



# Utility/Telecom Partnerships in Smart Grid

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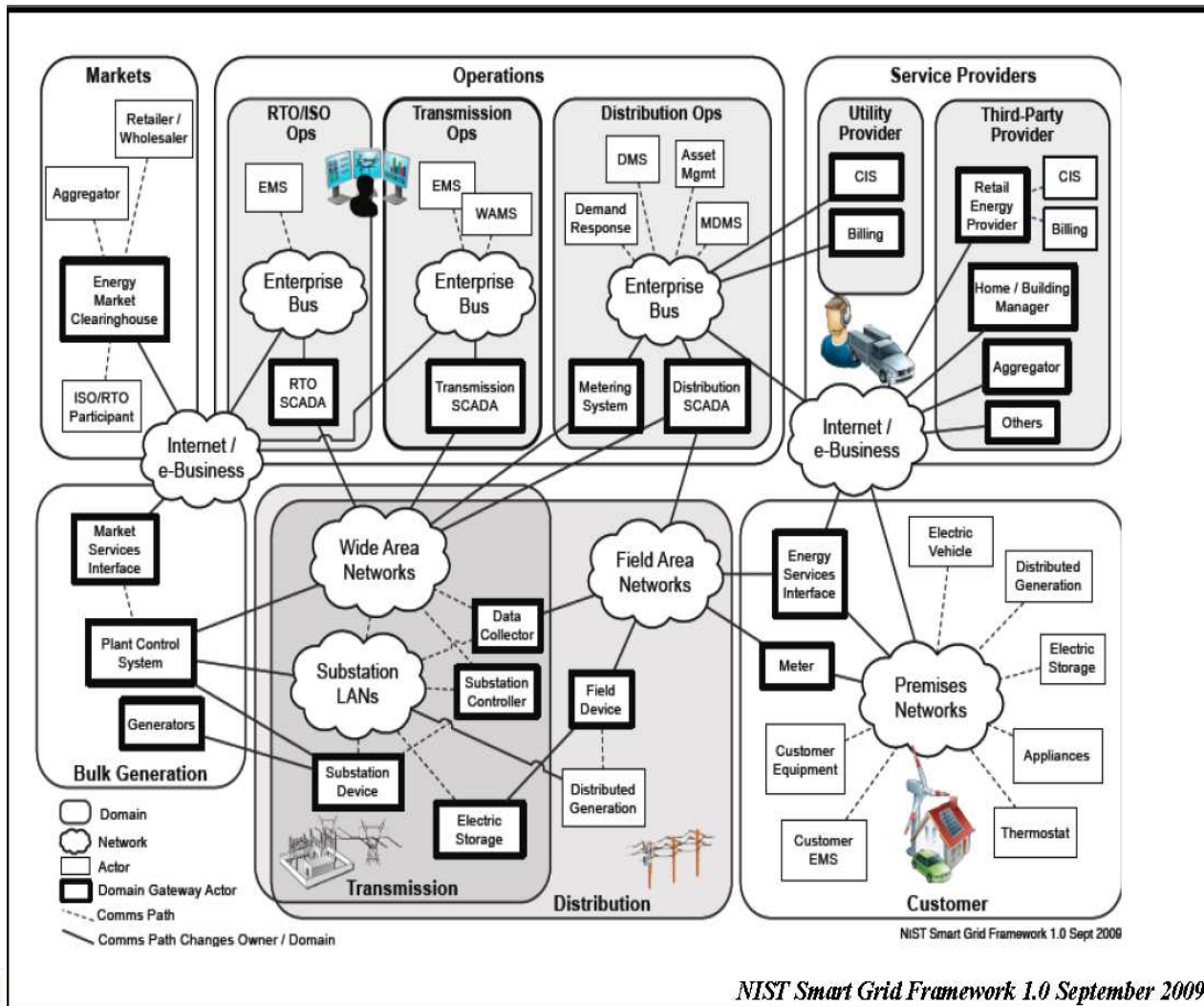
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## Objective of Today's Session

**Describe how Smart Grid is transforming utility companies, and the value they can receive from partnering with telecommunications companies as they continue their Smart Grid efforts**

# Smart Grid is essentially an enhanced communications network for the energy ecosystem



## Smart Grid Domains

- Markets
- Operations
- Service Providers
- Bulk Generation
- Transmission
- Distribution
- Customer

## Communications Requirements

- Coverage
- Mobility
- Bandwidth
- Latency
- Availability
- Security

NIST Smart Grid Framework 1.0 September 2009



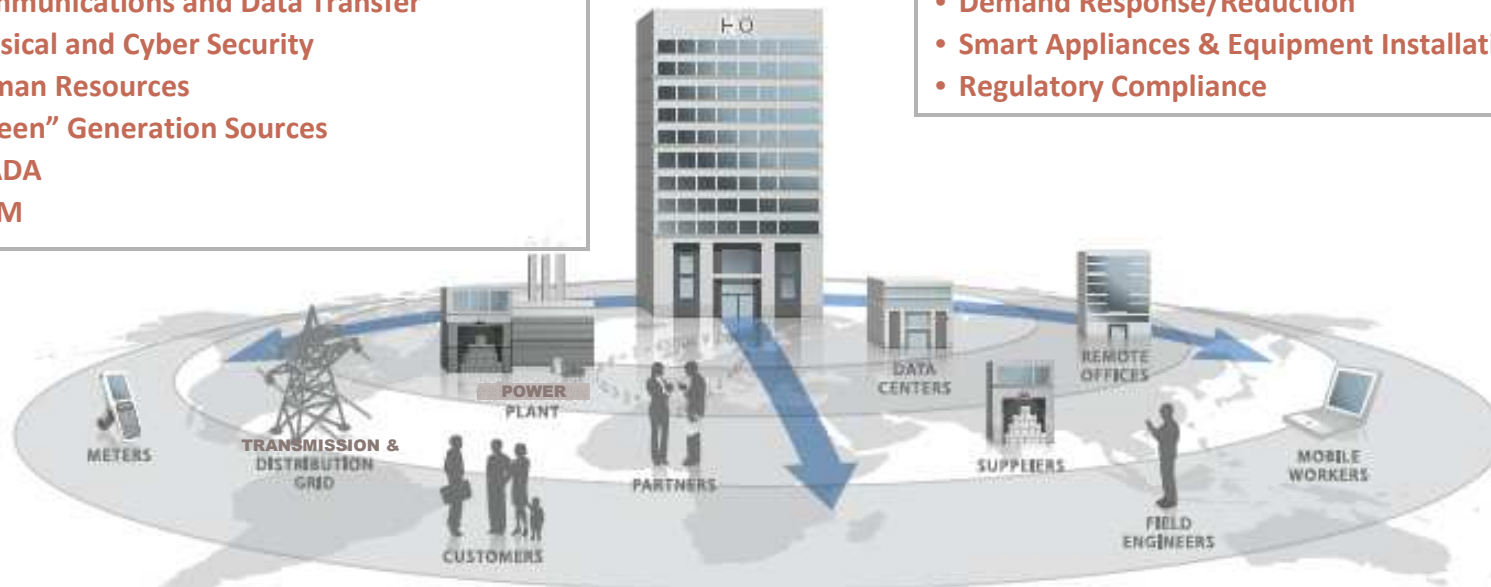
# Smart Grid technologies can help utilities achieve their primary business objectives

## 1 Secure and Enhance Utility Infrastructure

- Smart Grid Funding, Design, and Construction
- Regulatory Compliance
- Ultra High Voltage Grid
- Communications and Data Transfer
- Physical and Cyber Security
- Human Resources
- "Green" Generation Sources
- SCADA
- O&M

## 4 Adopt Energy Efficiency Measures

- Smart Grid Business Analytics
- Energy Smart Building
- Smart Data Center
- Demand Response/Reduction
- Smart Appliances & Equipment Installation
- Regulatory Compliance



## 2 Improve System Reliability

- Smart O&M of Generation and T&D
- Physical & Cyber Security
- Smart Outage Management
- Regulatory Compliance

## 3 Improve Customer Experience

- Call Center Improvements
- Field Operations Support
- Intelligent Home
- AMI/AMR
- Data Management

## These technologies introduce challenges that require investments in networks and processes

### Explosion of Data

- Devices will communicate frequently and generate substantially more data than you are handling today
- High-bandwidth network connections will be required to transport it
- Systems may need to be expanded to process and store it

### Increased Need for Security

- You will be introducing more devices to monitor and control the grid and customers' premises
- Security is more important than ever to restrict unauthorized access, control, and disclosure of system and customer data

### Rapid Introduction of New Devices

- Vendors are rapidly developing and deploying "smart" devices and appliances
- You will need to be able to quickly evaluate, connect, and support these devices
- Many will be sold directly to customers who will use them to manage the services you are providing to them

### Changing Customer Interaction

- Technology has already altered consumers' expectations of how they can interact with their service providers
- Smart devices and the tools used to manage them (e.g., portals) will enable and require you to provide a much richer customer experience



# Telecom companies' existing efforts and capabilities can provide value to utilities

## Telecom Efforts & Capabilities

## Value to Utilities

**1** Maintaining and expanding our wired and wireless communications networks



**Lower Cost:** You can leverage existing commercial networks and supporting technologies that cover most of your territory without having to invest in your own

**Experience:** You can leverage our experience managing devices on our own networks

**2** Partnering with hardware and device manufacturers to test their devices for compatibility with our networks



**Lower Risk:** Many Smart Grid devices have been pre-qualified to work on our networks

**Experience:** You can also leverage our labs' experience testing network devices when building and operating your own Smart Grid labs

**3** Expanding our efforts around security and regulatory compliance



**Lower Risk:** We have built robust security programs for ourselves as well as clients in other industries

**Experience:** You can benefit from our experience managing regulatory compliance for others

**4** Expanding our Computing as a Service (CaaS) solutions



**Lower Cost:** You do not need to build, expand, or maintain your own systems to process all this new data



## Traditional build/buy analysis favors commercial service providers

### Build Downside

- Sunk Cost
- Stranded Investment
- Sole Source Problem
- Narrow Purpose Building
- Insufficient Scale
- Reliability and Resiliency Issues
- Cyber Security Risk
- Limited Coverage and Interoperability



### Buy Upside

- Limited Capital Investment
- Rapid Time-to Market
- Future-Proof Connectivity
- Scalable Solutions
- Proven Resiliency and Reliability
- Managed Cyber Security Services
- Leverages Existing Infrastructure
- Broadly Accepted Standards