

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

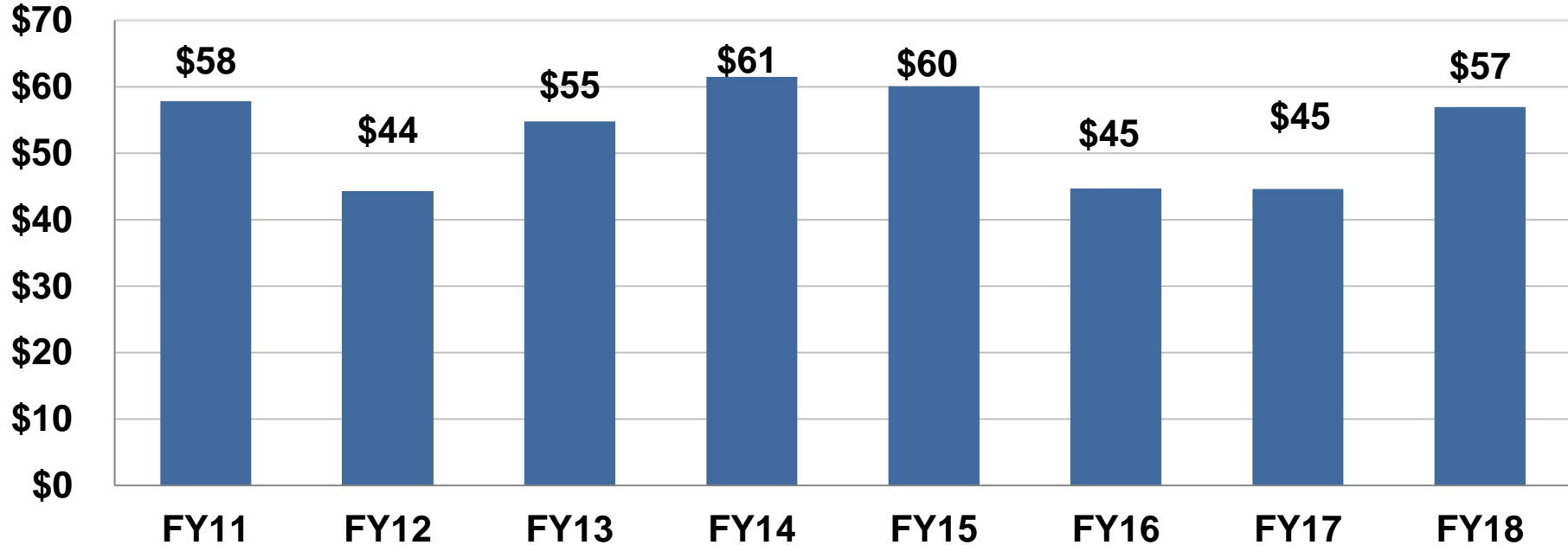
- Adopts revised Gas Price Risk Management Policy reflecting housekeeping changes

KUB

KUB Residential Gas Bills

Since Inception of Century II

Average Monthly Bill (\$)

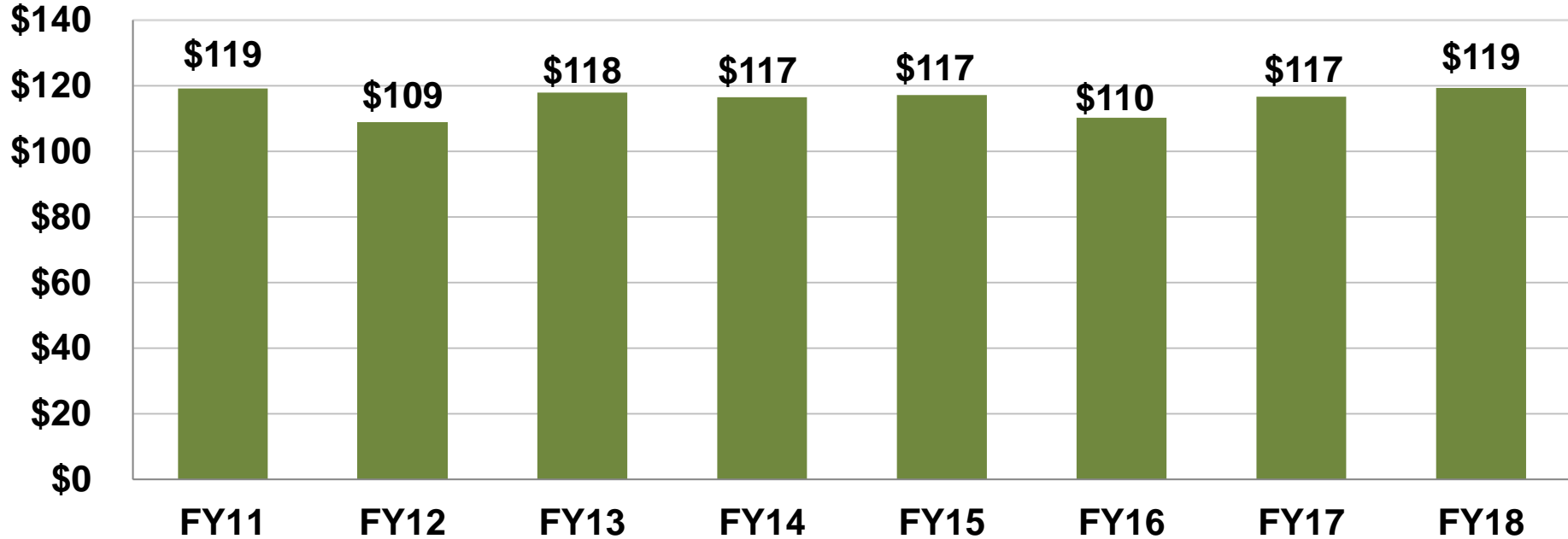


Average residential gas bills for twelve months ended June of each fiscal year.

KUB Residential Electric Bills

Since Inception of Century II

Average Monthly Bill (\$)

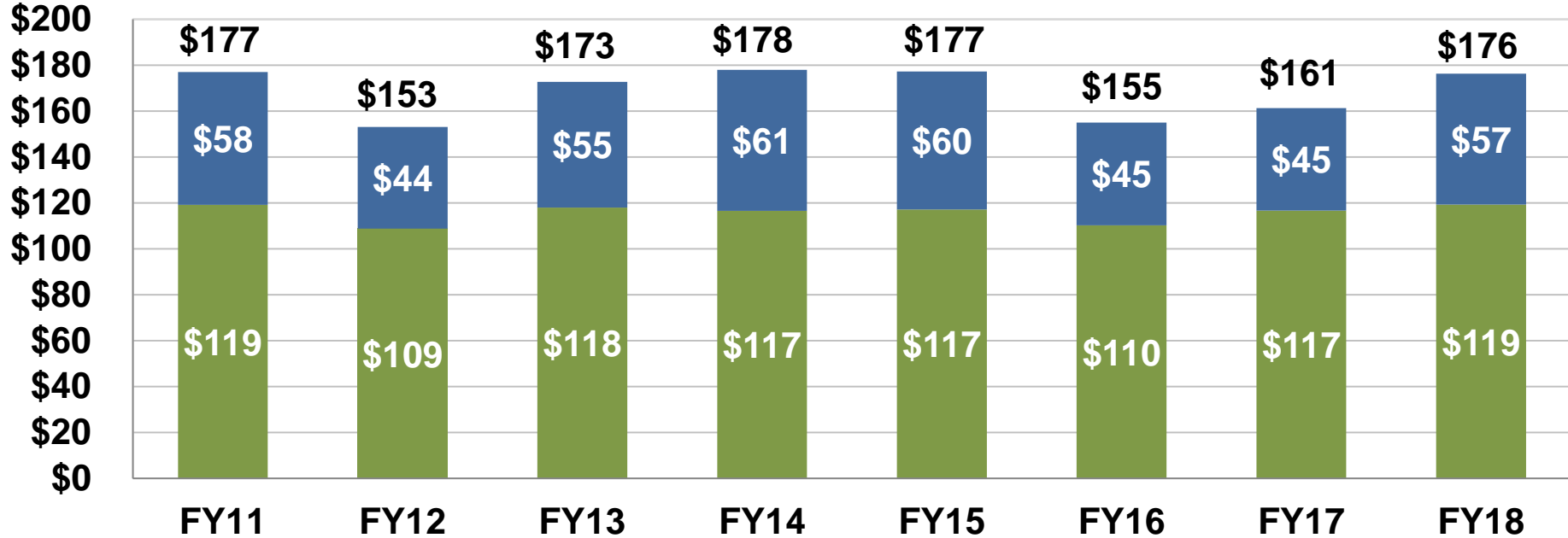


Average residential electric bills for twelve months ended June of each fiscal year.

KUB Residential Energy Bills

Since Inception of Century II

Average Monthly Bill (\$)



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

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Gas Cost of Service Study

November 15, 2018



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
- Allocate costs to each rate class
- Compare results with projected revenues

Gas Cost of Service Summary Results

Rate Class	Cost of Service	Projected Revenues	% Change	Customers in Class
Residential	\$65,973,820	\$60,406,095	9.2%	93,000
Small Commercial	\$23,603,035	\$28,479,239	-17.1%	9,000
Med-Large Commercial	\$ 7,870,233	\$ 8,705,664	- 9.6%	250
Large – Non-Standard	\$11,509,853	\$11,365,943	1.3%	<30
Total	\$108,956,941	\$108,956,941	0.0%	

Gas Cost of Service Results Rate Analysis

Rate Class	Current Basic Service Charge	Cost of Svc Basic Service Charge	Cost of Service Demand	Cost of Service Commodity
Residential	\$ 10.15	\$ 21.25	\$ -	\$0.8166
Small Commercial	\$ 27.00	\$ 38.61	\$ -	\$0.7569
Med-Large Commercial	\$ 170.00	\$ 256.19	\$ 5.00	\$0.3591
Large Interruptible	\$ 500.00	\$976.92	\$ 8.77	\$0.3521
Transport – Interruptible	\$ 650.00	\$1,298.17	\$ 9.07	\$0.3572
Transport – Firm	\$ 650.00	\$1,298.17	\$ 3.04	\$ -

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

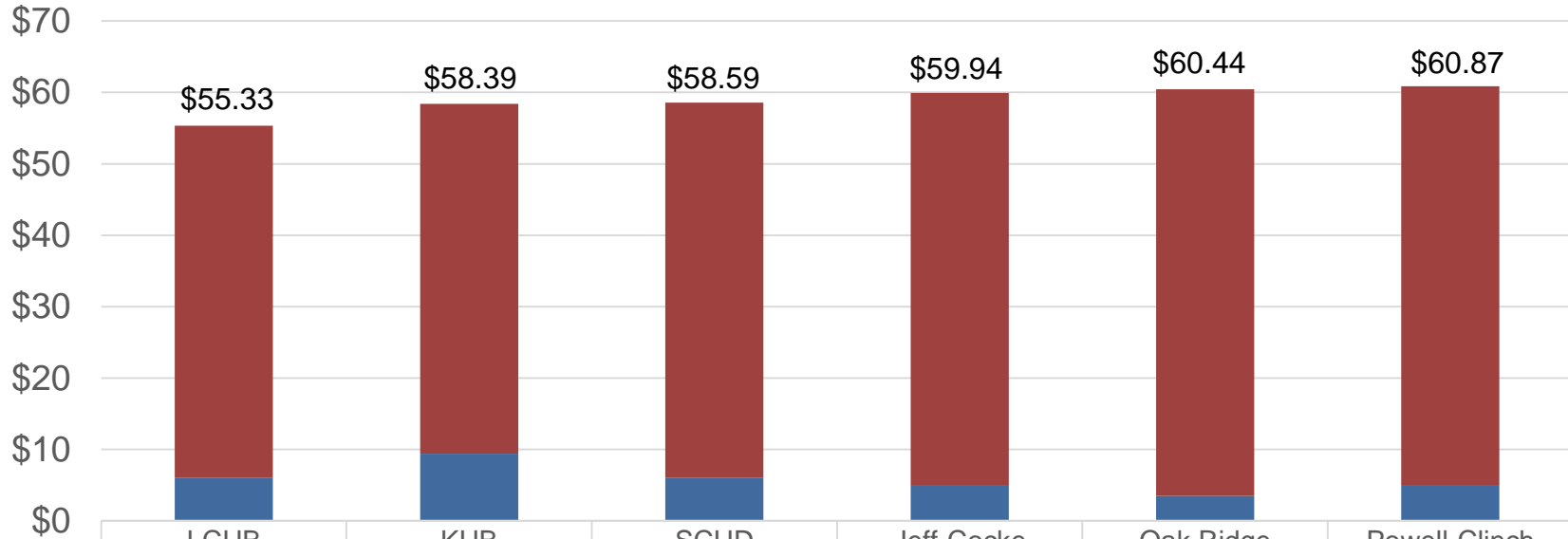
Residential Basic Service Charge Components

Distribution Customer Costs (Mains)	\$ 13.39
Meter Operations & Maintenance (O&M)	\$ 3.37
Meter Reading	\$ 0.97
Billing	\$ 0.81
Services	\$ 2.10
Customer Service	\$ 0.61
Basic Service Charge – Cost of Service	\$ 21.25
Current KUB Basic Service Charge	\$ 10.15

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



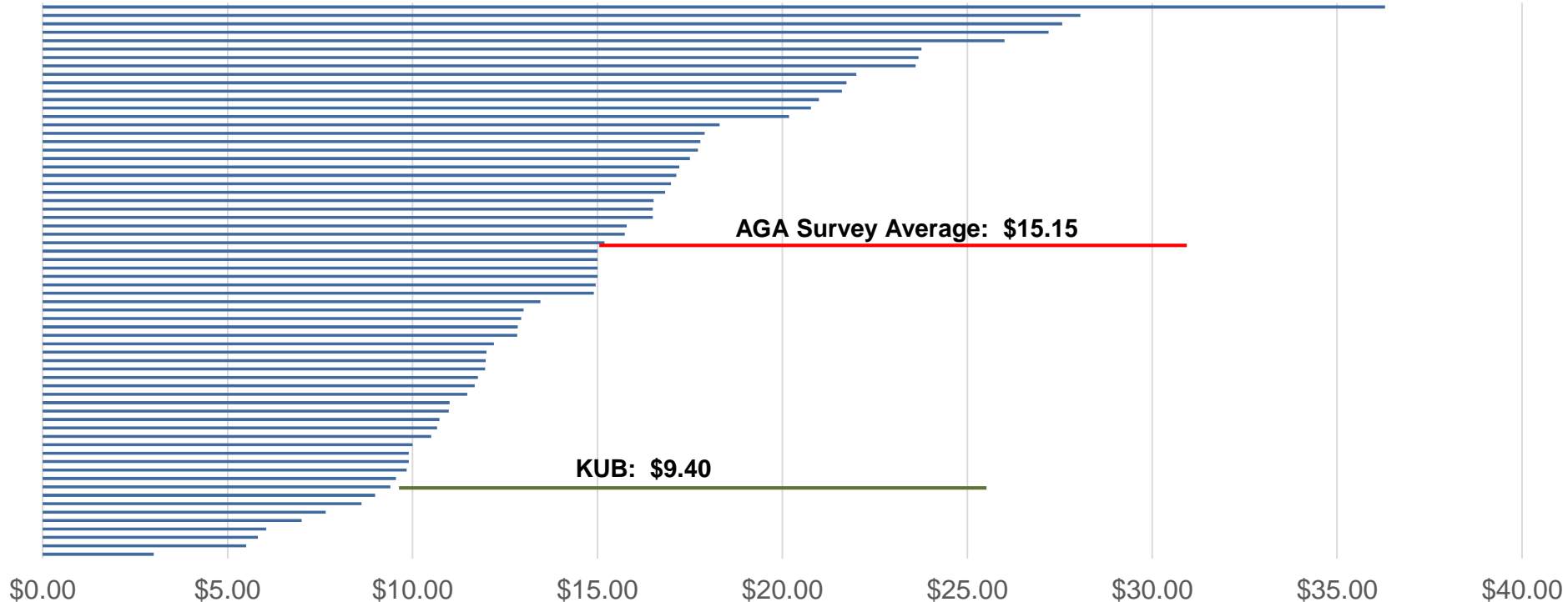
Usage	\$49.33	\$48.99	\$52.59	\$54.94	\$56.94	\$55.87
Basic Service Charge	\$6.00	\$9.40	\$6.00	\$5.00	\$3.50	\$5.00

■ Basic Service Charge ■ Usage

FY18 normalized – 12 month average bill

National Survey Shows KUB Residential Basic Service Charge Among Lowest in Nation

American Gas Association – June 2018



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Kuwahee Composite Correction Plan Phase 2

November 15, 2018



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

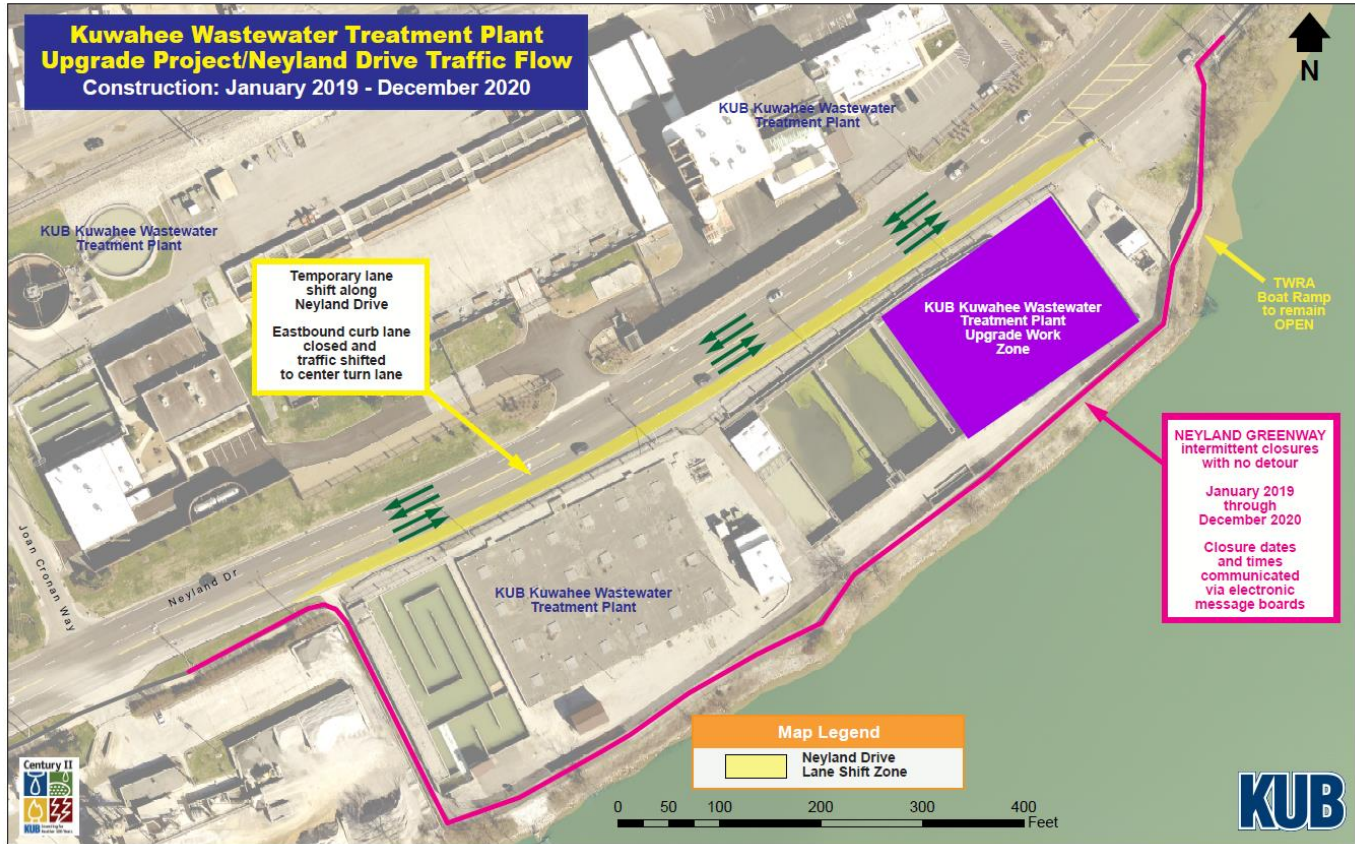
- Construction: \$39M
- Engineering, inspection, and contingency: \$9M

Project Scope

KUWAHEE WASTEWATER TREATMENT PLANT UPGRADES



Kuwahee CCP Traffic and Greenway Impact



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/>
- Project hotline: 865-558-2331 after business hours
- Updates on www.kub.org (Special Projects page)
- Social Media: Facebook, Twitter, Nextdoor

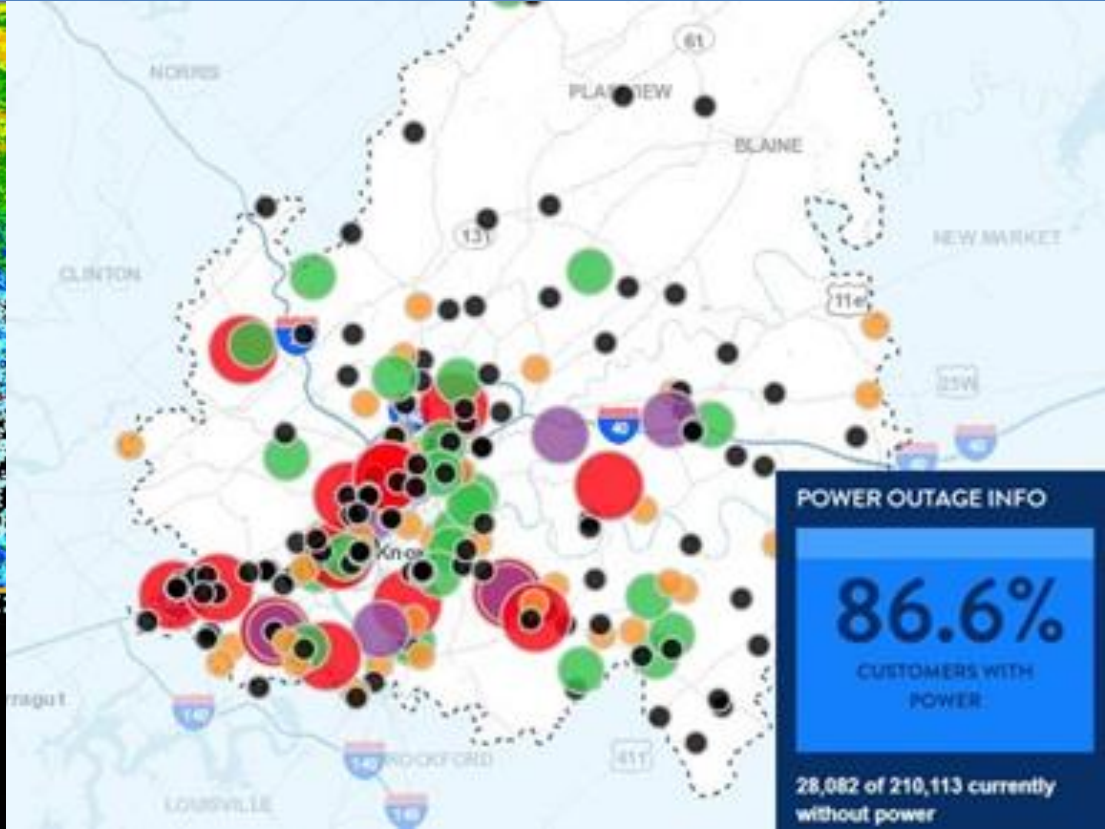
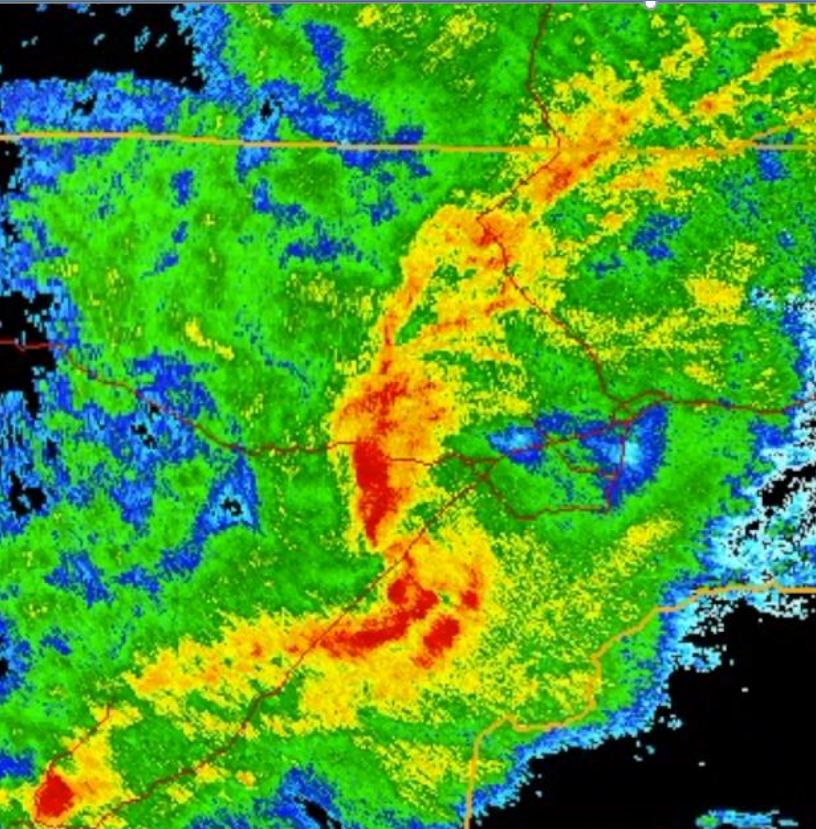
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November Storm Update

November 15, 2018



Storm Impacted 32,000 Customers Nine Voting Locations



Over 100 Crews Worked To Restore Service



32,000 Customers Restored In 36 Hours

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

* June 2011 event includes two separate storms on June 21 and June 23

To ALL the linemen working to restore power to Knoxville area today..... THANK YOU !! you are SO appreciated for your hard work !!!!!

Amanda Geames Keep up the good work KUB

Like · Reply · Message · 11h

Jason Lovett @jlovett3 · 44m

Replying to @jlovett3 @KnoxKUB

Back on! Thank you so much for your hard work. You are always so great and getting residents back on-line as quickly as possible while keeping the community updated.

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CANNOT thank you enough for your unbelievable assistance today. You saved us!!

– Cliff Rodgers,
Knox County Elections
Administrator

Darlene James Thanks to all of you, we don't miss it until it's out!

Like · Reply · Message · 13h

Carol Jean Brooks Hopkins Kudos to the freaking awesome Linemen and all the other employees involved in this business!! Love the picture!!

Like · Reply · Message · 9h · Edited

Kat @knox_kat · 13h

Major props to @KnoxKUB today. Great customer service! Three trucks at my house right now to restore downed power lines in my backyard. Super friendly folks and happy to get the job done!

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Aileen Stivers Umbarger We love our linemen husbands/ boyfriends/ family members and are proud of them and all their hard work. But looking at the guys in the top of that bucket makes me a nervous wreck!

Like · Reply · Message · 10h

Emily Harp You guys rock! Thanks so much for staying on top of things

Like · Reply · Message · 19h

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Residential Home Weatherization Update

November 15, 2018



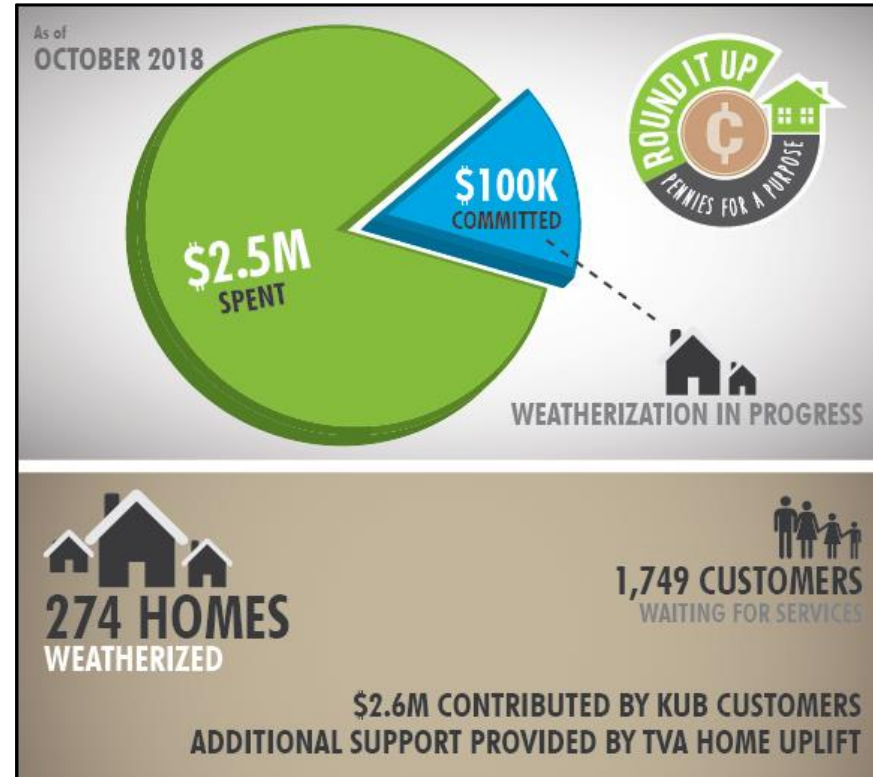
Recent Efforts Have Weatherized Homes for Over 1,500 Low Income Customers

- 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

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