

# US Department Of Energy Electricity Advisory Committee

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**Northeast  
Utilities**



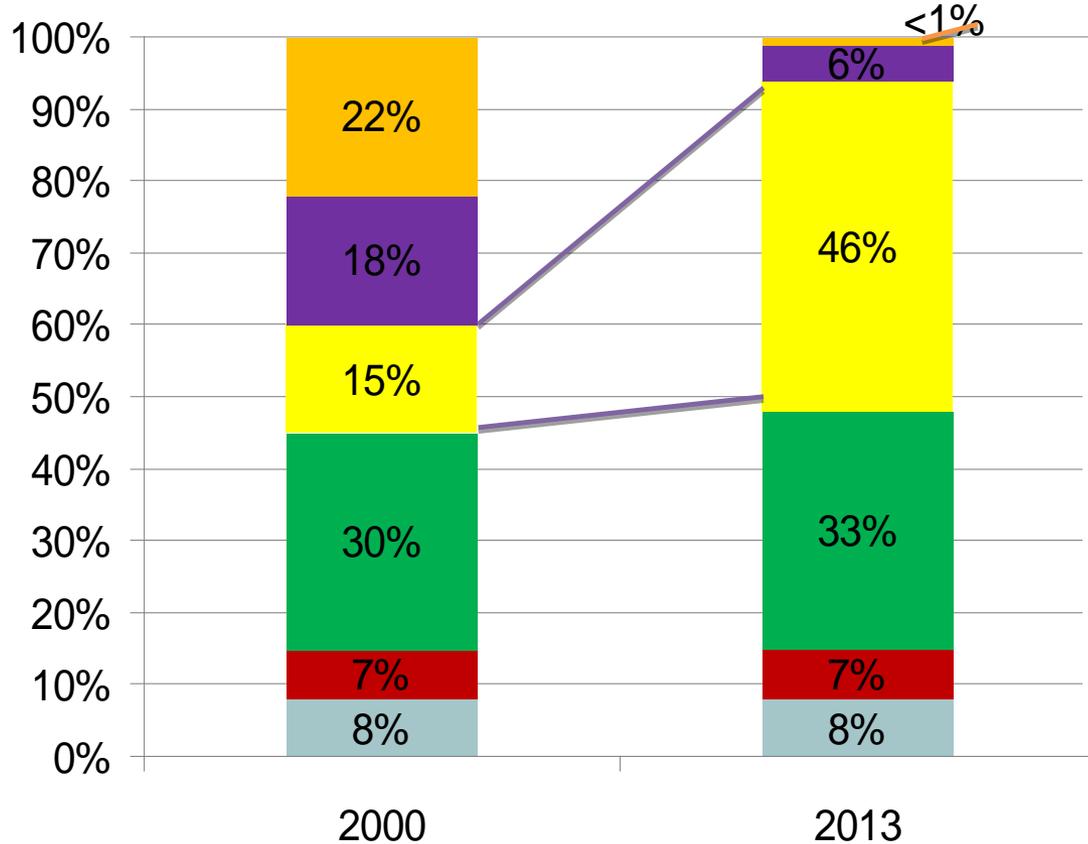
## **We have multiple challenges facing our region**

- Shift to natural gas for heating and power generation without additions to gas infrastructure
- Imminent retirement of generation capacity
- Aggressive carbon reduction goals coupled with increasing intermittent generation

# Significant Increase in Natural Gas Generation



## Annual Energy Output



## Generating Capability

Oil:	5273 MW
Coal:	2300 MW
Nat Gas:	17,850 MW
Nuclear:	4656 MW
Hydro:	3335 MW
Renewable:	1079 MW

# Future Outlook Shows Increasing Reliance on Natural Gas



## Upcoming Retirements

### Announced (4,100 MW)

- Salem Harbor Station (749 MW)  
- 4 units (coal & oil)
- Norwalk Harbor Station (342 MW)  
- 3 units (oil)
- Brayton Point Station (1,535 MW)  
- 4 units (coal & oil)
- Vermont Yankee Station (604 MW)  
- 1 unit (nuclear)

### Potential

- Up to **8,000 MW** at risk of retirement

## New Generation Projection

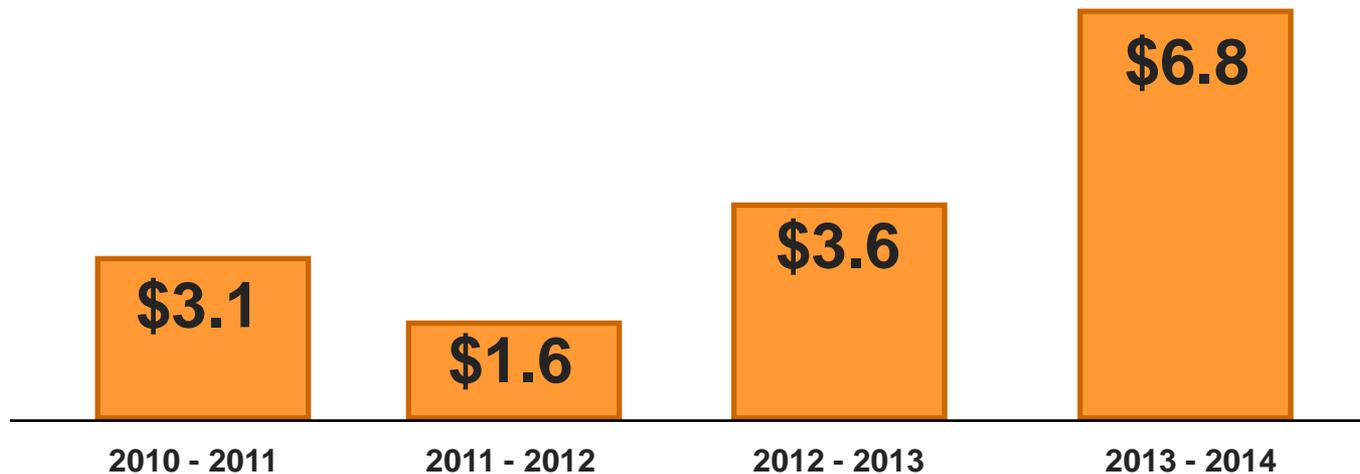
Fuel Type	Capacity (MW)
Biomass/Wood Waste	138
Hydro	62
Landfill Gas	0
<b>Natural Gas</b>	<b>1,847</b>
<b>Natural Gas/Oil</b>	<b>2,497</b>
Oil	245
Solar	16
<b>Wind</b>	<b>2,110</b>
Total	6,915

# Energy Prices Are Escalating



- All of these challenges are pressuring customers' energy bills
- Gas pipeline constraints have added over \$3 billion to our electric bills this past winter

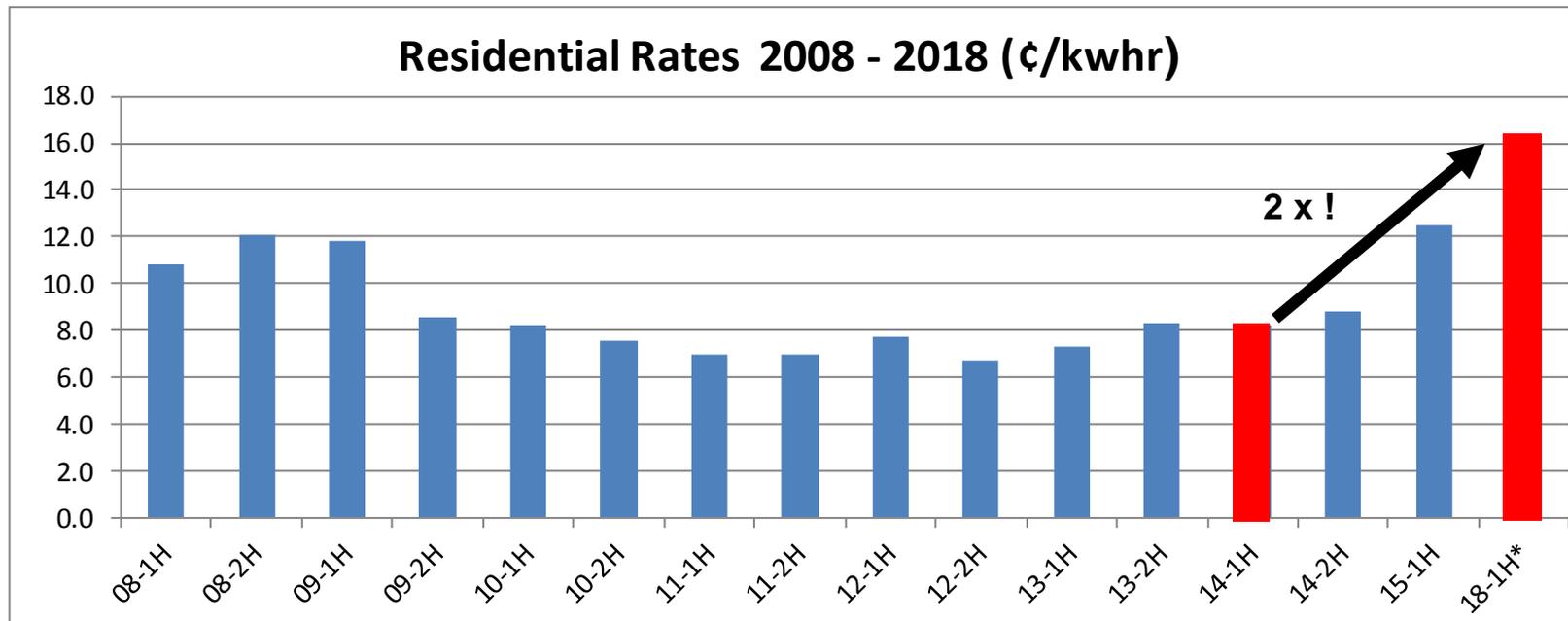
**Winter Season Wholesale Electricity Costs  
December – March  
(\$Billions, ISO-NE Region)**



# Infrastructure Deficiency Driving Prices Up



- Forward prices indicate another \$6+ billion winter (assuming normal weather)
- Retail customers will begin to see impact in 2015; prices will double by 2018
- Over 4,000 MW of generation retirements announced
- ISO projects up to 25% of generation capacity in New England could retire in next few years



\* - 2018 prices are an estimate using actual price for generation capacity and current market rates for energy

# New England Governors Response



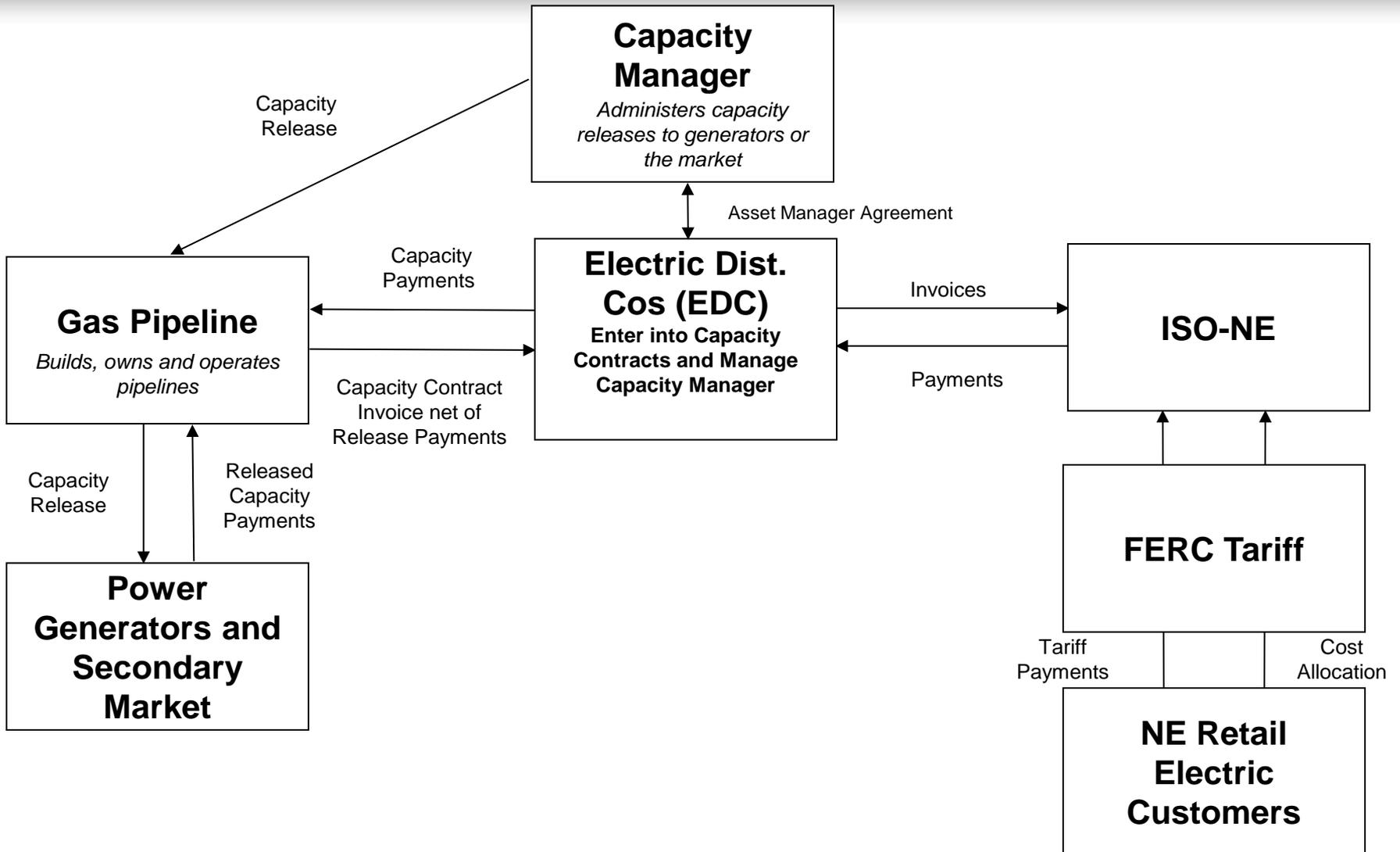
- Infrastructure initiative driven by concerns on reliability, costs and renewable goals
  - Expand natural gas delivery
  - New transmission imports for large hydro and renewable energy
- States have differing interests
  - Gas expansion to lower costs, promote economic development
  - Renewable and low carbon energy to meet environmental goals
  - All are concerned about electric system reliability
- Cost allocation for new infrastructure to be agreed between states
- Funded through FERC approved Tariff
  - Administered by ISO-NE
  - Allocated to all electric customers
  - Precedent setting
- New England States Committee on Electricity (NESCOE) charged to implement

# Solving These Challenges



- We are working with NESCOE to promote the development of:
  - Electric transmission to achieve greenhouse emission goals
  - Natural gas infrastructure to address power market disruptions
- We support the use of an ISO tariff to expedite construction of electric and gas infrastructure
  - Precedent exists to lean on our regulated utilities to address energy policy objectives
  - Electric Distribution Companies proposal to NESCOE for EDC's to contract for gas transportation capacity

# Electric Distribution Company (EDC) Model



# Infrastructure Planning: Gas vs Electricity in New England's Competitive Retail Markets



## Natural Gas Model

- Local Distribution Companies responsible for long term needs
- Marketers typically 1-3 year term
- Approved LDC Resource Plan for 10+ years
- Forecasted growth
- Long, medium and short term resource portfolio
  - Pipelines
  - Storage
  - LNG
- Reliability Standard to meet demand
  - Coldest winter in 30 years
  - Coldest day in 50 years

## Electricity Model

- Electric Distribution Companies have supply obligations for one year
- Marketers typically 1-3 year term
- No resource plans by EDC's
- ISO-NE tools for Resource Adequacy
  - Forward Capacity Market
    - Capacity adequacy three years forward for one year
    - New resources 5-7 year option
  - Performance Incentives for Capacity (per shortage event)
  - Location Marginal Pricing (hourly)
  - Fuel and resource neutral
- Reliability Standard to meet demand
  - One day outage in 10 years

Aligned

Resources and Standards

Not Well Aligned