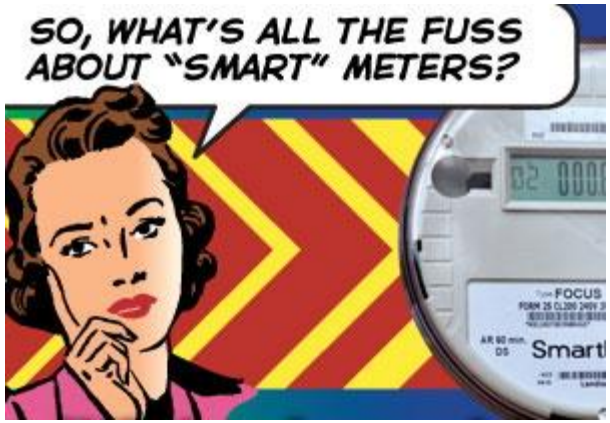
Customer Perceptions of New AMI Meters & What Meter Services Can do to Help or Hinder the Cause

Prepared by Tom Lawton, TESCO
The Eastern Specialty Company

for the Mid-South Electric Metering Association 2016

Session Objectives

- Understand Customer concerns about Smart Meters and AMI
- Be able to respond as a Utility and as a Utility Worker

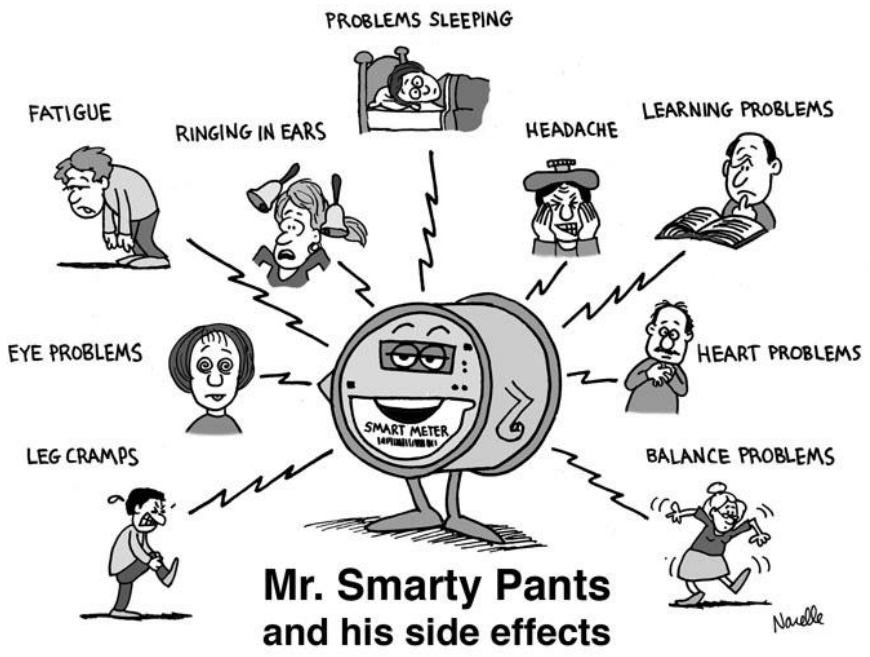


Customer Concerns
Real and perceived

- **Health -** new AMI meter's will kill my cat or make me sick
- **Safety** – new AMI meter's will burn down my house
- **High Billing** – new AMI meter is going to increase my bill
- **Privacy -** Big Brother is watching me

Health Concerns

- RF Emissions
- We sites and internet information and misinformation
- Cell Phones vs Meters
- Measuring RF



Safety Issues?

For the first time in our collective careers meters have been in the popular meter in an unflattering way. Segments of the general population have the perception that;

- AMI Meters may spontaneously catch fire
- AMI Meters may blow up
- AMI Meters may disconnect power by themselves
- AMI meters are “cheap computers” and are not robust enough for long term outdoor use

What Regulatory Alternatives Are Out There?

When US Consumers think about electrical safety within their home they think about licensed electricians and inspectors for electrical work and the UL Mark for products used within their home.

- Customer: Why don't meters have a UL label?
  Are the AMI meters safe?
- Utility: Are ANSI standards "tough" enough?
  How good is the meter vendor testing?

"We have taken unprecedented steps to test our meters", said PECO President and CEO Craig Adams. "We are confident in the results of the scientific testing by independent experts. Based on our work, along with results of extensive independent testing, PECO has selected the Landis+Gyr (L+G) meter for use for our customers. And, UL (Underwriters Laboratories), a leading testing and certification company, has conducted safety performance tests using the UL safety requirements for utility meters and found that the L+G meter design we are using is fully compliant with these tests. We will continue to test and monitor our meters to ensure they meet the highest safety standards. Safety is always our top priority."

- Excerpt from PECO News Release October 9, 2012

UL Meter Safety Standard 2735

Currently a Draft Standard under review

- Scope

  All Type S and Type A electric meters rated up to 600 volts and any other type of meter intended for installation within the enclosure of “complete equipment”.

- Contents

  Meter Construction Requirements

  Meter Performance

  Meter Markings

  Standards for Components

UL Meter Safety Standard 2735

Meter Construction Requirements

- Meter forms as defined in ANSI C12.10 unless alternate forms are specified by a Utility
- Enclosures
- Covers
- CT’s, internal and external
- Batteries
- Service Switches
- Circuit Boards
- UL recognized or tested components

UL Meter Safety Standard 2735

Meter Performance Tests

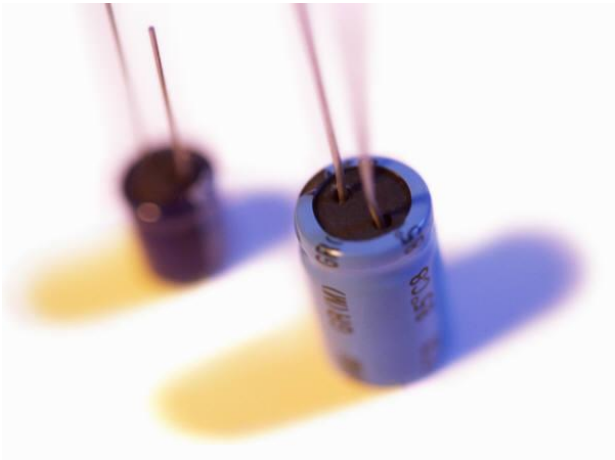
- Tests for various fault conditions
- How easy to set on fire
- Strength of Construction
- Some tests from ANSI C12.1 Section 4

UL Meter Safety Standard 2735

Component Standards

UL Standards for many meter components will apply:

- Fuses
- Transformers
- Switches
- Terminal Blocks
- Connectors



Issues to Address

- UL is very interested in capitalizing on this opportunity to regulate electric meters – a market they have been excluded from in the past by the NFPA
- Draft Standard 2735 was issued without any prior notification to the ANSI C12 Main Committee despite assurances that UL would work with and participate with ANSI to avoid a Standard that contradicts the complementary ANSI standard
- Manufacturing cost for a meter would increase significantly – neither the manufacturer nor the end user are sure how much this cost increase will be or if the increase is warranted.

Challenges of Implementing a UL Standard

- Agreement on a common standard by UL and ANSI
- Meter vendor acceptance of the new standard
- Coordination of UL and ANSI testing of meters
- Lead Time and Cost of UL listing
- Need for ANSI Testing in the shadow of a UL Standard
- UL part of new meter certification process
- UL part of new component selection and design changes

Challenges

Issues

Pro's and Con's of a UL Mark on Electric Meters

Pro's

- Greater perception of safety by the general public
- Outside inspection to maintain certification
- All changes to meter construction are monitored and approved by an outside group

Pro's and Con's of a UL Mark on Electric Meters

Con's

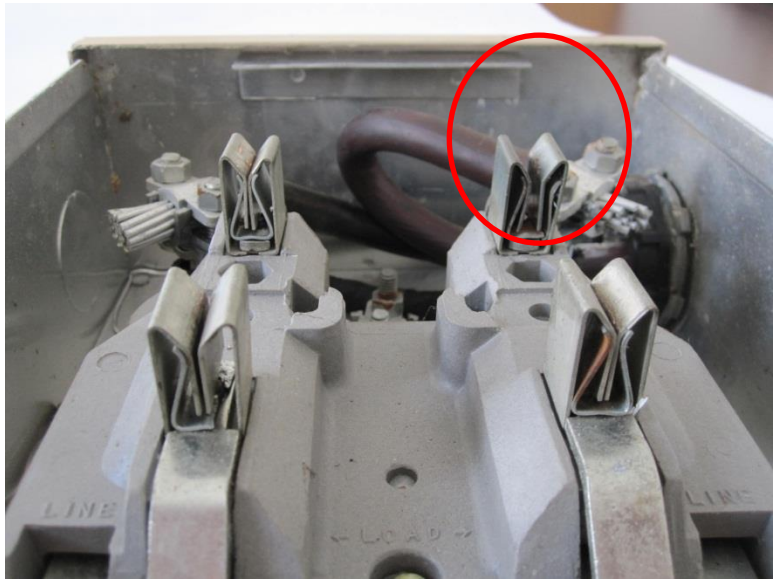
- Greater cost to Utility and Utility customers
- Slower innovation for meters
- Potential for short term meter shortages after implementation
- Potential for fewer meter vendors and options for Utilities

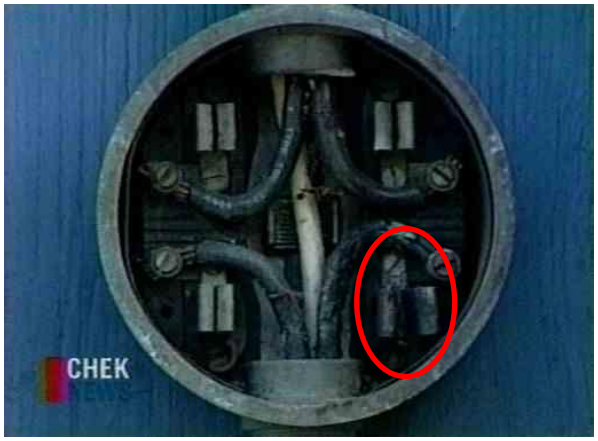
Use of UL as an Independent Test Lab

Current involvement of UL in the metering space

- Independent Test Lab to run ANSI tests
- Independent Test Lab to run customer specific tests
- Independent Test Lab to recommend and run safety tests on any metering product

Searching for Hot Sockets - Common Features and Common Sources of Concern





- Hot Sockets are just that – hot sockets and not hot meters
- Some meters handle hot socket situations better than others

Physical Symptoms

- Pitted and discolored meter blades
- Melted plastic around one or more of the meter stabs (typically the plastic around one stab is where the deformation starts)
- Pitted and discolored socket jaws
- Loss of spring tension in the socket jaws

Field Inspection of Sockets
Best Practices

- **Example field check list**
  - Gaps in meter socket jaws
  - Discoloration of one jaw vs. the other three
  - Signs of melted or deformed plastic on meter base
  - Pitting of either meter blade or socket jaw
  - Loss of tension in meter socket jaws
  - Check condition of wire insulation and connections to meter jaws
  - Check the overall condition of the box, socket, meter and how they attach to each other and the building.
  - Look for signs of tampering
  - Look for signs of water or debris inside of the meter can

High Bills

- Bill increases after a meter installation is always perceived as a new meter issue – this has always been true.
- Public is now more aware that a new meter is going on their house and any increase in their bill is immediately linked to the new meter and not to a change in usage.

Privacy Issue–Big Brother is Watching Me

The utility knows everything I am doing

Current involvement of UL in the metering space

- The utility will know everything I am doing
- My every move can be tracked
- I will never have any privacy again

Privacy Issues – real or imagined

Potential Responses

- There is no two way communication unless the consumer has equipment in the house to talk to the meter
- This would be rate based
- The information available from the internet is far more of a privacy invasion
- The phone utility knows who you are talking to
- The electric utility only knows how much energy you are using

Questions and Discussion

Tom Lawton

TESCO – The Eastern Specialty Company

Bristol, PA

1-800-762-8211

This presentation can also be found under Meter Conferences and Schools on the TESCO web site: www.tesco-advent.com