



Power Generators and Impact of Environmental Compliance

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April 9, 2012

Overview

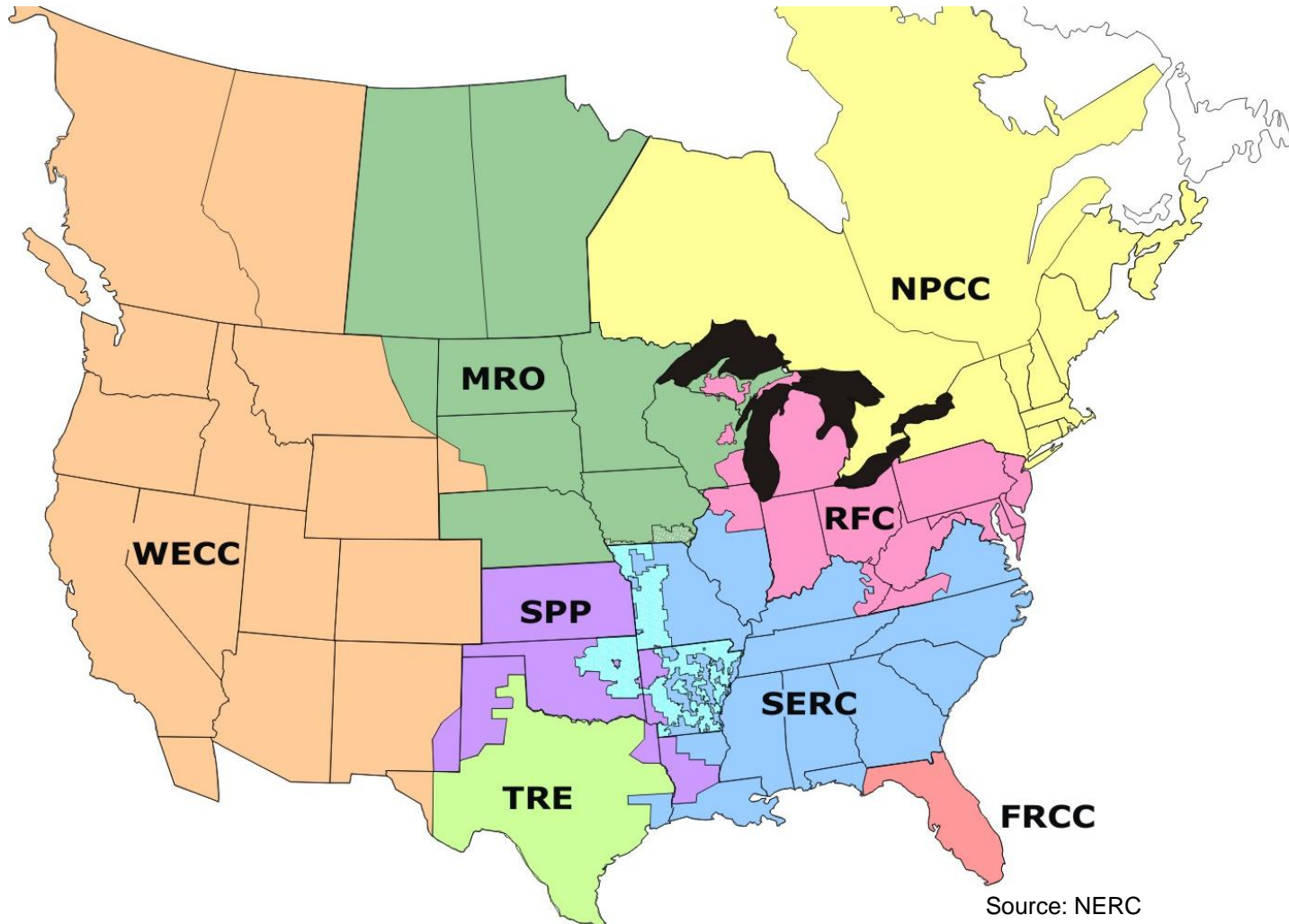


Energy | Environment | National Security | Health | Critical Infrastructure

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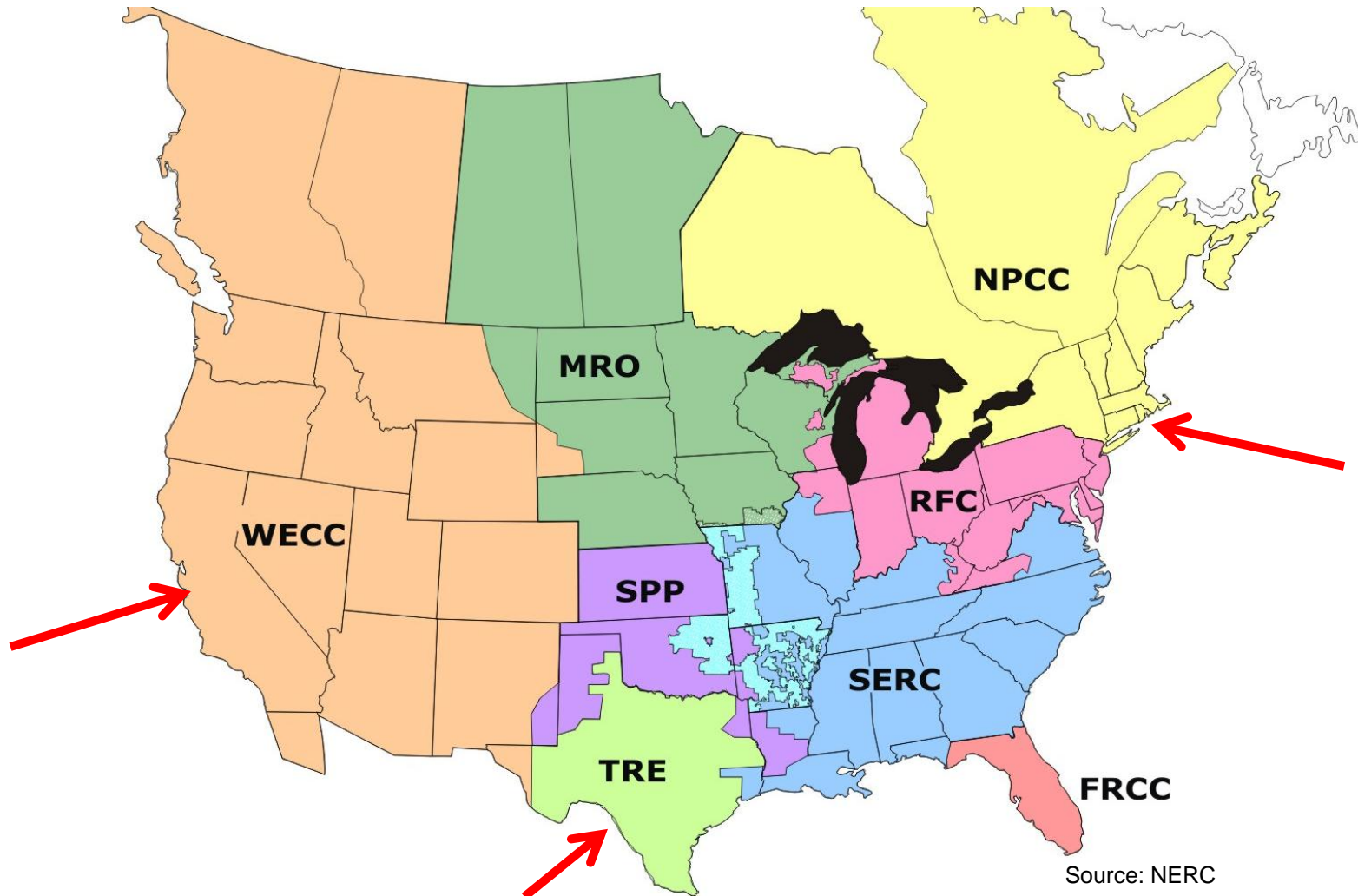


Overview – NERC Regions



Source: NERC

Overview – Regional Focus



Source: NERC

National Issue – 316(b)



- Cooling water intake structures regulated under section 316(b) of the Clean Water Act
- Timing:
 - Released April 20, 2011,
 - Final rule scheduled Summer 2013
 - Enforced through NPDES 5 year rolling
- Applicability:
 - All facilities draw more than 2 million gallons per day, and use at least 25 percent for cooling
 - Estimates vary ~ 550 plants ~60 GW

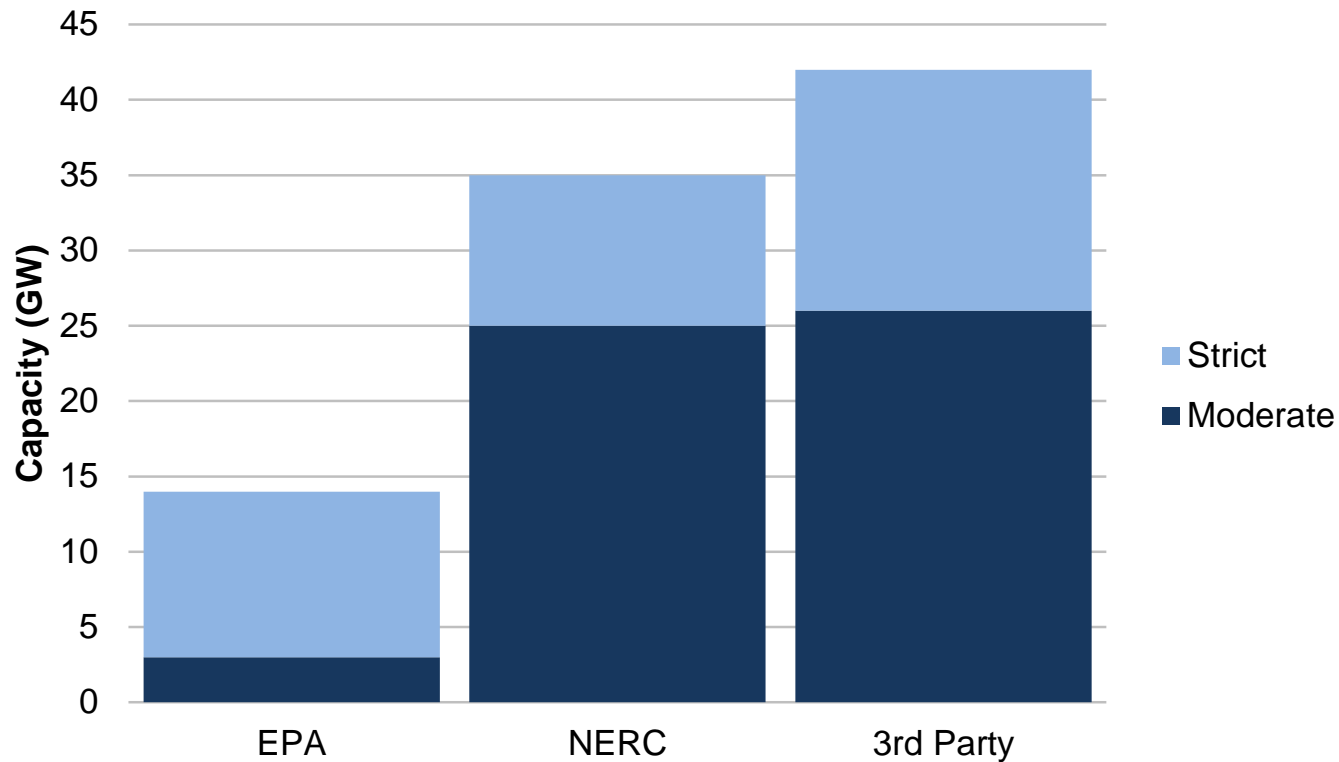


- Compliance Options
 - Uniform impingement controls, site specific entrainment controls
 - Closed-cycle cooling systems was not considered best technology available (BTA)
 - Other site specific reduction measures
- Compliance Costs
 - Unit contingent and site specific
 - Vary by approach and study
 - Operational issues – outages and efficiency

National Issue – 316(b)



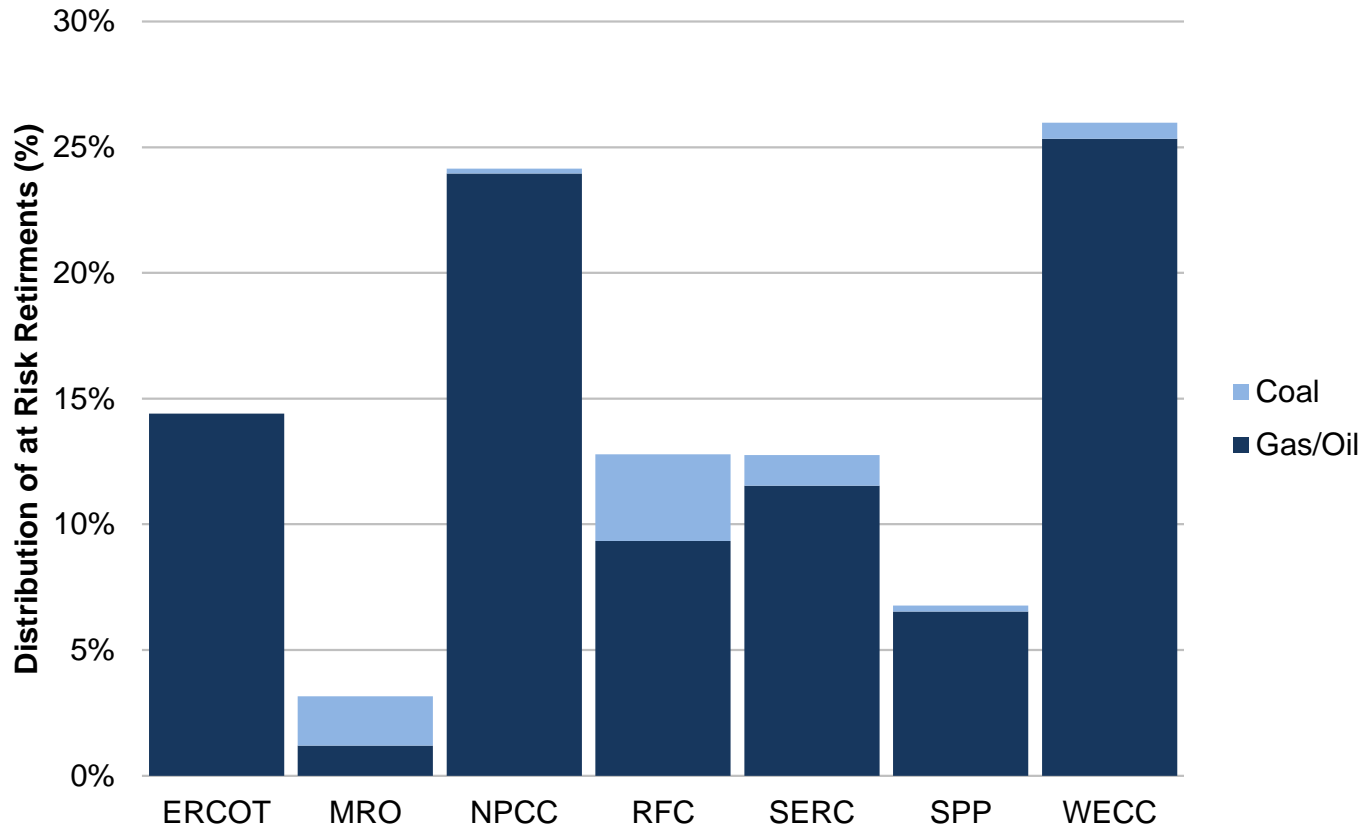
At Risk Retirements



National Issue – 316(b)

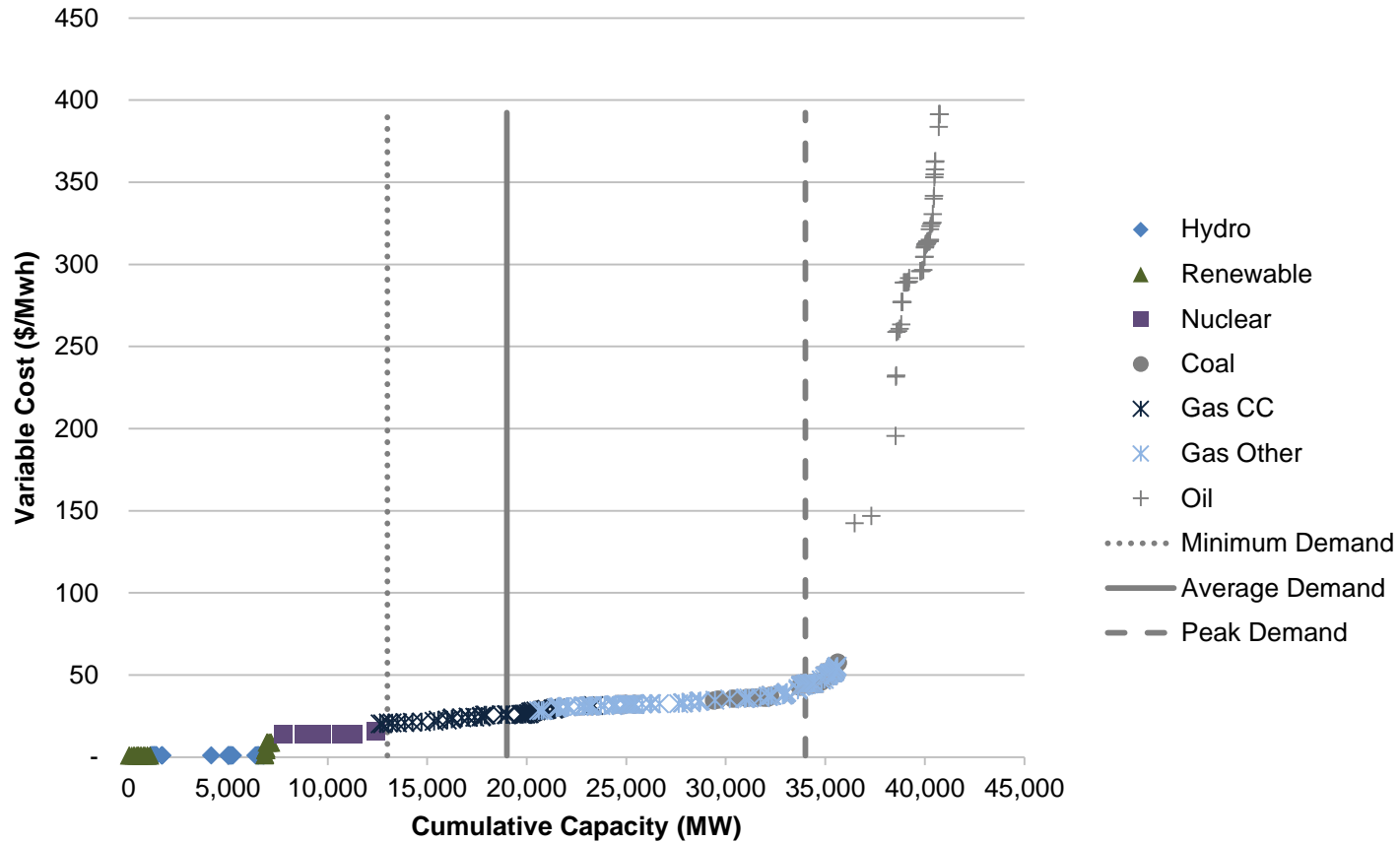


At Risk Retirements by Region and Fuel

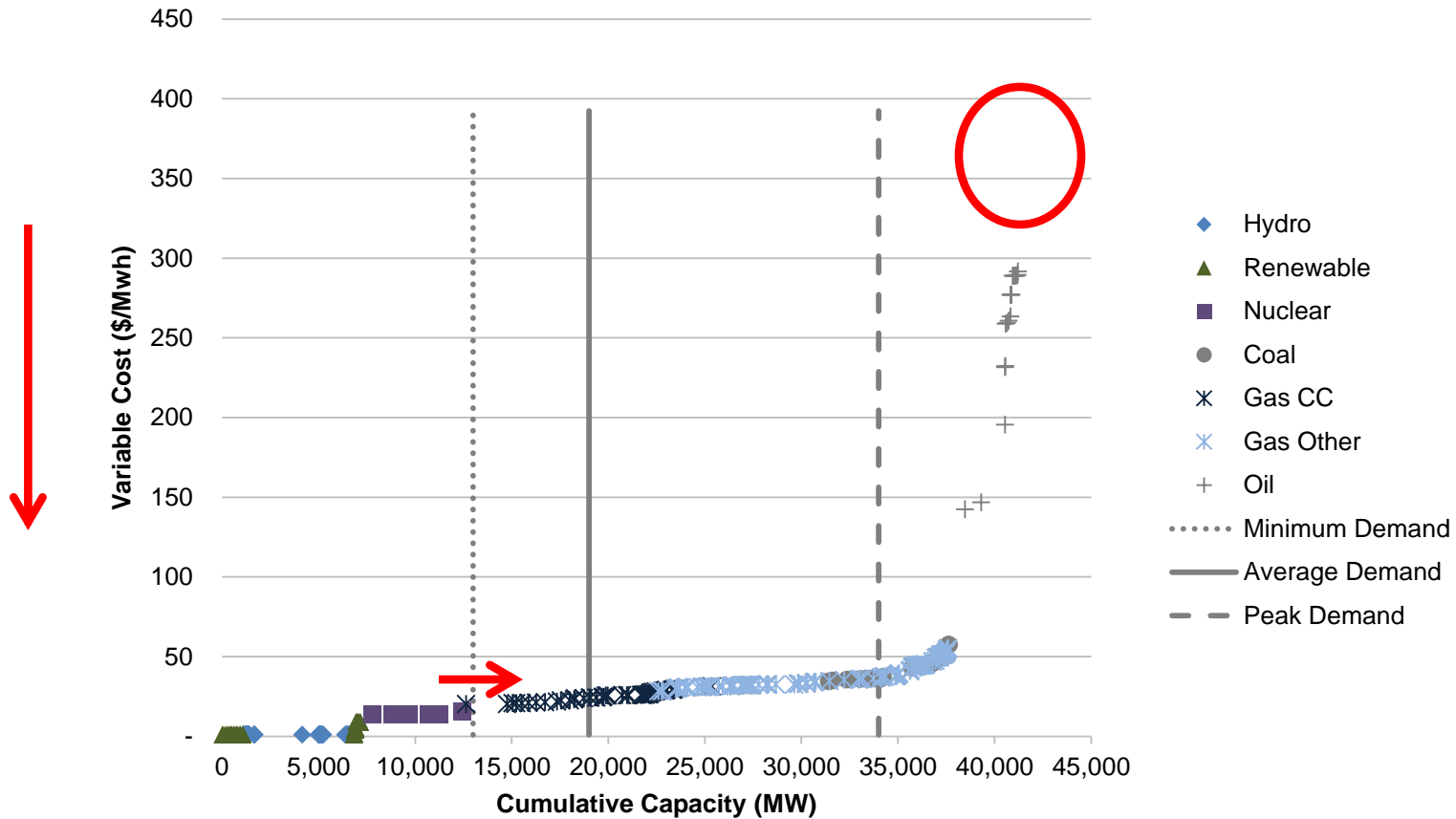


Source: NERC

National Issue – 316(b)



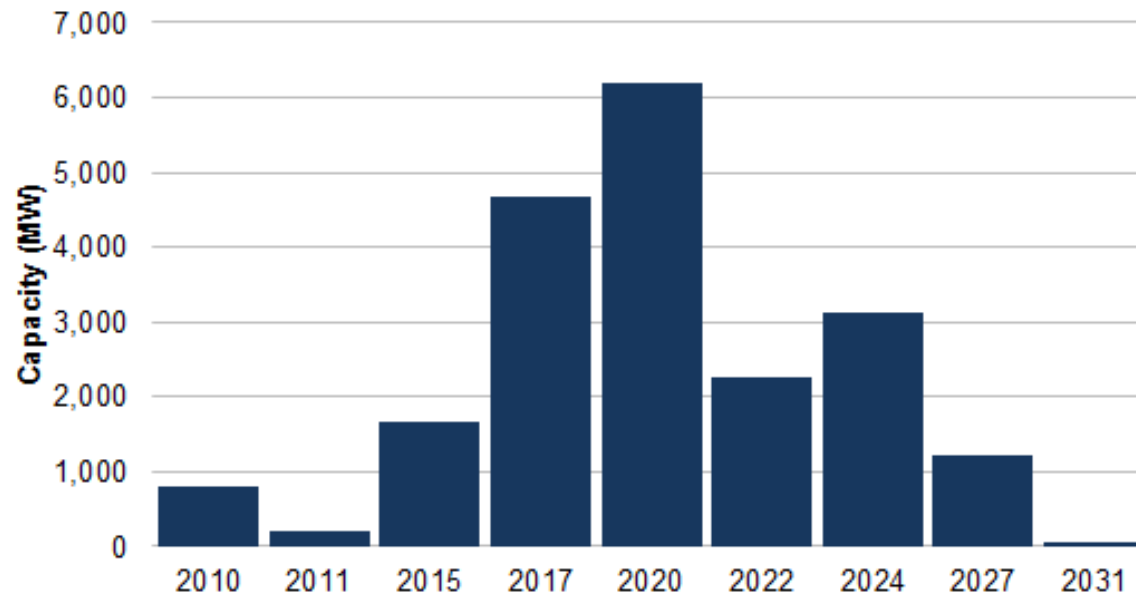
National Issue – 316(b)



Regional Issues – CA 316(b)



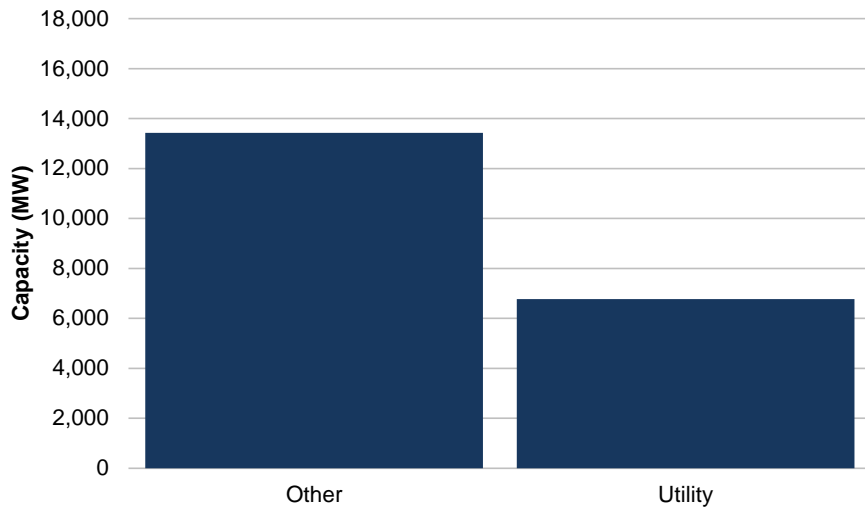
Capacity by CA 316 (b) Compliance Deadline



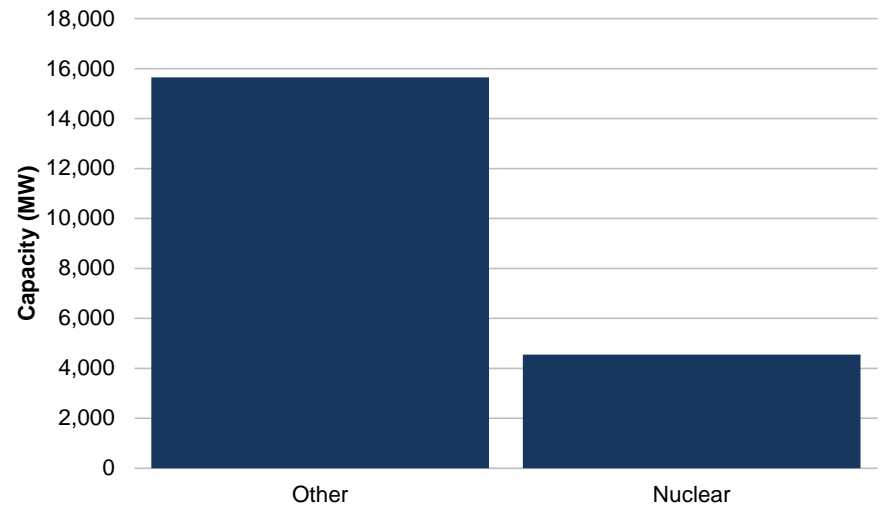
Regional Issues – CA 316(b)



CA 316 (b) Capacity by Ownership Type

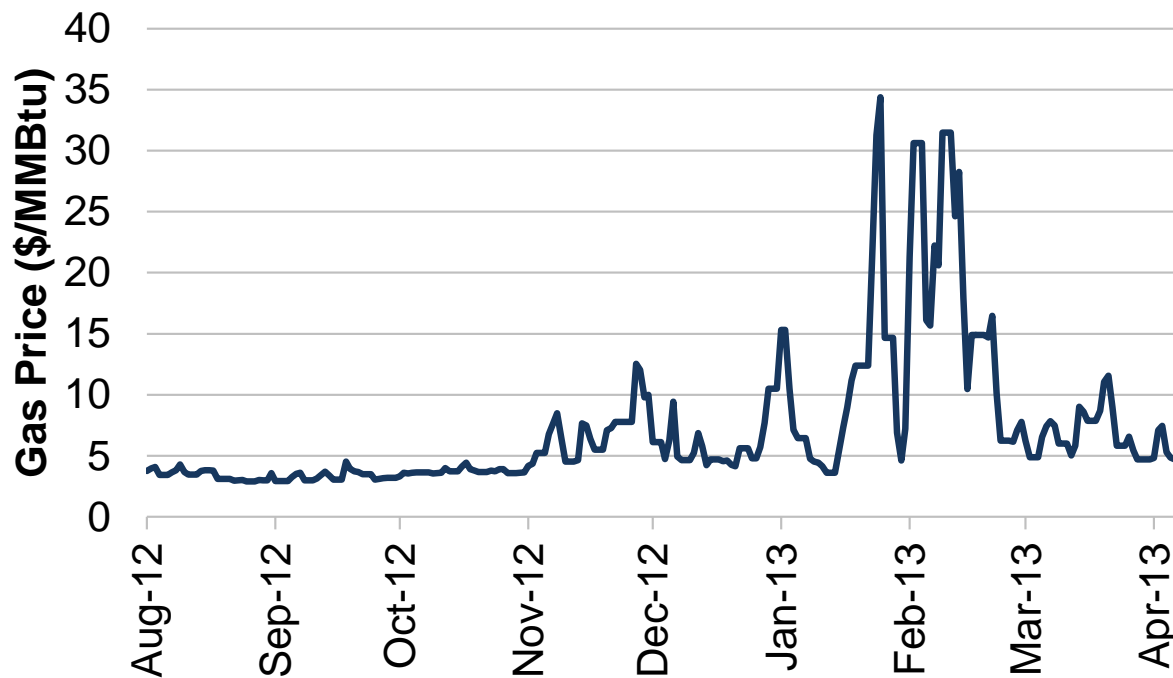


CA 316 (b) Capacity by Fuel Type

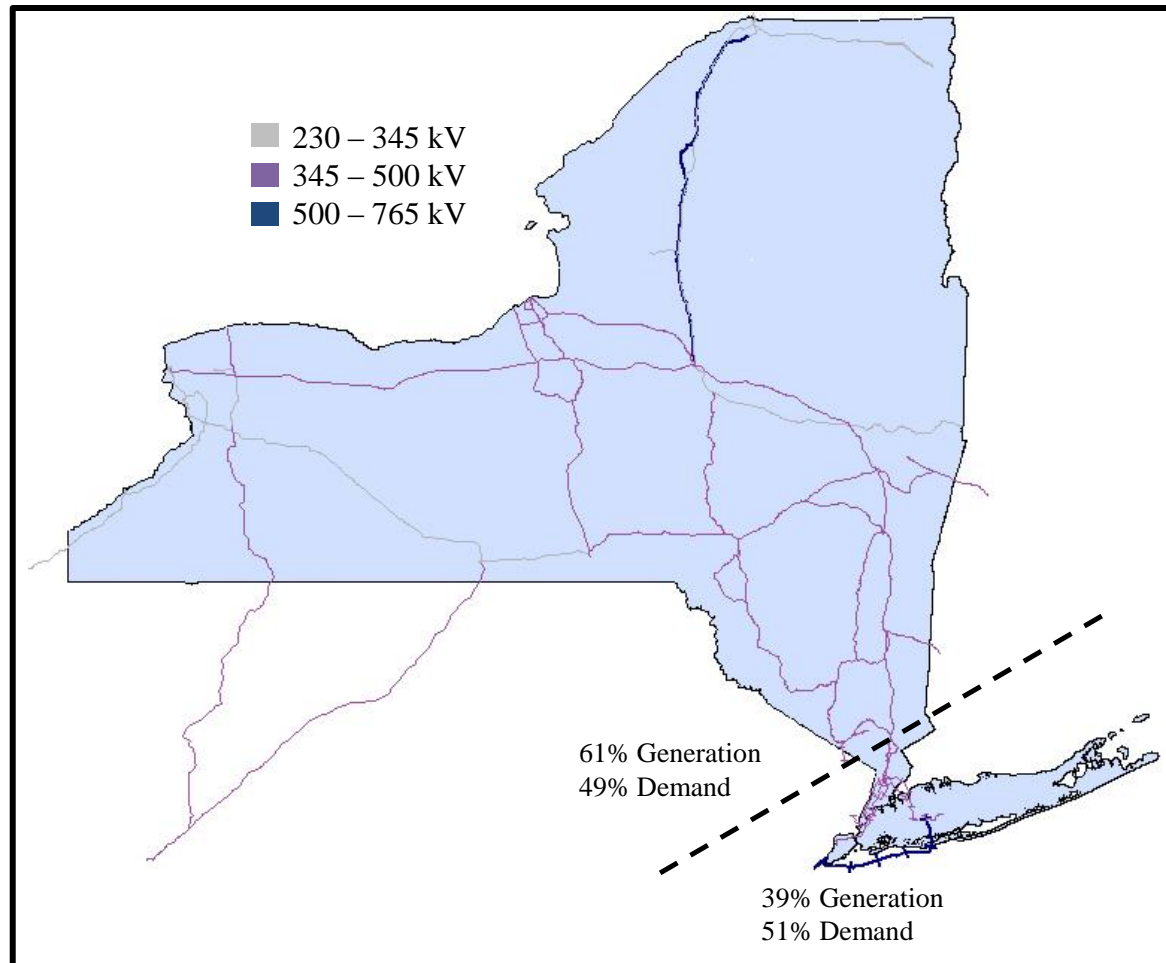




Algonquin Citygates



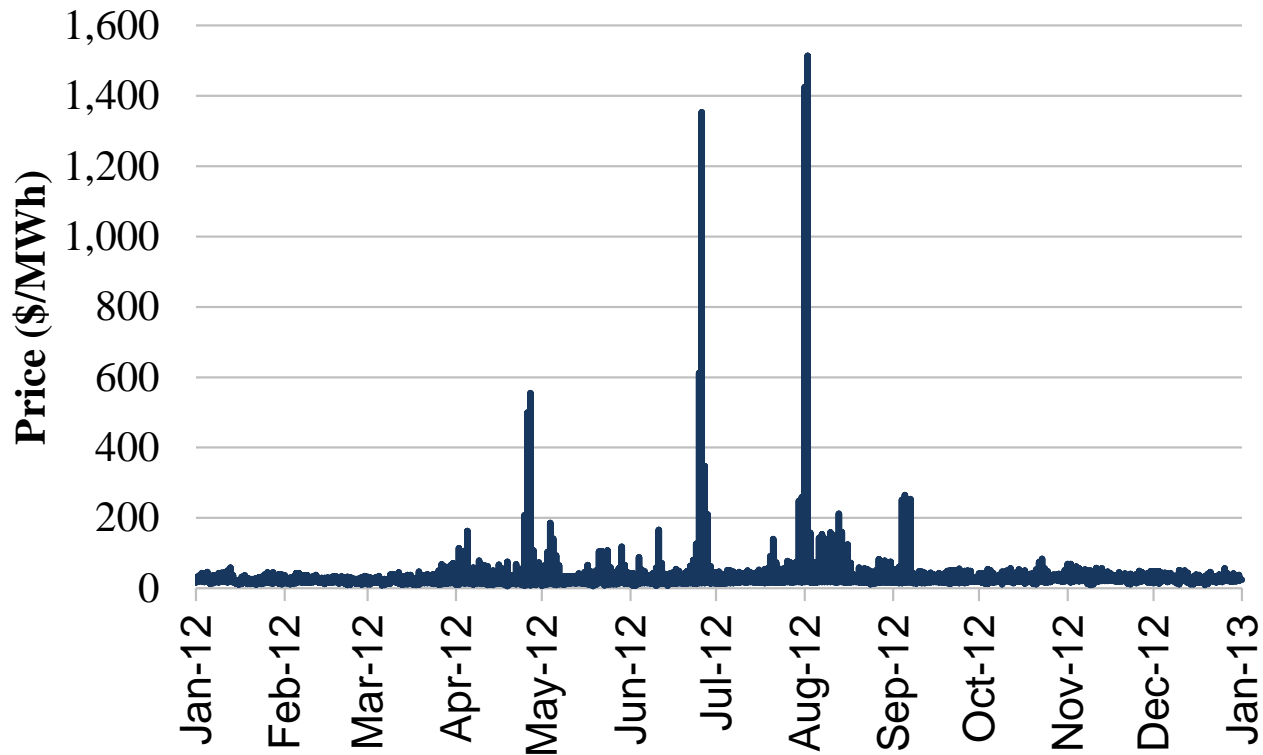
Regional Issues – NYISO



Regional Issues – ERCOT



ERCOT DAH Prices



Other Relevant Regulations



- Coal Combustion Residuals (CCR)
- Hydraulic Fracturing
- EPA Clean Air Interstate Rule (CAIR) / the Cross-State Air Pollution Rule (CSAPR)
- EPA Mercury and Air Toxics Standards (MATS)
- EPA Greenhouse Gas Tailoring Rule
- California carbon regulation (AB 32)
- Northeastern US Regional Greenhouse Gas Initiative (RGGI)
- NJ High Electric Demand Day (HEDD)
- State Renewable Portfolio Standards (RPS)



Thank You

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