

# New Technologies and the Evolving Grid

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# AEP – Quick Facts

**40,000+**

Miles of Transmission

**5.4M**

Customers in 11 States

**26 GW**

Owned Generation

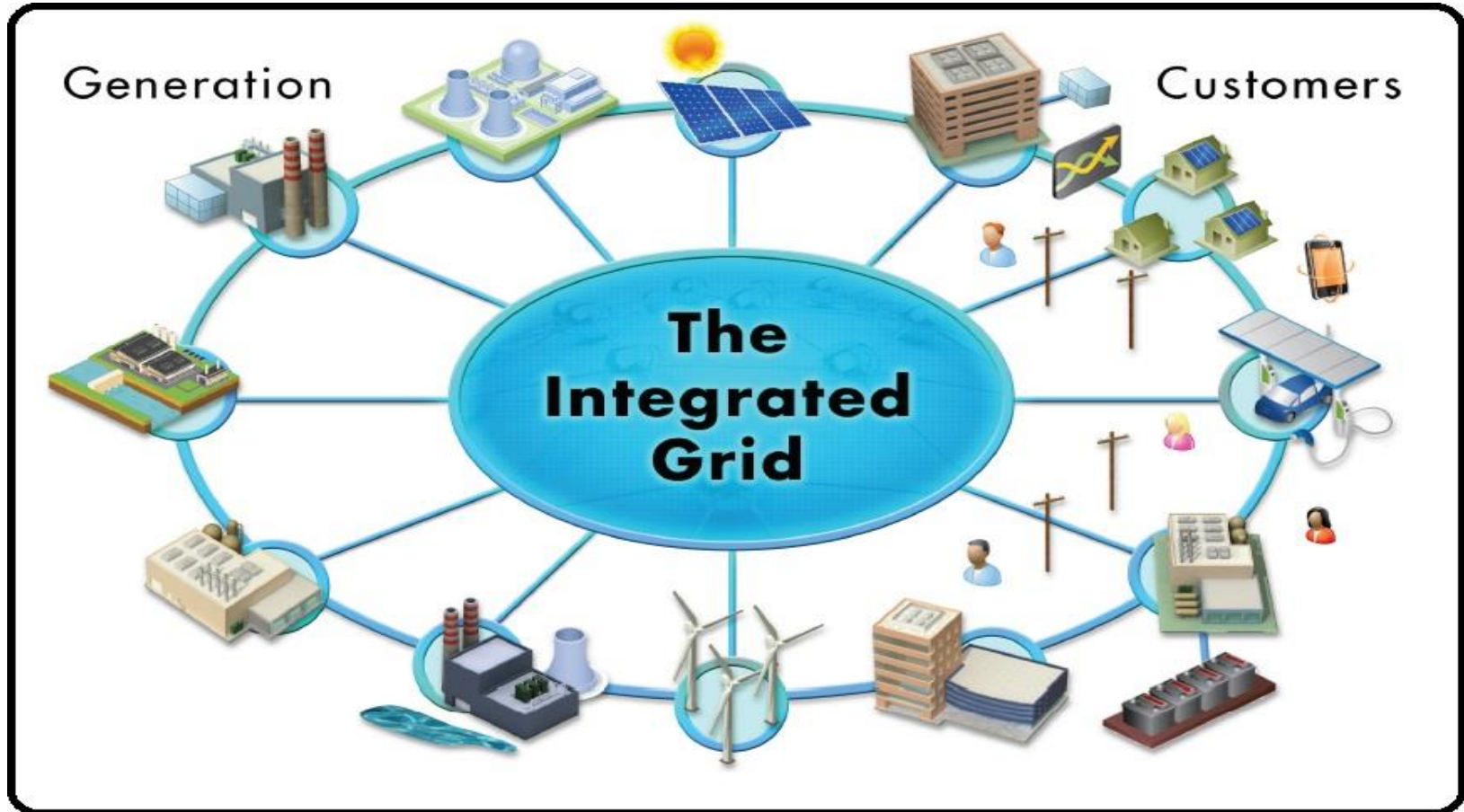
**\$34B**

Current Market Capitalization

**\$63.5B**

Total Assets

# The Evolving Grid



Grid Must Accommodate Increasing Customer Resource Ownership and Two Way Power Flow

# AEP Experiences



Energy Storage



Solar



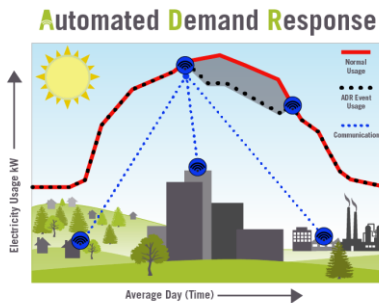
Wind



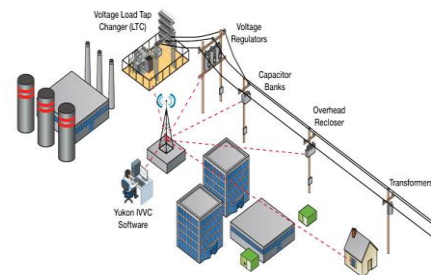
Customer  
Solar/Storage



Transmission Innovation

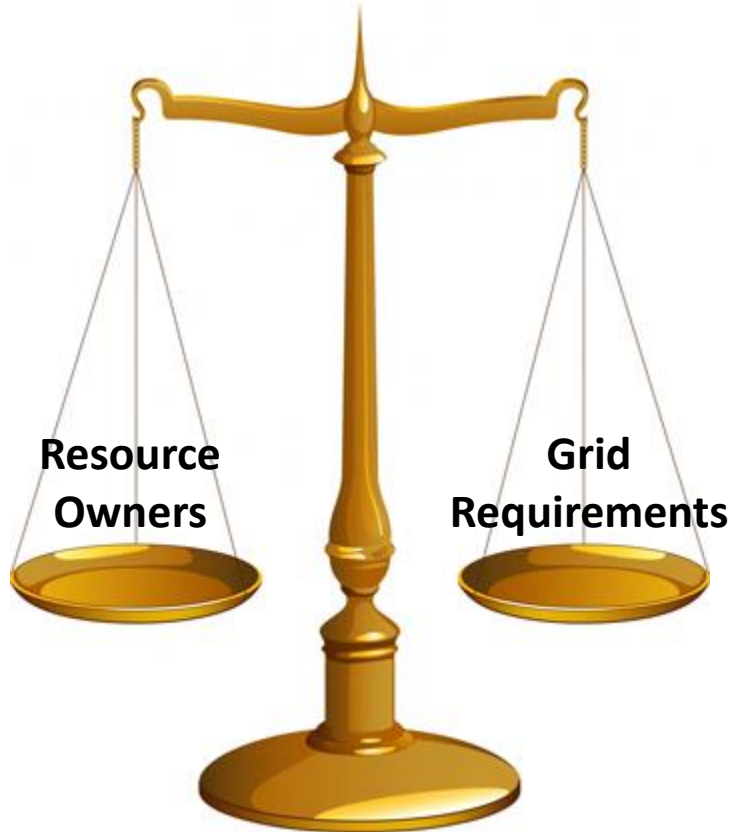


Demand Response  
Innovation



Volt/Var Optimization

# The Balance



- Resource Owners Interests:
  - Lower monthly bill
  - Flexibility (Plug-n-Play)
  - Paid for supplying energy
- Power Grid Requires:
  - Accommodating intermittent resources
  - Enhancements for seamless operation/transactions
  - Always available
- Need for Transition

Transition Will Require Thoughtful Approach

# Necessary Evolution of Regulatory Paradigms



- Clarify State vs. Federal Jurisdiction
- State
  - Ownership/Integration of New Technologies
  - Cost Recovery of Needed Grid Enhancements
- Federal
  - New Market Rules
  - Maintain Bulk Grid Reliability

New Technologies Require New Regulatory  
Approaches