



# ISO New England Update

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## *Consumer Liaison Group Meeting*

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## TODAY'S UPDATES

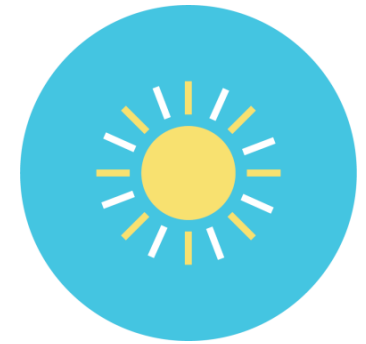
- ISO New England issues 2018 Summer Outlook; adequate electricity supplies to meet consumer demand expected this summer
- ISO New England releases 10-year load forecast, reflecting electricity savings from energy efficiency and behind-the-meter solar
- ISO New England's Internal Market Monitor releases *2017 Annual Markets Report*; wholesale markets operated competitively last year
- ISO New England is pursuing three tracks to address fuel-security risks facing the region



# 2018 SUMMER OUTLOOK



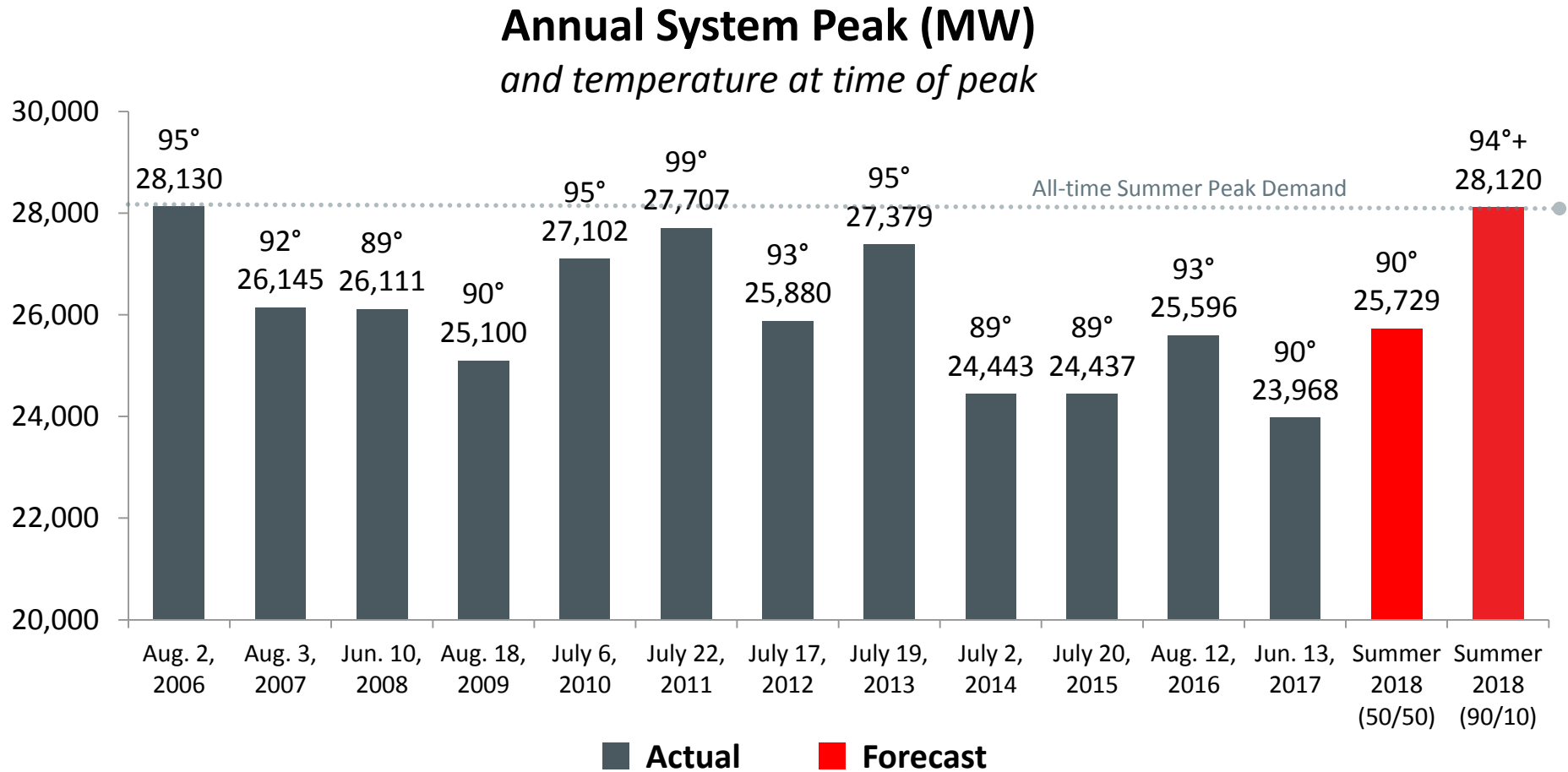
# Summer Outlook Highlights



- New England is expected to have **adequate** electricity supplies to meet consumer demand this summer; however, **tight supply margins** could develop if hot and humid weather occurs
  - ISO issued its Summer Outlook press release on May 1, 2018
- Normal summer weather peak demand forecast: **25,729 MW**
  - 90 degrees Fahrenheit (90° F), normal summer weather
- Extreme summer weather peak demand forecast: **28,120 MW**
  - 94° F and above, heat wave conditions
- Both forecasts take into account the demand-reducing effects of energy-efficiency measures (**≈ 2,700 MW**) acquired through the Forward Capacity Market and behind-the-meter solar (**≈ 600 MW**)

# Weather Drives Summer Peak Demand

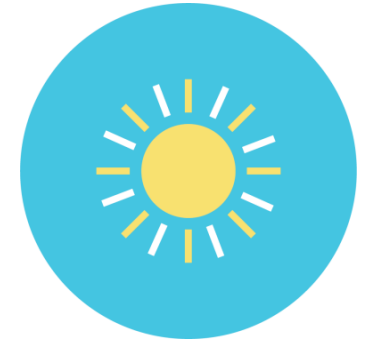
*Historical and Projected Peak Demand in New England*



Note: Summer 2018 50/50 and 90/10 forecasted peaks include the demand-reducing effects of energy-efficiency measures acquired through the FCM and behind-the-meter solar.



# Summer Outlook Highlights, *continued*



- New England has roughly **32,000 MW** of total capacity available this summer
- Roughly **1,630 MW of new generating capacity** is expected to be available this summer, including:
  - About 1,490 MW from new natural-gas-fired and dual-fuel generation
  - About 90 MW from five new grid-scale solar facilities (nameplate capability)
  - About 50 MW from two new wind farms (nameplate capability)
- Two **major market projects** will be implemented this summer
  1. Pay-for-performance capacity market incentives
  2. Full integration of price-responsive demand into the daily energy market
    - ISO New England will become the first grid operator to fully integrate demand-response resources into its daily energy dispatch and reserves process
    - The ISO estimates that about **400 MW** of demand response will be available to offer to sell demand reductions into the energy market



# 2018 CELT REPORT

*Forecast Report of Capacity, Energy, Loads, and Transmission*



# ISO New England Issues 2018 Forecast Report of Capacity, Energy, Loads and Transmission (CELT)

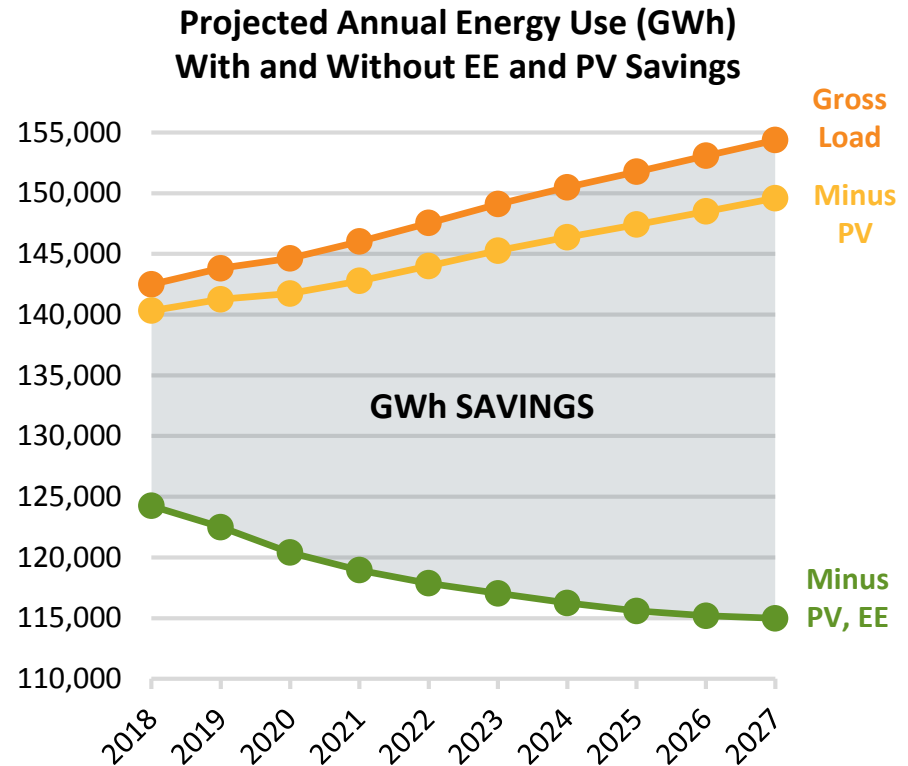
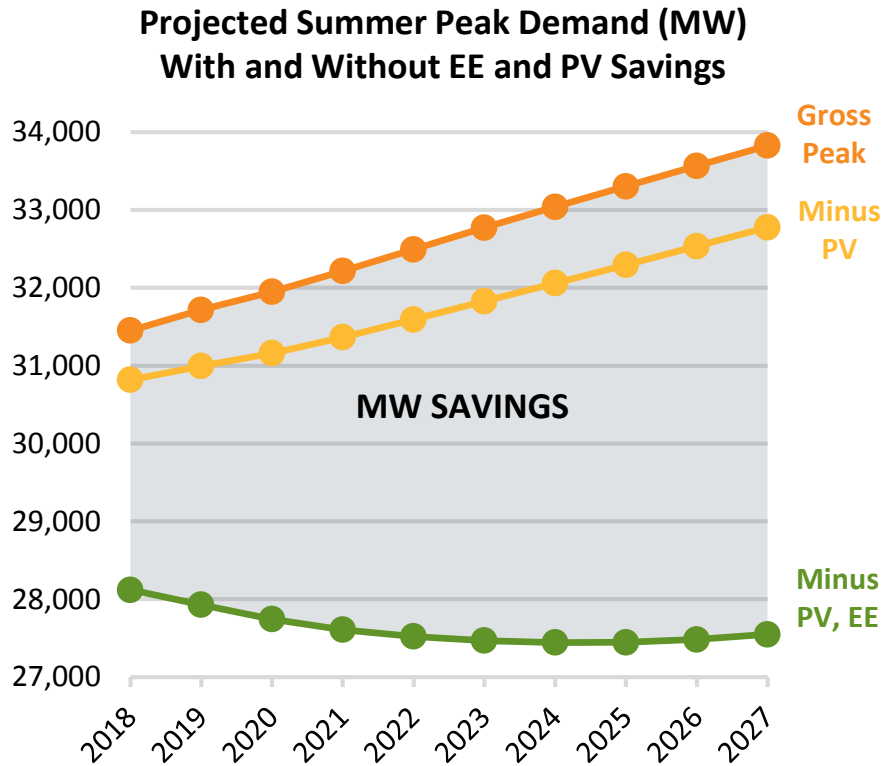
- The CELT report is updated annually to provide the long-term (ten-year) forecast for growth in overall electricity use and peak demand
- The report includes the results of the region's energy-efficiency and solar photovoltaic (PV) forecasts
- According to the 2018 CELT report, energy efficiency (EE) and behind-the-meter (BTM) solar are **reducing** peak demand growth and overall electricity use over the next ten years
  - **-0.2%** annual growth rate for **summer peak demand** (with EE and BTM solar)
  - **-0.9%** annual growth rate for **overall electricity use** (with EE and BTM solar)



Note: Without energy efficiency and BTM solar, the region's peak demand is forecasted to grow 0.8% annually and the region's overall electricity demand is forecasted to grow 0.9% annually. Summer peak demand is based on the "90/10" forecast for extreme summer weather.



# Energy Efficiency and Behind-the-Meter Solar Are Reducing Peak Demand and Annual Energy Use



- The gross peak and load forecast
- The gross peak and load forecast minus existing and anticipated “behind-the-meter” (BTM) solar PV resources
- The gross peak and load forecast minus existing and anticipated BTM solar PV and energy efficiency

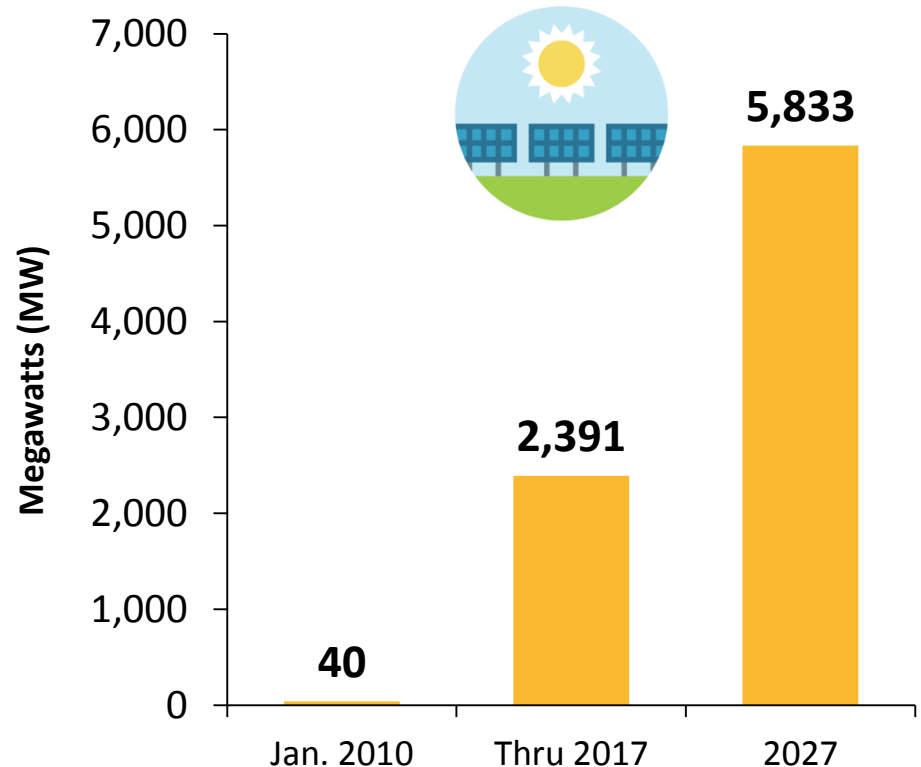
Note: Summer peak demand is based on the “90/10” forecast, which accounts for the possibility of extreme summer weather (temperatures of about 94° F).  
 Source: [ISO New England 2018-2027 Forecast Report of Capacity, Energy, Loads, and Transmission](#) (2018 CELT Report) (April 2018)

# New England Has Seen Significant Growth in Solar PV, and More Is on the Way

## December 2017 Solar PV Installed Capacity (MW<sub>ac</sub>)

State	Installed Capacity (MW <sub>ac</sub> )	No. of Installations
Connecticut	365.6	29,512
Massachusetts	1,602.3	78,047
Maine	33.5	3,598
New Hampshire	69.7	7,330
Rhode Island	62.2	4,148
Vermont	257.2	9,773
<b>New England</b>	<b>2,390.5</b>	<b>132,408</b>

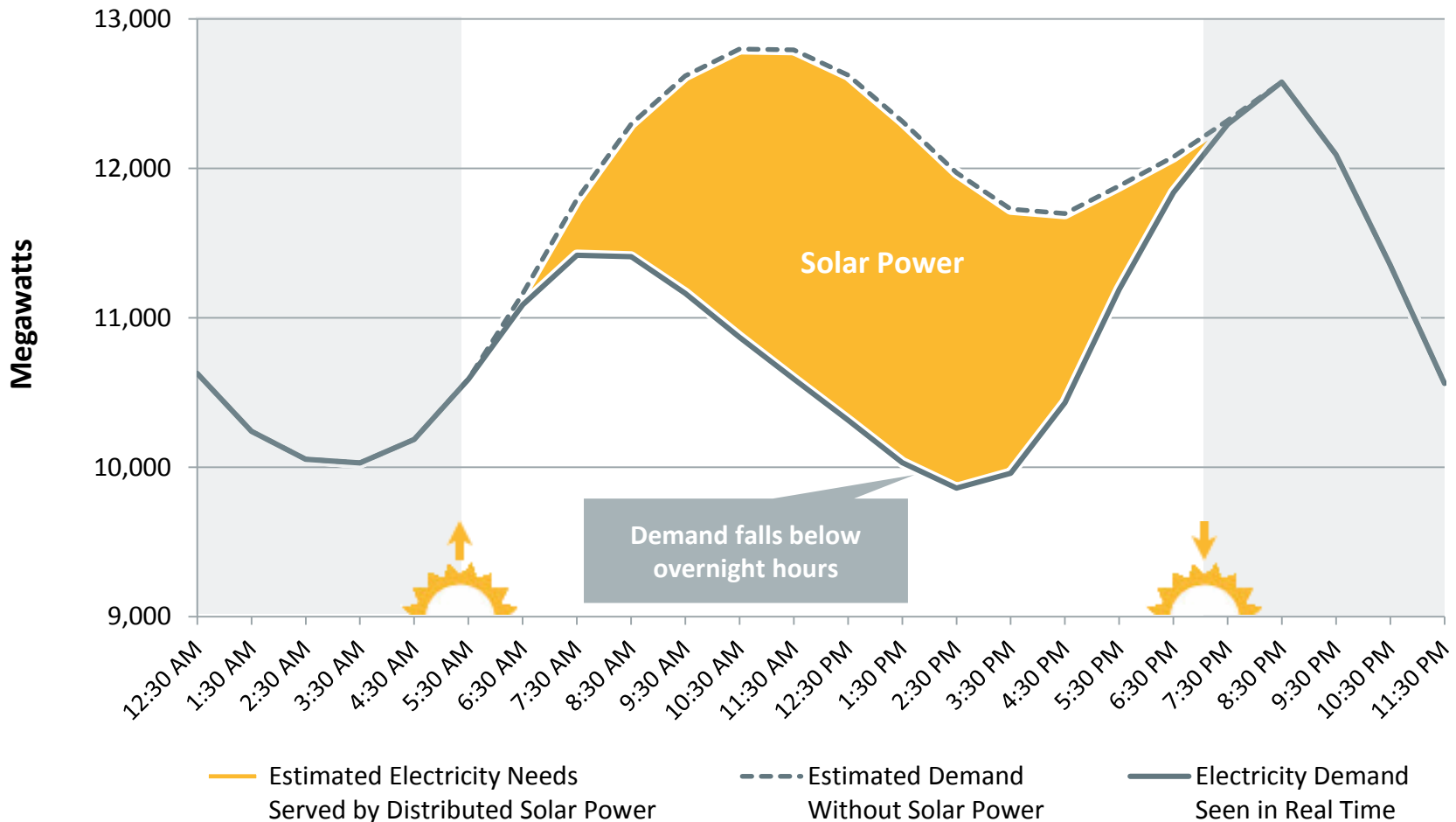
## Cumulative Growth in Solar PV through 2027 (MW<sub>ac</sub>)



Note: The bar chart reflects the ISO's projections for nameplate capacity from PV resources participating in the region's wholesale electricity markets, as well as those connected "behind the meter." Source: [Final 2018 PV Forecast](#) (March 2018); MW values are AC nameplate.

# Historic Dip in Midday Demand with Record-High Solar Power Output on April 21, 2018

At 1:30 p.m., behind-the-meter solar reduced grid demand by more than 2,300 MW



# 2017 ANNUAL MARKETS REPORT



# Wholesale Electricity Markets Operated Competitively Last Year, According to *2017 Annual Markets Report*

- In May, ISO New England's **Internal Market Monitor (IMM)** issued the *2017 Annual Markets Report (AMR)*
- The AMR assesses the **state of competition** in the wholesale electricity markets administered by the ISO during the most recent operating year
- The IMM functions **independently** of ISO management and reports directly to the ISO Board of Directors



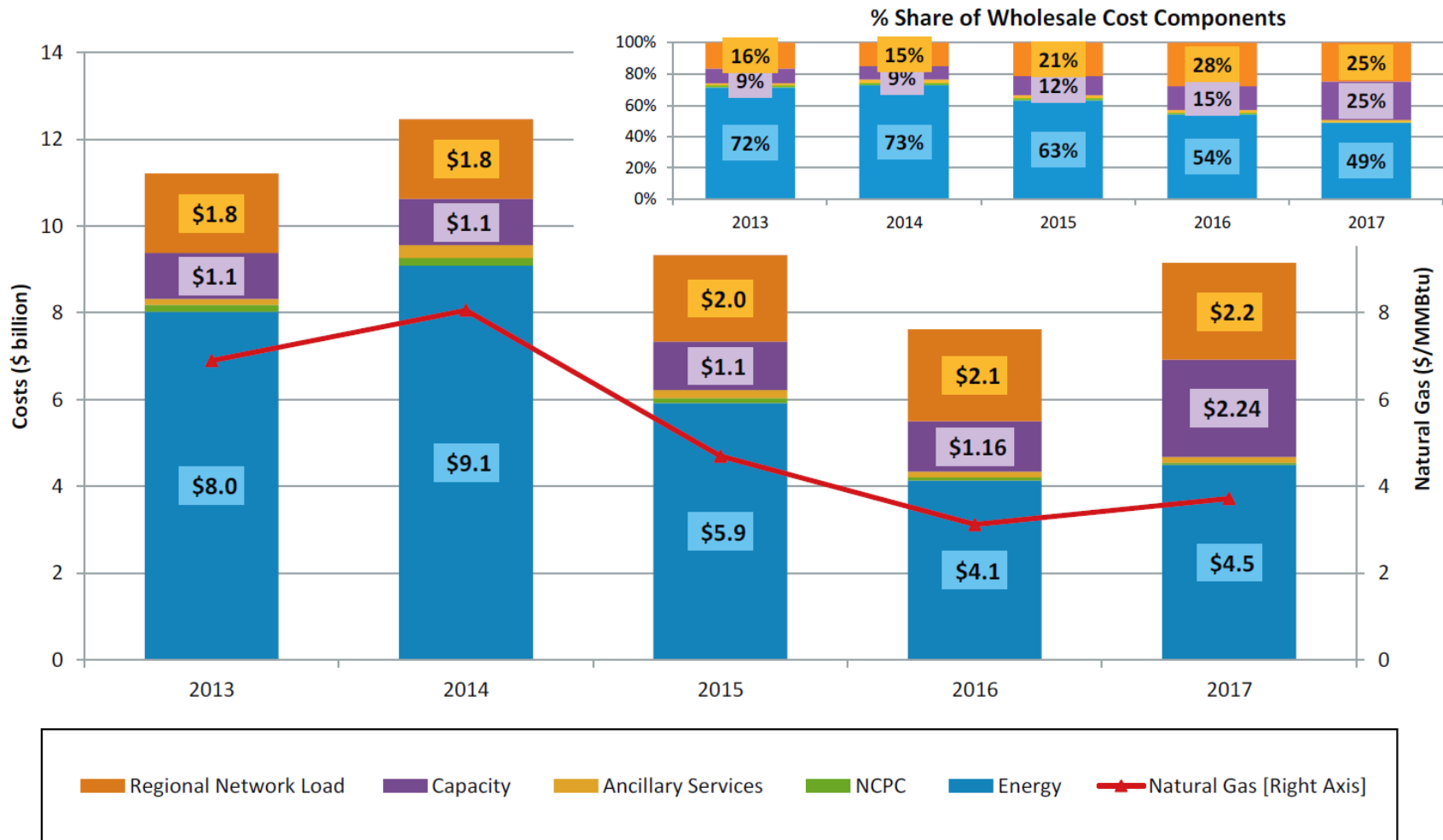
Note: The *2017 Annual Markets Report* is available at: <https://www.iso-ne.com/static-assets/documents/2018/05/2017-annual-markets-report.pdf>

# Key Findings of the *2017 Annual Markets Report*

- The **total cost** of wholesale electricity in 2017 was **\$9.1 billion**, representing a 20% (or \$1.5 billion) increase over 2016
- This increase was largely due to **higher capacity market costs** associated with the eighth Forward Capacity Auction (FCA #8), which took effect during the second half of 2017
  - More than 3,000 MW of capacity submitted **retirement requests** in advance of FCA #8, leading to higher clearing prices in the auction
  - Up until FCA #8, capacity costs were relatively low, with prices clearing at an administrative floor, due to surplus capacity conditions
- Capacity costs totaled **\$2.2 billion** in 2017, representing a 93% (or \$1.1 billion) increase over 2016
- Energy costs totaled **\$4.5 billion** in 2017, representing a 9% (or \$400 million) increase over 2016, due largely to higher natural gas prices in 2017, particularly in December
  - December 2017 wholesale energy costs totaled \$856 million



# Wholesale Electricity Costs and Average Natural Gas Prices in New England, 2013 – 2017



# FUEL SECURITY UPDATE





# Key Observations on Fuel Security

- New England is trending toward **greater fuel-security risk** based on our historical experiences and the forward-looking results of the *Operational Fuel-Security Analysis*
- The operational risk manifests itself as a **lack of firm energy** during cold weather
- Coordinating the timing of **exit and entry of resources** will be very challenging going forward
- Premature loss of existing **non-pipeline-gas units** will greatly exacerbate operational risks
- Exelon's plans to retire Mystic Station in 2022 **accelerates** discussions on fuel security



# Recent Retirement Announcements Trigger Immediate Action on Fuel Security



- Retirement de-list bids have been submitted for Units 7, 8, and 9 and the jet at the **Mystic Generating Station**, located in Boston, for the upcoming Forward Capacity Auction (FCA #13)
  - Units 8 and 9 are the primary customer for the Dstrigas LNG terminal that supplies both Mystic Station and the New England pipeline system
  - Exelon is in the process of acquiring the Dstrigas facility to ensure fuel supply for these units
- An updated fuel-security analysis shows that the loss of Units 8 and 9 and/or Dstrigas presents an **unacceptable risk to reliability**
- Exelon has stated that Units 8 and 9 will be retired unless it can recover its costs

Note: FCA #13 will be held in February 2019 for the resources needed during the June 1, 2022 – May 31, 2023 Capacity Commitment Period.

# The ISO Is Pursuing Three Tracks to Address Fuel-Security Challenges

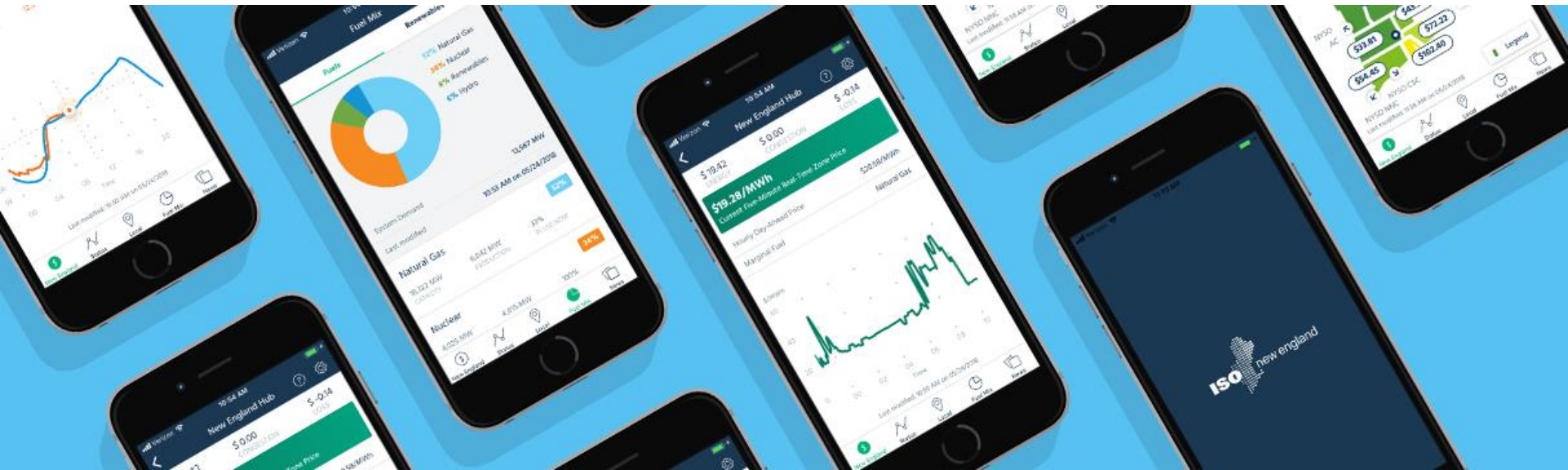


- Immediate: Seek a ***waiver from FERC*** to retain Mystic 8 and 9 to ensure fuel security (not currently allowed under the ISO tariff); Exelon is seeking cost-of-service compensation through FERC
- Short-term: Working with stakeholders, develop ***criteria*** to retain resources for fuel security under the ISO tariff
  - File tariff changes by end of 2018 so they are in place before the March 2019 retirement de-list bid deadline for FCA #14
- Long-term: Working with stakeholders, develop a ***market-based solution*** that will ensure sufficient firm energy to maintain reliability in the winter
  - Needed resources and infrastructure will be ***compensated through the market***, rather than reliability contracts

Note: FCA #14 will be held in February 2020 for the resources needed during the June 1, 2023 – May 31, 2024 Capacity Commitment Period.

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- Detailed day-ahead and real-time wholesale electricity price data, with a new and improved price map
- Enhanced past, present, and future electricity demand data on easy-to-read charts
- Better stats on what energy sources are powering New England at any given moment
- Plus! Customizable push notifications that alert you to changes in prices or system operating conditions, so you can see what's happening on the hottest summer days and coldest winter nights

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# Questions



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