



# Smart Meter Facts

Memphis City Council

MLGW Committee

March 5, 2013

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# What Type of Meter Is It?

## Common Residential Electric Meter Types



**Traditional analog meter**

*no longer manufactured;  
replaced by digital meter*



**Digital meter**

*empty ports in upper right indicate this is NOT a smart meter*



**Smart meter**

*components visible in upper right indicate this IS a smart meter*



# Council Committee asked...

- What is the number of fires started by smart meters compared to standard meters?
  - MLGW smart meter fires: 0
  - MLGW standard meter fires: 0

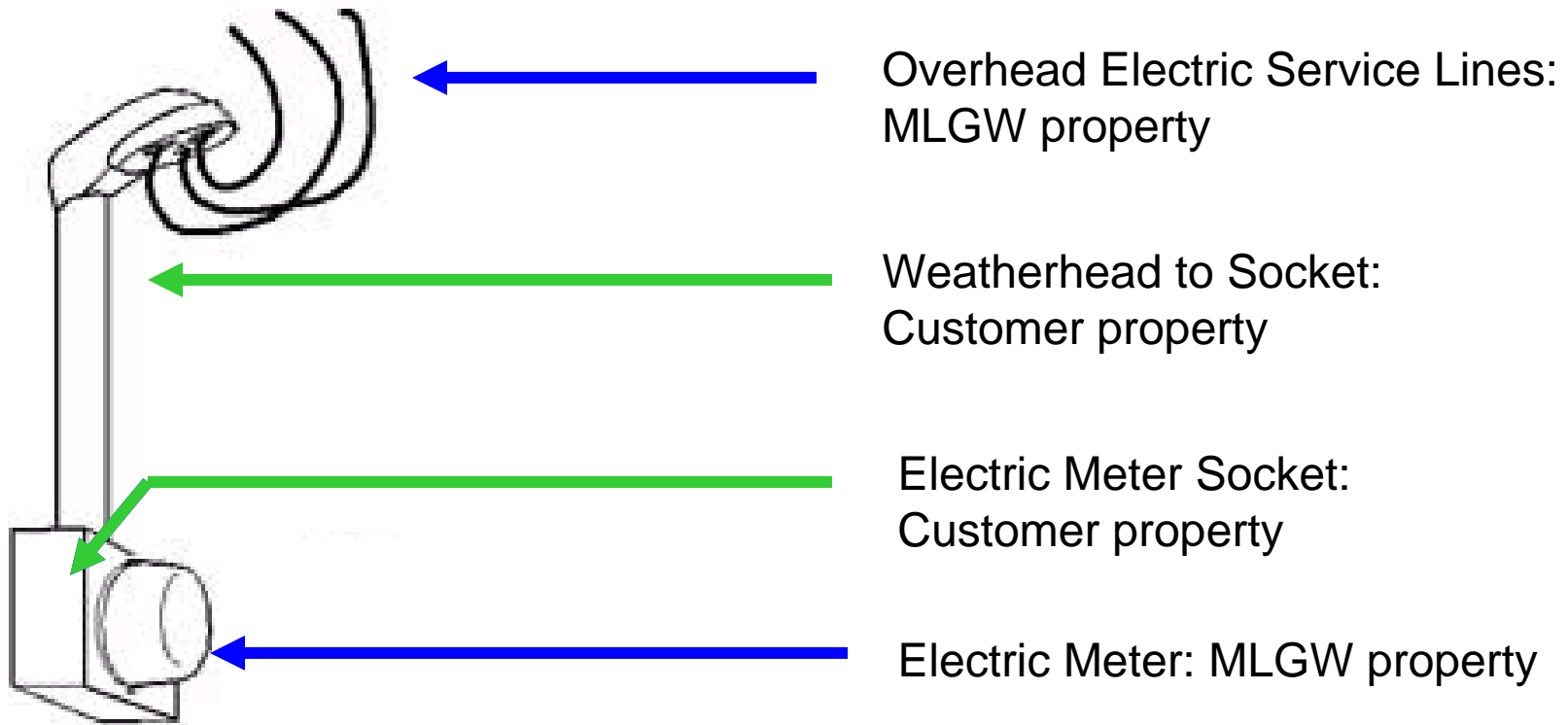


# Fire Official Rulings

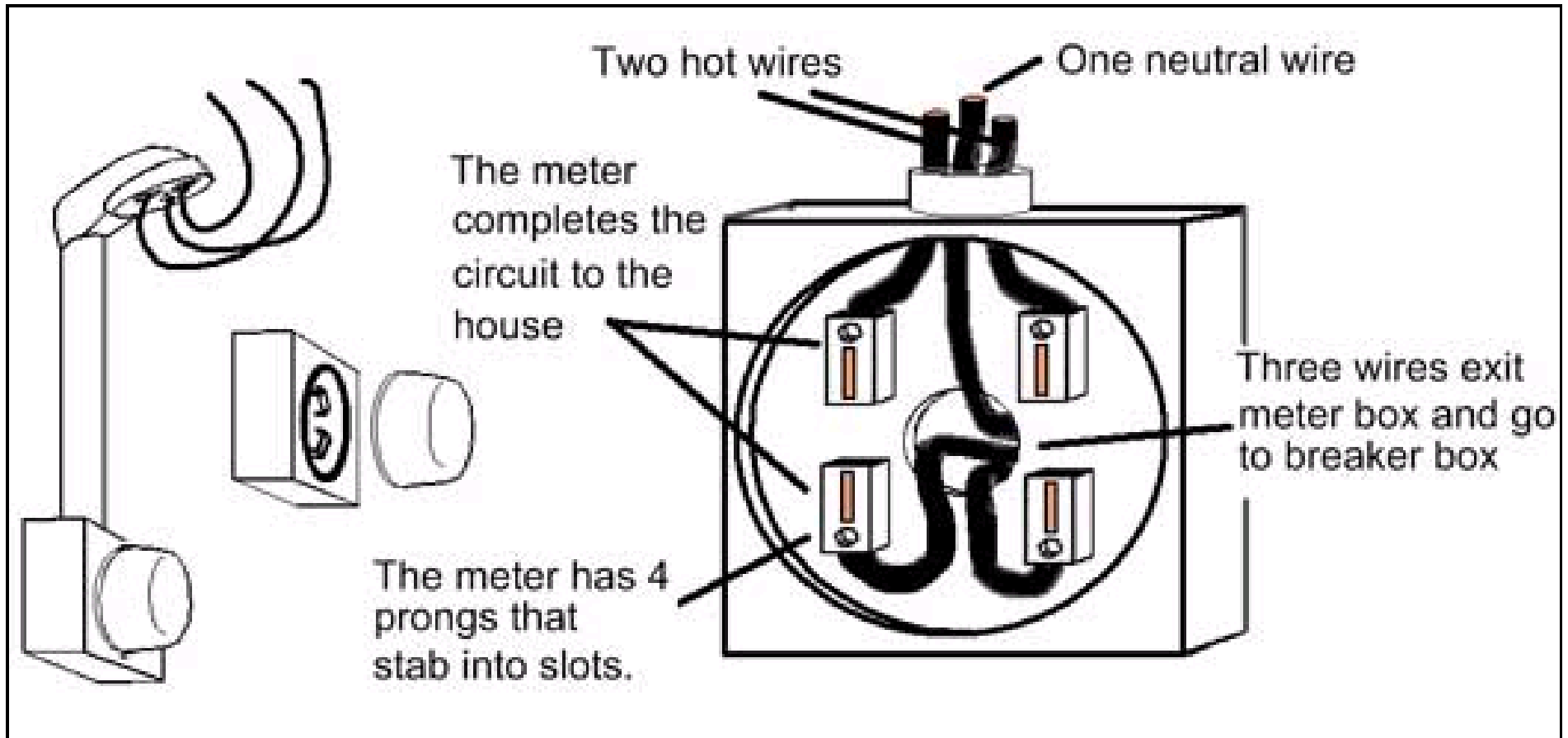
- **Smart meters do not cause fires**
  - As determined by Fire Marshal/Fire Department officials from around the world, including in Florida, Maryland, California, Canada and Australia
- **Conditions in the customer-owned electric meter socket and wiring within the home can cause fires**
  - Meter socket and electric wiring are installed by builder's electrical contractor at time of construction and are property of building owner



# Meter Socket is Point of MLGW Service Delivery



# Inside an Electric Meter Socket





# Utility Industry Overview

- There is no structural difference between a digital meter and smart meter
- Earlier versions of smart meters—called automated metering infrastructure or AMI—have been in use for decades
- More than **37 million smart meters** have been installed across the United States
  - Nearly 1 in 3 U.S. households have a smart meter today
  - Industry leaders expect the number of installed smart meters in U.S. to reach 65 million (>50%) in 2015



# Smart Meter Installations: TVA Region

- **Nashville Electric Service**
  - 30,000 smart meters installed with no issues
- **Chattanooga Electric Power Board**
  - 163,000 smart meters installed with no issues
- **Knoxville Utilities Board**
  - 7,000 smart meters installed with no issues
- **MLGW**
  - 1,200 smart meters installed with no issues





# Knoxville Utilities Board Smart Meter Overview

- Federal Smart Grid Investment Grant (\$3.5 million)
- Installed electric, gas and water smart meters at residential sites in and around UT campus
  - Approximately 7,000 smart meters
- No issues
- System currently:
  - Billing from monthly remote readings
  - Performing meter connects and disconnects remotely
  - Monitoring for meter outage and tamper alerts



# Smart Meter Installation: United States

- **Baltimore Gas and Electric** reports 5 overheating meter sockets among 65,000 installations
- **Philadelphia Electric Company (PECO)** reports 29 overheating meter sockets among more than 200,000 installations
- **ComEd** reports 15 overheating meter sockets among 130,000 installations
- **American Electric Power (AEP Ohio)** reports 25 overheating meter sockets among 135,000 installations



# Smart Meter Installations: International

- **Toronto Hydro** reports no issues among 700,000 smart meters
  - Proactively replaced 10,000 meter sockets
- **BC Hydro** reports correcting 1,000 faulty meter sockets found during installation of 1.73 million smart meters (0.058%)
- **Jemena** (Australia) reports approximately **90 smart meters** have been **subjected to criminal damage/vandalism**, with smart meters failing safely



# Industry Observations and Recommendations

- **There is a condition known as “hot socket,” where the blades of the socket receptacle are not making good electrical contact** with the electric meter due to spreading, corrosion, or other insulating effect within the meter socket itself. As a result, the current flow encounters higher resistance at the contacts, causing excessive temperature rise and possible flash-over.
- **An electric meter socket’s lifespan and performance can be reduced by many factors** including excessive moisture, environmental contaminants, frequent changing of meters, meter tampering, excessive electrical load (overload or short circuit), vandalism, ground settling, storm damage, and other conditions.



# Industry Observations and Recommendations

- **What brought meter socket issues to the forefront is the higher volume of meters that are being replaced in a shorter period of time, so the odds of encountering a meter socket or customer wiring issue are accelerated.**
- **Existing meter sockets should be carefully inspected (and replaced, if necessary) when new electrical meters are installed.**



# MLGW Smart Meter Safety Benefits

- Meter installation includes visual inspection of meter socket
  - MLGW repairs damaged meter sockets as identified
- Meter includes temperature sensor to detect overheating socket and alert MLGW
- Ability to turn off electricity and gas remotely if a gas leak occurs, minimizing potential for gas explosion
- Ability to detect meter tampering, which damages socket and can increase likelihood of overheating
- Ability to eliminate meter removal at sites of delinquent customers (100,000 annually), thereby reducing socket damage and likelihood of overheating



# MLGW Smart Grid Demonstration Results

- **Smart meters work**, with MLGW receiving 100% of nightly billing reads by 7:00am.
- **Smart meters deliver high customer satisfaction**, with 95% saying they would recommend the smart meter experience to a friend.
- **Smart meters increase customer awareness**, with 95% saying they are more aware of *when* their home uses electricity. (70% say others in the household also are more aware.)
- **Smart meters increase energy conservation**, with 77% saying they made at least one change as a result of pilot.
- **Smart meters enable new opportunities**, with 12% of customers adopting the pilot Time-of-Use Rate.
- **Smart meters create jobs**, with customer utility bill savings turned into increased discretionary spending in the community, which results in higher employment.



# Participant Comments

- With a few **simple changes**, we made a significant reduction in our consumption. Stephen T
- Smart Meter offers an **effective way to change** homeowner's behavior by providing timely feedback on actual energy usage. For those interested in becoming involved in managing energy usage, this is a smart approach. Roosevelt A
- Saved a lot of money learning when to use appliances, LED usage and ceiling fan usage during summer and winter...It was actually **fun to learn how to save**. Brad & Carolyn D
- I think **everyone should have a smart meter** and the ability to look at their home's energy graphs online. David B
- We love the SmartMeter and the data it provides. It has become a **challenge in our house to reduce the energy consumption**. The Time-of-Use rates are also a great benefit. David K
- Electricity is invisible, the meter **helped me understand** something I couldn't see. Iva D
- I **learned how to monitor my energy resources** more efficiently. Esther W
- I really liked the program. It was **informative and beneficial** to me. I welcome any opportunity to learn about my energy consumption and ways to reduce it. Anthony D
- I like this project. It has made me a **better informed consumer**. Pamela F
- It has **changed the way we use power**. Andrew I
- This **project opened eyes** and was very meaningful in that it caused me to look at energy usage, availability, conservation and technology in so many new and exciting ways. Tim F







[www.mlgw.com/smartgrid](http://www.mlgw.com/smartgrid)

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# Opportunity



A North American Leader  
in Energy Efficiency