

MLGW Green Initiatives

2010 Annual Report



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MLGW Green Initiatives 2010 Annual Report

Introduction

MLGW's second annual report on green initiatives outlines customer programs and internal activities designed to increase energy efficiency and environmental awareness, reduce energy waste, lower peak electric demand and improve air quality through fewer power generation emissions.

Green Initiatives fall into several categories:

- **Community:** Outreach activities that enable MLGW to promote messages, services and programs briefly to visitors at public sites and events.
- **Conservation, Energy Efficiency and Demand Response:**
 - **Conservation:** Behavior or action that results in less energy being consumed, often through no-cost or low-cost methods. Examples: adjusting thermostat setting; turning off electronics after use; closing exterior doors tightly.
 - **Energy Efficiency:** Purchase decision where the new item uses less energy than the item it replaced. Examples: replacing your air conditioner; buying a new refrigerator (but only if the old one is removed from the property); adding attic insulation.
 - **Demand Response**, also known as Load Shifting: Action that results in changing the time during which energy is consumed, often without changing the total amount of energy consumed. Examples: doing laundry on weekends instead of weekday afternoons; postponing dishwasher run time until after 8:00pm; participating in TVA demand response events triggered by periods of high electric use or high electric cost.
- **Education:** Activities that enable MLGW to educate customers, and future customers, regarding the efficient use of energy and water.
- **New Construction:** Activities that promote the adoption of green building practices so newly constructed homes and businesses use less energy and water, yielding a smaller environmental footprint.
- **Renewable Energy:** Electric generation from renewable resources, including solar, wind and biogas, that have little or no adverse environmental impact.
- **Self-Service:** Applications available at www.mlgw.com that enable customers to conduct business with MLGW at their convenience, 24/7.
- **MLGW Green Workplace:** Internal initiatives that help MLGW manage energy needs at facilities, reduce waste and utilize alternative fuel vehicles .

Many of these activities positively impact the local economy through increased household discretionary income, increased business profitability and increased business opportunities for companies that install energy-efficient equipment, perform building envelope upgrades and install renewable generation systems. Actions also will slow local peak electric demand, helping TVA control operating expenses and thereby controlling retail electric rates.

It is a positive sign that this report covers perhaps the broadest scope of customer programs and initiatives at any time in MLGW's history. With energy prices rising long-term and growing national and local focus on green issues, MLGW demonstrates the importance of green initiatives through its commitment to developing and offering customer solutions, while also implementing improvements at its own facilities to reduce operating costs. This report shows how MLGW, as both a utility and an end-use customer, is helping customers go green.

COMMUNITY

Community Conservation Days

During 2010, MLGW hosted monthly events at libraries, museums, colleges, community centers and MLGW community offices where customers were given free energy conservation kits and tips on saving energy. More than 13,000 conservation kits were distributed in 2010. Each kit contains a compact fluorescent light bulb, outlet switch covers and faucet aerator.

In 2011, the conservation days will be held in different locations around the county with a goal of reaching a greater number of customers in even more diverse locations.

Smallest User Neighborhood Challenge

MLGW collaborated with the Cooper-Young and Evergreen neighborhoods to submit an application for the Strengthening Neighborhoods Grant, sponsored by the University of Memphis and the Community Foundation of Greater Memphis. The Smallest User Challenge, which focused on energy reduction among households in the two neighborhoods, was among five local applications to receive grant funding.

Using 2008 as a baseline, MLGW collected and analyzed 2010 consumption data to identify savings. The winner for the contest was Cooper-Young, where residents on average saved \$21.94 in energy costs, compared to Evergreen (\$4.15 average savings). When comparing Cooper-Young to VECA, the “control neighborhood” where energy expenses actually rose, the net impact was an average \$54.94 savings per household.

U of M journalism department conducted research and focus groups on customer behavior and attitudes. WMC-TV provided several segments during the evening news to highlight steps residents could take to reduce usage and track the efforts of the competing households in the two neighborhoods. The program also was featured in *The Commercial Appeal*, *Memphis Flyer* and on MLGW’s Memphis Energized television broadcast.



CONSERVATION, ENERGY EFFICIENCY AND DEMAND RESPONSE

Commercial Efficiency Advice and Incentive Program

Interest in TVA’s new Commercial Efficiency Advice and Incentive (CEAI) program grew in 2010, as customers sought financial incentives for making energy efficiency upgrades to their facilities. More than 200 customer projects were submitted in 2010, representing a combined 4,139 kW savings and incentives valued at \$827,000 total. These energy improvements will reduce combined electric consumption by 17,725,000 kWh annually, lowering monthly utility costs. A 2010 change in program structure allows TVA’s vendor to pay customer incentives directly, rather than paying MLGW to then pay the customer via check.

Participation is open to commercial customers (excluding manufacturers) with electric demand of 51 kW and greater who are making interior lighting and/or HVAC improvements to existing facilities. The program offers information, recommendations and a one-time incentive of \$200 per kW reduced for qualified projects upon completion. The level of assistance and availability of incentives varies based on customer project potential. The greatest level of interest came

from companies who already had a project proposal, bypassing the “advice” stage and jumping straight to approval, installation and incentives. Details are available at www.mlgw.com/businessenergyincentives (Note: TVA will rename the program in 2011 to Energy Right Solutions for Business and change the incentive structure.)

EnerNOC Commercial Demand Response Program

Another offering to assist TVA in achieving its demand reduction goal, this program recruits and pays businesses and organizations based on their ability and willingness to reduce electric use during demand response events. Each participant received 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 kW they reduce during demand response events called by TVA.

Phase 2 of the program was introduced in 2010, enabling more customers to participate. As of 12/31/10, there are 68 MLGW customers participating, with 24.7 MW of load reduction capacity. Incentives totaled \$197,481 for 2010 participants.

Participants include MLGW, manufacturers, bottling companies, churches, shopping malls, municipal wastewater plants and many Memphis City School locations.

Fast Cash for Small Business Program

Customers with electric demand of 50 kW and below gained access to TVA’s newest program, Fast Cash for Small Business, in 2010. Using a streamlined approach, Fast Cash provides flat-fee incentives based on replacement of HVAC and lighting fixtures commonly found in smaller facilities. Details are available at www.mlgw.com/businessenergyincentives (Note: TVA will rename the program in 2011 to Energy Right Solutions for Business and change the incentive structure.)

Federal Energy Efficiency and Conservation Block Grants (stimulus funds)

After September 2009 approval of the City of Memphis’ application for Energy Efficiency and Conservation Block Grants (EECBG), funded through the American Recovery and Reinvestment Act, MLGW began work on projects to be administered through the utility. (The Department of Energy awarded \$6.76 million to be spent through third quarter 2012. MLGW will utilize approximately \$5 million for the activities shown below, while Public Works will receive approximately \$1.67 million.)

- Energy Efficiency Improvements for Homeowners—MLGW is providing energy audits, recommendations and funds to make the appropriate mix of weatherization, heating, cooling and water heating improvements, plus post-work inspections for approximately 700-800 homes located in Memphis. As of 2/15/2011 over 230 homes have been completed, using a network of approved contractors.
- Programmable Thermostat Program—This program will replace up to two existing thermostats for a homeowner located in the City of Memphis. The new unit will be programmed and the homeowner will be instructed on how to operate the thermostat.

The work is bid out to local contractors. MLGW will assist approximately 1,200 applicants.

- Commercial Energy Audits—Working with TVA’s Comprehensive Services Program, MLGW will provide energy audits and related information services to assist approximately 100 commercial, industrial, institutional, and government facilities located in Memphis to identify energy-saving measures. Once energy recommendations are provided, it is anticipated that many participants will budget for improvements and utilize other programs for additional financial incentives.
- Renewable Power Generation—The Public Works Division will construct a methane generation facility, with capacity of 1 to 1.5 MW, at the Stiles Wastewater Treatment Plant. The system will produce electricity by capturing the energy content in methane, a treatment byproduct.

In-Home Energy Evaluation

This TVA program was introduced to MLGW’s residential customers in July 2009. The program offers a fee-based in-home energy evaluation using TVA’s third-party contractor, Conservation Services Group (CSG). The process includes recommendations for energy savings, qualified contractor list and rebates for qualified energy improvements. Completed improvements are inspected by CSG to ensure quality workmanship.

- Rebates of 50% of implementation costs, up to \$500 maximum, are provided via check from CSG within 30 days of post-work inspection.
- The \$150 evaluation fee also is refunded if improvements exceed that amount.
- In most cases improvements will qualify for Federal energy tax credits in addition to TVA rebates.
- As an incentive to act, improvements must be made within 90 days of the evaluation to receive TVA rebates. (Lagging improvements are evaluated on a special case basis to determine rebate eligibility.)
- More than 1,100 customers have received IHEE services as of 12/31/2010. Of those, 58% have completed qualified home energy improvements, valued at more than \$2 million in total local investment.

To schedule an appointment, customers call CSG at 1-866-441-1430. Details also are available online at: http://www.mlgw.com/SubView.php?key=misc_inhomeprogram&x=4

Participating contractors who work in the Memphis area can be researched through TVA’s Trade Ally Network at:

<http://energyrightpartners.com/tradeally/jsp/Home.jsp?BrandKey=MEMPHIS>

Rental Housing Energy Efficiency Ordinance

The City of Memphis ordinance allows MLGW to inspect identified high-usage rental properties for a number of energy-related issues. These items that may include: holes in exterior walls and roof, non-working heating/cooling units, water leaks, lack of insulation and missing window panes. MLGW becomes an advocate for the tenant during the process and ultimately can take the landlord to Environmental Court if energy issues are not addressed within two weeks.

Highlights:

- MLGW staff has performed initial and post-work inspections on over 500 properties since 2009.
- The most common problems found, and corrected by landlords, include: insufficient attic insulation, water leaks and heating/cooling system problems.
- 20% of requests are received from renters, with 80% derived from analysis of energy use data.
- Customers can find information about the Rental Ordinance at: http://mlgw.com/SubView.php?key=about_allnumbers

Smart Grid Demonstration

Work began in 2010 on the residential Smart Grid Demonstration, a three-year project that will utilize a combination of technology and information that:

- Empowers customers to control utility use
- Improves system reliability and operability
- Provides improved safety and security
- Enhances environmental sustainability

In Spring 2010, MLGW issued a Request for Proposals for a vendor to provide 1,000 electric smart meters, communications and meter data management systems, as well as 500 In Home Displays. Smart Synch was selected, using a combination of GE meters, AT&T Wireless communications and Home Automation Inc. displays.



Also in Spring 2010, MLGW opened the application period for volunteers, with more than 1,900 households across Shelby County seeking to participate in the demonstration. Participants were selected and notified in June, then waited patiently while smart meters were manufactured and then delivered to Smart Synch for programming, before local installations began in mid-November. Most meters were installed on a series of Saturdays to increase customer convenience and avoid creating backlogs in daily activities in MLGW's Electric Meter Area.

Meter installation was the first step in a multi-phase project that expands in 2011 to include new web tools and 500 In Home Displays to identify the energy conservation and demand response/load shifting benefits of access to detailed consumption information throughout the billing period.

New CIS screens were created to provide employee access to smart meter daily and interval data, with cycle-specific start and end meter readings used for billing. Programming work also is underway to interface the smart meters' outage notification capabilities with CARES to automatically alert MLGW when a customer experiences a power outage.

Learn more about the Smart Grid Demonstration at www.mlgw.com/smartgrid

Window-Unit Air Conditioner Replacement Pilot

In 2008, MLGW developed a \$45 million proposal for TVA to fund the replacement of older window-unit air conditioners with Energy Star models, as a means to cut local peak electric demand by 52 MW annually. TVA committed to a pilot project to measure actual impact.

MLGW recruited 130 owner-occupied, single-story homes with low-income residents. Each household was then placed into one of four research groups: control group (no changes), window-unit AC replacement only, weatherization only and both window-unit AC replacement and weatherization. In 2009, measures were completed and interval meters were installed to provide TVA with time-based consumption data.

Electric consumption was monitored for 12 months to measure differences between 2009 and the previous four years' average usage. Average annual electricity consumption savings ranged from 642 to 731 kWh, based on project group. Using average annual electricity rates for 2010, customers achieved an average savings of \$53 to \$60 per household.

In Spring 2011, all 130 homes will receive any of the measures they didn't get before the monitoring period started so that, in the end, all participants will have received weatherization and up to two high-efficiency window-unit air conditioners.

EDUCATION

EnergySmart Memphis workshops

Through a partnership with TVA, City of Memphis and Shelby County government, MLGW provides free, detailed training on residential energy efficiency improvements during two-hour EnergySmart Memphis workshops. EnergySmart Memphis trainers discuss common household energy problems, demonstrate weatherization and other energy efficiency measures, and discuss basic strategies to control energy costs.

Each workshop attendee receives a free EnergySmart Memphis kit (valued at \$45.00), containing compact fluorescent bulbs, caulk and caulk gun, plastic window covering, gasket insulators and other products. By supplying basic home weatherization and efficiency products, MLGW ensures that customers can take initial steps immediately.

MLGW presented 102 workshops in 2010, with a total of 2,294 attendees.

EnergySmart Memphis workshop requirements:

- Groups of at least 20, but no more than 45 attendees.
- Sessions are available from 10:00am through 6:00pm, weekdays. Some Saturday sessions are also available.



Willis McKinney and Charles Echols demonstrate how to weatherize a window to eliminate drafts and costly energy leaks during an EnergySmart Memphis workshop.

- To schedule an EnergySmart Memphis workshop, contact Jackie Royston, 528-4188 or jroyston@mlgw.org , preferably three to four weeks ahead of your preferred date.

Green Schools Program

Several Memphis City and Shelby County schools participated in the Alliance to Save Energy’s (ASE) Green Schools Program to empower students to make a difference in the way their schools use energy. According to ASE, energy costs are an enormous expense for U.S. schools – approximately \$6 billion each year. In many schools, energy costs are second only to personnel costs, exceeding the cost of textbooks and supplies.

Green Schools students are educated about energy and the importance of energy efficiency, as well as trained to use a diagnostic toolkit that assesses the energy usage in their school. The school building becomes a learning lab for students to apply science, math and even language arts to solve a global problem. Through basic changes in operations, maintenance and individual behavior, schools participating in the Green Schools Program have achieved varying reductions. In addition, the Green Schools Program encourages and equips students to promote the lessons of energy efficiency in their homes and communities.

Locally, all participating schools created student Green Teams that meets regularly. Students were involved in the building audits to identify energy efficiency opportunities and then created campaigns and materials to communicate energy efficiency measures to students, facility and staff. Some schools also extended their awareness efforts into the surrounding communities.

2010 Calendar Year Results

Memphis City Schools	Shelby County Schools
Alcy Elementary	Bon Lin Elementary
Brewster Elementary	Collierville High
Carnes Elementary	Millington High
Douglass High	Riverdale Elementary
Consumption Savings: 255,094 kWh	Consumption Savings: 171,515 kWh
Dollar Savings: \$24,570	Dollar Savings: \$18,414

The Green Schools Program started in 1996 and currently is active in California, New York, New Jersey, Pennsylvania, Tennessee, Kentucky, Alabama, Mississippi, Florida and Washington, D.C.

NEW CONSTRUCTION

EcoBUILD Green Building Program

Despite the faltering local housing industry, EcoBUILD attained a 6.5% share of new housing permits in 2010, down from a record-high 10% in 2008. Several large-scale projects planned for 2010 were slowed and are just making headway in first quarter 2011. These include MHA’s Legends Park West and McKinley Park redevelopments, as well as Habitat for Humanity’s Trinity Park subdivision.

As of 12/31/2010, EcoBUILD has certified 566 homes, representing 838,948 square feet of energy-efficient new housing. It is estimated¹ that residents of these EcoBUILD homes, on an annual basis, collectively:

- Reduced natural gas use by 335,579 hundred cubic feet (Ccf)
- Reduced electricity use by 2,936,318 kilowatt-hours (kWh)
- Saved \$240,925 in electricity costs
- Saved \$310,042 in natural gas costs
- Avoided 3.8 tons of nitrogen oxides (NO_x) emissions
- Avoided 8.3 tons of sulfur dioxide (SO₂) emissions
- Avoided 2,409 tons of carbon dioxide (CO₂) emissions



Three homes in the Memphis Area Home Builders Association’s Spring VESTA Home Tour attained EcoBUILD certification, enabling MLGW to show visitors first-hand some of the many energy-efficient features of the homes.

MLGW / USGBC Leadership in Energy and Environmental Design (LEED) Incentive



In March 2010, MLGW joined the Memphis chapter of the U.S. Green Building Council in recognizing the second recipient of the LEED Incentive, with the presentation of a \$10,000 check to Big River Engineering and Manufacturing for their LEED-Silver designated facility at 85 North Fourth Street. Big River converted the building shell, which previously served as the horse stable for the Memphis Police Department, into an energy-efficient, high-tech medical instrument manufacturing facility.

The 2008 grant from MLGW to USGBC-MEM provides incentive money to reward commercial new construction projects that meet LEED certification, with additional points in energy and water categories. Since most new construction projects can take years to complete and then certify through LEED, USGBC-MEM expects to see an increase in LEED incentive applications in 2011 and beyond as several LEED projects are in the pipeline.

RENEWABLE ENERGY

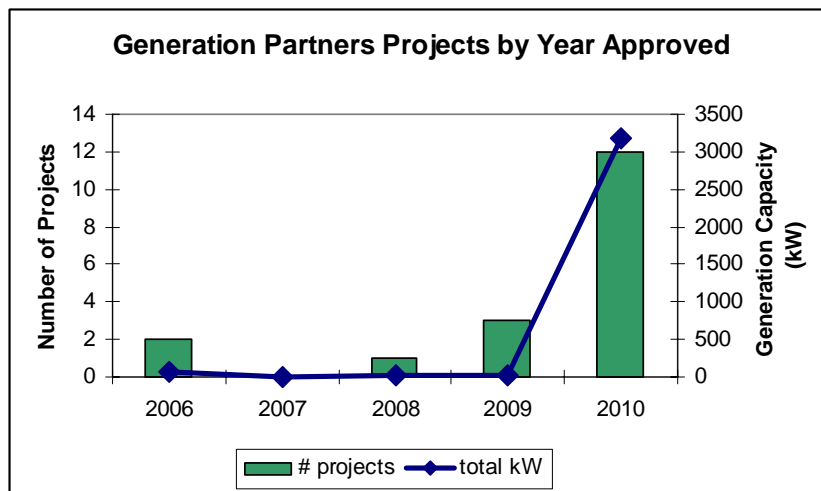
Generation Partners

Renewable generation was a major topic locally in 2010, due to growing interest in TVA’s Generation Partners program and availability of the Tennessee Solar Institute’s installation grant for businesses and organizations.

¹ Actual household impact varies by square footage, family size, appliance and equipment inventory, and operating habits. Calculations based on 2006 study results of actual energy consumption versus modeled energy use for a similar-size structure built to local practices, expressed in annual energy use per square foot. Study identified annual electricity savings of 3.5 kWh per square foot and natural gas savings of 0.4 Ccf per square foot. Dollar savings calculations include average Fuel Cost Adjustment and Purchased Gas Adjustment for 2010. Values assume all 566 EcoBUILD-certified homes were occupied January-December 2010.

Through Generation Partners, customers sell their output to TVA, with generation credits applied to their monthly MLGW bill. The current incentive for solar generation is a premium of \$0.12 atop the residential rate or commercial GSA-1, plus Fuel Cost Adjustment. That represents approximately \$0.20 per kWh generated, but will fluctuate with rates and FCA over the 10-year agreement term. (The premium is \$0.03 per kWh for other approved renewable resources.)

Seven new projects were completed in 2010, adding 155 kW of solar and 10 kW of wind generation, while another five projects—representing 3,026 kW of solar—were approved but remain in various levels of planning or construction. When completed, these projects will total 3,295 kW of solar generation capacity (and 10 kW of wind capacity), generating enough renewable power to meet the annual electric needs of approximately 320 average households served by MLGW. This is significant growth since the first photovoltaic (solar) system was installed in 2006.



Information, applications and other Generation Partners details are available at www.mlgw.com/greenpower (toward the bottom of the page)

In Summer 2010, TVA reduced the maximum system size eligible under Generation Partners (from 999 to 200 kW) and then introduced a new program for larger renewable generation systems. The **Renewable Standard Offer** allows customers, as well as third-party generator/developers, to install and sell their generation to TVA under long-term contracts at set prices. For this program, the customer submits their application to and gets approval from TVA, with MLGW involved only in the interconnection. TVA reads the generation meter remotely and pays the incentive directly to the generator. One Generation Partners participant, who has reached the maximum capacity under that program, has begun construction on another 260 kW of solar generation under the Renewable Standard Offer. Information, applications and other Renewable Standard Offer details are available at <http://tva.com/renewablestandardoffer/>

Green Power Switch

The economy impacted business participation in TVA's voluntary Green Power Switch (GPS) program in 2010. Currently, these businesses participate in GPS and are recognized on MLGW's and TVA's website for their commitment to renewable power:

- Askew Nixon Ferguson Architects
- Center City Commission
- First Tennessee Bank
- GG Lutherie
- Haizlip Firm
- Jabberblabber Inc.
- Medtronic Sofamor Danek
- Memphis Light, Gas and Water
- Midtown Yoga
- New Tech Packaging
- Rhodes College
- River Inn at Harbor Town Landing
- State of Tennessee Department of Environment & Conservation (T.O. Fuller and Shelby Forest parks)
- The Daily News
- Westmoreland Cabinetry



As of 12/31/2010, GPS participation includes 928 households and 16 business locations. Collectively, these customers have sponsored 3,490 blocks of green power, representing renewable generation of 6.28 million kWh (or 6,282 MWh) annually—enough to meet the annual electricity needs of 393 homes served by MLGW.

In consumer-friendly terms, this is equivalent to: recycling 26.7 million aluminum cans, or planting 1,745 acres of trees, or recycling 1,541 tons of newspaper, or removing 582 cars from the roads for a full year.

In scientific terms, MLGW's GPS customers were responsible for avoided generation emissions equal to: 4,699 tons of carbon dioxide (CO₂), 31 tons of nitrogen oxides (NO_x) and 12 tons of sulfur dioxide (SO₂) in 2010.

Green Power Switch information is available at: <http://www.mlgw.com/greenpower>

SELF-SERVICE

My Account

More than 80,000 new UserIDs were created for My Account access in 2010, bringing the total to 218,515, although an estimated 30% represent inactive utility accounts.

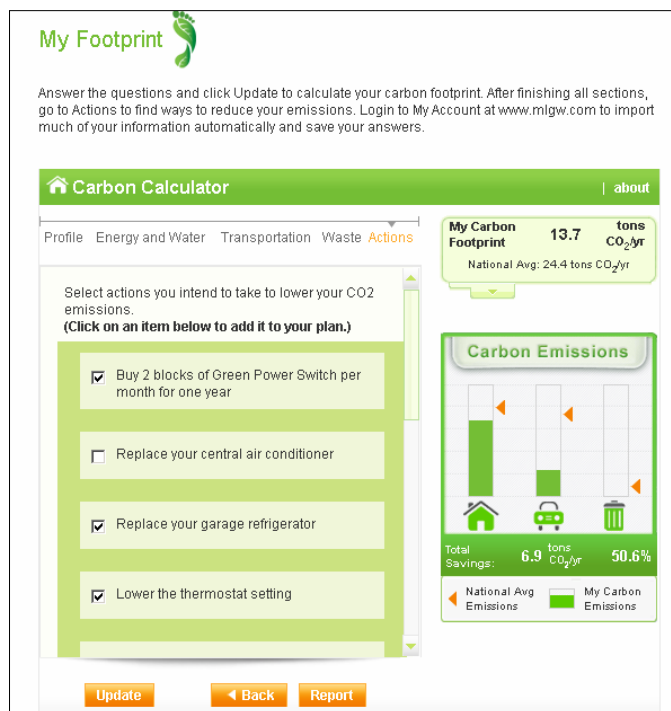
More than 1.3 million residential My Account sessions and 40,000 non-residential sessions took place in 2010, up 45% from last year. On average, more than 7,500 new users registered monthly, while return users averaged 51,000 per month. Many of the new users were driven by

MLGW's decision to eliminate the non-enrolled one-time electronic payment process while simultaneously eliminating electronic payment transaction fees and adding VISA and MasterCard payment options for residential accounts—all of which drove new traffic to My Account.

TVA continued its free energy kit promotion for residential My Accounts users who completed the Home Profile and My Appliances question sets, which 9,956 customers took advantage of last year—placing MLGW in first position among TVA distributors, with 41% of all energy kits distributed. This promotion, combined with the economy and growing interest in lowering expenses, continued to generate customer use of online energy audit tools.

The residential Carbon Calculator was added to My Account in 2010, enabling users to estimate their carbon footprint based on energy and water use, transportation and recycling habits. The calculator (see screenshot, right) offers action items that customers can adopt to reduce their emissions, including buying Green Power Switch.

MLGW's small and mid-size business customers gained access to energy and bill analysis tools in 2010, enabling automatic import of the user's billing history for energy audits, bill change highlights and bill comparisons. A dashboard for Large Commercial Customers to download their billing history was added in mid-2010.



Paperless eBilling Option

Enrollment in MLGW's optional eBilling program fell 15% in 2010, ending at 34,017 accounts. The change is attributed to removing the eBilling requirement in order to make electronic payments with no transaction fee. Several campaigns are underway to boost eBilling participation.

Customers who enroll in eBilling forego printed bills, which reduces MLGW's paper and postage costs while also saving customers time, increasing convenience and reducing solid waste. Based on estimated billing costs of \$5.40 per account per year, eBilling participants helped MLGW save a projected \$183,691 in 2010, eliminating 1.2 million sheets of paper and 816,000 envelopes used for bill production.

Trade Ally Network

TVA and MLGW hosted an orientation meeting about TVA's commercial Preferred Partner Network (PPN) in January 2010 to recruit lighting and HVAC contractors, as well as architects and engineers who develop project specifications. Approximately 60 people attended to learn

about business opportunities as a PPN member. TVA later automated the contractor search and listing process by introducing its Trade Ally Network website. Trade allies can apply online and MLGW customers can search for local and regional resources at:

<http://energyrightpartners.com/tradeally/jsp/Home.jsp?BrandKey=MEMPHIS>

MLGW GREEN WORKPLACE

Alternative Fuel Vehicles in MLGW's Fleet

MLGW falls under the Federal Energy Policy Act (EPACT), which requires an alternative fuel provider to have 90% of their annual light-duty vehicle acquisitions represent alternative fuel vehicles (AFV). (Light-duty vehicles are classified as 8,500 lb gross vehicle weight rating or less.) The purchase of biodiesel-fueled vehicles can account for 50% of these mandates. Under EPACT, hybrid electric vehicles do not qualify as an AFV at this time. So, although the hybrids are not an AFV under EPACT, they are "green" and considered to be AFVs for this report.

Currently the MLGW fleet includes 39 compressed natural gas (CNG) vehicles, 93 E-85 (Ethanol) vehicles, and 27 hybrid electric vehicles. In the 2011 budget, MLGW plans to purchase a plug-in hybrid electric vehicle (PHEV) bucket truck and several electric vehicle sedans.

In addition to the AFVs, we have 271 vehicles and equipment running on B-20, a blend of 20% bio-diesel and 80% petroleum diesel.

While MLGW previously operated approximately 100 CNG vehicles, due to the high cost of conversions and the fact that vehicle manufacturers no longer focus on this vehicle type, MLGW has not pursued that option recently, but will continue to evaluate it as the AFV market advances.

After initially being excluded from the federally- and privately-funded ECotality EV Project occurring in several U.S. metropolitan areas (including Nashville, Knoxville and Chattanooga), MLGW, TVA and local government representatives lobbied project leaders to expand to Memphis and West Tennessee. (ECotality made that announcement on 2/22/2011, with plans for 40-50 public-access EV charging stations within Shelby County.)

Energy Management within MLGW

Energy management and resource conservation opportunities within MLGW abound. 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. In addition, energy management enables MLGW to "lead by example," showing customers that everyone has the potential to reduce energy waste.

Tracking

Electric, gas and water consumption, demand and cost data are tracked from the baseline year 2004 through the current year in order to identify impact of facility upgrades, trends in usage, operations adjustments and account anomalies. In 2010, approximately \$14,230 of savings was identified in anomalies on MLGW University's energy consumption data.

Master Planning

The Facilities Master Plan is developed on an annual basis in order to provide a budget roadmap of capital improvements to MLGW facilities. Based on a 10-year horizon, the plan details existing facilities, new facility developments and equipment upgrade installations in MLGW's 1.9 million-plus square feet of buildings. The plan also provides profile and characteristic data for each facility, including age, occupancy, structure and equipment.

Energy Audits

As part of the MLGW's internal energy management initiative, Division facilities are reviewed and energy audits performed based on budget and cost-saving potential.

- Downtown Credit Office/Beale Street Landing completed in 2010. Potential annual savings: \$ 15,000.
- Millington Community Office's location is planned for the next energy audit.
- TVA's Commercial Efficiency Advice and Incentive Program: two lighting retrofit projects were submitted with potential savings of \$4,500.

Demand Response

The Administration and Netters facilities were enrolled in the TVA-EnerNOC Demand Response program. A total of 125 kW will be shed during a TVA-called demand response event, generating revenue potential of \$2,400 per year. Additional facilities will be evaluated for future enrollment.

Energy Efficiency Equipment Upgrades and Operations

In 2010, the following lighting efficiency projects were completed:

- Administration Building: Less efficient Halogen bulbs were changed to more efficient LED bulbs for savings of \$579 per year.
- Brunswick Service Center: Replaced 12 ceiling fixtures using 60-watt bulbs with 3-watt LED bulbs; replaced 14 50-watt sodium wall pack lights with 26-watt fluorescent wall packs; and replaced five 150-watt floodlights. Total savings of \$752.96 per year.
- Electric Operations Inside Store Room: Replaced 42 100-watt sodium fixtures with 4-tube T-5 high bay fixtures with motion sensors for savings of \$840.88 per year.
- Electric Operations Outside Store Room: Replaced 28 400-watt metal halide fixtures with 4-tube T-5 high bay fixtures with motion sensors for savings of \$2,794.40 per year.
- Netters Business Center: Replaced 36 20-watt elevator bulbs with 2-watt LED bulbs for savings of \$579.00 per year.
- Heavy Equipment Bldg.: Replaced 46 400-watt sodium fixtures with 6-tube T-5 high bay lights for savings of \$2,172.43 per year.
- Mallory Pumping Station: Replaced T-12 ballasts in all fixtures with T-8 ballasts and added motion sensors in basement areas, replaced 327-watt bulbs in pump room with 105-watt fluorescent bulbs, replaced 150-watt floodlights with 26-watt fluorescent bulbs in filter bldg., replaced 100-watt metal halide fixtures with 4-lamp T-5 fixtures with motion sensors in filter buildings and replaced 189-watt bulbs in storage area in filter building with 28-watt fluorescent bulbs. Total savings of \$2,955.82 per year.
- MLGW University: Implementation of TVA energy audit lighting recommendations for savings of \$2,700 per year.

HVAC Efficiency Projects completed in 2010

- Choctaw Building: Replaced unit heaters with more efficient electronic ignition units. Approximate savings: 30% on fuel consumption—no standing pilot and replacement units have higher SEER.
- North Service Center—Building #5: Replaced air conditioning and heating equipment—increased SEER from 70 to 80%; Potential savings is approximately 10% on fuel cost and 15-20% on maintenance cost.
- North Service Center—Building #6: Upgraded furnace equipment with more efficient direct drive furnace. Approximate savings: 10% on fuel consumption; Maintenance cost savings: 50%.
- Substations: Replaced inefficient analog thermostats with programmable models with lockable capability. This will reduce operating cost by insuring that temperatures are brought back to the programmed setting when overridden. Settings can be locked down when necessary.
- MLGW University: Scheduling the Building Automated System to reduce HVAC equipment use when facility is unoccupied—Annual savings: \$1,800. Additional facilities will be reviewed for unoccupied setback implementation as automated controls are installed.

Miscellaneous Plug Load Projects completed in 2010:

- Corporate Televisions were left on 24/7. The televisions are now turned off during times MLGW's facilities are unoccupied—Annual savings: \$2,600.

LEED Certification

The design of the new Water Laboratory is currently under way. Project team members are seeking The U.S. Green Building Council's LEED Gold certification, not only for operational savings but also to serve as an example in the community.

Energy Star Partner

MLGW is an Energy Star (ES) Partner that provides resources to employees and customers about energy-efficient products via www.mlgw.com. In addition, MLGW collects and enters facility energy use information into the ES Portfolio Manager to assist with tracking data and to obtain benchmark performance ratings.

RESOURCE CONSERVATION WITHIN MLGW

Recycling

MLGW's Building Services and Grounds department implements MLGW's internal recycling initiatives, including:

- **Cell Phone and Rechargeable Battery Recycling**— 55 pounds recycled in 2010. Currently, recycling receptacles are available at Administration, Netters and Electric & Systems Operations buildings.
- **Plastic and Aluminum Beverage Recycling** containers are currently available at the Administration Building. International Paper picks up and recycles the containers. (Approximately 82 pounds recycled in 2010)

- **Printer Ink and Toner Cartridge Recycling** is available at most facilities. OfficeMax pickups and recycles the cartridges at no charge. (843 cartridges were recycled in 2010.)
- **Paper** is recycled by International Paper. Recycling containers are located at all facilities.

Employee Reminders

Quarterly reminders are sent to employees via email and WWYTK television messaging about wisely using resources in MLGW facilities.