



Managing Vendor Issues on AMI Design



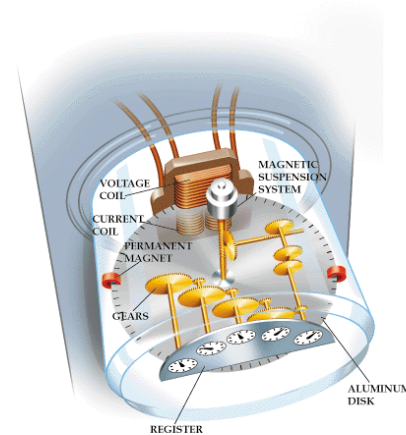
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The Eastern Specialty Company

For the North Carolina Electric Meter School 2016

AMI Risk Mitigation and Vendor Management

Metering - Past, Present, and Future

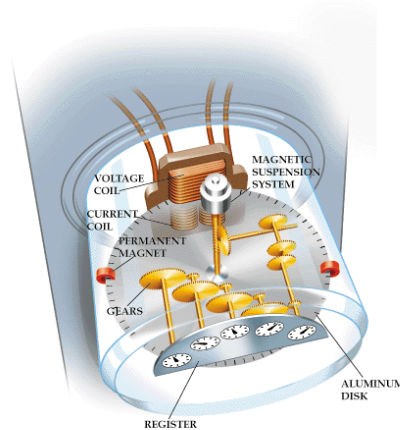
- Growing List of Meter Features
- Growing List of Stakeholders
- Are you prepared?



AMI Risk Mitigation

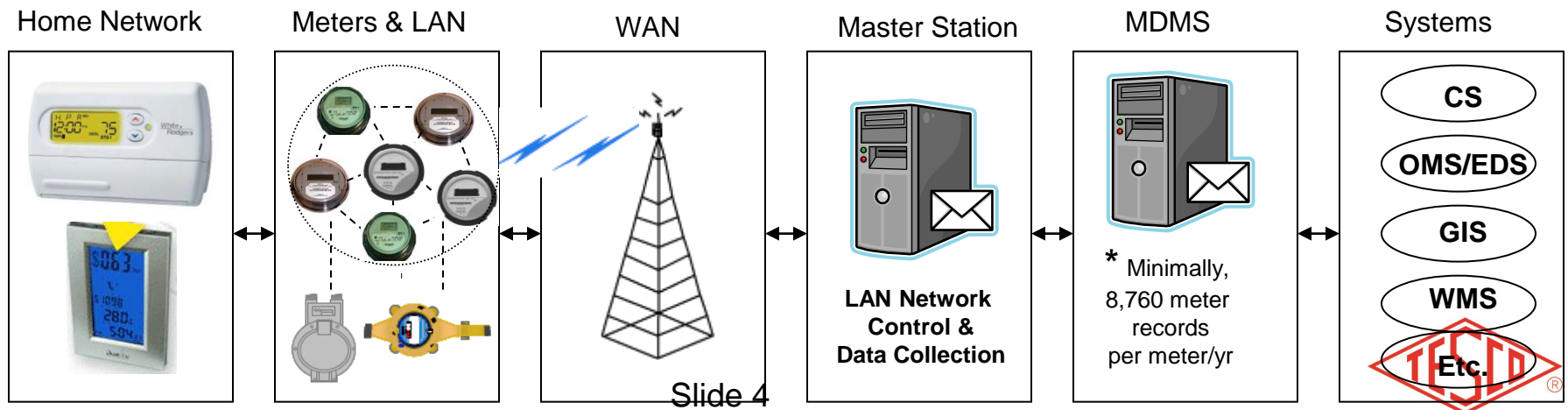
Simpler times

- Disk & Dials
- kWh's & kW
- Major Issues
 - Accuracy
 - Solid State meters
 - Mostly for C&I Meters (5% - 10% of total)



AMI Risk Mitigation

- AMI System Components Include:
 - Home area network (HAN),
 - Meter & Local Area Network (LAN)
 - Wide Area Network (WAN) communications
 - Master Station
 - Meter Data Management System (MDMS)
 - Systems: Customer Service (CS), Outage Management System (OMS),



AMI Risk Mitigation

Metering - Growing Capabilities List



Smart Meter – Available Technology & Options

Time 

METER FEATURES	AMR			AMI	
	Meter Readers	Mobile AMR	Fixed Network	1st Gen	Smart Meter
Scheduled Monthly Reads	X	X	X	X	X
Automated Monthly Reads		X	X	X	X
TOU Metering			X	X	X
Two-way Communications to the AMI Module			X	X	X
Hourly Data (# Channels, Interval length, storage)				X	X
VPP Rates (including CPP and RTP rates)				X	X
Outage Management (Super					X
Two-way Communications to	Two-way Communications to the meter →				X
Solid State Meters – 100%	Solid State Meters – 100% →				X
St	Standard Communications: ANST C12.22, IP2 →				X
St	Standard Data Model – ANST C12.19 →				X
Se	Security Meter Communications LAN, HAN →				X
Lo	Local Meter Communications (Optical, Radio) →				X
Re	Remote Meter Programming →				X
Re	Remote Meter Firmware (Meter, LAN, and HAN) →				X
Bi	Bi-directional metering & Net Metering (DG) →				X
Re	Reactive Metering →				X
M	Meter Service Switch →				X
Pr	Demand kW Reading for each customer →				X
Pr	Power Quality Measurement (Voltage, etc.) →				X
Ho	Home Area Network (Gateway in Meter?) →				X

AMI Risk Mitigation

Metering - Growing List of Stakeholders



Slide 7



Smart Meter - Stakeholders

Time

Stakeholders	AMR			AMI	
	Meter Readers	Mobile AMR	Fixed Network	1st Gen	Smart Meter
Departments/Functions					
Bi					Billing → X
Ra					Rates → X
Pl					Purchasing → X
Da					Data Collection → X
St					Standards → X
Re					Regulatory Reporting & Strategy → X
Co					Communications → X
Int					Information Technology (IT) → X
St					State Regulatory Control Demartment → X
Se					Security (System Including the Meter) → X
Co					Communication networks (WAN LAN HAN) → X
Fi					Financial Reporting → X
Co					Corporate Planning & Strategy → X
Pe					Power Quality → X
W					Work Force Management → X
As					Asset Management → X
Di					Distribution/Transmission Planning → X
Di					Distributed Generation (DG) Solar PHEV → X
Sa					Sales/Marketing → X
IS					ISO Reporting → X
Co					Customer → X

AMI Risk Mitigation

Certification and Change Management

AMI Deployment Planning - A Metering Perspective

- Meter Qualification
- Meter Certification
 - (First Article Testing - FAT)
- Meter Acceptance

How do these differ?



AMI Project Management Structure

Strategic Planning

Establish strategic goals and objectives aligned with the AMI strategy

AMI Requirements

Define and manage AMI business and operational requirements

AMI Project Planning

Develop and execute project deployment plans to meet AMI goals and requirements

Tracking & Oversight

Establish and utilize AMI project tracking, oversight, and control mechanisms

Communications

Identify key stakeholders and communicate AMI project information in a timely fashion

Risk Management

Identify potential risks and develop / execute an ongoing AMI risk management plan

Supplier Management

Qualify, select, and manage AMI suppliers and contractors

Change Management

Develop a process to manage changes to AMI goals, requirements, or plans

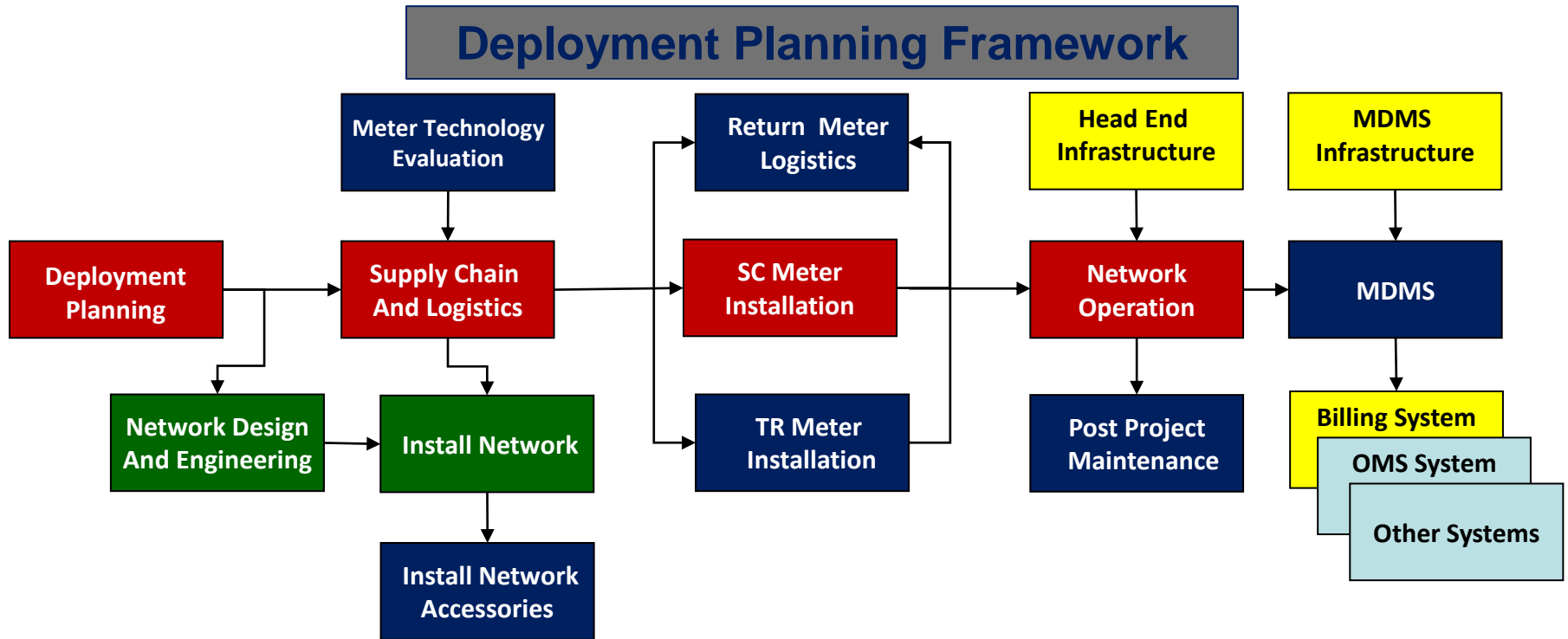
Quality Assurance

Identify and develop quality measures for both AMI installation and AMI operations

Operations Transition

Develop processes for transitioning from AMI installation to AMI operations

AMI Project Implementation



- AMI Project Team
- Metering Services
- Information Technology
- AMI Vendor
- Others – Distribution, Etc

Possible Functional Responsibilities



Change Management – The Key to Managing the Risks

AMI Deployment – Common Features and sources of Risk

- Compressed time frames for pre-deployment, pilots, and deployment
- New features and functionality being added at a tremendous rate.
- Bugs, fixes, improvements being implemented constantly in the meter

How do we manage these and what can happen in the real world?

AMI Risk Mitigation

Certification and Change Management

AMI Deployment

- Meter Qualification
- Meter Certification
- Meter Acceptance

Where are the risks?

How closely should each participant be held accountable and at which steps?

Pre-Deployment Certification Test Functions

- ANSI Testing
- Meter Functionality
- Meter Data Acquisition Accuracy for Each Form
- Dual Socket Meter Comparison – Data Collection & Accuracy (Energy, Demand, Load Profile)
- Large Test Platform Meter Comparison – Data Collection & Accuracy
- Disconnect/Reconnect Functionality
- Outage Performance
- Meter Communications Performance



Change Management – The Keys to Managing the Risks

Consider Meter Vendor Quality Programs

- In plant final inspection and testing
- Plant first pass test results... some vendors are as low as 81%
- Vendor supply change management
- Validation testing of firm ware changes



Change Management – The Key to Managing the Risks

Consider Meter Vendor Change Management Systems

- How does Acceptance Testing differ from Certification Testing?
- When do we return to Certification Testing?
- Who should be involved in developing the Certification and Acceptance Test Plans and when should this be done?

Change Management – The Key to Managing the Risks

Consider Meter Vendor Change Management Systems

- What should be built in to the AMI Vendor Contracts?
 - Deployment vendors
 - Meter vendors
 - Communication vendors
 - Systems vendors
 - Project Management and consultant vendors
 - Support and Engineering vendors
- Too much too soon or too little too late?

Change Management – The Key to Managing the Risks

Change Management

- There are no bad manufacturers. Everyone is moving very fast to meet the market demands. Without adequate checks and balances there will be problems. Even with them, there may still be problems – that is why we call this Risk Mitigation and not Risk Elimination
- Each Utility must take a far more active role as part of this system of checks and balances

Post Deployment planning - on the front end

Minimize Risks and Maximize Benefits

- Transition team planning
- Data analysis planning
- Operations benefits and planning
 - Vendors to support this via products and training



Questions & Discussion

Are you prepared?



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

