Functional Testing
How to Cope with Ever Changing Needs & Requirements

THE EASTERN SPECIALTY COMPANY

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Notes from the Shop
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Session Objectives

- Discuss the differences between functional and accuracy testing

- Discuss the types of functional testing required in a post-AMI world

- Discuss the need for functional testing as well as Certification or FAT testing (first article testing)

Types of Meter Testing

- New meters have many tests specified in ANSI C12.1 and C12.20, usually performed by the meter vendors.

- With In-service meters, mainly meter consumption accuracy
  - Maybe Full Load, Light Load, Weighted Average Accuracy
  - In the Meter Shop (periodic in service testing requirements)
  - In the Field (customer inquiries & complaints)

- With AMI/Smart Grid, must consider meter device functional testing for in-service.
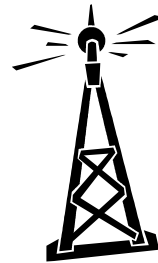
Impact of AMI and AMR on Meter Testing

Test an installation and system and not just a meter!

Test programs for AMR & AMI systems need to involve testing and checking the meter performance as well as checking and testing the installation. This more extensive test check list needs to be done especially for the higher revenue C&I customers.

Impact of AMI

- New concept of what is a meter…<u>includes everything under the cover.</u>

- AMI communications modules and service disconnect switches.

- Need to apply sampling and testing requirements to these devices when part of the AMI meter.

Traditional Categories of Meter Testing

- # New Meters
  - Testing in the Meter Shop

- # In Service
  - Testing in the Meter Shop for State sampling requirements
  - Testing in the field for customer inquiries or complaints

- # Retirement
  - Testing in the Meter Shop

AMI Meter Testing

- Inspection
- Error Reporting/Clearing
- Clear/Reset
- Meter Reprogramming
- Program Verification
- Disconnect Testing
- Firmware Updates
- Security Updates
- Password Updates and Verification
- Battery Replacement

AMI Network Testing

- Firmware Updates

- Disconnect Testing

- Meter Association Confirmation

- Network Status Updates

- Security Updates

- Communication Interval Verification and Configuration

- Communication Verification

- Real Time Clock synchronization

- Zigbee

- Alarms (Verification and Programming)

- Lat/Long (Verification and Configuration)

When do we do this testing?

- As a part of Standard Testing
- As a check for "new meters"
- As a check of an installation

Questions and Discussion

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