

#### Smart Meter Update: New Options for Customers to Save Money, Time and Energy

June 6, 2013



# Keeping pace with technology

# Technology Evolves...



#### Meter manufacturers no longer make analog meters. Let's keep pace with progress.

Smart meters are a measurement device—they measure your energy consumption. Because they have built-in communication, they can provide feedback on how your household uses energy, and that can help YOU save money by reducing your bill.



Get the facts at www.mlgw.com/smartgrid.



### MLGW's Journey to Smart Meters

- 10+ years of researching advanced meter technology, applicability to MLGW operations and customer benefits
- 1,000-meter Smart Grid Demo, 2010-12
- 60,000-meter project, 2013
- Full smart meter deployment by 2020



# Smart Grid Demonstration

- 1,000-meter Smart Grid Demo, 2010-2012
- Electric smart meters with cellular communications
- Volunteer homes throughout Shelby County
- Confirmed operational and customer benefits



# Smart Grid Demo Impact Survey

- 95% are more aware of *when* their home uses electricity
  - 70% say others in household are also more aware
- As a result of participating:
  - 77% installed more efficient light bulbs
  - 76% changed thermostat setting to save energy
  - 66% used fans for supplemental cooling
  - 57% considered time of day before doing laundry
  - 50% considered time of day before running dishwasher
  - 42% made minor home energy improvements
  - 27% made major home energy improvements
  - 25% changed electric water heater temp to save energy



# Smart Grid Demo Impact Survey

- Benefits gained from participation:
  - 86% better understanding of home's electricity use
  - 75% saved money by reducing use
  - 56% learned about new technology
  - 54% able to teach self/family about electricity use
  - 45% reduce environmental impact/carbon footprint
  - 41% participate in TOU rate pilot
  - 27% challenge others to use less electricity
  - 21% leave gates locked on meter reading day
  - 11% leave pets outdoors on meter reading day

# • 95% would recommend smart meter experience to a friend



# MLGW Smart Meter 2020 Vision

- Do what is in the best interest of our customers as a whole
  - Lower the cost of utilities to our customers
  - Enhance the delivery and maintenance of MLGW-provided services
  - Improve environmental impact of our community
- Provide all customers the benefits of smart meter technology by 2020



# 60,000-meter Installation

- Memphis City Council approved 60,000-meter project in MLGW's 2013 budget
- Approximately 24,000 households will receive smart meters in this phase
  - ~24,000 electric meters
  - ~20,000 gas meters
  - ~15,000 water meters
- Customers may opt-out and decline smart meter



#### **Projected Sites for 60,000 - Meter Installation**







# 60,000-meter Installation

- Request for Proposals issued
- 7 bids received
- Elster Solutions selected
  - More than 5 million smart meters installed
  - 175 years manufacturing utility meters (Westinghouse/ABB, American Meter Company, Kent Meter Company)
- Awaiting contract approval by Memphis City Council
  - First shipment of meters expected within 2-3 months of approval date



### Smart Meter 2020 Vision Benefits and Savings



#### **Smart Meter Vision**

- Deliver the operational and customer benefits of smart meter technology to all MLGW customers
  - Integrated outage management
  - Reduced labor and transportation costs
  - Improved safety and security
  - Eliminated estimated readings
  - Improved service capabilities (connections, leak detection)
  - Voluntary dynamic rate options (Time-of-Use)
  - Increased customer awareness and conservation
  - Customer savings

# BENEFIT: Outage Management and System Monitoring

- Minimize or eliminate outage hotline contract (~\$250,000 annually)
- Expedite utility outage awareness and troubleshooting
- Reduce service restoration times
- Increase customer satisfaction through fewer and shorter outages
- Increase operational knowledge of MLGW electric, gas and water systems



- Meter Reading stats
  - 12.3 million reads annually (E,G,W)
  - 92 Meter Readers
  - Average 24 vacancies per year; 26% annual attrition rate
- 150-200 net positions could be cut, through attrition not layoffs, with full-scale smart meter deployment due to improved operating efficiencies and reduced service requests
  - Positions throughout Customer Care division, primarily Meter Reading and Field Operations
  - Reduction will be achieved through attrition, not layoffs
  - Associated vehicle, maintenance and fuel savings
  - Some new positions would be created



- Meter Readers
  - Drive 500,000+ miles per year
  - 55 Meter Reader injuries in 2012
    - Vicious dog attacks (14)
    - Spider, bee and insect bites (10)
    - Slips, trips & falls (24)
    - Miscellaneous injuries (7)
  - Risk exposure to crime, hostility and severe weather



- Reduce estimated reads/bills (~3%)
  - Meter access issues (locked gates, bad dogs)
  - Manpower (light duty, turnover, vacation)
  - Extreme weather (temps >100° or  $<32^{\circ}$ )
- Reduce meter reading errors (<1%)
- Reduce billing inquiries and mistrust
- Identify and reduce utility theft
  - 11,000 resolved diversion cases

**BENEFIT:** Time-of-Use Rate Option

- Completely voluntary
- Provides financial incentive for customers to monitor and adjust electricity use during "on-peak" hours
  - **On-Peak**: Dec-Mar, weekdays, 4am-10am

Jun-Sept, weekdays, 12pm-8pm

- **Off-Peak**: All other hours, including every weekend; every day in April, May October and November; plus weekday observances of six designated holidays
- 87% of hours in the year are off-peak
- Impact on electricity cost depends on customer's willingness to modify use (conservation, energy efficiency and load shifting)



# **BENEFIT:** Customer Awareness

- Average Annual Household Electric Use in Tennessee is 41% higher than national (2011 EIA)
- MLGW customer average is 36% higher
- Viewing daily, hourly and even 15-minute data enables customers to better identify when and how home uses electricity
- Water leak alerts, consumption alerts and bill-todate alerts provide added awareness



#### **BENEFIT:** Community Impacts: Environmental

- Water leak detection alerts customers to problems before they may be noticeable, preserving water resources
- Improved air quality through reduced utility vehicle emissions and reduced power generation
- Avoided emissions from electricity use reductions equivalent to removing 59,000 to 89,000 vehicles from the road



# **Energy Savings Can Spur Jobs Creation**

- Economic Impact Study, Younger Associates, May 2010
  - \$10 million in utility savings among customers would create 152 jobs through increased discretionary spending in community
  - 2.5% reduction in local average household electric use yields more than \$10 million in utility savings annually
- Smart Grid Demo results:
  - \$30 million in annual utility savings
  - 458 new jobs would be created through increased discretionary spending in community



# MLGW Smart Meter 2020:

#### Cost Savings Opportunity Matrix

Savings Category	Estimated Annual Savings Range From*	Estimated Annual Savings Range To*	Estimated 15-Year Gross Savings Range From*	Estimated 15-Year Gross Savings Range To*	
1. Customer Savings (conservation)	\$8	\$39	\$120	\$585	
2. MLGW Operational Savings to Customer	\$13	\$23	\$195	\$345	
3. TVA to MLGW to Customer Savings	\$1	\$8	\$15	\$120	
Savings Total	\$22	\$70	\$330	\$1,050	
* In Millions of Dollars					

- Full-scale system cost approximately \$215 million
- Conservative simple payback range of between 9 and 11 years; actual payback could be as little as 3 years



# Smart Meter Adoption Rates among TVA Distributors

- More than 37 million smart meters have been installed in the U.S.
- TVA distributors with smart meter deployments:
  - Chattanooga 170,000 smart meters, 100% of total meters
  - Gibson County Electric 35,000, 100% of total meters
  - Clarksville 31,000+, 100% of total meters
  - Bolivar Energy Authority 11,000+, 100% of total meters
  - Volunteer 112,000 meters, 99% of total meters
  - North Georgia 99,000 meters, 99% of total meters
  - Nashville 30,000 smart meters
  - Knoxville 4,200 smart meters
  - Huntsville preparing for summer deployment
- MLGW 1,200 smart meters, 0.2% of total meters



# Smart Meter Myths & Realities



#### Myth: Smart Meters Emit Dangerous RF

- Every day, people use and keep near to them many devices that utilize radio frequency (RF) waves, including microwave ovens, cellular telephones and wireless home networks.
- The Federal Communications Commission (FCC) sets RF limits and requires that all radio communicating devices be tested to ensure that they meet federal standards.
- Smart meters emit less radio frequency energy than many other commonly-used wireless devices which, like smart meters, are safe and FCCapproved.
- Learn more at <u>www.mlgw.com/smartgrid</u>



Exposure from Elster smart meter selected by MLGW if operating in constant communication mode (100% duty cycle). Normal smart meter duty cycle is near 1%, so actual exposure is far less than value shown.



#### Myth: Smart Meters Cause Fires

- Smart meters do not cause fires
  - As determined by Fire Marshal/Fire Department officials from around the world, including in Florida, Maryland, California, Canada and Australia
  - MLGW has had 0 fires from smart meters during demo and 0 fires from other electric meters
- Conditions in the customer-owned electric meter socket and wiring within the home can cause fires
  - Meter socket and electric wiring are installed by builder's electrical contractor at time of construction and are property of building owner
- MLGW will fund the repair or replacement of faulty meter sockets during smart meter installation



#### Myth: TOU Rate Forces Customers to Do Laundry at 2:00am

- Time-of-Use (TOU) electric rate is **optional**
- TOU rate gives customer the option of paying less for electricity use during offpeak periods (when electricity demand and generation costs are lower) and more for electricity use during on-peak periods (when demand and costs are higher)
  - Just 13% of hours in a year are on-peak





Myth: Smart Meters Aren't Safe Because They Aren't UL-Listed

- As industrial equipment purchased by utilities and installed by utility personnel, utility meters are not considered consumer products and are not/have never been subject to UL-listing
- Utility meters are subject to American National Standards Institute (ANSI) standards



#### Myth: Smart Meters Will Financially Hurt Impoverished Customers

- 27% poverty rate in Memphis (2012 U of M study)
- Smart meters
  - Reduce connect and re-connect fees
  - Provide customers the opportunity to track usage and better control utility cost
- Smart meters with pre-pay service option (similar to cellphone offerings)
  - Eliminate need for deposit
  - Eliminates late fees and re-connect fees



#### Myth: Smart Meters Will Make My Costs Increase

• Smart meters will actually help MLGW reduce costs for many services

	Analog or Digital Meter	Smart Meter	Smart Meter Customer Savings
New Service Connection, same day	\$54.00	\$25.21	\$28.79
New Service Connection, next day	\$44.00	\$25.21	\$18.79
Non-payment reconnect	\$25.00	\$11.44	\$13.56
Reconnect with exception	\$25.00	\$20.44	\$4.56
Additional deposits, per reconnect, beginning with second occurrence	\$50.00	\$0	\$50.00 per occurrence



# Myth: MLGW will layoff employees

- MLGW expects a net reduction of 150-200 jobs, which will be eliminated through **attrition** 
  - Meter Readers have ~ 26% annual attrition rate
  - Some new jobs will be created within MLGW to manage the system
- Economic development consultants project that 152 new jobs will be created in the community for every \$10 million that MLGW customers save on avoided utility costs



### Myth: MLGW Is Already Secretly Installing Smart Meters

- Smart meters have only been installed at the homes of volunteers
- MLGW replaces about 30,000 electric, gas and water meters each year for age and other factors
- As older analog electric meters are replaced, MLGW is installing digital meters—which some customers confuse with smart meters
- Digital meters lack the communications to make them smart meters.



# Myth: MLGW Will Force You to Have Smart Meters

- Locations are based on each phase of installation, so not available to everyone immediately
- Opt-out available for those who decline
  Keep existing meter until end of equipment life, then receive digital meter



- Smart meters are Safe. They don't cause fires.
- Smart meters help customers Make informed choices about their energy usage.
- Smart meters are Accurate. Customers will not have estimated bills.
- Smart meters will Reduce customer fees—more than 50 percent savings depending on the type of service.
- Smart meters are Technologically-sound. There are more than 37 million smart meters installed across the country.



redundancy