - 30-year life expectancy
  - Begin replacements in FY25
- Developing plan for life cycle replacements of conduit-installed cable
Fiber Is Catalyst for Reliability Gains

- Existing FLISR reclosers (~100)
  - Operating as standalone devices
  - Covers 27 of 398 feeder circuits
  - Over 7.75M outage minutes since FY18
- Deploying ~1,200 FLISR reclosers ($42M)
  - Fiber allows team automation
  - Will cover all feeders
  - Expect exponential outage minute savings
- Development of Grid Modernization Roadmap (FY22-23)
Consistent Reliability Improvements

- Balancing affordability with reliability
- Holistic plan to increase reliability
- Ramping up vegetation management
- Automation offers significant outage minute savings

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<th>2016</th>
<th>2018</th>
<th>2020</th>
<th>2022</th>
<th>2024</th>
<th>2026</th>
<th>2028</th>
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</table>
Natural Gas System

Services: 108,092
Service Territory: 297 square miles
Mains: 2,542 miles
Distribution
  Steel: 151 miles
  Plastic (MDPE): 2,315 miles
  Ductile: ~1 mile
Higher pressure
  Steel: 69 miles
  Plastic (HDPE): 6 miles
Gate Stations: 3
Regulator Stations: 48
System Capacity: 157,381 dth
Peak Demand: 140,204 dth (Jan. 2018)
Century II for Natural Gas

- Operations and Maintenance - $265.3M
- Capital - $281.3M
- Expansion driven by customer growth
- Focused on building a resilient system for now and the future
- Assuring a modern, tight system
- Continuing to ensure regulatory compliance, environmental stewardship, and safety
Customer Requests Propel Growth

- FY11: 600
- FY12: 700
- FY13: 800
- FY14: 900
- FY15: 1000
- FY16: 1100
- FY17: 1200
- FY18: 1300
- FY19: 1400
- FY20: 1500
- FY21: 1600
Pre-2000 System

- Three primary gate stations to move natural gas from the pipeline to and around the system
- Limited ability to move natural gas
- Limited resiliency and operational flexibility
System Changes - 2000

- Three gate stations to take natural gas from the pipeline
- Focus was on resiliency
- North Loop provided the ability to move natural gas
- Impacts 50,000 customers
System Changes - 2005
- Yarnell Rd. Extension
- Growth drove expansion to the west
- Impacts 15,000 customers
System Changes - 2010
- Hardin Valley Extension
- Growth continues in the west
- Impacts 15,000 customers
System Changes - 2015

- Extension of higher pressure pipe to University of Tennessee, Knoxville
- Increased capacity at Topside Road Gate Station
- Expansion allows UTK to eliminate use of coal
- Impacts 45,000 customers
System Changes - 2020
- Connectors tie the system together
  - Yarnell and Hardin Valley (2018)
  - Maryville Pike and Everett (2019)
- Increased resiliency to ensure reliability
- Expansion into Raccoon Valley offers additional industrial growth
- Impacts 20,000 customers
System Changes - 2022
- Connectors tie the system together
  - South Loop Ph 5 (March 2022)
- Increased capacity by 10X
- Increased resiliency to ensure reliability
- Impacts 70,000 customers
Future System Changes – 2023-2025

- Lovell Rd. Capacity Improvement and Road Project ($10.5M)
- Hickey Rd. Connector ($250k)
- Karns Connector ($500K)
- Campbell Station Connector ($500K)
- Snyder Rd. Connector ($500K)
- Impacts 45,000 customers
KUB’s Natural Gas System Is Modern, Tight

- Distribution system make-up
  - Plastic: 92%
  - Steel: 8%
- Aggressive, proactive safety surveys ($600K)
- Effective maintenance programs ($700K)
- Systematic replacement programs ($9M)
- Strategic connector installation ($11M)
- Highly qualified staff
Natural Gas Offers Economic and Environmental Benefits

• Residential
  • Preferred in new construction
  • Rolling out EasyConnect program

• Industrial
  • Cleaner alternative fuel to diesel and heating oil
    • Heating
    • Processing
    • Vehicle fueling
KUB Is an Industry Leader

- Environmentally focused
  - Founding Partner EPA Methane Challenge
  - Lowering GHG emissions

- Safety-focused
  - 2021 APGA Gold SOAR Award
  - 0 Violations in last 10 years

- Forward thinking-focused
  - Best in class replacement and maintenance programs
  - Leader in industry committees, initiatives, and best practices

“KUB’s commitment to being best-in-class is evident by their recognition as a Gold SOAR winner, participation and leadership on industry boards and committees. KUB is frequently asked to share their policies and practices by other Operators.”

- Dave Schryver, APGA President

“Appreciation is expressed to KUB staff for their preparation, participation, and cooperation during this inspection. Their passion for their duties and commitment to safety at KUB was displayed in their efforts to make this inspection process as smooth as possible.”

- Regina Brown, TPUC
Long-Range Financial Plan Update

- Ten-year capital investment program $2.3B
- Proposed FY23 budget of $1.1B
- Inflation impacts plans
- Interest rate projections adjusted for future bond issues
- Proposed rate increases in Water and Wastewater support funding for Water Plant Resiliency and Century II
- ARPA grant funding from City/County for water filter project
- Stadium-related utility infrastructure costs and revenues
- Fiber begins adding customers
## Proposed Rate Increases

### Long-Range Plans – Actual/Proposed Rate Increases *

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<tr>
<th>Service</th>
<th>FY21</th>
<th>FY22</th>
<th>FY23</th>
<th>FY24</th>
<th>FY25</th>
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<td>3%</td>
<td>3%</td>
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<td>Natural Gas</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Water</td>
<td>5%</td>
<td>5%</td>
<td>2%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Wastewater</td>
<td>3%</td>
<td>3%</td>
<td>4%</td>
<td>4%</td>
<td>4%</td>
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### Average Residential Monthly Bill Impacts

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<th>Service</th>
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<th>FY22</th>
<th>FY23</th>
<th>FY24</th>
<th>FY25</th>
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<tbody>
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<td>-</td>
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<td>$3.60</td>
<td>$3.60</td>
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<td>-</td>
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<tr>
<td>Water</td>
<td>-</td>
<td>$0.65</td>
<td>$1.40</td>
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<td>Wastewater</td>
<td>-</td>
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<td>$2.60</td>
<td>$2.70</td>
<td>$2.75</td>
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</table>

- Electric rate increases already approved by KUB Board
- Proposing three years of water and wastewater rate increases
- Water rate increases lowered 1% per year from prior long-range plan
- Three-year increase for average water customer is $4.50
- Three-year increase for average wastewater customer is $8.05
- Initial rate increases reflected on August 2022 bills

* Residential increases applied only to commodity costs
Water Residential Bill Comparison

Water Residential Monthly Bills ($) with Rate Increases

- Chattanooga: $19.26 (Current)
- FUD: $19.39 (Current)
- NKUD: $25.91 (Current)
- WKUD: $27.68 (Current)
- KUB: $28.60 (Current)
- Lexington: $33.10 (Current)
- Birmingham: $36.53 (Current)
- KnoxChap: $41.21 (Current)
- HPUD: $43.70 (Current)
- FY 25: $45.18

Bars represent the current month's bill with green highlighting the increased amount for the FY 25.
Wastewater Residential Bill Comparison

Wastewater Residential Monthly Bills ($) with Rate Increases

- **Lexington**: $30.75
- **FUD**: $33.58
- **KnoxChap**: $49.28
- **WKUD**: $52.47
- **Birmingham**: $57.98
- **HPUD**: $60.32
- **Chattanooga**: $63.17
- **KUB**: $73.55

Bar chart showing monthly bill comparisons for various wastewater utilities, with current and FY25 rates indicated.
## Electric Long-Range Plan Summary

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital</th>
<th>Bonds</th>
<th>Total Bonds Outstanding</th>
<th>Debt Ratio</th>
<th>Debt Coverage</th>
<th>Rate Increase</th>
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<tr>
<td>2023</td>
<td>$155M</td>
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## Natural Gas Long-Range Plan Summary

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<th>Debt Ratio</th>
<th>Debt Coverage</th>
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<td>2025</td>
<td>$24M</td>
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<td>$65M</td>
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<td>$52M</td>
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<td>2028</td>
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<td>Year</td>
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<td>Bonds</td>
<td>Total Bonds Outstanding</td>
<td>Debt Ratio</td>
<td>Debt Coverage</td>
<td>Rate Increase</td>
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<td>Debt Ratio</td>
<td>Debt Coverage</td>
<td>Rate Increase</td>
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<td>56%</td>
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<td>44%</td>
<td>1.84</td>
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<td>2032</td>
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<td>$19M</td>
<td>$410M</td>
<td>43%</td>
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<td>Year</td>
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<td>Loan from Electric</td>
<td>Total Loan Outstanding</td>
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<tr>
<td>2023</td>
<td>$1M</td>
<td>$20M</td>
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<td>2024</td>
<td>$2M</td>
<td>$5M</td>
<td>$33M</td>
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<tr>
<td>2025</td>
<td>$5M</td>
<td>---</td>
<td>$32M</td>
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<tr>
<td>2026</td>
<td>$10M</td>
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<td>$30M</td>
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<td>2027</td>
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<td>$28M</td>
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<tr>
<td>2028</td>
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<td>$20M</td>
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<tr>
<td>2029</td>
<td>$2M</td>
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<tr>
<td>2030</td>
<td>$2M</td>
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<tr>
<td>2031</td>
<td>$3M</td>
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<tr>
<td>2032</td>
<td>$3M</td>
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<td>Total FY23-32</td>
<td>$36M</td>
<td>$25M</td>
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### Proposed FY23 Budget: $1.1B

<table>
<thead>
<tr>
<th></th>
<th>Electric</th>
<th>Gas</th>
<th>Water</th>
<th>Wastewater</th>
<th>Fiber</th>
<th>Total</th>
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<tbody>
<tr>
<td><strong>Energy Cost</strong></td>
<td>$425.4</td>
<td>$68.0</td>
<td>$---</td>
<td>$---</td>
<td>$---</td>
<td>$493.4</td>
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<tr>
<td><strong>O&amp;M</strong></td>
<td>$73.0</td>
<td>$24.1</td>
<td>$32.3</td>
<td>$40.1</td>
<td>$18.5</td>
<td>$188.0</td>
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<tr>
<td><strong>Capital</strong></td>
<td>$154.6</td>
<td>$29.7</td>
<td>$47.1</td>
<td>$45.3</td>
<td>$1.3</td>
<td>$278.0</td>
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<tr>
<td><strong>Debt Service</strong></td>
<td>$30.1</td>
<td>$10.0</td>
<td>$14.6</td>
<td>$33.8</td>
<td>$1.3</td>
<td>$89.8</td>
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<tr>
<td><strong>Taxes and Equivalents</strong></td>
<td>$21.7</td>
<td>$8.6</td>
<td>$5.0</td>
<td>$6.5</td>
<td>$0.3</td>
<td>$42.1</td>
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<tr>
<td><strong>Loan to Fiber</strong></td>
<td>$20.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$20.0</td>
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<tr>
<td><strong>$ in Millions</strong></td>
<td><strong>$724.8</strong></td>
<td><strong>$140.4</strong></td>
<td><strong>$99.0</strong></td>
<td><strong>$125.7</strong></td>
<td><strong>$21.4</strong></td>
<td><strong>$1,111.3</strong></td>
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## Proposed FY23 Budget Reflects Fiber Rollout

<table>
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<tr>
<th></th>
<th>FY 23</th>
<th>FY 22</th>
<th>Increase</th>
<th>Note</th>
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<tr>
<td></td>
<td>Proposed</td>
<td>Amended Budget</td>
<td>(Decrease)</td>
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<tr>
<td>Energy Cost</td>
<td>$493.4</td>
<td>$463.6</td>
<td>$29.8</td>
<td>Higher wholesale energy costs</td>
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<tr>
<td>O&amp;M</td>
<td>$188.0</td>
<td>$174.4</td>
<td>$13.6</td>
<td>Fiber-related labor</td>
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<td>Capital</td>
<td>$278.0</td>
<td>$206.3</td>
<td>$71.7</td>
<td>Fiber infrastructure; MBW filter project</td>
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<td>Debt Service</td>
<td>$89.8</td>
<td>$84.0</td>
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<td>Additional Electric debt</td>
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<tr>
<td>Taxes and Equivalents</td>
<td>$42.1</td>
<td>$41.7</td>
<td>$0.4</td>
<td>Increased plant values</td>
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<td>Loan to Fiber</td>
<td>$20.0</td>
<td>$10.0</td>
<td>$10.0</td>
<td>Supports Fiber rollout</td>
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<td>$1,111.3</td>
<td>$980.0</td>
<td>$131.3</td>
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</table>

$ in Millions
# FY 23 Key Programs and Projects

<table>
<thead>
<tr>
<th>Program/Project</th>
<th>FY 23 Appropriations</th>
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</thead>
<tbody>
<tr>
<td>Fiber Network and Services</td>
<td>$79.2M</td>
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<tr>
<td>MBW Water Filter Project</td>
<td>$28.6M</td>
</tr>
<tr>
<td>Western Avenue Electric Substation</td>
<td>$15.2M</td>
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<tr>
<td>Stadium-Related Utility Infrastructure</td>
<td>$13.2M</td>
</tr>
<tr>
<td>Vegetation Management</td>
<td>$12.9M</td>
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<tr>
<td>Customer Assistance Programs</td>
<td>$ 8.6M</td>
</tr>
<tr>
<td>TDOT – Lovell Rd. High Pressure Gas</td>
<td>$ 7.2M</td>
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<tr>
<td>Jones Street WW Pump Station</td>
<td>$ 6.5M</td>
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Funding FY 23 Budget

**Budget = $1.111B**

- Wholesale Energy = 44%
- O&M = 17%
- Capital = 25%
- Debt Service = 8%
- Taxes and Equivalents = 4%
- I/D Loan to Fiber = 2%

**Funding = $1.111B**

- System Revenues = 85%
- Bonds = 9%
- Cash on Hand = 4%
- I/D Loan = 2%
May 2022 Board Meeting: Official Action

- FY 22 additional budget appropriations
- FY 23 budget appropriations
- FY 23 commitment appropriations
- New Bonds
  - $79M Electric bonds
  - $11M Water bonds
  - $13M Wastewater bonds
- Rate increases – first readings
  - 5% Water
  - 4% Wastewater