Deriving Benefits from Smart Grid Investment

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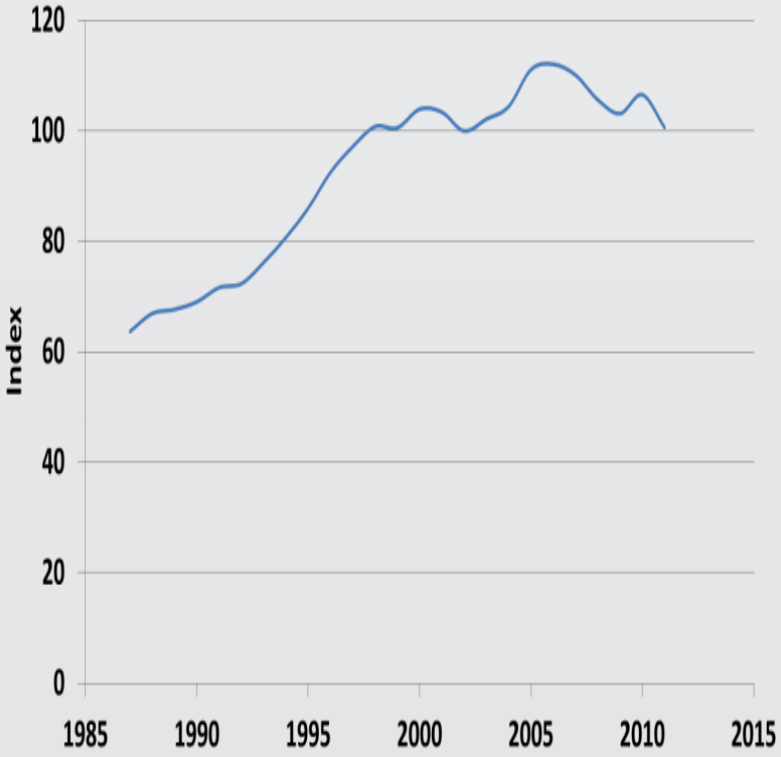
Transitioning grid modernization efforts from deployment to operationalization will be a significant challenge for utilities and service providers and will require business processes to derive business insight, efficiency and value.

Large Government Investment

- The American Recovery and Reinvestment Act (ARRA) of 2009 appropriated over $4 billion in a variety of smart grid enabling initiatives including:
  - Smart Grid Investment Grants ($3.5 billion)
  - Smart Grid Regional and Energy Storage Demonstration Projects ($0.7 billion)
  - Interoperability Standards and Framework ($12 million).
- The projects and deployments associated with these investments have been completed.
- However, the benefits associated with the investments are dependent upon efficient utilization of the systems and technologies that have been installed.

Electric Power Sector Productivity

- Y2K investment was a similar in terms of the massive investment made.
  - In retrospect, the Y2K problem may have been overblown
- However, the resulting investment in IT is one of the factors in productivity increases from 2001 to 2006



Bureau of Labor Statistics: Electric power generation, transmission and distribution productivity

Customer Interface

Functionality
Customer reduces their usage in response to pricing or events
Customer has access to recent energy usage and cost
Customer prepays for electric services
3rd parties utilize AMI to interact with customer devices
Customer Uses Smart Appliances
Customer Uses an In-Home Display
Customer Uses an Energy Management System
Load Researchers Perform Analyses Using SmartConnect Data

Billing

Functionality
Meter Reading of Demand and Energy Usage Data
Utility connects and disconnects customer
Utility remotely limits customer usage
Utility detects tampering or theft at customer site

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Demand Response & Distributed Generation

Functionality
Utility curtails customer load for grid management
Customer Installs and Uses Distributed Generation
Real time operations issues DR for economic dispatch
Demand Response participates in wholesale electricity markets

Outage Management & Reliability

Functionality
Outage Management & Root Cause Identification
Power System Automatically Reconfigures for Reliability
Distribution Operator Controls the Distribution System using AMI Data

Distribution Planning

Functionality
Distribution Planner Optimizes Asset Utilization
Planners Perform Analytics Using Historical SmartConnect Data
Upgrade AMI system

Incremental Benefits

Billing

- Automated Meter Reading
- Time-Of-Use
- Dynamic Pricing

Load Forecasting

- Customer Usage Profiling
- Customer segmentation by load curve

Home Area Networking

- Customer Usage Information
- Near-real time Demand Response performance monitoring

Questions

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