Refinancing Outstanding Bonds Projected to Save KUB Customers ~ $8.2M

• Proposed refinancing of $73.3M in bonds sold in 2015
  • Electric - $29.8M
  • Water - $17.1M
  • Wastewater - $26.4M

• Represents 7% of total outstanding debt
## Refinancing Summary

<table>
<thead>
<tr>
<th>System</th>
<th>Proposed Bonds</th>
<th>Proposed Bonds Avg. Rate*</th>
<th>Current Bonds Avg. Rate</th>
<th>Debt Service Savings</th>
<th>Issuance Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric</td>
<td>$ 27.4M</td>
<td>3.07%</td>
<td>4.14%</td>
<td>$ 3.8M</td>
<td>$ 168K</td>
</tr>
<tr>
<td>Water</td>
<td>$ 15.8M</td>
<td>3.11%</td>
<td>3.86%</td>
<td>$ 1.6M</td>
<td>$ 126K</td>
</tr>
<tr>
<td>Wastewater</td>
<td>$ 24.5M</td>
<td>3.32%</td>
<td>3.96%</td>
<td>$ 2.8M</td>
<td>$ 146K</td>
</tr>
<tr>
<td>Total</td>
<td>$ 67.7M</td>
<td></td>
<td></td>
<td>$ 8.2M</td>
<td>$ 440K</td>
</tr>
</tbody>
</table>

*Projected True Interest Cost*
$27.4M Electric Refunding Bonds

- Bonds fully mature in July 2046
- Weighted average life of bonds reduced from 13.68 years to 13.55 years

<table>
<thead>
<tr>
<th></th>
<th>Current Debt Service</th>
<th>Projected Debt Service</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$46,177,000</td>
<td>$42,349,000</td>
<td>$3,828,000</td>
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</tbody>
</table>

Projected Debt Service vs. Current Debt Service

$15.8M Water Refunding Bonds

- Bonds fully mature in March 2045
- Weighted average life of bonds reduced from 13.41 years to 13.38 years

<table>
<thead>
<tr>
<th></th>
<th>Millions ($)</th>
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</thead>
<tbody>
<tr>
<td>Current Debt Service</td>
<td>$25,833,000</td>
</tr>
<tr>
<td>Projected Debt Service</td>
<td>$24,237,000</td>
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<tr>
<td>Savings</td>
<td>$1,596,000</td>
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</tbody>
</table>
$24.5M Wastewater Refunding Bonds

- Bonds fully mature in April 2050
- Weighted average life of bonds reduced from 16.71 years to 16.57 years

<table>
<thead>
<tr>
<th></th>
<th>Current Debt Service</th>
<th>Projected Debt Service</th>
<th>Savings</th>
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</thead>
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<tr>
<td></td>
<td>$43,786,000</td>
<td>$40,962,000</td>
<td>$2,824,000</td>
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Projected Debt Service vs. Current Debt Service (2023-2050)
## Estimated Professional Fees

<table>
<thead>
<tr>
<th>Cost</th>
<th>Professional Firm</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Advisor</td>
<td>Cumberland Securities</td>
<td>$116,000</td>
</tr>
<tr>
<td>Bond Counsel</td>
<td>Bass, Berry &amp; Sims</td>
<td>$86,000</td>
</tr>
<tr>
<td>Rating Agency</td>
<td>Moody's</td>
<td>$100,000</td>
</tr>
<tr>
<td>Rating Agency</td>
<td>Standard &amp; Poor's</td>
<td>$95,000</td>
</tr>
<tr>
<td>Paying Agent</td>
<td>Regions Bank</td>
<td>$3,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$400,000</strong></td>
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<tr>
<td>Other Costs (POS, OS, Advertising, Misc.)</td>
<td></td>
<td><strong>$40,000</strong></td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td><strong>$440,000</strong></td>
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</tbody>
</table>
Resolution 1452

Requests City Council authorize the issuance of up to $67.7M in revenue refunding bonds

Bonds secured by issuing system’s revenues

Bonds issued on parity with outstanding debt

Authorizes use of refunding escrow agreement for electric bonds
What is the Work Healthy Program?

• Implemented in 2017 as part of KUB’s overall wellness program

• Facilitated by Safety, Occupational Health, & Blount Memorial Industrial Athletic Trainer
Work Healthy Program: Suite of Services

• Field Visits
• Department Education
• Pre-Placement Physical Abilities Testing
• Post-Accident Review
• Ergonomic Evaluations

Understand Terminology
Identify Hazards
Utilize Prevention Techniques
Field Ergonomics Project Background

• **Goal:**
  • Collect muscle sensor and body mechanics data to impact tool design

• **Process:**
  • Take task inventory in Construction and Meters
  • Measure with different tools or techniques to see data impact

• **Outcomes:**
  • Analyze findings from 20+ tasks measured
  • Use data to support tool and task selection, body-positioning, and pre-task stretching
Body Positioning: Single vs. Double Chain Hoist

Take Away: Better, but still opportunity for improvement. Battery-operated next step?

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<th>Hands/Wrists</th>
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<th>Shoulders</th>
<th>Neck</th>
<th>Back</th>
<th>Legs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left 3</td>
<td>Right 7</td>
<td>Left 7</td>
<td>Right 8</td>
<td>7</td>
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<tr>
<td>Score</td>
<td>Risk Rating</td>
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<tr>
<td>Mod</td>
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<tr>
<td>High</td>
<td>High</td>
<td>Lower</td>
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Greenlee® Partners on Tool Ergonomics Study with Knoxville Utilities Board

Emerson’s Greenlee team facilitated the field study designed to further enhance worker safety.

ROCKFORD, IL (November 29, 2020) - Greenlee, part of Emerson’s professional tools portfolio, is helping municipal utility workers in Knoxville, Tenn. learn how they can benefit from ergonomic health and safety on the job.

Greenlee, an industry leader in tools with applied ergonomics, spent several days in the field with Knoxville Utilities Board (KUB) employees studying how they use utility tools in natural gas, electric, water and wastewater projects. As part of the research, KUB members had sensors placed on key pressure points on their bodies. This helped to scientifically measure each user’s energy and form output when working with different tools in various application scenarios.

“We’re showing people literally what their body is going through with every lift, turn and bend they do during the workday,” said Ryan Berg, director of product management, Greenlee for Emerson. “You can talk about how a certain tool is designed to deliver less strain on the body, but it’s not until you see the data from the sensors that it makes sense. We can show the energy each person is exerting and talk about how performing a task differently or using another tool or method could prevent harm to the individuals.”

Project Press Releases & Summary Video
Next Steps/Management Support

• Project Phase II
  • Evaluate more opportunities for program education and implementation of data findings
  • Incorporate into onboarding
  • Transition from task-based assessment to wholesale assessment (a day in the life...)

Commercial Metals Company
Natural Gas Meter Set Relocation Project
Commercial Metals Company (CMC)

- Headquarters in Irving, TX
- Steel mill producing high-quality long steel rebar
- Predominant raw material is recycled metal from PSC Metals
- Site purchased by CMC in 2018
- Large employer in Knoxville area
CMC Community Impact

• Top 10 in consumption
  • Electric – 2\textsuperscript{nd}
  • Natural gas – 2\textsuperscript{nd}
  • Water – 10\textsuperscript{th}

• Long-term commitment
  • 10-year power supply contract
  • Environmental sustainability
  • Community engagement
1. Meter assembly in middle of industrial site

2. Encroachment of material piles and roads

3. Coating anomaly on steel pipe under truck ramp
Three Converging Issues

- Location of Coating Anomaly
- Encroachment - Mill Scale Piles
- Existing Meter Assembly
Customer Focus Led the Design

View of Proposed Route

Slag Pile – Production Byproduct
Improved Access for KUB and CMC

- Condemned Main
- Existing Main
- Proposed Fuel Line
- Point of Interest
- New Meter Center
Construction Required Coordination Between Departments

UGC Bore Crew

12-inch Fuel Line

Meter Crew Installing Meter Assembly
Previous Meter Assembly and Set Up

Previous Meter Assembly

Fuel Line Tie in at Previous Meter Assembly
Thank You!

- Underground Construction
- Meters
- Key Accounts
- System Maintenance
- Vegetation Management
- Safety & Technical Services
- System Operations
- Gas Systems Engineering
- Electric Systems Engineering
Week of January 24

- Underground Construction repaired 25 water mains
- 21 on Cast Iron Pipe
  - 14 repairs on pipe installed >80 years old
- 2,100 person hours worked
16-inch Break Phillip Fulmer & Cumberland

Piece of main removed
16-inch Break Phillip Fulmer & Cumberland

- 24+ hour repair
- 31 employees responded
- Estimated cost to date $85k
- Challenges included
  - Additional 8-inch break
  - Damage to sewer
  - Existing utilities
  - Frigid temperatures
  - Large warehouse fire
- University of Tennessee and KFD support
Additional Breaks

12-inch Kingston Pike

10-inch at North Central
“We Value the Commitment and Hard Work of Our Employees”

• 10 days, 25 mains repaired, and 2,100 hours worked
• KUB’s valve program resulted in quick main isolation
• No significant customer or system impact
• Zero safety incidents

Chief Bobby Palmer, KFD

“….very grateful to have KUB as a water provider that night(of the fire). Keep up the good work”