



07 June 2023

MEMORANDUM

From: Chief Executive Officer, Memphis Light Gas and Water Division

To: MLGW Board Chair and Commissioners  
City of Memphis Mayor  
Memphis City Council Chair and Councilmembers

Subj: REPORT ON FIRST SIX MONTHS AS PRESIDENT AND CEO

Commissioners, Mayor, Councilmembers,

I am pleased to make this report to you. I hope that you find it informative and appropriately detailed. It has been an honor to serve in this capacity to this point, and my optimism and enthusiasm for the future of the utility and our community has grown significantly in that time. I will detail in this report all that we have done to advance the organization, with the specific intent of earning our customers' business by improving reliability in the short term. But first, I want to share what I have learned since arriving that explains how we got to where we are today, exactly what our reliability performance is relative to history, share some of the recent challenges we have faced and are facing here at MLGW, as well as recent promising progress.

Some historic context: Just as our city has faced stiff headwinds and challenges over the last few decades, so too did MLGW, resulting in reliability and resilience issues that we are faced with today. Many of those challenges were decades in the making, born from many well-intended decisions made over that period. Potentially the largest impact came from the pattern of growth here in Memphis. From 1970 to 2010, the city doubled in geographic size, but only experienced a 4% growth in population. That meant huge investments by MLGW in extending/maintaining utilities to newly developed areas, but without a commensurate growth in rate base within the service area and little growth in the maintenance budget. This meant decades of deferred maintenance/infrastructure replacement in the core service area, resulting today in old infrastructure like open wire secondary and decades old distribution infrastructure in congested urban areas.

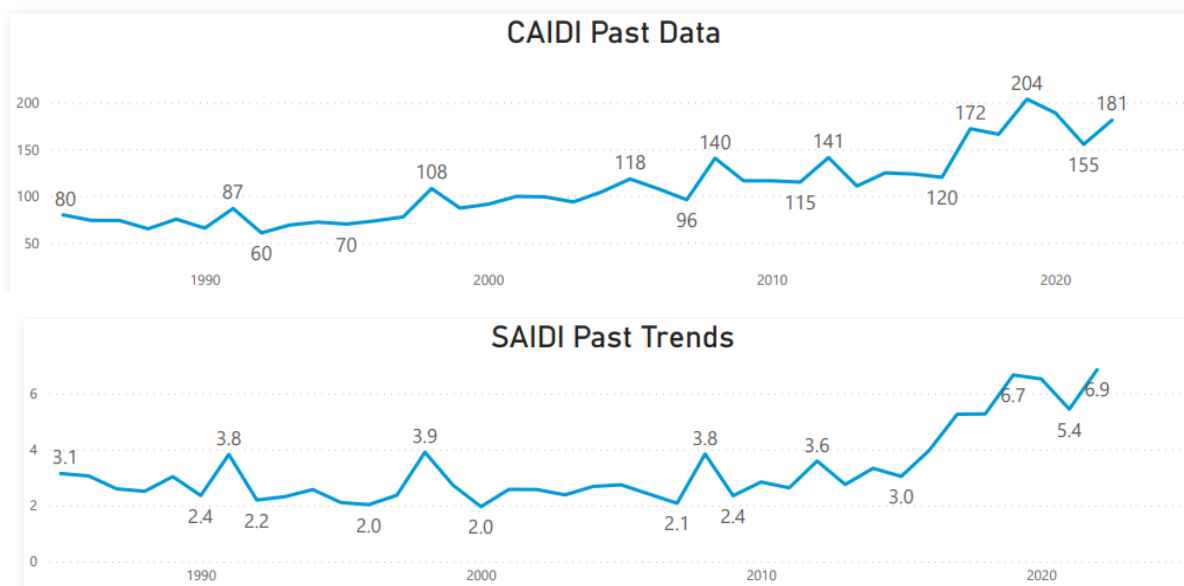
In the 1990's, fears of utility deregulation ruled the day. This meant that MLGW had to take action to remain "competitive", meaning doing everything possible to deliver the lowest possible rates, like cutting capital investments to keep prices as low as possible. This strategy was formalized in the MLGW "Mission 2000" plan that guided the organization for more than a decade with the guiding principle: no rate increases.

As a public utility serving a city ranked very high in poverty rate, with a city council as a rate making body, the price of utilities has historically been the principal driver of decision making, rather than a

more holistic discussion of value vs affordability. This created a very challenging environment for approval of rate increases for several decades.

And finally, Memphis has one of the finest tree canopies of any major city in America, and a population very protective of that canopy. Lack of local regulation and a state where individual property owner rights have been viewed in practice as more important than rights of the collective community mean that owners were free to plant or retain many large tree varieties that were allowed to grow into, over, or immediately adjacent to the 60% of MLGW service area with overhead service. Vegetation contact with power lines is the #1 cause, by far, of power outages (more than 40% directly attributed to vegetation, another 20% due to effects of wind on vegetation causing contact with infrastructure).

All those factors have driven our electrical reliability to an unacceptably low point: our Customer Average Interruption Duration Index (CAIDI) and System Average Interruption Duration Index (SAIDI) rates have tripled since the early 1990's. CAIDI describes the average time required to restore service for customers who experience an outage and ours has grown from 60 minutes in the early 1990's to more than 180 minutes today. SAIDI indicates the total duration of interruptions for the average customer across the electric system during a year, and our SAIDI has grown in duration from two hours to more than six hours.



Recent challenges:

- Since December of 2022, our community has been hit with successive and repeated weather events that have disrupted our lives and interrupted the electric service that we all rely upon:
  - December 23 2022- Winter Storm Elliot impacted all of the deep south with a polar bomb vortex causing dramatic temperature drops, failed generation systems and a huge demand for electricity that was not forecast, resulting in TVA declared Emergency Load Curtailment orders that impacted 261,000 customers (meters) in the MLGW

- service area. This was followed by a water distribution crisis caused by many commercial fire protection system leaks, dropping system pressure across the service area, and requiring the second-ever system wide boil water advisory in MLGW history.
- February 2 to 4 2023 - we had successive days of freezing rain that knocked out power for 45,000 customers.
  - March 3, 2023- heavy storms rolled through causing 30,000 to be without power temporarily.
  - March 24, 2023- we were hit by high winds, which interrupted power for 20,000 for a short time.
  - March 31, 2023- we were impacted by super cell thunderstorms causing straight line winds that knocked 40,000 customers offline for up to four days.
- These weather events emphasize the importance of building a stronger, more resilient, and smarter system and increase the pressure for MLGW to deliver it.
  - In addition to increasing challenges from severe weather, we continue to face higher than normal inflation that erodes our capital budget in the year and drives up costs before we can even get contracts approved for capital work/purchases. We continue to struggle with the supply chain that impacts on our ability to deliver projects that we have planned for. And at a macro level, the “electrification of things”, penetration of Electric Vehicles (EV) and overall electric load growth is presently outpacing the rate at which new generation is coming online, meaning that reserve power margins during “peak events” in the bulk energy system are getting thinner.
  - The game changing, generational \$5.6B big bet that Ford is making at Blue Oval City is something that we never contemplated while we were conducting the IRP in 2019 but that will simultaneously be a boon to job growth and business attraction but stands to stress our collective and local electric grids with huge new demands for power for the tier 1 and 2 suppliers who are seeking to locate in Shelby County. And operationally, the competition for a well-trained and capable workforce just got tougher.
  - Finally, upon arrival at MLGW, the organization was facing two service delivery challenges. First was the Call Center that had an unacceptably high average speed of answer (ASA) that had peaked at 48 minutes in the Fall of 2022. Second, was an increasing number of register failures on water and gas meters, that were recording zero use of water or gas despite the other meters showing regular utility use and causing our team to “hold” the bills until we could determine the cause. This created issues where customers hadn’t received bills in months, and a challenge for the MLGW team to figure out how to fix it without further impact on customers. During the first 30 days of my tenure, we discovered that this “billing exception” issue was impacting approximately 38,000 of the 1,014,000 meters that MLGW has in service. This issue will take some time to be completely resolved, but we stood up a “tiger team” that worked seven days a week for more than a month to develop solutions for customers and hardware solutions for the registers. Honeywell manufactures the “wrigglers” that were causal to gas readings of zero, and they have committed to designing, testing, and deploying an improved product to correct the issue. Badger has replaced the failing water registers with a different model that is not susceptible to water intrusion. Our ability to change these components will be governed by the rate at which the manufacturers can supply the parts. We will stay focused on this issue until it is completely resolved.

Immediate actions: Given that history, it was important to take actions that would begin to rebuild trust and accountability with MLGW.

- First, was to immediately drive down average speed of answer at the call center and reduce call abandonment rate. Our team took that seriously and in March had reduced abandonment rate by more than 80% and had achieved a 3.4-minute average speed of answer, something that has continued to improve through May where they achieved a 1.3 minute average speed of answer. Equally important is that they have been able to reduce abandoned calls by 93%, from a 55% abandonment rate in the fall of 2022 to 4% in May of 2023 (average of 22,264 abandoned calls per month in 2022, reduced to 2007 calls in May of 2023 with no reduction in overall volume) and reached the lowest number of abandoned calls since 2019.
- Next was to take on the challenge that every neighborhood feels and will benefit from: reducing the number of street light outages. When I arrived, there were more than 1,600 reported streetlight outages out of nearly 109,000 streetlights across the county...far too many. I challenged the team to cut that number in half by the summer, and they exceeded expectations by meeting that goal by March and have continued to reduce outstanding outages. Further, we know that many of the outages are caused by contractors in the communication sector boring in the right of way and cutting the power lines to streetlights. To mitigate this, our team has worked with all municipal engineering departments, and they are now holding those contractors accountable for any damage they do to our street light system.
- More exciting is the conversion of streetlights to LED – a brighter, safer, and more energy efficient system that our customers and constituents deserve. After delays in getting started throughout 2022, I asked that team begin the City of Memphis conversion on January 24, 2023, and commit to getting the transformation of 77,000 streetlights completed by the end of 2023, something they are well on their way to doing. As of this update, more than 16,000 have been converted. As exciting, four suburban municipalities have also signed on, and I expect that the last two will do so soon, meaning that by this time next year, the entire county should be converted to LED – 109,000
- Finally, I knew that if we were to get traction on process improvement that we need to hold ourselves accountable to making outcomes-based progress. In February, we began holding monthly performance reviews for the organization, where we measure 100 key metrics that are important to improving processes and outcomes for our customers. We will publish this data monthly on the public facing MLGW.com website for transparency.

Investing in reliability: As you are aware, COVID-19 hindered progress on achieving progress milestones outlined in the Way Forward Plan (the MLGW plan to make meaningful improvements to reliability). In December, I challenged the team to try and speed up delivery of critical improvements that will do just that.

- The first initiative adopted was to focus our Way Forward efforts into a neighborhood that has the least reliable electric service with an assigned “quarterback” responsible for delivering three activities there: tree trimming/vegetation management, replacement of aged infrastructure/adding additional new transformers and fuses and implementing Smart Grid components that can automatically detect and mitigate outages when a fault occurs. That work

is underway in Orange Mound and Sherwood Forest areas right now and is expected to be completed by next year.

- Second, distribution automation (DA) was always part of the Way Forward Plan. Recently, our leadership team decided to move forward with a full buildout of the system that will include 2,000 switches and calls for a fully automated distribution management system (ADMS) and a fault location isolation and service restoration (FLISR) system, all controlled by a private LTE network – with the intent of improving electric system reliability and resilience by more than 50%. In addition to Way Forward funding, MLGW has applied for \$100M of the GRID funding from the federal government and will also add funding into the FY24 capital plan for the buildout of the system.
- In addition to electric, there is also work in the water and gas utilities that needs not just funding, but manpower to complete. So, in March, our team looked at every currently vacant position and either began the hiring process or transformed them into new positions that we needed to complete the work. More than 100 position openings were then created and posted, and hiring has begun. Quite simply, we needed to hire the right kinds of skills quickly to make the Way Forward plan a reality.
- To keep our water system functioning at peak efficiency, we recently kicked off a complete overhaul of one of our nine large treatment facilities. The Allen Pumping station today is operating at about 50% efficiency. This \$80M+ investment will bring the station back to full capacity by renovating the aeration and reservoir components and constructing a new pump house and distribution pumps. This renovation will be complemented with \$42M of new investment into five other treatment plants to rebuild our filter beds, backwash systems and add back up generators, in part funded by \$30M+ of recently awarded federal ARPA funding.
- And finally, after significant effort, the tree trimming contracts that are expected to be approved by the board on June 19<sup>th</sup> and immediately thereafter City Council, will soon be awarded to three separate trimming contractors and work should begin in earnest this summer.

Building a workforce: With more than 400 vacancies at the start of the year, I challenged our HR Chief to cut that number in half by the end of the year, and in half again the next year. This meant rethinking how we recruit and retain employees and the team has created several new initiatives to help get us staffed up quickly.

- First, we added a dedicated recruiting team charged with generating leads, developing prospects and onboarding employees. Their first action was to hold a general job fair in April with the intention of conducting interviews and making offers quickly. More than 600 individuals attended the event, and more than 50 prospects were engaged in the hiring process from that event. An engineering focused recruiting event will be held on June 24<sup>th</sup> to help bring on necessary engineering talent. To date we have hired more than 165 people (including internal and external candidates) and expect to have completed more than 300 hires by year's end, which should allow us to achieve the goal we set for cutting vacancies in half.
- Next, we developed a comprehensive recruiting strategy that included employee referral bonuses, sign-on bonuses as well as a wide-ranging media campaign that kicks off with a 6-week TV campaign, that is complemented with radio, billboard, and digital components, all to build awareness and drive candidates to our job portal.

- Understanding that time to hire is important, our team created an all-new training curriculum for utility worker prospects who already have a commercial driver’s license, meaning that they will have a 3-week intensive training period and then be hired on, rather than having to go through a full semester long training program at Southwest Tennessee Community College.
- Most exciting is a brand-new pipeline that our team developed in conjunction with Memphis Shelby County Schools and Southwest Tennessee Community College. The program has two parts: a summer “boot camp” for new high school graduates and rising high school seniors, as well as a dual enrollment program for current high school juniors and seniors.
  - The boot camp kicked off with 22 students from Whitehaven High School on June 5<sup>th</sup> and will last three weeks. It is meant as an introduction and to drive interest in utility and line worker professions. Assuming success, it will be made available to other high schools next summer.
  - The dual enrollment program will open in the fall semester of 2023 and will allow juniors and seniors to take the same college level courses that we require of candidates who enroll in utility and line worker program, so that when they graduate high school, they will have earned a certificate and will need only to complete a short climbing class to be hired on at MLGW.

Preserving our Assets/Safety: Tragically, MLGW suffered 2 fatalities immediately before my arrival. A lineman was electrocuted on August 11<sup>th</sup> of 2022, and a troubleshooter electrocuted on Dec 9<sup>th</sup> of 2022. Throughout MLGWs 80+ year history, 38 individuals have lost their lives on the job, but until 2022, never has more than one fatality occurred in any calendar year. One death is a tragedy, but two is an unacceptable trend. We determined that we needed to immediately examine the causal factors of these accidents, to develop recommended corrective actions and to reexamine our safety program from the bottom up.

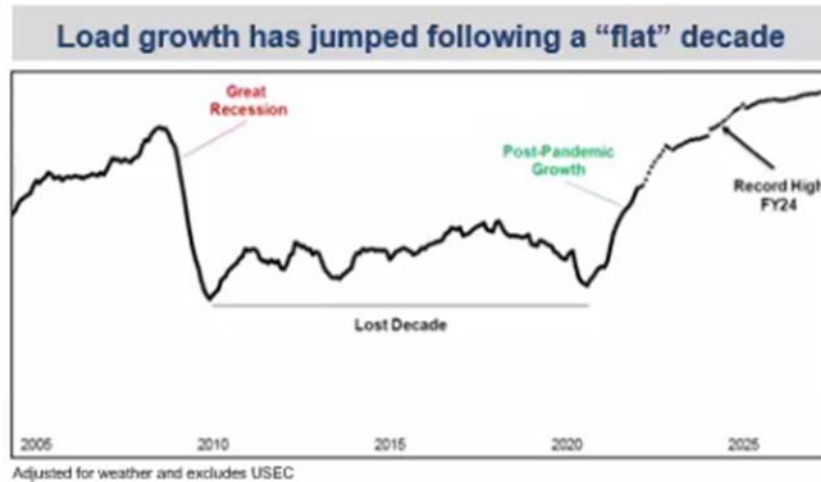
- The outcome from this work was that the MLGW safety team has been re-trained in OSHA 7500 (Introduction to Safety and Health Management) and trained in OSHA 7505 (Introduction to Incident Investigation); a new accident investigation protocol, timeline and reporting requirements program has been adopted; all frontline personnel have been trained, and a new policy adopted regarding “Duty to Speak Up”; foreman and above have received OSHA training on “Better Safety Conversations” to operationalize safety as a part of day to day conversation. Finally, our safety program now mandates that all employees read the results of any accident investigation that includes causal and contributing factors as well as corrective actions within seven days of the release of the report.
- We know too that driving is one of the most hazardous parts of the work out team does, and since January, we have installed more than 600 Samsara cameras in MLGW vehicles and approved a full rollout over the next 12-18 months. These cameras have both outward and inward (currently disabled) cameras, as well as GPS and programmable voice warnings, remote monitoring and up to 45 days of video storage in the cloud. These cameras have already proven a valuable tool in protecting our employees in traffic accident investigations, and as a training tool to coach employees who we know from reviewing the data are regularly speeding (more than 15mph over the speed limit for 60 seconds, or more than 80mph for 30 seconds). I have approved activation of the audio voice warning system that will advise our crews to ‘Slow Down” when either of the conditions are met. And we know its working: between April and

May, we saw a significant 65% reduction in occurrences of speeding more than 80mph (208 in April, 73 in May) because Managers are getting real-time alerts when those incidents happen and are using that info to coach employees.

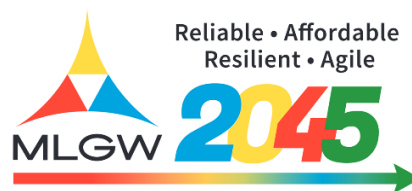
Agility: Meeting our customers' demands for flexibility and speed of service and balancing that with the need for predictable processes and sufficient manpower to do the work is something that has been a challenge for the organization. This manifests in complaints about "taking too long" for the variety of services that we provide. To reduce that friction, we will follow an approach like that of reducing ASA at the call center and will begin the process improvement project in earnest on July 1, 2023. However, we are already underway with two initiatives that we know will reduce customer frustration and allow us to act more quickly.

- "Builder Option". Historically for new developments, MLGW would do both the design and the construction/installation of utilities to the site. While MLGW has dedicated designers, our construction crews are the same crews that also do repair work when there is an outage/leak, or other failure in the system. This means that crews get "pulled off" construction work to make repairs in other areas. Very frustrating for customers and creates delays in project completion. To correct this, MLGW has offered a builder option for water utilities, where the contractor can hire a firm to install the water service after design is complete, removing MLGW crews from that process. We recently directed two changes: first, for water service, there is no longer a builder option, but a builder mandate that all water services are to be designed by MLGW, but installed by the developer, and then inspected by MLGW. Second, we are creating a builder option for gas and electric service, allowing the developer to hire qualified contractors to install gas and electric utilities after MLGW designs them. This change should be in place by the end of CY23 and will eliminate any delays for the developer to wait on MLGW construction crews.
- Contract limits. MLGW must receive both Board and Council approval for expenditures greater than \$250,000. This adds to the time required to execute contracts and purchase orders and impacts on the time it takes for us to complete the work and serve customers. The extended approval time also results in fewer bids for MLGW projects because bidders must hold their price for an extended period and MLGW must keep a larger inventory of materials on hand to account for the approval process. Internally, we are improving the contracting process to reduce time from inception to award. Recently, we asked the Board of Commissioners to raise the limit of the President's authority to execute contracts. The board approved raising the President's limit to \$500,000, after which Board Approval would be required, and they proposed that execution above \$1,000,000 would then require City Council approval. If approved by City Council, this would result in the President approving expenditures from \$0-\$499,999, the Board approving expenditures from \$500,000 to - \$999,999, and then the City Council approving expenditures of \$1,000,000+. The net effect of this change is that 25% fewer contracts would go to the board, with less than a 2.8% increase in the amount of total fiscal authority granted to the President, and a 49% decrease in the number of resolutions requiring City Council approval, with only a 7.3% increase in total fiscal authority granted to the President and Board combined. If approved by City Council, MLGW would report quarterly all awards made greater than \$250,000 (the current authority of the President) to the City Council to ensure there is transparency in contract awards.

Charting the course ahead: The rapidly evolving ecosystem of modern utility service is experiencing historic shifts in technology that are changing the way we look at providing service and how we meet demands of a new economy that is quickly moving to electrification. After a decade of dormant growth in energy demand, TVA and other bulk energy providers are forecasting significant growth that we must account for.



To ensure we are ready for the challenge locally, MLGW has embarked on a strategic plan for the utility called MLGW 2045 that will ensure we are prepared to respond to changes in the energy market, the environment, and technology, and seize economic and community development opportunities. We have selected a team of leaders within MLGW to lead this planning effort, have established “scanner teams” that will focus on specific areas of policy, technology, and energy to bring forward promising solutions or to identify areas that we need to keep our eye on, and are developing a stakeholder engagement plan so that we can begin the planning process in earnest after 1 July 2023 with the aim of having the plan completed by December 2024. This is an exciting next step for our utility and our community to be proactive in the face of uncertainty.



Conclusion: It’s been a dynamic first six months. I have worked hard to build a relationship of trust with employees through significant time in the field, learned from the MLGW team as well as experts in the utility industry through formal and informal exchanges and site visits, set new operational expectations for the team, and established priorities that will help move us in a positive direction. The number 1 priority I have for the organization is to “earn our customers business”. We know they don’t have a choice, but we will act like they do. This translates into every action we take and decision we make. It’s my pleasure to serve in this capacity. I am glad to be accountable for results, and eager to make progress as part of this team despite recent and historic challenges.