



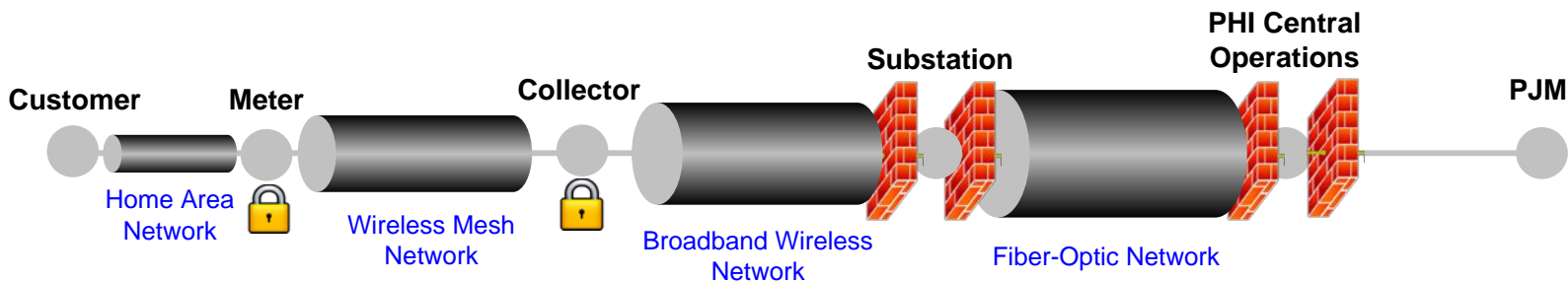
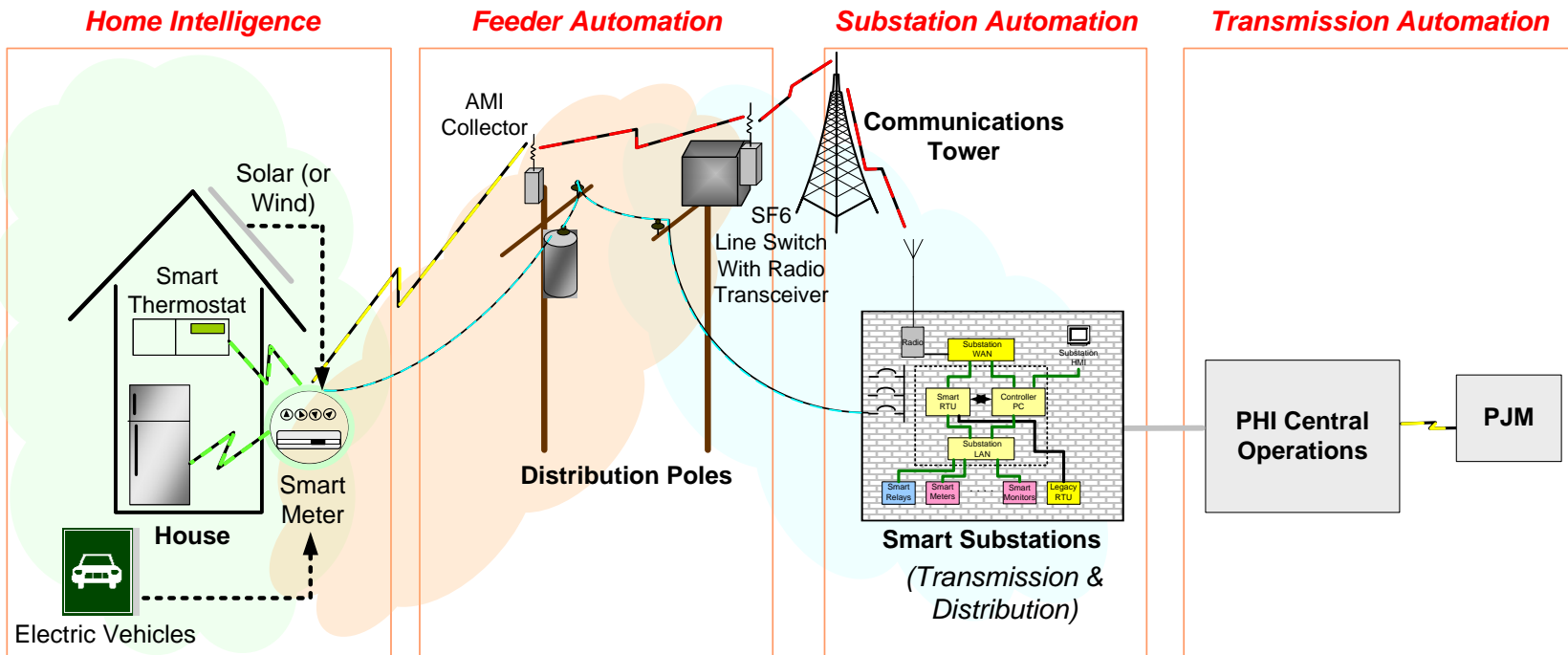
# Department of Energy Electricity Advisory Committee March Meeting



## ARRA Smart Grid Deployment Efforts

Presented by: Karen Lefkowitz, Vice President, Business Transformation and Chief Information Security Officer  
March 27, 2015

# PHI's Smart Grid Domains and Integrated Communications Infrastructure



Growing volume of data...

# Smart Grid - Current Status

- Technology is working as envisioned, designed and executed
  - Over the air reads, outage detection and restoration notification
  - Automatic sectionalizing and restoration
  - Remote disconnect and reconnection
  - Usage data available to customers
  - Peak Energy Savings Credit– critical peak rebates
- System performance meeting our expectations
- Step 4 in our ongoing smart grid system journey



*Focus is shifting from installing the infrastructure to implementing new uses for the customer and integrating into operations*

# Smart Grid Data Analytics

Note: Use Case selection in Roadmap based on a combination of factors including: Industry ROI, other utility trends, infrastructure and data availability, PHI capacity, budget, functional and data affinity.

## Industry Use Cases Layer

### Grid

- AMI Operations & MDM
- Distribution Automation & SCADA
- Data Model/Store (Big Data Capable)
- Network Connectivity Analysis
- Network Models - T&D, Secondary
- Network Cyber & Physical Security
- Distributed Generation Analysis - Impacts, Interconnection
- Demand Response Control, Fuse Checker, PV Checker
- Demand Response Planning (EV's)
- Fault Management & System Restoration (FMSR/OFISR)
- Line Impedance & Matching
- Load Shedding
- Outage/Fault Location & Detection
- Phase Balancing
- Protection
- State Estimation

### Reliability

- ASR Scheme Analysis
- Environmental/Sensitive Area Analysis (for Reliability, Works Management)
- Optimal Switch/Recloser Placement
- Reliability Analysis (including outage analysis)
- Reliability Optimization & Cost/Benefit
- Storm Analysis (Monte Carlo, etc..)
- Vegetation Management

### Asset Management

- Asset Performance & Health
- Asset Management & Maintenance
- Materials Management

### Enterprise

- Financial Management
- Human Resource Management
- Meter to Cash Analysis
- Business Process Operations
- Fleet Optimization
- Program/Project Management
- Settlements

### Customer

- Customer Service & Call Centre Performance
- Customer Reliability & Safety
- Customer Segmentation & Targeting
- Revenue Protection/Energy Theft

### Load

- Asset Load Analysis
- Distribution Load Forecasting
- Load Balancing
- Load Profiling
- Power/Load Flow Analysis

### Voltage

- Voltage Monitoring
- Voltage Optimization & Cost/Benefit
- Conservation Voltage Reduction
- Optimal Capacitor Bank Design & Placement
- Volt/VAR Control

### Work

- Field Force Performance
- Work Management Analysis

## Intelligent Endpoint Devices and Application Layer

## Communications Layer

