



RENEW
Northeast

FAIR MARKET FOR RENEWABLES

PROTECTING NEW ENGLAND CONSUMERS
FROM HIGH ELECTRICITY PRICES





About RENEW

ABLE GRID



APEX
CLEAN ENERGY



 **BNE Energy Inc.**
Producer of green clean energy



Brookfield



CIANBRO

 **clf**
conservation law foundation



ConnectGEN **CONVERGENT**

CYPRESS CREEK
RENEWABLES 

 **Dominion Energy**

 **edf** renewables

 **edp** renewables
powered by nature

 **equinor**

 **enel**
Green Power

EVERSOURCE



 **MAYFLOWER WIND**
A Shell and EDF Renewables Joint Venture



NEXTera
ENERGY 

 **NovatusEnergy**

 **Orsted**



PATRIOT RENEWABLES

 **Record Hill Wind**

RWE

 **SIEMENS Gamesa**
RENEWABLE ENERGY

 **SIERRA CLUB**

 **S.W.E.B.**

 **TerraForm** POWER

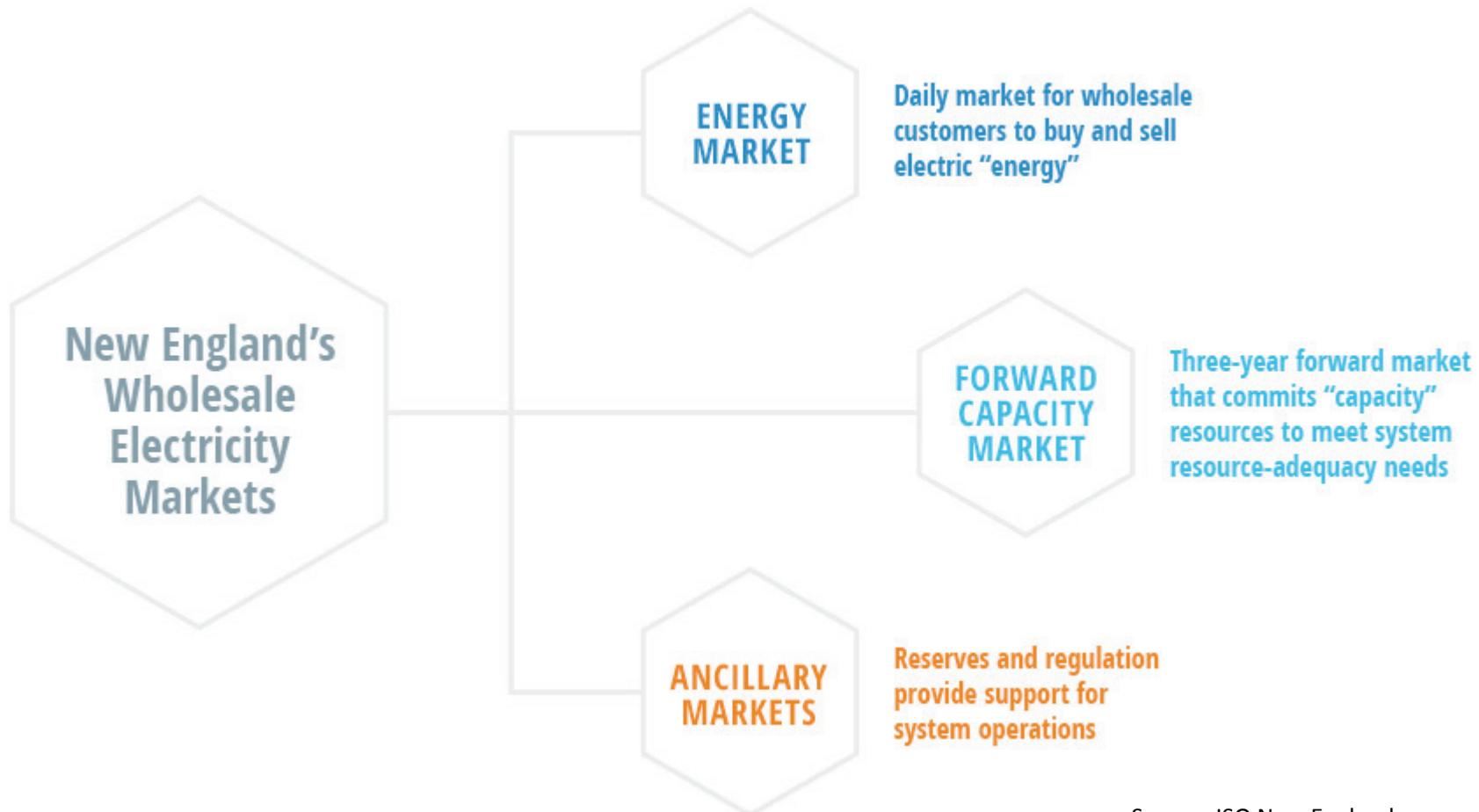
 **Union of
Concerned Scientists**
Science for a healthy planet and safer world

 **Vestas**

 **VINEYARD WIND**

Overview of ISO New England Markets

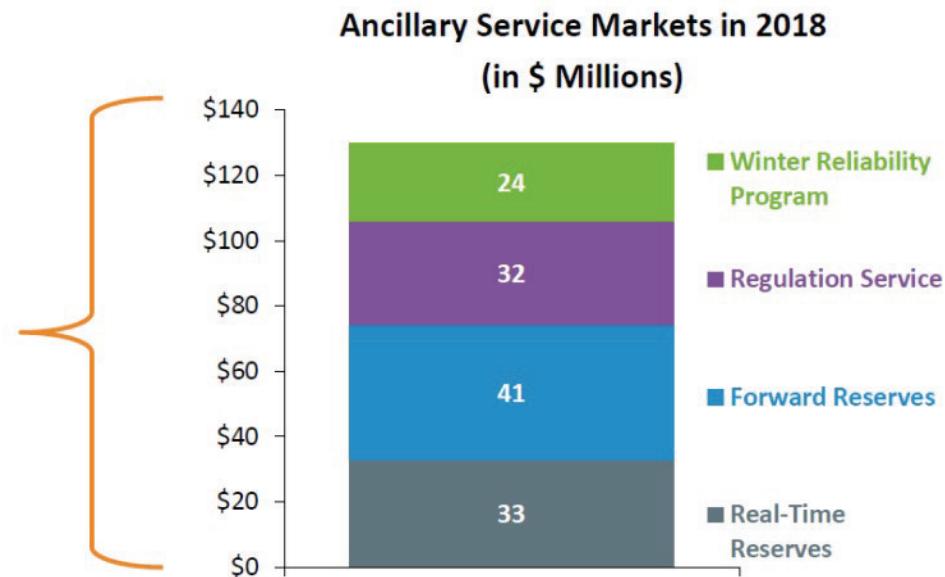
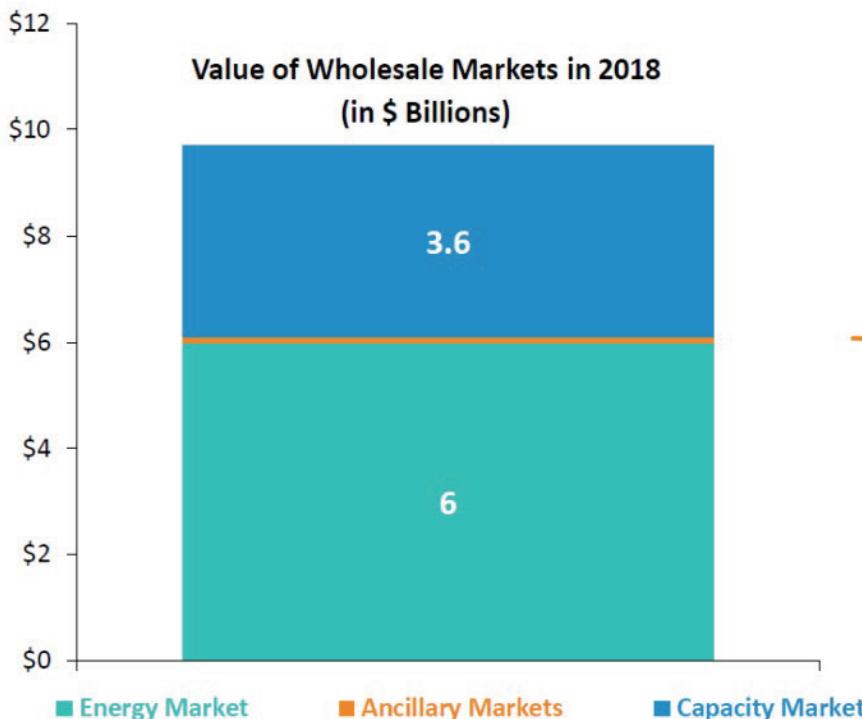
New England Electricity Markets



Source: ISO New England

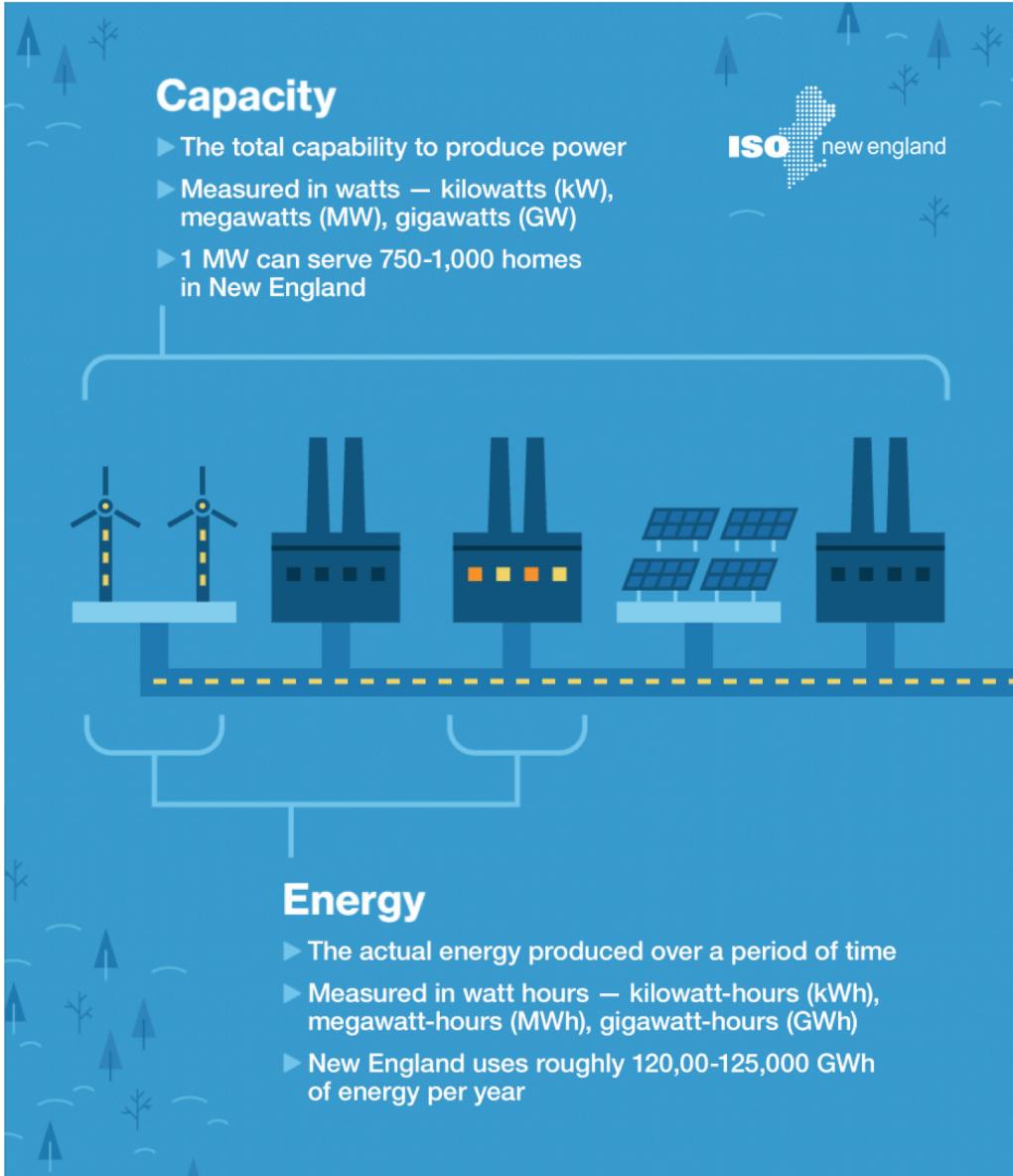
New England Electricity Markets

New England consumers annually spend billions of dollars for capacity



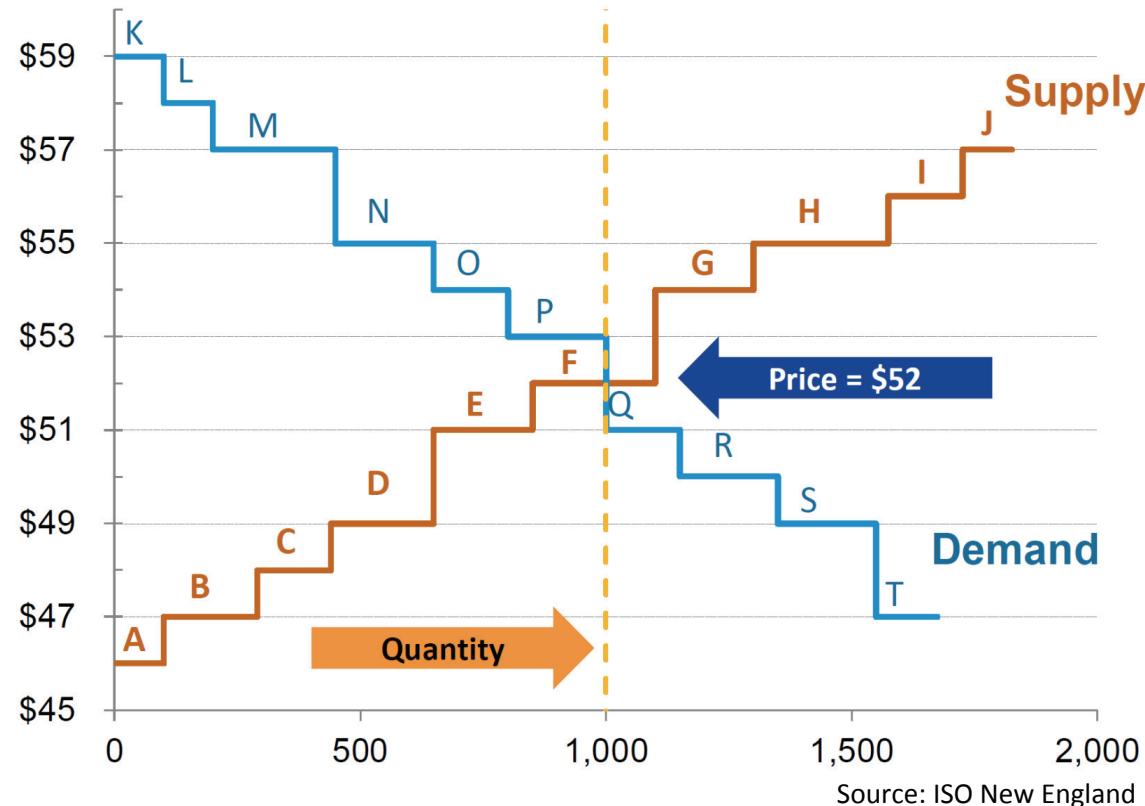
Source: ISO New England Internal Market Monitor
[2018 Annual Markets Report](#)

Capacity vs. Energy Markets



How Energy Markets Work

Each generator offers a price at which it will sell electricity the following day. Generators (supply) and utilities and retailers (demand) each submit offers and bids. The market or clearing price is the intersection of supply and demand. All accepted generators are paid the clearing price regardless of their offers.

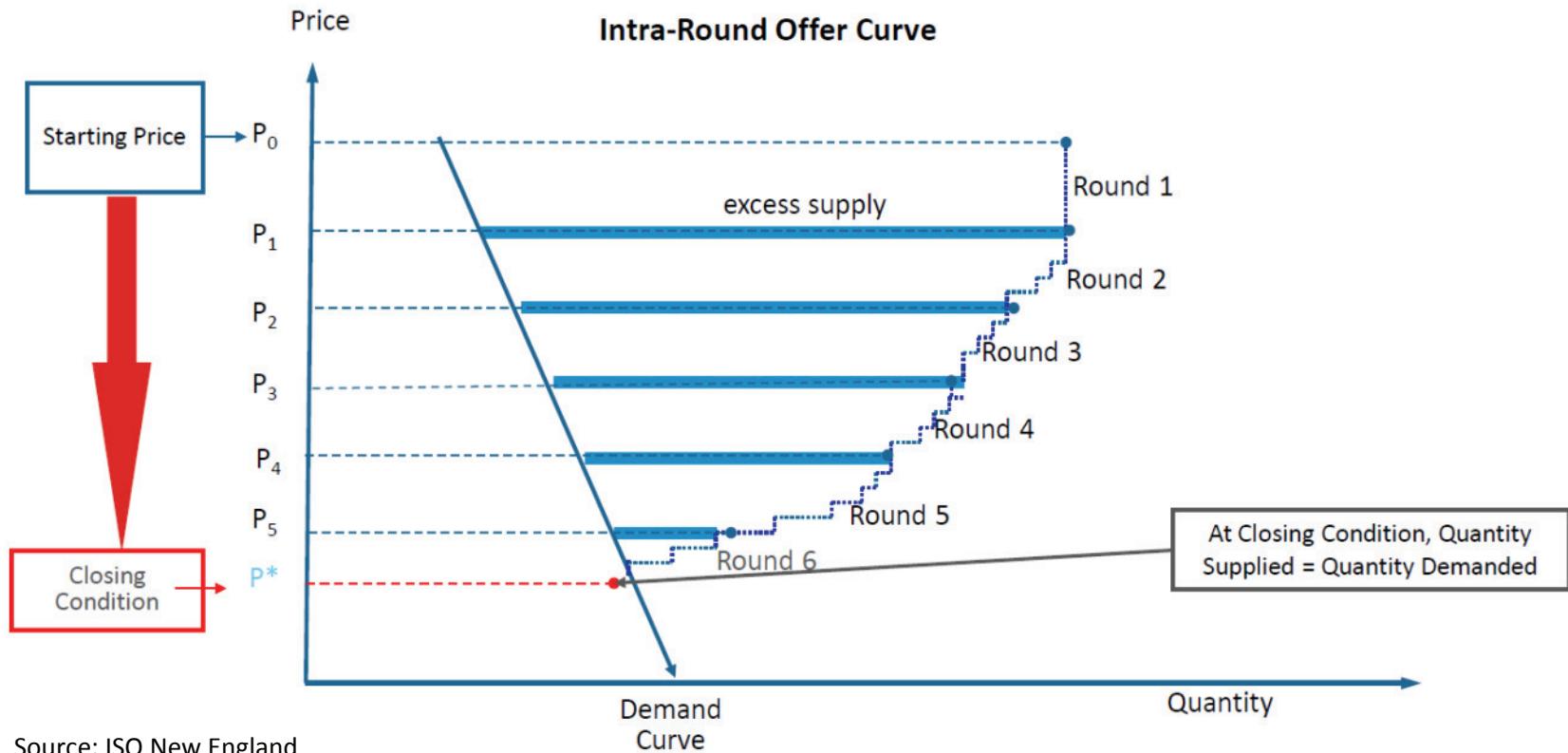


Capacity Market's Purpose

The Forward Capacity Market (FCM), the region's long-term capacity market, ensures the system has sufficient resources to meet the future demand by paying resources to be available to meet the projected demand for electricity three years out and operate when needed once the capacity commitment period begins.

- Infrequent operation for some generators provide limited opportunities to recover fully fixed costs
 - Energy prices may not be high enough for long enough
 - Expenditures not recovered in energy market are often called the “missing money”
- Capacity revenue covers this **missing money problem** facing units that are needed but operate seldomly

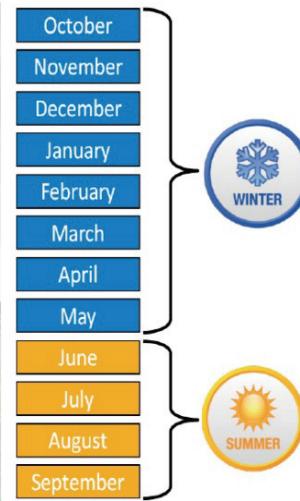
Capacity Price Determination



Source: ISO New England

Renewable Energy Participation in the Capacity Market

Capacity Eligibility Adjusted for Reliability



ISO methodically determines capacity value of renewables for reliability based on variability of wind and strength of sun during reliability hours. This reduces the amount of capacity renewables can clear in the auction.

By contrast correlated common failures with conventional generation like weather-induced equipment failure (e.g., gas plant outages correlated due to susceptibility to the same pipeline or compressor outage) are not factored into their capacity value determination.



Minimum Offer Price Rule (MOPR)



Addresses concerns that buyers of capacity may have the ability and incentive to suppress prices below competitive levels through subsidizing new entry



Prevents new resources from entering the market at prices below their costs

After a new resource clears an auction, it is no longer subject to buyer-side mitigation

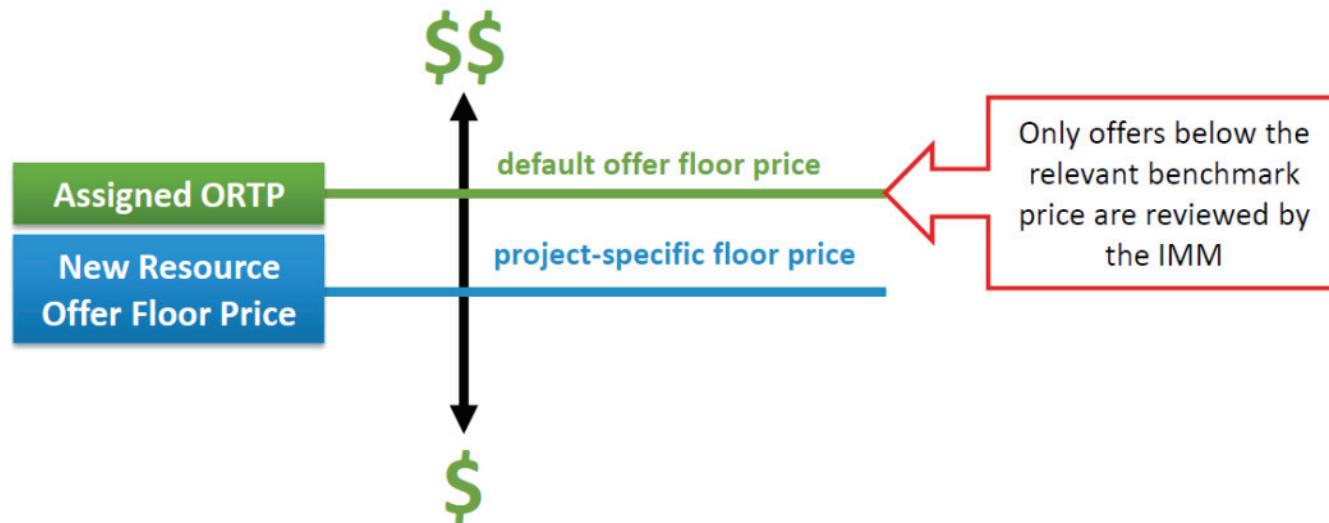
Source: ISO New England

Limits on Generator Offer Price

The ISO screens uncompetitive offers into the capacity auction from new generators that could suppress the clearing price. Offers at or above an **Offer Review Trigger Price (ORTP)** are presumed to be competitive.

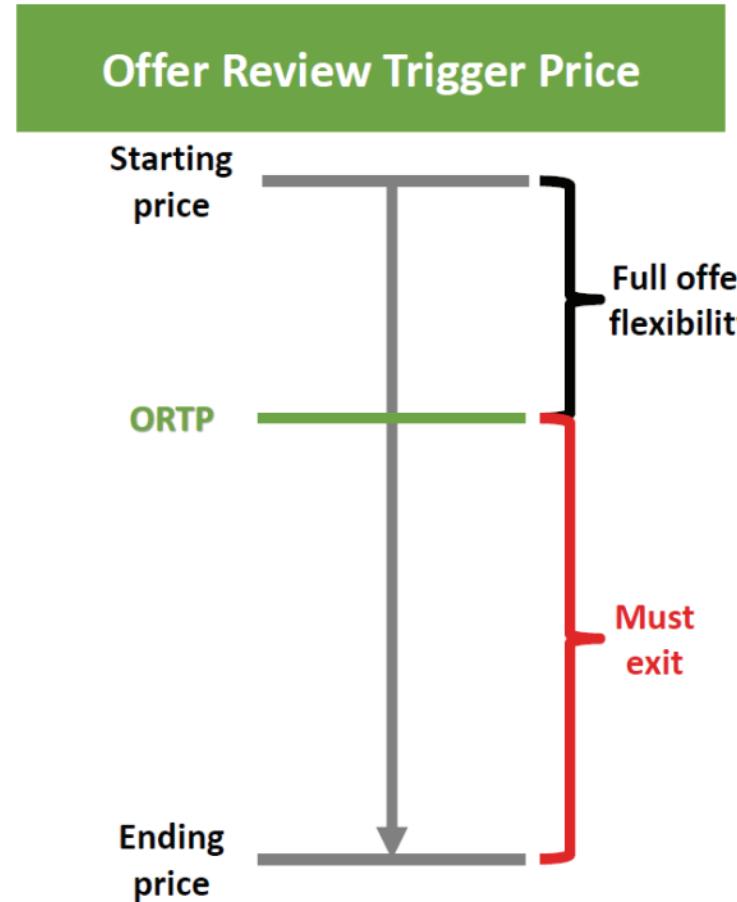
Offers below ORTP are reviewed by internal market monitor to ensure:

- Project does not receive out-of-market revenues; and
- Assumptions are consistent with overall market conditions



Source: ISO New England

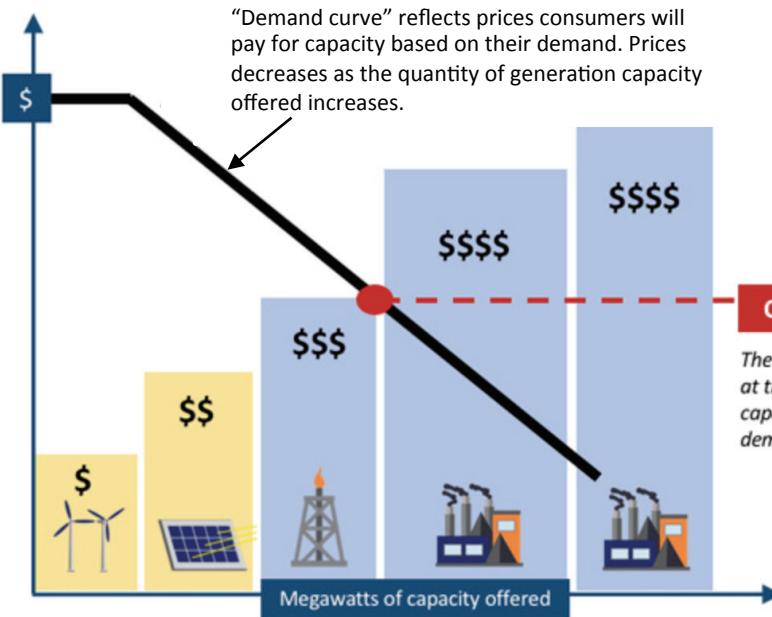
Limits on Generator Offer Price



Source: ISO New England

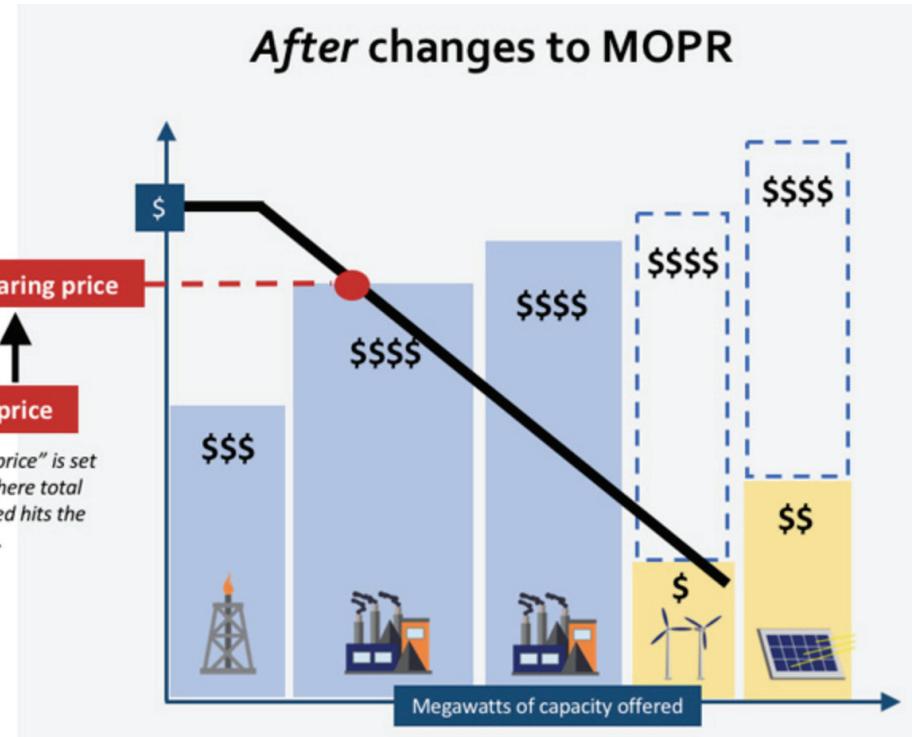
MOPR Makes Consumers PAY TWICE

Before changes to MOPR



With solar and wind offering low-cost electricity generation capability, the clearing price all sources get paid for capacity is set lower helping keep capacity costs down.

After changes to MOPR



Capacity costs from state-supported resources are artificially inflated by a requirement that they offer at or above a high minimum price—the ORTP.

Despite consumers' paying for utility contracts with renewable generation that provides physical capacity, when wind and solar are blocked from the capacity market due to the MOPR, customers must buy an equivalent amount of capacity that does clear in the capacity market.

FERC Standard for ORTP Calculation

"ORTPs are set at the low end of the competitive range of expected offers so as to strike a reasonable balance by only subjecting resources to IMM review which plainly appear commercially implausible absent out-of-market revenues."

"It is important that the ORTPs be set at a level consistent with **expected prevailing market conditions** for the pertinent Capacity Commitment Periods so as to ensure the effective implementation of buyer-side mitigation."

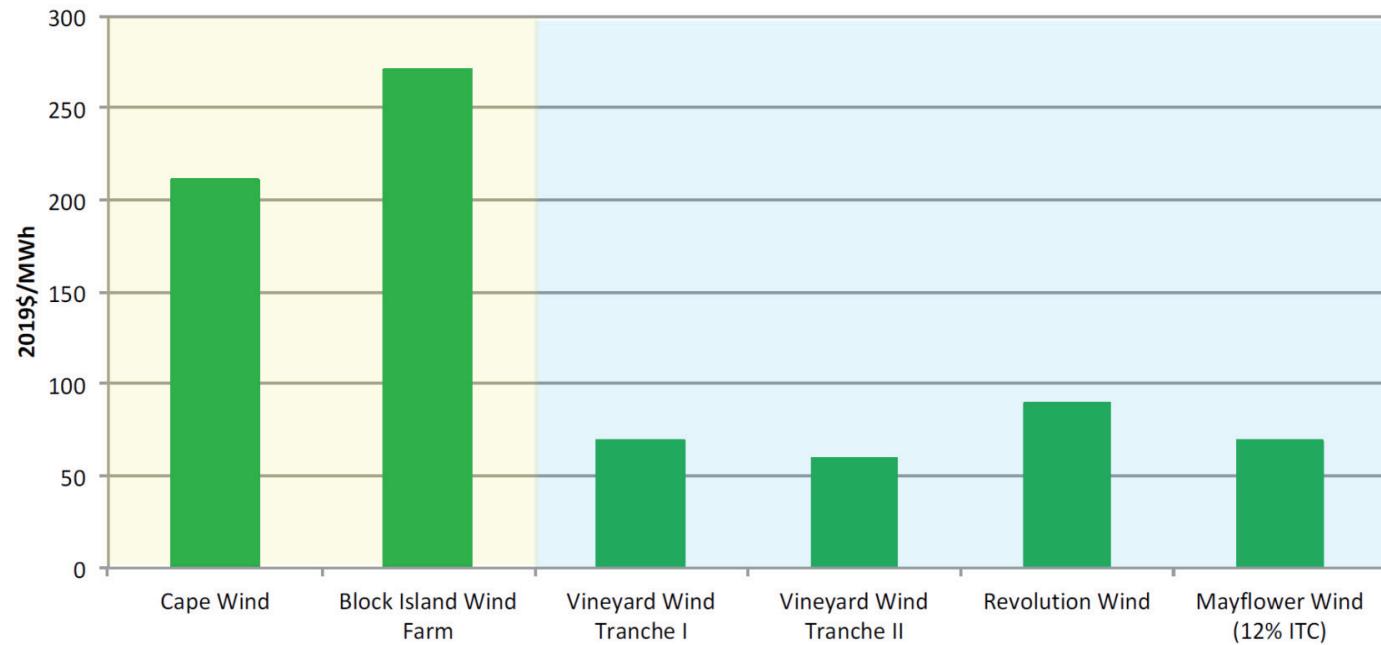
ISO's December 2013 filing updating ORTPs for Forward Capacity Auction (FCA) 9 (FERC Docket ER14-616) describing the intent of the ORTP calculation.

"In the case of New England, use of trigger prices at the low end of the spectrum strikes a reasonable balance by not subjecting clearly competitive offers to IMM evaluation, but only addressing those offers that **plainly appear commercially implausible** absent out-of-market revenues."

FERC's February 2014 Order accepting ISO's proposal.

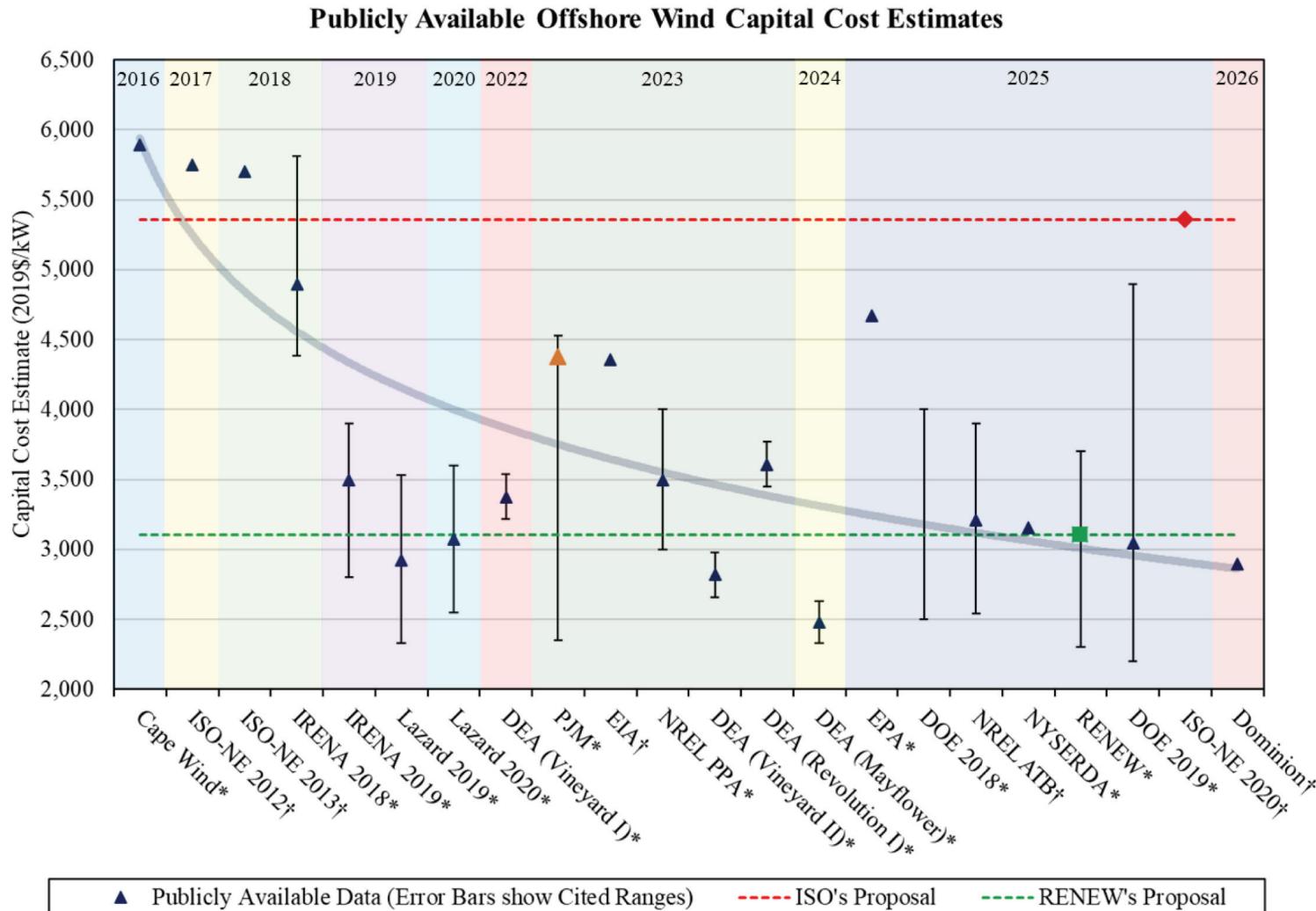
Market Declines over Time

In 10 years, a 70% reduction in local offshore wind contract prices driven by both capital and operating cost reductions



Year of PPA		2010	2009	2019	2019	2019	2020
Contract Products Included	Energy	x	x	x	x	x	x
	RECs	x	x	x	x	x	x
	Capacity	x	x				

Market Declines over Time



*Installed Capital Costs

†Overnight Capital Costs (excludes cost of interest during construction)

‡Shaded bands indicate the year of expected/actual COD

Capital Cost Estimate Comparison

Analysis for the New York Department of Public Service and NYSERDA was a bottom-up estimate of construction costs checked against real New York offshore wind contract prices. It validates the Daymark determined capital costs based on New England offshore wind contracts with its near identical cost figures.

Sponsor	ISO New England	New York (NYSERDA)	RENEW Northeast
Analyst	Mott MacDonald	RCG	Daymark
Purpose	ORTP calculation	Whitepaper	New England offshore wind contract analysis
Project Details	800 megawatts AC Interconnection 2025 Commercial Operation	Same	Same
Total Cost Assumption (2019\$)	\$5,358/kW	\$3,155/kW	\$3,108/kW
Benchmarked against actual project bids?	NO	YES	YES
Bottom-up estimate	YES	YES	NO

1. New York figures show installed capital cost which reflects as a *higher* cost than ISO's overnight cost which does not include the cost of financing during construction.
2. Daymark capital cost assumption reflects the weighted average cost of four New England offshore wind projects based on their contract prices.

RENEW Proposal

Offshore Wind Capital Cost Assumption				
ISO Assumption	Compared to FERC Standard	ISO Proposed ORTP (2025\$/kW-mo)	RENEW Proposed Solution	RENEW's Preliminary Recalculated ORTP (2025\$/kW-mo)
\$5,358/kW (2019\$)	ISO assumption is DOUBLE <i>prevailing market conditions</i> for 2024-2025 projects. ISO incredibly assumes project developers taking \$1.5 billion loss per project.	\$44.23	Use \$3,213/kW (2019\$) for the capital costs reflecting actual <i>prevailing market conditions</i> (New England projects to be built 2024-2025)	\$0.00

Next Steps

- NEPOOL Markets Committee will discuss and **vote** on the RENEW amendments and the ISO proposal at the November 9-10 meeting
 - When available, materials will be posted here:
<https://www.iso-ne.com/event-details?eventId=140269>
- NEPOOL sectors will meet with the ISO board on November 6
 - An opportunity to discuss with the board before ISO finalizes its filing plans
- NEPOOL Participants Committee will vote on the Markets Committee recommendation and any requested variations at the December 3 meeting
- ISO will file its proposal with FERC in December
 - NEPOOL will file in support or will file an alternative depending on Participants Committee vote
- FERC will issue an order approving or rejecting the ISO proposal
 - Consumers can protest the ISO's proposal at FERC