



# 2020 Electric Budget and Five-Year Electric Service Improvement Plan

January 7, 2020

*For Education and Information*

**(All dollars in Thousands unless otherwise noted)**

*\* The numbers presented exclude all non-cash Pension and OPEB expense related to GASB 68 and GASB 75.*

# MLGW Mission

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## Mission

*(Why we exist)*

*To safely deliver services that  
create and sustain superior  
customer experiences.*

# Annual MLGW Budget Process

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- MLGW operates on a calendar year fiscal year.
- Each division operates and is accounted for separately per the Charter. Therefore, each division has its own budget and rate tariffs.
- Internal annual budget formulation period runs from April through August.
- MLGW presents the budget to the MLGW Board in September/October timeframe for approval.
- MLGW presents the budget to the MLGW Committee of the Memphis City Council in November.
- MLGW presents the budget to the Full Council in November/December timeframe seeking to have approval before January 1.

# 2020 Budget Process Update

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- First presented the “Five-Year Service Improvement Plan” to the MLGW Committee on 11/5.
- At the 12/17 meeting the Council:
  - Approved water rates and water budget
  - Approved gas rates and gas budget
  - Approved other administrative rate items
  - Did not approve the electric rate proposal and did not vote on an electric budget
- MLGW is required to have a 2020 electric budget, therefore we are attempting to get resolution to this matter.

# The MLGW Way, our Budget Objectives and Customer Value Proposition

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- MLGW is dedicated to improving the customer experience...for all customers.
- The condition of our aging infrastructure dictates that we must make upgrades with a sense of urgency.
- MLGW has low rates. MLGW has had the lowest average residential bills in the nation four of the past seven years.
- Thousands of customers take advantage of our numerous customer assistance programs each year which cost MLGW ~\$4 million annually to administer.
- Proposed improvements will contribute to the overall viability of our community.



# Value Proposition – Savings & Efficiencies

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- TVA pre-pay cumulative savings of \$225 million since 2004.
- Natural gas prepay savings \$112.9 million since 2006.
- Pension cumulative savings of \$139.2 million since 2010.
- Medical cumulative savings of \$88.1 million since 2006.
- Cumulative sales revenue of Liquefied Natural Gas (LNG) of \$36.7 million since 2012.
- 2019 Budget included additional OPEB funding reduction of \$13 million due in part to medical plan changes made in 2018.
- Total cumulative impacts of **\$614.9 million**.

# Highlights of MLGW's Electric Division plan

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- Approved by the MLGW Board on 10/23/19, this is a 5-year plan with rate increases and bond issues proposed over the first 3 years only.
- It includes electric bond issues of **\$320 million** and proposed **total** average residential electric rate increase of **\$9/month** staged incrementally over a 3-year period.
- The plan includes **~\$638 million** for electric improvements to our system over the next 5-years funded in part by debt and rate increases
- **MLGW Way Forward** (Baker Tilly/HDR Engineering Review) – New efficiencies/savings of over **\$91 million** have been incorporated into our service improvement plan with annual savings of **~\$40 million/year** included annually thereafter across the three divisions.

# Highlights of MLGW's plan (cont'd)

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- We've engaged our customers and other stakeholders...They have spoken regarding their concerns and we are listening.
- Our plan includes opportunities to help move our community forward including additional initiatives with the Smart Cities (i.e., 5G), LED street lighting and converting overhead lines (certain rear lots) to underground where feasible.
- We have worked hard to find ways to add value at reasonable costs.

# *MLGW Way FORWARD...Infrastructure analysis*

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- HDR Engineering performed a Risk Severity Analysis on MLGW's assets.
- The analysis assigned a score based on the frequency and impact of the potential system component failure.
- The overall analysis confirmed that MLGW's infrastructure needs are valid, urgent and that our budget focus is on the correct areas.
- Examples of components that received high risk scores:
  - Substation equipment (transformers and circuit breakers)
  - Tree Trimming (reduce the cycle trim to 3 years and look at this more aggressive in back lots).
  - Gas regulatory work (cast iron, steel services, casings)
  - Water pumping stations equipment (main pumps, booster pumps, electrical safety issues)



# Summary recommendations from HDR Engineering report

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*“Major investments in infrastructure rehabilitation, renewal and replacement were limited by the desire to keep rates at or below industry averages...However, the result of deferred investment on infrastructure renewal and replacement in the aging systems has now created **urgent** needs for investment to meet MLGW’s continued reliable utility service.”*

*“This report recommends taking **immediate** action to begin implementing improvements to the systems...If the Board and City are unwilling to accept such investments, many important projects and programs will be deferred. Doing so will almost certainly result in infrastructure failures, an increase to the overall implementation cost and ever more likelihood of a failure that could result in serious consequences for residents, customers and businesses...”*

*“Neglecting the essential system is no longer an option – **serious failures** are on the brink of occurring at an increasingly rapid pace and schedule. The ability to successfully apply temporary repairs rather than permanent fixes diminishes significantly with each passing day.”*

Source: Part 2 – The MLGW Way...Forward – October 21,2019 – HDR Engineering

# Consequences of not approving Electric Division Plan & Budget

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- Significant budget reductions for electric division
  - Increasing CMI (Customer Minutes of Interruption) in all areas...Longer outages overall.
  - Capital improvement projects would be deferred/cancelled (by ~\$50 million in 2020 alone; by ~\$340 million over the 5-year period).
  - Tree trimming (Vegetation Management) would be significantly reduced (by ~\$12 million in 2020)
  - Continued deferral of upgrades will lead to greater potential for catastrophic equipment failures (especially in substations)
  - Underground cable upgrades will be deferred in many areas causing more frequent and longer outages for neighborhoods.
- Implications for financial integrity of MLGW
  - Potential credit rating impact

# A few examples of 2020 Electric Projects that could be impacted

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## Electric Division

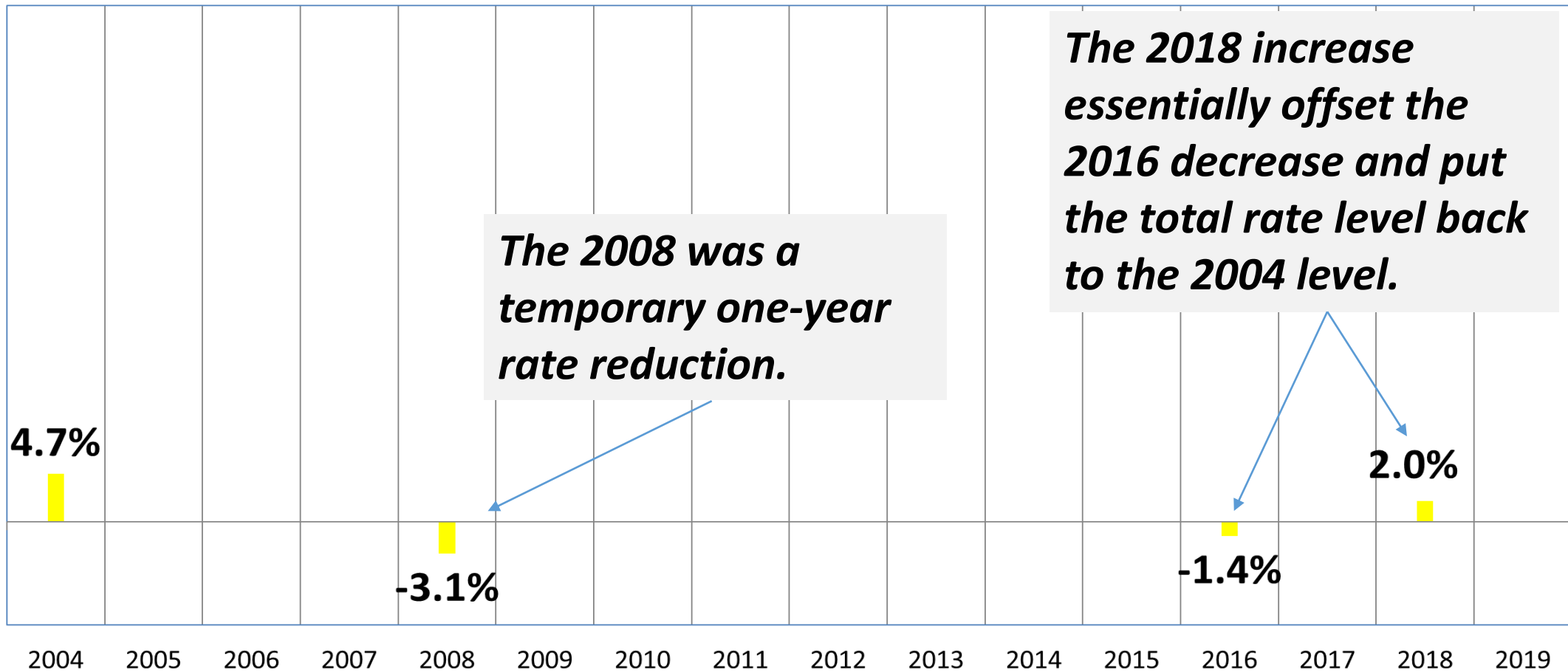
- Tree Trimming Cycle effects
  - MLGW is already behind in cycle trim miles (1400 miles behind, almost a full-year behind)
  - Will we continue to fall behind and outage will increase due to tree damage
- Strategic Undergrounding work
  - Bishop's Bridge Subdivision (South Memphis), \$175,000 involving 165 customers
  - Lynndale East Subdivision (East Memphis), \$50,000 involving 139 customers
- Underground Cable Retrofit work
  - Indian Hills Subdivision, \$500,000 involving 26 customers (21 faults)
  - West Raines Subdivision, \$500,000 involving 50 customers (20 faults)



# Electric Budget and Rate Request

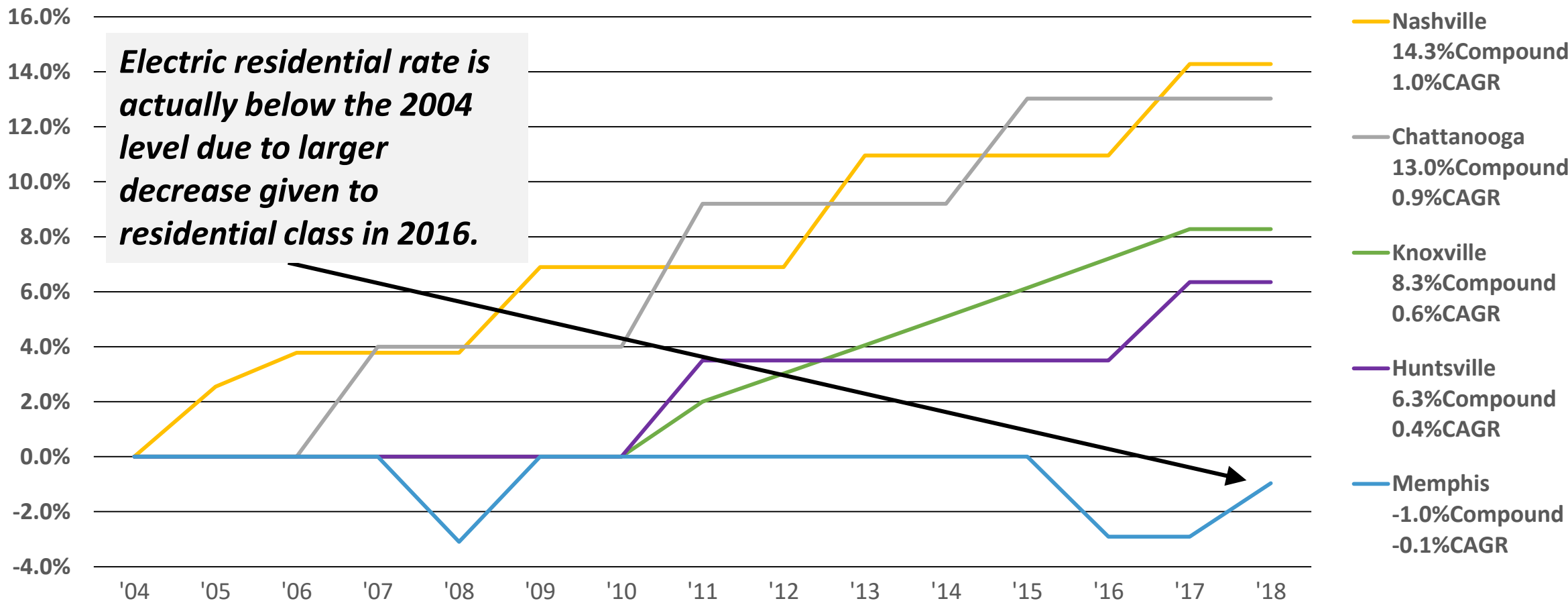
# Very Infrequent Electric Division Rate Adjustments

## MLGW Electric Rate Adjustment History



# Rate Increase Comparison with Peer Distributors

Electric Increases as Compound Percentage with 2004 as the Base Year



\*CAGR – Compound Annual Growth Rate, the average yearly rate of change

# 2020 Budget Summary

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<b>Category (\$ in Thousands)</b>	<b>Electric</b>
Operating Revenue	\$1,313,864
O&M Expense	\$223,978
Purchased Power and Gas	\$1,023,188
Depreciation & Amortization	\$60,878
PILOT & Taxes	\$49,894
Total Operating Expense	\$1,357,938
Total Capital Expenditures	\$109,974
Total Operating & Capital Budgets	\$1,467,912

# Electric Rate Request By Year

		2020	2021	2022	2023	2024	Total
<b>Average Residential Bill Impact</b>							
Electric		\$5.19	\$1.89	\$1.92	\$0.00	\$0.00	\$9.00
<b>Division Revenue Request</b>		<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>Total</b>
Electric		4.2%	1.5%	1.5%	0.0%	0.0%	7.2%

- The 2020 increase would be effective in July. All other rate increases effective in January of the effective year.
- The overall rate request is smaller than the 2019 request and provides greater customer value.

**Legend**

- City Council District
- Super District

**Electric Rate Change by Zip Code**

\$6.43 - \$8.03
\$8.04 - \$10.06
\$10.07 - \$12.93
\$12.94 - \$16.83

• Avg. 3-year total is \$9.00 based on average usage across all customers.

• ZIP impacts based on average usage within each ZIP code.

**MLGW**

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



# Electric Rate Alternative Proposal

# Electric Rate Alternative Proposal Summary

(In accordance with MLGW Board action on 12/18/19)

- Reduces the July 2020 increase and increases the 2021 to achieve similar financial requirements and service improvement results.

Alternative Proposal		2020	2021	2022	2023	2024	Total
Average Residential Bill Impact							
Electric		\$3.70	\$3.36	\$1.92	\$0.00	\$0.00	\$8.98
Division Revenue Request		2020	2021	2022	2023	2024	Total
Electric		3.0%	2.7%	1.5%	0.0%	0.0%	7.2%

Original Proposal		2020	2021	2022	2023	2024	Total
Average Residential Bill Impact							
Electric		\$5.19	\$1.89	\$1.92	\$0.00	\$0.00	\$9.00
Division Revenue Request		2020	2021	2022	2023	2024	Total
Electric		4.2%	1.5%	1.5%	0.0%	0.0%	7.2%

- The 2020 increase would be effective in July. All other rate increases effective in January of the effective year.
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# Budget Updates & Accountability Plan – MLGW Committee

- Quarterly budget updates – 2<sup>nd</sup> meetings in: January, April, July & October (commences in April 2020)
- Major projects progress (compared to plan)
- Operational efficiency plan progress
- Key customer service and reliability metrics
- Update full Council as requested, but not less than annually, during budget approval process



# Electric Service Improvement Plan

# Electric System Modernization

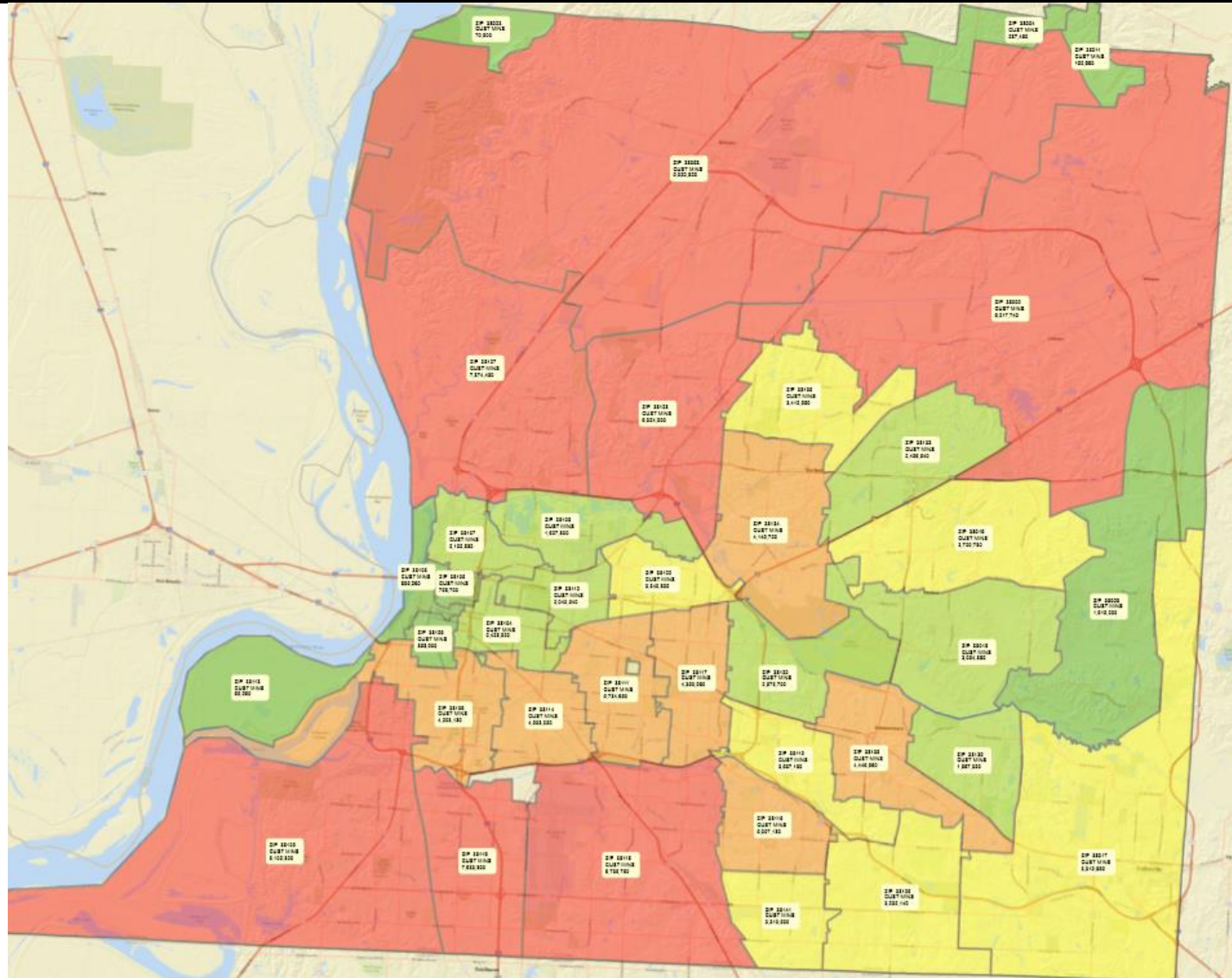
- Commencing an electric reliability and modernization improvement plan
- The plan involves the following initiatives:
  - Substation circuit breakers and transformers
  - Tree trimming
  - Pole replacements
  - Underground (UG) cable retrofits
  - Distribution Automation
  - Strategic UG – Overhead->UG in certain areas
  - LED Streetlights



# Five-Year Outage Data By Zip Code

## Customer Minutes of Interruption (CMI)

- Dark Green: less than 1.6 million
- Light Green: between 1.6 million and 3.15 million
- Yellow: between 3.15 million and 3.9 million
- Orange: between 3.9 million and 6 million
- Red: greater than 6 million

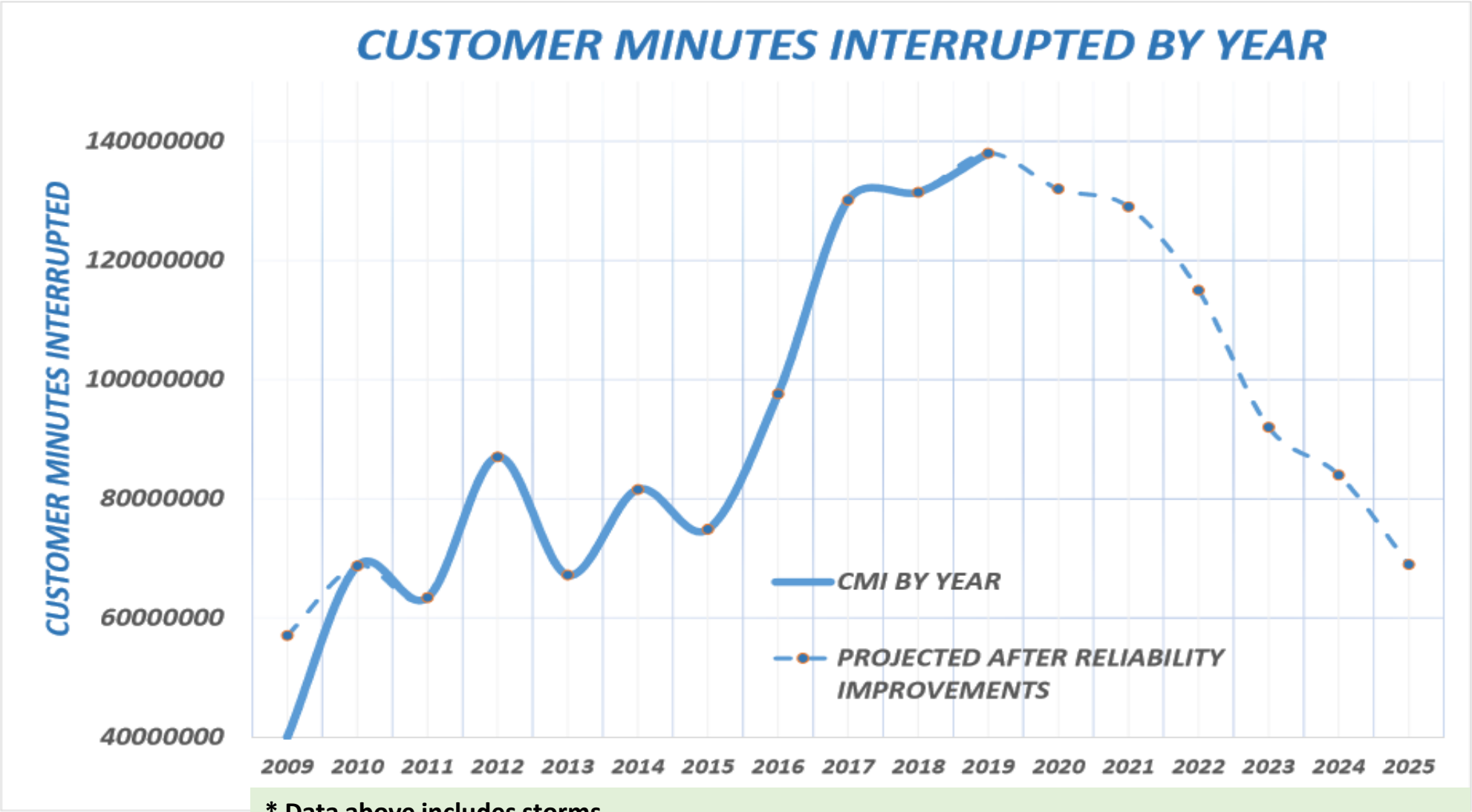


# Select Neighborhood Customer Minutes of Interruption (CMI)

Neighborhood	2005-2008	2014-2018	% Change
Frayser	131.3	143.2	9.1%
Lakeland	97.7	132.9	36.0%
North Memphis	101.6	135.6	33.5%
Berclair-Grahamwood	99.7	147	47.4%
Midtown	132.4	140.7	6.3%
East Memphis	159.5	184.8	15.9%
Orange Mound-Glenview	158.4	163.5	3.2%
Germantown	146.9	153.7	4.6%
Whitehaven	168.3	222.8	32.4%
Hickory Hill	98.2	150.7	53.5%

Outages are getting longer for many communities.

# Customer Minutes of Interruption Before and After



\* Data above includes storms

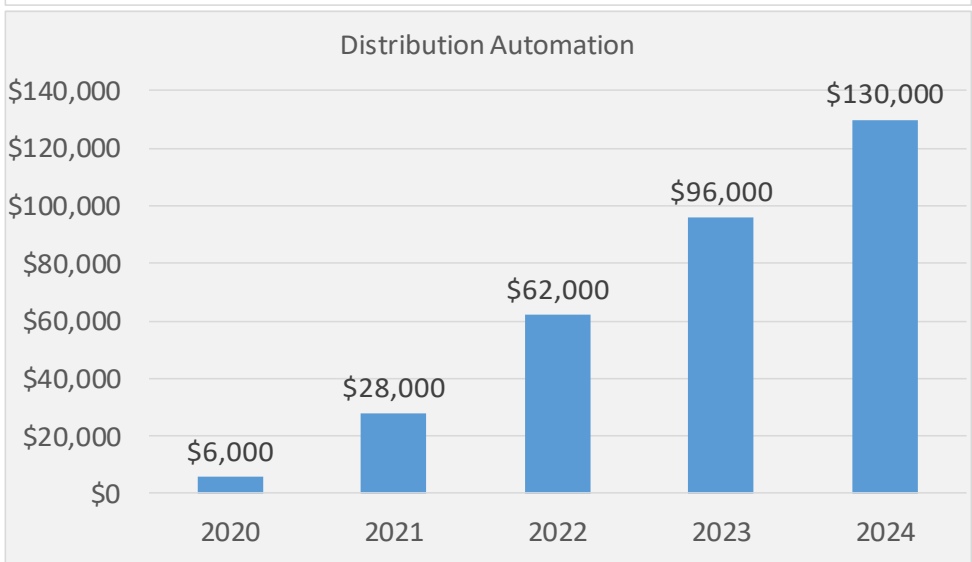
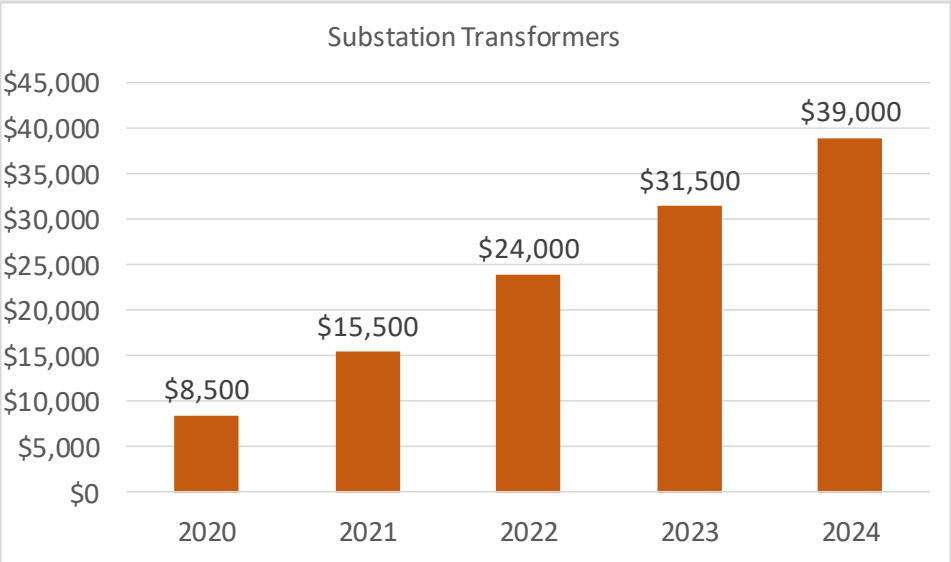
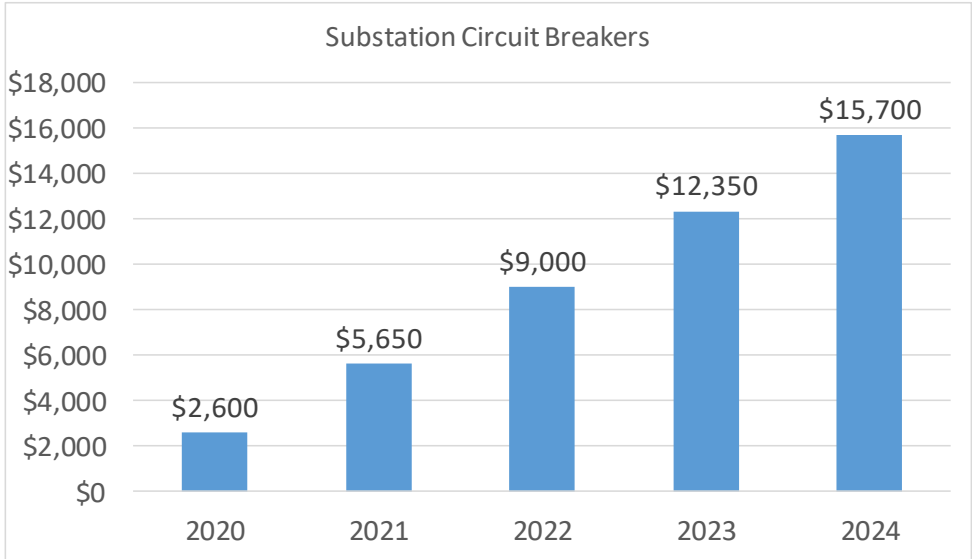
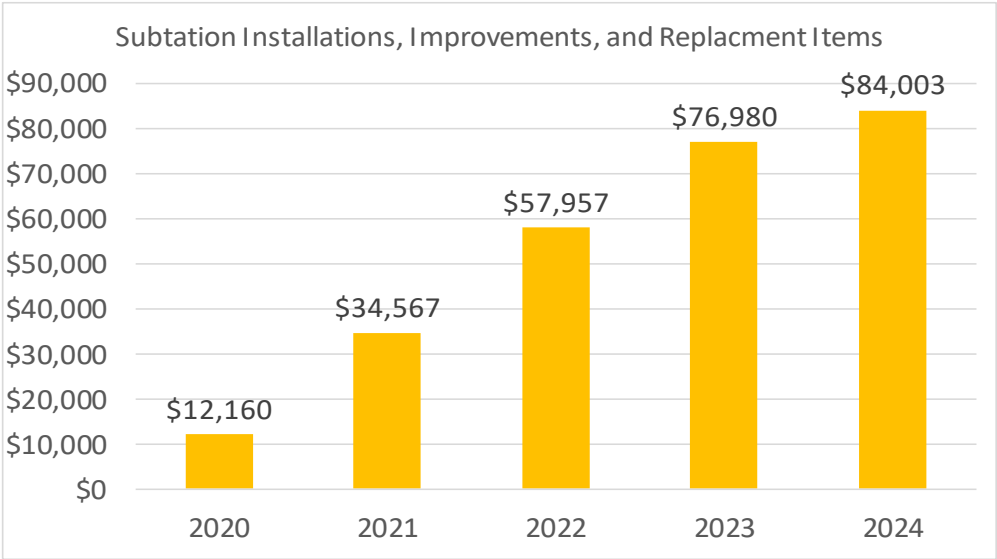
# Electric System Modernization Needs

(Excerpts from HDR Engineering Study's Risk Register)

Asset Affiliation	Description	Consequence
Asset life	Substation equipment needs to be maintained and components need to be replaced periodically to extend asset life.	Depending on the equipment that fails, a long duration outage could occur.
Vegetation management	Vegetation-caused outages.	Vegetation is the leading cause of MLGW outages. Need to reduce trim cycle.
Underground cable	1960-1980 vintage UG cable failures.	Cable segment failures lead to long duration outages.
Grid modernization	Technology needs to be upgraded	Delays in implementing can create an inability to implement upgrades in an optimal manner.
Wood poles	Wood poles have been inspected and rated. Not all identified poles have been replaced.	To the extent that those identified have not been replaced, additional pole failure are likely to occur.



# Cumulative Major Electric Infrastructure Plans



# Reliability – Substation Circuit Breakers and Transformers

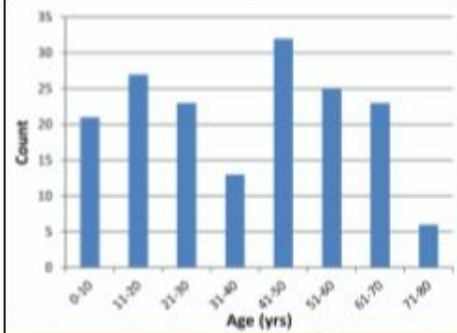
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- Circuit breaker related outages are the leading cause of substation related outages.
- MLGW has approximately 500 substation feeder circuit breakers with a median age of 39 years and 151 power transformers with a median age of 30 years.
- Assets are evaluated based on condition, age, criticality and spare part availability and prioritized accordingly.
- Plan is to increase the number of breaker and transformer replacements.
- Replacing units in poor condition reduces the risk of catastrophic failures resulting in extended outages to large numbers of customers.

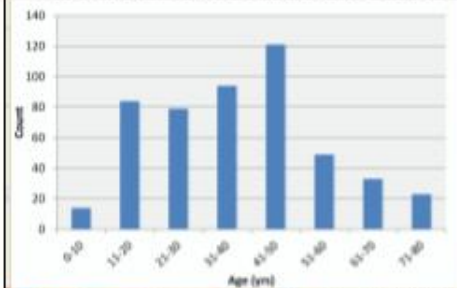


# MLGW Electrical Substation Ages and Service Territories

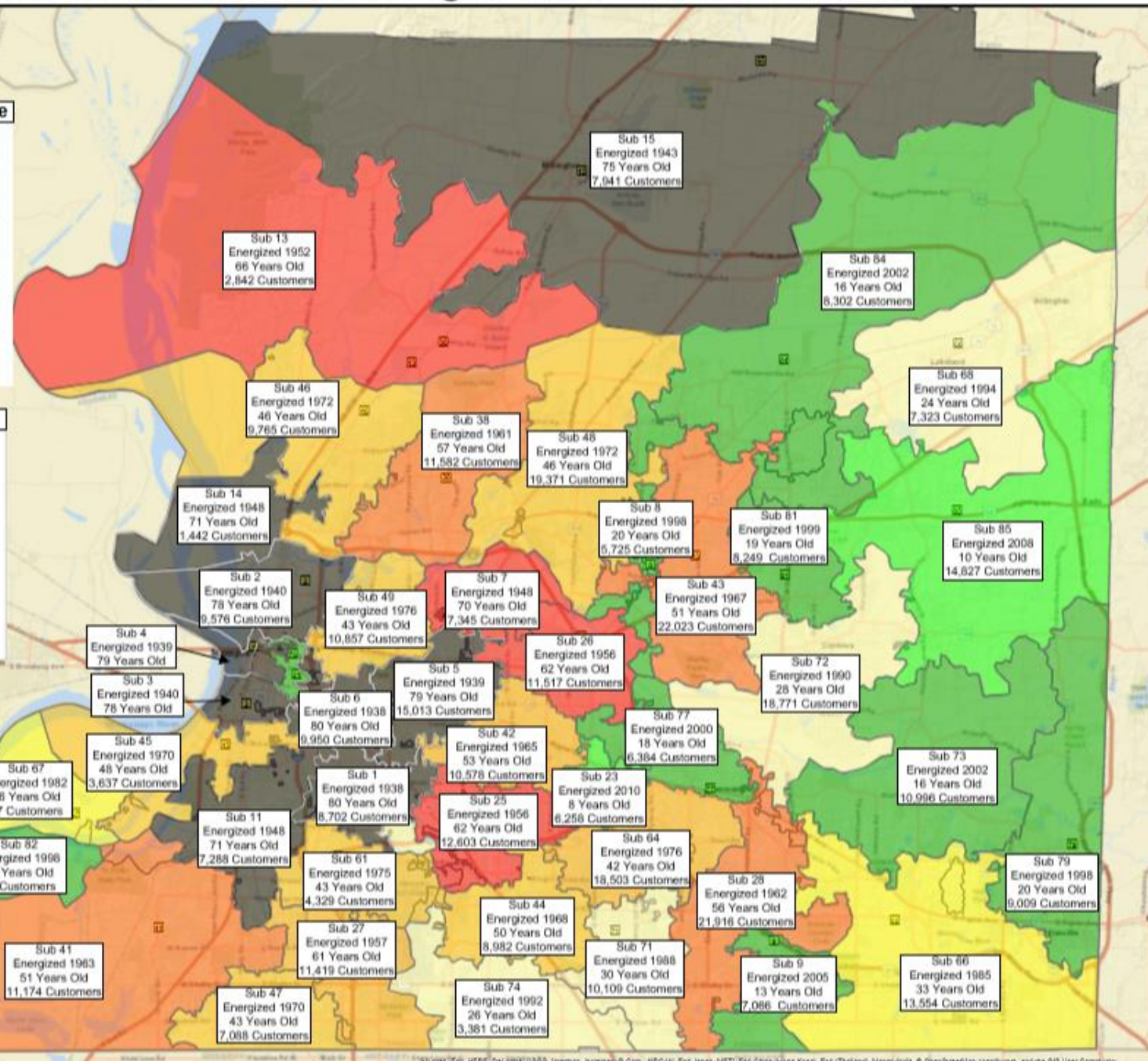
Substation Power Transformers in Service



Substation Feeder Breakers in Service



**Notes:**  
 1. Substation ages as of 2019 and are based on energize dates; transformer and breaker ages at specific sites may differ due to prior replacements.  
 2. Service Territories as of 2013  
 3. Substation Transformer Ages as of 2015  
 4. Substation Feeder Breaker Ages as of 2015.  
 5. Active customer counts as of 2019; customers served by the network system are not shown.

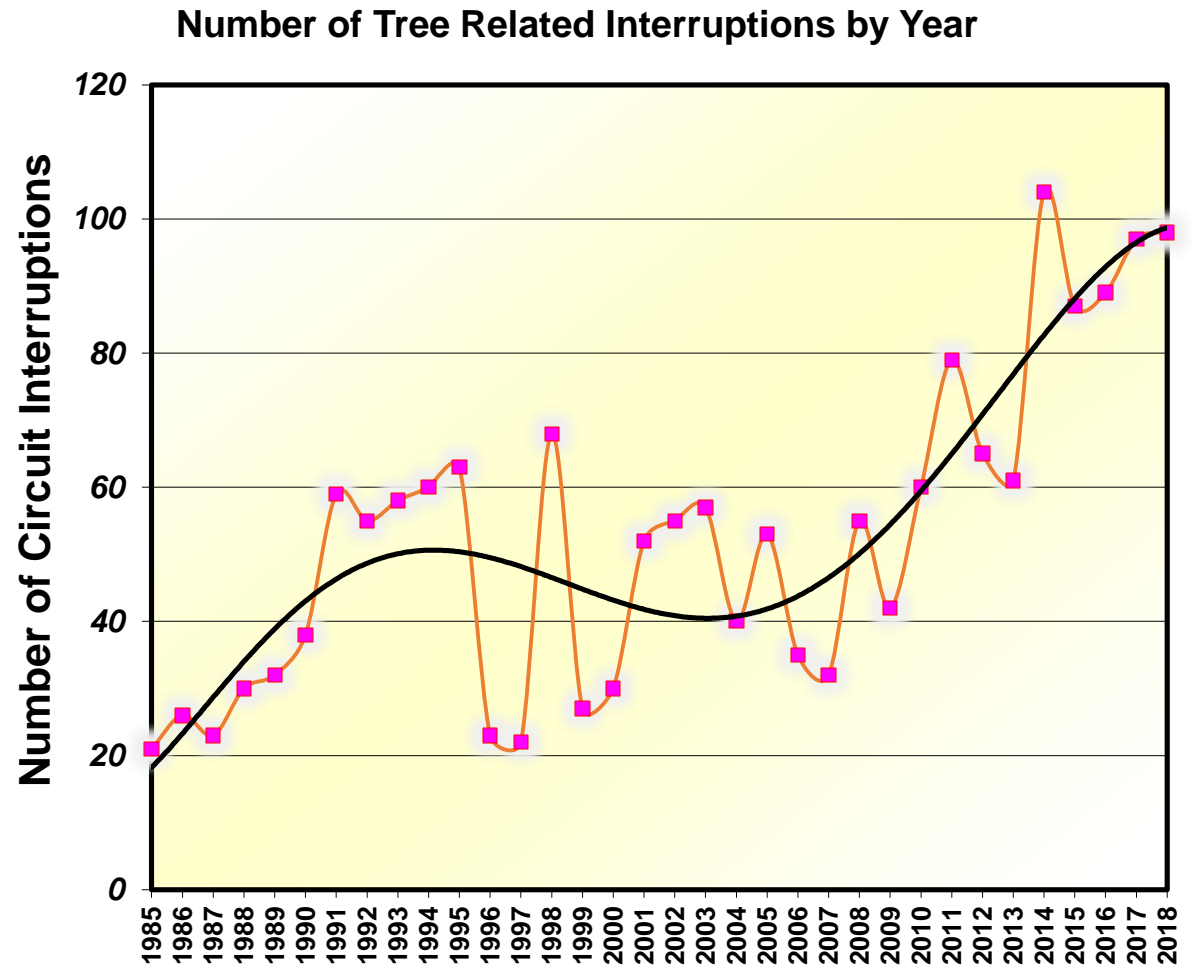


Substation Ages

	0-10 Years Old
	10-20 Years Old
	20-30 Years Old
	30-40 Years Old
	40-50 Years Old
	50-60 Years Old
	60-70 Years Old
	> 70 Years Old

# Reliability - Tree Trimming

- Trees are the #1 cause of outages (other than storms)
- 4,500 miles of overhead lines (many on rear property lines)
- 3-year trimming cycle is the target (at approximately 4 now)
- Fell short of the required annual target to get to a three-year cycle
- When fully implemented on a 3-year cycle plan, customers should see a 15% reduction in annual minutes interrupted



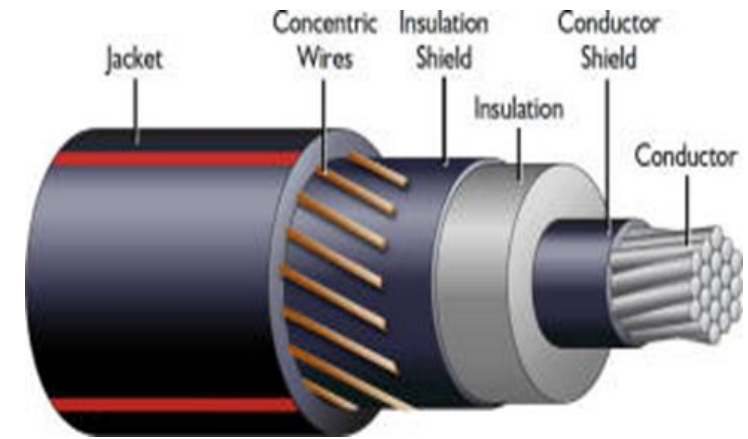
# Reliability – Pole Replacements

- MLGW has approximately 150,000 wood poles.
- As poles age they decay and must be either treated in-place, reinforced, or replaced.
- To extend pole life and reduce failures, MLGW spent \$2.1 million on the inspection and treatment of over 122,000 wood poles between 2009 - 2013.
- 6,000 poles were rejected and required retrofit or replacement. This project will be completed in 2020 at a project cost of nearly \$14 million. 878 of these rejected poles failed prior to replacement during the eleven year project (2009-2020).
- \$1.5 million is budgeted to restart this work in 2020. The work is scheduled on a ten year cycle.



# Reliability – Cable Replacements

- Feeder cables provide the backbone of the underground distribution system.
  - On average, a feeder cable fault results in an 117 minute outage to 1,100 customers.
- Underground Residential Distribution (URD) cable feeds neighborhoods.
  - On average, a URD cable fault results in an 9.5 hour outage to 27 customers.
- We plan to increase spending on the replacement of these end-of-life cables that have resulted in increased outages. This effort will likely require MLGW & contracted resources to adequately address.



# Modernization – Distribution Automation

- Distribution Automation (DA) allows for remotely controlled and/or automatic isolation and reconfiguration of electric circuits using sensors, controls, switches and communication systems.
- The installation of these switches will make the power system more resilient for our customers.
- It has been shown that outage durations (SAIDI index) can be reduced by approximately 40% or more as reported in a U.S. Department of Energy report on DA.
- To modernize the power system with DA would require approximately 1,600 devices totaling \$130 million. This effort will likely require contracted resources.



# Customer Engagement Feedback



# Community and Customer Engagement

- Radio, TV and Print Interviews (**18** broadcast interviews)
- **2** Social Media Town Hall Meetings
- **9** Community Meetings (Power Hour, Town Hall and Council Community Meetings)
- Phone Surveys
- Town Hall Meeting Surveys
- Neighborhood Advisory Council/Community Advisory Council (meets quarterly)
- Twitter, NextDoor, Facebook, Instagram



# Town Hall Survey Results

**Survey question:** After attending MLGW's Public Awareness Community Meeting tonight regarding how we plan to improve the reliability of service, are you more willing to pay more per year to obtain more reliable service...?

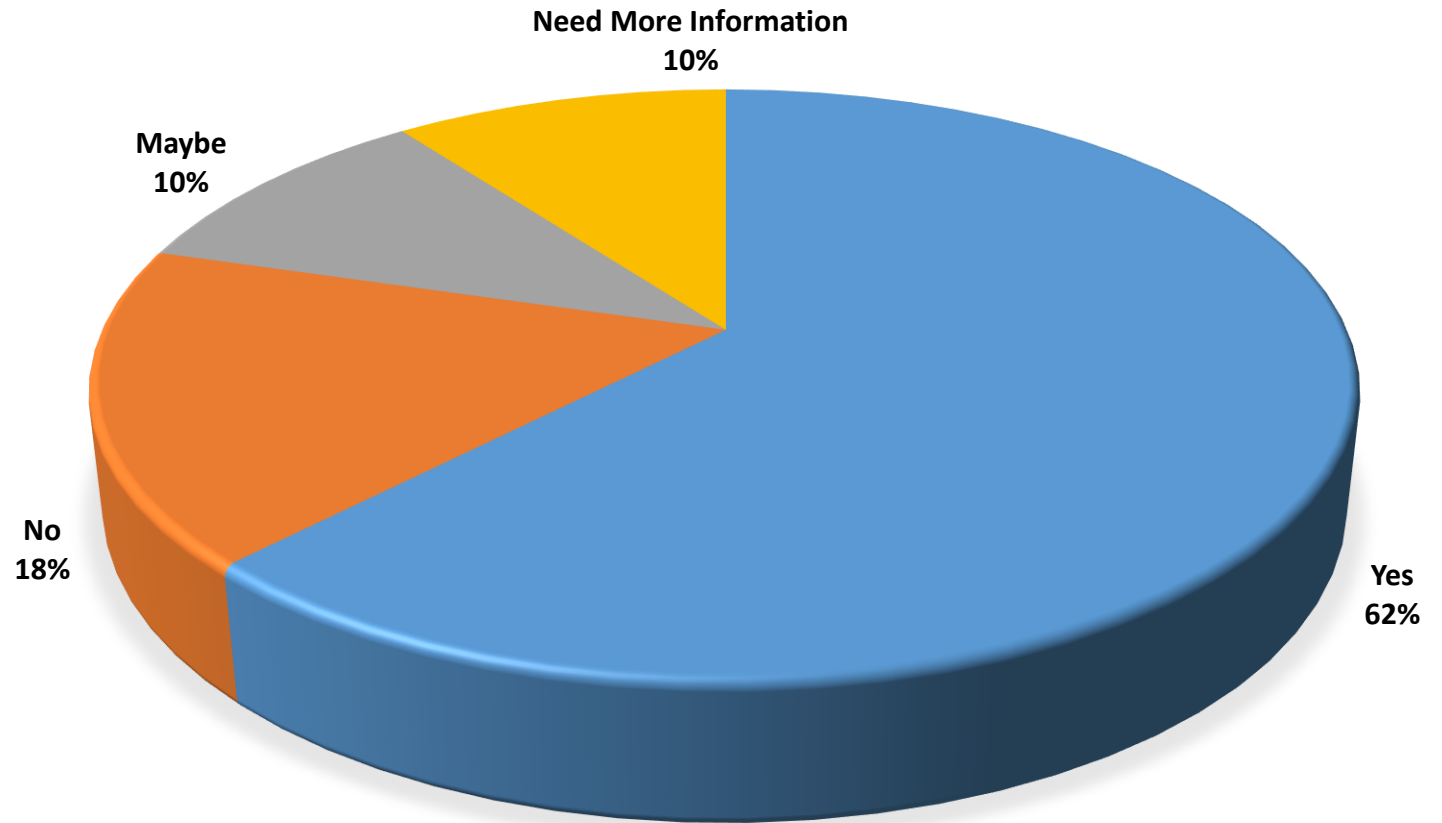
**Total attendees:** 114  
**Number of surveys:** 90

Yes \_\_\_\_\_

No \_\_\_\_\_

Maybe \_\_\_\_

Need More Information \_\_\_\_\_



# Assistance Programs

- Extended Payment Plans
- Plus-1
- On Track
- Budget Billing
- PrePay
- Share the Pennies
- Holiday Bill Break
- Winter Moratorium
- AutoPay
- Power of Warmth
- Gift Of Comfort
- Play it Cool
- Net Due Date Program
- Energy Smart Memphis
- Third Party Notification



***(Note: The administrative cost estimate for these programs is \$4 million per year. Customer benefits are in excess of this.)***

# In Summary



# Summary recommendations from HDR Engineering report

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*“Major investments in infrastructure rehabilitation, renewal and replacement were limited by the desire to keep rates at or below industry averages...However, the result of deferred investment on infrastructure renewal and replacement in the aging systems has now created **urgent** needs for investment to meet MLGW’s continued reliable utility service.”*

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Source: Part 2 – The MLGW Way...Forward – October 21,2019 – HDR Engineering

# In Closing...

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- Our Electric Division Budget and Service Improvement Plan includes **~\$640 million** for urgently needed improvements to our system and increased maintenance spending over the next 5-years funded in part by debt and rate increases.
- In addition to efficiencies previously identified, additional efficiencies/savings of over **\$91 million** have been incorporated into our service improvement plan with savings of **~\$40 million/year** included annually thereafter across the three divisions.
- Our customers & our community have spoken regarding their concerns and we are listening.
- 5-year plan includes new opportunities to help move our community forward.
- Our alternative proposal would provide a reduction in the magnitude of requested rate increase for 2020.



# Questions?



# Appendix

# **ELECTRIC RELIABILITY & SYSTEM IMPROVEMENTS BUDGET YEAR 2020**

## **SUBCAT**

- General Improvements
- Transformer Work
- Proposed New Sub
- Transmission Work

## **RPQ**

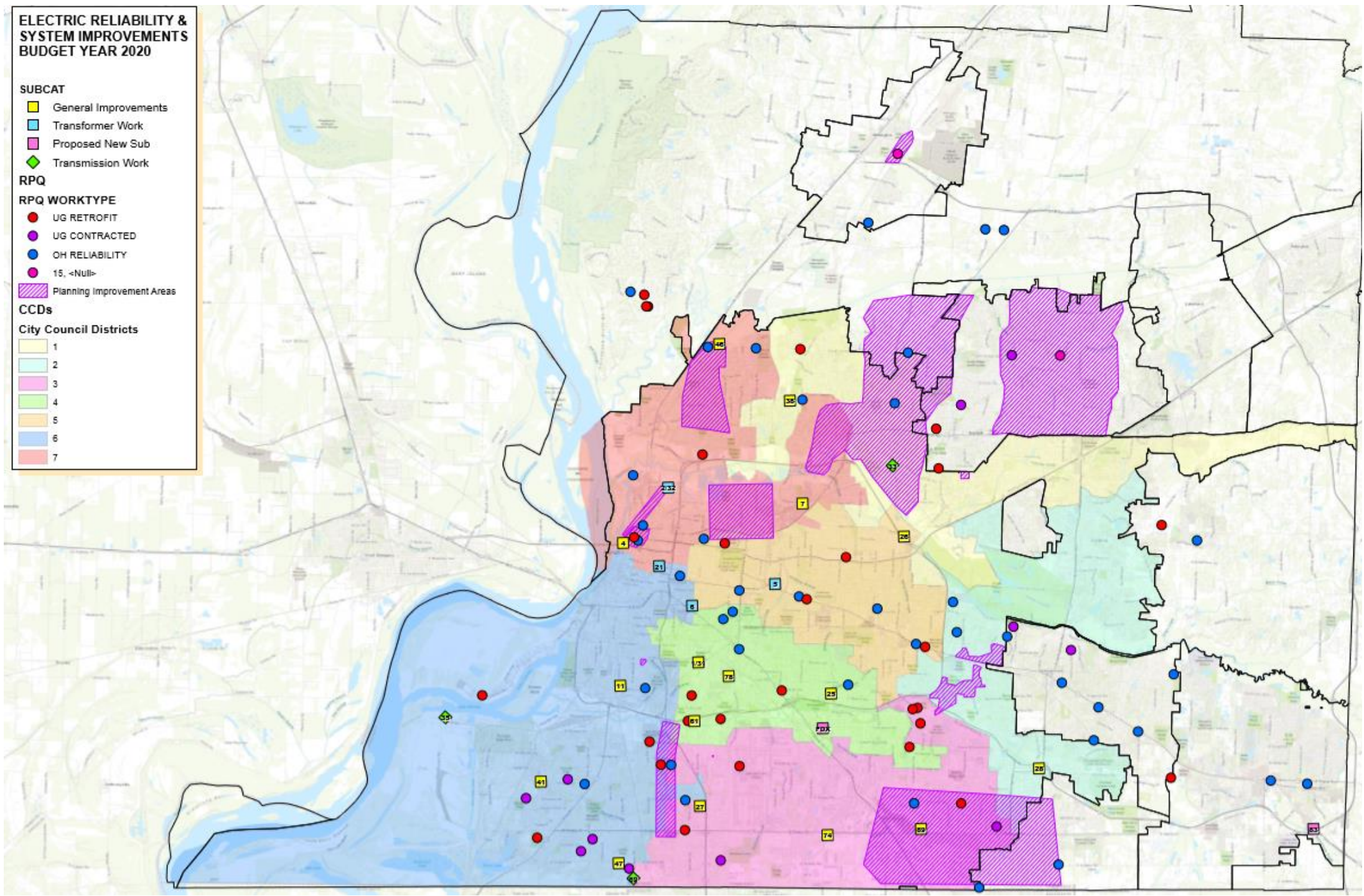
### **RPQ WORKTYPE**

- UG RETROFIT
- UG CONTRACTED
- OH RELIABILITY
- 15, <Null>
- ▨ Planning Improvement Areas

## **CCDs**

### **City Council Districts**

- 1
- 2
- 3
- 4
- 5
- 6
- 7



# Efficiency Savings Projections (\$ in thousands)

						5 Year Totals Phased In
<b>Savings Projected</b>	2020	2021	2022	2023	2024	
Labor & Benefits	\$1,600	\$4,800	\$11,200	\$17,600	\$32,000	\$67,200
Meter Opt-out Cost Recovery	\$0	\$1,250	\$2,500	\$2,500	\$2,500	\$8,750
Procurement	\$0	\$1,000	\$2,000	\$2,000	\$2,000	\$7,000
Community Offices*	\$0	\$176	\$1,880	\$3,347	\$3,347	\$8,750
<b>Total</b>	<b>\$1,600</b>	<b>\$7,226</b>	<b>\$17,580</b>	<b>\$25,447</b>	<b>\$39,847</b>	<b>\$91,700</b>

\*Community Offices under further review...

# High-level execution plan

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## Staffing/Efficiencies

- Implementation of continuous improvement methodology
  - Streamline work; reduce waste; revamp procurement process; focus on accountability and proper metrics
- Review of technology enhancement opportunities
- Review budgeted vacancies; reduce labor float; fill critical positions

## Infrastructure

- Seek bond issues 1Q 2020 based on rate & budget approvals; commence work ASAP
- Utilize a combination of employees and contracted resources to deliver on objectives

# 2019 Budget Recap

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- Original O&M Budget request was \$392.5 million across all three divisions.
- The final O&M Budget was \$351.6 million across all three divisions.
- We had to identify \$40.9 million in cuts
  - New positions, increased labor vacancies estimate along with a hiring “frost”, \$2.6 million.
  - Cut tree trimming, environmental spending, other O&M items related to capital work, \$14.4 million
  - 50% overtime cut across the board, \$7.7 million
  - Prorated the remainder needed to “Other” O&M category of spending to all areas, \$16.3 million.
- Received a credit downgrade from S&P for the Electric Division from AA to AA- on May 24, 2019.

# 2019 Budget Recap (cont.)

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- Original Capital Budget request across all three divisions was \$252.9 million.
  - Original plan utilized a mix of debt and rate revenue to fund the capital plan.
- With no rate increase to support the debt service we scaled the capital plan back to a minimal maintenance capital level of \$101.0 million.
  - Cuts to the electric reliability related capital and to the water production related capital.
  - Electric reliability capital examples are: Substation Equipment Replacement, Pole Replacement, Cable Replacement, Distribution Automation.
  - Examples of water production capital are: Pumping Station Rehabilitation, Constructing New Wells, Digital Process Control Systems, Electric System Upgrades.



# Cash Flows

# Financial Metric Targets

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- Days of cash
  - Target minimum of 45 days
  - Government Finance Officers Association (GFOA) best practice recommendation target minimum is 90 days
  - MLGW is projected to be below target in 2019 with no rate increases or debt issuances in the electric and water divisions
- Change in net position
  - Target is to have positive change in net position
  - State law prohibits two consecutive years of negative net position for the water division
  - MLGW is projected to have negative change in net position in electric and gas for the fourth consecutive year and negative in water division for 2019
- Debt Service Coverage
  - Minimum per debt covenants for senior lien is 1.2x
  - Both S&P and Moody's have developed a more stringent coverage calculation when evaluating utilities
  - MLGW is projecting to have sufficient debt service coverage per the rate covenant with no new debt issuances, but will not meet the S&P and Moody's coverage levels which could lead to further downgrades

# Electric Division Rate Proposal

Electric Division - Proposed	2018	2019	2020	2021	2022	2023	2024	5Yr Total
Ending Cash & Investments	198,375	188,602	222,061	220,537	297,830	230,056	193,546	
Days Cash of OpExp	56	55	62	62	83	64	53	
Debt Service Coverage	1.63	7.30	4.49	6.24	5.23	5.16	5.22	
Change in Net Assets (Net Income)	(14,460)	3,704	(14,599)	18,173	27,057	19,090	15,237	
Capital Expenditures	\$83,815	\$60,000	\$109,974	\$120,487	\$156,311	\$143,571	\$107,659	\$638,001
O&M Expenditures	\$201,810	\$187,419	\$225,683	\$231,483	\$234,844	\$239,628	\$240,049	\$1,171,686
Proposed Rate Increase %		0.0%	4.2%	1.5%	1.5%	0.0%	0.0%	7.2%
Proposed Rate Increase Revenue		-	28,606	19,743	20,070	-	-	\$380,749
Proposed Debt Issuance		-	160,000	-	160,000	0	-	\$320,000
Average Residential Bill Impact			\$5.19	\$1.89	\$1.92	\$0.00	\$0.00	\$9.00

## Alternative Proposal

Electric Division - Alternative	2018	2019	2020	2021	2022	2023	2024	5Yr Total
Days Cash of OpExp	56	55	60	59	80	63	53	
Debt Service Coverage	1.63	7.30	4.14	6.25	5.19	5.11	5.18	
Change in Net Assets (Net Income)	(14,460)	3,704	(22,772)	18,402	27,109	19,146	15,296	
Capital Expenditures	\$83,815	\$60,000	\$109,974	\$120,487	\$156,311	\$143,571	\$107,659	\$638,001
O&M Expenditures	\$201,810	\$187,419	\$225,683	\$231,483	\$234,844	\$239,628	\$240,049	\$1,171,686
Proposed Rate Increase %		0.0%	3.00%	2.70%	1.5%	0.0%	0.0%	7.2%
Proposed Rate Increase Revenue		-	20,433	35,129	20,073	-	-	\$373,496
Proposed Debt Issuance		-	160,000	-	166,000	0	-	\$326,000
Average Residential Bill Impact			\$3.70	\$3.36	\$1.92	\$0.00	\$0.00	\$8.98

# Electric Division

Category	2018 Actual	2019 Budget	2019 Proj	2020 Budget
Operating Revenue	\$1,289,907	\$1,281,926	\$1,272,926	\$1,313,864
Power Cost	\$1,035,898	\$1,013,472	\$1,013,472	\$1,023,188
Operating Margin	\$254,009	\$268,454	\$259,454	\$290,676
<b>Operating Margin Variance</b>			<b>\$22,222</b>	<b>Increase</b>
O&M	\$200,144	\$183,190	\$185,690	\$223,978
Depreciation & Amortization	\$55,844	\$61,198	\$55,790	\$60,878
PILOT & Taxes	\$50,076	\$56,707	\$47,462	\$49,894
Total Operating Expense	\$306,064	\$301,095	\$288,942	\$334,750
<b>Expense Variance</b>			<b>\$33,655</b>	<b>Increase</b>
Other Income	\$47,951	\$38,600	\$39,150	\$39,968
Debt Expense	\$10,357	\$5,959	\$5,959	\$10,569
Change in Net Position	(\$14,461)	\$0	\$3,703	(\$14,675)
<b>Change in Net Position Variance</b>			<b>(\$14,676)</b>	<b>Decrease</b>
Capital Expenditures	\$83,816	\$60,000	\$60,000	\$109,974
<b>Total Operating &amp; Capital</b>	<b>\$1,425,777</b>	<b>\$1,374,567</b>	<b>\$1,362,414</b>	<b>\$1,467,912</b>

# All Division Summary

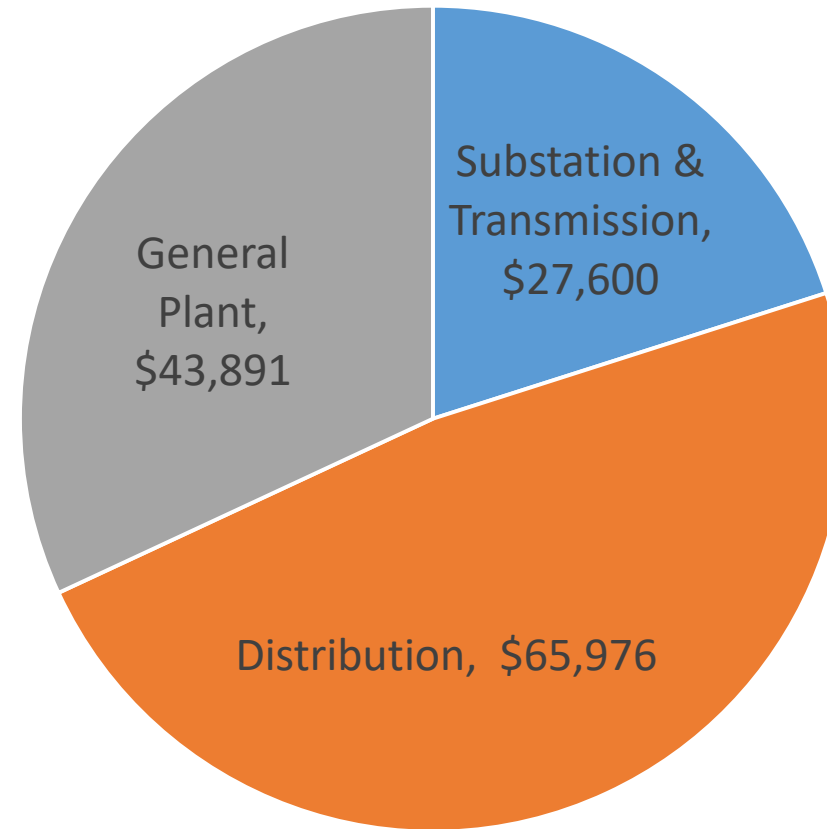
Category	2018 Actual	2019 Budget	2019 Proj	2020 Budget
Operating Revenue	\$1,667,234	\$1,632,904	\$1,627,226	\$1,663,695
Power & Gas Cost	\$1,174,005	\$1,129,258	\$1,129,258	\$1,130,525
Operating Margin	\$493,230	\$503,646	\$497,968	\$533,170
<b>Operating Margin Variance</b>			<b>\$29,524</b>	<b>Increase</b>
O&M	\$370,441	\$351,653	\$354,653	\$401,295
Depreciation & Amortization	\$86,980	\$95,922	\$87,645	\$96,068
PILOT & Taxes	\$74,007	\$84,911	\$71,014	\$74,046
Total Operating Expense	\$531,428	\$532,485	\$513,312	\$571,410
<b>Expense Variance</b>			<b>\$38,924</b>	<b>Increase</b>
Other Income	\$50,027	\$39,500	\$39,950	\$41,049
Debt Expense	\$14,621	\$10,662	\$10,662	\$19,141
Change in Net Position	(\$2,792)	\$0	\$13,944	(\$16,332)
<b>Change in Net Position Variance</b>			<b>(\$16,332)</b>	<b>Decrease</b>
Capital Expenditures	\$164,121	\$101,000	\$101,000	\$164,677
<b>Total Operating &amp; Capital</b>	<b>\$1,869,553</b>	<b>\$1,762,743</b>	<b>\$1,743,570</b>	<b>\$1,866,612</b>

# Electric Division

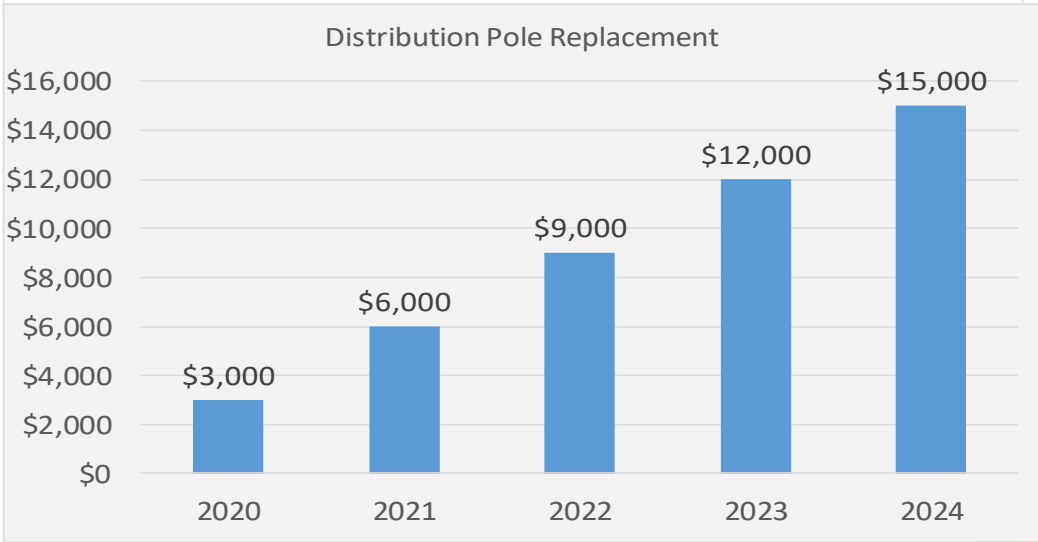
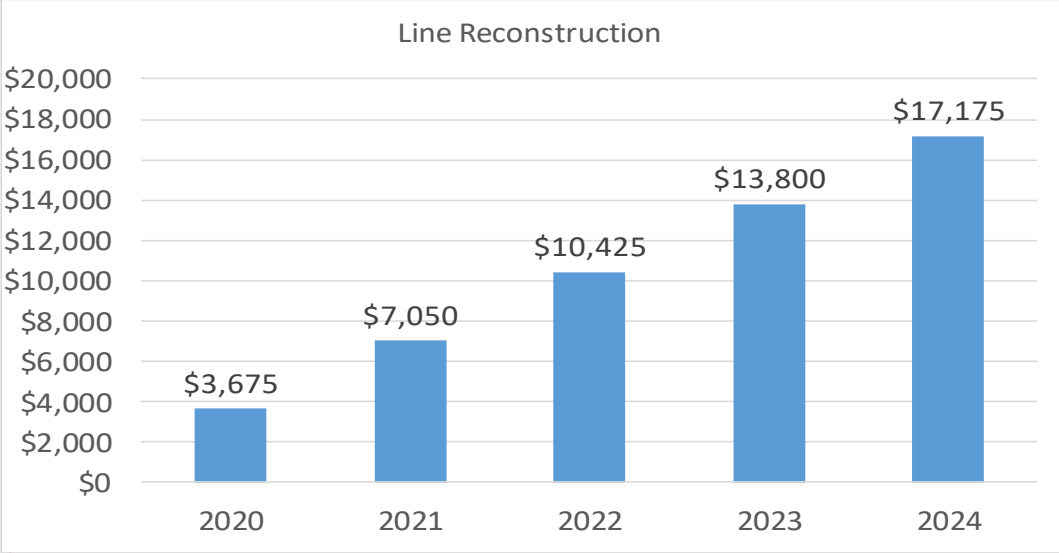
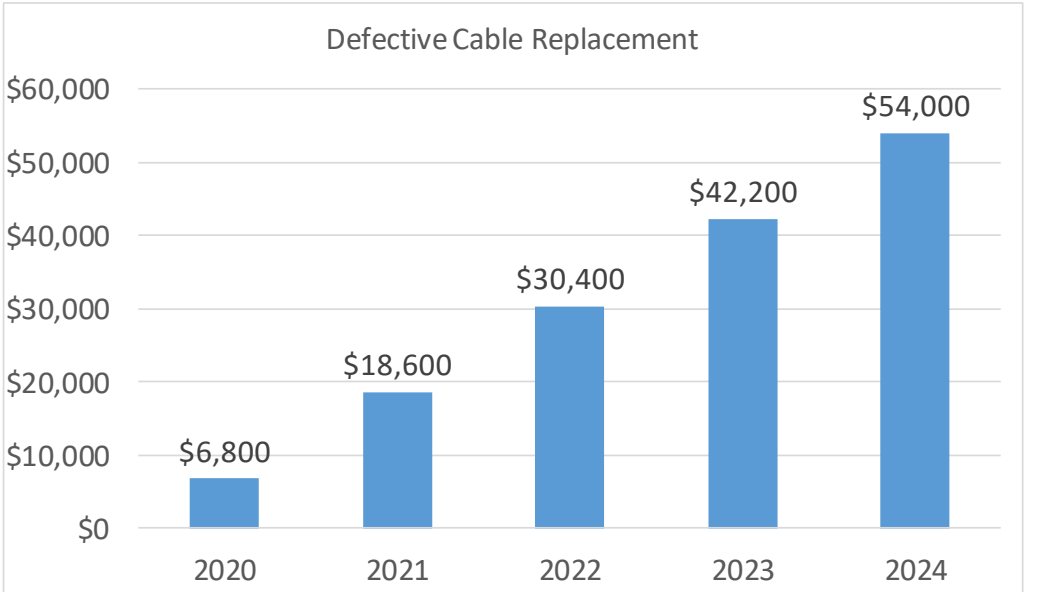
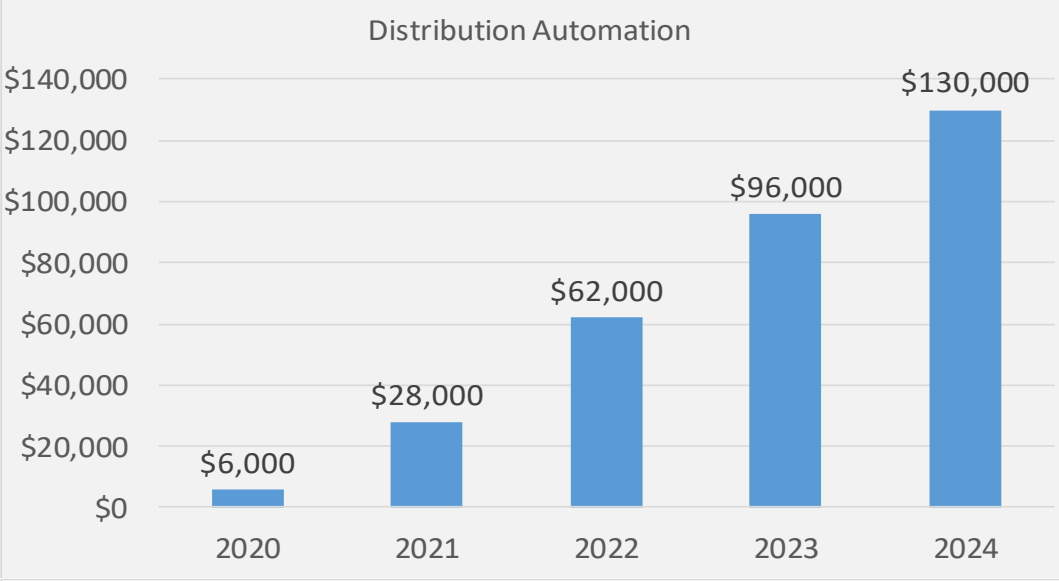
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<b>Operating Margin Variance</b>			<b>\$22,222</b>	<b>Increase</b>
O&M	\$200,144	\$183,190	\$185,690	\$223,978
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<b>Expense Variance</b>			<b>\$33,655</b>	<b>Increase</b>
Other Income	\$47,951	\$38,600	\$39,150	\$39,968
Debt Expense	\$10,357	\$5,959	\$5,959	\$10,569
Change in Net Position	(\$14,461)	\$0	\$3,703	(\$14,674)
<b>Change in Net Position Variance</b>			<b>(\$14,675)</b>	<b>Decrease</b>

# 2020 Electric Capital Highlights

Electric Capital Highlights	Dollars
Extensions to Serve New Customers	\$ 30,971
Distribution Automation	\$ 22,000
Defective Cable Replacement	\$ 11,800
Information Technology Upgrades	\$ 11,140
Buildings & Structures	\$ 9,860
New Circuits	\$ 7,500
Transformer Replacement	\$ 6,155
Transportation and Power Operated Equipment	\$ 4,782
Line Reconstruction	\$ 3,375
Communication & Telecommunication Upgrades	\$ 3,095
Distribution Pole Replacement	\$ 3,000
Security Automation Upgrades	\$ 2,634



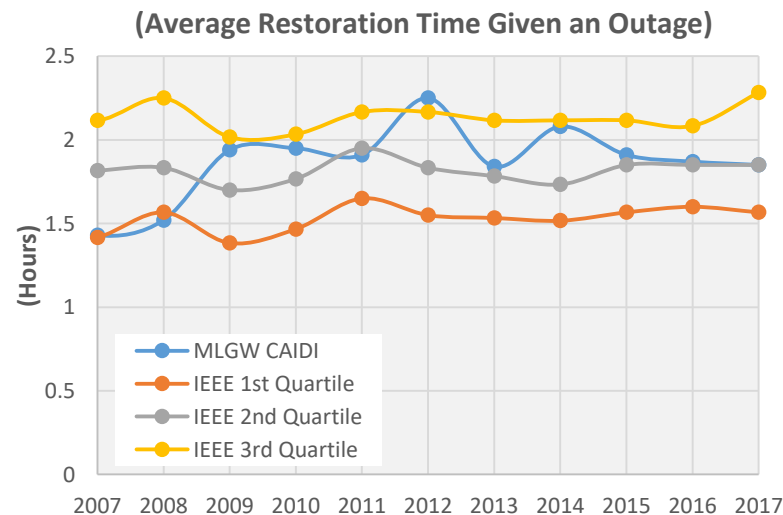
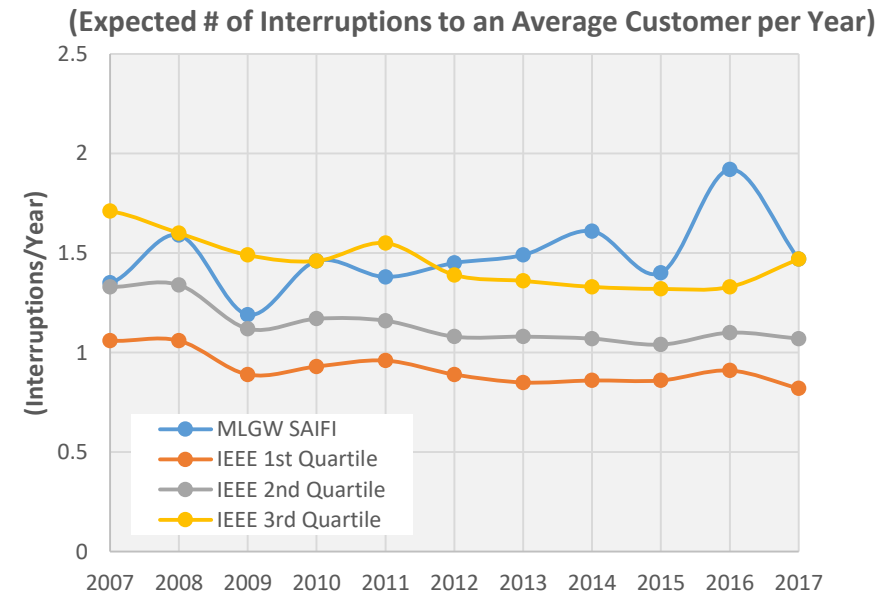
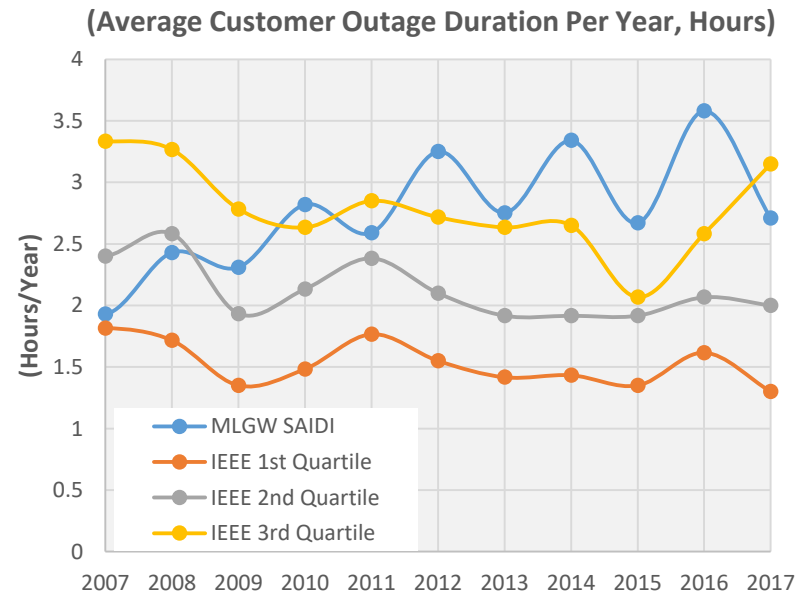
# Cumulative Major Electric Infrastructure Plans (cont.)





# Electric Capital Request

# RELIABILITY BENCHMARKING AT MLGW (Data Excludes Storms)



**THE GOAL: 1<sup>ST</sup> QUARTILE  
RELIABILITY PERFORMANCE  
AT MLGW**

# Neighborhood Outage Data Over Time

NBR	NEIGHBORHOOD	2005-2008			2009-2013			2014-2018		
		Average Time Off Per Outage (Minutes)	Average Time Off Per Year (Hours)	Average Interruptions Per Year	Average Time Off Per Outage (Minutes)	Average Time Off Per Year (Hours)	Average Interruptions Per Year	Average Time Off Per Outage (Minutes)	Average Time Off Per Year (Hours)	Average Interruptions Per Year
1	SHELBY FOREST	212.8	7.45	2.1	181.6	6.30	2.1	249.1	12.58	3.0
2	MILLINGTON-ROSEMARK	130.8	3.82	1.8	113.7	3.41	1.8	142.2	4.77	2.0
3	FRAYSER	131.3	2.78	1.3	148.1	3.31	1.3	143.2	5.09	2.1
4	RALEIGH	182.8	5.18	1.7	123.1	3.33	1.6	110.7	4.50	2.4
5	BARTLETT	120.4	3.27	1.6	98.9	2.21	1.3	101.9	3.08	1.8
6	LAKELAND	97.7	2.30	1.4	106.5	2.01	1.1	132.9	3.74	1.7
7	ARLINGTON	139.2	3.97	1.7	110.5	1.97	1.1	100.7	2.74	1.6
8	NORTH MEMPHIS	101.6	3.39	2.0	106.1	2.71	1.5	135.6	4.79	2.1
9	BERCLAIR-GRAHAMWOOD	99.7	3.01	1.8	108.8	3.03	1.7	147.0	5.10	2.1
10	SHELBY FARMS	100.4	1.86	1.1	95.9	2.80	1.8	90.3	2.86	1.9
11	CORDOVA	104.4	2.45	1.4	91.4	1.55	1.0	106.6	2.24	1.3
12	FISHERVILLE-EADS	125.3	5.12	2.5	91.5	2.18	1.4	111.0	3.81	2.1
13	DOWNTOWN-MED DIST	139.2	3.04	1.3	97.6	2.47	1.5	105.5	3.57	2.0
14	MIDTOWN	132.4	3.91	1.8	132.6	3.67	1.7	140.7	4.32	1.8
15	EAST MEMPHIS	159.5	4.15	1.6	142.4	3.58	1.5	184.8	4.84	1.6
16	SOUTH MEMPHIS	158.4	4.36	1.7	156.6	4.62	1.8	156.7	4.62	1.8
17	CASTALIA HEIGHTS-PROSPECT PARK	154.0	5.29	2.1	135.1	4.57	2.0	138.3	6.43	2.8
18	ORANGE MOUND-GLENVIEW	158.4	4.23	1.6	136.3	3.30	1.5	163.5	8.12	3.0
19	BALMORAL-SHADY GROVE	133.2	3.06	1.4	135.1	3.24	1.4	167.5	4.77	1.7
20	GERMANTOWN	146.9	2.99	1.2	109.9	2.88	1.6	153.7	4.00	1.6
21	PRESIDENTS ISLAND-RIVERGATE	158.6	3.25	1.2	88.4	2.17	1.5	101.9	1.61	1.0
22	WESTWOOD-CORO LAKE	226.4	3.77	1.0	166.7	4.25	1.5	176.7	6.24	2.1
23	WHITEHAVEN	168.3	4.66	1.7	154.1	3.57	1.4	222.8	6.68	1.8
24	AIRPORT-OAKHAVEN	162.3	4.63	1.7	135.8	3.60	1.6	192.1	4.80	1.5
25	PARKWAY VILLAGE	165.9	3.82	1.4	148.3	3.88	1.6	165.3	5.29	1.9
26	LAMAR-CAPELVILLE	212.0	5.20	1.5	129.9	2.69	1.2	149.0	4.92	2.0
27	HICKORY HILL	98.2	2.08	1.3	109.6	2.59	1.4	150.7	4.72	1.9
28	SOUTHWIND	115.5	2.20	1.1	87.8	1.89	1.3	119.7	2.53	1.3
29	COLLIERVILLE	113.2	1.77	0.9	80.3	1.51	1.1	102.8	1.65	1.0