

# **Role of Markets in Providing Incentives for Resource Adequacy and Security of Supply**

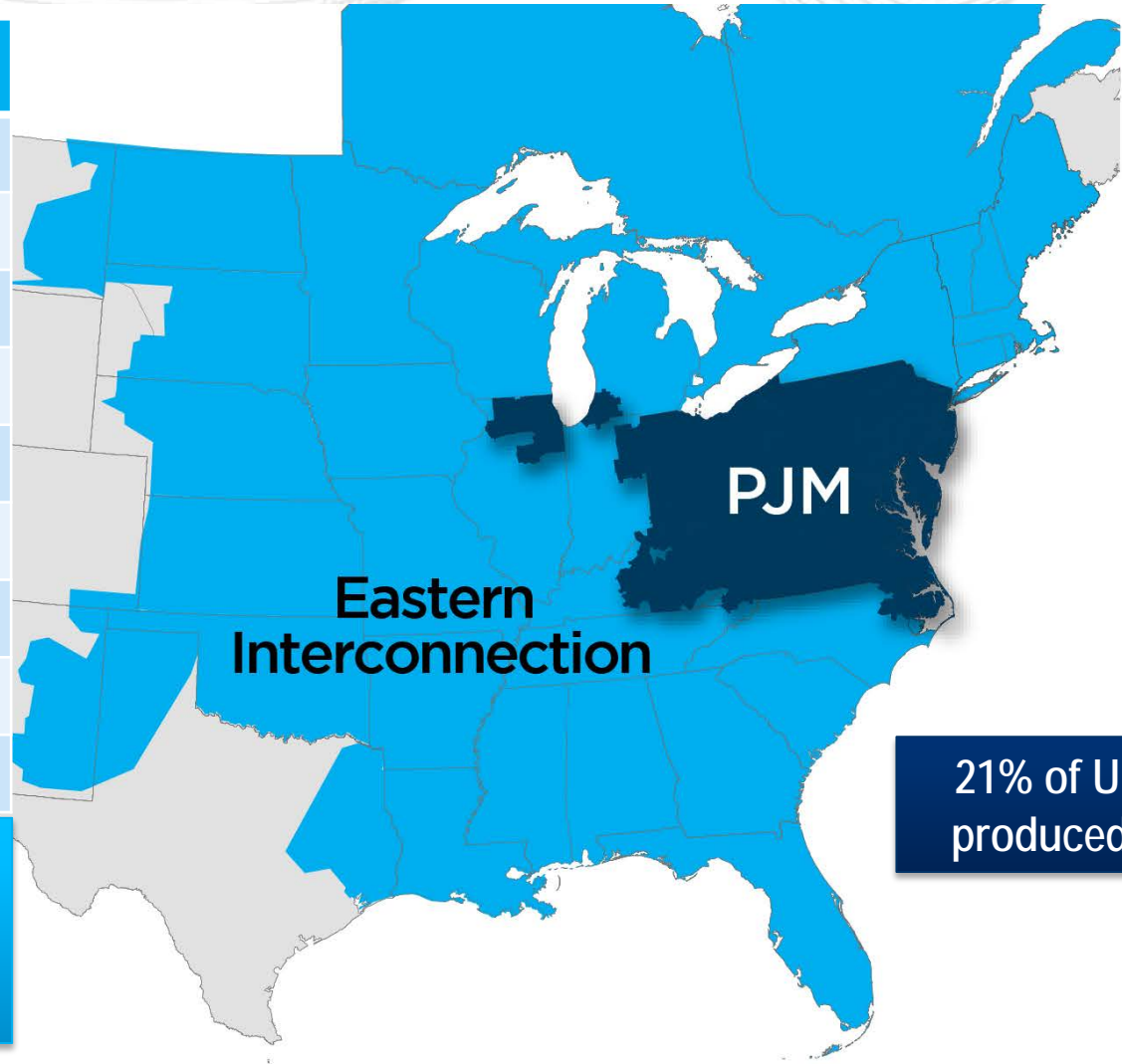
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Vice President - Planning

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## Key Statistics

Member companies	960+
Millions of people served	61
Peak load in megawatts	165,492
MW of generating capacity	171,648
Miles of transmission lines	72,075
2014 GWh of annual energy	792,580
Generation sources	1,304
Square miles of territory	243,417
States served	13 + DC

- 27% of generation in Eastern Interconnection
- 28% of load in Eastern Interconnection
- 20% of transmission assets in Eastern Interconnection



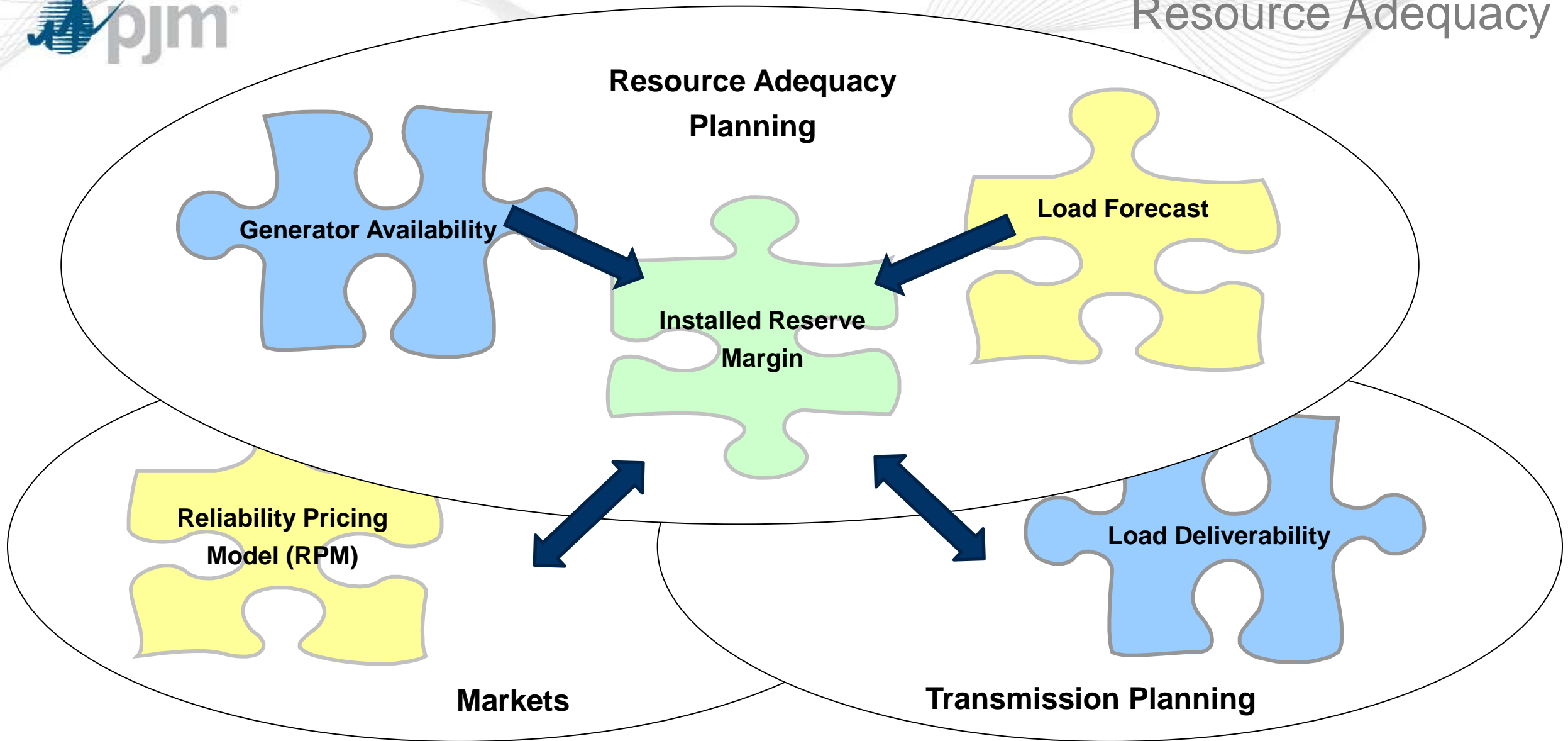
21% of U.S. GDP  
produced in PJM

As of 1/2016

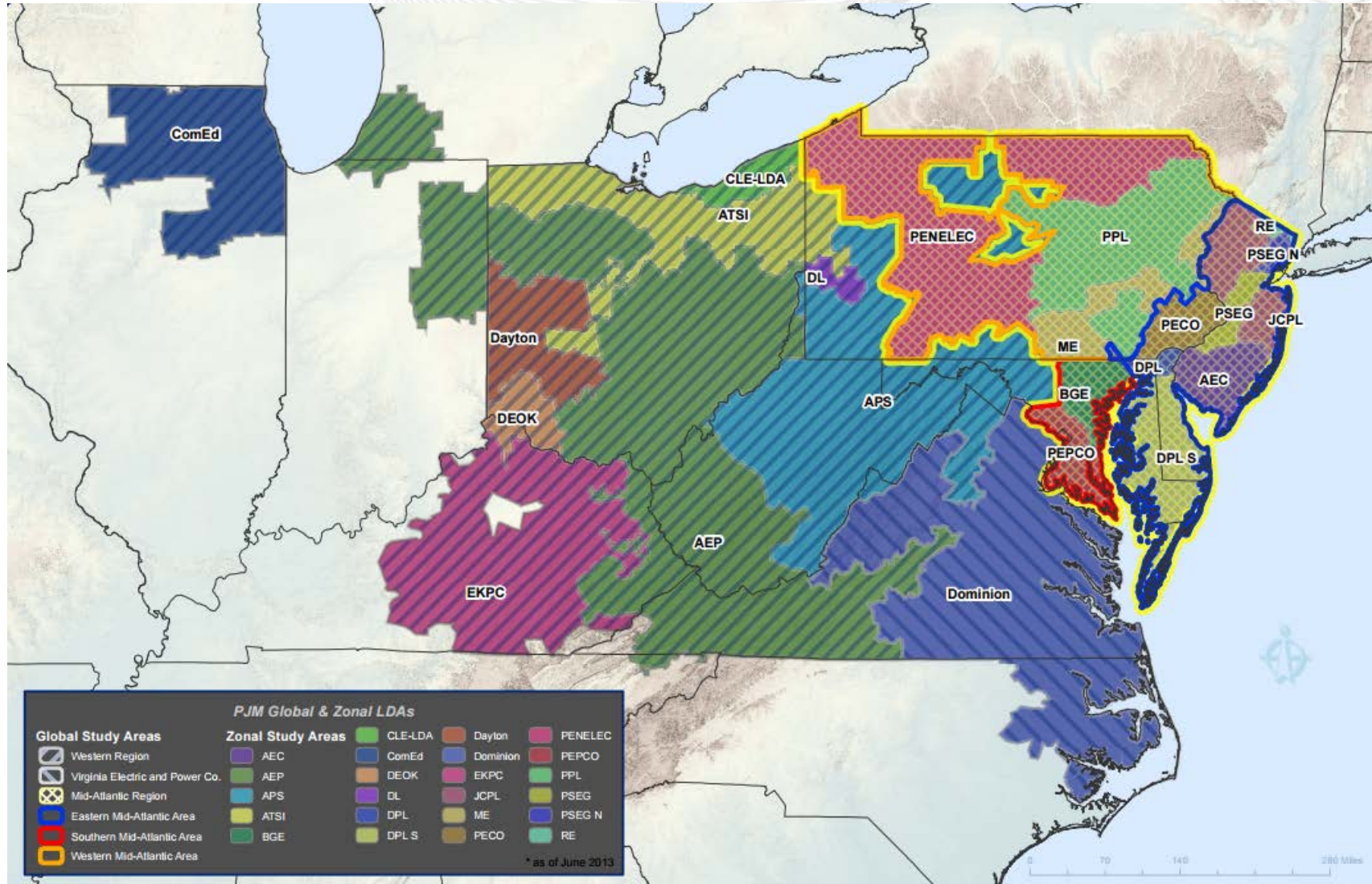
- Resource Adequacy
  - Ensure aggregate resources to serve load within the region considering:
    - Generator performance
    - Load growth
    - Weather phenomena
    - Economic growth factors
    - Emergency assistance from adjacent regions

Consistent with:

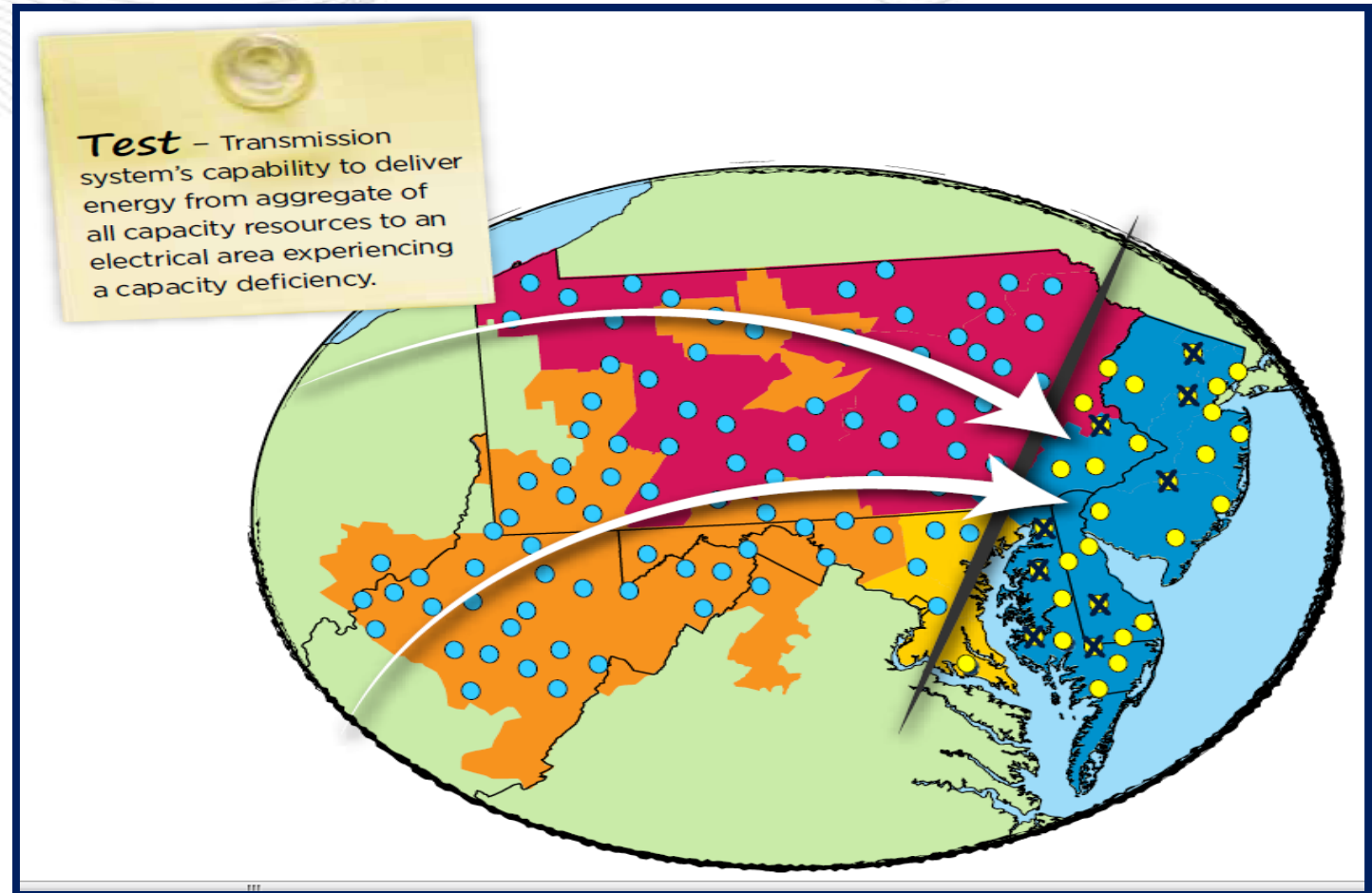
- Resource Adequacy Standard
  - PJM has adopted a Loss of Load Expectation (LOLE) planning criterion of one loss of load event in ten years (“1 in 10”).
- Capability of the Transmission System
  - PJM has adopted a Load Deliverability Criteria requiring sufficient transmission capability to deliver energy to load during localized capacity emergencies.



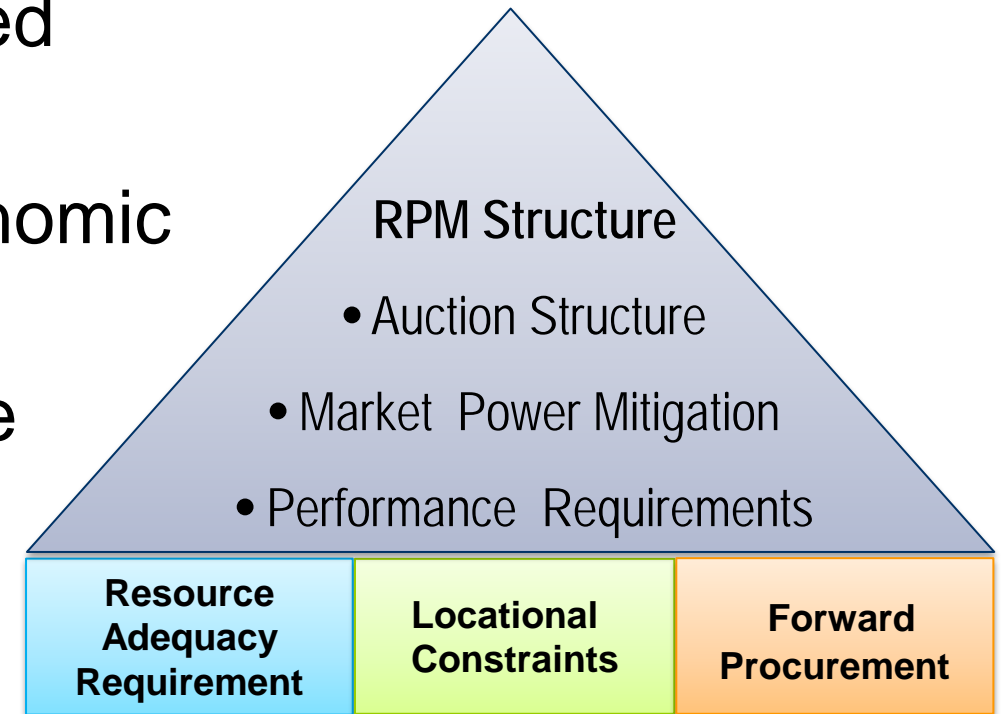




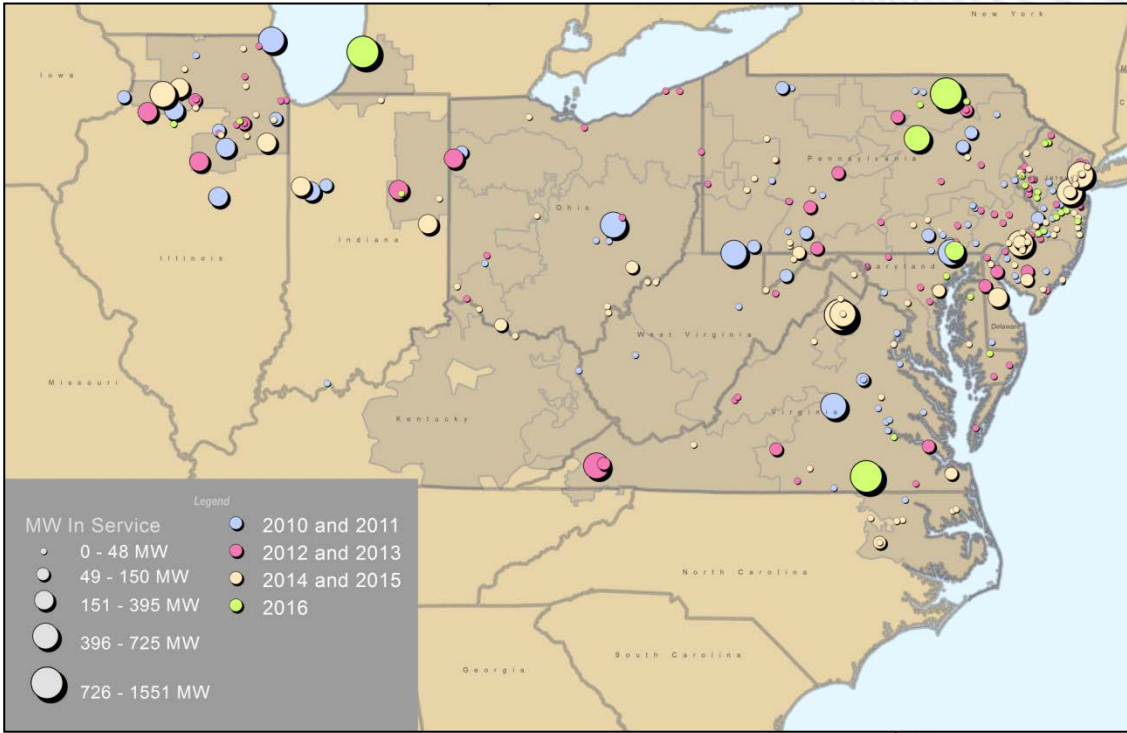
- ✓ Transmission system's capability to deliver energy from aggregate of all capacity resources to an electrical area experiencing a capacity deficiency
- ✓ Test failure...load is "bottled" inside a defined area; sufficient capacity cannot be "delivered" to serve load as a result of limiting transmission constraints
- ✓ Maintain CETO in defined area to achieve LOLE of 1-event-in-25 years...import capability needed to keep lights on with sufficient generating capacity...with all its size diversity and outage characteristics...probabilistic techniques
- ✓ Area tested for its expected import capability up to established transmission facility limits...CETL...how much an area can actually be expected to import
- ✓ **If  $CETL < CETO$ , test fails, additional transmission capacity is needed**



- Ensure reliability and certainty of supply on a forward basis
- Provide a market signal to attract needed new investment
- Provide a market signal to retire uneconomic capacity
- Ensure customer bills reflect the relative value of excess supply vs. shortage

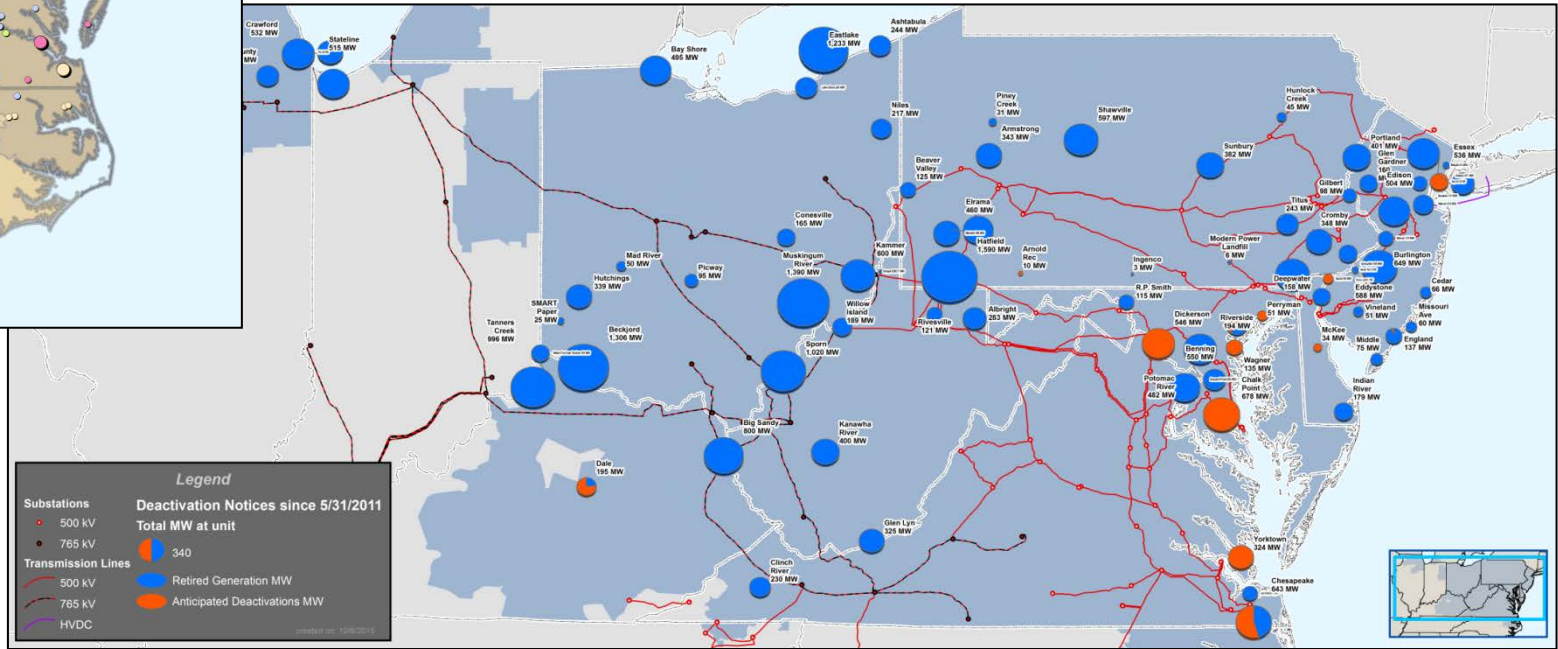


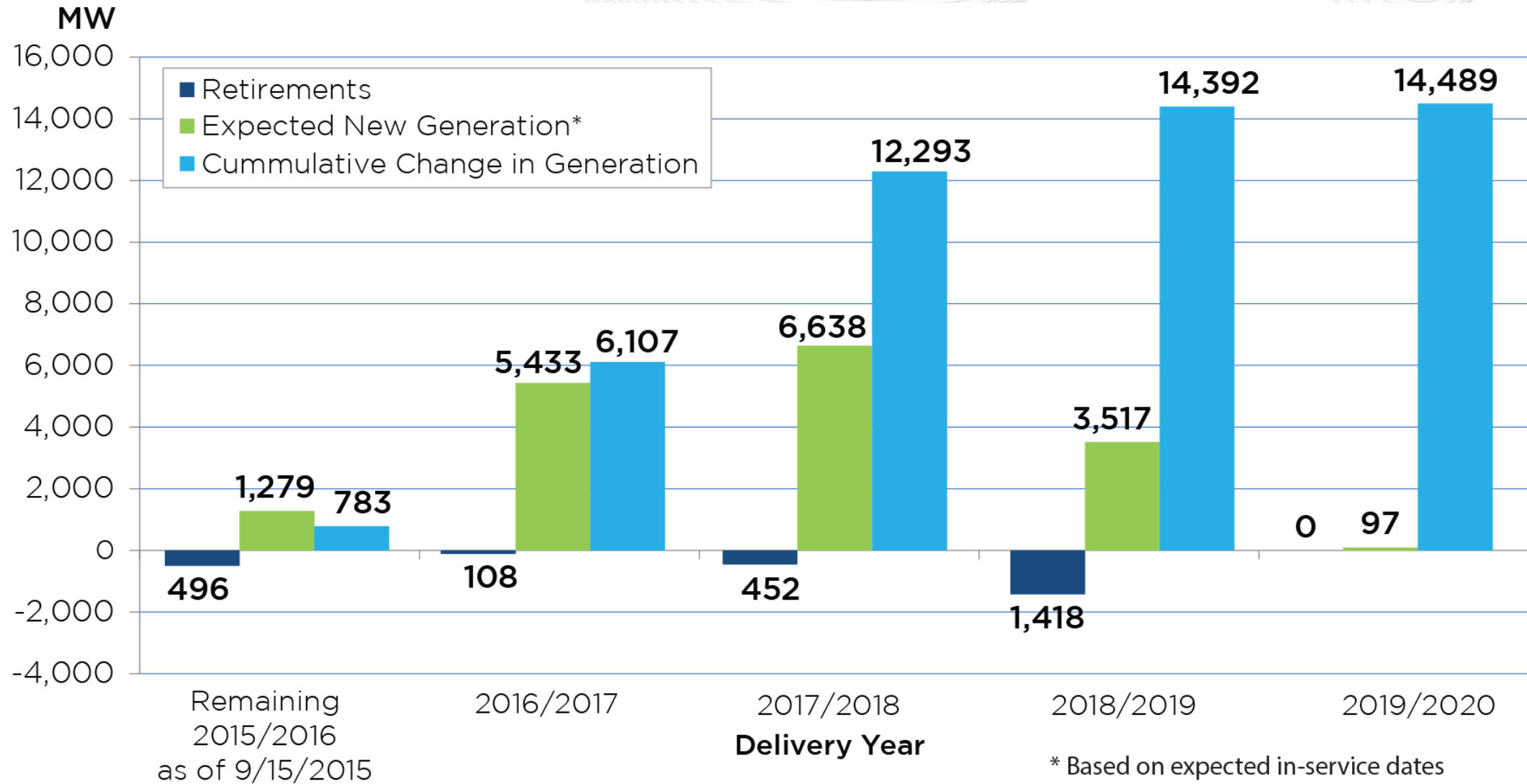




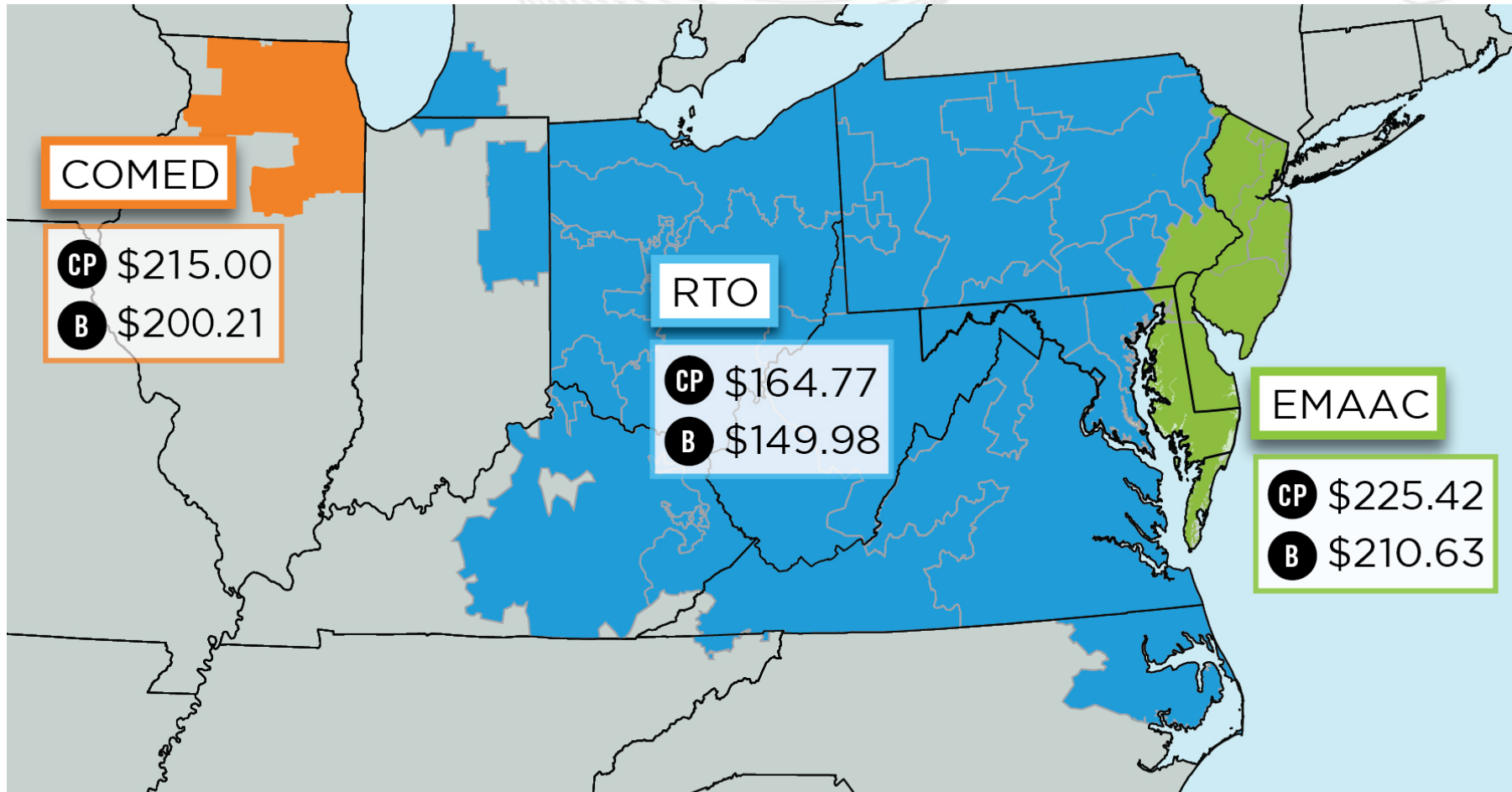
Generation Additions

Generation Retirements



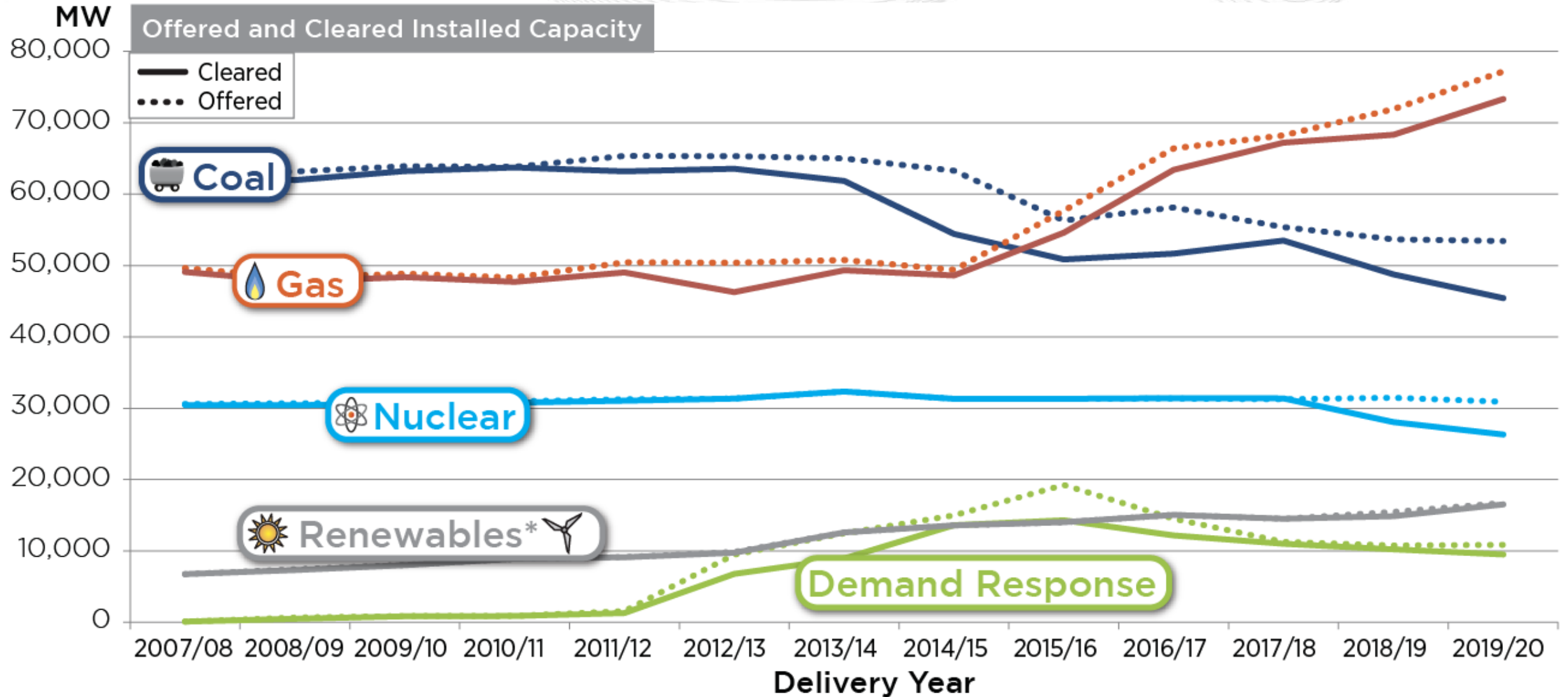


# 2018/2019 Base Residual Auction Results Summary



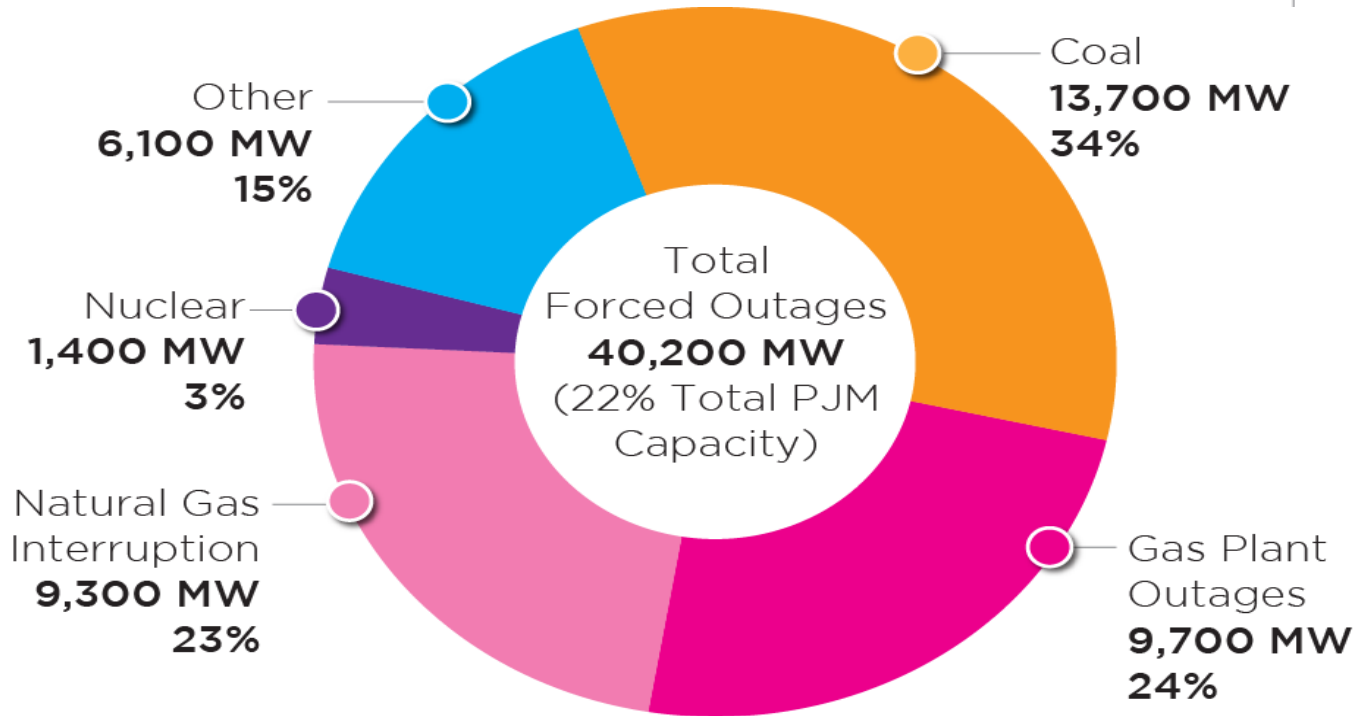
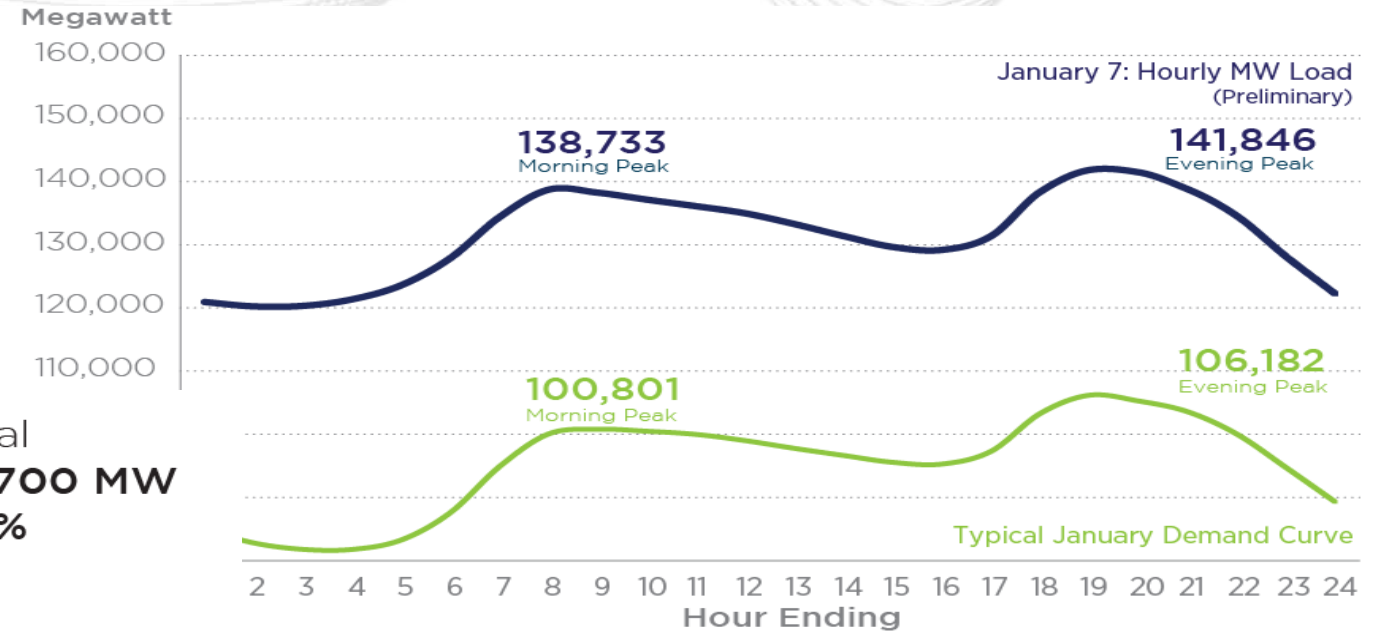
**KEY:** **CP** Capacity Performance Clearing Price **B** Base Clearing Price

# Offered and Cleared Installed Capacity





# Evening Peak January 7, 2014 at 7:00 pm



## Key features of the Capacity Performance construct

Stricter performance requirements in energy markets with “no excuses”

Higher non-performance charges during high demand or critical hours

Opportunity for increased capacity market revenues to drive investment

