



# Closing the Gap Between Wholesale and Retail

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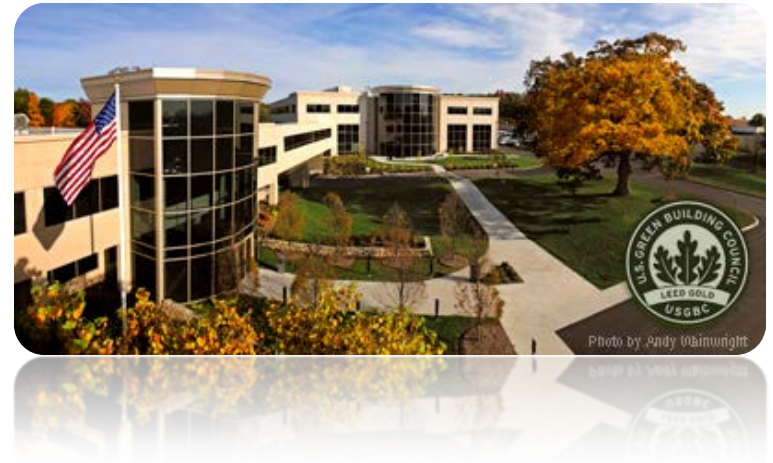
# Disclaimer

- This presentation represents the thoughts and opinions of the author and should **not** be interpreted as a description of the final implementation plans of ISO New England Inc.



# About ISO New England (ISO-NE)

- Private, not-for-profit corporation created in 1997
  - Independent of companies doing business in the market
  - Regulated by the Federal Energy Regulatory Commission (FERC)
- Approximately 500 employees



# Three Primary Areas of Responsibility



## Reliability

- Maintains minute-to-minute reliable operation of the region's bulk power generation and transmission system



## Markets

- Oversees and administers New England's wholesale electricity marketplace, through which bulk electric power is bought, sold, and traded



## Planning

- Plans and ensures the development of a reliable and efficient bulk power system to meet New England's current and future power needs

# New England's Electric Power System

## Key Facts



- 6.5 million electricity customers; population 14 million
- 350+ generators, 400+ participants
- 8,000+ miles of high-voltage transmission lines
- 13 interconnections with systems in New York and Canada
- 32,000 megawatts (MW) of installed generation capacity
- Peak demand: 28,130 MW on August 2, 2006 (after approximately 640 MW of load reduction from Demand Response (DR) programs and other actions)
- \$7.3 billion electricity market (2010)

# Regulatory Hierarchy



## Reliability

US Congress



FERC



NERC



NPCC



ISO-NE

## Market

US Congress



FERC

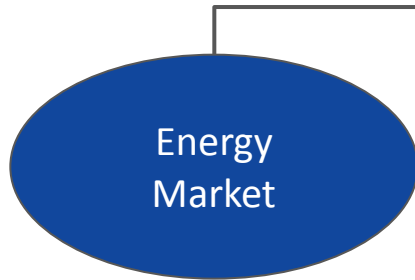


ISO-NE



# New England's Wholesale Electricity Markets

Quantity buying, selling, and reselling of the electric energy generated by a bulk power system to meet the system's demand for electric energy.



System for purchasing and selling electricity using supply and demand to set the price



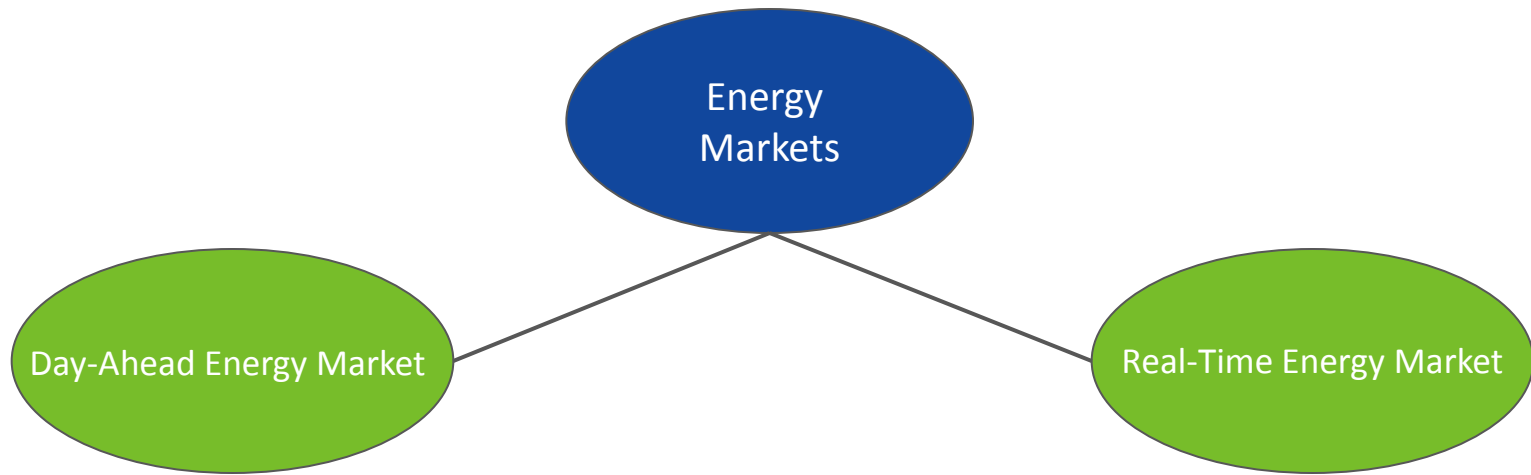
Market where resources receive compensation for having invested in capacity and delivers in the capacity commitment period(s)



Services that ensure the reliability of production and transmission of electricity



# Electric Energy Markets



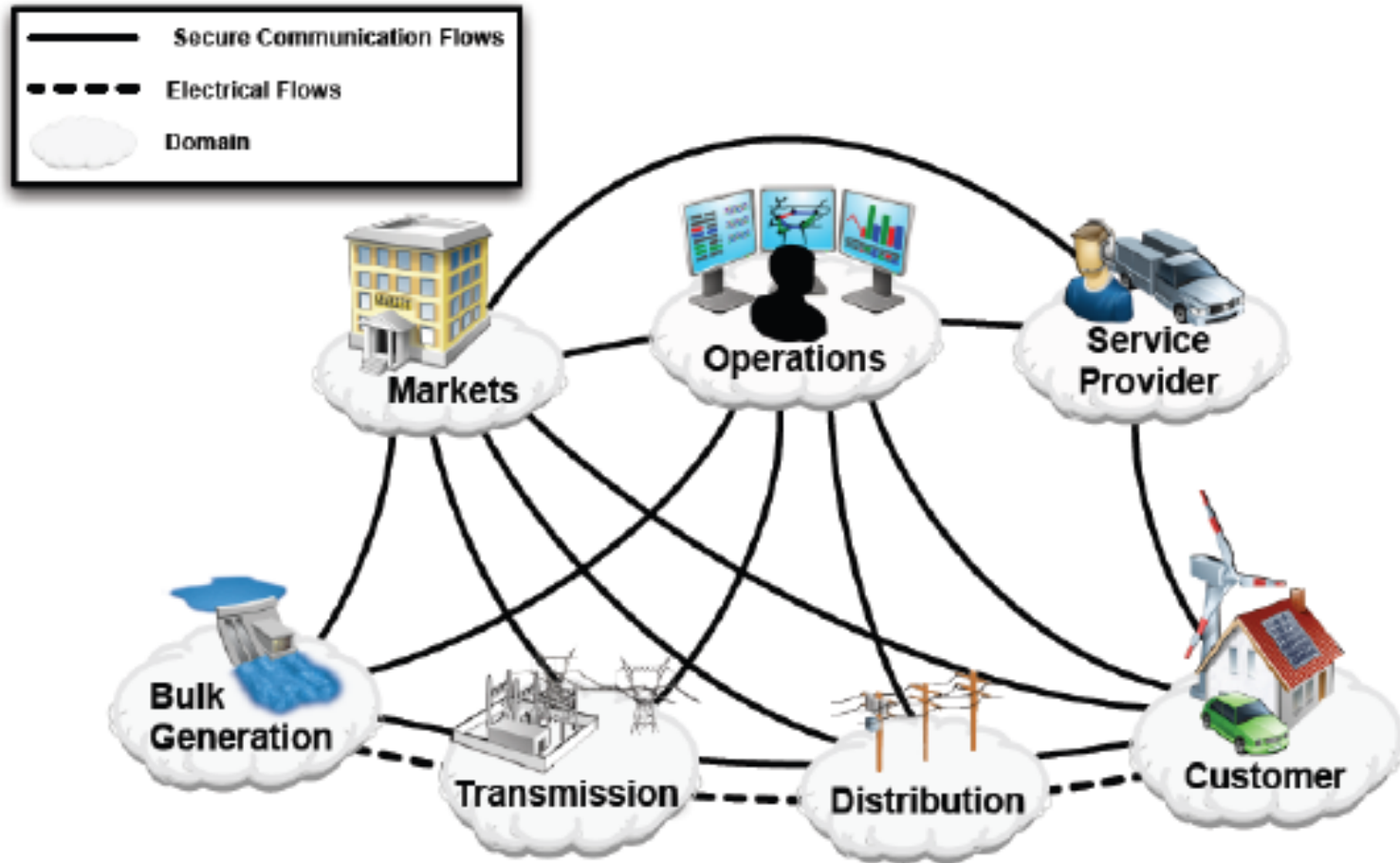
The Day-Ahead Energy Market produces financially binding schedules for the production and consumption of electricity the day before the operating day.

The Real-Time Energy Market balances differences between the day-ahead scheduled amounts of electricity and the actual real-time requirements.



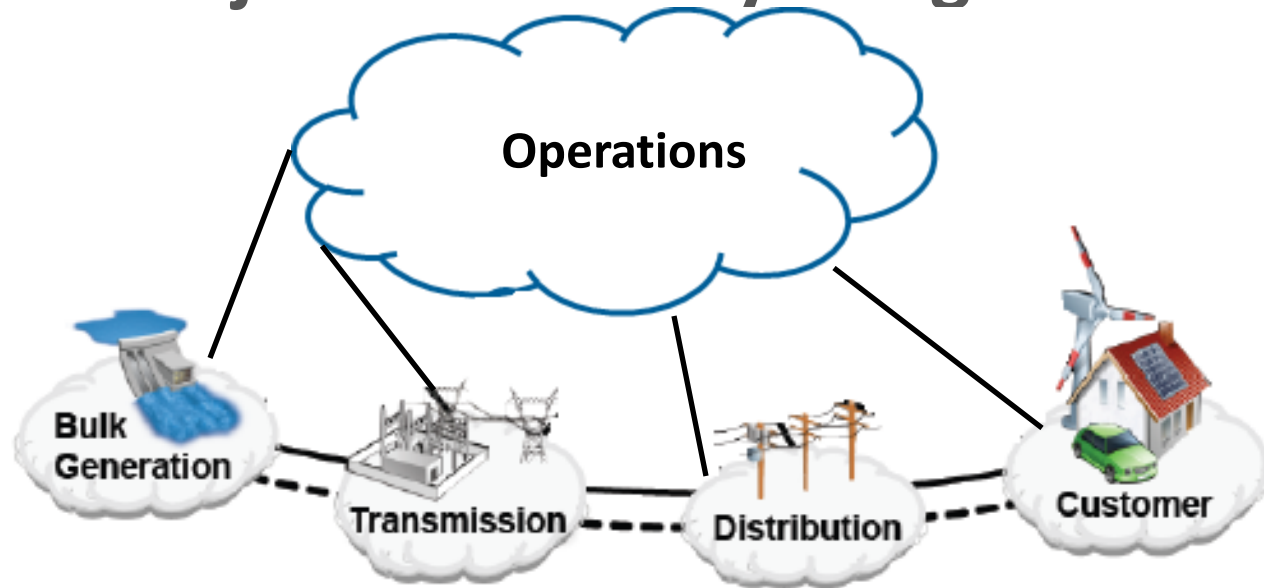


# The Wholesale Market Landscape



NIST Smart Grid Framework

# Peninsula Project – Vertically Integrated Utility



- Operations senses issue on system
- Set critical pricing signal or dispatch demand response
- Customer responds
  - Load reduced

# FERC Order 745

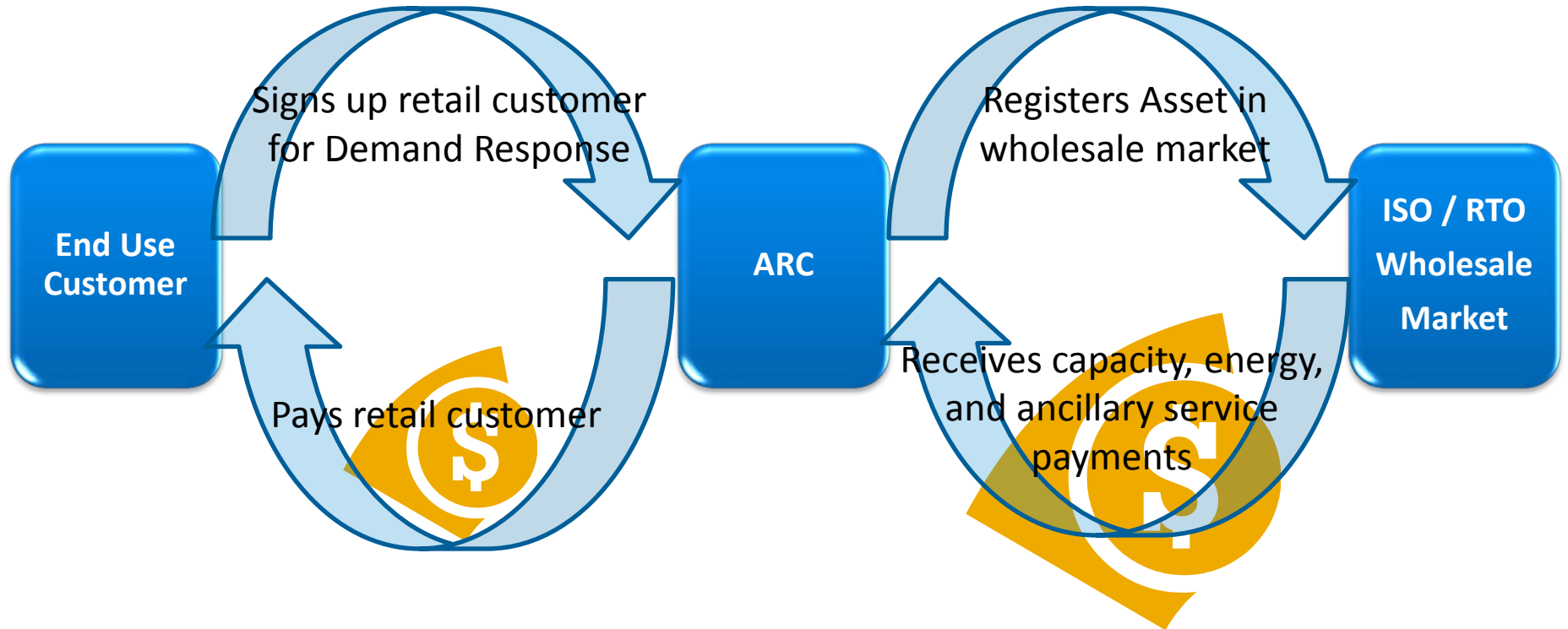
- Demand Response Compensation in Wholesale Markets
  - pay demand response resources the full LMP when it is **capability to balance supply and demand**;
  - dispatch demand response when the payment is cost-effective
  - allocate the costs proportionally to all entities that purchase from the relevant energy market in the area(s) where the demand response reduces the market price for energy.
- Under this design demand response payments are not incorporated in energy price
- Must be collected from load at an additional charge



# Aggregator Business Models

- ARC (Aggregator of Retail Load)
  - Curtailment Service Providers
  - Demand Response Provider
- Presents retail customer to market as
  - Demand response
  - Receives payments from
    - Capacity Market(not in all ISOs or RTOs)
    - Energy Market
    - Ancillary Services Markets (not in all ISOs or RTOs)
- Does **not** purchase energy for retail consumer
- Does **not** have a load obligation

# Aggregator Business Model



# Retail Energy Supplier Business Model

- Retail Energy Supplier
  - Retail choice energy supplier
  - Local distribution company (provider of last resource)
    - May have supply contracts to shift load obligation responsibility
- Has the hourly load obligation in the wholesale market
- Must buy sufficient energy to meet load through combination
  - Day-Ahead energy market
  - Real-Time energy market
- Could present retail customer to ISO or RTO as
  - Demand Response just like ARC
  - Dispatchable Asset Related Demand



# Retail Energy Supplier Business Model

