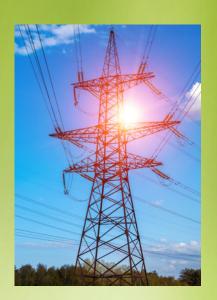
MLGW Green Initiatives and Community Engagement







2017 Annual Report





For MLGW, our environment and our communities are an ongoing commitment

While Memphis Light, Gas and Water Division's primary activities revolve around providing affordable and reliable utility services to customers in our communities, our utility company supplies a much deeper value than these services alone. Memphis Light, Gas and Water Division's main reason of existence is to benefit the people of Memphis and Shelby County. Through the generosity of our employees, and the consistent efforts of the Division, MLGW strives to enhance the lives of those in our service area and to help secure a bright future for generations to come. While we recognize that the full impact of our dedication to corporate responsibility, sustainability and social improvement are very difficult to adequately detail in a few pages, the intent of this annual overview is to serve as a document that highlights our most prominent efforts and illustrates the significance of organizations making responsible citizenship an active priority. We constantly seek to expand our positive influence and to persist in our role as a community leader.

Conservation at home

Saving energy begins with one individual: YOU. Sharing resources and information for residential customers that help them to monitor and reduce their usage is a vital part of our mission to do what is best for those we serve. Not only does conservation save money for the individual customer, it helps keep rates low, benefiting everyone.

eScore

eScore is an energy efficiency program from TVA and MLGW. The program gives customers a way to identify a home's energy efficiency level based on a rating from 1 - 10, with 10 being the most energy-efficient. Registered homeowners have two options to join the program:

- **Option 1**: Identify a TVA Quality Contractor Network member and begin energy efficiency improvements right away. The QCN member will discuss options, rebates and program details with the homeowner.
- Option 2: Request an eScore evaluation to determine how to make a home more energy efficient. A professional energy advisor will provide a list of recommended improvements. Then, the homeowner selects a QCN member to begin the desired improvements.

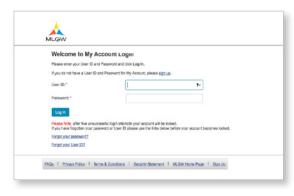
The eScore evaluation includes a detailed eScore report that contains:

- An eScore card that ranks the home from 1 10
- A customized list of energy-efficiency upgrades that can be made over time to achieve a rating of 10
- A list of rebates for all qualified energy-efficiency upgrades
- Photos of evaluated areas
- Instant-saving measures installed at the time of the home evaluation

For additional information, program details and restrictions or to register, visit **2escore.com** or call 1-855-2eScore (237-2673).

My Account – Residential

In an average month, nearly one-third of MLGW customers log in to our My Account portal to see information about their bills, usage, payments and more. July 2017 set a record with more than 133,000 residential users accessing the site to better understand their energy and water use, especially the impact of hot humid weather! Customers visited My Account more than 1.3 million times in 2017, viewing more than 14 million pages of content to



analyze bill changes, see bill history, view smart meter data and learn about energy-saving opportunities for their homes. My Account also provides the ability to view bills, pay bills electronically and enroll in paperless eBilling, which reduces clutter and saves on paper and postage. Among My Account users, more than 1,478 qualified in 2017 to receive a free TVA energy kit, including common household items to start saving energy immediately.

To qualify, log in, click "My Home Energy Advisor" and complete at least one category in the Energy Profile. Since this promotion began in 2008, nearly **39,000** residential customers have received free energy kits as well as customized recommendations and the ability to track their savings goals. Considering the energy-saving potential of contents in each kit, that's a combined annual savings of 2.3 million kilowatt-hours (kWh).

Smart meters

Back in 2015, the MLGW Board of Commissioners and the Memphis City Council approved a contract for MLGW to install smart meters at homes and facilities across Shelby County. The project, which has a completion goal of 2020, includes one million electric, gas and water smart meters as well as a telecommunications network.



At the closing of this publication, approximately **708,608 smart meters** have been installed, which includes **347,393** electric, **194,927** gas and **166,288** water. MLGW has continued to implement programming changes to import remote meter readings into its billing system, as well as receive and respond to a variety of meter alerts—including tilt/tamper alarms, water leak alerts, outage alerts and voltage alerts. This two-way communication with utility meters is what makes them "smart," enabling MLGW to monitor the meters' operational status as well as collect consumption information on a daily basis.

Project highlights:

- Excellent remote meter reading results mean customers can keep gates locked and pets safely outdoors on meter reading day.
- Customers with smart meters can access previous electricity, gas
 and water usage online through My Account. Customers can review
 the data and recall what activities occurred or what appliances and
 equipment may have operated to see the impact and to identify
 opportunities to save.
- Electric smart meters have voltage sensors to alert MLGW to potential problems before they may be apparent to customers.
- Electric smart meters have sensors to determine if the meter has been removed or tampered with, enabling MLGW to investigate utility theft much faster and to remotely disconnect electric service so thieves cannot illegally reconnect. As a result, utility theft has decreased in areas where smart meters have been installed.
- Water smart meters feature leak detection capability, enabling MLGW to notify customers of emerging problems. Approximately one-third of water smart meters have identified potential leaks thus far, giving customers the opportunity to save on water and sewer costs after making repairs.
- MLGW

 My Account

 Utility Bill

 My Outage

 Text Alerts Enrollment

 Payment Arrangements

 Plus 1

 Share the Pennies

 Payment Locations

 Updates

 Outage Map

 News
- Less than 4% of customers in phase 1 smart meter zones opted out, meaning that most customers look forward to the benefits of smart meters.
- Since 2016, customers with smart meters have saved more than \$3.5 million on connection and reconnection fees.

For more information, visit mlgw.com/smartgrid.

Conservation for business

MLGW is a leader in the community, and as such, we set an example by being smart about energy usage. We encourage other organizations to follow our lead, by providing and promoting a number of programs designed to incentivize conservation, energy efficiency and sustainable practices.

TVA Energy Right Solutions for Business/Industry

Businesses and organizations planning to make energy efficiency upgrades at existing facilities can qualify for incentives through the Energy Right Solutions for Business/Industry programs. TVA helps businesses lower operating costs by providing incentives to encourage the selection of higher-efficiency equipment. Incentives are available for qualified lighting, heating, cooling and business equipment.

energyright.com

In 2017, there were 183 projects undertaken by MLGW customers, earning \$1.76 million in incentives. These local energy efficiency upgrades are projected to save 25,273,633 kilowatt-hours (kWh) of electricity—or enough electricity to meet the needs of 1,685 average local households—and reduce 3,105





kilowatts (**kW**) of peak electric load. These consumption and load savings provide value to TVA and MLGW in terms of avoided generation costs and reduced system demand during peak periods, thereby helping keep electric rates low.

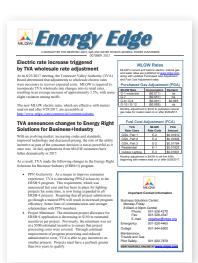
My Account – Business

Businesses and organizations can register and access My Account at **mlgw.com** to view information about their MLGW bills. Up to 24 months of billing history, including consumption and costs, can be viewed, graphed and downloaded. In addition, small to mid-size businesses have access to bill analysis tools to identify factors that caused bills to change. Each month, an average of 4,850 unique users log in to view their commercial account information. In 2017, nearly **154,000 user** sessions were recorded among businesses and organizations, who

viewed more than **1.2 million pages** of content. One of the main attractions for business customers is the ability to download usage and cost information, which eliminates the need to enter data manually and the clutter of paper bills.

Energy Edge

Businesses and organizations interested in learning about MLGW programs, incentives, rates and other utility-related topics can subscribe to Energy Edge, our electronic newsletter. Customers can visit mlgw.com/energyedge to read current and past issues. Subscribe by emailing MLGWBSC@mlgw.org to receive an email alert when each issue is posted online.



TVA EnerNOC demand response

Each month, MLGW records an electric system peak based on simultaneous electricity use among our 400,000-plus customers. These system peaks can add hundreds of thousands—sometimes, millions—of dollars in demand charges to MLGW's wholesale electricity costs, which are then passed to customers through the electric rates, even if the peak lasts just a few minutes.

Likewise, TVA sets a peak based on the collective electricity use of all the energy users in the region. These maximum levels are important because TVA must supply enough electricity to meet the system peak, no matter how high it is or how briefly it lasts. TVA can meet that peak by operating reserve power plants,



buying supplemental electricity at market prices and/or building new power plants. Each of these options has a significant cost, so TVA bills utilities for peak demand to encourage utilities—and their customers—to help control that peak. By controlling the peak, everyone helps control power costs.

The TVA-EnerNOC Demand Response program is a fourth option to help control system peaks. The program recruits and pays businesses and organizations based on their ability and willingness to reduce electric use during requested periods. Each participant receives a free demand response audit to identify potential actions, communications to provide real-time electric load details and access to a website for tracking electric load. Participants are paid quarterly based on their agreed-to capacity, whether or not an event is called. They are also paid for each kilowatt of electric load they reduce during demand response events called by TVA.

mlgw.com/EnerNOC

2017 highlights:

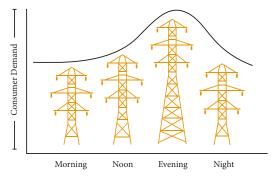
- More than **200 locations** are enrolled in the program, including manufacturers, retailers, churches and public schools.
- These locations represent 16.2 MW of demand reduction—or 0.5 percent of MLGW's total system peak—which shows that the actions of individual businesses can have a positive effect on the greater community.
- Six demand response events were called, representing a total of 21 hours of requested load control. Sixty-six percent of events were called for mid-afternoon to early evening hours in warm months, when both MLGW and TVA systems traditionally reach peaks based on simultaneous customer use of electricity. The remainder of events were called in the winter hours of 5 a.m. to 9 a.m., when TVA's system peaks due to the high level of electric heating across the Tennessee Valley.

Participants earned \$457,429 in collective payments for their 2017 performance. Since the program began in 2009, participants have earned more than \$4 million for their demand response activities to help lower system use and costs for all customers.

Reducing the peak, saving energy

MLGW's electric system reaches its peak in the mid-afternoon and early evening hours, all year-round. TVA's system has two distinct peaks, which vary by season. In winter, TVA peaks between 4 a.m. and 10 a.m. In summer, between 1 p.m. and 7 p.m. All customers can help reduce the system peak through two types of activities: conservation and load shifting.

Conservation includes eliminating energy waste during peak hours through simple steps, such as turning off computers and office lights before leaving work and adjusting residential thermostats to the most efficient settings when you are away. Each kilowatt-hour of electricity you eliminate saves on **your** MLGW bill and helps reduce the **community's** total system peak.



MLGW's electric system reaches its peak in the mid-afternoon and early evening hours, all year-round.

Load shifting includes delaying the time at which you perform energy-intensive activities until after peak hours have passed. Examples include using the delay setting on your dishwasher instead of starting the appliance immediately after dinner, or waiting until after 7 p.m. to run the clothes dryer on Summer weeknights. The same activities are performed with the same outcomes—clean dishes and dry clothes—but during hours when TVA's electricity generation costs are lower. For more ideas, visit mlgw.com/peakalerts.



Renewable generation

MLGW promotes and facilitates several programs to encourage customers – both commercial and residential – to explore alternative, renewable energy sources. Although traditional energy sources currently remain the predominant methods of supplying power, advancing technology continues to make alternative options increasingly affordable and efficient.

TVA Green Power Switch

Green Power Switch enables customers to support renewable power generation without spending money to install generation at their homes and businesses. Whether you have a shady lot, rent or simply don't wish to make a big investment, Green Power Switch is a great alternative! For as little as \$4 per month, you can make the "switch" and offset a portion of your electricity use with clean, green power.



In 2017, **1,262** households and businesses (including MLGW's Administration Building) participated in Green Power Switch. These customers sponsored **3,863** blocks of green power per month, which equals **6.95** million **kWh** of generation—enough to meet the annual electricity needs of **463** average Shelby County **households**. The environmental impact of this commitment to renewable generation is equivalent to: recycling **29** million aluminum cans, or planting **1,932** acres of trees, or recycling **1,706** tons of newspaper, or removing **644** cars from the roads for a full year.

In scientific terms, MLGW's Green Power Switch customers were responsible for avoided generation emissions equal to: **5,202 ton**s of carbon dioxide, **35 ton**s of nitrogen oxides and **4.7 tons** of sulfur dioxide each year.

mlgw.com/greenpower

The following businesses participate in Green Power Switch and are recognized on MLGW's and TVA's websites for their commitment to renewable power:

- ANF Architects
- Apple
- Cloverleaf Animal Clinic
- EnSafe Inc.
- GG Lutherie
- Haizlip Firm
- Kele, Inc.
- Memphis Light, Gas and Water
- Midtown Yoga

- Rhodes College
- River Inn at Harbor Town Landing
- Shelby Farms Park Conservancy
- State of Tennessee Department of Environment and Conservation (T.O. Fuller and Shelby Forest parks)
- Superior Carriers
- The Daily News
- Village at Cypresswood
- Westmoreland Cabinetry

Want to see the impact you could make with Green Power Switch? Check out the Green Power Switch Calculator at tva.com/Energy/Renewable-Energy-Solutions/Green-Power-Switch/GPS-for-Home/Green-Power-Purchase-Calculator.

Distributed generation

Customer interest in renewable power generation continues, spurred by falling prices for solar generation equipment, a 30 percent federal tax credit and the emergence of corporate sustainability goals.

MLGW offers the following options for customers wishing to install distributed generation:

• Green Power Providers enables customers to install small-scale generation at their homes and businesses, selling 100 percent of the output to TVA through 20-year agreements with generation incentives appearing on their MLGW bills. Eligible system sizes range from 500 watts (W) to 50 kilowatts (kW).



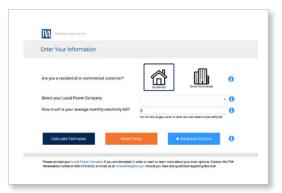
- MLGW has **94 customers** enrolled in Green Power Providers as of Dec. 31, 2017. Find total annual generation data from local Green Power Providers at mlgw.com/images/content/files/pdf/SolarGraphic.pdf
- Dispersed Power Production enables customers to install onsite renewable generation and sell all or a part of their output to TVA at short-term avoided costs. TVA pays the incentives directly.
- Self-Generation enables customers to generate power for use at their homes or businesses. Any power generation in excess of instantaneous consumption flows to the MLGW grid without financial benefit, so it's vital to size the generation capacity carefully. Self-Generation customers may opt to sell any excess power to TVA via the Dispersed Power Production program, described above.
- As of Dec. 31, 2017, there are four businesses generating a portion of their own power and are interconnected to MLGW's electric grid.
- Distributed Solar Solutions, a pilot launched by TVA in 2016, enables utilities such as MLGW to work with developers and/or customers to submit proposals for installation of mid-size solar generation projects which sell 100 percent of the output to TVA. Eligible projects must provide distinct benefits that meet TVA program criteria for implementing new technology or addressing unmet market needs. MLGW worked with NIKE to submit a DSS application, which was accepted by TVA in 2017. NIKE will install a 2 MW solar array at its North American Logistics Campus in Frayser. The system is expected to begin generating solar power in 2018-2019. Learn more: mlgw.com/news/tva-nike-solar-project-may-2017.
- Negotiated Unsolicited Proposals enable customers and/ or developers to submit proposals for large, utility-scale (>20 MW) generation projects, which would sell 100 percent of the output to TVA at long-term avoided costs.

Green definitions:

Distributed generation – refers to decentralized power generation sites.

Green power – also called "renewable generation," is electricity created from sustainable resources such as the sun, wind and biomass. Green power produces little to no emissions, thereby improving air quality while also reducing dependency on traditional fuel sources such as coal and natural gas.

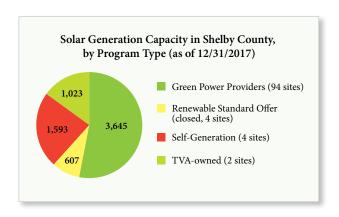
Because MLGW has an all requirements contract with TVA, we are prohibited from buying electricity from any other source. As a result, MLGW does not offer "**net metering**." Should customers wish to generate power for use onsite and sell the excess to TVA, then Self-Generation with Dispersed Power Production is the applicable option.



To help homeowners and small businesses estimate cost and payback for installing a solar array, TVA worked with MLGW and other utilities in the region to launch a Solar Calculator in 2017. Using utility-specific rates and Tennessee Valley weather data, the calculator provides more accurate estimates than national solar calculators—and is a great way to fact-check installer information on output, costs and payback periods. Find the Solar Calculator at: edt.tva.gov/

Or link from **mlgw.com/greenpower**.

MLGW worked with TVA to locate a new \$1.3 million, 997 kW solar array at the site of the TVA Allen Combined Cycle Gas Plant on President's Island. (Watch time-lapse construction video here: tva.gov/Energy/Allen-Site-Reflects-TVAs-Changing-Portfolio.) While TVA will use the power in its overall power supply, MLGW is purchasing the Renewable Energy Certificates (RECs), also known as the green attributes, from TVA for sale to interested businesses and organizations who can then claim a proportionate amount of green energy use. This first-of-its-kind project meets a growing need among companies with sustainability goals.





Responsible energy in construction

Whether building a new home or constructing a large industrial facility, customers can have a positive impact on the environment while saving themselves money in the long run. To plan for efficiency and sustainability from the beginning is the best way to be energy smart.

EcoBUILD

EcoBUILD is a voluntary green-building program that includes a set of construction standards that exceed the 2003 International Energy



Conservation Code and common building practices. This MLGW program was created to increase energy and environmental awareness through the promotion and use of energy-efficient and environmentally-friendly technology, materials and techniques for new home construction. Many advances in the home-building industry can help customers minimize wasted energy and save money on their MLGW utility bill.

By following the EcoBUILD guidelines, participating builders can construct homes that use up to **30 percent less energy** while providing greater customer comfort and other environmental benefits, such as reducing the home's carbon footprint.

MLGW inspects EcoBUILD homes twice. The first inspection takes place during construction, before the drywall is installed. The second inspection is performed after building completion to ensure compliance with all EcoBUILD standards.

For more information, visit **mlgw.com/ecobuild**, or to apply for EcoBuild certification, call 901-528-4887.

Benefits to EcoBUILD homeowners:

- Energy savings of 30 percent, compared to standard construction practices
- More comfortable indoor temperatures with less need for thermostat adjustments
- Better indoor air quality with fewer allergens from building materials and air infiltration
- Construction techniques that make your home different from others in the neighborhood, providing a higher resale value in the future
- Personal satisfaction from investment and involvement in a green community
- A personalized EcoBUILD Homeowner's Manual, which serves as proof of certification and outlines all the unique energy and environmental features of your new home

USGBC/MLGW LEED incentive

The U.S. Green Building Council-Tennessee Chapter uses funds from an MLGW grant to encourage the adoption of energy-efficient and environmentally responsible construction practices in commercial facilities in Shelby County. To apply for these funds, qualified project teams must submit an application, the project's final Leadership in Energy and Environmental Design (LEED) scorecard and detailed review, and an educational document highlighting the project's sustainable attributes to the USGBC Tennessee Chapter. Learn more at **usgbc.org/usgbc-tennessee**.

While none were awarded in 2017, six projects have been recognized to date. Read about the green building aspects of previously honored projects at **mlgw.com/leedincentive**.

Internal responsibility and sustainability

By focusing on internal operations, MLGW is implementing projects that control operating costs, thereby helping to delay or minimize the need for utility rate increases. That's why energy management and resource conservation opportunities within MLGW abound. In addition, energy management enables MLGW to "lead by example," showing customers that everyone has the potential to reduce energy waste.

MLGW alternative fuel vehicles

MLGW's owns and operates a diverse fleet of alternative fuel vehicles for service use in service calls, field inspections and project deployments. The portfolio includes the following:

- Flex-fuel: Over **200** on-road light duty vehicles which utilize unleaded gasoline or ethanol (E-85) fuel.
- CNG: Thirty-six on-road light duty F-150, F-1500 series trucks and 56 on-road heavy duty F-2500, F350 series trucks.
- Hybrid: 24 (Toyota Prius, Ford Escape & Fusion) vehicles which are powered by unleaded gasoline and lithium batteries.
- Plug-In electric: **Four** Nissan Leaf vehicles powered 100 percent by lithium ion batteries which are charged by electricity from Level 2 EV charging stations. MLGW has five charging site locations: Admin Bldg., Beale St. Landing Garage (accessible to the public), Electric & Systems Ops., North Service Center, and Netters Business Operations Center.
- Plug-In hybrid electric: One Odyne on-road heavy duty bucket truck used in electric line repair and installations.

MLGW also promotes electric vehicle technologies via its corporate Plug-in Memphis website. Since 2006, MLGW has been actively involved with Plug-In Partners for the mass deployment of plug-in electric and hybrid electric vehicles. Through electric vehicle purchases and a growing fuel infrastructure, the company continues to support alternative fuel transportation.





Energy management within MLGW

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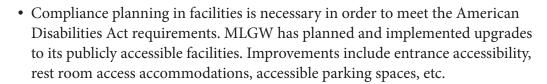
Tracking, master planning, energy audits, demand response

Tracking: Data from over 100 electric, gas and water meters that serve MLGW facilities are tracked in order to identify the impact of facility upgrades, trends in usage, operations adjustments and account anomalies.

Planning: Long range planning provides a framework for managing existing resources and expanding infrastructure in a way that allows MLGW to make informed and cost-effective decisions. MLGW actively plans for the anticipated needs of its physical environment through the following:

- The MLGW Facilities Master Plan is developed on an annual basis in order to provide a roadmap of capital improvements to MLGW's facilities. Based on a 10-year horizon, the plan details existing facilities, new facility developments and equipment upgrade installations in the 1.9 million-plus square feet of buildings.
- The Equipment Replacement Database tracks envelope, mechanical/plumbing, electrical, new building additions and structural projects completed in each facility. The database aids in the planning process in identifying when upgrades are needed for equipment and space needs.
- The Facility Seismic Mitigation planning is done in the areas of monitoring, screening, strengthening, and containment. Facilities are monitored by seismograph equipment for earthquake events. MLGW's buildings have been screened and inventoried for potential earthquake





Energy audits: Building tune-ups are done to identify low-hanging fruit opportunities such as programming building automation controls to reduce energy during times facilities are vacant. Cost effective technologies have been identified for application such as controls, LED lighting deployments in facilities, efficient boiler equipment upgrades, variable air volume, on-demand ventilation, etc.





Demand response programs are popular among utilities and their customers. Since 2011, MLGW has participated in TVA's demand response program administrated by EnerNOC, Inc. To date, seven MLGW facilities are enrolled into the program including: David F.

Hansen Administration, James L. Netters Business Operations Center, Joyce M. Blackmon MLGW University, Larry Papasan Electric and Systems Operations, North Service Center #8, the Allen and Shaw water pumping stations. As of 2017, MLGW has received \$129,147 in energy and capacity payments from the program.

Energy efficiency equipment upgrade and operations

Sustainable energy efficient upgrades made through facility improvements include the following:

MLGW headquarters - David F. Hansen Administration Building:

2017 planned improvements:

- Elevator system modernization
- Window weatherization (gasket replacements)
- Chilled water pump replacements

Previous improvements:

Envelope - Limestone facade rehabilitation; Elevator Upgrades; T-8 lighting retrofit; Chiller and cooling tower retrofit/rebuild; Generator Upgrade.



James L. Netters Business Operations Center:

2017 planned improvements:

- Boiler replacement
- ADA compliance upgrades

Previous improvements:

Protective window film; Elevator controls to reduce lighting and fan energy usage when the cab is not in use; Wireless occupancy controls on lighting; Photocell installation to turn off parking lot and exterior building lighting; Irrigation system upgrade (installation of moisture sensors to reduce water usage)

Service Centers:

2017 planned improvements:

- Emergency generator upgrades
- HVAC upgrades

Previous improvements

Roof replacements; T-8 and T-5 lighting retrofits with occupancy sensors; boiler.



Community Offices:

2017 planned improvements:

- Air handling unit replacement (HVAC upgrades)
- Garage LED lighting upgrade (Beale Street Landing Garage)
- Elevator system modernization
- Chilled water pump replacements

Previous improvements

Remodeling upgrades and ADA compliance; Roof replacements; T-8 lighting retrofits with occupancy sensors; HVAC upgrades (including BAS—North office)



Larry Papasan Electric & Systems Operations:

2017 planned improvements:

- Boiler replacement
- Uninterrupted Power Supply (UPS) and Generator upgrades

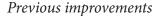
Previous improvements

Roof replacements; T-8 and T-5 lighting retrofits; HVAC upgrades (including BAS).

Substations:

2017 planned improvements:

- Roof replacements (continuation)
- HVAC upgrades (continuation)



Roof upgrades; replaced inefficient analog thermostats with programmable models with lockable capability; Energy efficient A/C installations.

Water Pumping Stations:

2017 planned improvements:

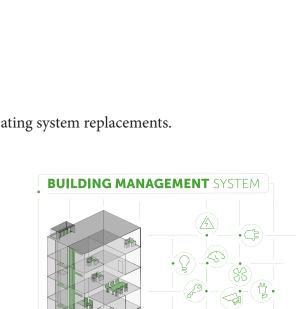
- T-8 lighting retrofit with automation (continuation)
- Roof replacements (continuation)
- Heating system replacements (continuation)
- Elevator modernization

Previous improvements

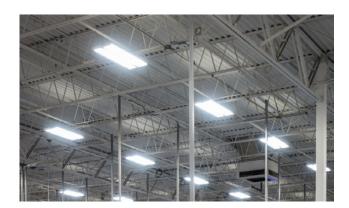
Roof upgrades; Lighting retrofits with occupancy sensors; Heating system replacements.

Building automation and insight

Insight into how facilities use energy can help identify efficiency opportunities. At MLGW, control systems have been installed to automate heating, ventilation and air conditioning systems in order to identify and resolve operations issues and reduce energy usage. Building automated systems are installed at the following buildings: Administration Building, Netters Business Operations Center, North Service Center, Building #8, Electric & Systems Operations, MLGW University, Water Laboratory, North Community Office (Air Handlers), and Beale Street Landing.



MLGW also utilizes services to view the metering data graphically and to gain insight into how and when facilities use energy. Automated Energy and EnerNOC help MLGW to identify operational efficiencies related to energy usage in the buildings.



Energy Star partner

MLGW has been an Energy Star partner since 2004, and provides information to employees and customers about energy-efficient products and resources via mlgw.com. There, customers can obtain up-to-date information about efficient home building, energy saving equipment and appliances, facility energy performance and resource conservation tools.



MLGW hosts and participates in many community outreach events held during the year throughout Memphis and Shelby County. The company promotes its Energy Star partnership by distributing Energy Star brochures to customers and promoting energy efficiency on the company's Energy Star corporate website. These venues allow the company to lead by example in educating the community on how to wisely use its resources.

Recycling and reuse

- Paper: In 2017, MLGW's employees recycled 303,100 pounds of paper.
- The emissions equivalencies of recycling paper at the company produced an avoided **890** metric tons of CO2e. This is equivalent to the avoided greenhouse gas emitted by 188 passenger vehicles or the avoided carbon dioxide (CO2) emitted by the usage of **100,146** gallons of gasoline by transportation or equipment.
- Cell phone and rechargeable batteries: **274** pounds were recycled in 2017.
- Printer ink and toner cartridges: 1,662 pounds were reused and recycled in 2017. Employees can recycle cartridges at most facilities. Guy Brown is MLGW's office supply vendor and cartridge recycler.

REDUCE MATERIALS EXCHANGE

MLGW materials exchange

Back in 2015, MLGW initiated an internal materials exchange program which promotes the beneficial reuse of material resources at MLGW. What one department might classify as surplus or obsolete may be reusable in another

department. Notices of availability of office products, construction materials and project-related items in which employees can use in their daily work are posted in the company's Weekly Bulletin email. As of 2017, over **70** items were exchanged by departments which diverted **274** pounds of material away from the landfill into useful purposes.

Green & sustainable grounds (Erosion Control, Water Conservation, Sustainable Products)

Erosion control: MLGW maintains its grounds through care and sustainable practices. Erosion control prevents the development of ruts and washed-out areas on the grounds that are typically caused by precipitation, wind or vehicles. Eroded areas are refilled with reused soil, and silt fences are installed on banks or berms before trees are planted. These preventative measures insure that MLGW's properties are well maintained.

Sustainable plant material and maintenance practices: The plant material selected to array the grounds have low moisture requirements and in some cases are perennials which do not require replanting every year. Remaining green waste is recycled through a local mulch yard turning the green waste into compost or mulch.

Turf areas are planted with grasses that will thrive in this region such as Zoysia and Bermuda. Mowers used to groom the turf are equipped with mulching kits and blades that recycle turf and leaves back into the soil.

Integrated pest management practices are also used to treat plant material only when necessary. Pests are monitored and identified accurately, so that appropriate control decisions can be made in conjunction with action thresholds. MLGW also uses the newest and safest chemical technology.

Water conservation: In 2014, MLGW assessed the irrigation systems at the downtown headquarters, David F. Hansen Administration Building and the James L. Netters BOC. Smart sensors and controllers were installed on their irrigation systems. The new efficient systems schedule watering based on data downloaded from local weather stations. When precipitation is forecasted, the watering times are adjusted or delayed. As of 2017, both systems have saved **7,590,947** gallons of water. This savings is equivalent to the amount of water used (indoor and outdoor) by 52 average American homes in one year.

Sustainable products: MLGW uses recycled paper products to clean and stock its restroom and kitchen areas. Environment-friendly products are also used to remove ice from hardscape areas that are located on the company's grounds.

Employee awareness

MLGW educates employees on the importance of saving resources while at work and in their daily work tasks by promoting green campaigns such as: Fix Water Leaks Month (March), Earth Day (April), Energy Awareness Month (October) and America Recycles Day (November). Throughout the year, these initiatives provide tips and resources to employees on how to wisely use resources in MLGW's facilities. Additionally, resource conservation reminders are distributed to employees instructing them on how to help the company save energy during afterhours and holidays.



Diversity in business

Supplier Diversity

MLGW recognizes the power of diversity and the vast resource a diverse pool of suppliers/contractors provides businesses. The Supplier Diversity Program demonstrates the Division's intentional focus on creating opportunities for demographics that have been traditionally underrepresented in business. Its mission is to help foster economic parity within the Memphis and Shelby County community. The Supplier Diversity Program is designed to give maximum practical opportunities to certified businesses as a partner in the buyer-seller relationship with MLGW.



MLGW bases its diversity spending on independent certification that businesses are at least 51 percent owned,

controlled, operated and managed by a person or persons who represent one of the three business classifications outlined in the program definition.

The Supplier Diversity program reported its highest year-end spending in the 20-year history of the program with roughly \$75.4 million to minority, women and locally-owned small businesses (MWBE/LSBs) in 2017.

The program's spending breaks down to nearly \$22.8 million to locally-owned small businesses, \$10.9 million to women-owned business enterprises and \$42.6 million to minority-owned business enterprises.

mlgw.com/supplierdiversity

Proactive Procurement Conference

To make procurement as equitable as possible, especially for business owners who might not have as much experience with the bidding process, MLGW hosts an annual Proactive Procurement Conference.

The Division invites representatives of local small businesses and minority- and women-owned enterprises to attend and learn about business opportunities with the utility. Business owners have an opportunity to meet one-one with MLGW project managers, end users and procurement professionals.

By facilitating direct interaction with MLGW decision-makers, the Proactive Procurement conference allows MWBE/LSBs to understand the Division's business needs and compete for a fair share of procurement spending.

Sheltered Market program

Supporting business owners within our region is essential to promoting a healthy local economy. MLGW established its Sheltered Market program in 2014 to provide opportunities for local organizations to compete for business on a more level playing field. This race- and gender-neutral program shelters any purchase under \$100,000 by offering three or more certified local small businesses the opportunity to bid on products or services.

A portion of the total spend for the year, the Sheltered Market program marked expenditures for \$12.3 million in 2017 and continues to provide growth for local businesses.

Community education

At MLGW, we offer a number of programs to support students, teachers and the community at large in being safe and successful because we believe that a sound educational system is the foundation for a healthy community. For more information about these programs, call 901-528-4188.

Community conservation days

Our Residential Services department hosts conservation education events throughout Memphis and Shelby County at MLGW Community Offices, libraries, museums, colleges and community centers. MLGW employees provide attendees with energy efficiency and conservation tips.

Attendees also receive free energy efficiency kits containing a CFL bulb, outlet switch covers and a faucet aerator. Customers can potentially save up to 58 kWh per year if they install all of these items.

38 conservation days in 2017

5,707 energy kits distributed

331,000 kWh total potential electricity savings for energy kit recipients

EnergySmart Memphis

MLGW, in partnership with TVA and the City of Memphis and Shelby County governments, provides free, 90-minute EnergySmart Memphis workshops. Trainers discuss common household energy problems, lead hands-on demonstrations of weatherization measures and review basic strategies to manage energy costs.



Attendees receive a large EnergySmart Memphis kit containing compact fluorescent bulbs, a caulk gun, caulk, plastic window covering, gasket insulators and other energy-saving items (a \$45 value). Customers can potentially save up to 116 kWh per year if they install all of the items in the kit.

13 EnergySmart workshops in 2017

448 energy kits distributed

Over 74,000 kWh potential electricity savings

Gas safety days

Twice annually, Gas Engineering employees volunteer to visit local Lowe's Home Improvement stores to educate the public about natural gas safety, particularly working safely during digging, excavating, landscaping, and gardening and construction projects. Residents and contractors are informed why it's important to "Call Before You Dig" and provided information about Tennessee One Call and the national 811 safe digging hotline.



Neighborhood Leaders Conference

Leaders learn about neighborhood resources

Over **130** attendees participated in the annual MLGW Neighborhood Leaders Conference held on Friday, August 11, 2017 at the MLGW Joyce M. Blackmon Training Center. The year's theme was "Neighborhood Resources."

The day started with a plenary session where Paul Young, Director of the City of Memphis Division of Housing and Community Development spoke. Over lunch, attendees heard from then MLGW President Jerry Collins Jr. and Alonzo Weaver, MLGW Vice-President of Engineering and Operations. Weaver discussed the restoration process for the May "Tom Lee" storm and MLGW's continuing efforts to decrease the impact of storms.



Attendees had the opportunity to learn about resources available for home weatherization, prescription assistance, transportation and food, in addition to hearing from journalists Kontji Anthony (WMC-TV) and David Waters (Commercial Appeal) about the Media as a Resource.

The day concluded with Lt. Joseph Patty II of the Memphis Police Department providing an overview of installing security cameras in neighborhoods. One attendee left saying, "This was my first conference. Very informative! We should have more workshops for neighborhood representatives to attend. I can't wait to get with my neighborhood association."

A-Blazing Race

Solar-made cars roll across the finish line in 2017 A-Blazing Race

Students raced their solar cars to victory recently during the 2017 A-Blazing Race. The race was a part of E-Day or Engineering Day at the University of Memphis' Herff College of Engineering.

In 2017, we had the participation of **32** schools representing public, private and charter. The goal of the race is to engage youth in grades six through twelve in the design and construction of model solar cars. MLGW provided a kit containing a solar panel, battery holder and motor to build their solar powered vehicle. The model cars compete in a race on a 20-meter course to determine which vehicle



completes the course in the shortest possible time using available power.

The Maxine Smith STEAM Academy took first place for speed among middle school contestants. Memphis Business Academy finished first among high school entries.

Other winners included Kate Bond Middle and Southwind High for best notebook and Elmore Park Middle and Lausanne Collegiate for best design.

Approximately 89 community events

MLGW participates in many community events in the Memphis and Shelby County area to provide information about our services, utility safety, energy conservation, careers and more. Events include the Southern Women's Show, Home Show of the Mid-South, Germantown Senior Expo, Bartlett Business Expo, Africa in April, A Day of Merrymaking, Riverwood Farms Homeowners Association Festival, Westwood Awareness Festival, Latino Memphis Festival, Delta Fair and many others.

Our Speakers' Bureau also provides volunteer presenters for school career days, community groups, churches and civic organizations. Visit **mlgw.com/speaker** to submit the speaker request form.

18 One-on-One Public Education Program Events

7 Water Tours

8 M.I.N.E. (MLGW in Neighbors Everywhere)/Green Families Events

Annual MLGW art poster contest

MLGW's energy awareness poster contest (held each October) is designed to give students throughout Shelby County the opportunity to learn about energy safety and/or conservation. The 2017 contest focused on Natural Gas Safety Awareness and each student was asked to depict their interpretation of gas safety. The winners and their art teachers were each awarded \$150 gift cards to The Art Center.

Approximately 45 student submissions from 17 schools in 2017

PreK - 2nd Grade Winner

Om Iyer - 2^{nd} Grader, Grahamwood Elementary School Teacher - Livia Carboni Title - "The Natural Gas Safety Squad"

3rd - 5th Grade Winner

Asher Kovarik - 4th Grader, Peabody Elementary School Teacher - Shelley Momany Title - "Call Before You Dig"

6th - 8th Grade Winner

Noah Broadway - 8th Grader, Snowden School Teacher - Hal Harmon Title - "Untitled"

9th - 12th Grade Winner

Yafuela Johnson - 10th Grader, Raleigh Egypt High School Teacher - Sharri Newberry Title - "Blue Light"



Terminator Truck

Now that The Terminator has his very own ride, his educational activities have increased! The fun and colorful bucket truck helps promote safe energy use at home to students. Don't be surprised if you see the Terminator show up with his flashy ride at a school or community event near you!

At the end of 2017, the restored and improved Terminator Truck debuted as an important addition to Christmas community parades in Whitehaven, Germantown and downtown Memphis. Employee volunteers from MLGW walked close



to the truck and distributed gifts and candy to parade attendees while the Terminators drove the unique vehicle and shared in the excitement with observers.

- 31 The Terminator Events
- 3 Holiday Parades

Community assistance

Since many in our community face challenges that can make meeting basic needs difficult, MLGW provides several programs to assist those who may need a helping hand. Whether one-time events or chronic financial troubles, we are determined to help community members overcome their obstacles.

Play it Cool & Power of Warmth

Each year, MLGW teams up with the Neighborhood Christian Center to provide heating and cooling appliances to low-income seniors and disabled residents of Shelby County.

200 window A/C units 100 space heaters 100 electric blankets



On Track

MLGW's payment program provides energy conservation and financial guidance to customers who need help to get back "On Track" with their bills.



On Track is designed to help residential customers with limited incomes manage debt and pay off their bills over a period of time. The program focuses on education, financial management and social services.

mlgw.com/ontrack

599 customers enrolled in On Track

Plus-1

The Plus-1 program was created in 1982 and is a partnership between MIFA and MLGW to provide utility assistance for individuals and families experiencing a financial crisis. The most common reasons for assistance include medical crisis, loss of income, fire and theft. The Plus-1 program offers



one-time assistance and serves as a "stop-gap" measure to those in need. The program is not an ongoing source of assistance.

Customers can elect to add one dollar or more to their monthly bill to support families in need through the program.

\$411,164 raised for Plus-1 in 2017

Plus-1 assistance provided for 1,458

LipSync Plus

On Thursday, April 20, 2017 the replay of one of 2016's hits – LipSync Plus at the Hard Rock Café benefiting MIFA's Plus-1 program – featured some very talented but soundless lips competing for lip sync bragging rights. And an enthusiastic crowd kept the applause coming.

Among stiff competition, long-time Memphis radio DJ Stan "The Bell Ringer" Bell won the 2017 LipSync Plus as Grand Champion as well as Celebrity winner. About 100 supporters attended the fundraiser as seven contestants battled for the title and grand prize of two round-trip domestic tickets on Allegiant Airlines.



MLGW and MIFA also organized a silent auction to bring in much needed funds for the Plus-1 program which provides one-time utility assistance for families in crisis.

LipSync Plus 2017 raised \$14,516

FIRST exhibit

Invasion of the robotic snatchers afoot at MLGW

MLGW's Junior Engineer/Professional Engineer program (JEPE) and TVA hosted again in 2017 a FIRST (For Inspiration and Recognition of Science and Technology) exhibit at MLGW's Admin. Bldg. Teams from several schools showcased their robotic Lego creations. FIRST participation encourages students to pursue education and careers in STEM (Science, Technology, Engineering and Mathematics) related fields and inspires them to become leaders and innovators.

About **130** students unleashed their robotic creations. The robots walked, crawled, carried loads or threw objects around MLGW's Administration Building lobby.

It was all a part of a robotics showcase aimed at encouraging the next generation of public power pros. MLGW's JEPE program and TVA partnered with schools to promote STEM education.

As a part of the showcase, students and their teachers and sponsors answered questions about their contraptions.

After the exhibition, they attended lunch and a "Girl Power" networking event. Women in the engineering field talked to the students about working in the STEM world. The session was intended to encourage girls to explore STEM careers and help boys understand the value of a diverse professional environment.

Homeschoolers and teams from St. Benedict at Auburndale High, Bartlett High, Southwind High, White Station High, Havenview Middle, Millington Middle, Springdale Elementary and St. Francis of Assisi participated.



In 2017, the MLGW Board of Commissioners and the Memphis City Council approved changes to the Share the Pennies program from an opt-in to an opt-out program, a change to take effect Jan. 1, 2018, which means that at that time, customers started being enrolled automatically.

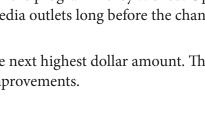


However, starting in July of 2017, customers were able to opt out of the program if they wished. Opt out methods were explained extensively through several print and electronic media outlets long before the change of the program was implemented.

Share the Pennies allows customers to round their utility bill to the next highest dollar amount. The program provides grants to low-income homeowners for weatherization improvements.

Eligible repairs include:

- Attic insulation and attic stair door replacement
- Broken window replacement
- Exterior door replacement (where there is a penetration)
- Repair of gas and water leaks
- Exterior wall penetrations



- Interior floor penetrations (homes not on a slab)
- HVAC duct repair or replacement
- HVAC repair/maintenance
- Water heater repair or replacement
- Weather stripping around doors or windows

Eligibility guidelines:

- Must be 18 years or older to apply
- Must be a homeowner who lives in Shelby County
- Home must be listed in your name
- Must live in the home to be repaired
- Must be current on previous year's City and County property taxes for the home
- Must meet income guidelines based on Federal Poverty levels
- MLGW utility account must be in your name, with no diversion of services within the last seven years and any bad debt must have been paid in full

Visit **mifa.org/sharethepennies** for complete list of eligible repairs, program eligibility guidelines and application information.

Collectively, that small amount can add up to big changes in our community. If you have questions, visit our webpage or contact sharethepennies@mlgw.org.

mlgw.com/sharethepennies

Rental housing energy efficiency ordinance

Memphis Housing Code section 48-133, adopted in 2009, allows MLGW to inspect rental properties that have been identified for excessive energy usage. MLGW Residential Service Technicians look for a number of energy-wasting issues such as holes in exterior walls and roofs, leaks, insulation problems and non-functional heating or cooling units. MLGW will ensure that minimum energy-efficiency standards are met and if necessary, take the landlord to Environmental Court if the issues are not addressed within a reasonable amount of time. Since inception, all landlords have complied before issues escalated to Environmental Court. For more information or to schedule a Rental Ordinance inspection, call 901-322-5757.



45 rental properties inspected in 2017

Volunteering and giving

Our involvement in the community is an ongoing commitment. MLGW employees donated or raised money, supplies and gifts this year for organizations such as United Way, the Mid-South Food Bank, St. Jude, the American Cancer Society, the Salvation Army and many more. The LipSync Plus event was again a success, raising money and awareness for our Plus-1 program in partnership with MIFA. MLGW employees volunteered to



represent our company in nearly **100** school and community events, educating and assisting our customers and their families. Perhaps more than any other accomplishment, our employees' dedication to going beyond their duties in order to change the lives of those around us is something of which we can all be proud.

Walking and riding

MLGW has an active group of employees who put their energy to good use, participating in walks and cycling events to raise money for several charities. In 2017, MLGW workers participated in the following:

- National Kidney Foundation Kidney Walk
- American Heart Association Mid-South Heart Walk
- American Diabetes Association Step-Out Walk
- Tour de Cure, benefiting the American Diabetes Association
- Tour for a Cure, benefiting the Juvenile Diabetes Research Foundation
- Tour de Peddler bike ride, benefiting The American Diabetes Association



- Ride for Life bike ride, benefiting the Mid-South Organ Transplant Foundation
- Ride to Fight On, benefiting The West Clinics' cancer research
- Mid-South Heart Walk and Red Dress Dash, benefiting the American Heart Association
- Bluff City Blues 100 bike ride, benefiting the Memphis Hightailers Foundation Advocacy and Education programs
- St. Jude Ride 24-hour relay, benefiting St. Jude Children's Research Hospital
- American Cancer Society's Making Strides Against Breast Cancer Walk

Operation Feed

The Mission of the Mid-South Food Bank is to fight hunger through the efficient collection and distribution of wholesome food, and through education and advocacy. Each year, departments across MLGW work internally to raise money to support this important mission. In 2017, MLGW raised over \$37,388, the highest we have raised in a year thus far, and was recognized again as the second-highest-giving organization with 1,000 to 4,999 employees.

\$37,388 raised in 2016 for the Mid-South Food Bank

Additional events

- Distributed more than 9,750 energy efficiency kits to community residents
- Fifth Annual Otis L. Sanford "Bowl for HER" Bowl-A-Thon for Her Faith Ministries (benefiting the homeless, needy women and children)
- Bowling on the River Bowl-a-thon for Junior Achievement
- Salvation Army bell ringers raised \$634 in December 2017
- Salvation Army Angels: 100 gifts for children and seniors
- School uniform drive for our Adopt-A-School Hamilton High
- ...and more!

United Way

MLGW employees organize and take part in numerous activities throughout the year to raise funds for United Way of the Mid-South. Events in 2017 included the following:

- The MLGW United Way Golf Tournament: \$19,000
- Midday Music series, featuring MLGW employees playing music in the Administration Building lobby for "tips" to United Way
- Park Like an Executive, allowing employees to bid for a week of premium workplace parking
- MLGW and United Way charity fashion show

In 2017, \$612,324 was raised for United Way
In addition to fundraising and payroll contributions, MLGW employees volunteered in United
Way's Day of Caring, joining with other volunteers
to serve a number of local non-profits.



