Managing Vendor Issues on AMI Design

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Management Session, Kensington B
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Presentation Goal

- Understand how to identify the greatest vendor related risks for an AMI Deployment
- Understand who the stakeholders are for an AMI roll out
- Review and Discuss examples of risk mitigation

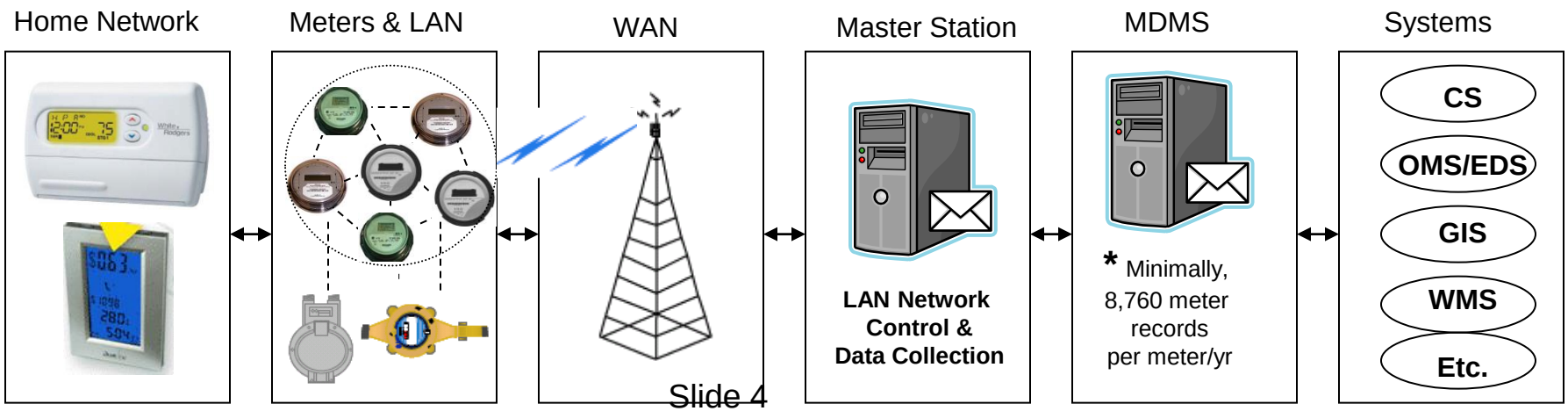
Current Status

….as we move toward the 50% mark of first generation AMI roll out

- Growing List of Meter Features
- Growing List of Stakeholders
- How does this change what the utility is responsible for and what the vendor is responsible for does this change how or what we each do as we prepare to operate in this new environment?

Basic Building Blocks for our AMI System

- 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)



New Capabilities under the cover

The more features and equipment under the cover, the greater the risk

This is not a bad thing. This is actually what we want. However there is inherent risk associated with including more hardware and more features in teh meter and this risk needs to be acknowledged and managed.

Smart Meter – Available Technology & Options

Time →

		AMR		AMI	
	Meter Readers	Mobile AMR	Fixed Network	1st Gen	Smart Meter
METER FEATURES					
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					X
Solid State Meters - 100%					X
St					X
St					X
Se					X
Lo					X
Re					X
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Re					X
M					X
D					X
P					X
Home Area Network (HAN) Gateway in meter?					X

Two-way Communications to the meter →

Standard Communications: ANSI C12.22, IP2 →

Standard Data Model – ANSI C12.19 →

Security Meter Communications LAN, HAN →

Local Meter Communications (Optical, Radio) →

Remote Meter Programming →

Remote Meter Firmware (Meter, LAN, and HAN) →

Bi-directional metering & Net Metering (DG) →

Reactive Metering →

Disconnect Switch →

Demand kW Reading for each customer →

Power Quality Measurement (Voltage +++) →

Smart Meter – More Stakeholders

Time →

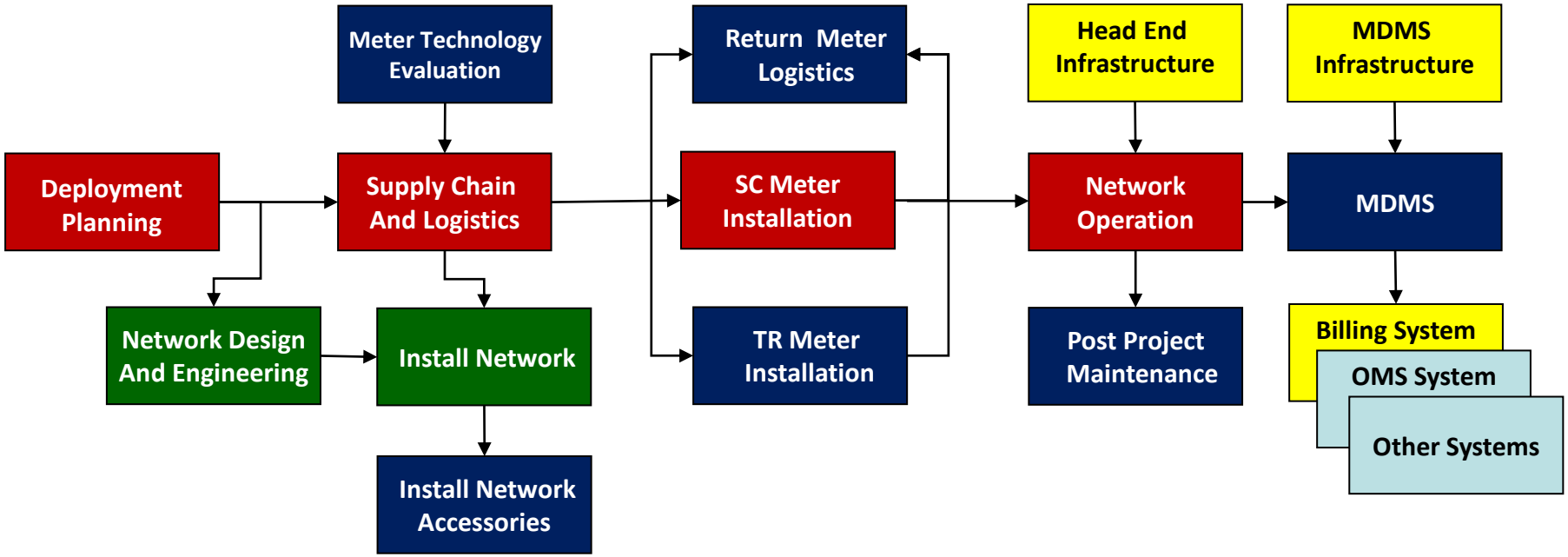
		AMR		AMI
Stakeholders	Meter Readers	Mobile AMR	Fixed Network	1st Gen	Smart Meter
Departments/Functions					
Billing →					X
Rates →					X
Purchasing →					X
Data Collection →					X
Standards →					X
Regulatory Reporting & Strategy →					X
Communications →					X
Information Technology (IT) →					X
State Reglatory Control Demartment →					x
Security (System Including the Meter) →					x
Communication networks (WAN, LAN, HAN) →					x
Financial Reporting →					x
Corporate Planning & Strategy →					x
Power Quality →					x
Work Force Management →					x
Asset Management →					x
Distribution/Transmission Planning →					x
Distributed Generation (DG) Solar, PHEV →					x
Sales/Marketing →					x
ISO Reporting →					x
Customer →					x

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

Deployment Planning Framework



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?

Meter Certification and Change Management

AMI Deployment Planning – A Metering Perspective

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

How do these differ?

Where are the risks?

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

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

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 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
- Managing Change
- Data analysis planning
- Operations benefits and planning
  - Vendors to support this via products and training

Summary

- Updated roles for the Utility and the Vendor
- New areas of risk
- New Opportunities for increased benefits and value from our installed infrastructure

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