

# Missouri Smart Grid Status Update: Substation Automation

Siemens Energy, Inc.

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## Siemens Global Sectors and Divisions

### Industry

#### Divisions

- Drive Technologies
- Industry Automation
- Building Technologies
- Mobility
- Lighting (OSRAM)
- Industry Solutions



### Energy

#### Divisions

- Fossil Power Generation
- Renewable Energy
- Oil & Gas
- Energy Service
- Power Transmission
- Power Distribution



### Healthcare

#### Divisions

- Imaging & IT
- Workflow & Solutions
- Diagnostics



**Business volume: 36 billion €**

**Employees: More than 73,000**

# Competencies bundled in new “Infrastructure & Cities” Sector

**SIEMENS**



## Mobility

- High-speed trains and light rail
- Traffic management and networking
- Postal and airport logistics



## Smart Grid and Smart Consumption

- Modern energy management systems
- Automated power distribution systems
- Virtual power plants and micro-grids

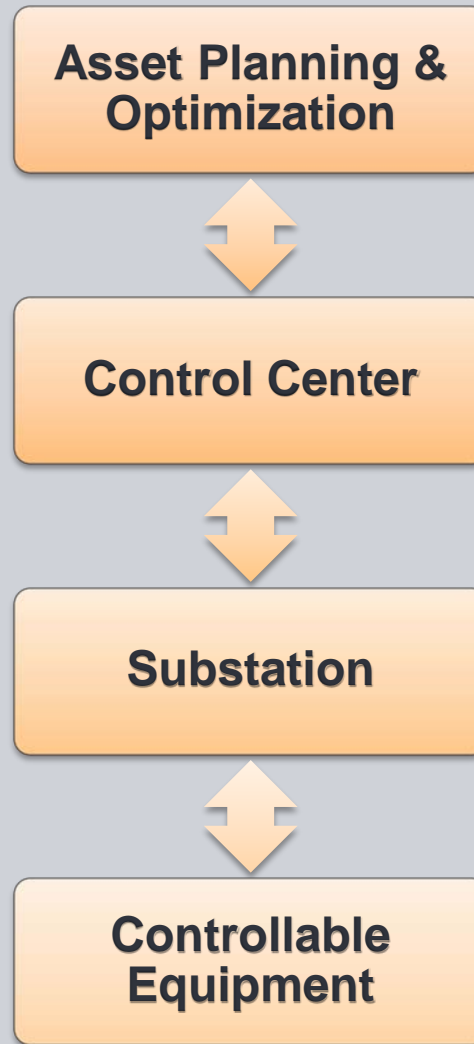


## Building Technologies

- Energy-efficient building automation
- Fire protection and security systems

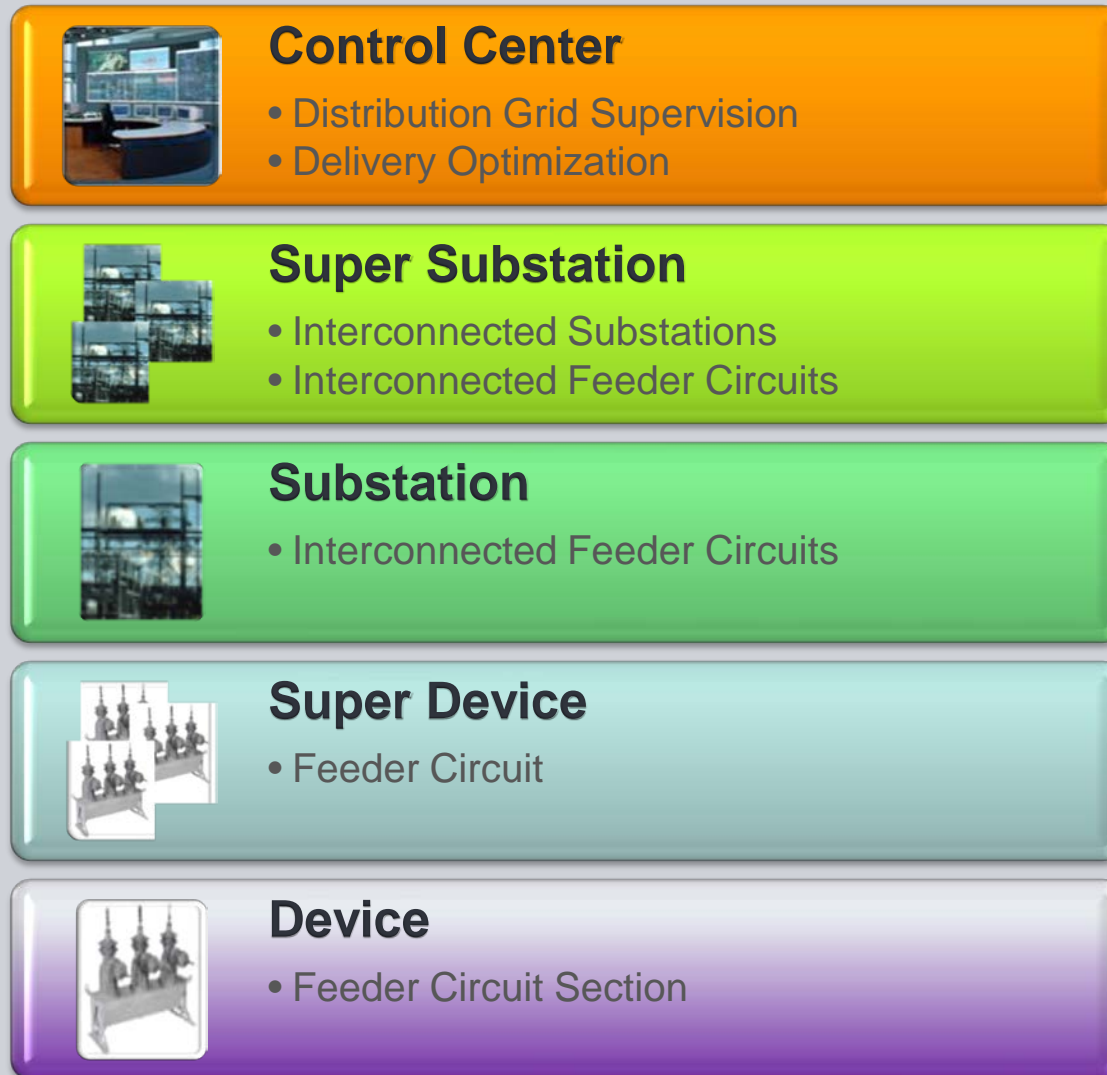
# Vertically Integrated Solution

**Hierarchical  
Control and  
Optimization**



# Clear Movement to Coordinated Decentralized Distribution Automation Decision/Control Hierarchy

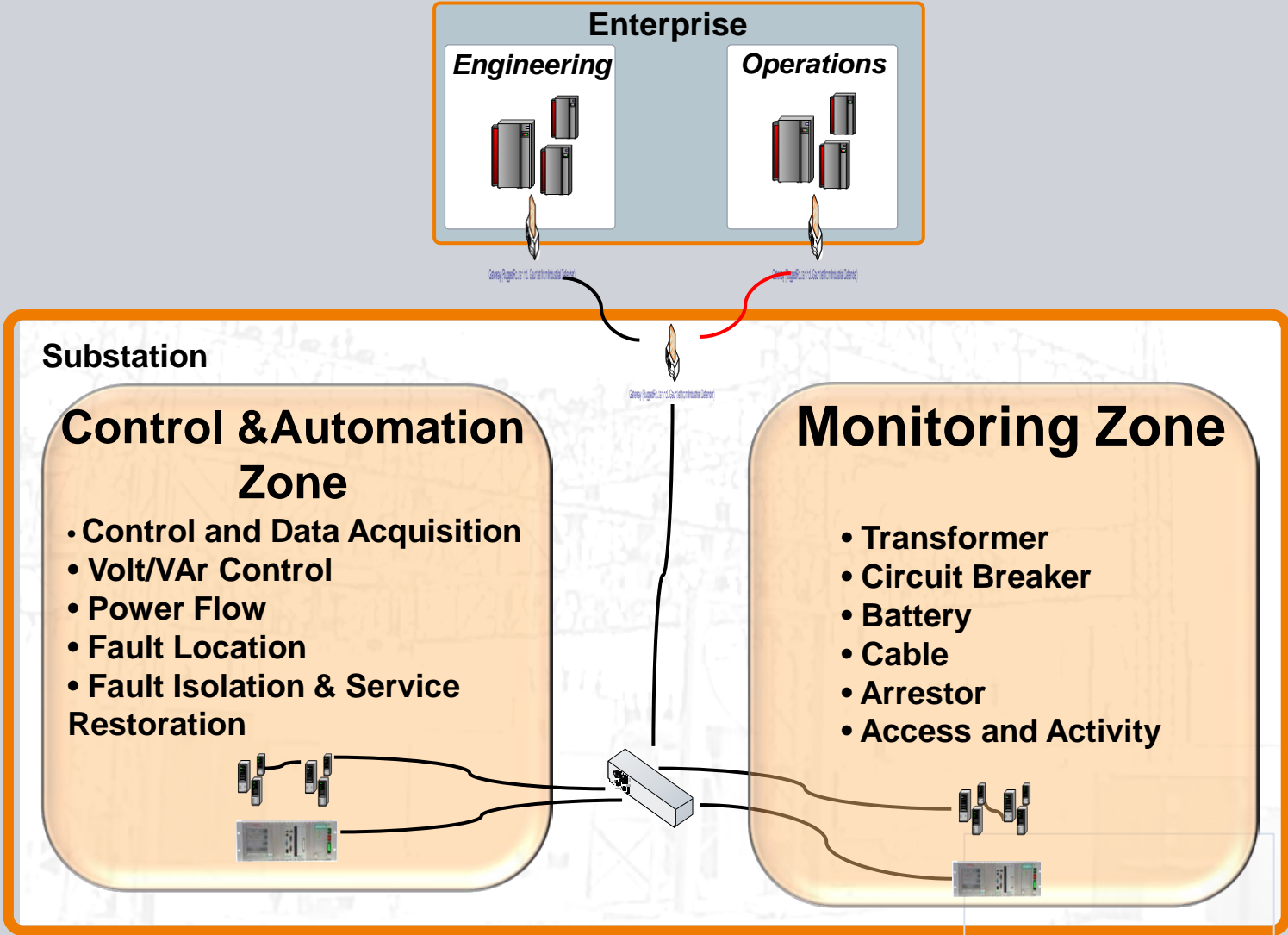
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# KCP&L ARRA DOE Smart Grid “Green Impact Zone”



# Substation Modernization



## Benefits to Consumers

### Direct

- **Increased reliability**
- **Decreased outage durations**
- **Improved power quality**

### Indirect

- **Verify technologies essential to support deployment of renewable energy sources**
- **Facilitate expanding penetration of distributed energy resources**
- **Reduce dependence on fossil-fuel based generation**



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