Gas Contracting Authority and Gas Price Risk Management

November 15, 2018

Policy Updates
Resolutions 1387 and 1388
Gas Contracting Authority Policy

Negotiation and execution of natural gas contracts
- Establishes limits for term of contracts and volumes
- Delegates certain authority to KUB Senior Management
- Retains Board authority for long-term and large volume contracts

Historical Board actions
- 1993: Temporary contracting authority
- 1995: Current policy framework
- 1998: Consolidation of amendments
Proposed Housekeeping Changes for Gas Contracting Authority Policy

- Remove obsolete business title
  - Senior Vice President, Marketing Services

- Update list of companies eligible for off-system sales and purchases
  - Addition of Middle Tennessee Natural Gas
  - Changes in company names
Gas Price Risk Management Policy

- Governance for management of price risk associated with natural gas purchases
  - Establishes Price Risk Management Committee
  - Authorizes use of tools for managing price risk
  - Provides for development of operating and control procedures

- Historical Board actions
  - 1997: Current policy framework
  - 2004: Housekeeping updates
Proposed Housekeeping Changes for Gas Price Risk Management Policy

- Remove obsolete business titles
  - Vice President, Business Services
  - Energy Trading Representative
  - Risk Management and Control Representative

- Provide flexibility to President and CEO in appointing members to Price Risk Committee

- Minor language changes and clarifications
Resolutions 1387 and 1388

Resolution 1387
- Adopts revised Gas Contracting Authority reflecting housekeeping changes

Resolution 1388
- Adopts revised Gas Price Risk Management Policy reflecting housekeeping changes
KUB
KUB Residential Gas Bills
Since Inception of Century II

Average residential gas bills for twelve months ended June of each fiscal year.
KUB Residential Electric Bills
Since Inception of Century II

Average residential electric bills for twelve months ended June of each fiscal year.
Average residential gas and electric bills for twelve months ended June of each fiscal year.
Cost of Service Studies

- Study to be conducted for each system prior to consideration of any rate actions in 2020
- Contracted with Utility Financial Solutions
- Electric study completed and presented to board in March 2018
- Gas study recently completed
- Water and wastewater studies scheduled for spring 2019
Cost of Service Methodology

- Determine revenue requirements
- Divide requirements into gas supply and distribution costs
- Categorize costs into customer, energy, and demand costs
- Allocate costs to each rate class
- Compare results with projected revenues
## Gas Cost of Service Summary Results

<table>
<thead>
<tr>
<th>Rate Class</th>
<th>Cost of Service</th>
<th>Projected Revenues</th>
<th>% Change</th>
<th>Customers in Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>$65,973,820</td>
<td>$60,406,095</td>
<td>9.2%</td>
<td>93,000</td>
</tr>
<tr>
<td>Small Commercial</td>
<td>$23,603,035</td>
<td>$28,479,239</td>
<td>-17.1%</td>
<td>9,000</td>
</tr>
<tr>
<td>Med-Large Commercial</td>
<td>$7,870,233</td>
<td>$8,705,664</td>
<td>-9.6%</td>
<td>250</td>
</tr>
<tr>
<td>Large – Non-Standard</td>
<td>$11,509,853</td>
<td>$11,365,943</td>
<td>1.3%</td>
<td>&lt;30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$108,956,941</strong></td>
<td><strong>$108,956,941</strong></td>
<td><strong>0.0%</strong></td>
<td></td>
</tr>
</tbody>
</table>
## Gas Cost of Service Results

### Rate Analysis

<table>
<thead>
<tr>
<th>Rate Class</th>
<th>Current Basic Service Charge</th>
<th>Cost of Svc Basic Service Charge</th>
<th>Cost of Service Demand</th>
<th>Cost of Service Commodity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>$10.15</td>
<td>$21.25</td>
<td>$0.8166</td>
<td>$0.8166</td>
</tr>
<tr>
<td>Small Commercial</td>
<td>$27.00</td>
<td>$38.61</td>
<td>$0.7569</td>
<td>$0.7569</td>
</tr>
<tr>
<td>Med-Large Commercial</td>
<td>$170.00</td>
<td>$256.19</td>
<td>$5.00</td>
<td>$0.3591</td>
</tr>
<tr>
<td>Large Interruptible</td>
<td>$500.00</td>
<td>$976.92</td>
<td>$8.77</td>
<td>$0.3521</td>
</tr>
<tr>
<td>Transport – Interruptible</td>
<td>$650.00</td>
<td>$1,298.17</td>
<td>$9.07</td>
<td>$0.3572</td>
</tr>
<tr>
<td>Transport – Firm</td>
<td>$650.00</td>
<td>$1,298.17</td>
<td>$3.04</td>
<td>$-</td>
</tr>
</tbody>
</table>
Components of Basic Service Charges

- Minimum System Costs
  - Based on minimum system design
  - Costs required to enable customer to use one unit of natural gas

- Direct Customer Costs
  - Meter O&M
  - Meter reading
  - Billing
  - Services
  - Customer services
# Residential Basic Service Charge Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution Customer Costs (Mains)</td>
<td>$13.39</td>
</tr>
<tr>
<td>Meter Operations &amp; Maintenance (O&amp;M)</td>
<td>$3.37</td>
</tr>
<tr>
<td>Meter Reading</td>
<td>$0.97</td>
</tr>
<tr>
<td>Billing</td>
<td>$0.81</td>
</tr>
<tr>
<td>Services</td>
<td>$2.10</td>
</tr>
<tr>
<td>Customer Service</td>
<td>$0.61</td>
</tr>
<tr>
<td>Basic Service Charge – Cost of Service</td>
<td>$21.25</td>
</tr>
<tr>
<td>Current KUB Basic Service Charge</td>
<td>$10.15</td>
</tr>
</tbody>
</table>
Key Findings from Gas Study

- Gas cost of service results similar to electric
  - Residential paying below cost of service
  - Commercial classes paying above cost of service
- KUB’s cost of service typical of other natural gas utilities
- All basic service charges well below cost of service
- KUB capital investment in gas system above average
KUB Residential Gas Bills Are Competitive

FY18 normalized – 12 month average bill

<table>
<thead>
<tr>
<th>Location</th>
<th>Basic Service Charge</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCUB</td>
<td>$6.00</td>
<td>$49.33</td>
</tr>
<tr>
<td>KUB</td>
<td>$9.40</td>
<td>$48.99</td>
</tr>
<tr>
<td>SCUD</td>
<td>$6.00</td>
<td>$52.59</td>
</tr>
<tr>
<td>Jeff-Cocke</td>
<td>$5.00</td>
<td>$54.94</td>
</tr>
<tr>
<td>Oak Ridge</td>
<td>$3.50</td>
<td>$56.94</td>
</tr>
<tr>
<td>Powell-Clinch</td>
<td>$5.00</td>
<td>$55.87</td>
</tr>
</tbody>
</table>
National Survey Shows KUB Residential Basic Service Charge Among Lowest in Nation

American Gas Association – June 2018

KUB: $9.40

AGA Survey Average: $15.15
Overview of Final Consent Decree Project

- Project information
- Scope of work
- Traffic control
- Keys to success
Consent Decree Projects Address SSOs

- Reduce infiltration through sewer rehabilitation
- Install storage tanks for wet-weather flow
- Increase capacity at Fourth Creek and Kuwahee
- Kuwahee Phase 2 upgrades
  - 120 million gallon day (MGD) full treatment capability
  - 50 MGD biologically enhanced high rate clarification (BEHRC)
  - Final and largest Consent Decree project
Project Information

■ Project team
  ● Engineering and Inspection: CDM Smith
  ● Contractor: Lane Construction
  ● KUB Project Manager: Tracy Hubbs, P.E.

■ Construction schedule
  ● October 2018 – December 2020
  ● Consent Decree deadline: June 2021

■ Project cost 5% under budget - $48M
  ● Construction: $39M
  ● Engineering, inspection, and contingency: $9M
KUWAHEE WASTEWATER TREATMENT PLANT UPGRADES

Project Scope
Kuwahee CCP Traffic and Greenway Impact

Kuwahee Wastewater Treatment Plant Upgrade Project/Neyland Drive Traffic Flow
Construction: January 2019 - December 2020

Temporary lane shift along Neyland Drive
Eastbound curb lane closed and traffic shifted to center turn lane

KUW Kuwahee Wastewater Treatment Plant

KUW Kuwahee Wastewater Treatment Plant Upgrade Work Zone

NEYLAND GREENWAY intermittent closures with no detour
January 2019 through December 2020
Closure dates and times communicated via electronic message boards

Map Legend
- Neyland Drive Lane Shift Zone

0 50 100 150 200 250 300 350 400 Feet
Keys to Success

- Budget: manage construction changes
- Schedule: Consent Decree deadline
- Safety: contractor, KUB, and the public
- Communication: internal and external
- Oversight committee: monitor key milestones, budget, and schedule
Communication Plan

- Coordination with University of Tennessee, Tennessee Department of Transportation, and City of Knoxville
- KUB Major Construction Projects Blog
  [http://kubmajorprojects.blogspot.com/](http://kubmajorprojects.blogspot.com/)
- Project hotline: 865-558-2331 after business hours
- Updates on [www.kub.org](http://www.kub.org) (Special Projects page)
- Social Media: Facebook, Twitter, Nextdoor
Storm Impacted 32,000 Customers
Nine Voting Locations
Over 100 Crews Worked To Restore Service
## 32,000 Customers Restored In 36 Hours

<table>
<thead>
<tr>
<th></th>
<th>March 1993 Blizzard of '93</th>
<th>April 2011 Hail Storm</th>
<th>June 2011 Storm *</th>
<th>July 2015 Storm</th>
<th>May 2017 Storm</th>
<th>November 2018 Storm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers out</td>
<td>40,000+</td>
<td>75,000+</td>
<td>127,000+</td>
<td>56,000+</td>
<td>54,000+</td>
<td>32,000+</td>
</tr>
<tr>
<td>Poles replaced</td>
<td>100</td>
<td>142</td>
<td>151</td>
<td>81</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>Transformers replaced</td>
<td>45</td>
<td>91</td>
<td>132</td>
<td>40</td>
<td>19</td>
<td>13</td>
</tr>
<tr>
<td>Customer calls</td>
<td>50,000+</td>
<td>45,000+</td>
<td>220,000+</td>
<td>71,000+</td>
<td>28,000+</td>
<td>7,200+</td>
</tr>
<tr>
<td>Restoration length</td>
<td>8 days</td>
<td>7 days</td>
<td>7 days</td>
<td>3 days</td>
<td>2.5 days</td>
<td>1.5 days</td>
</tr>
<tr>
<td>Estimated cost</td>
<td>$2 million</td>
<td>$2 million</td>
<td>$4 million</td>
<td>$2.5 million</td>
<td>$1.2 million</td>
<td>$800,000</td>
</tr>
</tbody>
</table>

* June 2011 event includes two separate storms on June 21 and June 23
CANNOT thank you enough for your unbelievable assistance today. You saved us!!
– Cliff Rodgers, Knox County Elections Administrator
Recent Efforts Have Weatherized Homes for Over 1,500 Low Income Customers

- Knoxville Extreme Energy Makeover
  - Grant provided $15M
  - Over 1,200 homes weatherized

- Round It Up Program
  - Generates ~ $700K per year
  - Over 270 homes weatherized to date

- TVA’s “Pilot Home Uplift Program” supports Round It Up
  - Provides $500K per year for two years
  - 90 homes benefited from funds to date
Round It Up and Home Uplift Programs Address Significant Community Need

- 57% participation rate
- $2.6M customer contributions to date
- Funds 70+ homes per year
- 1,749 customers waiting for services
Customers Benefit from Weatherization Efforts

- Over 20% average reduction in monthly energy bills
- Number of homes weatherized via Knoxville Knox County Community Action Committee (CAC) has tripled
- 40% reduction in requests for financial assistance for customers with weatherized homes