ISO New England Update

Consumer Liaison Group Meeting

Anne George

VICE PRESIDENT, EXTERNAL AFFAIRS AND CORPORATE COMMUNICATIONS

TODAY'S UPDATES

- ISO New England and Consumer Liaison Group Coordinating Committee Issue *2019 Report of the Consumer Liaison Group*
- Results of Forward Capacity Auction #14 (FCA #14)
- Update on ISO New England's Energy Security Improvements (ESI) Project and Impact Analysis
- Update on Regional Transmission Planning Activities
- Preliminary Wholesale Electricity Costs for 2019

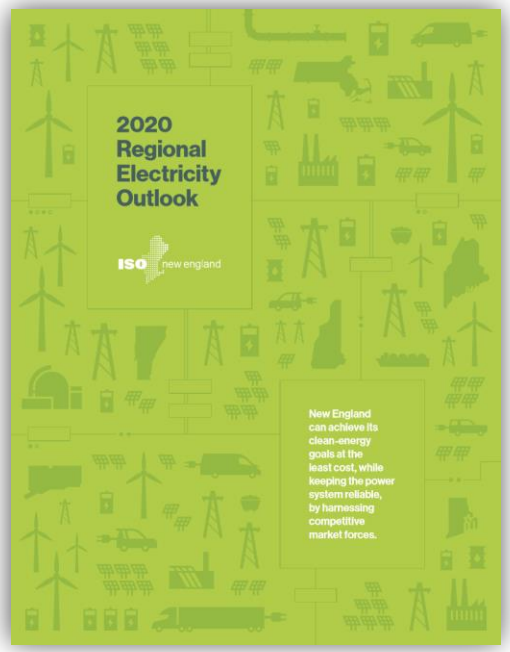
2019 Report of the Consumer Liaison Group Available, and CLG Meeting Dates Set for 2020

- The **2019 Report of the Consumer Liaison Group** includes:
  - **Statement** by the CLG Coordinating Committee on future goals and initiatives
  - **Summary** of CLG activities in 2019
  - **Update** on ISO New England activities and initiatives
  - **Information** on wholesale electricity costs and retail electricity rates in New England

*Future CLG meetings are set for **June 11**, **September 17** and **December 2, 2020***

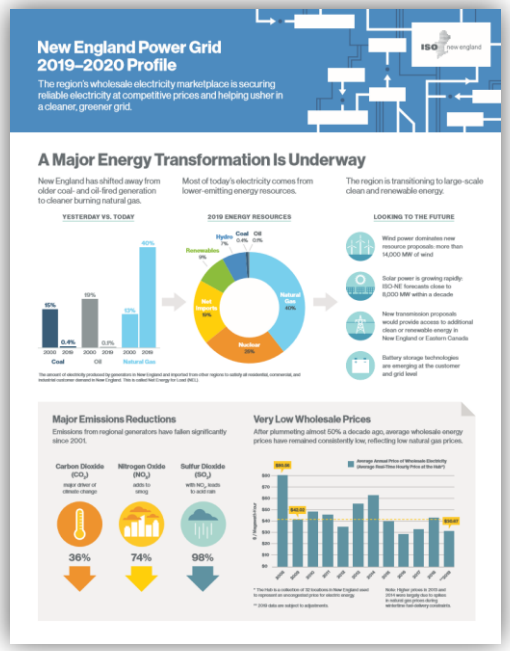
Source: https://www.iso-ne.com/committees/industry-collaborations/consumer-liaison/

ISO New England Releases Several New Publications



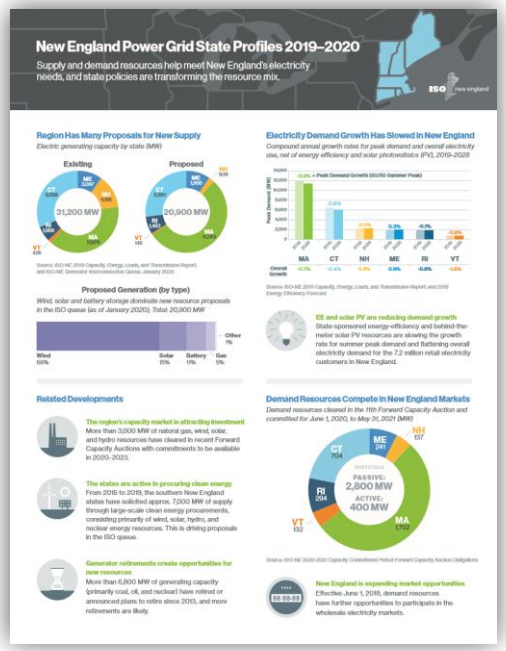
2020 Regional Electricity Outlook

Provides an in-depth look at New England's biggest challenges to power system reliability, the solutions the region is pursuing, and other ISO New England efforts to improve services and performance



New England Power Grid Profile

Provides key grid and market stats on how New England's wholesale electricity markets are securing reliable electricity at competitive prices and helping usher in a cleaner, greener grid



New England State Profiles

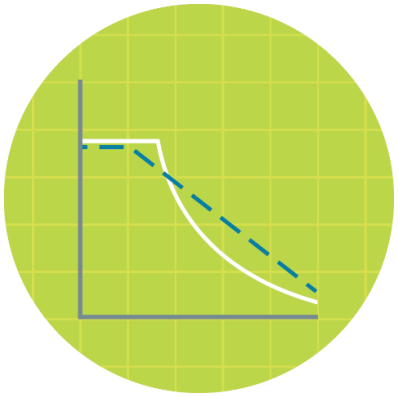
Provides state-specific facts and figures relating to supply and demand resources tied into the New England electric grid and state policies transforming the resource mix in the region

FORWARD CAPACITY AUCTION #14 (FCA #14)

June 1, 2023 – May 31, 2024 Capacity Commitment Period

FCA #14 Concluded With Sufficient Resources and the Lowest Clearing Price in the Auction's History

- FCA #14 was held on February 3, 2020 to procure the capacity resources needed to meet demand for electricity, plus reserve requirements, during the **June 1, 2023 to May 31, 2024** capacity commitment period
- The **clearing price** in the auction was **$2.00** per kilowatt-month (kW-month) across all of New England, compared to $3.80/kW-month in last year's auction
  - No price separation among the capacity zones



- The estimated cost of the capacity market in 2023-2024 will be about **$980 million**
  - Down from the estimated cost of last year's auction ($1.6 billion)

For more information, see https://www.iso-ne.com/static-assets/documents/2020/02/fca_14_results_filing.pdf

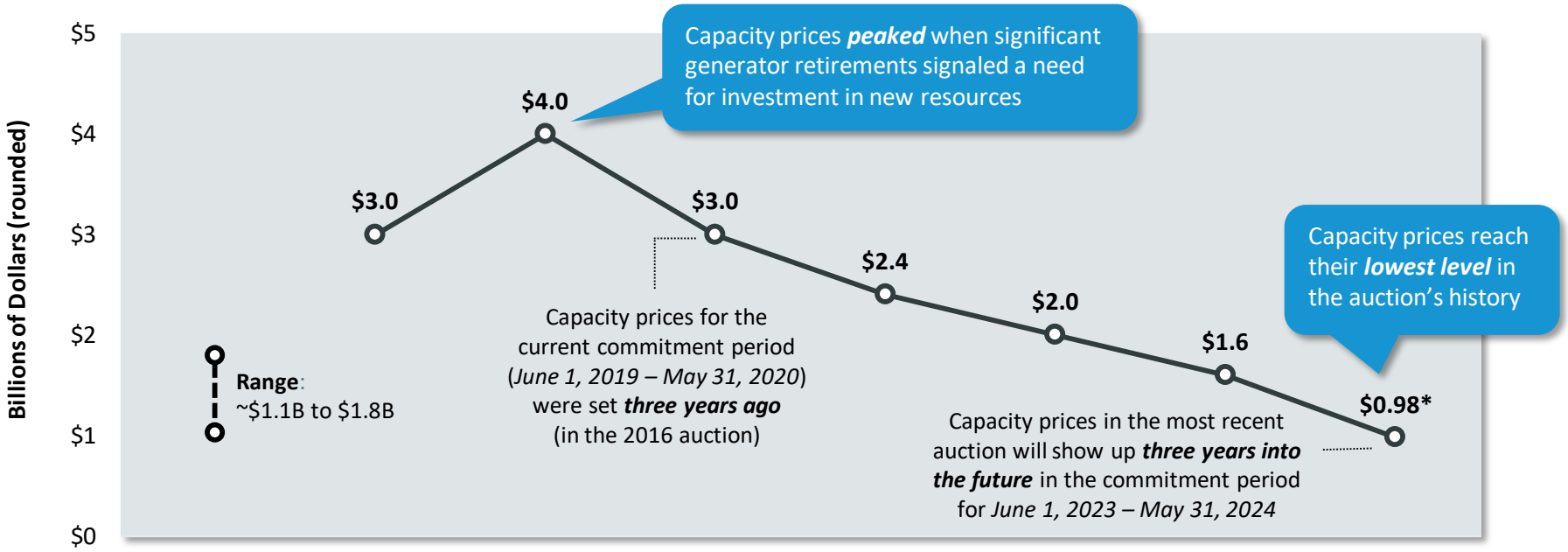
FCA #14 Attracted and Retained a Variety of Resources to Ensure Resource Adequacy in 2023-2024

- The auction concluded with commitments from **33,956 MW** of capacity to be available during the 2023-2024 capacity commitment period
  - **28,978 MW** of generation, including 335 MW of new generating resources
  - **3,919 MW** of energy-efficiency and demand-reduction measures, including 323 MW of new demand resources
  - **1,059 MW** of total imports from New York, Québec and New Brunswick
- Prior to the auction, ISO New England retained two units, Mystic Generating Station Units 8 and 9, needed for fuel security in 2023-2024

Capacity Market Costs Reflect Changing Supply Outlook

As a "forward" market, consumers can anticipate future changes in capacity costs

Total Capacity Market Costs



	FCA 1–7	FCA 8	FCA 9	FCA 10	FCA 11	FCA 12	FCA 13	FCA 14
Commitment periods:	**2010–2017**	**2017–2018**	**2018–2019**	**2019–2020**	**2020–2021**	**2021–2022**	**2022–2023**	**2023-2024**
Auction years:	2008–2013	2014	2015	2016	2017	2018	2019	2020
Est. Dollars per kilowatt-month:	$2.95 – $4.50	$7.03**	$9.55**	$7.03	$5.30	$4.63	$3.80	$2.00

* Preliminary estimate ** Prices may be higher for some capacity zones.

ENERGY SECURITY IMPROVEMENTS

*The New England power grid is no longer comprised mostly of conventional, thermal generation that stores fuel on site. Instead, the system is increasingly made up of generating facilities that run on **just-in-time** energy sources: natural gas (from pipelines and LNG deliveries), wind, and solar energy.*

Why Is ISO New England Proposing Energy Security Improvements?

- **The Risk:** Ensuring the grid has sufficient energy **"on demand"** to power New England if **"just-in-time"** natural-gas-fired and renewable technologies are unavailable simultaneously
- **Today:** There have been no loss-of-load events in New England attributable to **insufficient** energy supplies to date
- **Looking forward:** Industry trends will increase this **risk** over time, unless solutions are developed proactively

*The goal of the ISO's Energy Security Improvements project is to create a **proactive**, **long-term solution** that enhances **reliability**, is **cost-effective**, and facilitates **innovation.***

Energy Security Improvements: The ISO's Long-Term Solution Includes Two Conceptual Elements

Measure	What It Does	Timing
New Reserve Services	*Creates new option-based services in the day-ahead markets that compensate for the flexibility of energy "on demand" to manage uncertainties each operating day*	**FERC Filing:** April 15, 2020 **Take Effect:** June 1, 2024
New Seasonal Forward Market Ahead of the Winter Period	*Seeks to facilitate investments in costly supplemental energy supply arrangements in advance of the winter period*	**In Development:** 2020-2021

*These measures create **powerful incentives** that will help ensure that enough flexible resources are on line or available in the region during **energy-limited** conditions.*

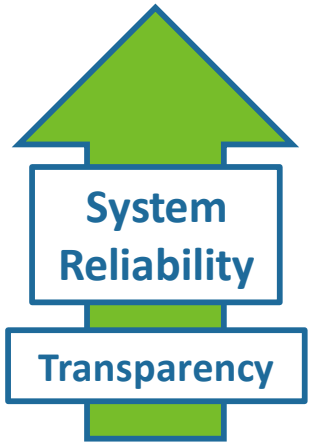
New Reserve Services Will Help Ensure the Grid Has Sufficient Energy "On Demand" to Power New England

- **Generation Contingency Reserves (GCR):** Three new day-ahead ancillary services that ensure operating reserve energy in response to contingencies on the system.
- **Replacement Energy Reserves (RER):** Two new day-ahead ancillary services that ensure energy through the balance of the day to cover any "supply gap" that may arise if scheduled energy suppliers falter.
- **Energy Imbalance Reserves (EIR):** A new day-ahead ancillary service to ensure energy to cover any "gap" between forecast consumer demand the next day and the supplies scheduled from both conventional and forecasted renewable resources.

*This design will reward the lowest-cost resources that can **firm-up their energy sources** and **deliver electricity reliably** when unforeseen grid operating challenges arise.*

Proposed Market Changes Will Address Misaligned Incentives and Improve Reliability

- **Impact Analysis** shows Energy Security Improvements will:
  - Incentivize resources to acquire and maintain higher levels of **energy inventory** compared to current rules
  - Commit more resources for **energy and ancillary services** through the day-ahead market compared to current rules
    - Thus, **increases incentives** to be able to deliver real-time energy when needed
  - Have a range of **market and consumer impacts**, based on system conditions
    - Will reduce **production costs** during stressed system conditions
      - Impact ranges from - $36 million to + $7.5 million
    - Will increase **consumer costs** during other conditions
      - Winter impact ranges from - $69 million to + $132 million
      - Annual impact ranges from + $20 million to + $257 million



Source: Energy Security Improvements Impact Assessment, Draft Report, Analysis Group, March 2020
https://www.iso-ne.com/static-assets/documents/2020/03/a5_d_draft_report_energy_security_improvements_impact_assessment.pdf

TRANSMISSION PLANNING UPDATE

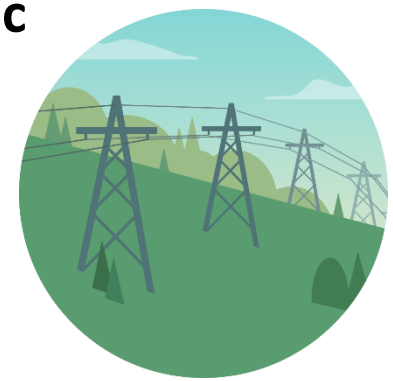
ISO New England Issues Competitive Solicitation for Transmission Solutions in Boston Area

- In December 2019, the ISO issued its first **request for proposals** (RFP) to address transmission system upgrades needed in the Boston area with the coming retirement of Mystic Generating Station in Everett, Massachusetts
  - Issued pursuant to **FERC Order 1000**, which was intended to:
    1. Introduce **competition** into the development of regulated transmission solutions
    2. Create a mechanism for transmission development to address **public policies**

- The ISO will review all the proposals through a **two-phase process** before ultimately selecting the preferred solution
  - The deadline for **Phase One Proposal** submission was March 4, 2020
  - The ISO expects to make a **final selection** in the **summer of 2021**

ISO New England Initiates Transmission Planning for Public Policy Process

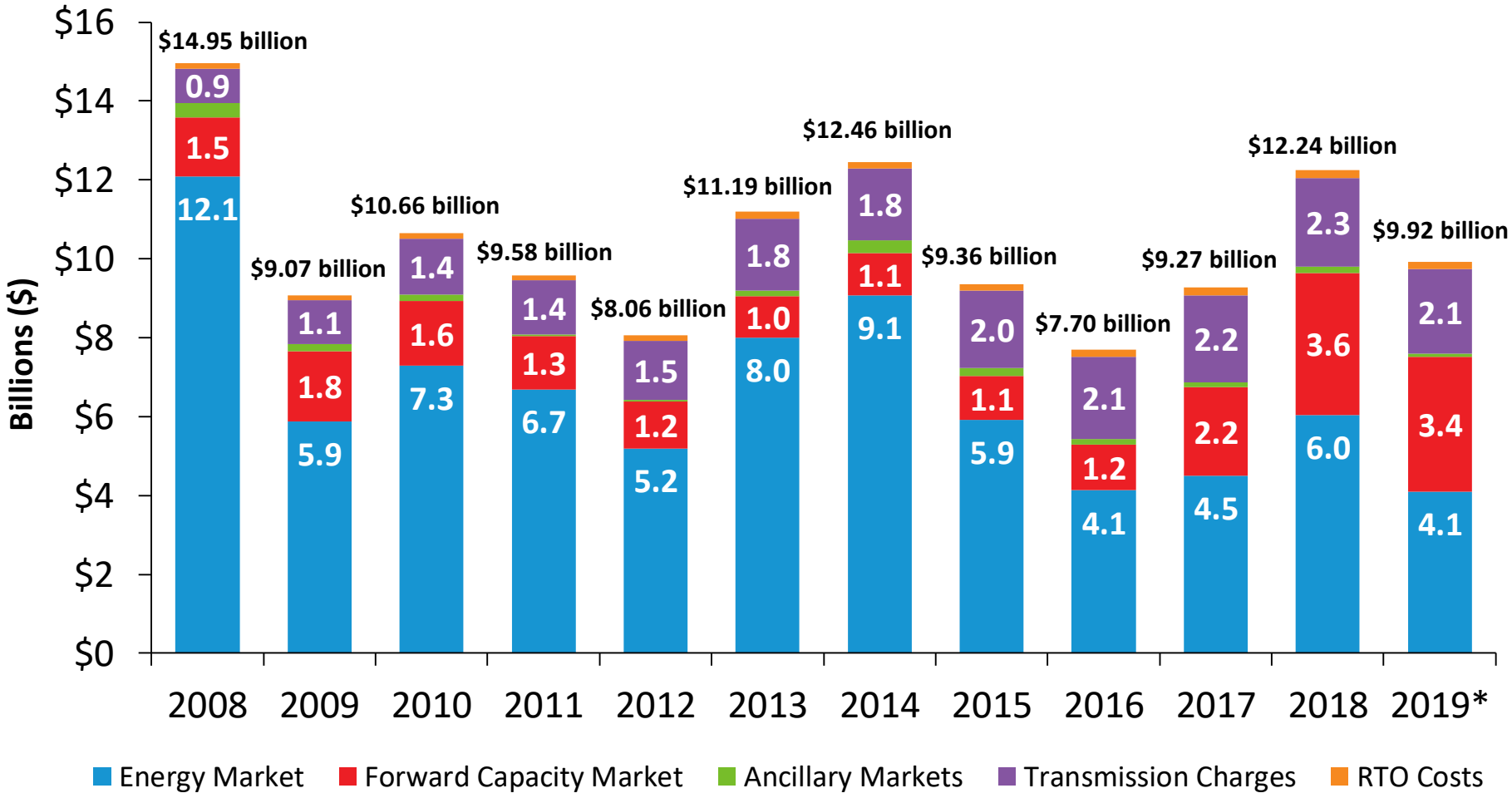
- In January 2020, the ISO released a notice through the Planning Advisory Committee (PAC) commencing the **transmission planning for public policy process**, as required under FERC Order 1000
  - This planning process occurs at least once every three years
  - The ISO led the last round of this process in 2017
- Members of PAC had until February 28, 2020 to respond to the ISO regarding **local public policy requirements** driving transmission needs and/or to provide input to the New England States Committee on Electricity (NESCOE) regarding **state and federal public policy requirements** driving transmission needs
- NESCOE may submit a communication to the ISO through May 1, 2020 regarding federal and state requirements



WHOLESALE ELECTRICITY COSTS

New England Wholesale Electricity Costs

Annual wholesale electricity costs have ranged from $7.7 billion to $15 billion



Source: *2019 Report of the Consumer Liaison Group*; * 2019 data is preliminary and subject to resettlement

Note: Forward Capacity Market values shown are based on auctions held roughly three years prior to each calendar year.

New England Wholesale Electricity Costs[(a)]

	2015		2016		2017		2018		2019*	
	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh
Wholesale Market Costs										
Energy (LMPs)[(b)]	$5,910	4.5	$4,130	3.2	$4,498	3.5	$6,041	4.7	$4,105	3.3
Ancillaries[(c)]	$210	0.2	$146	0.1	$132	0.1	$147	0.1	$81	0.1
Capacity[(d)]	$1,110	0.8	$1,160	0.9	$2,245	1.8	$3,606	2.8	$3,401	2.7
Subtotal	*$7,229*	5.5	*$5,437*	*4.2*	*$6,875*	*5.4*	*$9,794*	*7.6*	*$7,586*	*6.0*
Transmission charges[(e)]	$1,964	1.5	$2,081	1.6	$2,199	1.7	$2,250	1.7	$2,146	1.7
RTO costs[(f)]	$165	0.1	$180	0.1	$193	0.2	$196	0.2	$184	0.1
Total	**$9,358**	**7.1**	**$7,698**	**5.9**	**$9,267**	**7.3**	**$12,240**	**9.4**	**$9,915**	**7.9**

(a) Average annual costs are based on the 12 months beginning January 1 and ending December 31. Costs in millions = the dollar value of the costs to New England wholesale market load servers for ISO-administered services. Cents/kWh = the value derived by dividing the dollar value (indicated above) by the real-time load obligation. These values are presented for illustrative purposes only and do not reflect actual charge methodologies. *** The wholesale values for 2019 are preliminary and subject to resettlement.**

(b) Energy values are derived from wholesale market pricing and represent the results of the Day-Ahead Energy Market plus deviations from the Day-Ahead Energy Market reflected in the Real-Time Energy Market.

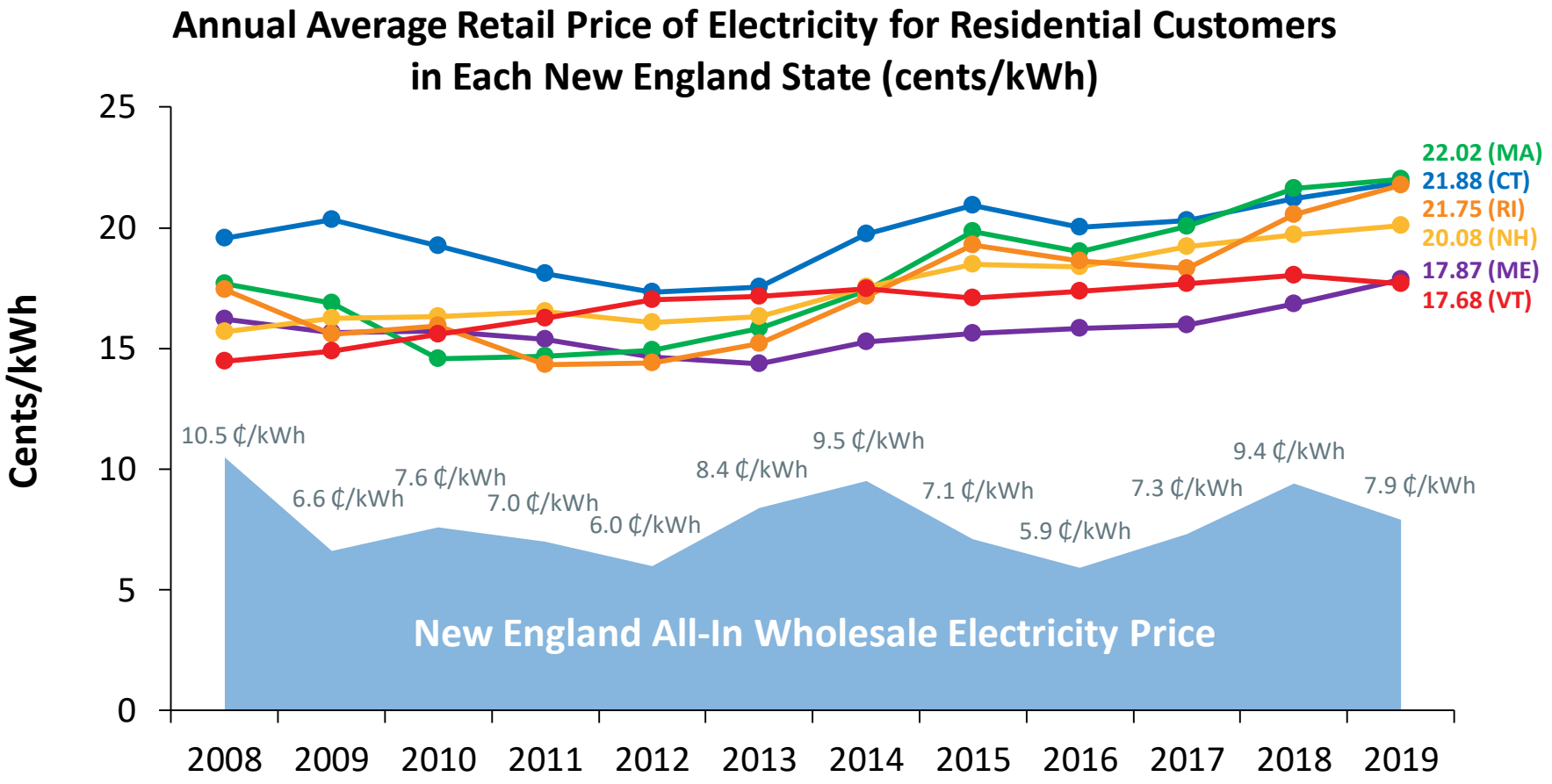
(c) Ancillaries include first- and second-contingency Net Commitment-Period Compensation (NCPC), forward reserves, real-time reserves, regulation service, and a reduction for the Marginal Loss Revenue Fund.

(d) Capacity charges are those associated with the Forward Capacity Market (FCM).

(e) Transmission charges reflect the collection of transmission owners' revenue requirements and tariff-based reliability services, including black-start capability, voltage support, and FCM reliability. In 2019, the cost of payments made to these generators for reliability services under the ISO's tariff was $42.2 million. Transmission charge totals reflect the refund of Schedule 1 TOUT charges to regional network load.

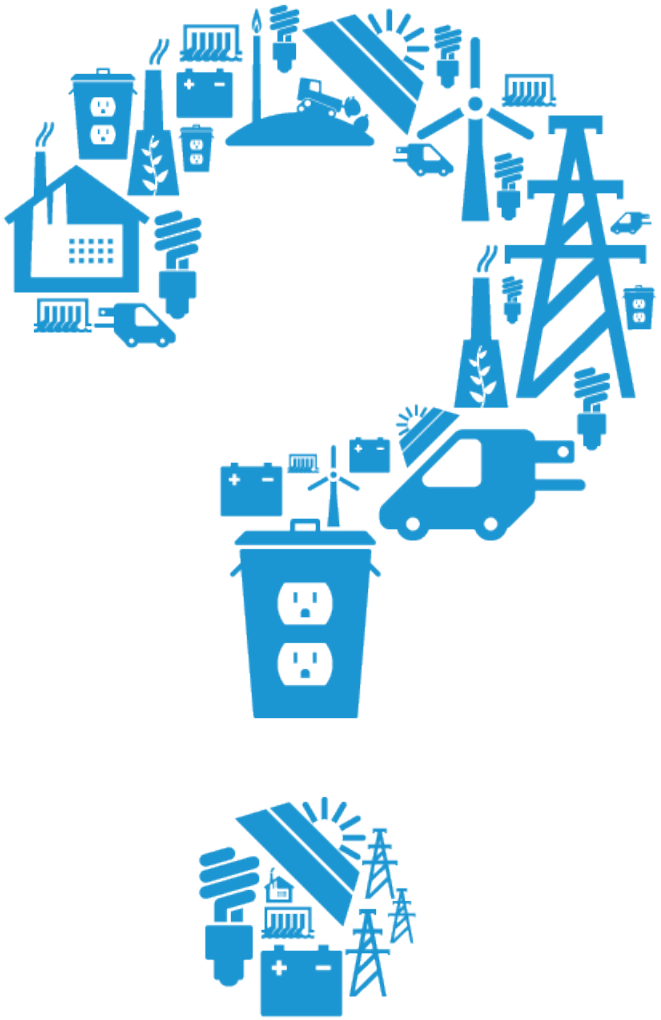
(f) RTO costs are the costs to run and operate ISO New England and are based on actual collections, as determined under Section IV of the *ISO New England Inc. Transmission, Markets, and Services Tariff*.

Retail Electricity Prices Follow Wholesale Prices, But Are Also Influenced by Individual State Policies



Source: U.S. Energy Information Administration, *Electric Power Monthly*, Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, Year-to-Date, by State; *2019 Report of the Consumer Liaison Group*. **Note**: The New England all-in wholesale electricity price is derived by dividing total wholesale electricity costs by real-time load obligation (presented for illustrative purposes; does not reflect actual charge methodologies).

Questions



APPENDIX

Summary: The ISO Has Pursued Short- and Long-Term Solutions to Address Energy Security Challenges

Measure	What It Does	Timing*
Retain Resources Needed for Fuel Security That Seek to Retire	*Allows out-of-market payments for retained resources*	June 1, 2022 — May 31, 2023 (FCA #13) June 1, 2023 — May 31, 2024 (FCA #14) June 1, 2024 — May 31, 2025 (FCA #15) ***(FERC Approval: December 2018)***
Inventoried Energy Program	*Creates incentives for resources to increase their inventoried energy*	June 1, 2023 — May 31, 2024 (FCA #14) June 1, 2024 — May 31, 2025 (FCA #15) ***(FERC Notice: August 2019)***
Energy Security Improvements (ESI) Project	*Changes ISO's energy and ancillary services markets*	In effect June 1, 2024 and beyond ***(To be filed at FERC: April 15, 2020)***

* *These dates reflect the current timeline but are subject to change, pending the outcome of regulatory processes.*

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