

Offshore Wind ORTP Calculation

RENEW Amendment on Capital Costs and Tax Credit Assumptions

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About RENEW Northeast

ABLE GRID



Brookfield



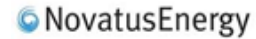
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CONVERGENT



EVERSOURCE



RWE



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Capital Costs



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.

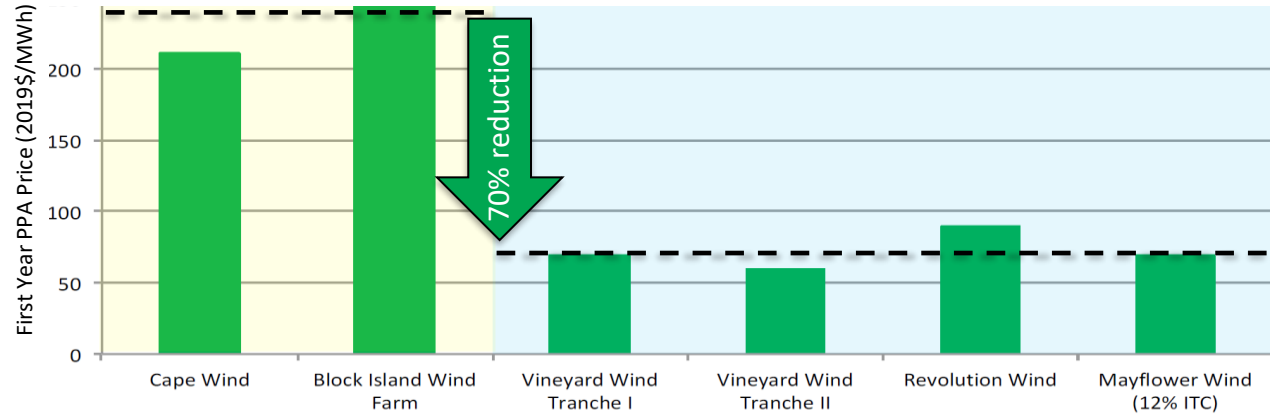
- “In the case of New England, use of trigger prices at the low end of the spectrum strikes a reasonable balance by not subjecting clearly competitive offers to IMM evaluation, but only addressing those offers that **plainly appear commercially implausible** absent out-of-market revenues.”

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



A Decade of Falling New England Offshore Wind Prices

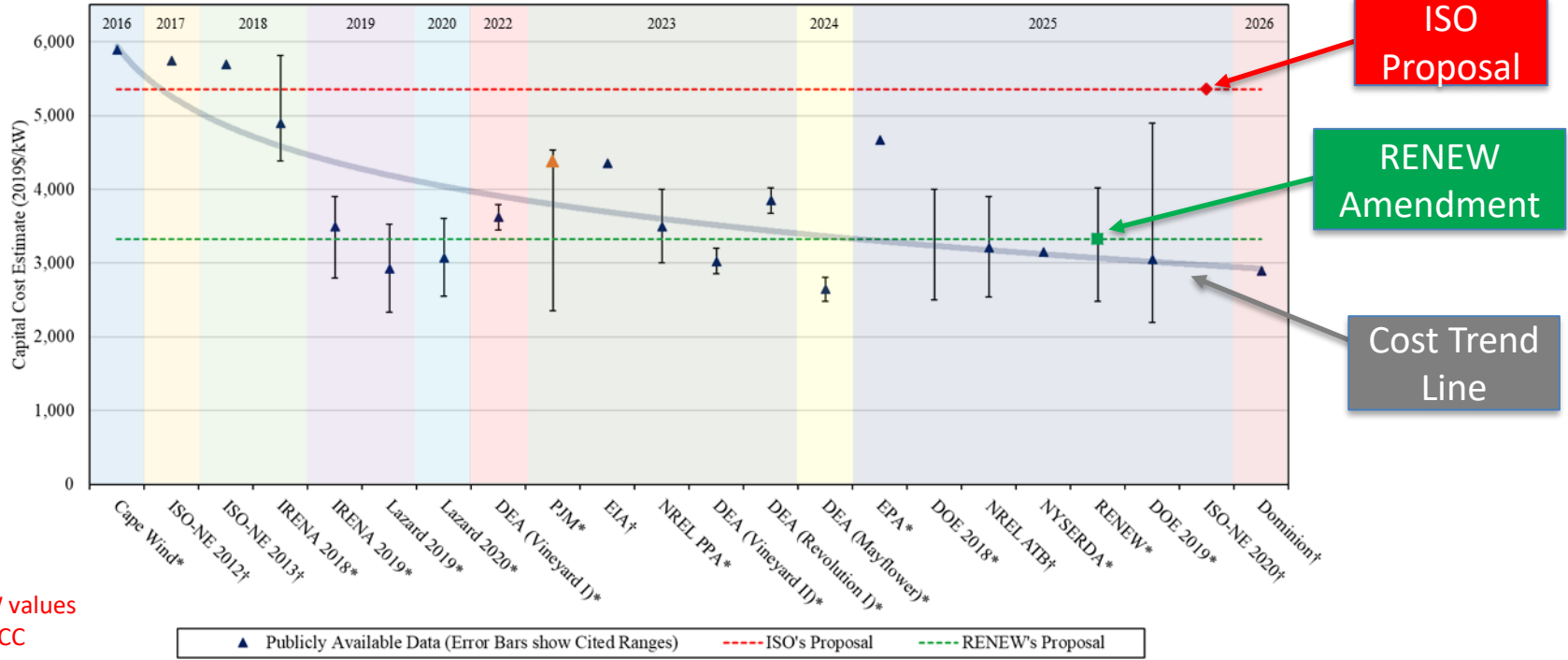
- In 10 years there has been a 70% reduction in local offshore wind contract prices driven by both capital and operating cost reductions



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				

ISO Cost Estimate Is Outside Bounds of All Other Estimates for 2025

Publicly Available Offshore Wind Capital Cost Estimates



DEA and RENEW values updated for WACC

*Installed Capital Costs

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

‡Shaded bands indicate the year of expected/actual COD

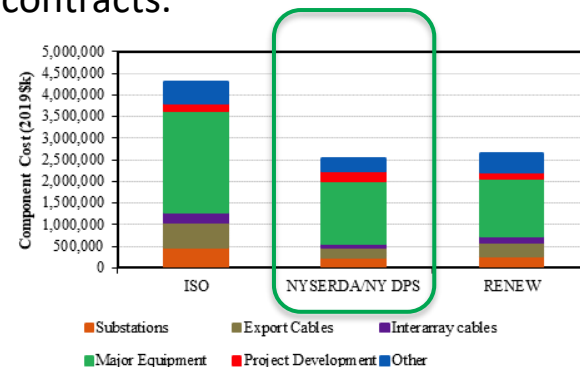
Note: An extensive discussion of the data in this figure is included with the meeting materials as a separate document



RENEW Estimate, Unlike ISO's, Aligned with Key Benchmark

Sponsor	ISO New England	New York (NYSERDA/DPS)	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	\$3,326/kW
Benchmarked against actual project bids?	NO	YES	YES
Bottom-up estimate	YES	YES	NO

- Bottom-up cost estimate in 2020 for the New York Department of Public Service and NYSERDA was validated against real New York offshore wind contract bids.
- Nearly identical to the capital cost estimated by Daymark based on four New England offshore wind contracts.



Investment Tax Credit



Offshore Wind Projects Are Eligible for the Investment Tax Credit

A wind project is qualified to claim the Investment Tax Credit (ITC) if it meets requirements for

(1) Start of Construction demonstrated by

- actual physical construction, or
- incurring 5% of total eligible costs, a common industry practice (expected for ORTP project)

(2) Continuity demonstrated by

- Achieving commercial operation within 4 years from year when “construction” began; or
- Providing documentation of the facts and circumstances showing continuity through commercial operation date (expected for ORTP project)

Start of Construction Before	ITC (Dec 2019 law)
Jan 1, 2017	30%
Jan 1, 2018	24%
Jan 1, 2019	18%
Jan 1, 2020	12%
Jan 1, 2021	18%



Offshore Wind Projects Are Eligible for the Investment Tax Credit

- ISO assumes 0% ITC due to 2025 COD for ORTP project
- The Mayflower Wind project, with 2025 contracted COD, proves ISO's assumption is unreasonable
 - PPA assumes project qualifies for at least 12% ITC based on prior tax law
 - PPA requires efforts to qualify for 18% ITC based on current tax law
 - Tax law changed in middle of PPA negotiation

Start of Construction Before	ITC (Prior law)	ITC (Dec 2019 law)
Jan 1, 2017	30%	30%
Jan 1, 2018	24%	24%
Jan 1, 2019	18%	18%
Jan 1, 2020	12%	12%
Jan 1, 2021	0%	18%

Summary



RENEW Amendment Reflects Prevailing Market Conditions

ISO Assumption	Compared to FERC Standard	ISO Proposed ORTP (2025\$/kW-mo)	RENEW Proposed Solution	RENEW's Recalculated ORTP (2025\$/kW-mo)
<p>\$5,358/kW (2019\$) capital cost and 0% ITC</p>	<p>ISO cost assumption is 161% of expected <i>prevailing market conditions</i> for 2024-2025 projects.</p> <p>ISO incredibly assumes developers with PPAs are taking \$1.3 billion loss per 800 MW project (\$2 billion if they don't get ITC).</p>	<p>\$44.421</p>	<p>\$3,326/kW (2019\$) capital cost and 18% ITC</p> <p>Reflects actual <i>prevailing market conditions</i> for 2025 COD New England OSW projects</p>	<p>\$1.533</p>

Summary of RENEW Amendment

- **RENEW's amendment uses an overnight cost assumption of \$3,326/kW (2019\$) and an 18% ITC for offshore wind in FCA 16**
- ISO's capital cost is **161%** of current commercial expectations based on:
 - Daymark's analysis of costs that could be supported by recently executed local offshore wind PPAs
 - Wide range of publicly available data including New York's recent bottom-up, validated estimate
- An 18% ITC should be assumed based on:
 - Review of ITC (in lieu of PTC) eligibility rules
 - Public reports of actual projects with 2025 COD expecting to use ITC
- ISO has not presented any benchmarking that supports any element of its cost assumption, either top-down or bottom-up

RENEW Amendment Redlines

III.A.21.1.1. Offer Review Trigger Prices for the Forward Capacity Auction.

For resources other than New Import Capacity Resources, the Offer Review Trigger Prices for the ~~twelfth~~ [Forward Capacity Auction](#) (for the Capacity Commitment Period beginning on June 1, ~~2025~~[2021](#)) shall be as follows:

Generating Capacity Resources	
Technology Type	Offer Review Trigger Price (\$/kW-month)
Simple Cycle eCombustion fTurbine	\$5.345 6.503
eCombined eCycle gGas fTurbine	\$9.820 7.856
eOn-sShore wWind	\$0.000 11.025
Offshore Wind	\$1.533
Energy Storage Device – Lithium Ion Battery	\$2.926

THANK YOU.

Questions?

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