

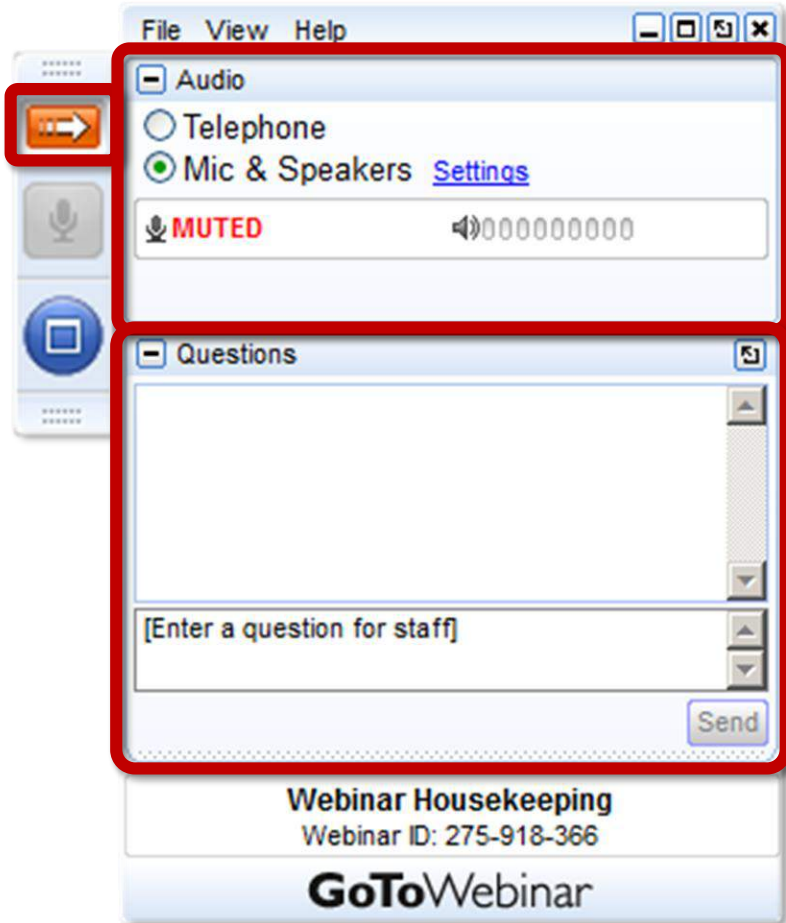
RPS Collaborative Webinar

ISO-NE's CASPR and State RPSs

Hosted by
Warren Leon, Executive Director, CESA

May 23, 2018

Housekeeping



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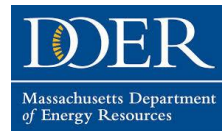
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RPS Collaborative

- With funding from the Energy Foundation and the US Department of Energy, CESA facilitates the **Collaborative**.
- Includes **state RPS administrators, federal agency representatives**, and other stakeholders.
- Advances dialogue and learning about RPS programs by **examining the challenges and potential solutions** for successful implementation of state RPS programs, including **identification of best practices**.
- To sign up for the Collaborative listserv to get the **monthly newsletter** and announcements of **upcoming events**, see: www.cesa.org/projects/renewable-portfolio-standards



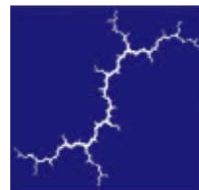
U.S. DEPARTMENT OF
ENERGY



ISO-NE's CASPR and State RPSs

Webinar Speakers

- **Paul Peterson**, Principal Associate, Synapse Energy Economics
- **Warren Leon**, Executive Director, Clean Energy States Alliance (moderator)



Synapse
Energy Economics, Inc.
CELEBRATING 20 YEARS
OF IMPROVING
ENERGY PLANNING

CASPR and Renewables

Clean Energy States Alliance webinar

May 23, 2018

Paul Peterson

Synapse Energy Economics

- Founded in 1996 by CEO Bruce Biewald
- Leader for public interest and government clients in providing rigorous analysis of the electric power sector
- Staff of 30 includes experts in energy and environmental economics and environmental compliance
- My experience is primarily with wholesale markets and system planning
- Employed by VT Public Service Board (1990-98), ISO New England (1998-2001), and Synapse Energy Economics (2001-present)

Today's agenda

New England Forward Capacity Market

- ❖ Initial Design
- ❖ Changes
- ❖ Results

CASPR

- ❖ Design elements
- ❖ Basic operation
- ❖ Issues and concerns

Discussion

Forward Capacity Market

- Forward Capacity Market (FCM)
 - Three years forward for a one year commitment
 - New resources offer at a price
 - Existing resources offer at zero (or a de-list amount)
 - Demand curve determines range of quantities and prices
 - New resource offer, or de-list price, sets clearing price for all
 - Zonal variations can occur
 - Cleared resources have a capacity supply obligation (MW)
 - Resources are paid monthly (\$/Kw)

Forward Capacity Auctions

- Forward Capacity Auction (FCA)
 - Retirement offers
 - Show of Interest
 - Qualification package
 - Financial assurance
 - Qualified capacity amount from ISO
 - Offer window
 - Descending clock auction starts at high value(\$/kw-month)
 - Price drops until supply and demand meet
 - CSO award triggers additional financial assurance

Renewable Technology Resource Exemption

- Implemented with demand curve changes for FCA #7
 - Renewable Technology Resource (RTR) defined as resources eligible for state RPS program
 - RTR eligible to offer into FCA without meeting minimum offer price requirements
 - Capped at 200 MW of each FCA
 - Roll-over (up to 600 MW) allowed over multiple FCAs
 - Through FCA #12, four auctions, approximately 136 MW of RTRs cleared
- CASPR eliminates RTR exemption
 - Many stakeholders wanted to retain RTR exemption as a CASPR backstop
 - ISO proposes a phase out over three auctions (through FCA #15), or until roll-over is exhausted (approximately 500 MW)
 - ISO believes RTR is no longer needed and conflicts with CASPR

Pay for Performance

- Implemented with FCA #9
 - All resources with a CSO are subject to performance penalties and rewards
 - All rewards and penalties are balanced between market resources
 - Penalty rate increases over time
 - FCA #9-11: \$2,000 MWh
 - FCA #12-14: \$3,500 MWh
 - FCA # 15: \$5,455 MWh
 - Intended to provide incentive for dual fuel units; not firm gas supply contracts. Non-CSO resources can be rewarded
- Scarcity pricing intervals
 - Triggered whenever ten-minute operating reserves are used for 5 minutes or more (scarcity event)
 - No excuses for failure to perform (maintenance, lack of fuel, calamity)
 - No exceptions due to timing (24 hours, 365 days)
 - Penalty pro-rated based on load level compared to full CSO loads

Recent FCM results

FCA	Delivery Begins	Clearing Price (\$/kW-month)	Commentary
FCA-9	June 2018	\$9.551	<ul style="list-style-type: none"> Price set by new gen. 500 MW excess SEMA/RI clears at \$17.728 (\$11.08 for Existing). Insufficient capacity. Retired: Brayton Point RTR: 16 MW
FCA-10	June 2019	\$7.03	<ul style="list-style-type: none"> Price set by new gen. 1,400 MW excess. Retired: Pilgrim RTR: 56 MW
FCA-11		\$5.297	<ul style="list-style-type: none"> Price set by resource exit. 1,700 MW excess >500 MW of New EE cleared (backlog). No new gen (only uprates) RTR: 31 MW
FCA-12		\$4.631	<ul style="list-style-type: none"> Price set by resource exit. 1,100 MW excess. 358 MW of new EE No new gen (only uprates) RTR: 33 MW

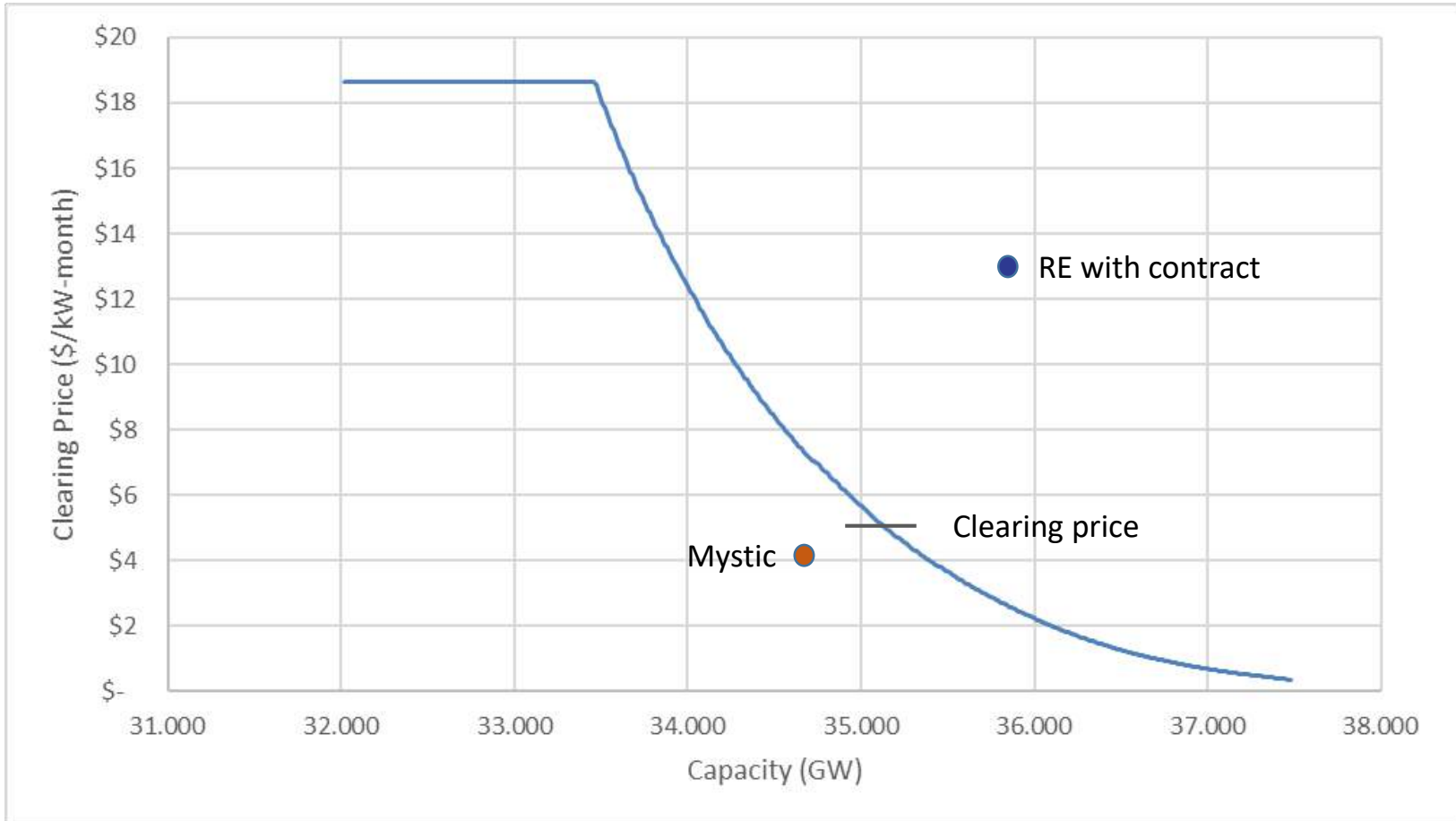
CASPR

- Competitive Auctions with ~~Subsidized~~ Sponsored Policy Resources
- Sponsored Resources definition
 - Resources defined as of January 1, 2018
 - Renewable, clean, or alternative technology resources
 - Expands RTR definition to include large hydro
- Dual goals of integrating markets and public policy
 - Maintain competitive markets with a Minimum Offer Price Rule (MOPR)
 - Avoid paying for duplicate capacity resources.
 - Other options rejected:
 - Carbon adder
 - Two-tier capacity auction
- FERC Order March 2018 [Docket No. ER18-619]
 - Approves ISO CASPR decision
 - Comments and dissent from all Commissioners

CASPR

- FCA runs first and assigns CSOs to resources
 - Retiring resources with a CSO are required to enter Substitution Auction
 - New resources cannot enter Substitution Auction
 - Existing resources have option to enter Substitution Auction
- Substitution auction runs directly after FCA
 - Demand bids can be at or below CSO value
 - Demand bids can be negative
 - Supply bids are not reviewed for price
- Starts with FCA-13 (February 2019) and all subsequent auctions until it is modified!

Hypothetical FCA



Hypothetical CASPR Result

- FCA Clears at \$5.00
 - Mystic's retirement bid clears, gets a Capacity Supply Obligation (CSO) at \$5
 - New Renewable Energy (RE) offer does not clear. No CSO.
- Substitution Auction clears at \$2
 - Our one RE resource submits an offer in Substitution Auction of \$2
 - RE and Mystic swap CSO
 - Mystic is retired, with a 1-year "severance payment" of \$3/kW-month, or \$36,000/MW
 - If all 2,000 MW, this amounts to paying Exelon ~\$72m to retire
 - RE clears at \$2 for this FCA, gets a CSO
 - RE enters all subsequent auctions as an Existing resource. Presumably will clear and get the FCA price in all future auctions (until they de-list or retire).
- Many details about pro-rating resources and other design elements

First Substitution Auction FCA #13

Substitution Auction Elections for FCA #13 (CCP 2022-2023)

Substitution Auction Demand Bids*	
Capacity Zone	Aggregate MWs
Southeast New England	2062.382
Northern New England	0.041
Rest-of-Pool	112.276
Grand Total	2174.699

Substitution Auction Supply Offers	
Capacity Zone	Aggregate MWs
Southeast New England	1991.492
Northern New England	557.660
Rest-of-Pool	354.694
Grand Total	2903.846

Questions?

Paul Peterson

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Thank you for attending our webinar

Warren Leon

RPS Project Director, CESA Executive Director

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- **Electricity Affordability Metrics for the U.S. (6/14)**
- **State Programs for Clean Energy in Local Jurisdictions: Examples from New York and Oregon (7/11)**
- **Expanding Solar PV Finance and Markets in Connecticut and Minnesota (8/2)**
- **Building Markets: Energy Storage in Massachusetts and Offshore Wind in Rhode Island (8/9)**

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