



November 15, 2023

VIA ELECTRONIC FILING

The Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**Re: ISO New England Inc. and New England Power Pool, Docket No. ER24- -000;
Targeted Adjustment to Certain Forward Capacity Market Parameters to Reflect
the Minimum Offer Price Rule Elimination**

Dear Secretary Bose:

Pursuant to Section 205 of the Federal Power Act,¹ ISO New England Inc. (the “ISO” or “ISO-NE”) joined by the New England Power Pool (“NEPOOL”) Participants Committee² (together, the “Filing Parties”),³ hereby electronically submit revisions to the ISO New England Inc. Transmission, Markets and Services Tariff (the “Tariff”) to update values used in the administration of the Forward Capacity Market (“FCM”).

Specifically, the proposed Tariff revisions effectuate a cost of capital adjustment for use in estimating the cost of new entry (“CONE”) and net cost of new entry (“Net CONE”) to account for New England’s minimum offer price rule (“MOPR”) elimination, which is effective starting with the nineteenth Forward Capacity Auction (“FCA”).⁴ By revising the after tax weighted average cost of capital (“ATWACC”), ISO-NE will update the cost of debt and the cost of equity to more accurately estimate the CONE and the Net CONE for a capacity resource participating in both FCA 19 and FCA 20. These values are being updated in advance of FCA

¹ 16 U.S.C. §824d (2019).

² Capitalized terms used but not otherwise defined in this filing have the meanings ascribed thereto in the ISO New England Transmission, Markets and Services Tariff (the “Tariff”), the Second Restated NEPOOL Agreement, and the Participants Agreement. The market rules are contained in Section III of the Tariff, known as Market Rule 1, and the market power mitigation rules are contained in Appendix A to Section III.

³ Under New England’s Regional Transmission Organization arrangements, the rights to make this filing of revisions to the Tariff under Section 205 of the Federal Power Act belong to the ISO. NEPOOL, which pursuant to the Participants Agreement provides the sole Participant Processes for advisory voting on ISO matters, supported the revisions reflected in this filing and, accordingly, joins in this Section 205 filing.

⁴ See *ISO New England Inc.*, 179 FERC ¶ 61,139 (2022). Starting with FCA 19, a buyer-side market power review structure will replace the MOPR.

19, to be conducted in February 2025 for the Capacity Commitment Period (“CCP”) beginning June 1, 2028.⁵

This targeted FCM adjustments proposal is supported by the testimony of Kevin Coopey, Lead Analyst with the ISO in the Market Development Department (the “Coopey Testimony”), the *Analysis of the After-Tax Weighted Average Cost of Capital of New Entry for the ISO New England Forward Capacity Market* (the “ATWACC Report”) report prepared by the Analysis Group Inc. (“Analysis Group”) and the affidavits of Doctors Todd Schatzki and Carlo Gallimberti, which are sponsored solely by the ISO. The ISO requests an effective date of January 15, 2024, which is 61 days from the date of this filing, and thus respectfully request that the Federal Energy Regulatory Commission (the “Commission” or “FERC”) issue an order on or before that date accepting the proposed changes as filed herein.

I. INTRODUCTION

A. Overview of CONE and Net CONE

As part of the design of the FCM, the ISO estimates the cost of developing new resources that may enter the market. These estimated entry costs, which are used for several inter-related purposes, come in two forms. The first is (gross) CONE, which is intended to reflect the total cost of developing a new resource, without any adjustment for the revenues that the resource might earn in supplying energy and ancillary services. The second is Net CONE, which is intended to reflect the total cost of developing a new resource, *i.e.*, gross CONE minus the variable profit the resource is expected to earn from supplying energy and ancillary services in the ISO-administered markets. The CONE and Net CONE values are based on the resource type that is expected to be the most cost-effective technology for new entry over the long term.

The primary use of Net CONE is to help define how demand is represented in the annual auction process. Demand is represented by system and zonal demand curves that are calculated to reflect the Marginal Reliability Impact of adding capacity in different locations. The market rules specify that the system demand curve must be scaled so that the capacity quantity associated with the Net CONE value satisfies the New England region’s resource adequacy reliability standard (which is a Loss of Load Expectation of 0.1 days per year).⁶

⁵ The Filing Parties are submitting this filing to update the CONE and Net CONE values effective for the 2028/2029 CCP currently scheduled to commence in February of 2025. We note that the Filing Parties have recently proposed to delay FCA 19. *See ISO New England Inc. & NEPOOL Participants Comm.*, Market Rule Changes to Delay Nineteenth Forward Capacity Auction and Related Capacity Market Activities, Docket No. ER24-339-000 (filed November 3, 2023). If the Commission grants the FCA 19 deferral, the values proposed herein will apply to the updated FCA 19 and 20 schedules. Under the existing Tariff and schedule, ISO-NE is required to publish adjusted CONE and Net CONE values on the ISO’s website (note one word) by February 15, 2024.

⁶ *See* Tariff Section III.13.2.2.4 (“Capacity Demand Curve Scaling Factor”) and Section III.13.2.2.1 (“System-Wide Capacity Demand Curve”).

The CONE and Net CONE values are also used to set the FCA Starting Price. The market rules specify that the Forward Capacity Auction Starting Price is the higher of: (1) CONE, and; (2) 1.6 multiplied by Net CONE.⁷ The practical effect of the FCA Starting Price is to serve as a price cap in the capacity market.

While the CONE and Net CONE values are integral parts of the FCA, the values also are used during the qualification process that precedes each auction. Specifically, CONE, Net CONE and the FCA Starting Price must be posted to the ISO's website ten business days prior to the close of the "existing capacity challenge window,"⁸ which closes on March 1, 2024.⁹ Therefore, the ISO must publish CONE, Net CONE and the FCA Starting Price no later than February 15, 2024. The CONE and Net CONE values continue to be used throughout the qualification process in various ways. For example, Project Sponsors with new capacity resources likely will consider the updated values, and their impact on the system and zonal demand curves, as they prepare for the submission of New Capacity Show of Interest Forms.

The Tariff requires that CONE and Net CONE be fully recalculated no less often than once every four years, and that in between full recalculations the ISO apply the interim update process.¹⁰ Pursuant to the interim update process, adjustments are made to the CONE and Net CONE values to reflect changes in certain inputs, such as inflation (for capital costs) and fuel prices (reflected in the energy and ancillary service revenue offsets). The next full recalculation of CONE and Net CONE will take place for FCA 21; therefore, interim updates will be made for the next two auction cycles—FCAs 19 and 20.

B. MOPR Removal Filing and the Proposed Change to CONE and Net CONE

In March 2022, ISO-NE significantly changed the mitigation construct in New England's Forward Capacity Market by eliminating the minimum offer price rule ("MOPR") and replacing it with a reformed buyer-side market power mitigation review construct, beginning with FCA 19.¹¹ In the MOPR Removal Filing, the ISO also committed to a cost of capital adjustment for FCA 19, explaining that "with a loss in merchant investors' confidence and higher future costs of capital, the system could conceivably swing from the current elevated risk of overbuild (under

⁷ See Tariff Section III.13.2.4.

⁸ The "existing capacity challenge window" spans two milestones of the qualification process for existing generating capacity resources described in Market Rule 1 Section III.13.1.2.3(a) and (b).

⁹ See ISO-NE FCM Participation Guide, FCA Qualification Timeline available at <https://www.iso-ne.com/markets-operations/markets/forward-capacity-market/fcm-participation-guide/qualification-process-for-existing-demand-resources> ("FCA Qualification Timeline"); see also Forward Capacity Auction 19 Schedule, Capacity Commitment Period: 2028-2029 available at <https://www.iso-ne.com/static-assets/documents/2022/02/fca-19-market-timeline-01-20-2022.pdf> ("FCA 19 Schedule").

¹⁰ See Tariff Sections III.13.2.4 and III.A.21.1.2.(e).

¹¹ *ISO New England Inc. & NEPOOL Participants Comm.*, Revisions to ISO New England Transmission, Markets and Services Tariff of Buyer-Side Market Power Review and Mitigation Reforms, Docket No. ER22-1528-000, (filed Mar. 31, 2022) ("MOPR Removal Filing").

the current MOPR) to an elevated risk of resource insufficiency (with its elimination), unless the region makes further adjustments to the capacity market’s assumptions regarding the cost of capital.”¹²

The proposal filed herein fulfills the commitment made in the MOPR Removal filing.¹³ The narrow change updates the ATWACC value used in the CONE and Net CONE calculations. The update—which will be applied through the interim year adjustment process for FCAs 19 and 20—will produce CONE and Net CONE values that more accurately reflect current market conditions in New England, which the MOPR Removal filing contemplated¹⁴ but could not ascertain two years ago.

This proposal is also in accordance with the recommendation of the ISO’s External Market Monitor (“EMM”), which stated that one way to account for the increased uncertainty created by the MOPR’s elimination is to adjust the Net CONE value to reflect an increase in that cost of capital.¹⁵ As the EMM stated, “available historic data does not reflect the returns an investor would expect in a competitive power market without a MOPR Hence, it is important to account for the effects of eliminating the MOPR provisions on the [AT]WACC.”¹⁶ This proposal addresses the EMM’s recommendation.

The ISO retained Analysis Group, an economic consulting firm that has performed similar studies for other regional system operators,¹⁷ to perform the update of the empirical

¹² MOPR Removal Filing at 45.

¹³ In October 2022, the ISO reiterated its commitment to analyze the need for a cost of capital adjustment to account for the MOPR elimination, and, if an update is warranted, to file an adjustment with the Commission that would also apply for FCA 20. *See ISO New England Inc. & NEPOOL Participants Comm.*, Market Rule 1 Changes to Defer and Modify the Forward Capacity Market Parameters Recalculation Schedule, Docket No. ER23-74-000 (filed Oct. 12, 2022) at 13-14.

¹⁴ *See ISO New England Inc. & NEPOOL Participants Comm.*, Revisions to ISO New England Transmission, Markets and Services Tariff of Buyer-Side Market Power Review and Mitigation Reforms Filing, Docket No. ER22-1528-000 (filed Mar. 31, 2022) (“MOPR Removal Filing”), at 44.

¹⁵ *See* NEPOOL Markets Committee, November 9, 2021 Meeting, Agenda Item 3a: Potomac Economics, Evaluation of Changes in the Minimum Offer Price Rules on Financial Risk in New England, *available at* https://www.iso-ne.com/static-assets/documents/2021/11/a03a_mc_2021_11_09_10_ccm_without_mopr_emm_presentation.docx.

¹⁶ *Id.* at 5.

¹⁷ *See Analysis Group*, Study to Establish New York Electricity Market ICAP Demand Curve Parameters (Sept. 13, 2016), *available at* https://www.analysisgroup.com/globalassets/content/insights/publishing/analysis_group_nyiso_dcr_final_report_9_13_2016.pdf; *see also* *New York Independent System Operator, Inc.*, Proposed ICAP Demand Curves for the 2017/2018 Capability Year and Parameters for Annual Updates for Capability Years 2018/2019, 2019/2020 and 2020/2021, Docket No. ER17-386-000 (filed Nov. 18, 2016); *see also* *Analysis Group*, Independent Consultant Study to Establish New York ICAP Demand Curve Parameters for the 2021/2022 through 2024/2025 Capability Years – Final Report (Sept. 9, 2020), *available at* <https://www.analysisgroup.com/globalassets/insights/publishing/2021-analysis-group-study-to-establish-new-york-icap-demand-curve-parameters.pdf>; *see also* *New York Independent System Operator, Inc.*, 2021-2025 ICAP Demand Curve Reset Proposal, Docket No. ER21-502-000 (filed November 30, 2020).

market data that establishes the ATWACC. The proposal will apply the updated ATWACC as part of the Tariff-prescribed interim year adjustments to CONE and Net CONE, consistent with the ISO's commitment to propose a change to Net CONE to reflect full elimination of the MOPR for FCA 19. This proposal is responsive to the EMM and is consistent with the ISO's prior commitments.

II. DESCRIPTION OF THE FILING PARTIES AND COMMUNICATIONS

The ISO is the private, non-profit entity that serves as the Regional Transmission Organization for New England. The ISO operates the New England bulk power system and administers New England's organized wholesale electricity market pursuant to the Tariff and the Transmission Operating Agreement with the New England Participating Transmission Owners. In its capacity as a Regional Transmission Organization, the ISO has the responsibility to protect the short-term reliability of the New England Control Area and to operate the system according to reliability standards established by the Northeast Power Coordinating Council and the North American Electric Reliability Corporation.

The signatories to the New England Power Pool Agreement, which was first entered into in 1971, are referred to collectively as "NEPOOL." Currently, there are more than 530 signatories, referred to as "NEPOOL Participants" or "members." NEPOOL Participants include all of the electric utilities rendering or receiving services under the ISO-NE Tariff, as well as independent power generators, marketers, load aggregators, brokers, consumer-owned utility systems, demand response providers (including owners of distributed generation and aggregators of such generation), developers, end users, and merchant transmission providers. Pursuant to revised governance provisions the Commission accepted in *ISO New England Inc., et al.*, 109 FERC ¶ 61,147 (2004), the NEPOOL Participants act through the NEPOOL Participants Committee. Section 6.1 of the Second Restated NEPOOL Agreement and Section 8.1.3(c) of the Participants Agreement authorize the Participants Committee to represent NEPOOL in proceedings before the Commission. Through the Commission-approved Participant Processes, NEPOOL is the vehicle through which all stakeholders with business interests in New England are able to provide informed input and advice to ISO-NE.

All correspondence and communications in this proceeding should be addressed to the undersigned for the ISO as follows:

Bridget Woebbe, Esq.*
ISO New England Inc.
One Sullivan Road
Holyoke, MA 01040-2841
Tel: (413) 540-4724
Fax: (413) 535-4379
E-mail: bwoebbe@iso-ne.com

And to NEPOOL as follows:

William Fowler*
Vice-Chair, NEPOOL Markets Committee
Sigma Power Consultants LLC
PO Box 196
Oxford, ME 04270
Tel: (978) 618-3741
E-mail: bill@sigmapowerconsult.com

Rosendo Garza, Jr., Esq.*
Sebastian M. Lombardi, Esq.
Day Pitney LLP
Goodwin Square
225 Asylum Street
Hartford, CT 06103
Tel: (860) 275-0660
Fax: (860) 881-2493
E-mail: rgarza@daypitney.com
slombardi@daypitney.com

*Persons designated for service.¹⁸

III. STANDARD OF REVIEW

The Filing Parties submit these proposed Tariff changes pursuant to Section 205, which “gives a utility the right to file rates and terms for services rendered with its assets.”¹⁹ Under Section 205, the Commission “plays ‘an essentially passive and reactive role’”²⁰ whereby it “can reject [a filing] only if it finds that the changes proposed by the public utility are not ‘just and reasonable.’”²¹ The Commission limits this inquiry “into whether the rates proposed by a utility are reasonable-and [this inquiry does not] extend to determining whether a proposed rate schedule is more or less reasonable than alternative rate designs.”²² The changes proposed herein “need not be the only reasonable methodology, or even the most accurate.”²³ As a result, even if an intervenor or the Commission develops an alternative proposal, the Commission must accept this Section 205 filing if it is just and reasonable.²⁴

¹⁸ Due to the joint nature of this filing, the Filing Parties respectfully request a waiver of Section 385.203(b)(3) of the Commission’s regulations to allow the inclusion of more than two persons on the service list in this proceeding.

¹⁹ *Atlantic City Elec. Co. v. FERC*, 295 F.3d 1, 9 (D.C. Cir. 2002).

²⁰ *Id.* at 10 (quoting *City of Winnfield v. FERC*, 744 F.2d 871, 876 (D.C. Cir. 1984)).

²¹ *Id.* at 9.

²² *City of Bethany v. FERC*, 727 F.2d 1131, 1136 (D.C. Cir. 1984).

²³ *Oxy USA, Inc. v. FERC*, 64 F.3d 679, 692 (D.C. Cir. 1995).

²⁴ *Cf. Southern California Edison Co.*, 73 FERC ¶ 61,219 at 61,608 n.73 (1995) (“Having found the Plan to be just and reasonable, there is no need to consider in any detail the alternative plans proposed by the Joint Protesters.”) (citing *Bethany*).

IV. EXPLANATION AND JUSTIFICATION FOR THE PROPOSED CHANGES

A. Overview of the CONE and Net CONE Calculation Process

Completing the full recalculation of the FCM parameters—two of which are CONE and Net CONE—is a significant undertaking. In addition to using internal resources, the ISO engages consultants with the expertise necessary to update the inputs used to develop the FCM parameters. Screening criteria are first developed and reviewed with stakeholders, and then employed to determine candidate reference units for the process. The CONE recalculation then begins with estimating the total (or gross) cost of constructing each of the candidate reference technologies in New England. For the most recent update, the ISO’s consultant developed technical specifications, installed capital costs, and operating costs over the modeled project life of each of the three candidate reference technologies.²⁵

Financial assumptions regarding the cost of debt, return on equity, and capital structure (*i.e.*, debt-to-equity ratio) are then developed and used to create a discounted cash flow (“DCF”) model to calculate a levelized annual cost for each candidate reference technology. Absent any net operating revenue, that calculation determines each candidate reference technology’s levelized revenue requirement—*i.e.*, the gross CONE—necessary to ensure the recovery on, and of, its investment costs, consistent with the project’s assumed return on equity.

The Net CONE values for the candidate reference technologies are calculated by subtracting from the CONE value the net market revenue that each candidate reference technology can be expected to earn, in a system at criterion. The candidate reference units have several potential revenue streams that must be considered in the Net CONE calculation, including sales of energy and ancillary services (“E&AS”) and Capacity Performance Payments. Estimates of these revenue streams (referred to as “revenue offsets”), which partially offset the new resource’s levelized annual costs, are used to calculate Net CONE values for each candidate reference technology.

To estimate E&AS revenue offsets, the ISO’s consultant develops market price estimates, then uses a technology-specific dispatch model to estimate the quantity of energy and reserves each candidate reference technology would supply, and with that information tabulates each candidate reference technology’s E&AS net revenue both during normal operating conditions and during scarcity conditions. A separate calculation is done to estimate each candidate reference technology’s expected Capacity Performance Payments, which are an additional form of revenue that may be earned during Capacity Scarcity Conditions under the ISO’s Pay-for-Performance capacity market rules.

The final CONE and Net CONE values are selected from the calculations for each candidate reference technology based on which technology is expected to be the most

²⁵ For a more detailed summary of the CONE and Net CONE update process *see ISO New England Inc.*, Updates to CONE, Net CONE, and Capacity Performance Payment Rate, Docket No. ER21-787-000 (filed Dec. 31, 2020) (“FCA 16 Parameters Update”), Transmittal Letter at Section V.

economically efficient. As explained above, while the CONE and Net CONE values are recalculated in full every four years, between those full recalculations the ISO performs interim-year updates as specified in Section III.13.2.4 of the Tariff. Pursuant to the interim update process,²⁶ adjustments are made to the CONE and Net CONE values to reflect changes in certain inputs, such as inflation (for capital costs) and fuel prices (reflected in the energy and ancillary service revenue offsets).

B. ATWACC Calculation Overview

In the CONE and Net CONE recalculation process, the ATWACC is used as a discount rate to annualize new entry investment costs. The DCF model²⁷ that computes the CONE and Net CONE values solves for the required annual payment (which are converted to a dollar per kilowatt (“kW”)-month unit) which, over 20 years, repays the installed cost of the generator and compensates the investor with interest payments. The interest rate earned by the investor is the ATWACC.²⁸ Generally, higher ATWACC values increase Net CONE, while lower ATWACC values decrease Net CONE.²⁹

Consistent with ISO-NE’s approach in previous CONE studies, to perform the proposed update to the ATWACC value, Analysis Group developed a recommended cost of capital for use in estimating the Net CONE by independently estimating the ATWACC for publicly traded independent power producers (“IPPs”).³⁰ The cost of capital for a new power generation resource is a function of the project’s cost of equity, cost of debt, and debt-to-equity ratio. The average of cost of debt and cost of equity weighted by the capital structure is the ATWACC. As detailed in the Coopey Testimony, the DCF model used to calculate CONE and Net CONE relies on these values—*i.e.*, the cost of equity, cost of debt, and the debt-to-equity ratio—to calculate the ATWACC.³¹

²⁶ See Tariff Section III.A.21.1.2.(e).

²⁷ The DCF model, which includes all of the required assumptions to calculation CONE and Net CONE, is available as a macro-enabled excel file: https://www.iso-ne.com/static-assets/documents/2021/08/CONE_ORTP.zip.

²⁸ Coopey Testimony at 4.

²⁹ The precise impact of adopting the recommended 8.96% ATWACC for FCA 19 cannot be known until the required inflation and fuel price adjustments are known in March 2024. See NEPOOL Markets Committee, September 12, 2023 Meeting, Agenda Item 4a: ISO-NE FCM Net CONE Updates Supporting MOPR Reforms for FCA 19 at slide 12, available at https://www.iso-ne.com/static-assets/documents/2023/09/a04_mc_2023_09_12_13_fcm_net_cone_updates_mopr_reforms_for_fca_19_iso_presentation.pdf.

³⁰ See FCA 16 Parameters Update, Concentric Energy Advisors (“CEA”) Report at 43 (explaining that, because data about project specific financing is not publicly available, CEA chose a peer group of publicly traded IPPs and used their financial parameters to inform the recommended cost of capital calculation; CEA then “made reasonable adjustments to this proxy group data to calculate an ATWACC to reflect how a generic new entrant would likely view the risk of merchant development in New England”).

³¹ See Coopey Testimony at 4-5 for a detailed discussion of the DCF model.

C. Proposed Update to the ATWACC value for FCAs 19 and 20

The Filing Parties are proposing two changes to the ATWACC value used in the CONE and Net CONE parameters for FCA 19 and FCA 20.³² As discussed above, inputs to the DCF model that performs the interim update CONE and Net CONE calculation include financial assumptions regarding the cost of debt, return on equity, and capital structure. In order to effectuate this proposed ATWACC update, two cells in the DCF model—cost of debt and cost of equity—require updates.

The proposed Tariff revisions specify that a cost of debt of 6.85% and a cost of equity of 13.8% shall be used for purposes of calculating the ATWACC value for FCA 19 and FCA 20, which shall be implemented as part of the interim-year adjustments to CONE and Net CONE for FCA 19 and FCA 20. As discussed below, Analysis Group’s recommendation for the debt-to-equity ratio is the same as the current values, which the ISO adopted in the last recalculation, and therefore does not require Tariff revisions.³³

The remainder of this section explains how Analysis Group arrived at its determination of the ATWACC calculation inputs,³⁴ which establish the substantive basis for the updated cost of debt and cost of equity values filed herein. Additional detail regarding how Analysis Group determined each component is provided in the ATWACC Report.

1. Representative Merchant Generation

The appropriate ATWACC to use in estimating Net CONE should reflect the project-specific risks associated with a merchant developer developing a new plant within the New England Control Area in the timeframe of interest (*i.e.*, new projects able to deliver operable capacity as early as June 2028). As explained by Analysis Group, there is limited publicly available information on the terms of financing arrangements for plants developed through stand-alone project financing by either privately-held or publicly-traded IPPs.³⁵ Because data about project-specific financing is not publicly available, Analysis Group chose a peer group of publicly traded IPPs and used their financial parameters to inform its calculation of the recommended cost of capital.

³² A third FCM parameter, the Capacity Performance Payment Rate (“PPR”), is an input to the Net CONE and will not be updated by this proposal. There is no Tariff requirement to update the PPR, and the ISO did not propose updating the PPR with the cost of capital adjustment committed to in the MOPR Removal Filing.

³³ See FCA 16 Parameters Update, CEA Report at 47.

³⁴ See ATWACC Report at 3 for the ATWACC equation.

³⁵ ATWACC Report at note 1; see also *PJM Interconnection L.L.C.*, Proposed Updates to the Default Gross Cost of New Entry and Default Gross Avoidable Cost Rate for the Minimum Offer Price Rule, Docket No. ER23–1700–000 (filed Apr. 24, 2023) at 4, 6, 8 and 11 (explaining that basing CONE calculations on publicly available data has the added benefit of providing transparency and clear independent source for the values presented).

As Analysis Group states, when computing ATWACC, multiple considerations inform the choice of which companies to include in the sample.³⁶ Analysis Group considered the nature of the business in which the IPP operates, its geography, the availability of its financial information, and whether publicly available data was sufficient to reliably measure each type of financial parameter in determining which companies to include in the peer group sample.³⁷

The peer group selected by Analysis Group—AES Corporation (“AES”), Constellation Energy Corp. (“Constellation”), NRG Energy, Inc. (“NRG”), TransAlta Corporation (“TransAlta”), and Vistra Corp. (“Vistra”)—is similar to the group selected for ISO-NE in 2020,³⁸ and similar to the peer group PJM selected in 2022,³⁹ both of which included AES, NRG, and Vistra. Analysis Group explains that they considered a number of other IPPs, but excluded those companies because they are now privately held (*e.g.*, Atlantic Power Corp., which was taken private since it was in the FCA 16 recalculation peer group), and therefore current data on financial metrics to estimate ATWACC values is unavailable.⁴⁰

Since each company in the peer group is public, their debt weight, or the total market value of the debt outstanding as a percentage of the market value of their total capital (debt plus equity), is available in their public filings with the Securities and Exchange Commission (“SEC”). Analysis Group used all data on the peer companies, with two exceptions to account for Constellation’s limited period of public ownership and to account for TransAlta’s geography.⁴¹ Analysis Group considered and accounted for potential differences between project- and company-level ATWACC values, as specific projects may have different risk profiles than the company as a whole.⁴² Ultimately, the recommended ATWACC reflects Analysis Group’s view of the risks associated with the merchant development of a plant in the ISO-NE market context, and the return required by investors to compensate for those risks.⁴³

³⁶ ATWACC Report at 3-4.

³⁷ For example, Analysis Group estimated the cost of equity under various scenarios based on the representative IPPs and excluded AES from one scenario because that company’s assets and businesses included substantial operations outside the U.S., particularly in Central and South America, in addition to two regulated electric utilities, neither of which entail financial risks comparable to an IPP. Additionally, because TransAlta is a Canadian corporation, Analysis Group only includes it in one scenario. *See* ATWACC Report at 12.

³⁸ *See* FCA 16 Parameters Update, CEA Report at pp. 45-46 (the FCA 16 Parameters Update used AES, NRG, Vistra, Clearway Energy Group, and Atlantic Power Corp., noting that the peer group differs from the 2016 CONE recalculation because several IPPs are no longer publicly traded or have merged to become new entities).

³⁹ *See PJM Interconnection, L.L.C.*, Periodic Review of Variable Resource Requirement Curve Shape and Key Parameters Docket No. ER22-2984-000, Exhibit No. 2, 2022 CONE Study, p. 41 (filed Sept. 30, 2022) (explaining that the sample companies to inform the ATWACC update included NRG, Vistra and AES, and that since 2018, there are no longer any pure-play merchant generation companies in the U.S.).

⁴⁰ ATWACC Report at note 5.

⁴¹ ATWACC Report at 6.

⁴² ATWACC Report at 1-2 and note 2.

⁴³ ATWACC Report at 2.

2. Cost of Debt

To estimate the cost of debt, Analysis Group relied on the yields to maturity of bonds issued by the representative companies in the peer group over the ninety day period from April 16, 2023 to July 15, 2023, and the generic cost of corporate debt for bonds of comparable credit rating to the power companies in the sample.⁴⁴ In addition, Analysis Group considered data on the generic corporate cost of debt, given company credit quality.⁴⁵

As Analysis Group explains, since the spike in cost of debt from the COVID-19 outbreak, the cost of debt has gradually declined, back to levels prior to the pandemic. However, changing economic conditions in 2022, including rising inflation and a series of interest rate increases by the Federal Reserve, have triggered a generalized, gradual increase in interest rates during 2022 and into 2023. Analysis Group explained that while these increases in the cost of debt have plateaued, the resulting cost of debt is meaningfully higher than levels prior to the Federal Reserve actions.⁴⁶

Based on a number of factors, Analysis Group recommends a 6.85% cost of debt;⁴⁷ this is slightly higher than ISO-NE's current 6%.⁴⁸ The factors considered include: (i) the yield at which corporate debt with credit rating around BB—a commonly observed rating among our sample of IPPs—recently traded; (ii) the bond yields at which corporate debt of the IPPs in our sample recently traded; (iii) the effect that recent monetary policies had on interest rates; (iv) differences between company-level and project-level risks, given typical project finance debt structures relying on non-recourse debt; and (v) other market conditions.

3. Cost of Equity

Analysis Group estimated the cost of equity for the sample group of publicly traded IPPs using the Capital Asset Pricing Model (“CAPM”), a commonly-utilized framework for estimating expected returns to equity. The details of Analysis Group's estimate of the cost of equity for the representative publicly traded IPPs are explained in Section II.D of the ATWACC Report.

The sample IPP companies do not necessarily have costs of equity that are comparable to the required return on equity for a new merchant plant in New England. All assets and operations funded by IPP companies do not have the same cost of capital, and new generation resources, particularly financed through project finance, have higher costs of equity compared to company-level costs of equity, as generation resource developments are subject to higher

⁴⁴ ATWACC Report at 5-8.

⁴⁵ ATWACC Report at 6.

⁴⁶ ATWACC Report at 4.

⁴⁷ ATWACC Report at 7.

⁴⁸ FCA 16 Parameters Update, CEA Report at 53.

idiosyncratic risk.⁴⁹ The cost of equity for new capacity in the New England control area would typically be expected to have a higher cost of capital than the corporate cost of capital for an IPP company, all else equal.⁵⁰

Based on the information reviewed and the above-described considerations, Analysis Group calculated a 13.8% cost of equity.⁵¹ Given the inherent higher riskiness of the project-level, rather than company-level, cost of equity, Analysis Group's assessment emphasizes the upper bound, instead of the average, of the betas⁵² obtained using the representative IPP companies.

D. Debt to Equity Ratio

There are a range of reasonable capital structures (*i.e.*, the debt-to-equity ratio) that a merchant plant could use to finance an investment, depending on various factors. As Analysis Group explains, the nature of the project's revenue streams (with certain sure revenue streams supporting higher levels of debt), the structure of the project's management and financing, and the nature of the capital supporting the investment all vary among merchant projects.⁵³ As Analysis Group details in Section II.B of the ATWACC Report, the corporate capital structure of the IPP sample is consistent with the recommended capital structure.

Analysis Group's recommended capital structure is a 55-45 debt-to-equity ratio,⁵⁴ which is consistent with ISO-NE's last recalculation.⁵⁵ Therefore, the Filing Parties propose no change to the capital structure.

E. Updated ATWACC Value

Using the proposed cost of debt, cost of equity and debt-to-equity ratio values, Analysis Group computes an updated ATWACC of 8.96%. The details of this calculation are addressed in Section II.E of the ATWACC Report. As Analysis Group explains:

⁴⁹ As Analysis Group details, because every IPP has distinctive, individual characteristics, no single company can perfectly capture the risks and returns of a potential merchant developer of a plant in the ISO-NE market context. *See* ATWACC Report at 3.

⁵⁰ ATWACC Report at 14.

⁵¹ *Id.*

⁵² Beta is the sensitivity of a company's stock return to the market's return. Beta is not directly observable and must therefore be estimated. *See* ATWACC Report at 9 for Analysis Group's explanation of the common approach they utilized to estimate betas.

⁵³ ATWACC Report at 4.

⁵⁴ ATWACC Report at 5.

⁵⁵ *See* FCA 16 Parameters Update, CEA Report at 56.

Our assessment of factors related to the calculation of the ATWACC has considered the data on the following: [cost of equity, cost of debt, and debt-to-equity] ratios presented above; facts and circumstances unique to the ISO-NE markets, including the extent of past experience with merchant development; the rapidly-changing nature of federal and state energy and environmental policies, recent changes in regulation; and likely project/ownership structures for new plant development in New England.⁵⁶

This calculation is based on a Commission-accepted methodology for calculating ATWACC values for CONE and Net CONE updates that has been employed and approved multiple times in other organized wholesale electricity markets.⁵⁷ As Analysis Group explains, ISO-NE's proposed 8.96% ATWACC compares favorably to ATWACC estimates used in recent calculations in other organized wholesale electric markets.⁵⁸ For example, in February 2023 the Commission accepted PJM's proposed 8.85% estimated ATWACC.⁵⁹ Similarly, the ATWACC used in similar NYISO capacity market functions are 8.52% and 8.2% (NY State and NYC, respectively).⁶⁰

As discussed in Section I.B above, the proposed update fulfills the ISO's commitment to evaluate and, as necessary, propose an adjustment to the cost of capital value in the CONE and Net CONE values for FCA 19 to account for the additional risk that investors may face with the elimination of the MOPR.⁶¹ Furthermore, the update proposed herein is responsive to the recommendation of the EMM, and reflects current market realities.

V. DESCRIPTION OF THE REVISIONS TO THE ISO TARIFF

The Filing Parties propose to modify Tariff Section III.13.2.4 Forward Capacity Auction Starting Price and the Cost of New Entry, such that the annual adjustment uses an updated cost of debt of 6.85% and cost of equity of 13.8% for both FCA 19 and FCA 20. The proposed Tariff revisions specify that these targeted cost of debt and cost of equity adjustments shall be in place until the next CONE and Net CONE recalculations are conducted in advance of FCA 21 (held in February 2027) for the 2030–2031 CCP.

⁵⁶ ATWACC Report at 16.

⁵⁷ See *New York Independent System Operator, Inc.*, 158 FERC ¶ 61,028 (2017) (accepting the methodologies and inputs to NYISO's proposed cost of capital values, which were derived by their independent consultant Analysis Group and which used similar methods to those proposed herein); see also *New York Independent System Operator, Inc.*, 175 FERC ¶ 61,012 (2021) (finding that NYISO's proposed financial parameters, where Analysis Group was the consultant and used similar methods to those proposed herein, are just and reasonable).

⁵⁸ See ATWACC Report at 19, Figure 10.

⁵⁹ *PJM Interconnection, L.L.C.*, 182 FERC ¶ 61,073, P 44 (2023).

⁶⁰ See *New York Independent System Operator, Inc.*, 175 FERC ¶ 61,012, P 19 (2021) (accepting NYISO's proposed revisions, including the 8.52% and 8.2% weighted average costs of capital and directing further compliance to reflect an amortization period of 20 years).

⁶¹ MOPR Removal Filing at 45.

VI. REQUESTED EFFECTIVE DATE

The ISO requests that the Commission issue an order accepting these Tariff changes as filed, without suspension or hearing, to be effective on January 15, 2024. The qualification process for FCA 19 (under current Tariff deadlines) begins in February 2024.⁶² Specifically, CONE, Net CONE and the FCA Starting Price must be posted to the ISO's website ten business days prior to the close of the existing capacity challenge window, which closes on March 1, 2024.⁶³ Therefore, the deadline by which the ISO must publish CONE, Net CONE and the Forward Capacity Auction Starting Price is February 15, 2024. It is critical that the CONE and Net CONE values become effective in advance of the next auction cycle with enough time to ensure that the ISO can accurately calculate, validate, and post the numbers as required. For these reasons, it is important for the smooth conduct of the FCA 19 qualification process that the proposed changes filed herein become effective by January 15, 2024.

VII. STAKEHOLDER PROCESS

The proposed Tariff revisions were considered through the complete NEPOOL Participant Processes and received NEPOOL's support. At the August 8–10 Markets Committee meeting, the ISO and Analysis Group introduced the proposal and updated values, indicating that it would seek a vote at the September meeting. At a NEPOOL Participant's request the following month, the ISO agreed to delay the vote on the Net CONE update proposal to allow further time to consider feedback. At the October 11–12, 2023 meeting, the Markets Committee considered the Tariff revisions filed herein and, based on a show of hands vote, recommended that the NEPOOL Participants Committee support the Tariff changes.⁶⁴ The Participants Committee supported the proposed Tariff revisions through its approval of the Consent Agenda for its November 2, 2023 meeting.⁶⁵

⁶² See FCA 19 Schedule.

⁶³ See FCA Qualification Timeline.

⁶⁴ Although the Markets Committee voted to support recommending the revisions, the following abstentions and oppositions were recorded: Generation Sector (1 opposition and 2 abstentions); Transmission Sector (0 oppositions and 0 abstentions); Supplier Sector (1 opposition and 1 abstentions); Publicly Owned Entity Sector (0 oppositions and 0 abstentions); Alternative Resources Sector (1 opposition and 2 abstentions); and End User Sector (2 oppositions and 4 abstentions).

⁶⁵ The Consent Agenda for a Participants Committee meeting, similar to the Consent Agenda for a Commission open meeting, is a group of actions (each recommended by a Technical Committee) to be taken by the Participants Committee through approval of a single motion at a meeting. Although voted as a single motion, all recommendations voted on as part of the Consent Agenda are deemed to have been voted on individually and independently. As relevant here, the Participants Committee's approval of the November 2 Consent Agenda included its support for the changes filed herein. The following End User Sector Participants specifically attributed their votes not supporting the Consent Agenda to the revisions filed herein: the Maine Public Advocate Office, which opposed, and the Connecticut Office of Consumer Counsel, Massachusetts Attorney General's Office, the New Hampshire Office of Consumer Advocate, and PowerOptions, Inc., each of whom abstained. Abstentions from the vote to approve the Consent Agenda not specifically attributed to the revisions filed herein were cast by the following members: Conservation Law Foundation, Environmental Defense Fund, Mr. Jonathan Lamson, and the Rhode Island Division of Public Utilities and Carriers.

VIII. ADDITIONAL SUPPORTING INFORMATION

Section 35.13 of the Commission's regulations generally requires public utilities to file certain cost and other information related to an examination of traditional cost-of-service rates. The Tariff revisions filed herein do not modify a traditional "rate" and the ISO is not a traditional investor-owned utility. Therefore, to the extent necessary, the Filing Parties request waiver of Section 35.13 of the Commission's regulations. Notwithstanding their request for waiver, the Filing Parties submit the following additional information in substantial compliance with relevant provisions of Section 35.13 of the Commission's regulations.

35.13(b)(1) – Materials included herewith are as follows:

- This transmittal letter;
- Marked sections of the Tariff, reflecting the revisions effected by this filing;
- Clean sections of the Tariff incorporating the revisions effected by this filing;
- Testimony of Kevin Coopey in support of the ISO proposal to update the cost of debt and cost of capital used in the annual adjustment to CONE and Net CONE;
- *Analysis of the After-Tax Weighted Average Cost of Capital of New Entry for the ISO New England Forward Capacity Market* (referred to herein as the "ATWACC Report") prepared by ISO-NE's independent consultant;
- Affidavits of Doctors Todd Schatzki and Carlo Gallimberti, ISO-NE's independent consultants; and
- List of governors, utility regulatory agencies in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont, and others to which a copy of this filing has been e-mailed.

35.13(b)(2) – As set forth in Section VI, the ISO requests that the proposed changes become effective on January 15, 2024.

35.13(b)(3) – Pursuant to Section 17.11(e) of the Participants Agreement, Governance Participants are being served electronically rather than by paper copy. The names and addresses of the Governance Participants are posted on the ISO's website at <http://www.iso-ne.com/participate/participant-asset-listings>. A copy of this transmittal letter and the accompanying materials have also been sent to the governors and electric utility regulatory agencies for the six New England states that comprise the New England Control Area, the New England Conference of Public Utility Commissioners, Inc., and to the New England States Committee on Electricity. Their names and addresses are shown in the attached listing. In accordance with Commission rules and practice, there is no need for the Governance Participants

or the entities identified in the listing to be included on the Commission's official service list in the captioned proceeding unless such entities become intervenors in this proceeding.

35.13(b)(4) – A description of the materials submitted pursuant to this filing is contained in Section VIII of this transmittal letter.

35.13(b)(5) – The reasons for this filing are discussed in Section III of this transmittal letter.

35.13(b)(6) – The ISO's approval of the proposed changes is evidenced by this filing. The proposed changes reflect the results of the Participant Processes required by the Participants Agreement and reflect the support of the Participants Committee.

35.13(b)(7) – Neither the ISO nor NEPOOL has knowledge of any relevant expenses or costs of service that have been alleged or judged in any administrative or judicial proceeding to be illegal, duplicative, or unnecessary costs that are demonstrably the product of discriminatory employment practices.

35.13(b)(8) – A form of notice and electronic media are no longer required for filings in light of the Commission's Combined Notice of Filings notice methodology.

35.13(c)(1) – The proposed changes submitted herein do not modify a traditional "rate," and the statement required under this Commission regulation is not applicable to the instant filing.

35.13(c)(2) – The ISO does not provide services under other rate schedules that are similar to the wholesale, resale and transmission services it provides under the Tariff.

35.13(c)(3) – No specifically assignable facilities have been or will be installed or modified in connection with the revision filed herein.

IX. CONCLUSION

For the foregoing reasons, the Filing Parties request that the Commission accept the Tariff revisions filed herein, without condition or change, to become effective January 15, 2024.

Respectfully submitted,

ISO NEW ENGLAND INC.

By: /s/ Bridget M. Woebbe

Bridget M. Woebbe, Esq.
ISO New England Inc.
One Sullivan Road
Holyoke, MA 01040-2841
Tel: (413) 540-4724
Fax: (413) 535-4379
E-mail: bwoebbe@iso-ne.com

**NEW ENGLAND POWER POOL
PARTICIPANTS COMMITTEE**

By: /s/ Rosendo Garza, Jr.

Rosendo Garza, Jr., Esq.
Sebastian M. Lombardi, Esq.*
Day Pitney LLP
Goodwin Square
225 Asylum Street
Hartford, CT 06103
Tel: (860) 275-0660
Fax: (860) 881-2493
E-mail: rgarza@daypitney.com
slombardi@daypitney.com

III.13.2. Annual Forward Capacity Auction.

III.13.2.1. Timing of Annual Forward Capacity Auctions.

Each Forward Capacity Auction will be conducted beginning on the first Monday in the February that is approximately three years and four months before the beginning of the associated Capacity Commitment Period (unless, no later than the immediately preceding December 1, an alternative date is announced by the ISO), or, where exigent circumstances prevent the start of the Forward Capacity Auction at that time, as soon as possible thereafter.

III.13.2.2. Amount of Capacity Cleared in Each Forward Capacity Auction.

The total amount of capacity cleared in each Forward Capacity Auction shall be determined using the System-Wide Capacity Demand Curve and the Capacity Zone Demand Curves for the modeled Capacity Zones pursuant to Section III.13.2.3.3.

III.13.2.2.1. System-Wide Capacity Demand Curve.

The MRI Transition Period is the period from the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2020 through the earlier of:

- (i) the Forward Capacity Auction for which the amount of the Installed Capacity Requirement (net of HQICCs) that is filed by the ISO with the Commission pursuant to Section III.12.3 for the upcoming Forward Capacity Auction is greater than or equal to the sum of: 34,151 MW, and: (a) 722 MW (for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2020); (b) 375 MW (for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2021), or; (c) 150 MW (for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2022);
- (ii) the Forward Capacity Auction for which the product of the system-wide Marginal Reliability Impact value, calculated pursuant to Section III.12.1.1, and the scaling factor specified in Section III.13.2.2.4, specifies a quantity at \$7.03/kW-month in excess of the MW value determined under the applicable subsection (2)(b), (2)(c), or (2)(d), below, or;

- (iii) the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2022.

During the MRI Transition Period, the System-Wide Capacity Demand Curve shall consist of the following three segments:

- (1) at prices above \$7.03/kW-month and below the Forward Capacity Auction Starting Price, the System-Wide Capacity Demand Curve shall specify a price for system capacity quantities based on the product of the system-wide Marginal Reliability Impact value, calculated pursuant to Section III.12.1.1, and the scaling factor specified in Section III.13.2.2.4;
- (2) at prices below \$7.03/kW-month, the System-Wide Capacity Demand Curve shall be linear between \$7.03/kW-month and \$0.00/kW-month and determined by the following quantities:
 - (a) At the price of \$0.00/kW-month, the quantity specified by the System-Wide Capacity Demand Curve shall be 1616 MW plus the MW value determined under the applicable provision in (b), (c), or (d) of this subsection.
 - (b) for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2020, at \$7.03/kW-month, the quantity shall be the lesser of:
 - 1. 35,437 MW; and
 - 2. 722 MW plus the quantity at which the product of the system-wide Marginal Reliability Impact value and the scaling factor yield a price of \$7.03/kW-month;
 - (c) for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2021, at \$7.03/kW-month, the quantity shall be the lesser of:
 - 1. 35,090 MW; and
 - 2. 375 MW plus the quantity at which the product of the system-wide Marginal Reliability Impact value and the scaling factor yield a price of \$7.03/kW-month;
 - (d) for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2022, at \$7.03/kW-month, the quantity shall be the lesser of:
 - 1. 34,865 MW; and
 - 2. 150 MW plus the quantity at which the product of the system-wide Marginal Reliability Impact value and the scaling factor yield a price of \$7.03/kW-month

(3) a price of \$7.03/kW-month for all quantities between those curves segments.

In addition to the foregoing, the System-Wide Capacity Demand Curve shall not specify a price in excess of the Forward Capacity Auction Starting Price.

Following the MRI Transition Period, the System-Wide Capacity Demand Curve shall specify a price for system capacity quantities based on the product of the system-wide Marginal Reliability Impact value, calculated pursuant to Section III.12.1.1, and the scaling factor specified in Section III.13.2.2.4. For any system capacity quantity greater than 110% of the Installed Capacity Requirement (net of HQICCs), the System-Wide Capacity Demand Curve shall specify a price of zero. The System-Wide Capacity Demand Curve shall not specify a price in excess of the Forward Capacity Auction Starting Price.

III.13.2.2.2. Import-Constrained Capacity Zone Demand Curves.

For each import-constrained Capacity Zone, the Capacity Zone Demand Curve shall specify a price for all Capacity Zone quantities based on the product of the import-constrained Capacity Zone's Marginal Reliability Impact value, calculated pursuant to Section III.12.2.1.3, and the scaling factor specified in Section III.13.2.2.4. The prices specified by an import-constrained Capacity Zone Demand Curve shall be non-negative. At all quantities greater than the truncation point, which is the amount of capacity for which the Capacity Zone Demand Curve specifies a price of \$0.01/kW-month, the Capacity Zone Demand Curve shall specify a price of zero. The Capacity Zone Demand Curve shall not specify a price in excess of the Forward Capacity Auction Starting Price.

III.13.2.2.3. Export-Constrained Capacity Zone Demand Curves.

For each export-constrained Capacity Zone, the Capacity Zone Demand Curve shall specify a price for all Capacity Zone quantities based on the product of the export-constrained Capacity Zone's Marginal Reliability Impact value, calculated pursuant to Section III.12.2.2.1, and the scaling factor specified in Section III.13.2.2.4. The prices specified by an export-constrained Capacity Zone Demand Curve shall be non-positive. At all quantities less than the truncation point, which is the amount of capacity for which the Capacity Zone Demand Curve specifies a price of negative \$0.01/kW-month, the Capacity Zone Demand Curve shall specify a price of zero.

III.13.2.2.4. Capacity Demand Curve Scaling Factor.

The demand curve scaling factor shall be set at the value such that, at the quantity specified by the System-Wide Capacity Demand Curve at a price of Net CONE, the Loss of Load Expectation is 0.1 days per year.

III.13.2.3. Conduct of the Forward Capacity Auction.

The Forward Capacity Auction shall include a descending clock auction, which will determine, subject to the provisions of Section III.13.2.7, the Capacity Clearing Price for each Capacity Zone modeled in that Forward Capacity Auction pursuant to Section III.12.4, and the Capacity Clearing Price for certain offers from New Import Capacity Resources and Existing Import Capacity Resources pursuant to Section III.13.2.3.3(d). The Forward Capacity Auction shall determine the outcome of all offers and bids accepted during the qualification process and submitted during the auction. The descending clock auction shall be conducted as a series of rounds, which shall continue (for up to five consecutive Business Days, with up to eight rounds per day, absent extraordinary circumstances) until the Forward Capacity Auction is concluded for all modeled Capacity Zones in accordance with the provisions of Section III.13.2.3.3. Each round of the Forward Capacity Auction shall consist of the following steps, which shall be completed simultaneously for each Capacity Zone included in the round:

III.13.2.3.1. Step 1: Announcement of Start-of-Round Price and End-of-Round Price.

For each round, the auctioneer shall announce a single Start-of-Round Price (the highest price associated with a round of the Forward Capacity Auction) and a single (lower) End-of-Round Price (the lowest price associated with a round of the Forward Capacity Auction). In the first round, the Start-of-Round Price shall equal the Forward Capacity Auction Starting Price for all modeled Capacity Zones. In each round after the first round, the Start-of-Round Price shall equal the End-of-Round Price from the previous round.

III.13.2.3.2. Step 2: Compilation of Offers and Bids.

The auctioneer shall compile all of the offers and bids for that round, as follows:

(a) Offers from New Generating Capacity Resources, New Import Capacity Resources, New Demand Capacity Resources, and New Distributed Energy Capacity Resources.

- (i) The Project Sponsor for any New Generating Capacity Resource, New Import Capacity Resource that is backed by a single new External Resource and that is associated with an investment in transmission that increases New England's import capability, New Import Capacity

Resource that is associated with an Elective Transmission Upgrade, New Demand Capacity Resource, or New Distributed Energy Capacity Resource accepted in the qualification process for participation in the Forward Capacity Auction may submit a New Capacity Offer indicating the quantity of capacity that the Project Sponsor would commit to provide from the resource during the Capacity Commitment Period at that round's prices. A New Capacity Offer shall be defined by the submission of one to five prices, each strictly less than the Start-of-Round Price but greater than or equal to the End-of-Round Price, and an associated quantity in the applicable Capacity Zone. Each price shall be expressed in units of dollars per kilowatt-month to an accuracy of at most three digits to the right of the decimal point, and each quantity shall be expressed in units of MWs to an accuracy of at most three digits to the right of the decimal point. A New Capacity Offer shall imply a supply curve indicating quantities offered at all of that round's prices, pursuant to the convention of Section III.13.2.3.2(a)(iii).

(ii) If the Project Sponsor of a New Generating Capacity Resource, New Import Capacity Resource that is backed by a single new External Resource and that is associated with an investment in transmission that increases New England's import capability, New Import Capacity Resource that is associated with an Elective Transmission Upgrade, New Demand Capacity Resource, or New Distributed Energy Capacity Resource elects to offer in a Forward Capacity Auction, the Project Sponsor must offer the resource's full FCA Qualified Capacity at the Forward Capacity Auction Starting Price in the first round of the auction. A New Capacity Offer for a resource may in no event be for greater capacity than the resource's full FCA Qualified Capacity at any price. A New Capacity Offer for a resource may not be for less capacity than the resource's Rationing Minimum Limit at any price, except where the New Capacity Offer is for a capacity quantity of zero.

(iii) Let the Start-of-Round Price and End-of-Round Price for a given round be P_S and P_E , respectively. Let the m prices ($1 \leq m \leq 5$) submitted by a Project Sponsor for a modeled Capacity Zone be p_1, p_2, \dots, p_m , where $P_S > p_1 > p_2 > \dots > p_m \geq P_E$, and let the associated quantities submitted for a New Capacity Resource be q_1, q_2, \dots, q_m . Then the Project Sponsor's supply curve, for all prices strictly less than P_S but greater than or equal to P_E , shall be taken to be:

$$S(p) = \begin{cases} q_0, & \text{if } p > p_1, \\ q_1, & \text{if } p_2 < p \leq p_1, \\ q_2, & \text{if } p_3 < p \leq p_2, \\ \dots & \dots, \\ q_m, & \text{if } p \leq p_m. \end{cases}$$

where, in the first round, q_0 is the resource's full FCA Qualified Capacity and, in subsequent rounds, q_0 is the resource's quantity offered at the lowest price of the previous round.

(iv) Except for Renewable Technology Resources and except as provided in Section III.13.2.3.2(a)(v), a New Capacity Resource may not include any capacity in a New Capacity Offer during the Forward Capacity Auction at any price below the resource's New Resource Offer Floor Price. The amount of capacity included in each New Capacity Offer at each price shall be included in the aggregate supply curves at that price as described in Section III.13.2.3.3.

(v) Capacity associated with a New Import Capacity Resource (other than a New Import Capacity Resource that is backed by a single new External Resource and that is associated with an investment in transmission that increases New England's import capability or a New Import Capacity Resource that is associated with an Elective Transmission Upgrade) shall be automatically included in the aggregate supply curves as described in Section III.13.2.3.3 at prices at or above the resource's offer prices (as they may be modified pursuant to Section III.A.21.2) and shall be automatically removed from the aggregate supply curves at prices below the resource's offer prices (as they may be modified pursuant to Section III.A.21.2), except under the following circumstances:

In any round of the Forward Capacity Auction in which prices are below the Dynamic De-List Bid Threshold, the Project Sponsor for a New Import Capacity Resource (other than a New Import Capacity Resource that is backed by a single new External Resource and that is associated with an investment in transmission that increases New England's import capability or a New Import Capacity Resource that is associated with an Elective Transmission Upgrade) with offer prices (as they may be modified pursuant to Section III.A.21.2) that are less than the Dynamic De-List Bid Threshold may submit a New Capacity Offer indicating the quantity of capacity that the Project Sponsor would commit to provide from the resource during the Capacity Commitment Period at that round's prices. Such an offer shall be defined by the submission of one to five

prices, each less than the Dynamic De-List Bid Threshold (or the Start-of-Round Price, if lower than the Dynamic De-List Bid Threshold) but greater than or equal to the End-of-Round Price, and a single quantity associated with each price. Such an offer shall be expressed in the same form as specified in Section III.13.2.3.2(a)(i) and shall imply a curve indicating quantities at all of that round's relevant prices, pursuant to the convention of Section III.13.2.3.2(a)(iii). The curve may not increase the quantity offered as the price decreases.

(b) **Bids from Existing Capacity Resources**

(i) Static De-List Bids, Permanent De-List Bids, Retirement De-List Bids, and Export Bids from Existing Generating Capacity Resources, Existing Import Capacity Resources, Existing Demand Capacity Resources and Existing Distributed Energy Capacity Resources, as finalized in the qualification process or as otherwise directed by the Commission shall be automatically bid into the appropriate rounds of the Forward Capacity Auction, such that each such resource's FCA Qualified Capacity will be included in the aggregate supply curves as described in Section III.13.2.3.3 until any Static De-List Bid, Permanent De-List Bid, Retirement D-List Bid, or Export Bid clears in the Forward Capacity Auction, as described in Section III.13.2.5.2, and is removed from the aggregate supply curves. In the case of a Commission-approved Permanent De-List Bid or Commission-approved Retirement De-List Bid at or above the Forward Capacity Auction Starting Price, or where a Permanent De-List Bid or Retirement De-List Bid is subject to an election under Section III.13.1.2.4.1(a), the resource's FCA Qualified Capacity will be reduced by the quantity of the de-list bid (unless the resource was retained for reliability pursuant to Section III.13.1.2.3.1.5.1) and the Permanent De-List Bid or Retirement De-List Bid shall not be included in the Forward Capacity Auction. Permanent De-List Bids and Retirement De-List Bids subject to an election under Section III.13.1.2.4.1(a) or Section III.13.1.2.4.1(b) shall not be included in the Forward Capacity Auction and shall be treated according to Section III.13.2.3.2(b)(ii). In the case of a Static De-List Bid, if the Market Participant revised the bid pursuant to Section III.13.1.2.3.1.1, then the revised bid shall be used in place of the submitted bid; if the Market Participant withdrew the bid pursuant to Section III.13.1.2.3.1.1, then the capacity associated with the withdrawn bid shall be entered into the auction pursuant to Section III.13.2.3.2(c). If the amount of capacity associated with Export Bids for an interface exceeds the transfer limit of that interface (minus any accepted Administrative De-List Bids over that interface), then the set of Export Bids associated with that interface equal to the interface's transfer limit (minus any accepted Administrative De-List Bids over that interface) having the

highest bid prices shall be included in the auction as described above; capacity for which Export Bids are not included in the auction as a result of this provision shall be entered into the auction pursuant to Section III.13.2.3.2(c).

(ii) For Permanent De-List Bids and Retirement De-List Bids, the ISO will enter a Proxy De-List Bid into the appropriate rounds of the Forward Capacity Auction in the following circumstances: (1) if the Lead Market Participant has elected pursuant to Section III.13.1.2.4.1(a) to retire the resource or portion thereof, the resource has not been retained for reliability pursuant to Section III.13.1.2.3.1.5.1, the price specified in the Commission-approved de-list bid is less than the Forward Capacity Auction Starting Price, and the Internal Market Monitor has found a portfolio benefit pursuant to Section III.A.24; or (2) if the Lead Market Participant has elected conditional treatment pursuant to Section III.13.1.2.4.1(b), the resource has not been retained for reliability pursuant to Section III.13.1.2.3.1.5.1, and the price specified in the Commission-approved de-list bid is less than the price specified in the de-list bid submitted by the Lead Market Participant and less than the Forward Capacity Auction Starting Price. The Proxy De-List Bid shall be non-rationable and shall be equal in price and quantity to, and located in the same Capacity Zone as, the Commission-approved Permanent De-List Bid or Commission-approved Retirement De-List Bid, and shall be entered into the appropriate rounds of the Forward Capacity Auction such that the capacity associated with the Proxy De-List Bid will be included in the aggregate supply curves as described in Section III.13.2.3.3 until the Proxy De-List Bid clears in the Forward Capacity Auction, as described in Section III.13.2.5.2, and is removed from the aggregate supply curves. If the Lead Market Participant has elected conditional treatment pursuant to Section III.13.1.2.4.1(b), the resource has not been retained for reliability pursuant to Section III.13.1.2.3.1.5.1, and the Commission-approved Permanent De-List Bid or Commission-approved Retirement De-List Bid is equal to or greater than the de-list bid submitted by the Lead Market Participant, no Proxy De-List Bid shall be used and the Commission-approved de-list bid shall be entered in the Forward Capacity Auction pursuant to Section III.13.2.3.2(b)(i).

(iii) For purposes of this subsection (b), if an Internal Market Monitor-determined price has been established for a Static De-List Bid and the associated resource's capacity is pivotal pursuant to Sections III.A.23.1 and III.A.23.2, then (unless otherwise directed by the Commission) the lower of the Internal Market Monitor-determined price and any revised bid that is submitted pursuant to Section III.13.1.2.3.1.1 will be used in place of the initially submitted bid; provided, however, that if the bid was withdrawn pursuant to Section III.13.1.2.3.1.1, then

the capacity associated with the withdrawn bid shall be entered into the auction pursuant to Section III.13.2.3.2(c). If an Internal Market Monitor-determined price has been established for an Export Bid and the associated resource's capacity is pivotal pursuant to Sections III.A.23.1 and III.A.23.2, then the Internal Market Monitor-determined price (or price directed by the Commission) will be used in place of the submitted bid.

Any Static De-List Bid for ambient air conditions that has not been verified pursuant to Section III.13.1.2.3.2.4 shall not be subject to the provisions of this subsection (b).

(c) **Existing Capacity Resources Without De-List or Export Bids and Self-Supplied FCA Resources.** Each Existing Generating Capacity Resource, Existing Import Capacity Resource, Existing Demand Capacity Resource, and Existing Distributed Energy Capacity Resources without a Static De-List Bid, a Permanent De-List Bid, a Retirement De-List Bid, an Export Bid or an Administrative Export De-List Bid in its Existing Capacity Qualification Package, and each existing Self-Supplied FCA Resource shall be automatically entered into each round of the Forward Capacity Auction at its FCA Qualified Capacity, such that the resource's FCA Qualified Capacity will be included in the aggregate supply curves as described in Section III.13.2.3.3, except where such resource, if permitted, submits an appropriate Dynamic De-List Bid, as described in Section III.13.2.3.2(d). Each new Self-Supplied FCA Resource shall be automatically entered into each round of the Forward Capacity Auction at its designated self-supplied quantity at prices at or above the resource's New Resource Offer Floor Price, such that the resource's designated self-supply quantity will be included in the aggregate supply curves as described in Section III.13.2.3.3.

(d) **Dynamic De-List Bids.** In any round of the Forward Capacity Auction in which prices are below the Dynamic De-List Bid Threshold, any Existing Generating Capacity Resource, Existing Import Capacity Resource, Existing Demand Capacity Resource, or Existing Distributed Energy Capacity Resource (but not any Self-Supplied FCA Resources) may submit a Dynamic De-List Bid at prices below the Dynamic De-List Bid Threshold. Such a bid shall be defined by the submission of one to five prices, each less than the Dynamic De-List Bid Threshold (or the Start-of-Round Price, if lower than the Dynamic De-List Bid Threshold) but greater than or equal to the End-of-Round Price, and a single quantity associated with each price. Such a bid shall be expressed in the same form as specified in Section III.13.2.3.2(a)(i) and shall imply a curve indicating quantities at all of that round's relevant prices, pursuant to the convention of Section III.13.2.3.2(a)(iii). The curve may in no case increase the quantity offered as the price decreases. A dynamic De-List Bid may not offer less capacity than the resource's

Rationing Minimum Limit at any price, except where the amount of capacity offered is zero. All Dynamic De-List Bids are subject to a reliability review as described in Section III.13.2.5.2.5, and if not rejected for reliability reasons, shall be included in the round in the same manner as Static De-List Bids as described in Section III.13.2.3.2(b). Where a resource elected pursuant to Section III.13.1.1.2.2.4 or Section III.13.1.4.1.1.2.7 to have the Capacity Supply Obligation and Capacity Clearing Price continue to apply after the Capacity Commitment Period associated with the Forward Capacity Auction in which the offer clears, the capacity associated with any resulting Capacity Supply Obligation may not be subject to a Dynamic De-List Bid in subsequent Forward Capacity Auctions for Capacity Commitment Periods for which the Project Sponsor elected to have the Capacity Supply Obligation and Capacity Clearing Price continue to apply. Where a Lead Market Participant submits any combination of Dynamic De-List Bid, Static De-List Bid, Export Bid, and Administrative Export De-List Bid for a single resource, none of the prices in a set of price-quantity pairs associated with a bid may be the same as any price in any other set of price-quantity pairs associated with another bid for the same resource.

(e) **Repowering.** Offers and bids associated with a resource participating in the Forward Capacity Auction as a New Generating Capacity Resource pursuant to Section III.13.1.1.1.2 (resources previously counted as capacity resources) shall be addressed in the Forward Capacity Auction in accordance with the provisions of this Section III.13.2.3.2(e). The Project Sponsor shall offer such a New Generating Capacity Resource into the Forward Capacity Auction in the same manner and pursuant to the same rules as other New Generating Capacity Resources, as described in Section III.13.2.3.2(a). As long as any capacity is offered from the New Generating Capacity Resource, the amount of capacity offered is the amount that the auctioneer shall include in the aggregate supply curve at the relevant prices, and the quantity of capacity offered from the associated Existing Generating Capacity Resource shall not be included in the aggregate supply curve. If any portion of the New Generating Capacity Resource clears in the Forward Capacity Auction, the associated Existing Generating Capacity Resource shall be permanently de-listed as of the start of the associated Capacity Commitment Period. If at any price, no capacity is offered from the New Generating Capacity Resource, then the auctioneer shall include capacity from the associated Existing Generating Capacity Resource at that price, subject to any bids submitted and accepted in the qualification process for that Existing Generating Capacity Resource pursuant to Section III.13.1.2.5. Bids submitted and accepted in the qualification process for an Existing Generating Capacity Resource pursuant to Section III.13.1.2.5 shall only be entered into the Forward Capacity Auction after the associated New Generating Capacity Resource is fully withdrawn (that is, the Forward Capacity Auction reaches a price at which the resource's New Capacity Offer is zero capacity), and shall only then be subject to the reliability review described in Section III.13.2.5.2.5.

(f) **Conditional Qualified New Resources.** Offers associated with a resource participating in the Forward Capacity Auction as a Conditional Qualified New Resource pursuant to Section III.13.1.1.2.3(f) shall be addressed in the Forward Capacity Auction in accordance with the provisions of this Section III.13.2.3.2(f). The Project Sponsor shall offer such a Conditional Qualified New Resource into the Forward Capacity Auction in the same manner and pursuant to the same rules as other New Generating Capacity Resources, as described in Section III.13.2.3.2(a). An offer from at most one resource at a Conditional Qualified New Resource's location will be permitted to clear (receive a Capacity Supply Obligation for the associated Capacity Commitment Period) in the Forward Capacity Auction. As long as a positive quantity is offered at the End-of-Round Price in the final round of the Forward Capacity Auction by the resource having a higher queue priority at the Conditional Qualified New Resource's location, as described in Section III.13.1.1.2.3(f), then no capacity from the Conditional Qualified New Resource shall clear. If at any price greater than or equal to the End-of-Round Price in the final round of the Forward Capacity Auction, zero quantity is offered from the resource having higher queue priority at the Conditional Qualified New Resource's location, as described in Section III.13.1.1.2.3(f), then the auctioneer shall consider capacity offered from the Conditional Qualified New Resource in the determination of clearing, including the application of Section III.13.2.7.

(g) **Mechanics.** Offers and bids that may be submitted during a round of the Forward Capacity Auction must be received between the starting time and ending time of the round, as announced by the auctioneer in advance. The ISO at its sole discretion may authorize a participant in the auction to complete or correct its submission after the ending time of a round, but only if the participant can demonstrate to the ISO's satisfaction that the participant was making reasonable efforts to complete a valid offer submission before the ending time of the round, and only if the ISO determines that allowing the completion or correction will not unreasonably disrupt the auction process. All decisions by the ISO concerning whether or not a participant may complete or correct a submission after the ending time of a round are final.

III.13.2.3.3. Step 3: Determination of the Outcome of Each Round.

The auctioneer shall use the offers and bids for the round as described in Section III.13.2.3.2 to determine the aggregate supply curves for the New England Control Area and for each modeled Capacity Zone included in the round.

The aggregate supply curve for the New England Control Area, the Total System Capacity, shall reflect at each price the sum of the following:

- (1) the amount of capacity offered in all Capacity Zones modeled as import-constrained Capacity Zones at that price (excluding capacity offered from New Import Capacity Resources and Existing Import Capacity Resources);
- (2) the amount of capacity offered in the Rest-of-Pool Capacity Zone at that price (excluding capacity offered from New Import Capacity Resources and Existing Import Capacity Resources);
- (3) for each Capacity Zone modeled as an export-constrained Capacity Zone, the lesser of:
 - (i) the amount of capacity offered in the Capacity Zone at that price (including the amount of capacity offered from New Import Capacity Resources and Existing Import Capacity Resources for each interface between the New England Control Area and an external Control Area mapped to the export-constrained Capacity Zone up to that interface's approved capacity transfer limit (net of tie benefits)), or;
 - (ii) the amount of capacity determined by the Capacity Zone Demand Curve at zero minus that price, and;
- (4) for each interface between the New England Control Area and an external Control Area mapped to an import-constrained Capacity Zone or the Rest-of-Pool Capacity Zone, the lesser of:
 - (i) that interface's approved capacity transfer limit (net of tie benefits), or;
 - (ii) the amount of capacity offered from New Import Capacity Resources and Existing Import Capacity Resources.

In computing the Total System Capacity, capacity associated with any New Capacity Offer at any price greater than the Forward Capacity Auction Starting Price will not be included in the tally of total capacity at the Forward Capacity Auction Starting Price for that Capacity Zone. On the basis of these aggregate supply curves, the auctioneer shall determine the outcome of the round for each modeled Capacity Zone as follows:

(a) **Import-Constrained Capacity Zones.**

For a Capacity Zone modeled as an import-constrained Capacity Zone, if either of the following two conditions is met during the round:

- (1) the aggregate supply curve for the import-constrained Capacity Zone, adjusted as necessary in accordance with Section III.13.2.6 (Capacity Rationing Rule), equals or is less than the quantity determined by the Capacity Zone Demand Curve at the difference between the End-of-Round Price and the price specified by the System-Wide Capacity Demand Curve (at a quantity no less than Total System Capacity at the Start-of-Round Price), or;
- (2) the Forward Capacity Auction is concluded for the Rest-of-Pool Capacity Zone;

then the Forward Capacity Auction for that Capacity Zone is concluded and such Capacity Zone will not be included in further rounds of the Forward Capacity Auction.

The Capacity Clearing Price for that Capacity Zone shall be set at the greater of: (1) the sum of the price specified by the Capacity Zone Demand Curve at the amount of capacity equal to the total amount that is awarded a Capacity Supply Obligation in the import-constrained Capacity Zone, and the Capacity Clearing Price for the Rest-of-Pool Capacity Zone, or; (2) the highest price of any offer or bid for a resource in the Capacity Zone that is awarded a Capacity Supply Obligation, subject to the other provisions of this Section III.13.2.

If neither of the two conditions above are met in the round, then that Capacity Zone will be included in the next round of the Forward Capacity Auction.

(b) **Rest-of-Pool Capacity Zone.**

If the Total System Capacity at the End-of-Round Price, adjusted as necessary in accordance with Section III.13.2.6 (Capacity Rationing Rule), and adjusted to include the additional supply in the import-constrained Capacity Zone that may be cleared at a higher price, equals or is less than the amount of capacity determined by the System-Wide Capacity Demand Curve, then the Forward Capacity Auction for the Rest-of-Pool Capacity Zone is concluded and the Rest-of-Pool Capacity Zone will not be included in further rounds of the Forward Capacity Auction.

The Capacity Clearing Price for the Rest-of-Pool Capacity Zone shall be set at the highest price at which the Total System Capacity is less than or equal to the amount of capacity determined by the System-Wide Capacity Demand Curve, subject to the other provisions of this Section III.13.2.

If the Forward Capacity Auction for the Rest-of-Pool Capacity Zone is not concluded then the Rest-of-Pool Capacity Zone will be included in the next round of the Forward Capacity Auction, and the auctioneer shall publish the Total System Capacity at the End-of-Round Price, adjusted to include the additional supply in the import-constrained Capacity Zone that may be cleared at a higher price, less the amount of capacity determined by the System-Wide Capacity Demand Curve at the End-of-Round Price.

(c) **Export-Constrained Capacity Zones.**

For a Capacity Zone modeled as an export-constrained Capacity Zone, if all of the following conditions are met during the round:

- (1) the aggregate supply curve for the export-constrained Capacity Zone, adjusted as necessary in accordance with Section III.13.2.6 (Capacity Rationing Rule), is equal to or less than the maximum amount of capacity determined by the Capacity Zone Demand Curve at a price of zero;
- (2) in the case of a nested Capacity Zone, the Forward Capacity Auction is concluded for the Capacity Zone within which the nested Capacity Zone is located, and;
- (3) the Forward Capacity Auction is concluded for the Rest-of-Pool Capacity Zone;

then the Forward Capacity Auction for that Capacity Zone is concluded and such Capacity Zone will not be included in further rounds of the Forward Capacity Auction.

The Capacity Clearing Price for an export-constrained Capacity Zone that is not a nested export-constrained Capacity Zone shall be set at the greater of:

- (1) the sum of:
 - (i) the price specified by the Capacity Zone Demand Curve at the amount of capacity equal to the total amount that is awarded a Capacity Supply Obligation in that Capacity Zone; and
 - (ii) the Capacity Clearing Price for the Rest-of-Pool Capacity Zone.
- or;
- (2) the highest price of any offer or bid for a resource in the Capacity Zone that is awarded a Capacity Supply Obligation, and subject to the other provisions of this Section III.13.2.

The Capacity Clearing Price for a nested export-constrained Capacity Zone shall be set at the greater of:

- (1) the sum of:

- (i) the price specified by the Capacity Zone Demand Curve at the amount of capacity equal to the total amount that is awarded a Capacity Supply Obligation in that Capacity Zone; and
- (ii) the Capacity Clearing Price for the Capacity Zone in which the nested Capacity Zone is located,

or;

- (2) the highest price of any offer or bid for a resource in the Capacity Zone that is awarded a Capacity Supply Obligation, subject to the other provisions of this Section III.13.2.

If all of the conditions above are not satisfied in the round, then the auctioneer shall publish the quantity of excess supply in the export-constrained Capacity Zone at the End-of-Round Price (the amount of capacity offered at the End-of-Round Price in the export-constrained Capacity Zone minus the maximum amount of capacity determined by the Capacity Zone Demand Curve at a price of zero) and that Capacity Zone will be included in the next round of the Forward Capacity Auction.

(d) **Treatment of Import Capacity.** Where the amount of capacity offered from New Import Capacity Resources and Existing Import Capacity Resources over an interface between the New England Control Area and an external Control Area is less than or equal to that interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF), then the capacity offers from those resources shall be treated as capacity offers in the modeled Capacity Zone associated with that interface. Where the amount of capacity offered from New Import Capacity Resources and Existing Import Capacity Resources over an interface between the New England Control Area and an external Control Area is greater than that interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF), then the following provisions shall apply (separately for each such interface):

- (i) For purposes of determining which capacity offers from the New Import Capacity Resources and Existing Import Capacity Resources over the interface shall clear and at what price, the offers over the interface shall be treated in the descending-clock auction as if they comprised a separately-modeled export-constrained capacity zone, with an aggregate supply curve consisting of the offers from the New Import Capacity Resources and Existing Import Capacity Resources over the interface.
- (ii) The amount of capacity offered over the interface that will be included in the aggregate supply curve of the modeled Capacity Zone associated with the interface shall be the lesser of the

following two quantities: the amount of capacity offered from New Import Capacity Resources and Existing Import Capacity Resources over the interface; and the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF).

(iii) The Forward Capacity Auction for New Import Capacity Resources and Existing Import Capacity Resources over the interface is concluded when the following two conditions are both satisfied: the amount of capacity offered from New Import Capacity Resource and Existing Import Capacity Resources over the interface is less than or equal to the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF); and the Forward Capacity Auction is concluded in the modeled Capacity Zone associated with the interface.

(e) **Treatment of Export Capacity.** Any Export Bid or any Administrative Export De-List Bid that is used to export capacity through an export interface connected to an import-constrained Capacity Zone from another Capacity Zone, or through an export interface connected to the Rest-of-Pool Capacity Zone from an export-constrained Capacity Zone in the Forward Capacity Auction will be modeled in the Capacity Zone where the export interface that is identified in the Existing Capacity Qualification Package is located. The Export Bid or Administrative Export De-List Bid clears in the Capacity Zone where the Export Bid or Administrative Export De-List Bid is modeled.

(i) Then the MW quantity equal to the relevant Export Bid or Administrative Export De-List Bid from the resource associated with the Export Bid or Administrative Export De-List Bid will be de-listed in the Capacity Zone where the resource is located. If the export interface is connected to an import-constrained Capacity Zone, the MW quantity procured will be in addition to the amount of capacity determined by the Capacity Zone Demand Curve for the import-constrained Capacity Zone.

(ii) If the Export Bid or Administrative Export De-List Bid does not clear, then the resource associated with the Export Bid or Administrative Export De-List Bid will not be de-listed in the Capacity Zone where the resource is located.

III.13.2.3.4. Determination of Final Capacity Zones.

(a) For all Forward Capacity Auctions up to and including the sixth Forward Capacity Auction (for the Capacity Commitment Period beginning June 1, 2015), after the Forward Capacity Auction is

concluded for all modeled Capacity Zones, the final set of distinct Capacity Zones that will be used for all purposes associated with the relevant Capacity Commitment Period, including for the purposes of reconfiguration auctions and Capacity Supply Obligation Bilaterals, shall be those having distinct Capacity Clearing Prices as a result of constraints between modeled Capacity Zones binding in the running of the Forward Capacity Auction. Where a modeled constraint does not bind in the Forward Capacity Auction, and as a result adjacent modeled Capacity Zones clear at the same Capacity Clearing Price, those modeled Capacity Zones shall be a single Capacity Zone used for all purposes of the relevant Capacity Commitment Period, including for the purposes of reconfiguration auctions and Capacity Supply Obligation Bilaterals.

(b) For all Forward Capacity Auctions beginning with the seventh Forward Capacity Auction (for the Capacity Commitment Period beginning June 1, 2016) the final set of distinct Capacity Zones that will be used for all purposes associated with the relevant Capacity Commitment Period, including for the purposes of reconfiguration auctions and Capacity Supply Obligation Bilaterals, shall be those described in Section III.12.4.

III.13.2.4. Forward Capacity Auction Starting Price and the Cost of New Entry.

The Forward Capacity Auction Starting Price is max [1.6 multiplied by Net CONE, CONE]. References in this Section III.13 to the Forward Capacity Auction Starting Price shall mean the Forward Capacity Auction Starting Price for the Forward Capacity Auction associated with the relevant Capacity Commitment Period.

CONE for the Forward Capacity Auction for the Capacity Commitment Period beginning on June 1, 2025 is \$12.400/kW-month.

Net CONE for the Forward Capacity Auction for the Capacity Commitment Period beginning on June 1, 2025 is \$7.468/kW-month.

The ISO shall recalculate CONE and Net CONE for the Forward Capacity Auction for the Capacity Commitment Period beginning on June 1, 2030. Thereafter, CONE and Net CONE shall be recalculated no less often than once every four years. Whenever these values are recalculated, the ISO will review the results of the recalculation with stakeholders and the new values will be filed with the Commission prior to the Forward Capacity Auction in which the new value is to apply.

Between recalculations, CONE and Net CONE will be adjusted for each Forward Capacity Auction pursuant to Section III.A.21.1.2(e) (except that the bonus tax depreciation adjustment described in Section III.A.21.1.2(e)(5) shall not apply). The annual adjustment to CONE and Net CONE for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2028, shall use a cost of debt of 6.85% and a cost of equity of 13.8%. These values shall also be used for the Forward Capacity Auction for the Capacity Commitment Period beginning on June 1, 2029. The adjusted CONE and Net CONE values will be published on the ISO's web site.

III.13.2.5. Treatment of Specific Offer and Bid Types in the Forward Capacity Auction.

III.13.2.5.1. Offers from New Generating Capacity Resources, New Import Capacity Resources, New Demand Capacity Resources, and New Distributed Energy Capacity Resources.

A New Capacity Offer (other than one from a Conditional Qualified New Resource) clears (receives a Capacity Supply Obligation for the associated Capacity Commitment Period) in the Forward Capacity Auction if the Capacity Clearing Price is greater than or equal to the price specified in the offer, except possibly as a result of the Capacity Rationing Rule described in Section III.13.2.6. An offer from a Conditional Qualified New Resource clears (receives a Capacity Supply Obligation for the associated Capacity Commitment Period) in the Forward Capacity Auction, except possibly as a result of the Capacity Rationing Rule described in Section III.13.2.6, if all of the following conditions are met: (i) the Capacity Clearing Price is greater than or equal to the price specified in the offer; (ii) capacity from that resource is considered in the determination of clearing as described in Section III.13.2.3.2(f); and (iii) such offer minimizes the costs for the associated Capacity Commitment Period, subject to Section III.13.2.7.7(c).

The amount of capacity that receives a Capacity Supply Obligation through the Forward Capacity Auction shall not exceed the quantity of capacity offered from the New Generating Capacity Resource, New Import Capacity Resource, or New Demand Capacity Resource at the Capacity Clearing Price.

III.13.2.5.2. Bids and Offers from Existing Generating Capacity Resources, Existing Import Capacity Resources, Existing Demand Capacity Resources, and Existing Distributed Energy Capacity Resources.

III.13.2.5.2.1. Permanent De-List Bids and Retirement De-List Bids.

(a) Except as provided in Section III.13.2.5.2.5, a Permanent De-List Bid, Retirement De-List Bid or Proxy De-List Bid clears in the Forward Capacity Auction (does not receive a Capacity Supply Obligation) if the Capacity Clearing Price is less than or equal to the price specified in the bid, except possibly as a result of the Capacity Rationing Rule described in Section III.13.2.6.

(b) Unless the capacity has been retained for reliability pursuant to Section III.13.2.5.2.5, if all or part of a resource with a Permanent De-List Bid or Retirement De-List Bid does not clear in the Forward Capacity Auction (receives a Capacity Supply Obligation), the Lead Market Participant shall enter the uncleared portion of the bid into the qualification process for the following Forward Capacity Auction as described in Section III.13.1.2.3.1.5.

(c) If the Capacity Clearing Price is greater than the price specified in a de-list bid submitted by a Lead Market Participant that elected conditional treatment for the de-list bid pursuant to Section III.13.1.2.4.1(b), and there is an associated Proxy De-List Bid that does not clear (receives a Capacity Supply Obligation), the resource will receive a Capacity Supply Obligation at the Capacity Clearing Price.

(d) The process by which the primary auction is cleared (but not the compilation of offers and bids pursuant to Sections III.13.2.3.1 and III.13.2.3.2) will be repeated after the substitution auction is completed if one of the following conditions is met: (1) if any Proxy De-List Bid entered as a result of a Lead Market Participant electing to retire pursuant to Section III.13.1.2.4.1(a) does not clear (receives a Capacity Supply Obligation) in the first run of the primary auction-clearing process and retains some portion of its Capacity Supply Obligation in the substitution auction; or (2) if any Proxy De-List Bid entered as a result of a Lead Market Participant electing conditional treatment pursuant to Section III.13.1.2.4.1(b) does not clear (receives a Capacity Supply Obligation) in the first run of the primary auction-clearing process, the de-list bid submitted by the Lead Market Participant is at or above the Capacity Clearing Price, and the Proxy De-List Bid retains some portion of its Capacity Supply Obligation in the substitution auction. The second run of the primary auction-clearing process: (i) excludes all Proxy De-List Bids, (ii) includes the offers and bids of resources compiled pursuant to Section III.13.2.3.2 that did not receive a Capacity Supply Obligation in the first run of the primary auction-clearing process, excluding the offers, or portion thereof, associated with resources that acquired a Capacity Supply Obligation in the substitution auction, and (iii) includes the capacity of resources, or portion thereof, that retain a Capacity Supply Obligation after the first run of the primary auction-clearing

process and the substitution auction. The second run of the primary auction-clearing process shall not affect the Capacity Clearing Price of the Forward Capacity Auction (which is established by the first run of the primary auction-clearing process).

(e) Resources (other than those still subject to a multi-year Capacity Commitment Period election as described in Sections III.13.1.1.2.2.4 and III.13.1.4.1.1.2.7) that receive a Capacity Supply Obligation as a result of the first run of the primary auction-clearing process shall be paid the Capacity Clearing Price during the associated Capacity Commitment Period. Where the second run of the primary auction-clearing process procures additional capacity, the resulting price, paid during the associated Capacity Commitment Period (and subsequent Capacity Commitment Periods, as elected pursuant to Section III.13.1.1.2.2.4 or Section III.13.1.4.1.1.2.7) to the additionally procured capacity, shall be equal to or greater than the adjusted price resulting from the first run of the primary auction-clearing process for that Capacity Zone.

III.13.2.5.2.2. Static De-List Bids and Export Bids.

Except as provided in Section III.13.2.5.2.5, a Static De-List Bid or an Export Bid clears in the Forward Capacity Auction (does not receive a Capacity Supply Obligation for the associated Capacity Commitment Period) if the Capacity Clearing Price is less than or equal to the price specified in the bid, except possibly as a result of the Capacity Rationing Rule described in Section III.13.2.6.

III.13.2.5.2.3. Dynamic De-List Bids.

A Dynamic De-List Bid clears in the Forward Capacity Auction (does not receive a Capacity Supply Obligation for the associated Capacity Commitment Period) if the Capacity Clearing Price is less than or equal to the price specified in the bid, except possibly as a result of the Capacity Rationing Rule described in Section III.13.2.6. If more Dynamic De-List Bids are submitted at a price than are needed to clear the market, such Dynamic De-List Bids shall be cleared pro-rata, but in no case less than a resource's Rationing Minimum Limit.

III.13.2.5.2.4. Administrative Export De-List Bids.

An Administrative Export De-List Bid clears in the Forward Capacity Auction (does not receive a Capacity Supply Obligation for the associated Capacity Commitment Period) regardless of the Capacity Clearing Price.

III.13.2.5.2.5. Reliability Review.

The ISO shall review each Retirement De-List Bid, Permanent De-List Bid, Static De-List Bid, Export Bid, Administrative Export De-List Bid, Dynamic De-List Bid, and substitution auction demand bid to determine whether the capacity associated with that bid is needed for reliability reasons during the Capacity Commitment Period associated with the Forward Capacity Auction; Proxy De-List Bids shall not be reviewed.

(a) The reliability review of de-list bids will be conducted in descending price order using the price as finalized during qualification or as otherwise directed by the Commission. De-list bids with the same price will be reviewed in the order that produces the least negative impact to reliability; where bids are the same price and provide the same impact to reliability, they will be reviewed based on their submission time. If de-list bids with the same price are from a single generating station, they will be reviewed in an order that seeks to provide (1) the least-cost solution under Section III.13.2.5.2.5.1(d) and (2) the minimum aggregate quantity required for reliability from the generating station. The reliability review of substitution auction demand bids that would otherwise clear will be conducted in order beginning with the resource whose cleared bids contribute the greatest amount to social surplus. The capacity associated with a bid shall be deemed needed for reliability reasons if the absence of the capacity would result in the violation of any NERC or NPCC criteria, or ISO New England System Rules. Bids shall only be rejected pursuant to this Section III.13.2.5.2.5 for the sole purpose of addressing a local reliability issue, and shall not be rejected solely on the basis that acceptance of the bid may result in the procurement of less capacity than the Installed Capacity Requirement (net of HQICCs) or the Local Sourcing Requirement for a Capacity Zone.

(b) If a Retirement De-List Bid, Permanent De-List Bid, Static De-List Bid, Export Bid, Administrative Export De-List Bid, or Dynamic De-List Bid would otherwise clear in the Forward Capacity Auction, but the ISO has determined that some or all of the capacity associated with the de-list bid is needed for reliability reasons, then the de-list bid having capacity needed for reliability will not clear in the Forward Capacity Auction. If the ISO has determined that some or all of the capacity associated with a substitution auction demand bid that would otherwise clear is needed for reliability reasons, then the entire demand bid will not be further included in the substitution auction.

(c) The Lead Market Participant shall be notified that its bid did not clear for reliability reasons at the later of: (i) immediately after the end of the Forward Capacity Auction round in which the auction price reaches the price of the de-list bid; or (ii) as soon as practicable after the time at which the ISO has determined that the bid must be rejected for reliability reasons. In no event, however, shall a Lead Market

Participant be notified that a bid submitted pursuant to Section III.13.1.2.5 and accepted in the qualification process for an Existing Generating Capacity Resource did not clear for reliability reasons if the associated New Generating Capacity Resource remains in the Forward Capacity Auction. In such a case, the Lead Market Participant shall be notified that its bid did not clear for reliability reasons at the later of: (i) immediately after the end of the Forward Capacity Auction round in which the auction price reaches the price of the bid; (ii) immediately after the end of the Forward Capacity Auction round in which the associated New Generating Capacity Resource is fully withdrawn (that is, the Forward Capacity Auction reaches a price at which the resource's New Capacity Offer is zero capacity); or (iii) as soon as practicable after the time at which the ISO has determined that the bid must be rejected for reliability reasons.

(d) A resource that has a de-list bid rejected for reliability reasons shall be compensated pursuant to the terms set out in Section III.13.2.5.2.5.1 and shall have a Capacity Supply Obligation as described in Section III.13.6.1.

(e) The ISO shall review the results of each annual reconfiguration auction and determine whether the reliability need which caused the ISO to reject the de-list bid has been met through the annual reconfiguration auction. The ISO may also attempt to address the reliability concern through other reasonable means (including transmission enhancements).

(f) If the reliability need that caused the ISO to reject a de-list bid is met through a reconfiguration auction or other means, the resource shall retain its Capacity Supply Obligation through the end of the Capacity Commitment Period for which it was retained for reliability (provided that resources that have Permanent De-List Bids or Retirement De-List Bids rejected for reliability shall be permanently de-listed or retired as of the first day of the subsequent Capacity Commitment Period (or earlier if the resource sheds the entirety of the Capacity Supply Obligation as described in Section III.13.2.5.2.5.3(a)(ii) or Section III.13.2.5.2.5.3(b)(ii))).

(g) If a Permanent De-List Bid or a Retirement De-List Bid is rejected for reliability reasons, and the reliability need is not met through a reconfiguration auction or other means, that resource, or portion thereof, as applicable, is no longer eligible to participate as an Existing Capacity Resource in any reconfiguration auction, Forward Capacity Auction or Capacity Supply Obligation Bilateral for that and subsequent Capacity Commitment Periods. If the resource, or portion thereof, continues to be needed for

reliability reasons, it shall be counted as capacity in the Forward Capacity Auction and shall be compensated as described in Section III.13.2.5.2.5.1.

(h) The ISO shall review with the Reliability Committee (i) the status of any prior rejected de-list bids reported to the Commission in an FCA results filing pursuant to Section 13.8.2, and (ii) the status of any Retirement De-List Bid or Permanent De-List Bid that has been rejected for reliability reasons and has elected to continue to operate, prior to the New Capacity Qualification Deadline in accordance with Section 4.1(c) of Attachment K of the ISO OATT.

If an identified reliability need results in the rejection of a Retirement De-List Bid, Permanent De-List Bid, Export Bid, Administrative Export De-List Bid, Static De-List Bid, or Dynamic De-List Bid while executing an FCA, the ISO shall (i) review each specific reliability need with the Reliability Committee in accordance with the timing provided for in the ISO New England Operating Documents and, (ii) update the current system Needs Assessments pursuant to Section 4.1(c) of Attachment K of the ISO OATT. This review and update will follow ISO's filing of the FCA results with the Commission pursuant to Section 13.8.2.

III.13.2.5.2.5A Fuel Security Reliability Review

(a) This Section III.13.2.5.2.5A will remain in effect for the 2022/23, 2023/24 and 2024/25 Capacity Commitment Period, after which this Section III.13.2.5.2.5A will sunset.

(b) This Section III.13.2.5.2.5A will apply to (i) Retirement De-List Bids, (ii) substitution auction demand bids, and (iii) bilateral transactions and reconfiguration auctions demand bids submitted by an Existing Generating Capacity Resource that has been identified as being needed for fuel security during a Forward Capacity Auction. Terms set out in this Section III.13.2.5.2.5A will apply only for the period and resources described within this Section III.13.2.5.2.5A. Where the terms and conditions in this Section III.13.2.5.2.5A differ from terms otherwise set out in Section III.13, the terms of this Section III.13.2.5.2.5A will control for the period and circumstances described in Section III.13.2.5.2.5A.

(c) A fuel security reliability review for the Forward Capacity Market will be performed pursuant to Appendix L to Section III of the Tariff, and in accordance with the inputs and methodology set out to establish the fuel security reliability standard in Appendix I of Planning Procedure No. 10.

(d) For fuel security reliability reviews performed for the primary Forward Capacity Auction, the fuel security reliability review will be performed after the Existing Capacity Retirement Deadline and conducted in descending price order using the price as submitted in the Retirement De-List Bids. Bids with the same price will be reviewed in the order that produces the least negative impact to reliability. Where multiple bids have the same price and the retirement of the Existing Generating Capacity Resources would have the same impact to reliability, they will be reviewed based on their submission time. If bids with the same price are from a single generating station, they will be reviewed in an order that seeks to provide (1) the least-cost solution under Section III.13.2.5.2.5.1(d), and (2) the minimum aggregate quantity required for reliability from the generating station. An Existing Generating Capacity Resource may be needed for both fuel security and for transmission security pursuant to Section III.13.2.5.2.5. The fuel security reliability review will be performed in advance of the reliability review for transmission security. Where an Existing Generating Capacity Resource is needed for both fuel security reasons pursuant to this Section III.13.2.5.2.5A, and transmission security reliability reasons pursuant to Section III.13.2.5.2.5, the generator will be retained for fuel security for purposes of cost allocation.

(e) If an Existing Generating Capacity Resource is identified as being needed for fuel security reasons, and the reliability need is not met through a reconfiguration auction or other means, that resource, or portion thereof, as applicable may not participate in Annual Reconfiguration Auctions for the Capacity Commitment Period(s) for which it is needed for fuel security, or earlier 2022/23, 2023/24 and 2024/25 Capacity Commitment Periods. Such an Existing Generating Capacity Resource that is identified as being needed for fuel security may participate in monthly bilateral transactions and monthly reconfiguration auctions, but may not submit monthly bilateral transactions for December, January or February, or demand bids for the December, January, or February monthly reconfiguration auctions for any period for which they have been identified as being needed for fuel security.

(f) Participants that have submitted a Retirement De-List Bid will be notified by ISO New England if their resource is needed for fuel security reliability reasons no later than 90 days after the Existing Capacity Retirement Deadline. Participants that have submitted a substitution auction demand bid, and where the demand bid has been rejected for reliability reasons, will be notified after the relevant Forward Capacity Auction has been completed.

(g) Where a Retirement De-List Bid would otherwise clear in the Forward Capacity Auction, but the ISO has determined that some or all of the capacity associated with the de-list bid is needed for fuel security reliability reasons, the provisions of III.13.2.5.2.5(b) shall apply.

(h) Existing Generating Capacity Resources that have had their Retirement De-list Bid rejected for fuel security reliability reasons and that do not elect to unconditionally or conditionally retire shall be eligible for compensation pursuant to Section III.13.2.5.2.5.1, except that the difference between payments based on resource de-list bids or cost-of-service compensation as detailed in Section III.13.2.5.2.5.1 and payments based on the Capacity Clearing Price for the Forward Capacity Market under this Section III.13.2.5.2.5.1 shall be allocated on a regional basis to Real Time Load Obligation, excluding Real-Time Load Obligation associated with Dispatchable Asset Related Demand Resources (DARD Pumps and other electric storage based DARDs) and Real-Time Load Obligation associated with Coordinated External Transactions, allocated and collected over a 12 month period. Resources that that are identified as needed for fuel security reliability reasons will have their capacity entered into the Forward Capacity Auction pursuant to III.13.2.5.2.5(g) and III.13.2.3.2(b).

(i) Where an Existing Generating Capacity Resource elects a cost-of-service agreement pursuant to Section III.13.2.5.2.5.1 to address a fuel security reliability need, the term of such a cost-of-service agreement may not exceed two years, including renewal through evergreen provisions. A cost-of-service agreement entered into for the 2024/2025 Capacity Commitment Period shall be limited to a total duration of one year.

(j) The ISO shall perform an annual reevaluation of any Existing Generating Capacity Resources retained for reliability under this provision. If a resource associated with a Retirement De-List Bid that was rejected for reliability reasons pursuant to this section, is found to no longer be needed for fuel security, and is not needed for another reliability reason pursuant to Section III.13.2.5.2.5, the resource will be retired from the system as described in Section III.13.2.5.2.5.3(a)(1). In no case will a resource retained for fuel security be retained for fuel security beyond June 1, 2025.

(k) The ISO will review Retirement De-List Bids rejected for fuel security reliability reasons with the Reliability Committee in the same manner as described in Section III.13.2.5.2.5(h).

III.13.2.5.2.5.1. Compensation for Bids Rejected for Reliability Reasons.

(a) In cases where a Static De-List Bid, Export Bid, Administrative Export De-List Bid, Dynamic De-List Bid, partial Permanent De-List Bid, or partial Retirement De-List Bid has been rejected for reliability reasons pursuant to Sections III.13.1.2.3.1.5.1 or III.13.2.5.2.5, the resource will be paid by the ISO in the same manner as all other capacity resources, except that payment shall be made on the basis of its de-list bid as accepted for the Forward Capacity Auction for the relevant Capacity Commitment Period instead of the Forward Capacity Market Clearing Price. Under this Section, accepted Dynamic De-List Bids filed with the Commission as part of the FCA results filing are subject to review and approval by the Commission pursuant to the “just and reasonable” standard of Section 205 of the Federal Power Act. If a resource with a partial Permanent De-List Bid or partial Retirement De-List Bid continues to be needed for reliability in Capacity Commitment Periods following the Capacity Commitment Period for which the partial Permanent De-List Bid or partial Retirement De-List Bid was rejected, payment will continue to be pursuant to this Section III.13.2.5.2.5.1(a).

(b) In cases where a Permanent De-List Bid or a Retirement De-List Bid for the capacity of an entire resource has been rejected for reliability reasons pursuant to Section III.13.1.2.3.1.5.1 or III.13.2.5.2.5, the resource will be paid either (i) in the same manner as all other capacity resources, except that payment shall be made on the basis of its Commission-approved Permanent De-List Bid or Commission-approved Retirement De-List Bid for the relevant Capacity Commitment Period instead of the Forward Capacity Market Clearing Price or (ii) under the terms of a cost-of-service agreement pursuant to Section III, Appendix I. Resources must notify the ISO of their election within six months after the ISO files the results of the relevant Forward Capacity Auction with the Commission. A resource that has had a Permanent De-List Bid or Retirement De-List Bid rejected for reliability reasons and does not notify the ISO of its election as described in this paragraph will be paid on the basis of the resource’s Commission-approved Permanent De-List Bid or Commission-approved Retirement De-List Bid. Cost-of-service agreements must be filed with and approved by the Commission, and cost-of-service compensation may not commence until the Commission has approved the use of cost-of-service rates for the unit in question or has accepted the use of the cost-of-service rates subject to refund while the rate is reviewed. In no event will payment under the cost-of-service agreement start prior to the start of the relevant Capacity Commitment Period for which the Permanent De-List Bid or Retirement De-List Bid was submitted. If a resource continues to be needed for reliability in Capacity Commitment Periods following the Capacity Commitment Period for which the Permanent De-List Bid or Retirement De-List Bid was rejected, payment will continue to be pursuant to this Section III.13.2.5.2.5.1(b). Resources that elect payment based on the Commission-approved Permanent De-List Bid or Commission-approved Retirement De-List Bid may file with the Commission pursuant to Section 205 of the Federal Power Act to update its

Permanent De-List Bid or Retirement De-List Bid if the unit is retained for reliability for a period longer than the Capacity Commitment Period for which the Permanent De-List Bid or Retirement De-List Bid was originally submitted.

(c) The difference between payments based on resource de-list bids or cost-of-service compensation as detailed in this Section III.13.2.5.2.5.1 and payments based on the market clearing price for the Forward Capacity Market under this Section III.13.2.5.2.5.1 shall be allocated to Regional Network Load within the affected Reliability Region.

(d) **Compensation for Existing Generating Capacity Resources at Stations with Common Costs that are Retained for Reliability.** If a Static De-List Bid, Permanent De-List Bid, or Retirement De-List Bid from an Existing Generating Capacity Resource that is associated with a Station having Common Costs is rejected for reliability reasons, the Existing Generating Capacity Resource will be paid as follows: (i) if one or more Existing Generating Capacity Resources at the Station assume a Capacity Supply Obligation through the normal clearing of the Forward Capacity Auction and one or more Existing Generating Capacity Resources are retained for reliability, then the Existing Generating Capacity Resources retained for reliability will be paid the sum of the Asset-Specific Going Forward Costs for the assets comprising that Existing Generating Capacity Resource; or (ii) if no Existing Generating Capacity Resources at the Station assumes a Capacity Supply Obligation through the normal clearing of the Forward Capacity Auction and one or more Existing Generating Capacity Resources are retained for reliability, then each Existing Generating Capacity Resource retained for reliability will be paid the sum of the Asset-Specific Going Forward Costs for the assets associated with that Existing Generating Capacity Resource plus a portion of the Station Going Forward Common Costs (such that the full amount of Station Going Forward Common Costs are allocated to the Existing Generating Capacity Resources retained for reliability).

(e) If ISO-NE is a party to a cost-of-service agreement filed after January 1, 2019 that changes any resource performance-related obligations contained in Section III, Appendix I (provided that those obligations are different than the obligations of an Existing Generating Capacity Resource with a Capacity Supply Obligation), no later than 30 days after such agreement is filed with the Commission, ISO-NE shall provide to stakeholders quantitative and qualitative information on the need for, and the impacts of, the proposed changes.

III.13.2.5.2.5.2. Incremental Cost of Reliability Service From Permanent De-List Bid or Retirement De-List Bid Resources.

In cases where an Existing Generating Capacity Resource, Existing Demand Capacity Resource, or Existing Distributed Energy Capacity Resource has had a Permanent De-List Bid or Retirement De-List Bid for the entire resource rejected for reliability reasons pursuant to Sections III.13.1.2.3.1.5.1 or III.13.2.5.2.5, does not elect to retire pursuant to Section III.13.1.2.3.1.5.1(d), and must make a capital improvement to the unit to remain in operation in order to continue to operate to meet the reliability need identified by the ISO, the resource may make application to the Commission pursuant to Section 205 of the Federal Power Act to receive just and reasonable compensation of the capital investment pursuant to the following:

(a) **Notice to State Utility Commissions, the ISO and Stakeholder Committees of Expectation that a Capital Expense will be Necessary to Meet the Reliability Need Identified by the ISO:** A resource seeking to avail itself of the recovery mechanism provided in this Section must notify the state utility commissions in the states where rate payers will fund the capital improvement, the ISO, and the Participants Committee of its intent to make the capital expenditure and the need for the expenditure. This notification must be made at least 120 days prior to the resource making the capital expenditure.

(b) **Required Showing Made to the Federal Energy Regulatory Commission:** In order to receive just and reasonable compensation for a capital expenditure under this Section, a resource must file an explanation of need with the Commission that explains why the capital expenditure is necessary in order to meet the reliability need identified by the ISO. This showing must demonstrate that the expenditure is reasonably determined to be the least-cost commercially reasonable option consistent with Good Utility Practice to meet the reliability need identified by the ISO. If the resource elects cost-of-service treatment pursuant to Section III.13.2.5.2.5.1(b), the Incremental Cost of Reliability Service filing described in this Section must be made separately from and may be made in advance of the resource's cost-of-service filing.

(c) **Allocation:** Costs of capital expenditures approved by the Commission under this provision shall be allocated to Regional Network Load within the affected Reliability Region.

III.13.2.5.2.5.3. Retirement and Permanent De-Listing of Resources.

(a)(i) A resource, or portion thereof, will be retired coincident with the commencement of the relevant Capacity Commitment Period, or earlier as described in Section III.13.2.5.2.5.3(a)(ii), if the resource: (1)

submitted a Retirement De-List Bid at or above the Forward Capacity Auction Starting Price and was not retained for reliability pursuant to Section III.13.1.2.3.1.5.1; (2) submitted a Permanent De-List Bid or Retirement De-List Bid, elected to retire pursuant to Section III.13.1.2.4.1(a), and was not retained for reliability pursuant to Section III.13.1.2.3.1.5.1; (3) elected conditional treatment pursuant to Section III.13.1.2.4.1(b) for a Retirement De-List Bid with a submitted price at or above the Capacity Clearing Price and was not retained for reliability pursuant to Section III.13.1.2.3.1.5.1; or (4) had a Commission-approved Retirement De-List Bid clear in the Forward Capacity Auction. In the case of a Retirement De-List Bid rejected for reliability, if the reliability need that resulted in the rejection for reliability is met, the resource, or portion thereof, will be retired coincident with the end of Capacity Supply Obligation (or earlier as described in Section III.13.2.5.2.5.3(a)(ii)) unless the Commission directs that the obligation to retire be removed or the retirement date extended as part of an Incremental Cost of Reliability Service filing made pursuant to Section III.13.2.5.2.5.2. The interconnection rights, or relevant portion thereof, for the resource will terminate and the status of the resource, or portion thereof, will be converted to retired on the date of retirement, consistent with the provisions of Schedules 22 and 23 of the OATT.

(a)(ii) A resource, or portion thereof, that is to be retired pursuant to Section III.13.2.5.2.5.3(a)(i) may retire the resource, or portion thereof, earlier than the Capacity Commitment Period for which its Retirement De-List Bid was submitted if it is able to transfer the relevant Capacity Supply Obligation of the resource to another resource through one or more approved Capacity Supply Obligation Bilateral transactions as described in Section III.13.5.1 or reconfiguration auctions as described in Section III.13.4.1. A resource, or portion thereof, electing to retire pursuant to this provision must notify the ISO in writing of its election to retire and the date of retirement. The interconnection rights, or relevant portion thereof, for the resource will terminate and the status of the resource, or portion thereof, will be converted to retired on the date of retirement, consistent with the provisions of Schedules 22 and 23 of the OATT.

(b)(i) A resource, or portion thereof, will be permanently de-listed from the Forward Capacity Market as of the relevant Capacity Commitment Period, or earlier as described in Section III.13.2.5.2.5.3(b)(ii), if the resource: (1) submitted an Internal Market Monitor-approved Permanent De-List Bid at or above the Forward Capacity Auction Starting Price and was not retained for reliability pursuant to Section III.13.1.2.3.1.5.1; (2) elected conditional treatment pursuant to Section III.13.1.2.4.1(b) for a Permanent De-List Bid with a submitted price at or above the Capacity Clearing Price and was not retained for reliability pursuant to Section III.13.1.2.3.1.5.1; or (3) had a Commission-approved Permanent De-List Bid clear in the Forward Capacity Auction. The CNR Capability interconnection rights, or relevant portion thereof, for the resource will be adjusted downward to reflect the Permanent De-List Bid,

consistent with the provisions of Schedules 22 and 23 of the OATT. A resource that permanently de-lists pursuant to this Section III.13.2.5.2.5.3(b)(i) is precluded from subsequent participation in the Forward Capacity Market unless it qualifies as a New Generating Capacity Resource pursuant to Section III.13.1.1.1.2.

(b)(ii) A resource, or portion thereof, that is to be permanently de-listed pursuant to Section III.13.2.5.2.5.3(b)(i) may be permanently de-listed earlier than the Capacity Commitment Period for which its Permanent De-List Bid was submitted if it is able to transfer the entire Capacity Supply Obligation of the resource to another resource through one or more approved Capacity Supply Obligation Bilateral transactions as described in Section III.13.5.1 or reconfiguration auctions as described in Section III.13.4.

(c) A resource that has never been counted as a capacity resource may retire the asset by notifying the ISO in writing of its election to retire and the date of retirement. The date specified for retirement is subject to the limit for resource inactivity set out in Section III.13.2.5.2.5.3(d). The interconnection rights for the resource will terminate and the status of the resource will be converted to retired on the date of retirement.

(d) A resource that does not operate commercially for a period of three calendar years will be deemed by the ISO to be retired. The interconnection rights for the unit will terminate and the status of the unit will be converted to retired on the date of retirement. Where a generator has submitted an application to repower under Schedule 22 or 23 of the OATT, the current interconnection space will be maintained beyond the three years unless the application under Schedule 22 or 23 is withdrawn voluntarily or by the operation of those provisions. Where an application is withdrawn under Schedule 22 or 23, the three year period will be calculated from the last day of commercial operation of the resource.

III.13.2.6. Capacity Rationing Rule.

Except for Dynamic De-List Bids, Export Bids, and offers from New Import Capacity Resources that are subject to rationing pursuant to Section III.13.1.3.5.8 and Existing Import Capacity Resources that are subject to rationing pursuant to Section III.13.1.3.3.A, offers and bids in the Forward Capacity Auction must clear or not clear in whole, unless the offer or bid specifically indicates that it may be rationed. A resource may elect to be rationed to its Rationing Minimum Limit pursuant to Sections III.13.1.1.2.2.3 and III.13.1.2.1.2. Offers from New Import Capacity Resources and Existing Import Capacity Resources will not be rationed where such rationing would violate any applicable physical minimum flow

requirements on the associated interface. Export Bids may elect to be rationed generally, but regardless of such election will always be subject to potential rationing where the associated external interface binds. If more Dynamic De-List Bids are submitted at a price than are needed to clear the market, the bids shall be cleared pro-rata, subject to honoring the Rationing Minimum Limit of the resources. Where an offer or bid may be rationed, such rationing may not result in procuring an amount of capacity that is below the associated resource's Rationing Minimum Limit.

III.13.2.7. Determination of Capacity Clearing Prices.

The Capacity Clearing Price in each Capacity Zone shall be the price established by the descending clock auction as described in Section III.13.2.3, subject to the other provisions of this Section III.13.2.7. The Capacity Clearing Price for the Rest-of-Pool Capacity Zone and the Capacity Clearing Price for each import-constrained Capacity Zone shall not exceed the Forward Capacity Auction Starting Price. The Capacity Clearing Price for an export-constrained Capacity Zone shall not be less than zero.

III.13.2.7.1. Import-Constrained Capacity Zone Capacity Clearing Price Floor.

The Capacity Clearing Price in an import-constrained Capacity Zone shall not be lower than the Capacity Clearing Price in the Rest-of-Pool Capacity Zone. If after the Forward Capacity Auction is conducted, the Capacity Clearing Price in an import-constrained Capacity Zone is less than the Capacity Clearing Price in the Rest-of-Pool Capacity Zone, all resources clearing in the import-constrained Capacity Zone shall be paid based on the Capacity Clearing Price in the Rest-of-Pool Capacity Zone during the associated Capacity Commitment Period.

III.13.2.7.2. Export-Constrained Capacity Zone Capacity Clearing Price Ceiling.

The Capacity Clearing Price in an export-constrained Capacity Zone shall not be higher than the Capacity Clearing Price in the Rest-of-Pool Capacity Zone.

The Capacity Clearing Price in a nested Capacity Zone shall not be higher than the Capacity Clearing Price in the Capacity Zone within which it is located.

III.13.2.7.3. [Reserved.]

III.13.2.7.3A. Treatment of Imports.

At the Capacity Clearing Price, if the amount of capacity offered from New Import Capacity Resources and Existing Import Capacity Resources over an interface between an external Control Area and the New

England Control Area is greater than that interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF):

(a) the full amount of capacity offered at that price from Existing Import Capacity Resources associated with contracts listed in Section III.13.1.3.3.A(c) shall clear, unless that amount of capacity is greater than the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF), in which case the capacity offered at that price from Existing Import Capacity Resources associated with contracts listed in Section III.13.1.3.3.A(c) shall be rationed such that the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF) is not exceeded; and

(b) if there is space remaining over the interface after the allocation described in subsection (a) above, then the capacity offered at that price from New Import Capacity Resources and Existing Import Capacity Resources other than Existing Import Capacity Resources associated with the contracts listed in Section III.13.1.3.3.A(c) will be rationed such that the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF) is not exceeded. If the capacity offered at that price by any single New Import Capacity Resource or Existing Import Capacity Resource that is not associated with the contracts listed in Section III.13.1.3.3.A(c) is greater than the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF), then the capacity offered by that resource that is above the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF) shall not be included in the rationing.

III.13.2.7.4. Effect of Capacity Rationing Rule on Capacity Clearing Price.

Where the requirement that offers and bids clear or not clear in whole (Section III.13.2.6) prohibits the descending clock auction in its normal progression from clearing one or more Capacity Zones at the precise amount of capacity determined by the Capacity Zone Demand Curves specified in Section III.13.2.2, then the auctioneer shall analyze the aggregate supply curve to determine cleared capacity offers and Capacity Clearing Prices that seek to maximize social surplus for the associated Capacity Commitment Period. The clearing algorithm may result in offers below the Capacity Clearing Price not clearing, and in de-list bids below the Capacity Clearing Price clearing.

III.13.2.7.5. Effect of Decremental Repowerings on the Capacity Clearing Price.

Where the effect of accounting for certain repowering offers and bids (as described in Section III.13.2.3.2(e)) results in the auction not clearing at the lowest price for the required quantity of capacity, then the auctioneer will conduct additional auction rounds of the Forward Capacity Auction as necessary to minimize capacity costs.

III.13.2.7.6. Minimum Capacity Award.

Each offer (excluding offers from Conditional Qualified New Resources that do not satisfy the conditions specified in Sections III.13.2.5.1(i)-(iii)) clearing in the Forward Capacity Auction shall be awarded a Capacity Supply Obligation at least as great as the amount of capacity offered at the End-of-Round Price in the final round of the Forward Capacity Auction. For Intermittent Power Resources, the Capacity Supply Obligation for months in the winter period (as described in Section III.13.1.5) shall be adjusted based on its winter Qualified Capacity as determined pursuant to Section III.13.1.1.2.2.6 and Section III.13.1.2.2.2.

III.13.2.7.7. Tie-Breaking Rules.

Where the provisions in this Section III.13.2 for clearing the Forward Capacity Auction (system-wide or in a single Capacity Zone) result in a tie – that is, where two or more resources offer sufficient capacity at prices that would clear the auction at the same minimum costs – the auctioneer shall apply the following rules (in sequence, as necessary) to determine clearing:

- (a) [Reserved.]
- (b) If multiple projects may be rationed, they will be rationed proportionately.
- (c) Where clearing either the offer associated with a resource with a higher queue priority at a Conditional Qualified New Resource's location or the offer associated with the Conditional Qualified New Resource would result in equal costs, the offer associated with the resource with the higher queue priority shall clear.
- (d) The offer associated with the Project Sponsor having the lower market share in the capacity auction (including Existing Generating Capacity Resources, Existing Import Capacity Resources, and Existing Demand Capacity Resources) shall be cleared.

III.13.2.8. Capacity Substitution Auctions.

III.13.2.8.1. Administration of Substitution Auctions.

Following the completion of the primary auction-clearing process of the Forward Capacity Auction as provided for in Section III.13.2, the ISO shall conduct a substitution auction, using a static double auction to clear supply offers (offers to assume a Capacity Supply Obligation) and demand bids (bids to shed a Capacity Supply Obligation). Supply offers and demand bids will be modeled in the Capacity Zone where the associated resources are electrically interconnected.

III.13.2.8.1.1. Substitution Auction Clearing and Awards.

The substitution auction shall maximize total social surplus as specified by the demand bids and supply offers used in the auction. The maximization is constrained as follows:

- (i) By the external interface limits modeled in the primary auction-clearing process.
- (ii) Such that the net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is equal to zero.
- (iii) Such that, for each import-constrained Capacity Zone, if the zone's total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction is less than the zone threshold quantity specified below, then the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is equal to zero; otherwise, the sum of the zone's total Capacity Supply Obligations awarded in the primary auction-clearing process and the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is greater than or equal to the zone threshold quantity specified below.
- (iv) Such that, for each export-constrained Capacity Zone, if the zone's total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction is greater than the zone threshold quantity specified below, then the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is equal to zero; otherwise, the sum of the zone's total Capacity Supply Obligations awarded in the primary auction-clearing process and the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is less than or equal to the zone threshold quantity specified below.

In applying constraint (iii), the zone threshold quantity for an import-constrained Capacity Zone shall be equal to the sum of its Capacity Zone Demand Curve truncation point quantity specified in Section

III.13.2.2.2 and the total quantity of any Export Bids and any Administrative Export De-List Bids for which the exporting resource is located outside the import-constrained Capacity Zone, that are used to export capacity across an external interface connected to the import-constrained Capacity Zone, and that cleared in the primary auction-clearing process of the Forward Capacity Auction.

In applying constraint (iv), the zone threshold quantity for an export-constrained Capacity Zone shall be equal to its Capacity Zone Demand Curve truncation point quantity specified in Section III.13.2.2.3 less the total quantity of any Export Bids and any Administrative Export De-List Bids for which the exporting resource is located in the export-constrained Capacity Zone, including any Export Bids and any Administrative Export De-List Bids in an associated nested export-constrained Capacity Zone, that are used to export capacity across an external interface connected to another Capacity Zone, and that cleared in the primary auction-clearing process of the Forward Capacity Auction.

In applying constraints (iii) and (iv), a zone's total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction and net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction shall include the Capacity Supply Obligations of Import Capacity Resources at each external interface connected to the Capacity Zone.

In applying constraints (iii) and (iv), a zone's total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction shall include the Capacity Supply Obligations awarded to Proxy De-List Bids within the zone, and the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction shall include the Capacity Supply Obligations shed from demand bids associated with Proxy De-List Bids within the zone.

In cases in which there are multiple clearing outcomes that would each maximize the substitution auction's objective, the following tie-breaking rules will apply in the following sequence: (i) non-rationable demand bids associated with Lead Market Participants having the largest total FCA Qualified Capacity of Existing Capacity Resources will be cleared first; and (ii) rationable supply offers will be cleared in proportion to their offer quantity.

For Intermittent Power Resources, other than those participating as the summer resource in a Composite FCM Transaction, the cleared award for supply offers and demand bids shall be adjusted for the months in the winter period (as described in Section III.13.1.5) using the ratio of the resource's cleared offer or bid amount divided by its FCA Qualified Capacity multiplied by its winter Qualified Capacity as

determined pursuant to Section III.13.1.1.2.2.6 and Section III.13.1.2.2.2 after removing any portion of the resource's winter Qualified Capacity that is participating in a Composite FCM Transaction.

The cleared offer amount awarded to a Composite FCM Transaction in the substitution auction will be assigned to the summer and winter resources for their respective obligation months during the Capacity Commitment Period as described in Section III.13.1.5.

If, after the substitution auction, a resource has a Capacity Supply Obligation below its Economic Minimum Limit, it must meet the requirements of Section III.13.6.1.1.1.

III.13.2.8.1.2. Substitution Auction Pricing.

The substitution auction will specify clearing prices for Capacity Zones and external interfaces as follows.

For each import-constrained Capacity Zone, if the sum of the zone's total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction and the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is greater than its zone threshold quantity specified in Section III.13.2.8.1.1, then supply offers and demand bids in the substitution auction in the import-constrained Capacity Zone shall be treated as offers and bids in the Rest-of-Pool Capacity Zone for purposes of determining substitution auction clearing prices.

For each export-constrained Capacity Zone,

- (i) if the sum of the zone's total Capacity Supply Obligations, including Capacity Supply Obligations in a nested Capacity Zone, awarded in the primary auction-clearing process of the Forward Capacity Auction and the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction including net cleared Capacity Supply Obligations in the nested Capacity Zone is less than its zone threshold quantity specified in Section III.13.2.8.1.1, then supply offers and demand bids in the substitution auction in the export-constrained Capacity Zone (excluding supply offers and demand bids in the nested Capacity Zone that are not treated as offers and bids in the export-constrained Capacity Zone pursuant to Section III.13.2.8.1.2(ii)) shall be treated as offers and bids in the Rest-of-Pool Capacity Zone for purposes of determining substitution auction clearing prices.
- (ii) if the sum of a nested Capacity Zone's Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction and the nested

Capacity Zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is less than its zone threshold quantity specified in Section III.13.2.8.1.1, then supply offers and demand bids in the substitution auction in the nested Capacity Zone shall be treated as offers and bids in the export-constrained Capacity Zone within which the nested Capacity Zone is located, for purposes of determining substitution auction clearing prices.

The substitution auction clearing prices for the Rest-of-Pool Capacity Zone and for any constrained zones pooled with the Rest-of-Pool Capacity Zone for pricing purposes shall be determined by the price of the demand bid or supply offer that is marginal. If a demand bid associated with a Proxy De-List Bid is marginal, then the substitution auction clearing prices shall be set equal to the Capacity Clearing Prices.

The substitution auction clearing price for a constrained Capacity Zone that is not pooled with the Rest-of-Pool Capacity Zone for pricing purposes shall be determined by the price of the demand bid or supply offer associated with the separately-priced constrained Capacity Zone that is marginal. If a demand bid associated with a Proxy De-List Bid is marginal, then the substitution auction clearing price shall be set equal to the Capacity Clearing Price for the constrained Capacity Zone.

The substitution auction clearing price for a nested export-constrained Capacity Zone that is not pooled with the export-constrained Capacity Zone in which it is located for pricing purposes shall be determined by the price of the demand bid or supply offer that is marginal in the nested export-constrained Capacity Zone. If a demand bid associated with a Proxy De-List Bid is marginal, then the substitution auction clearing price for the nested export-constrained Capacity Zone shall be equal to the Capacity Clearing Price for that nested export-constrained Capacity Zone.

If the net quantity of Capacity Supply Obligations awarded in the primary Forward Capacity Auction and substitution auction over an interface between the New England Control Area and an external Control Area is less than that interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF), then supply offers and demand bids in the substitution auction at the interface shall be treated as offers and bids in the modeled Capacity Zone associated with that interface for purposes of determining substitution auction clearing prices.

If the net quantity of Capacity Supply Obligations awarded in the primary Forward Capacity Auction and substitution auction over an interface between the New England Control Area and an external Control Area is equal to that interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in

the case of the Phase I/II HVDC-TF), then the substitution auction clearing price for that interface will be determined by the demand bid or supply offer that is marginal at that interface. If a cleared demand bid associated with a Proxy De-List Bid is marginal at the external interface, then the substitution auction clearing price for that interface shall be set equal to the Capacity Clearing Price for that interface.

The substitution auction clearing price for an import-constrained Capacity Zone where the total Capacity Supply Obligations awarded in the primary action-clearing process of the Forward Capacity Auction are greater than or equal to the zone's threshold quantity specified in Section III.13.2.8.1.1 shall not be lower than the substitution auction clearing price for the Rest-of-Pool Capacity Zone.

The substitution auction clearing price for an export-constrained Capacity Zone that is not a nested export-constrained Capacity Zone, where the total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction are less than or equal to the zone's threshold quantity specified in Section III.13.2.8.1.1 shall not exceed the substitution auction clearing price for the Rest-of-Pool Capacity Zone.

The substitution auction clearing price for a nested export-constrained Capacity Zone where the total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction are less than or equal to the zone's threshold quantity specified in Section III.13.2.8.1.1 shall not exceed the substitution auction clearing price for the Capacity Zone within which it is located.

The substitution auction clearing price at an external interface shall not exceed the substitution auction clearing price in the Capacity Zone connected to the external interface.

If, pursuant to the rules specified above, the substitution auction clearing price for any Capacity Zone or external interface would exceed the Capacity Clearing Price for that location, the substitution auction clearing price for that location only is set equal to its Capacity Clearing Price.

The substitution auction clearing price for any Capacity Zone or external interface cannot be less than negative one multiplied by the Forward Capacity Auction Starting Price.

III.13.2.8.2. Supply Offers in the Substitution Auction.

III.13.2.8.2.1. Supply Offers.

To participate as supply in the substitution auction, a Project Sponsor for a New Capacity Resource must meet the following criteria:

- (a) The Project Sponsor and the New Capacity Resource must meet all the requirements for participation in the Forward Capacity Auction specified in Section III.13.1.
- (b) The Project Sponsor must elect to have the resource participate in the substitution auction during the New Capacity Show of Interest Window. Pursuant to an election, the resource's total amount of FCA Qualified Capacity that qualifies as a New Capacity Resource will be obligated to participate in the substitution auction, including any capacity of a Renewable Technology Resource that was not qualified due to proration pursuant to Section III.13.1.1.2.10(a), and subject to the other provisions of this Section III.13.2.8.2.
- (c) The Project Sponsor must certify that the New Capacity Resource is a Sponsored Policy Resource as part of the submission of the New Capacity Qualification Package.

Substitution auction supply offers are rationable.

A resource participating in the Forward Capacity Auction as a New Generating Capacity Resource pursuant to Section III.13.1.1.1.2 (resources previously counted as capacity resources) is not eligible to participate as supply in the substitution auction. A resource is not eligible to participate as supply in the substitution auction if it has submitted a demand bid for the substitution auction.

A Composite FCM Transaction comprised of a summer resource that is a Sponsored Policy Resource is eligible to participate as supply in the substitution auction.

A Conditional Qualified New Resource may participate in the substitution auction provided that the resource with which it has overlapping interconnection impacts: (i) did not receive a Capacity Supply Obligation, fully or partially, in the primary auction-clearing process, and: (ii) is not eligible to participate in the substitution auction. A resource having a higher priority in the queue than a Conditional Qualified New Resource with which it has overlapping interconnection impact may participate in the substitution auction provided that the Conditional Qualified New Resource did not receive a Capacity Supply Obligation, fully or partially, in the primary auction-clearing process.

III.13.2.8.2.2. Supply Offer Prices.

Project Sponsors must submit substitution auction supply offer prices no later than five Business Days after the deadline for submission of offers composed of separate resources.

A substitution auction supply offer must be in the form of a curve (with up to five price-quantity pairs). The curve may not decrease in quantity as the price increases. A supply offer price for the substitution auction may not be greater than the Forward Capacity Auction Starting Price or lower than negative one multiplied by the Forward Capacity Auction Starting Price.

If the offer quantity does not equal the resource's FCA Qualified Capacity, the quantity for which no offer price was submitted will be assigned a price equal to the Forward Capacity Auction Starting Price.

III.13.2.8.2.3. Supply Offers Entered into the Substitution Auction

Supply offers for resources that satisfy all of the criteria in Section III.13.2.8.2.1 to participate in the substitution auction may be adjusted prior to conducting the substitution auction-clearing process using the following adjustments:

(a) Any portion of a resource's FCA Qualified Capacity that was cleared (received a Capacity Supply Obligation) in the primary auction-clearing process will be removed from the resource's substitution auction supply offer beginning with the lowest priced price-quantity pairs.

(b) After performing the adjustment specified in Section III.13.2.8.2.3(a), any price-quantity pairs in a resource's substitution auction supply offer with a price greater than the Capacity Clearing Price for the resource's Capacity Zone or external interface are removed from the offer.

III.13.2.8.3. Demand Bids in the Substitution Auction.

III.13.2.8.3.1. Demand Bids.

Market Participants with Existing Generating Capacity Resources or Existing Import Capacity Resources associated with External Elective Transmission Upgrades may elect to submit demand bids for the substitution auction for those resources by the Existing Capacity Retirement Deadline. The election must specify the total amount of the resource's Qualified Capacity that will be associated with its demand bid.

A resource, including any portion of an existing resource that qualifies as a New Capacity Resource, must have achieved FCM Commercial Operation no later than seven days after the issuance by the ISO of the qualification determination notification described in Section III.13.1.2.4(b) in order to participate as demand in the substitution auction.

Regardless of whether an election is made, a demand bid is required for any portion of a resource that is associated with a Retirement De-List Bid, provided that the entire resource has achieved FCM Commercial Operation no later than seven days after the issuance by the ISO of the qualification determination notification described in Section III.13.1.2.4(b).

A resource for which a demand bid election has been made cannot participate in a Composite FCM Transaction, cannot be designated as a Self-Supplied FCA Resource, and will not have incremental summer or winter capacity that does not span the entire Capacity Commitment Period subjected to the treatment specified in Section III.13.1.1.1.3.A.

Demand bids are non-rationable.

A demand bid will be entered into the substitution auction for the portion of the resource that receives a Capacity Supply Obligation in the primary auction-clearing process, subject to the other provisions of this Section III.13.2.8.3. A resource, or portion thereof, associated with a cleared demand bid shall be retired from all New England Markets at the start of the Capacity Commitment Period associated with the Forward Capacity Auction.

III.13.2.8.3.2. Demand Bid Prices.

Market Participants must submit substitution auction demand bid prices no later than five Business Days after the deadline for submission of offers composed of separate resources.

A substitution auction demand bid must be in the form of a curve (with up to five price-quantity pairs). The curve may not decrease in quantity as the price decreases. A demand bid price for the substitution auction may not be greater than the Forward Capacity Auction Starting Price or lower than negative one multiplied by the Forward Capacity Auction Starting Price.

If the bid quantity does not equal the total bid amount submitted by the Market Participant or required for a Retirement De-List Bid pursuant to Section III.13.2.8.3.1, the quantity for which no bid price was

specified will be assigned a price equal to negative one multiplied by the Forward Capacity Auction Starting Price.

For auctions associated with a Capacity Commitment Period that begins on or after June 1, 2023, Market Participants may elect either of the demand bid adjustment methods specified in Section III.13.2.8.3.3(b) for the resource by no later than five Business Days after the deadline for submission of offers composed of separate resources. If no such election is made, the adjustment applied shall be the method specified in Section III.13.2.8.3.3(b)(i).

III.13.2.8.3.3. Demand Bids Entered into the Substitution Auction.

If a resource is determined to be needed for reliability pursuant to Section III.13.2.5.2.5, then any demand bid associated with the resource will not be further included in the substitution auction.

Demand bids for resources that satisfy all of the criteria in Section III.13.2.8.3.1 to participate in the substitution auction will be adjusted prior to conducting the substitution auction-clearing process using the following adjustments:

- (a) For the substitution auction associated with the Capacity Commitment Period beginning on June 1, 2022, any portion of a resource's demand bid that exceeds its Capacity Supply Obligation awarded in the primary auction-clearing process will be removed from the substitution auction demand bid beginning with the highest priced price-quantity pairs.
- (b) For substitution auctions associated with a Capacity Commitment Period that begins on or after June 1, 2023, a resource's demand bid will be adjusted using one of the following methods as elected pursuant to Section III.13.2.8.3.2:
 - (i) The portion of a resource's capacity that did not receive a Capacity Supply Obligation in the primary auction-clearing process will be removed from the substitution auction demand bid beginning with the highest priced price-quantity pair.
 - (ii) Any portion of a resource's demand bid that exceeds its Capacity Supply Obligation awarded in the primary auction-clearing process will be removed from the substitution auction demand bid beginning with the lowest priced price-quantity pair.
- (c) After performing the modification specified in Sections III.13.2.8.3.3(a) or III.13.2.8.3.3(b), any price-quantity pairs in a resource's substitution auction demand bid with a price greater than the Capacity

Clearing Price for the resource's Capacity Zone or external interface will have its price reduced to the Capacity Clearing Price for the resource's Capacity Zone or external interface.

Except as provided in Section III.13.2.5.2.1(c), a rationable demand bid will be entered into the substitution auction on behalf of any Proxy De-List Bid associated with a Permanent De-List Bid or Retirement De-List Bid. The demand bid quantity will equal the portion of the Proxy De-List Bid that was not cleared (received a Capacity Supply Obligation) in the first run of the primary auction-clearing process. The demand bid will have priority to clear before non-rationable demand bids.

III.13.2. Annual Forward Capacity Auction.

III.13.2.1. Timing of Annual Forward Capacity Auctions.

Each Forward Capacity Auction will be conducted beginning on the first Monday in the February that is approximately three years and four months before the beginning of the associated Capacity Commitment Period (unless, no later than the immediately preceding December 1, an alternative date is announced by the ISO), or, where exigent circumstances prevent the start of the Forward Capacity Auction at that time, as soon as possible thereafter.

III.13.2.2. Amount of Capacity Cleared in Each Forward Capacity Auction.

The total amount of capacity cleared in each Forward Capacity Auction shall be determined using the System-Wide Capacity Demand Curve and the Capacity Zone Demand Curves for the modeled Capacity Zones pursuant to Section III.13.2.3.3.

III.13.2.2.1. System-Wide Capacity Demand Curve.

The MRI Transition Period is the period from the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2020 through the earlier of:

- (i) the Forward Capacity Auction for which the amount of the Installed Capacity Requirement (net of HQICCs) that is filed by the ISO with the Commission pursuant to Section III.12.3 for the upcoming Forward Capacity Auction is greater than or equal to the sum of: 34,151 MW, and: (a) 722 MW (for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2020); (b) 375 MW (for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2021), or; (c) 150 MW (for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2022);
- (ii) the Forward Capacity Auction for which the product of the system-wide Marginal Reliability Impact value, calculated pursuant to Section III.12.1.1, and the scaling factor specified in Section III.13.2.2.4, specifies a quantity at \$7.03/kW-month in excess of the MW value determined under the applicable subsection (2)(b), (2)(c), or (2)(d), below, or;

- (iii) the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2022.

During the MRI Transition Period, the System-Wide Capacity Demand Curve shall consist of the following three segments:

- (1) at prices above \$7.03/kW-month and below the Forward Capacity Auction Starting Price, the System-Wide Capacity Demand Curve shall specify a price for system capacity quantities based on the product of the system-wide Marginal Reliability Impact value, calculated pursuant to Section III.12.1.1, and the scaling factor specified in Section III.13.2.2.4;
- (2) at prices below \$7.03/kW-month, the System-Wide Capacity Demand Curve shall be linear between \$7.03/kW-month and \$0.00/kW-month and determined by the following quantities:
 - (a) At the price of \$0.00/kW-month, the quantity specified by the System-Wide Capacity Demand Curve shall be 1616 MW plus the MW value determined under the applicable provision in (b), (c), or (d) of this subsection.
 - (b) for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2020, at \$7.03/kW-month, the quantity shall be the lesser of:
 - 1. 35,437 MW; and
 - 2. 722 MW plus the quantity at which the product of the system-wide Marginal Reliability Impact value and the scaling factor yield a price of \$7.03/kW-month;
 - (c) for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2021, at \$7.03/kW-month, the quantity shall be the lesser of:
 - 1. 35,090 MW; and
 - 2. 375 MW plus the quantity at which the product of the system-wide Marginal Reliability Impact value and the scaling factor yield a price of \$7.03/kW-month;
 - (d) for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2022, at \$7.03/kW-month, the quantity shall be the lesser of:
 - 1. 34,865 MW; and
 - 2. 150 MW plus the quantity at which the product of the system-wide Marginal Reliability Impact value and the scaling factor yield a price of \$7.03/kW-month

(3) a price of \$7.03/kW-month for all quantities between those curves segments.

In addition to the foregoing, the System-Wide Capacity Demand Curve shall not specify a price in excess of the Forward Capacity Auction Starting Price.

Following the MRI Transition Period, the System-Wide Capacity Demand Curve shall specify a price for system capacity quantities based on the product of the system-wide Marginal Reliability Impact value, calculated pursuant to Section III.12.1.1, and the scaling factor specified in Section III.13.2.2.4. For any system capacity quantity greater than 110% of the Installed Capacity Requirement (net of HQICCs), the System-Wide Capacity Demand Curve shall specify a price of zero. The System-Wide Capacity Demand Curve shall not specify a price in excess of the Forward Capacity Auction Starting Price.

III.13.2.2.2. Import-Constrained Capacity Zone Demand Curves.

For each import-constrained Capacity Zone, the Capacity Zone Demand Curve shall specify a price for all Capacity Zone quantities based on the product of the import-constrained Capacity Zone's Marginal Reliability Impact value, calculated pursuant to Section III.12.2.1.3, and the scaling factor specified in Section III.13.2.2.4. The prices specified by an import-constrained Capacity Zone Demand Curve shall be non-negative. At all quantities greater than the truncation point, which is the amount of capacity for which the Capacity Zone Demand Curve specifies a price of \$0.01/kW-month, the Capacity Zone Demand Curve shall specify a price of zero. The Capacity Zone Demand Curve shall not specify a price in excess of the Forward Capacity Auction Starting Price.

III.13.2.2.3. Export-Constrained Capacity Zone Demand Curves.

For each export-constrained Capacity Zone, the Capacity Zone Demand Curve shall specify a price for all Capacity Zone quantities based on the product of the export-constrained Capacity Zone's Marginal Reliability Impact value, calculated pursuant to Section III.12.2.2.1, and the scaling factor specified in Section III.13.2.2.4. The prices specified by an export-constrained Capacity Zone Demand Curve shall be non-positive. At all quantities less than the truncation point, which is the amount of capacity for which the Capacity Zone Demand Curve specifies a price of negative \$0.01/kW-month, the Capacity Zone Demand Curve shall specify a price of zero.

III.13.2.2.4. Capacity Demand Curve Scaling Factor.

The demand curve scaling factor shall be set at the value such that, at the quantity specified by the System-Wide Capacity Demand Curve at a price of Net CONE, the Loss of Load Expectation is 0.1 days per year.

III.13.2.3. Conduct of the Forward Capacity Auction.

The Forward Capacity Auction shall include a descending clock auction, which will determine, subject to the provisions of Section III.13.2.7, the Capacity Clearing Price for each Capacity Zone modeled in that Forward Capacity Auction pursuant to Section III.12.4, and the Capacity Clearing Price for certain offers from New Import Capacity Resources and Existing Import Capacity Resources pursuant to Section III.13.2.3.3(d). The Forward Capacity Auction shall determine the outcome of all offers and bids accepted during the qualification process and submitted during the auction. The descending clock auction shall be conducted as a series of rounds, which shall continue (for up to five consecutive Business Days, with up to eight rounds per day, absent extraordinary circumstances) until the Forward Capacity Auction is concluded for all modeled Capacity Zones in accordance with the provisions of Section III.13.2.3.3. Each round of the Forward Capacity Auction shall consist of the following steps, which shall be completed simultaneously for each Capacity Zone included in the round:

III.13.2.3.1. Step 1: Announcement of Start-of-Round Price and End-of-Round Price.

For each round, the auctioneer shall announce a single Start-of-Round Price (the highest price associated with a round of the Forward Capacity Auction) and a single (lower) End-of-Round Price (the lowest price associated with a round of the Forward Capacity Auction). In the first round, the Start-of-Round Price shall equal the Forward Capacity Auction Starting Price for all modeled Capacity Zones. In each round after the first round, the Start-of-Round Price shall equal the End-of-Round Price from the previous round.

III.13.2.3.2. Step 2: Compilation of Offers and Bids.

The auctioneer shall compile all of the offers and bids for that round, as follows:

(a) Offers from New Generating Capacity Resources, New Import Capacity Resources, New Demand Capacity Resources, and New Distributed Energy Capacity Resources.

- (i) The Project Sponsor for any New Generating Capacity Resource, New Import Capacity Resource that is backed by a single new External Resource and that is associated with an investment in transmission that increases New England's import capability, New Import Capacity

Resource that is associated with an Elective Transmission Upgrade, New Demand Capacity Resource, or New Distributed Energy Capacity Resource accepted in the qualification process for participation in the Forward Capacity Auction may submit a New Capacity Offer indicating the quantity of capacity that the Project Sponsor would commit to provide from the resource during the Capacity Commitment Period at that round's prices. A New Capacity Offer shall be defined by the submission of one to five prices, each strictly less than the Start-of-Round Price but greater than or equal to the End-of-Round Price, and an associated quantity in the applicable Capacity Zone. Each price shall be expressed in units of dollars per kilowatt-month to an accuracy of at most three digits to the right of the decimal point, and each quantity shall be expressed in units of MWs to an accuracy of at most three digits to the right of the decimal point. A New Capacity Offer shall imply a supply curve indicating quantities offered at all of that round's prices, pursuant to the convention of Section III.13.2.3.2(a)(iii).

(ii) If the Project Sponsor of a New Generating Capacity Resource, New Import Capacity Resource that is backed by a single new External Resource and that is associated with an investment in transmission that increases New England's import capability, New Import Capacity Resource that is associated with an Elective Transmission Upgrade, New Demand Capacity Resource, or New Distributed Energy Capacity Resource elects to offer in a Forward Capacity Auction, the Project Sponsor must offer the resource's full FCA Qualified Capacity at the Forward Capacity Auction Starting Price in the first round of the auction. A New Capacity Offer for a resource may in no event be for greater capacity than the resource's full FCA Qualified Capacity at any price. A New Capacity Offer for a resource may not be for less capacity than the resource's Rationing Minimum Limit at any price, except where the New Capacity Offer is for a capacity quantity of zero.

(iii) Let the Start-of-Round Price and End-of-Round Price for a given round be P_S and P_E , respectively. Let the m prices ($1 \leq m \leq 5$) submitted by a Project Sponsor for a modeled Capacity Zone be p_1, p_2, \dots, p_m , where $P_S > p_1 > p_2 > \dots > p_m \geq P_E$, and let the associated quantities submitted for a New Capacity Resource be q_1, q_2, \dots, q_m . Then the Project Sponsor's supply curve, for all prices strictly less than P_S but greater than or equal to P_E , shall be taken to be:

$$S(p) = \begin{cases} q_0, & \text{if } p > p_1, \\ q_1, & \text{if } p_2 < p \leq p_1, \\ q_2, & \text{if } p_3 < p \leq p_2, \\ \dots & \dots, \\ q_m, & \text{if } p \leq p_m. \end{cases}$$

where, in the first round, q_0 is the resource's full FCA Qualified Capacity and, in subsequent rounds, q_0 is the resource's quantity offered at the lowest price of the previous round.

(iv) Except for Renewable Technology Resources and except as provided in Section III.13.2.3.2(a)(v), a New Capacity Resource may not include any capacity in a New Capacity Offer during the Forward Capacity Auction at any price below the resource's New Resource Offer Floor Price. The amount of capacity included in each New Capacity Offer at each price shall be included in the aggregate supply curves at that price as described in Section III.13.2.3.3.

(v) Capacity associated with a New Import Capacity Resource (other than a New Import Capacity Resource that is backed by a single new External Resource and that is associated with an investment in transmission that increases New England's import capability or a New Import Capacity Resource that is associated with an Elective Transmission Upgrade) shall be automatically included in the aggregate supply curves as described in Section III.13.2.3.3 at prices at or above the resource's offer prices (as they may be modified pursuant to Section III.A.21.2) and shall be automatically removed from the aggregate supply curves at prices below the resource's offer prices (as they may be modified pursuant to Section III.A.21.2), except under the following circumstances:

In any round of the Forward Capacity Auction in which prices are below the Dynamic De-List Bid Threshold, the Project Sponsor for a New Import Capacity Resource (other than a New Import Capacity Resource that is backed by a single new External Resource and that is associated with an investment in transmission that increases New England's import capability or a New Import Capacity Resource that is associated with an Elective Transmission Upgrade) with offer prices (as they may be modified pursuant to Section III.A.21.2) that are less than the Dynamic De-List Bid Threshold may submit a New Capacity Offer indicating the quantity of capacity that the Project Sponsor would commit to provide from the resource during the Capacity Commitment Period at that round's prices. Such an offer shall be defined by the submission of one to five

prices, each less than the Dynamic De-List Bid Threshold (or the Start-of-Round Price, if lower than the Dynamic De-List Bid Threshold) but greater than or equal to the End-of-Round Price, and a single quantity associated with each price. Such an offer shall be expressed in the same form as specified in Section III.13.2.3.2(a)(i) and shall imply a curve indicating quantities at all of that round's relevant prices, pursuant to the convention of Section III.13.2.3.2(a)(iii). The curve may not increase the quantity offered as the price decreases.

(b) Bids from Existing Capacity Resources

(i) Static De-List Bids, Permanent De-List Bids, Retirement De-List Bids, and Export Bids from Existing Generating Capacity Resources, Existing Import Capacity Resources, Existing Demand Capacity Resources and Existing Distributed Energy Capacity Resources, as finalized in the qualification process or as otherwise directed by the Commission shall be automatically bid into the appropriate rounds of the Forward Capacity Auction, such that each such resource's FCA Qualified Capacity will be included in the aggregate supply curves as described in Section III.13.2.3.3 until any Static De-List Bid, Permanent De-List Bid, Retirement D-List Bid, or Export Bid clears in the Forward Capacity Auction, as described in Section III.13.2.5.2, and is removed from the aggregate supply curves. In the case of a Commission-approved Permanent De-List Bid or Commission-approved Retirement De-List Bid at or above the Forward Capacity Auction Starting Price, or where a Permanent De-List Bid or Retirement De-List Bid is subject to an election under Section III.13.1.2.4.1(a), the resource's FCA Qualified Capacity will be reduced by the quantity of the de-list bid (unless the resource was retained for reliability pursuant to Section III.13.1.2.3.1.5.1) and the Permanent De-List Bid or Retirement De-List Bid shall not be included in the Forward Capacity Auction. Permanent De-List Bids and Retirement De-List Bids subject to an election under Section III.13.1.2.4.1(a) or Section III.13.1.2.4.1(b) shall not be included in the Forward Capacity Auction and shall be treated according to Section III.13.2.3.2(b)(ii). In the case of a Static De-List Bid, if the Market Participant revised the bid pursuant to Section III.13.1.2.3.1.1, then the revised bid shall be used in place of the submitted bid; if the Market Participant withdrew the bid pursuant to Section III.13.1.2.3.1.1, then the capacity associated with the withdrawn bid shall be entered into the auction pursuant to Section III.13.2.3.2(c). If the amount of capacity associated with Export Bids for an interface exceeds the transfer limit of that interface (minus any accepted Administrative De-List Bids over that interface), then the set of Export Bids associated with that interface equal to the interface's transfer limit (minus any accepted Administrative De-List Bids over that interface) having the

highest bid prices shall be included in the auction as described above; capacity for which Export Bids are not included in the auction as a result of this provision shall be entered into the auction pursuant to Section III.13.2.3.2(c).

(ii) For Permanent De-List Bids and Retirement De-List Bids, the ISO will enter a Proxy De-List Bid into the appropriate rounds of the Forward Capacity Auction in the following circumstances: (1) if the Lead Market Participant has elected pursuant to Section III.13.1.2.4.1(a) to retire the resource or portion thereof, the resource has not been retained for reliability pursuant to Section III.13.1.2.3.1.5.1, the price specified in the Commission-approved de-list bid is less than the Forward Capacity Auction Starting Price, and the Internal Market Monitor has found a portfolio benefit pursuant to Section III.A.24; or (2) if the Lead Market Participant has elected conditional treatment pursuant to Section III.13.1.2.4.1(b), the resource has not been retained for reliability pursuant to Section III.13.1.2.3.1.5.1, and the price specified in the Commission-approved de-list bid is less than the price specified in the de-list bid submitted by the Lead Market Participant and less than the Forward Capacity Auction Starting Price. The Proxy De-List Bid shall be non-rationable and shall be equal in price and quantity to, and located in the same Capacity Zone as, the Commission-approved Permanent De-List Bid or Commission-approved Retirement De-List Bid, and shall be entered into the appropriate rounds of the Forward Capacity Auction such that the capacity associated with the Proxy De-List Bid will be included in the aggregate supply curves as described in Section III.13.2.3.3 until the Proxy De-List Bid clears in the Forward Capacity Auction, as described in Section III.13.2.5.2, and is removed from the aggregate supply curves. If the Lead Market Participant has elected conditional treatment pursuant to Section III.13.1.2.4.1(b), the resource has not been retained for reliability pursuant to Section III.13.1.2.3.1.5.1, and the Commission-approved Permanent De-List Bid or Commission-approved Retirement De-List Bid is equal to or greater than the de-list bid submitted by the Lead Market Participant, no Proxy De-List Bid shall be used and the Commission-approved de-list bid shall be entered in the Forward Capacity Auction pursuant to Section III.13.2.3.2(b)(i).

(iii) For purposes of this subsection (b), if an Internal Market Monitor-determined price has been established for a Static De-List Bid and the associated resource's capacity is pivotal pursuant to Sections III.A.23.1 and III.A.23.2, then (unless otherwise directed by the Commission) the lower of the Internal Market Monitor-determined price and any revised bid that is submitted pursuant to Section III.13.1.2.3.1.1 will be used in place of the initially submitted bid; provided, however, that if the bid was withdrawn pursuant to Section III.13.1.2.3.1.1, then

the capacity associated with the withdrawn bid shall be entered into the auction pursuant to Section III.13.2.3.2(c). If an Internal Market Monitor-determined price has been established for an Export Bid and the associated resource's capacity is pivotal pursuant to Sections III.A.23.1 and III.A.23.2, then the Internal Market Monitor-determined price (or price directed by the Commission) will be used in place of the submitted bid.

Any Static De-List Bid for ambient air conditions that has not been verified pursuant to Section III.13.1.2.3.2.4 shall not be subject to the provisions of this subsection (b).

(c) **Existing Capacity Resources Without De-List or Export Bids and Self-Supplied FCA Resources.** Each Existing Generating Capacity Resource, Existing Import Capacity Resource, Existing Demand Capacity Resource, and Existing Distributed Energy Capacity Resources without a Static De-List Bid, a Permanent De-List Bid, a Retirement De-List Bid, an Export Bid or an Administrative Export De-List Bid in its Existing Capacity Qualification Package, and each existing Self-Supplied FCA Resource shall be automatically entered into each round of the Forward Capacity Auction at its FCA Qualified Capacity, such that the resource's FCA Qualified Capacity will be included in the aggregate supply curves as described in Section III.13.2.3.3, except where such resource, if permitted, submits an appropriate Dynamic De-List Bid, as described in Section III.13.2.3.2(d). Each new Self-Supplied FCA Resource shall be automatically entered into each round of the Forward Capacity Auction at its designated self-supplied quantity at prices at or above the resource's New Resource Offer Floor Price, such that the resource's designated self-supply quantity will be included in the aggregate supply curves as described in Section III.13.2.3.3.

(d) **Dynamic De-List Bids.** In any round of the Forward Capacity Auction in which prices are below the Dynamic De-List Bid Threshold, any Existing Generating Capacity Resource, Existing Import Capacity Resource, Existing Demand Capacity Resource, or Existing Distributed Energy Capacity Resource (but not any Self-Supplied FCA Resources) may submit a Dynamic De-List Bid at prices below the Dynamic De-List Bid Threshold. Such a bid shall be defined by the submission of one to five prices, each less than the Dynamic De-List Bid Threshold (or the Start-of-Round Price, if lower than the Dynamic De-List Bid Threshold) but greater than or equal to the End-of-Round Price, and a single quantity associated with each price. Such a bid shall be expressed in the same form as specified in Section III.13.2.3.2(a)(i) and shall imply a curve indicating quantities at all of that round's relevant prices, pursuant to the convention of Section III.13.2.3.2(a)(iii). The curve may in no case increase the quantity offered as the price decreases. A dynamic De-List Bid may not offer less capacity than the resource's

Rationing Minimum Limit at any price, except where the amount of capacity offered is zero. All Dynamic De-List Bids are subject to a reliability review as described in Section III.13.2.5.2.5, and if not rejected for reliability reasons, shall be included in the round in the same manner as Static De-List Bids as described in Section III.13.2.3.2(b). Where a resource elected pursuant to Section III.13.1.1.2.4 or Section III.13.1.4.1.1.2.7 to have the Capacity Supply Obligation and Capacity Clearing Price continue to apply after the Capacity Commitment Period associated with the Forward Capacity Auction in which the offer clears, the capacity associated with any resulting Capacity Supply Obligation may not be subject to a Dynamic De-List Bid in subsequent Forward Capacity Auctions for Capacity Commitment Periods for which the Project Sponsor elected to have the Capacity Supply Obligation and Capacity Clearing Price continue to apply. Where a Lead Market Participant submits any combination of Dynamic De-List Bid, Static De-List Bid, Export Bid, and Administrative Export De-List Bid for a single resource, none of the prices in a set of price-quantity pairs associated with a bid may be the same as any price in any other set of price-quantity pairs associated with another bid for the same resource.

(e) **Repowering.** Offers and bids associated with a resource participating in the Forward Capacity Auction as a New Generating Capacity Resource pursuant to Section III.13.1.1.1.2 (resources previously counted as capacity resources) shall be addressed in the Forward Capacity Auction in accordance with the provisions of this Section III.13.2.3.2(e). The Project Sponsor shall offer such a New Generating Capacity Resource into the Forward Capacity Auction in the same manner and pursuant to the same rules as other New Generating Capacity Resources, as described in Section III.13.2.3.2(a). As long as any capacity is offered from the New Generating Capacity Resource, the amount of capacity offered is the amount that the auctioneer shall include in the aggregate supply curve at the relevant prices, and the quantity of capacity offered from the associated Existing Generating Capacity Resource shall not be included in the aggregate supply curve. If any portion of the New Generating Capacity Resource clears in the Forward Capacity Auction, the associated Existing Generating Capacity Resource shall be permanently de-listed as of the start of the associated Capacity Commitment Period. If at any price, no capacity is offered from the New Generating Capacity Resource, then the auctioneer shall include capacity from the associated Existing Generating Capacity Resource at that price, subject to any bids submitted and accepted in the qualification process for that Existing Generating Capacity Resource pursuant to Section III.13.1.2.5. Bids submitted and accepted in the qualification process for an Existing Generating Capacity Resource pursuant to Section III.13.1.2.5 shall only be entered into the Forward Capacity Auction after the associated New Generating Capacity Resource is fully withdrawn (that is, the Forward Capacity Auction reaches a price at which the resource's New Capacity Offer is zero capacity), and shall only then be subject to the reliability review described in Section III.13.2.5.2.5.

(f) **Conditional Qualified New Resources.** Offers associated with a resource participating in the Forward Capacity Auction as a Conditional Qualified New Resource pursuant to Section III.13.1.1.2.3(f) shall be addressed in the Forward Capacity Auction in accordance with the provisions of this Section III.13.2.3.2(f). The Project Sponsor shall offer such a Conditional Qualified New Resource into the Forward Capacity Auction in the same manner and pursuant to the same rules as other New Generating Capacity Resources, as described in Section III.13.2.3.2(a). An offer from at most one resource at a Conditional Qualified New Resource's location will be permitted to clear (receive a Capacity Supply Obligation for the associated Capacity Commitment Period) in the Forward Capacity Auction. As long as a positive quantity is offered at the End-of-Round Price in the final round of the Forward Capacity Auction by the resource having a higher queue priority at the Conditional Qualified New Resource's location, as described in Section III.13.1.1.2.3(f), then no capacity from the Conditional Qualified New Resource shall clear. If at any price greater than or equal to the End-of-Round Price in the final round of the Forward Capacity Auction, zero quantity is offered from the resource having higher queue priority at the Conditional Qualified New Resource's location, as described in Section III.13.1.1.2.3(f), then the auctioneer shall consider capacity offered from the Conditional Qualified New Resource in the determination of clearing, including the application of Section III.13.2.7.

(g) **Mechanics.** Offers and bids that may be submitted during a round of the Forward Capacity Auction must be received between the starting time and ending time of the round, as announced by the auctioneer in advance. The ISO at its sole discretion may authorize a participant in the auction to complete or correct its submission after the ending time of a round, but only if the participant can demonstrate to the ISO's satisfaction that the participant was making reasonable efforts to complete a valid offer submission before the ending time of the round, and only if the ISO determines that allowing the completion or correction will not unreasonably disrupt the auction process. All decisions by the ISO concerning whether or not a participant may complete or correct a submission after the ending time of a round are final.

III.13.2.3.3. Step 3: Determination of the Outcome of Each Round.

The auctioneer shall use the offers and bids for the round as described in Section III.13.2.3.2 to determine the aggregate supply curves for the New England Control Area and for each modeled Capacity Zone included in the round.

The aggregate supply curve for the New England Control Area, the Total System Capacity, shall reflect at each price the sum of the following:

- (1) the amount of capacity offered in all Capacity Zones modeled as import-constrained Capacity Zones at that price (excluding capacity offered from New Import Capacity Resources and Existing Import Capacity Resources);
- (2) the amount of capacity offered in the Rest-of-Pool Capacity Zone at that price (excluding capacity offered from New Import Capacity Resources and Existing Import Capacity Resources);
- (3) for each Capacity Zone modeled as an export-constrained Capacity Zone, the lesser of:
 - (i) the amount of capacity offered in the Capacity Zone at that price (including the amount of capacity offered from New Import Capacity Resources and Existing Import Capacity Resources for each interface between the New England Control Area and an external Control Area mapped to the export-constrained Capacity Zone up to that interface's approved capacity transfer limit (net of tie benefits)), or;
 - (ii) the amount of capacity determined by the Capacity Zone Demand Curve at zero minus that price, and;
- (4) for each interface between the New England Control Area and an external Control Area mapped to an import-constrained Capacity Zone or the Rest-of-Pool Capacity Zone, the lesser of:
 - (i) that interface's approved capacity transfer limit (net of tie benefits), or;
 - (ii) the amount of capacity offered from New Import Capacity Resources and Existing Import Capacity Resources.

In computing the Total System Capacity, capacity associated with any New Capacity Offer at any price greater than the Forward Capacity Auction Starting Price will not be included in the tally of total capacity at the Forward Capacity Auction Starting Price for that Capacity Zone. On the basis of these aggregate supply curves, the auctioneer shall determine the outcome of the round for each modeled Capacity Zone as follows:

(a) **Import-Constrained Capacity Zones.**

For a Capacity Zone modeled as an import-constrained Capacity Zone, if either of the following two conditions is met during the round:

- (1) the aggregate supply curve for the import-constrained Capacity Zone, adjusted as necessary in accordance with Section III.13.2.6 (Capacity Rationing Rule), equals or is less than the quantity determined by the Capacity Zone Demand Curve at the difference between the End-of-Round Price and the price specified by the System-Wide Capacity Demand Curve (at a quantity no less than Total System Capacity at the Start-of-Round Price), or;
- (2) the Forward Capacity Auction is concluded for the Rest-of-Pool Capacity Zone;

then the Forward Capacity Auction for that Capacity Zone is concluded and such Capacity Zone will not be included in further rounds of the Forward Capacity Auction.

The Capacity Clearing Price for that Capacity Zone shall be set at the greater of: (1) the sum of the price specified by the Capacity Zone Demand Curve at the amount of capacity equal to the total amount that is awarded a Capacity Supply Obligation in the import-constrained Capacity Zone, and the Capacity Clearing Price for the Rest-of-Pool Capacity Zone, or; (2) the highest price of any offer or bid for a resource in the Capacity Zone that is awarded a Capacity Supply Obligation, subject to the other provisions of this Section III.13.2.

If neither of the two conditions above are met in the round, then that Capacity Zone will be included in the next round of the Forward Capacity Auction.

(b) Rest-of-Pool Capacity Zone.

If the Total System Capacity at the End-of-Round Price, adjusted as necessary in accordance with Section III.13.2.6 (Capacity Rationing Rule), and adjusted to include the additional supply in the import-constrained Capacity Zone that may be cleared at a higher price, equals or is less than the amount of capacity determined by the System-Wide Capacity Demand Curve, then the Forward Capacity Auction for the Rest-of-Pool Capacity Zone is concluded and the Rest-of-Pool Capacity Zone will not be included in further rounds of the Forward Capacity Auction.

The Capacity Clearing Price for the Rest-of-Pool Capacity Zone shall be set at the highest price at which the Total System Capacity is less than or equal to the amount of capacity determined by the System-Wide Capacity Demand Curve, subject to the other provisions of this Section III.13.2.

If the Forward Capacity Auction for the Rest-of-Pool Capacity Zone is not concluded then the Rest-of-Pool Capacity Zone will be included in the next round of the Forward Capacity Auction, and the auctioneer shall publish the Total System Capacity at the End-of-Round Price, adjusted to include the additional supply in the import-constrained Capacity Zone that may be cleared at a higher price, less the amount of capacity determined by the System-Wide Capacity Demand Curve at the End-of-Round Price.

(c) **Export-Constrained Capacity Zones.**

For a Capacity Zone modeled as an export-constrained Capacity Zone, if all of the following conditions are met during the round:

- (1) the aggregate supply curve for the export-constrained Capacity Zone, adjusted as necessary in accordance with Section III.13.2.6 (Capacity Rationing Rule), is equal to or less than the maximum amount of capacity determined by the Capacity Zone Demand Curve at a price of zero;
- (2) in the case of a nested Capacity Zone, the Forward Capacity Auction is concluded for the Capacity Zone within which the nested Capacity Zone is located, and;
- (3) the Forward Capacity Auction is concluded for the Rest-of-Pool Capacity Zone;

then the Forward Capacity Auction for that Capacity Zone is concluded and such Capacity Zone will not be included in further rounds of the Forward Capacity Auction.

The Capacity Clearing Price for an export-constrained Capacity Zone that is not a nested export-constrained Capacity Zone shall be set at the greater of:

- (1) the sum of:
 - (i) the price specified by the Capacity Zone Demand Curve at the amount of capacity equal to the total amount that is awarded a Capacity Supply Obligation in that Capacity Zone; and
 - (ii) the Capacity Clearing Price for the Rest-of-Pool Capacity Zone.
- or;
- (2) the highest price of any offer or bid for a resource in the Capacity Zone that is awarded a Capacity Supply Obligation, and subject to the other provisions of this Section III.13.2.

The Capacity Clearing Price for a nested export-constrained Capacity Zone shall be set at the greater of:

- (1) the sum of:

- (i) the price specified by the Capacity Zone Demand Curve at the amount of capacity equal to the total amount that is awarded a Capacity Supply Obligation in that Capacity Zone; and
- (ii) the Capacity Clearing Price for the Capacity Zone in which the nested Capacity Zone is located,

or;

- (2) the highest price of any offer or bid for a resource in the Capacity Zone that is awarded a Capacity Supply Obligation, subject to the other provisions of this Section III.13.2.

If all of the conditions above are not satisfied in the round, then the auctioneer shall publish the quantity of excess supply in the export-constrained Capacity Zone at the End-of-Round Price (the amount of capacity offered at the End-of-Round Price in the export-constrained Capacity Zone minus the maximum amount of capacity determined by the Capacity Zone Demand Curve at a price of zero) and that Capacity Zone will be included in the next round of the Forward Capacity Auction.

(d) **Treatment of Import Capacity.** Where the amount of capacity offered from New Import Capacity Resources and Existing Import Capacity Resources over an interface between the New England Control Area and an external Control Area is less than or equal to that interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF), then the capacity offers from those resources shall be treated as capacity offers in the modeled Capacity Zone associated with that interface. Where the amount of capacity offered from New Import Capacity Resources and Existing Import Capacity Resources over an interface between the New England Control Area and an external Control Area is greater than that interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF), then the following provisions shall apply (separately for each such interface):

- (i) For purposes of determining which capacity offers from the New Import Capacity Resources and Existing Import Capacity Resources over the interface shall clear and at what price, the offers over the interface shall be treated in the descending-clock auction as if they comprised a separately-modeled export-constrained capacity zone, with an aggregate supply curve consisting of the offers from the New Import Capacity Resources and Existing Import Capacity Resources over the interface.
- (ii) The amount of capacity offered over the interface that will be included in the aggregate supply curve of the modeled Capacity Zone associated with the interface shall be the lesser of the

following two quantities: the amount of capacity offered from New Import Capacity Resources and Existing Import Capacity Resources over the interface; and the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF).

(iii) The Forward Capacity Auction for New Import Capacity Resources and Existing Import Capacity Resources over the interface is concluded when the following two conditions are both satisfied: the amount of capacity offered from New Import Capacity Resource and Existing Import Capacity Resources over the interface is less than or equal to the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF); and the Forward Capacity Auction is concluded in the modeled Capacity Zone associated with the interface.

(e) **Treatment of Export Capacity.** Any Export Bid or any Administrative Export De-List Bid that is used to export capacity through an export interface connected to an import-constrained Capacity Zone from another Capacity Zone, or through an export interface connected to the Rest-of-Pool Capacity Zone from an export-constrained Capacity Zone in the Forward Capacity Auction will be modeled in the Capacity Zone where the export interface that is identified in the Existing Capacity Qualification Package is located. The Export Bid or Administrative Export De-List Bid clears in the Capacity Zone where the Export Bid or Administrative Export De-List Bid is modeled.

(i) Then the MW quantity equal to the relevant Export Bid or Administrative Export De-List Bid from the resource associated with the Export Bid or Administrative Export De-List Bid will be de-listed in the Capacity Zone where the resource is located. If the export interface is connected to an import-constrained Capacity Zone, the MW quantity procured will be in addition to the amount of capacity determined by the Capacity Zone Demand Curve for the import-constrained Capacity Zone.

(ii) If the Export Bid or Administrative Export De-List Bid does not clear, then the resource associated with the Export Bid or Administrative Export De-List Bid will not be de-listed in the Capacity Zone where the resource is located.

III.13.2.3.4. Determination of Final Capacity Zones.

(a) For all Forward Capacity Auctions up to and including the sixth Forward Capacity Auction (for the Capacity Commitment Period beginning June 1, 2015), after the Forward Capacity Auction is

concluded for all modeled Capacity Zones, the final set of distinct Capacity Zones that will be used for all purposes associated with the relevant Capacity Commitment Period, including for the purposes of reconfiguration auctions and Capacity Supply Obligation Bilaterals, shall be those having distinct Capacity Clearing Prices as a result of constraints between modeled Capacity Zones binding in the running of the Forward Capacity Auction. Where a modeled constraint does not bind in the Forward Capacity Auction, and as a result adjacent modeled Capacity Zones clear at the same Capacity Clearing Price, those modeled Capacity Zones shall be a single Capacity Zone used for all purposes of the relevant Capacity Commitment Period, including for the purposes of reconfiguration auctions and Capacity Supply Obligation Bilaterals.

(b) For all Forward Capacity Auctions beginning with the seventh Forward Capacity Auction (for the Capacity Commitment Period beginning June 1, 2016) the final set of distinct Capacity Zones that will be used for all purposes associated with the relevant Capacity Commitment Period, including for the purposes of reconfiguration auctions and Capacity Supply Obligation Bilaterals, shall be those described in Section III.12.4.

III.13.2.4. Forward Capacity Auction Starting Price and the Cost of New Entry.

The Forward Capacity Auction Starting Price is max [1.6 multiplied by Net CONE, CONE]. References in this Section III.13 to the Forward Capacity Auction Starting Price shall mean the Forward Capacity Auction Starting Price for the Forward Capacity Auction associated with the relevant Capacity Commitment Period.

CONE for the Forward Capacity Auction for the Capacity Commitment Period beginning on June 1, 2025 is \$12.400/kW-month.

Net CONE for the Forward Capacity Auction for the Capacity Commitment Period beginning on June 1, 2025 is \$7.468/kW-month.

The ISO shall recalculate CONE and Net CONE for the Forward Capacity Auction for the Capacity Commitment Period beginning on June 1, 2030. Thereafter, CONE and Net CONE shall be recalculated no less often than once every four years. Whenever these values are recalculated, the ISO will review the results of the recalculation with stakeholders and the new values will be filed with the Commission prior to the Forward Capacity Auction in which the new value is to apply.

Between recalculations, CONE and Net CONE will be adjusted for each Forward Capacity Auction pursuant to Section III.A.21.1.2(e) (except that the bonus tax depreciation adjustment described in Section III.A.21.1.2(e)(5) shall not apply). The annual adjustment to CONE and Net CONE for the Forward Capacity Auction for the Capacity Commitment Period beginning June 1, 2028, shall use a cost of debt of 6.85% and a cost of equity of 13.8%. These values shall also be used for the Forward Capacity Auction for the Capacity Commitment Period beginning on June 1, 2029. The adjusted CONE and Net CONE values will be published on the ISO's web site.

III.13.2.5. Treatment of Specific Offer and Bid Types in the Forward Capacity Auction.

III.13.2.5.1. Offers from New Generating Capacity Resources, New Import Capacity Resources, New Demand Capacity Resources, and New Distributed Energy Capacity Resources.

A New Capacity Offer (other than one from a Conditional Qualified New Resource) clears (receives a Capacity Supply Obligation for the associated Capacity Commitment Period) in the Forward Capacity Auction if the Capacity Clearing Price is greater than or equal to the price specified in the offer, except possibly as a result of the Capacity Rationing Rule described in Section III.13.2.6. An offer from a Conditional Qualified New Resource clears (receives a Capacity Supply Obligation for the associated Capacity Commitment Period) in the Forward Capacity Auction, except possibly as a result of the Capacity Rationing Rule described in Section III.13.2.6, if all of the following conditions are met: (i) the Capacity Clearing Price is greater than or equal to the price specified in the offer; (ii) capacity from that resource is considered in the determination of clearing as described in Section III.13.2.3.2(f); and (iii) such offer minimizes the costs for the associated Capacity Commitment Period, subject to Section III.13.2.7.7(c).

The amount of capacity that receives a Capacity Supply Obligation through the Forward Capacity Auction shall not exceed the quantity of capacity offered from the New Generating Capacity Resource, New Import Capacity Resource, or New Demand Capacity Resource at the Capacity Clearing Price.

III.13.2.5.2. Bids and Offers from Existing Generating Capacity Resources, Existing Import Capacity Resources, Existing Demand Capacity Resources, and Existing Distributed Energy Capacity Resources.

III.13.2.5.2.1. Permanent De-List Bids and Retirement De-List Bids.

(a) Except as provided in Section III.13.2.5.2.5, a Permanent De-List Bid, Retirement De-List Bid or Proxy De-List Bid clears in the Forward Capacity Auction (does not receive a Capacity Supply Obligation) if the Capacity Clearing Price is less than or equal to the price specified in the bid, except possibly as a result of the Capacity Rationing Rule described in Section III.13.2.6.

(b) Unless the capacity has been retained for reliability pursuant to Section III.13.2.5.2.5, if all or part of a resource with a Permanent De-List Bid or Retirement De-List Bid does not clear in the Forward Capacity Auction (receives a Capacity Supply Obligation), the Lead Market Participant shall enter the uncleared portion of the bid into the qualification process for the following Forward Capacity Auction as described in Section III.13.1.2.3.1.5.

(c) If the Capacity Clearing Price is greater than the price specified in a de-list bid submitted by a Lead Market Participant that elected conditional treatment for the de-list bid pursuant to Section III.13.1.2.4.1(b), and there is an associated Proxy De-List Bid that does not clear (receives a Capacity Supply Obligation), the resource will receive a Capacity Supply Obligation at the Capacity Clearing Price.

(d) The process by which the primary auction is cleared (but not the compilation of offers and bids pursuant to Sections III.13.2.3.1 and III.13.2.3.2) will be repeated after the substitution auction is completed if one of the following conditions is met: (1) if any Proxy De-List Bid entered as a result of a Lead Market Participant electing to retire pursuant to Section III.13.1.2.4.1(a) does not clear (receives a Capacity Supply Obligation) in the first run of the primary auction-clearing process and retains some portion of its Capacity Supply Obligation in the substitution auction; or (2) if any Proxy De-List Bid entered as a result of a Lead Market Participant electing conditional treatment pursuant to Section III.13.1.2.4.1(b) does not clear (receives a Capacity Supply Obligation) in the first run of the primary auction-clearing process, the de-list bid submitted by the Lead Market Participant is at or above the Capacity Clearing Price, and the Proxy De-List Bid retains some portion of its Capacity Supply Obligation in the substitution auction. The second run of the primary auction-clearing process: (i) excludes all Proxy De-List Bids, (ii) includes the offers and bids of resources compiled pursuant to Section III.13.2.3.2 that did not receive a Capacity Supply Obligation in the first run of the primary auction-clearing process, excluding the offers, or portion thereof, associated with resources that acquired a Capacity Supply Obligation in the substitution auction, and (iii) includes the capacity of resources, or portion thereof, that retain a Capacity Supply Obligation after the first run of the primary auction-clearing

process and the substitution auction. The second run of the primary auction-clearing process shall not affect the Capacity Clearing Price of the Forward Capacity Auction (which is established by the first run of the primary auction-clearing process).

(e) Resources (other than those still subject to a multi-year Capacity Commitment Period election as described in Sections III.13.1.1.2.2.4 and III.13.1.4.1.1.2.7) that receive a Capacity Supply Obligation as a result of the first run of the primary auction-clearing process shall be paid the Capacity Clearing Price during the associated Capacity Commitment Period. Where the second run of the primary auction-clearing process procures additional capacity, the resulting price, paid during the associated Capacity Commitment Period (and subsequent Capacity Commitment Periods, as elected pursuant to Section III.13.1.1.2.2.4 or Section III.13.1.4.1.1.2.7) to the additionally procured capacity, shall be equal to or greater than the adjusted price resulting from the first run of the primary auction-clearing process for that Capacity Zone.

III.13.2.5.2.2. Static De-List Bids and Export Bids.

Except as provided in Section III.13.2.5.2.5, a Static De-List Bid or an Export Bid clears in the Forward Capacity Auction (does not receive a Capacity Supply Obligation for the associated Capacity Commitment Period) if the Capacity Clearing Price is less than or equal to the price specified in the bid, except possibly as a result of the Capacity Rationing Rule described in Section III.13.2.6.

III.13.2.5.2.3. Dynamic De-List Bids.

A Dynamic De-List Bid clears in the Forward Capacity Auction (does not receive a Capacity Supply Obligation for the associated Capacity Commitment Period) if the Capacity Clearing Price is less than or equal to the price specified in the bid, except possibly as a result of the Capacity Rationing Rule described in Section III.13.2.6. If more Dynamic De-List Bids are submitted at a price than are needed to clear the market, such Dynamic De-List Bids shall be cleared pro-rata, but in no case less than a resource's Rationing Minimum Limit.

III.13.2.5.2.4. Administrative Export De-List Bids.

An Administrative Export De-List Bid clears in the Forward Capacity Auction (does not receive a Capacity Supply Obligation for the associated Capacity Commitment Period) regardless of the Capacity Clearing Price.

III.13.2.5.2.5. Reliability Review.

The ISO shall review each Retirement De-List Bid, Permanent De-List Bid, Static De-List Bid, Export Bid, Administrative Export De-List Bid, Dynamic De-List Bid, and substitution auction demand bid to determine whether the capacity associated with that bid is needed for reliability reasons during the Capacity Commitment Period associated with the Forward Capacity Auction; Proxy De-List Bids shall not be reviewed.

(a) The reliability review of de-list bids will be conducted in descending price order using the price as finalized during qualification or as otherwise directed by the Commission. De-list bids with the same price will be reviewed in the order that produces the least negative impact to reliability; where bids are the same price and provide the same impact to reliability, they will be reviewed based on their submission time. If de-list bids with the same price are from a single generating station, they will be reviewed in an order that seeks to provide (1) the least-cost solution under Section III.13.2.5.2.5.1(d) and (2) the minimum aggregate quantity required for reliability from the generating station. The reliability review of substitution auction demand bids that would otherwise clear will be conducted in order beginning with the resource whose cleared bids contribute the greatest amount to social surplus. The capacity associated with a bid shall be deemed needed for reliability reasons if the absence of the capacity would result in the violation of any NERC or NPCC criteria, or ISO New England System Rules. Bids shall only be rejected pursuant to this Section III.13.2.5.2.5 for the sole purpose of addressing a local reliability issue, and shall not be rejected solely on the basis that acceptance of the bid may result in the procurement of less capacity than the Installed Capacity Requirement (net of HQICCs) or the Local Sourcing Requirement for a Capacity Zone.

(b) If a Retirement De-List Bid, Permanent De-List Bid, Static De-List Bid, Export Bid, Administrative Export De-List Bid, or Dynamic De-List Bid would otherwise clear in the Forward Capacity Auction, but the ISO has determined that some or all of the capacity associated with the de-list bid is needed for reliability reasons, then the de-list bid having capacity needed for reliability will not clear in the Forward Capacity Auction. If the ISO has determined that some or all of the capacity associated with a substitution auction demand bid that would otherwise clear is needed for reliability reasons, then the entire demand bid will not be further included in the substitution auction.

(c) The Lead Market Participant shall be notified that its bid did not clear for reliability reasons at the later of: (i) immediately after the end of the Forward Capacity Auction round in which the auction price reaches the price of the de-list bid; or (ii) as soon as practicable after the time at which the ISO has determined that the bid must be rejected for reliability reasons. In no event, however, shall a Lead Market

Participant be notified that a bid submitted pursuant to Section III.13.1.2.5 and accepted in the qualification process for an Existing Generating Capacity Resource did not clear for reliability reasons if the associated New Generating Capacity Resource remains in the Forward Capacity Auction. In such a case, the Lead Market Participant shall be notified that its bid did not clear for reliability reasons at the later of: (i) immediately after the end of the Forward Capacity Auction round in which the auction price reaches the price of the bid; (ii) immediately after the end of the Forward Capacity Auction round in which the associated New Generating Capacity Resource is fully withdrawn (that is, the Forward Capacity Auction reaches a price at which the resource's New Capacity Offer is zero capacity); or (iii) as soon as practicable after the time at which the ISO has determined that the bid must be rejected for reliability reasons.

(d) A resource that has a de-list bid rejected for reliability reasons shall be compensated pursuant to the terms set out in Section III.13.2.5.2.5.1 and shall have a Capacity Supply Obligation as described in Section III.13.6.1.

(e) The ISO shall review the results of each annual reconfiguration auction and determine whether the reliability need which caused the ISO to reject the de-list bid has been met through the annual reconfiguration auction. The ISO may also attempt to address the reliability concern through other reasonable means (including transmission enhancements).

(f) If the reliability need that caused the ISO to reject a de-list bid is met through a reconfiguration auction or other means, the resource shall retain its Capacity Supply Obligation through the end of the Capacity Commitment Period for which it was retained for reliability (provided that resources that have Permanent De-List Bids or Retirement De-List Bids rejected for reliability shall be permanently de-listed or retired as of the first day of the subsequent Capacity Commitment Period (or earlier if the resource sheds the entirety of the Capacity Supply Obligation as described in Section III.13.2.5.2.5.3(a)(ii) or Section III.13.2.5.2.5.3(b)(ii))).

(g) If a Permanent De-List Bid or a Retirement De-List Bid is rejected for reliability reasons, and the reliability need is not met through a reconfiguration auction or other means, that resource, or portion thereof, as applicable, is no longer eligible to participate as an Existing Capacity Resource in any reconfiguration auction, Forward Capacity Auction or Capacity Supply Obligation Bilateral for that and subsequent Capacity Commitment Periods. If the resource, or portion thereof, continues to be needed for

reliability reasons, it shall be counted as capacity in the Forward Capacity Auction and shall be compensated as described in Section III.13.2.5.2.5.1.

(h) The ISO shall review with the Reliability Committee (i) the status of any prior rejected de-list bids reported to the Commission in an FCA results filing pursuant to Section 13.8.2, and (ii) the status of any Retirement De-List Bid or Permanent De-List Bid that has been rejected for reliability reasons and has elected to continue to operate, prior to the New Capacity Qualification Deadline in accordance with Section 4.1(c) of Attachment K of the ISO OATT.

If an identified reliability need results in the rejection of a Retirement De-List Bid, Permanent De-List Bid, Export Bid, Administrative Export De-List Bid, Static De-List Bid, or Dynamic De-List Bid while executing an FCA, the ISO shall (i) review each specific reliability need with the Reliability Committee in accordance with the timing provided for in the ISO New England Operating Documents and, (ii) update the current system Needs Assessments pursuant to Section 4.1(c) of Attachment K of the ISO OATT. This review and update will follow ISO's filing of the FCA results with the Commission pursuant to Section 13.8.2.

III.13.2.5.2.5A Fuel Security Reliability Review

(a) This Section III.13.2.5.2.5A will remain in effect for the 2022/23, 2023/24 and 2024/25 Capacity Commitment Period, after which this Section III.13.2.5.2.5A will sunset.

(b) This Section III.13.2.5.2.5A will apply to (i) Retirement De-List Bids, (ii) substitution auction demand bids, and (iii) bilateral transactions and reconfiguration auctions demand bids submitted by an Existing Generating Capacity Resource that has been identified as being needed for fuel security during a Forward Capacity Auction. Terms set out in this Section III.13.2.5.2.5A will apply only for the period and resources described within this Section III.13.2.5.2.5A. Where the terms and conditions in this Section III.13.2.5.2.5A differ from terms otherwise set out in Section III.13, the terms of this Section III.13.2.5.2.5A will control for the period and circumstances described in Section III.13.2.5.2.5A.

(c) A fuel security reliability review for the Forward Capacity Market will be performed pursuant to Appendix L to Section III of the Tariff, and in accordance with the inputs and methodology set out to establish the fuel security reliability standard in Appendix I of Planning Procedure No. 10.

(d) For fuel security reliability reviews performed for the primary Forward Capacity Auction, the fuel security reliability review will be performed after the Existing Capacity Retirement Deadline and conducted in descending price order using the price as submitted in the Retirement De-List Bids. Bids with the same price will be reviewed in the order that produces the least negative impact to reliability. Where multiple bids have the same price and the retirement of the Existing Generating Capacity Resources would have the same impact to reliability, they will be reviewed based on their submission time. If bids with the same price are from a single generating station, they will be reviewed in an order that seeks to provide (1) the least-cost solution under Section III.13.2.5.2.5.1(d), and (2) the minimum aggregate quantity required for reliability from the generating station. An Existing Generating Capacity Resource may be needed for both fuel security and for transmission security pursuant to Section III.13.2.5.2.5. The fuel security reliability review will be performed in advance of the reliability review for transmission security. Where an Existing Generating Capacity Resource is needed for both fuel security reasons pursuant to this Section III.13.2.5.2.5A, and transmission security reliability reasons pursuant to Section III.13.2.5.2.5, the generator will be retained for fuel security for purposes of cost allocation.

(e) If an Existing Generating Capacity Resource is identified as being needed for fuel security reasons, and the reliability need is not met through a reconfiguration auction or other means, that resource, or portion thereof, as applicable may not participate in Annual Reconfiguration Auctions for the Capacity Commitment Period(s) for which it is needed for fuel security, or earlier 2022/23, 2023/24 and 2024/25 Capacity Commitment Periods. Such an Existing Generating Capacity Resource that is identified as being needed for fuel security may participate in monthly bilateral transactions and monthly reconfiguration auctions, but may not submit monthly bilateral transactions for December, January or February, or demand bids for the December, January, or February monthly reconfiguration auctions for any period for which they have been identified as being needed for fuel security.

(f) Participants that have submitted a Retirement De-List Bid will be notified by ISO New England if their resource is needed for fuel security reliability reasons no later than 90 days after the Existing Capacity Retirement Deadline. Participants that have submitted a substitution auction demand bid, and where the demand bid has been rejected for reliability reasons, will be notified after the relevant Forward Capacity Auction has been completed.

(g) Where a Retirement De-List Bid would otherwise clear in the Forward Capacity Auction, but the ISO has determined that some or all of the capacity associated with the de-list bid is needed for fuel security reliability reasons, the provisions of III.13.2.5.2.5(b) shall apply.

(h) Existing Generating Capacity Resources that have had their Retirement De-list Bid rejected for fuel security reliability reasons and that do not elect to unconditionally or conditionally retire shall be eligible for compensation pursuant to Section III.13.2.5.2.5.1, except that the difference between payments based on resource de-list bids or cost-of-service compensation as detailed in Section III.13.2.5.2.5.1 and payments based on the Capacity Clearing Price for the Forward Capacity Market under this Section III.13.2.5.2.5.1 shall be allocated on a regional basis to Real Time Load Obligation, excluding Real-Time Load Obligation associated with Dispatchable Asset Related Demand Resources (DARD Pumps and other electric storage based DARDs) and Real-Time Load Obligation associated with Coordinated External Transactions, allocated and collected over a 12 month period. Resources that are identified as needed for fuel security reliability reasons will have their capacity entered into the Forward Capacity Auction pursuant to III.13.2.5.2.5(g) and III.13.2.3.2(b).

(i) Where an Existing Generating Capacity Resource elects a cost-of-service agreement pursuant to Section III.13.2.5.2.5.1 to address a fuel security reliability need, the term of such a cost-of-service agreement may not exceed two years, including renewal through evergreen provisions. A cost-of-service agreement entered into for the 2024/2025 Capacity Commitment Period shall be limited to a total duration of one year.

(j) The ISO shall perform an annual reevaluation of any Existing Generating Capacity Resources retained for reliability under this provision. If a resource associated with a Retirement De-List Bid that was rejected for reliability reasons pursuant to this section, is found to no longer be needed for fuel security, and is not needed for another reliability reason pursuant to Section III.13.2.5.2.5, the resource will be retired from the system as described in Section III.13.2.5.2.5.3(a)(1). In no case will a resource retained for fuel security be retained for fuel security beyond June 1, 2025.

(k) The ISO will review Retirement De-List Bids rejected for fuel security reliability reasons with the Reliability Committee in the same manner as described in Section III.13.2.5.2.5(h).

III.13.2.5.2.5.1. Compensation for Bids Rejected for Reliability Reasons.

(a) In cases where a Static De-List Bid, Export Bid, Administrative Export De-List Bid, Dynamic De-List Bid, partial Permanent De-List Bid, or partial Retirement De-List Bid has been rejected for reliability reasons pursuant to Sections III.13.1.2.3.1.5.1 or III.13.2.5.2.5, the resource will be paid by the ISO in the same manner as all other capacity resources, except that payment shall be made on the basis of its de-list bid as accepted for the Forward Capacity Auction for the relevant Capacity Commitment Period instead of the Forward Capacity Market Clearing Price. Under this Section, accepted Dynamic De-List Bids filed with the Commission as part of the FCA results filing are subject to review and approval by the Commission pursuant to the “just and reasonable” standard of Section 205 of the Federal Power Act. If a resource with a partial Permanent De-List Bid or partial Retirement De-List Bid continues to be needed for reliability in Capacity Commitment Periods following the Capacity Commitment Period for which the partial Permanent De-List Bid or partial Retirement De-List Bid was rejected, payment will continue to be pursuant to this Section III.13.2.5.2.5.1(a).

(b) In cases where a Permanent De-List Bid or a Retirement De-List Bid for the capacity of an entire resource has been rejected for reliability reasons pursuant to Section III.13.1.2.3.1.5.1 or III.13.2.5.2.5, the resource will be paid either (i) in the same manner as all other capacity resources, except that payment shall be made on the basis of its Commission-approved Permanent De-List Bid or Commission-approved Retirement De-List Bid for the relevant Capacity Commitment Period instead of the Forward Capacity Market Clearing Price or (ii) under the terms of a cost-of-service agreement pursuant to Section III, Appendix I. Resources must notify the ISO of their election within six months after the ISO files the results of the relevant Forward Capacity Auction with the Commission. A resource that has had a Permanent De-List Bid or Retirement De-List Bid rejected for reliability reasons and does not notify the ISO of its election as described in this paragraph will be paid on the basis of the resource’s Commission-approved Permanent De-List Bid or Commission-approved Retirement De-List Bid. Cost-of-service agreements must be filed with and approved by the Commission, and cost-of-service compensation may not commence until the Commission has approved the use of cost-of-service rates for the unit in question or has accepted the use of the cost-of-service rates subject to refund while the rate is reviewed. In no event will payment under the cost-of-service agreement start prior to the start of the relevant Capacity Commitment Period for which the Permanent De-List Bid or Retirement De-List Bid was submitted. If a resource continues to be needed for reliability in Capacity Commitment Periods following the Capacity Commitment Period for which the Permanent De-List Bid or Retirement De-List Bid was rejected, payment will continue to be pursuant to this Section III.13.2.5.2.5.1(b). Resources that elect payment based on the Commission-approved Permanent De-List Bid or Commission-approved Retirement De-List Bid may file with the Commission pursuant to Section 205 of the Federal Power Act to update its

Permanent De-List Bid or Retirement De-List Bid if the unit is retained for reliability for a period longer than the Capacity Commitment Period for which the Permanent De-List Bid or Retirement De-List Bid was originally submitted.

(c) The difference between payments based on resource de-list bids or cost-of-service compensation as detailed in this Section III.13.2.5.2.5.1 and payments based on the market clearing price for the Forward Capacity Market under this Section III.13.2.5.2.5.1 shall be allocated to Regional Network Load within the affected Reliability Region.

(d) **Compensation for Existing Generating Capacity Resources at Stations with Common Costs that are Retained for Reliability.** If a Static De-List Bid, Permanent De-List Bid, or Retirement De-List Bid from an Existing Generating Capacity Resource that is associated with a Station having Common Costs is rejected for reliability reasons, the Existing Generating Capacity Resource will be paid as follows: (i) if one or more Existing Generating Capacity Resources at the Station assume a Capacity Supply Obligation through the normal clearing of the Forward Capacity Auction and one or more Existing Generating Capacity Resources are retained for reliability, then the Existing Generating Capacity Resources retained for reliability will be paid the sum of the Asset-Specific Going Forward Costs for the assets comprising that Existing Generating Capacity Resource; or (ii) if no Existing Generating Capacity Resources at the Station assumes a Capacity Supply Obligation through the normal clearing of the Forward Capacity Auction and one or more Existing Generating Capacity Resources are retained for reliability, then each Existing Generating Capacity Resource retained for reliability will be paid the sum of the Asset-Specific Going Forward Costs for the assets associated with that Existing Generating Capacity Resource plus a portion of the Station Going Forward Common Costs (such that the full amount of Station Going Forward Common Costs are allocated to the Existing Generating Capacity Resources retained for reliability).

(e) If ISO-NE is a party to a cost-of-service agreement filed after January 1, 2019 that changes any resource performance-related obligations contained in Section III, Appendix I (provided that those obligations are different than the obligations of an Existing Generating Capacity Resource with a Capacity Supply Obligation), no later than 30 days after such agreement is filed with the Commission, ISO-NE shall provide to stakeholders quantitative and qualitative information on the need for, and the impacts of, the proposed changes.

III.13.2.5.2.5.2. Incremental Cost of Reliability Service From Permanent De-List Bid or Retirement De-List Bid Resources.

In cases where an Existing Generating Capacity Resource, Existing Demand Capacity Resource, or Existing Distributed Energy Capacity Resource has had a Permanent De-List Bid or Retirement De-List Bid for the entire resource rejected for reliability reasons pursuant to Sections III.13.1.2.3.1.5.1 or III.13.2.5.2.5, does not elect to retire pursuant to Section III.13.1.2.3.1.5.1(d), and must make a capital improvement to the unit to remain in operation in order to continue to operate to meet the reliability need identified by the ISO, the resource may make application to the Commission pursuant to Section 205 of the Federal Power Act to receive just and reasonable compensation of the capital investment pursuant to the following:

(a) **Notice to State Utility Commissions, the ISO and Stakeholder Committees of Expectation that a Capital Expense will be Necessary to Meet the Reliability Need Identified by the ISO:** A resource seeking to avail itself of the recovery mechanism provided in this Section must notify the state utility commissions in the states where rate payers will fund the capital improvement, the ISO, and the Participants Committee of its intent to make the capital expenditure and the need for the expenditure. This notification must be made at least 120 days prior to the resource making the capital expenditure.

(b) **Required Showing Made to the Federal Energy Regulatory Commission:** In order to receive just and reasonable compensation for a capital expenditure under this Section, a resource must file an explanation of need with the Commission that explains why the capital expenditure is necessary in order to meet the reliability need identified by the ISO. This showing must demonstrate that the expenditure is reasonably determined to be the least-cost commercially reasonable option consistent with Good Utility Practice to meet the reliability need identified by the ISO. If the resource elects cost-of-service treatment pursuant to Section III.13.2.5.2.5.1(b), the Incremental Cost of Reliability Service filing described in this Section must be made separately from and may be made in advance of the resource's cost-of-service filing.

(c) **Allocation:** Costs of capital expenditures approved by the Commission under this provision shall be allocated to Regional Network Load within the affected Reliability Region.

III.13.2.5.2.5.3. Retirement and Permanent De-Listing of Resources.

(a)(i) A resource, or portion thereof, will be retired coincident with the commencement of the relevant Capacity Commitment Period, or earlier as described in Section III.13.2.5.2.5.3(a)(ii), if the resource: (1)

submitted a Retirement De-List Bid at or above the Forward Capacity Auction Starting Price and was not retained for reliability pursuant to Section III.13.1.2.3.1.5.1; (2) submitted a Permanent De-List Bid or Retirement De-List Bid, elected to retire pursuant to Section III.13.1.2.4.1(a), and was not retained for reliability pursuant to Section III.13.1.2.3.1.5.1; (3) elected conditional treatment pursuant to Section III.13.1.2.4.1(b) for a Retirement De-List Bid with a submitted price at or above the Capacity Clearing Price and was not retained for reliability pursuant to Section III.13.1.2.3.1.5.1; or (4) had a Commission-approved Retirement De-List Bid clear in the Forward Capacity Auction. In the case of a Retirement De-List Bid rejected for reliability, if the reliability need that resulted in the rejection for reliability is met, the resource, or portion thereof, will be retired coincident with the end of Capacity Supply Obligation (or earlier as described in Section III.13.2.5.2.5.3(a)(ii)) unless the Commission directs that the obligation to retire be removed or the retirement date extended as part of an Incremental Cost of Reliability Service filing made pursuant to Section III.13.2.5.2.5.2. The interconnection rights, or relevant portion thereof, for the resource will terminate and the status of the resource, or portion thereof, will be converted to retired on the date of retirement, consistent with the provisions of Schedules 22 and 23 of the OATT.

(a)(ii) A resource, or portion thereof, that is to be retired pursuant to Section III.13.2.5.2.5.3(a)(i) may retire the resource, or portion thereof, earlier than the Capacity Commitment Period for which its Retirement De-List Bid was submitted if it is able to transfer the relevant Capacity Supply Obligation of the resource to another resource through one or more approved Capacity Supply Obligation Bilateral transactions as described in Section III.13.5.1 or reconfiguration auctions as described in Section III.13.4.1. A resource, or portion thereof, electing to retire pursuant to this provision must notify the ISO in writing of its election to retire and the date of retirement. The interconnection rights, or relevant portion thereof, for the resource will terminate and the status of the resource, or portion thereof, will be converted to retired on the date of retirement, consistent with the provisions of Schedules 22 and 23 of the OATT.

(b)(i) A resource, or portion thereof, will be permanently de-listed from the Forward Capacity Market as of the relevant Capacity Commitment Period, or earlier as described in Section III.13.2.5.2.5.3(b)(ii), if the resource: (1) submitted an Internal Market Monitor-approved Permanent De-List Bid at or above the Forward Capacity Auction Starting Price and was not retained for reliability pursuant to Section III.13.1.2.3.1.5.1; (2) elected conditional treatment pursuant to Section III.13.1.2.4.1(b) for a Permanent De-List Bid with a submitted price at or above the Capacity Clearing Price and was not retained for reliability pursuant to Section III.13.1.2.3.1.5.1; or (3) had a Commission-approved Permanent De-List Bid clear in the Forward Capacity Auction. The CNR Capability interconnection rights, or relevant portion thereof, for the resource will be adjusted downward to reflect the Permanent De-List Bid,

consistent with the provisions of Schedules 22 and 23 of the OATT. A resource that permanently de-lists pursuant to this Section III.13.2.5.2.5.3(b)(i) is precluded from subsequent participation in the Forward Capacity Market unless it qualifies as a New Generating Capacity Resource pursuant to Section III.13.1.1.1.2.

(b)(ii) A resource, or portion thereof, that is to be permanently de-listed pursuant to Section III.13.2.5.2.5.3(b)(i) may be permanently de-listed earlier than the Capacity Commitment Period for which its Permanent De-List Bid was submitted if it is able to transfer the entire Capacity Supply Obligation of the resource to another resource through one or more approved Capacity Supply Obligation Bilateral transactions as described in Section III.13.5.1 or reconfiguration auctions as described in Section III.13.4.

(c) A resource that has never been counted as a capacity resource may retire the asset by notifying the ISO in writing of its election to retire and the date of retirement. The date specified for retirement is subject to the limit for resource inactivity set out in Section III.13.2.5.2.5.3(d). The interconnection rights for the resource will terminate and the status of the resource will be converted to retired on the date of retirement.

(d) A resource that does not operate commercially for a period of three calendar years will be deemed by the ISO to be retired. The interconnection rights for the unit will terminate and the status of the unit will be converted to retired on the date of retirement. Where a generator has submitted an application to repower under Schedule 22 or 23 of the OATT, the current interconnection space will be maintained beyond the three years unless the application under Schedule 22 or 23 is withdrawn voluntarily or by the operation of those provisions. Where an application is withdrawn under Schedule 22 or 23, the three year period will be calculated from the last day of commercial operation of the resource.

III.13.2.6. Capacity Rationing Rule.

Except for Dynamic De-List Bids, Export Bids, and offers from New Import Capacity Resources that are subject to rationing pursuant to Section III.13.1.3.5.8 and Existing Import Capacity Resources that are subject to rationing pursuant to Section III.13.1.3.3.A, offers and bids in the Forward Capacity Auction must clear or not clear in whole, unless the offer or bid specifically indicates that it may be rationed. A resource may elect to be rationed to its Rationing Minimum Limit pursuant to Sections III.13.1.1.2.2.3 and III.13.1.2.1.2. Offers from New Import Capacity Resources and Existing Import Capacity Resources will not be rationed where such rationing would violate any applicable physical minimum flow

requirements on the associated interface. Export Bids may elect to be rationed generally, but regardless of such election will always be subject to potential rationing where the associated external interface binds. If more Dynamic De-List Bids are submitted at a price than are needed to clear the market, the bids shall be cleared pro-rata, subject to honoring the Rationing Minimum Limit of the resources. Where an offer or bid may be rationed, such rationing may not result in procuring an amount of capacity that is below the associated resource's Rationing Minimum Limit.

III.13.2.7. Determination of Capacity Clearing Prices.

The Capacity Clearing Price in each Capacity Zone shall be the price established by the descending clock auction as described in Section III.13.2.3, subject to the other provisions of this Section III.13.2.7. The Capacity Clearing Price for the Rest-of-Pool Capacity Zone and the Capacity Clearing Price for each import-constrained Capacity Zone shall not exceed the Forward Capacity Auction Starting Price. The Capacity Clearing Price for an export-constrained Capacity Zone shall not be less than zero.

III.13.2.7.1. Import-Constrained Capacity Zone Capacity Clearing Price Floor.

The Capacity Clearing Price in an import-constrained Capacity Zone shall not be lower than the Capacity Clearing Price in the Rest-of-Pool Capacity Zone. If after the Forward Capacity Auction is conducted, the Capacity Clearing Price in an import-constrained Capacity Zone is less than the Capacity Clearing Price in the Rest-of-Pool Capacity Zone, all resources clearing in the import-constrained Capacity Zone shall be paid based on the Capacity Clearing Price in the Rest-of-Pool Capacity Zone during the associated Capacity Commitment Period.

III.13.2.7.2. Export-Constrained Capacity Zone Capacity Clearing Price Ceiling.

The Capacity Clearing Price in an export-constrained Capacity Zone shall not be higher than the Capacity Clearing Price in the Rest-of-Pool Capacity Zone.

The Capacity Clearing Price in a nested Capacity Zone shall not be higher than the Capacity Clearing Price in the Capacity Zone within which it is located.

III.13.2.7.3. [Reserved.]

III.13.2.7.3A. Treatment of Imports.

At the Capacity Clearing Price, if the amount of capacity offered from New Import Capacity Resources and Existing Import Capacity Resources over an interface between an external Control Area and the New

England Control Area is greater than that interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF):

(a) the full amount of capacity offered at that price from Existing Import Capacity Resources associated with contracts listed in Section III.13.1.3.3.A(c) shall clear, unless that amount of capacity is greater than the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF), in which case the capacity offered at that price from Existing Import Capacity Resources associated with contracts listed in Section III.13.1.3.3.A(c) shall be rationed such that the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF) is not exceeded; and

(b) if there is space remaining over the interface after the allocation described in subsection (a) above, then the capacity offered at that price from New Import Capacity Resources and Existing Import Capacity Resources other than Existing Import Capacity Resources associated with the contracts listed in Section III.13.1.3.3.A(c) will be rationed such that the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF) is not exceeded. If the capacity offered at that price by any single New Import Capacity Resource or Existing Import Capacity Resource that is not associated with the contracts listed in Section III.13.1.3.3.A(c) is greater than the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF), then the capacity offered by that resource that is above the interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF) shall not be included in the rationing.

III.13.2.7.4. Effect of Capacity Rationing Rule on Capacity Clearing Price.

Where the requirement that offers and bids clear or not clear in whole (Section III.13.2.6) prohibits the descending clock auction in its normal progression from clearing one or more Capacity Zones at the precise amount of capacity determined by the Capacity Zone Demand Curves specified in Section III.13.2.2, then the auctioneer shall analyze the aggregate supply curve to determine cleared capacity offers and Capacity Clearing Prices that seek to maximize social surplus for the associated Capacity Commitment Period. The clearing algorithm may result in offers below the Capacity Clearing Price not clearing, and in de-list bids below the Capacity Clearing Price clearing.

III.13.2.7.5. Effect of Decremental Repowerings on the Capacity Clearing Price.

Where the effect of accounting for certain repowering offers and bids (as described in Section III.13.2.3.2(e)) results in the auction not clearing at the lowest price for the required quantity of capacity, then the auctioneer will conduct additional auction rounds of the Forward Capacity Auction as necessary to minimize capacity costs.

III.13.2.7.6. Minimum Capacity Award.

Each offer (excluding offers from Conditional Qualified New Resources that do not satisfy the conditions specified in Sections III.13.2.5.1(i)-(iii)) clearing in the Forward Capacity Auction shall be awarded a Capacity Supply Obligation at least as great as the amount of capacity offered at the End-of-Round Price in the final round of the Forward Capacity Auction. For Intermittent Power Resources, the Capacity Supply Obligation for months in the winter period (as described in Section III.13.1.5) shall be adjusted based on its winter Qualified Capacity as determined pursuant to Section III.13.1.1.2.2.6 and Section III.13.1.2.2.2.

III.13.2.7.7. Tie-Breaking Rules.

Where the provisions in this Section III.13.2 for clearing the Forward Capacity Auction (system-wide or in a single Capacity Zone) result in a tie – that is, where two or more resources offer sufficient capacity at prices that would clear the auction at the same minimum costs – the auctioneer shall apply the following rules (in sequence, as necessary) to determine clearing:

- (a) [Reserved.]
- (b) If multiple projects may be rationed, they will be rationed proportionately.
- (c) Where clearing either the offer associated with a resource with a higher queue priority at a Conditional Qualified New Resource's location or the offer associated with the Conditional Qualified New Resource would result in equal costs, the offer associated with the resource with the higher queue priority shall clear.
- (d) The offer associated with the Project Sponsor having the lower market share in the capacity auction (including Existing Generating Capacity Resources, Existing Import Capacity Resources, and Existing Demand Capacity Resources) shall be cleared.

III.13.2.8. Capacity Substitution Auctions.

III.13.2.8.1. Administration of Substitution Auctions.

Following the completion of the primary auction-clearing process of the Forward Capacity Auction as provided for in Section III.13.2, the ISO shall conduct a substitution auction, using a static double auction to clear supply offers (offers to assume a Capacity Supply Obligation) and demand bids (bids to shed a Capacity Supply Obligation). Supply offers and demand bids will be modeled in the Capacity Zone where the associated resources are electrically interconnected.

III.13.2.8.1.1. Substitution Auction Clearing and Awards.

The substitution auction shall maximize total social surplus as specified by the demand bids and supply offers used in the auction. The maximization is constrained as follows:

- (i) By the external interface limits modeled in the primary auction-clearing process.
- (ii) Such that the net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is equal to zero.
- (iii) Such that, for each import-constrained Capacity Zone, if the zone's total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction is less than the zone threshold quantity specified below, then the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is equal to zero; otherwise, the sum of the zone's total Capacity Supply Obligations awarded in the primary auction-clearing process and the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is greater than or equal to the zone threshold quantity specified below.
- (iv) Such that, for each export-constrained Capacity Zone, if the zone's total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction is greater than the zone threshold quantity specified below, then the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is equal to zero; otherwise, the sum of the zone's total Capacity Supply Obligations awarded in the primary auction-clearing process and the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is less than or equal to the zone threshold quantity specified below.

In applying constraint (iii), the zone threshold quantity for an import-constrained Capacity Zone shall be equal to the sum of its Capacity Zone Demand Curve truncation point quantity specified in Section

III.13.2.2.2 and the total quantity of any Export Bids and any Administrative Export De-List Bids for which the exporting resource is located outside the import-constrained Capacity Zone, that are used to export capacity across an external interface connected to the import-constrained Capacity Zone, and that cleared in the primary auction-clearing process of the Forward Capacity Auction.

In applying constraint (iv), the zone threshold quantity for an export-constrained Capacity Zone shall be equal to its Capacity Zone Demand Curve truncation point quantity specified in Section III.13.2.2.3 less the total quantity of any Export Bids and any Administrative Export De-List Bids for which the exporting resource is located in the export-constrained Capacity Zone, including any Export Bids and any Administrative Export De-List Bids in an associated nested export-constrained Capacity Zone, that are used to export capacity across an external interface connected to another Capacity Zone, and that cleared in the primary auction-clearing process of the Forward Capacity Auction.

In applying constraints (iii) and (iv), a zone's total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction and net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction shall include the Capacity Supply Obligations of Import Capacity Resources at each external interface connected to the Capacity Zone.

In applying constraints (iii) and (iv), a zone's total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction shall include the Capacity Supply Obligations awarded to Proxy De-List Bids within the zone, and the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction shall include the Capacity Supply Obligations shed from demand bids associated with Proxy De-List Bids within the zone.

In cases in which there are multiple clearing outcomes that would each maximize the substitution auction's objective, the following tie-breaking rules will apply in the following sequence: (i) non-rationable demand bids associated with Lead Market Participants having the largest total FCA Qualified Capacity of Existing Capacity Resources will be cleared first; and (ii) rationable supply offers will be cleared in proportion to their offer quantity.

For Intermittent Power Resources, other than those participating as the summer resource in a Composite FCM Transaction, the cleared award for supply offers and demand bids shall be adjusted for the months in the winter period (as described in Section III.13.1.5) using the ratio of the resource's cleared offer or bid amount divided by its FCA Qualified Capacity multiplied by its winter Qualified Capacity as

determined pursuant to Section III.13.1.1.2.2.6 and Section III.13.1.2.2.2 after removing any portion of the resource's winter Qualified Capacity that is participating in a Composite FCM Transaction.

The cleared offer amount awarded to a Composite FCM Transaction in the substitution auction will be assigned to the summer and winter resources for their respective obligation months during the Capacity Commitment Period as described in Section III.13.1.5.

If, after the substitution auction, a resource has a Capacity Supply Obligation below its Economic Minimum Limit, it must meet the requirements of Section III.13.6.1.1.1.

III.13.2.8.1.2. Substitution Auction Pricing.

The substitution auction will specify clearing prices for Capacity Zones and external interfaces as follows.

For each import-constrained Capacity Zone, if the sum of the zone's total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction and the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is greater than its zone threshold quantity specified in Section III.13.2.8.1.1, then supply offers and demand bids in the substitution auction in the import-constrained Capacity Zone shall be treated as offers and bids in the Rest-of-Pool Capacity Zone for purposes of determining substitution auction clearing prices.

For each export-constrained Capacity Zone,

- (i) if the sum of the zone's total Capacity Supply Obligations, including Capacity Supply Obligations in a nested Capacity Zone, awarded in the primary auction-clearing process of the Forward Capacity Auction and the zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction including net cleared Capacity Supply Obligations in the nested Capacity Zone is less than its zone threshold quantity specified in Section III.13.2.8.1.1, then supply offers and demand bids in the substitution auction in the export-constrained Capacity Zone (excluding supply offers and demand bids in the nested Capacity Zone that are not treated as offers and bids in the export-constrained Capacity Zone pursuant to Section III.13.2.8.1.2(ii)) shall be treated as offers and bids in the Rest-of-Pool Capacity Zone for purposes of determining substitution auction clearing prices.
- (ii) if the sum of a nested Capacity Zone's Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction and the nested

Capacity Zone's net cleared Capacity Supply Obligations (total acquired less total shed) in the substitution auction is less than its zone threshold quantity specified in Section III.13.2.8.1.1, then supply offers and demand bids in the substitution auction in the nested Capacity Zone shall be treated as offers and bids in the export-constrained Capacity Zone within which the nested Capacity Zone is located, for purposes of determining substitution auction clearing prices.

The substitution auction clearing prices for the Rest-of-Pool Capacity Zone and for any constrained zones pooled with the Rest-of-Pool Capacity Zone for pricing purposes shall be determined by the price of the demand bid or supply offer that is marginal. If a demand bid associated with a Proxy De-List Bid is marginal, then the substitution auction clearing prices shall be set equal to the Capacity Clearing Prices.

The substitution auction clearing price for a constrained Capacity Zone that is not pooled with the Rest-of-Pool Capacity Zone for pricing purposes shall be determined by the price of the demand bid or supply offer associated with the separately-priced constrained Capacity Zone that is marginal. If a demand bid associated with a Proxy De-List Bid is marginal, then the substitution auction clearing price shall be set equal to the Capacity Clearing Price for the constrained Capacity Zone.

The substitution auction clearing price for a nested export-constrained Capacity Zone that is not pooled with the export-constrained Capacity Zone in which it is located for pricing purposes shall be determined by the price of the demand bid or supply offer that is marginal in the nested export-constrained Capacity Zone. If a demand bid associated with a Proxy De-List Bid is marginal, then the substitution auction clearing price for the nested export-constrained Capacity Zone shall be equal to the Capacity Clearing Price for that nested export-constrained Capacity Zone.

If the net quantity of Capacity Supply Obligations awarded in the primary Forward Capacity Auction and substitution auction over an interface between the New England Control Area and an external Control Area is less than that interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in the case of the Phase I/II HVDC-TF), then supply offers and demand bids in the substitution auction at the interface shall be treated as offers and bids in the modeled Capacity Zone associated with that interface for purposes of determining substitution auction clearing prices.

If the net quantity of Capacity Supply Obligations awarded in the primary Forward Capacity Auction and substitution auction over an interface between the New England Control Area and an external Control Area is equal to that interface's approved capacity transfer limit (net of tie benefits, or net of HQICC in

the case of the Phase I/II HVDC-TF), then the substitution auction clearing price for that interface will be determined by the demand bid or supply offer that is marginal at that interface. If a cleared demand bid associated with a Proxy De-List Bid is marginal at the external interface, then the substitution auction clearing price for that interface shall be set equal to the Capacity Clearing Price for that interface.

The substitution auction clearing price for an import-constrained Capacity Zone where the total Capacity Supply Obligations awarded in the primary action-clearing process of the Forward Capacity Auction are greater than or equal to the zone's threshold quantity specified in Section III.13.2.8.1.1 shall not be lower than the substitution auction clearing price for the Rest-of-Pool Capacity Zone.

The substitution auction clearing price for an export-constrained Capacity Zone that is not a nested export-constrained Capacity Zone, where the total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction are less than or equal to the zone's threshold quantity specified in Section III.13.2.8.1.1 shall not exceed the substitution auction clearing price for the Rest-of-Pool Capacity Zone.

The substitution auction clearing price for a nested export-constrained Capacity Zone where the total Capacity Supply Obligations awarded in the primary auction-clearing process of the Forward Capacity Auction are less than or equal to the zone's threshold quantity specified in Section III.13.2.8.1.1 shall not exceed the substitution auction clearing price for the Capacity Zone within which it is located.

The substitution auction clearing price at an external interface shall not exceed the substitution auction clearing price in the Capacity Zone connected to the external interface.

If, pursuant to the rules specified above, the substitution auction clearing price for any Capacity Zone or external interface would exceed the Capacity Clearing Price for that location, the substitution auction clearing price for that location only is set equal to its Capacity Clearing Price.

The substitution auction clearing price for any Capacity Zone or external interface cannot be less than negative one multiplied by the Forward Capacity Auction Starting Price.

III.13.2.8.2. Supply Offers in the Substitution Auction.

III.13.2.8.2.1. Supply Offers.

To participate as supply in the substitution auction, a Project Sponsor for a New Capacity Resource must meet the following criteria:

- (a) The Project Sponsor and the New Capacity Resource must meet all the requirements for participation in the Forward Capacity Auction specified in Section III.13.1.
- (b) The Project Sponsor must elect to have the resource participate in the substitution auction during the New Capacity Show of Interest Window. Pursuant to an election, the resource's total amount of FCA Qualified Capacity that qualifies as a New Capacity Resource will be obligated to participate in the substitution auction, including any capacity of a Renewable Technology Resource that was not qualified due to proration pursuant to Section III.13.1.1.2.10(a), and subject to the other provisions of this Section III.13.2.8.2.
- (c) The Project Sponsor must certify that the New Capacity Resource is a Sponsored Policy Resource as part of the submission of the New Capacity Qualification Package.

Substitution auction supply offers are rationable.

A resource participating in the Forward Capacity Auction as a New Generating Capacity Resource pursuant to Section III.13.1.1.1.2 (resources previously counted as capacity resources) is not eligible to participate as supply in the substitution auction. A resource is not eligible to participate as supply in the substitution auction if it has submitted a demand bid for the substitution auction.

A Composite FCM Transaction comprised of a summer resource that is a Sponsored Policy Resource is eligible to participate as supply in the substitution auction.

A Conditional Qualified New Resource may participate in the substitution auction provided that the resource with which it has overlapping interconnection impacts: (i) did not receive a Capacity Supply Obligation, fully or partially, in the primary auction-clearing process, and: (ii) is not eligible to participate in the substitution auction. A resource having a higher priority in the queue than a Conditional Qualified New Resource with which it has overlapping interconnection impact may participate in the substitution auction provided that the Conditional Qualified New Resource did not receive a Capacity Supply Obligation, fully or partially, in the primary auction-clearing process.

III.13.2.8.2.2. Supply Offer Prices.

Project Sponsors must submit substitution auction supply offer prices no later than five Business Days after the deadline for submission of offers composed of separate resources.

A substitution auction supply offer must be in the form of a curve (with up to five price-quantity pairs). The curve may not decrease in quantity as the price increases. A supply offer price for the substitution auction may not be greater than the Forward Capacity Auction Starting Price or lower than negative one multiplied by the Forward Capacity Auction Starting Price.

If the offer quantity does not equal the resource's FCA Qualified Capacity, the quantity for which no offer price was submitted will be assigned a price equal to the Forward Capacity Auction Starting Price.

III.13.2.8.2.3. Supply Offers Entered into the Substitution Auction

Supply offers for resources that satisfy all of the criteria in Section III.13.2.8.2.1 to participate in the substitution auction may be adjusted prior to conducting the substitution auction-clearing process using the following adjustments:

(a) Any portion of a resource's FCA Qualified Capacity that was cleared (received a Capacity Supply Obligation) in the primary auction-clearing process will be removed from the resource's substitution auction supply offer beginning with the lowest priced price-quantity pairs.

(b) After performing the adjustment specified in Section III.13.2.8.2.3(a), any price-quantity pairs in a resource's substitution auction supply offer with a price greater than the Capacity Clearing Price for the resource's Capacity Zone or external interface are removed from the offer.

III.13.2.8.3. Demand Bids in the Substitution Auction.

III.13.2.8.3.1. Demand Bids.

Market Participants with Existing Generating Capacity Resources or Existing Import Capacity Resources associated with External Elective Transmission Upgrades may elect to submit demand bids for the substitution auction for those resources by the Existing Capacity Retirement Deadline. The election must specify the total amount of the resource's Qualified Capacity that will be associated with its demand bid.

A resource, including any portion of an existing resource that qualifies as a New Capacity Resource, must have achieved FCM Commercial Operation no later than seven days after the issuance by the ISO of the qualification determination notification described in Section III.13.1.2.4(b) in order to participate as demand in the substitution auction.

Regardless of whether an election is made, a demand bid is required for any portion of a resource that is associated with a Retirement De-List Bid, provided that the entire resource has achieved FCM Commercial Operation no later than seven days after the issuance by the ISO of the qualification determination notification described in Section III.13.1.2.4(b).

A resource for which a demand bid election has been made cannot participate in a Composite FCM Transaction, cannot be designated as a Self-Supplied FCA Resource, and will not have incremental summer or winter capacity that does not span the entire Capacity Commitment Period subjected to the treatment specified in Section III.13.1.1.1.3.A.

Demand bids are non-rationable.

A demand bid will be entered into the substitution auction for the portion of the resource that receives a Capacity Supply Obligation in the primary auction-clearing process, subject to the other provisions of this Section III.13.2.8.3. A resource, or portion thereof, associated with a cleared demand bid shall be retired from all New England Markets at the start of the Capacity Commitment Period associated with the Forward Capacity Auction.

III.13.2.8.3.2. Demand Bid Prices.

Market Participants must submit substitution auction demand bid prices no later than five Business Days after the deadline for submission of offers composed of separate resources.

A substitution auction demand bid must be in the form of a curve (with up to five price-quantity pairs). The curve may not decrease in quantity as the price decreases. A demand bid price for the substitution auction may not be greater than the Forward Capacity Auction Starting Price or lower than negative one multiplied by the Forward Capacity Auction Starting Price.

If the bid quantity does not equal the total bid amount submitted by the Market Participant or required for a Retirement De-List Bid pursuant to Section III.13.2.8.3.1, the quantity for which no bid price was

specified will be assigned a price equal to negative one multiplied by the Forward Capacity Auction Starting Price.

For auctions associated with a Capacity Commitment Period that begins on or after June 1, 2023, Market Participants may elect either of the demand bid adjustment methods specified in Section III.13.2.8.3.3(b) for the resource by no later than five Business Days after the deadline for submission of offers composed of separate resources. If no such election is made, the adjustment applied shall be the method specified in Section III.13.2.8.3.3(b)(i).

III.13.2.8.3.3. Demand Bids Entered into the Substitution Auction.

If a resource is determined to be needed for reliability pursuant to Section III.13.2.5.2.5, then any demand bid associated with the resource will not be further included in the substitution auction.

Demand bids for resources that satisfy all of the criteria in Section III.13.2.8.3.1 to participate in the substitution auction will be adjusted prior to conducting the substitution auction-clearing process using the following adjustments:

(a) For the substitution auction associated with the Capacity Commitment Period beginning on June 1, 2022, any portion of a resource's demand bid that exceeds its Capacity Supply Obligation awarded in the primary auction-clearing process will be removed from the substitution auction demand bid beginning with the highest priced price-quantity pairs.

(b) For substitution auctions associated with a Capacity Commitment Period that begins on or after June 1, 2023, a resource's demand bid will be adjusted using one of the following methods as elected pursuant to Section III.13.2.8.3.2:

(i) The portion of a resource's capacity that did not receive a Capacity Supply Obligation in the primary auction-clearing process will be removed from the substitution auction demand bid beginning with the highest priced price-quantity pair.

(ii) Any portion of a resource's demand bid that exceeds its Capacity Supply Obligation awarded in the primary auction-clearing process will be removed from the substitution auction demand bid beginning with the lowest priced price-quantity pair.

(c) After performing the modification specified in Sections III.13.2.8.3.3(a) or III.13.2.8.3.3(b), any price-quantity pairs in a resource's substitution auction demand bid with a price greater than the Capacity

Clearing Price for the resource's Capacity Zone or external interface will have its price reduced to the Capacity Clearing Price for the resource's Capacity Zone or external interface.

Except as provided in Section III.13.2.5.2.1(c), a rationable demand bid will be entered into the substitution auction on behalf of any Proxy De-List Bid associated with a Permanent De-List Bid or Retirement De-List Bid. The demand bid quantity will equal the portion of the Proxy De-List Bid that was not cleared (received a Capacity Supply Obligation) in the first run of the primary auction-clearing process. The demand bid will have priority to clear before non-rationable demand bids.

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

ISO New England Inc. and)
New England Power Pool) Docket No. ER24-____-000
)
)

**TESTIMONY OF KEVIN COOPEY ON
BEHALF OF ISO NEW ENGLAND INC.**

1 **I. WITNESS IDENTIFICATION**

2 **Q: Please state your name, title, and business address.**

3 A: My name is Kevin Coopey. I am a Lead Analyst in Market Development at ISO New
4 England Inc. (the “ISO”).¹ My business address is One Sullivan Road, Holyoke,
5 Massachusetts 01040.

6
7 **Q: Please describe your responsibilities, work experience, and educational background.**

8 A: I joined the ISO in 2011 as a Market Operations Analyst, and in 2015 became a Lead
9 Market Analyst supporting the ISO’s Market Development team. From October 2021 to
10 October 2022, I managed a team of professionals tasked with the daily administration of
11 the ISO New England Financial Assurance Policy. I rejoined the Market Development
12 team as a Lead Analyst in October 2022. Prior to joining the ISO, I worked in power

¹ Capitalized terms used in this testimony but not otherwise defined herein shall have the meanings ascribed to them in the ISO New England Transmission, Markets and Services Tariff (the “Tariff”), the Second Restated New England Power Pool Agreement, and the Participants Agreement.

1 marketing; I was a Senior Analyst at DTE Energy Trading from 2010 to 2011, and a
2 Pricing Analyst at Pepco Energy Services from 2008 to 2009. I started my career in
3 power markets in 2007 as a Research Analyst at Pace Global Energy Services. I hold a
4 Master's of Science degree in Finance from the University of Illinois at Urbana-
5 Champaign and a Bachelor's of Science degree in Energy, Business, and Finance from
6 The Pennsylvania State University.

7
8 **Q: What role did you play in developing the ISO's proposal addressed in this**
9 **testimony?**

10 A: I served as the ISO's project lead for the Forward Capacity Market ("FCM") Net Cost of
11 New Entry ("CONE") Updates supporting the Minimum Offer Price Rule ("MOPR")
12 reforms for Forward Capacity Auction ("FCA") 19, as well as FCA 20. In this role, I
13 oversaw the work completed by ISO's expert consultants at Analysis Group, Inc.
14 ("Analysis Group"), which culminated in the *Analysis of the After-Tax Weighted Average*
15 *Cost of Capital of New Entry for the ISO New England Forward Capacity Market* report
16 (the "ATWACC Report"). In addition, I reviewed the proposal in detail with the region's
17 stakeholders over the course of a three-month New England Power Pool ("NEPOOL")
18 Participant stakeholder process.

19
20 **Q: Were all of the materials presented in this testimony prepared by you or under your**
21 **supervision?**

22 A: Yes.

23

1 **II. PURPOSE AND ORGANIZATION OF TESTIMONY**

2 **Q: What is the purpose of your testimony?**

3 A: The purpose of my testimony is to explain and support the ISO proposal to update the
4 After Tax Weighted Average Cost of Capital (“ATWACC”) used to calculate Cost of
5 New Entry (“CONE”) and Net CONE for FCAs 19 and 20.

6

7 **Q: What are the FCM parameters?**

8 A: The FCM parameters consist of the CONE, Net CONE, and Capacity Performance
9 Payment Rate (“PPR”).² At a very high level, the CONE and Net CONE values are,
10 respectively, estimates of the total and net costs of developing an economic type of new
11 capacity resource in New England.

12

13 The present Tariff requires the ISO to recalculate CONE and Net CONE no less often
14 than once every four years.³ There is no Tariff requirement to update the PPR, and the
15 ISO expects that it will be updated with the next full recalculation of CONE and Net
16 CONE in advance of FCA 21.

17

² The Dynamic De-list Bid Threshold is an additional parameter used in the Forward Capacity Market; however, that value is calculated for each Capacity Commitment Period in accordance with Tariff Section III.13.1.2.3.1.A, and therefore the proposed schedule modification does not apply to this value.

³ See Tariff Section III.13.2.4.

1 **Q: Please explain why the ATWACC is important to the FCM parameters update.**

2 A: Both CONE and Net CONE are expressed on a real, levelized annual basis. The
3 Discounted Cash Flow (“DCF”) model⁴ that computes the FCM parameters determines
4 the required annual payment, over a 20-year amortization period, that a new entrant
5 requires to break-even as an investment. The cost of capital is central to determining the
6 required annual payment for new entry.

7

8 These time-value-of-money concepts are familiar to anyone that has taken out an auto
9 loan or mortgage. In exchange for a lump sum of money from a lender, the borrower
10 agrees to a series of payments that both: repay the borrowed principal, and compensate
11 the lender with periodic interest payments. The interest rate that the lender and borrower
12 agree upon is the cost of capital.

13

14 Similar logic to that of an auto loan or a mortgage is applied for CONE and Net CONE.

15 The DCF model solves for the required annual payment (which are converted to a dollar
16 per kilowatt (“kW”)-month unit) which, over 20 years, repays the installed cost of the
17 generator and compensates the investor with interest payments. The interest rate earned
18 by the investor is the ATWACC.

19

⁴ The DCF model, which includes all of the required assumptions to calculation CONE and Net CONE, is available as a macro-enabled excel file: https://www.iso-ne.com/static-assets/documents/2021/08/CONE_ORTP.zip.

1 **Q: Please explain the ATWACC components.**

2 A: The cost of capital for a new power generation resource is a function of the project’s cost
3 of equity, cost of debt, and debt-to-equity ratio, which is referred to as the project’s
4 capital structure. The average of the cost of equity and the cost of debt weighted by the
5 capital structure is the ATWACC.

6

7 **Q: How does the ATWACC calculation utilize the cost of debt and cost of equity?**

8 A: The ISO uses the DCF model that preforms the CONE and Net CONE interim update
9 calculations. This model calculates ATWACC dynamically from all the components
10 using the following formula:

13
$$ATWACC = \frac{D}{D + E} COD(1 - T_m) + \frac{E}{D + E} COE$$

11 Where: $\frac{D}{D+E}$ is the target percentage of debt; COD is the cost of debt; T_m is the marginal
12 tax rate; $\frac{E}{D+E}$ is the target percentage of equity; and COE is the cost of equity.

14

15 **Q: Please provide a high-level overview of the background and rationale for the**
16 **proposed ATWACC adjustment.**

17 A: In March 2022, ISO-NE significantly changed the mitigation construct in New England’s
18 Forward Capacity Market by eliminating the minimum offer price rule (“MOPR”) and
19 replacing it with a reformed buyer-side market power mitigation review construct,
20 beginning with FCA 19.⁵

⁵ *ISO New England Inc. & NEPOOL Participants Comm.*, Revisions to ISO New England Transmission, Markets and Services Tariff of Buyer-Side Market Power Review and Mitigation Reforms, Docket No. ER22-1528-000, (filed March 31, 2022) (“MOPR Removal Filing”).

1 In the MOPR Removal Filing, the ISO committed to a cost of capital adjustment for FCA
2 19, explaining that “with a loss in merchant investors’ confidence and higher future costs
3 of capital, the system could conceivably swing from the current elevated risk of overbuild
4 (under the current MOPR) to an elevated risk of resource insufficiency (with its
5 elimination), unless the region makes further adjustments to the capacity market’s
6 assumptions regarding the cost of capital.”⁶ This proposal fulfills ISO-NE’s commitment
7 made in the MOPR Removal filing.

8
9 The ISO’s External Market Monitor (“EMM”) recommended that one way to account for
10 the increased uncertainty is to adjust the Net CONE value to reflect an increase in that
11 cost of capital.⁷ As the EMM stated, “available historic data does not reflect the returns
12 an investor would expect in a competitive power market without a MOPR ... Hence, it is
13 important to account for the effects of eliminating the MOPR provisions on the
14 [AT]WACC.”⁸ This proposal addresses the EMM’s recommendation.

15
16 In October 2022, the ISO reiterated its commitment to analyze the need for a cost of
17 capital adjustment to account for the MOPR elimination, and, if an update is warranted,
18 to file an adjustment with the Commission.⁹ In the FCM Parameters Deferral Filing, the

⁶ MOPR Removal Filing at 45.

⁷ *Id.* See also, Potomac Economics, External Market Monitor, Evaluation of Changes in the Minimum Offer Price Rules on Financial Risk in New England (November 2021) (“EMM Evaluation of MOPR Changes on Financial Risk”).

⁸ EMM Evaluation of MOPR Changes on Financial Risk at 5.

⁹ *ISO New England Inc. & NEPOOL Participants Comm.*, Market Rule 1 Changes to Defer and Modify the Forward Capacity Market Parameters Recalculation Schedule, Docket No. ER23-74-000 (filed October 12, 2022) (“FCM Parameters Deferral Filing”).

1 ISO clarified that if accepted by the Commission, these values would also apply for FCA
2 20.¹⁰

3
4 To complete the update, the ISO retained Analysis Group to recommend a cost of capital
5 for use in updating the CONE and Net CONE. ISO-NE proposes to apply the updated
6 ATWACC as part of the interim year adjustments to CONE and Net CONE, consistent
7 with the ISO's commitment to propose a change to Net CONE to reflect the full
8 elimination of the MOPR for FCA 19.

9
10 **Q: How is your testimony organized?**

11 A: Following this introductory section, the testimony is organized as follows:

- 12 • Section III provides background regarding CONE and Net CONE, and how these
13 FCM parameters are used.
- 14 • Section IV describes the proposed ATWACC adjustment and its impact on Net
15 CONE.
- 16 • Section V explains how the ISO, with consultant Analysis Group, arrived at the
17 ATWACC.
- 18 • Section VI concludes my testimony.

¹⁰ *Id.* at 13.

1 **III. BACKGROUND: FCM PARAMETERS**

2 **Q: By way of background, please describe CONE, Net CONE and the PPR and their**
3 **roles in the Forward Capacity Market.**

4 A: The FCM parameters – CONE, Net CONE, and the PPR – are integral parts of the
5 Forward Capacity Auction, and the values are used during the qualification process that
6 precedes each auction.

7

- 8 • CONE (also called Gross CONE, expressed in dollars per kW-month) is an
9 estimate of the costs that would be incurred by a hypothetical new resource
10 (referred to as the “reference unit” or “reference technology”) to build in New
11 England. This rate is determined, fundamentally, by dividing the reference unit’s
12 total costs by its anticipated contribution to resource adequacy or its “qualified
13 capacity.”
- 14 • Net CONE, also expressed in dollars per kW-month, is an estimate of the
15 compensation the reference unit would need from the capacity market, net of
16 expected energy and ancillary services revenues, to recover its capital and fixed
17 costs under long-term equilibrium conditions.¹¹
- 18 • The PPR, expressed in dollars per megawatt hour, is the rate used to calculate
19 Capacity Performance Payments that capacity resources receive or pay based
20 upon their performance during scarcity conditions. This rate is set such that the
21 sum of the reference technology’s base capacity payment (based on its Capacity
22 Supply Obligation) and the expected performance credits when the system is “at

¹¹ This is often referred to as the “missing money.”

1 criterion,” are equal to the reference unit’s Net CONE. This proposal does not
2 modify the PPR; therefore, my testimony will not discuss it further.

3
4 CONE and Net CONE are used to set the Forward Capacity Auction Starting Price and
5 are used in the evaluation of new capacity resource offers and existing capacity resource
6 retirement de-list bids during the pre-auction resource qualification process. Net CONE
7 is also an input to the calculation of the scaling factor for the sloped demand curves in the
8 Forward Capacity Auction.

9
10 **Q: How frequently does the ISO update the CONE and Net CONE values?**

11 A: Under current Tariff provisions, the CONE and Net CONE values must be fully
12 recalculated no less often than once every four years.¹² For periods for which a full
13 recalculation is not performed, CONE and Net CONE are adjusted to reflect changes in
14 certain market conditions. This process is referred to as the interim update process.¹³
15 The interim year adjustments modify installed capital costs based on Bureau of Labor
16 Statistics data and energy and ancillary service revenues to reflect changes in fuel costs.
17 The interim update process does not include a provision to update to the ATWACC,
18 hence the need for these proposed Tariff changes.

19

¹² See Tariff Section III.13.2.4 and Section III.A.21.1.2(e).

¹³ *Id.*

1 **Q: When were CONE and Net CONE first established, and when have they been**
2 **recalculated?**

3 A: CONE and Net CONE were initially calculated for FCA 9, held in February 2015. Two
4 subsequent recalculations have been performed, for FCA 12, held in 2018, and most
5 recently for FCA 16, held in February 2022. The interim updates have been performed in
6 years without a full recalculation, most recently for FCA 18. The CONE and Net CONE
7 values for FCA 18 were published to the ISO-NE website in early March 2023, for the
8 auction to be conducted in February 2024.¹⁴ Per the Tariff, the ISO is scheduled to fully
9 recalculate the CONE and Net CONE values in advance of FCA 21 (held in February
10 2027) for the 2023-2031 CCP.

11

12 **Q: What is the ISO proposing to change?**

13 A: As mentioned above, the ISO is proposing to change the cost of equity and the cost of
14 debt in the DCF model to be used to calculate CONE and Net CONE for FCA 19 and
15 FCA 20.

16

17 Analysis Group evaluated the choice of capital structure, which is the ratio of debt to
18 equity, and recommended a 55-45 debt-to-equity ratio. This recommendation reflects
19 Analysis Group's expert opinion regarding several factors, and is consistent with the

¹⁴ See FCM Parameters by Capacity Commitment Period, available at <https://www.iso-ne.com/markets-operations/markets/forward-capacity-market/?publish-date-start=2023-02-28T00:00:00Z&publish-date-end=2023-03-15T23:59:59Z>.

1 recommended 55-45 debt to equity adopted in ISO-NE's last recalculation.¹⁵ Therefore,
2 the ISO is not proposing a change to capital structure.

3
4 **IV. RATIONALE FOR THE ATWACC ADJUSTMENT AND ITS IMPACT ON NET**
5 **CONE**

6 **Q: What is the recommended ATWACC?**

7 A: Analysis Group recommends an ATWACC of 8.96%, based on their analysis of recent,
8 empirical capital markets data. ATWACC is a function of three main elements, which
9 are the project's cost of equity, cost of debt, and debt-to-equity ratio. As mentioned,
10 Analysis Group recommends a cost of equity of 13.8%, a cost of debt of 6.85%, and a
11 debt-to-equity ratio of 55-45. For comparison, the FCA 16 recalculation used a 13% cost
12 of equity, assumed a 6% cost of debt, and utilized the same capital structure.¹⁶ The
13 ATWACC Report, which is included with the ISO's filing of the updated values, explains
14 in detail how Analysis Group arrived at these values.

15
16 **Q: Please describe the impact to CONE and Net CONE.**

17 A: Generally speaking, a higher ATWACC increases CONE and Net CONE while a lower
18 ATWACC decreases CONE and Net CONE. Turning to a prior analogy, this may be
19 easily understood by anyone who has shopped for an auto loan or mortgage; higher
20 interest rates lead to higher payments and lower interest rates lead to lower payments.

21

¹⁵ FCA 16 Parameters Update, CEA Report attachment at 47.

¹⁶ *Id.* at 52-53.

1 The impact of increasing ATWACC cannot be shown for FCA 19, because the required
2 inflation and fuel price adjustments for the interim adjustments will not be known until
3 March 2024. However, we may utilize FCA 18 values to provide an illustrative example
4 of the impact to CONE and Net CONE with increasing the ATWACC value.

5 The table below shows the hypothetical increase in the FCA18 CONE and Net CONE
6 values when ATWACC increases from the current 8.3% to 8.96%.

7
8 **Table 1: Increasing ATWACC Example**

9

FCM Parameter	FCA 18 (\$/kW-m)	FCA 18 (\$/kW-m)	Δ (\$/kW-m)	Δ (%)
	ATWACC 8.3%	ATWACC 8.96%		
CONE	14.220	14.759	0.539	3.8%
Net CONE	9.078	9.614	0.536	5.9%

10
11
12 **Q: Will the ISO perform any other updates to the FCM parameters for FCA 19 or**
13 **FCA 20?**

14 **A:** No, the proposed cost of capital update is the only update not prescribed by the current
15 Tariff that the ISO is proposing. Aside from this narrow additional update, the ISO will
16 adjust CONE and Net CONE pursuant to the Tariff's interim update directives.

1 **Q: What is the benefit of updating the ATWACC used to calculate CONE and Net**
2 **CONE?**

3 A: As discussed by Dr. Schatzki and Dr. Gallimberti in the ATWACC Report, the
4 appropriate ATWACC used to calculate CONE and Net CONE can vary with factors
5 specific to circumstances, including location, corporate structure, prevailing
6 economic/financial conditions, fuel and electricity market expectations, financial hedges,
7 and the nature and impact of current and potential future market and regulatory factors,
8 including elimination of the MOPR.

9
10 Finance theory holds that current prices reflect forward-looking expectations of market
11 conditions, such that market prices would reflect changes in market conditions after
12 information about those changes are known to the market. Updating ATWACC to reflect
13 current market conditions and account for the MOPR removal, effective starting with
14 FCA 19, appropriately reflects the current financial risk for merchant resources in New
15 England's wholesale electricity markets.

16
17 **V. APPROACH AND EVIDENCE USED TO ARRIVE AT THE ATWACC**

18 **Q: Please describe why the ISO engaged the independent consultant Analysis Group to**
19 **perform this analysis.**

20 A: Analysis Group has considerable experience in centralized wholesale electricity markets,
21 including with ISO-NE's markets. Most recently, Analysis Group developed updates to

1 certain parameters related to New England’s Inventoried Energy Program.¹⁷
2 Additionally, in 2022, Analysis Group worked closely with ISO staff, regional
3 stakeholders, and the New England states to gather input on an assessment of policy and
4 market frameworks that could further advance the evolution of the regional power grid.
5 Analysis Group then applied its expertise and independent judgement to prepare the
6 *Pathways Study, Evaluation of Pathways to a Future Grid*, which provides important
7 information to the region on potential pathways to meet the New England states’
8 decarbonization goals.¹⁸

9
10 In addition to experience with New England’s markets, Analysis Group has extensive
11 experience with the New York Independent System Operator’s (“NYISO”) CONE and
12 Net CONE. Analysis Group provided recommendations and expert witness testimony
13 supporting the NYISO CONE calculations in 2020¹⁹, and in 2016.²⁰ For each of these

¹⁷ See *ISO New England Inc. & NEPOOL Participants Comm.*, Revisions to ISO New England Inc. Transmission, Markets and Services Tariff to Update the Inventoried Energy Program, Docket No. ER23-1588-000 (filed April 7, 2023) available at: https://www.iso-ne.com/static-assets/documents/2023/04/updates_to_inventoried_energy_program.pdf.

¹⁸ See *Analysis Group*, Pathways Study, Evaluation of Pathways to a Future Grid (April 2022) available at: <https://www.iso-ne.com/static-assets/documents/2022/04/schatzki-et-al-pathways-final.pdf>.

¹⁹ See *Analysis Group*, Independent Consultant Study to Establish New York ICAP Demand Curve Parameters for the 2021/2022 through 2024/2025 Capability Years – Final Report (September 9, 2020) available at: <https://www.analysisgroup.com/globalassets/insights/publishing/2021-analysis-group-study-to-establish-new-york-icap-demand-curve-parameters.pdf>; see also *New York Independent System Operator, Inc.*, 2021-2025 ICAP Demand Curve Reset Proposal, Docket No. ER21-502-000 (filed November 30, 2020).

²⁰ See *Analysis Group*, Study to Establish New York Electricity Market ICAP Demand Curve Parameters (September 13, 2016) available at: https://www.analysisgroup.com/globalassets/content/insights/publishing/analysis_group_nyiso_dcr_final_report_9_13_2016.pdf; see also *New York Independent System Operator, Inc.*, Proposed ICAP Demand Curves for the 2017/2018 Capability Year and Parameters for Annual Updates for Capability Years 2018/2019, 2019/2020 and 2020/2021, Docket No. ER17-386-000 (filed November 18, 2016).

1 NYISO CONE calculations, Analysis Group developed an appropriate ATWACC value
2 that the Commission approved.²¹

3 **Q: Are you familiar with the ATWACC Report, which is included with this filing?**

4 A: Yes, I am. I led the team of experts at the ISO who provided Analysis Group with
5 feedback in developing the ATWACC Report.

6

7 **Q: Do you agree with the method, data sets, and results?**

8 A: Yes. The method and data sets appropriately combine publically available and verifiable
9 capital markets data with Analysis Group’s independent analysis and judgement.

10

11 **Q: Please describe the contents and recommendation in the ATWACC Report.**

12 A: Dr. Schatzki and Dr. Gallimberti start with an introduction that describes how they select
13 an appropriate ATWACC for use in calculating Net CONE. They discuss the
14 requirement that ATWACC reflect the project-specific risks associated with the
15 development of a new, merchant generator, and note that their assessment accounts for
16 the difference between a project-level ATWACC and a company-level ATWACC. Next,
17 the report shows the ATWACC calculation formula, and describes the underlying
18 components of the calculation: the debt-to-equity ratio, the cost of debt, and the cost of
19 equity. Analysis Group derived each of these components from a holistic review of
20 public, verifiable, capital markets data from a peer group of five Independent Power
21 Producers (“IPPs”).

²¹ *New York Independent System Operator, Inc.*, 175 FERC ¶ 61,012 (2021) (accepting, in part, subject to condition, NYISO’s proposed revisions); *see also New York Independent System Operator, Inc.*, 158 FERC ¶ 61,028 (2017) (accepting, subject to condition, NYISO’s proposed revisions).

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Analysis Group then describes their method to derive a debt-to-equity ratio, noting that the peer group’s capital structure has been fairly consistent in recent periods at 55% debt. Next, the report details their methods to develop a recommended 6.85% cost of debt, which relies on recent bond yields from the IPPs and bond yields from the generic corporate bond pools. The cost of equity recommendation of 13.8% is derived utilizing the Capital Asset Pricing Model (“CAPM”). CAPM is computed using the following formula:

$$E(R_i) = r_f + \beta_i[E(R_m) - r_f]$$

Where: $E(R_i)$ is the expected return of a stock security i ; r_f is the risk-free rate; β_i is the sensitivity of the stock security i to the market; and $E(R_m)$ is the expected return of the market. Dr. Schatzki and Dr. Gallimberti describe their quantitative methods to unlever and relever β_i to the target capital structure, and then describe the different assumptions used in their quantitative scenarios. Finally, Analysis Group concludes with an ATWACC recommendation of 8.96%, and provides supporting data analysis from the same scenarios used to establish the cost of equity.

Q: Is the sample of representative IPPs sufficient?

A: Yes. The methodology Analysis Group employed utilizes the best publicly available and verifiable capital markets data for a representative sample of IPPs. Dr. Schatzki and Dr. Gallimberti discuss several considerations when sizing a peer group; for example, they describe the tradeoff between larger peer group samples that yield increased statistical power compared to a smaller peer group sample that may be more representative of a

1 merchant developer of new capacity. The peer group selected by Analysis Group—AES
2 Corporation (“AES), Constellation Energy Corp. (“Constellation”), NRG Energy, Inc.
3 (“NRG”), TransAlta Corporation (“TransAlta”), and Vistra Corp. (“Vistra”)—is similar
4 to the group selected for ISO-NE in 2020, and similar to the peer group PJM selected in
5 2022, which both included AES, NRG, and Vistra.

6
7 **Q: Does the recommended ATWACC account for project-specific risks?**

8 A: Yes.

9
10 Estimates of the cost of capital need to reflect holistic information on all aspects of the
11 financing of a specific project, because the various components of the cost of capital (*i.e.*,
12 cost of debt, cost of equity, capital structure) are all inter-related. There is limited
13 publicly available and verifiable project-specific capital cost data that could be used to
14 develop a holistic project-specific cost of capital recommendation. Particularly
15 challenging, and highly impactful to the overall ATWACC, is obtaining verifiable data
16 regarding both the capital structure and the cost of equity to be used in a project-specific
17 cost of capital estimate.

18
19 Nevertheless, as Dr. Schatzki and Dr. Gallimberti explain in the ATWACC Report, the
20 appropriate cost of capital for a specific project should reflect the particular risks faced by
21 that project, not the risks associated with the company. This is appropriate because, as
22 they explain, “[t]he ATWACC for a new merchant project may exceed that of publicly-

1 traded IPP companies because these companies typically have portfolios of assets that
2 balance and mitigate risks, and thus lower the overall ATWACC at the company level.”²²

3
4 As described in more detail in their report , Dr. Schatzki and Dr. Gallimberti consider and
5 address the limitations of using corporate-level capital markets data to derive a project-
6 specific ATWACC by using cost of debt and cost of equity values that are each above the
7 corresponding averages of the observed corporate-level costs of capital.

8
9 **Q: How does ISO-NE’s ATWACC compare with CONE in other organized wholesale**
10 **electricity markets?**

11 A: As shown in Figure 10 of Dr. Schatzki’s and Dr. Gallimberti’s report, ISO-NE’s 8.96%
12 ATWACC estimate is slightly above, but consistent with, ATWACC estimates in other
13 organized wholesale markets. For example, the most recent estimated ATWACC in
14 another organized wholesale market was PJM’s 8.85%, which the Commission approved
15 in February 2023.²³ Figure 10, reproduced in part below, presents recent information
16 regarding the approved cost of equity (“COE”), cost of debt (“COD”), and capital
17 structure (“D/(D+E)”) for regional transmission organizations (“RTO”).

18

²² ATWACC Report at 2.

²³ *PJM Interconnection L.L.C.*, 182 FERC ¶ 61,073 (2023).

Period	RTO	COE	COD	D/(D+E)	ATWACC
Most Recent Studies (by RTO)					
2020	ISO-NE	13.0%	6.0%	0.55	8.3%
2020	NYISO	13.0%	6.7%	0.55	8.52% (NY State) 8.20% (NYC)
2022 (April)	PJM	13.6%	4.7%	0.55	8.0%
2022 (September)	PJM	14.1%	6.3%	0.55	8.85%
Current Study					
2023	ISO-NE	13.8%	6.85%	0.55	8.96%

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VI. CONCLUSION

Q: Does this conclude your testimony?

A: Yes.

I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on November 15, 2023

Kevin Coopey, Lead Analyst

Market Development



ANALYSIS GROUP

Analysis of the After-Tax Weighted Average Cost of Capital of New Entry for the ISO New England Forward Capacity Market

Authors:

Todd Schatzki, Ph.D.

Carlo Gallimberti, Ph.D.

September 1, 2023

Table of Contents

Table of Contents	2
I. Introduction and disclaimers	1
II. After-Tax Weighted Average Cost of Capital	3
A. Sample of representative IPP companies.....	3
B. Debt-to-equity ratio (or capital structure)	4
C. Cost of Debt	5
D. Cost of Equity	8
1. <i>Estimation of the COE using the Capital Asset Pricing Model and the sample of representative IPPs</i>	8
a. Risk-free rate.....	8
b. Beta	9
c. Equity market return and Equity Risk Premium (“ERP”).....	10
d. Additional Scenarios for estimating the COE.....	11
2. <i>Recommended COE</i>	13
E. Calculation of the ATWACC	16
III. Comparison with existing ATWACC in other CONE studies	18

I. Introduction and disclaimers

This report develops recommendations for the cost of capital for use in estimating the net cost of new entry (“net CONE”) for the New England Independent System Operator (“ISO-NE”) Forward Capacity Market (“FCM”). The cost of capital for a new power generation resource is a function of three main elements, which are the project’s:

- **Cost of equity (“COE”)**, which is the opportunity cost required by equity investors to be willing to invest in the project and generally corresponds to the project’s return on equity (“ROE”).
- **Cost of debt (“COD”)**, which is the opportunity cost required by debt holders to fund the project.
- **Debt-to-equity ratio (“D/E” or “capital structure”)**, which reflects the proportion of each source of capital—debt and equity—used to fund the project.

The average of the COE and COD weighted by the capital structure is known as “After-Tax Weighted Average Cost of Capital” or “ATWACC.”

The appropriate ATWACC for use in estimating net CONE needs to reflect the project-specific risks associated with the development of a new plant by a merchant developer within the ISO-NE Control Area in the timeframe of interest (i.e., for projects able to deliver operable capacity as early as June 2028) under conditions of a need for new capacity. We develop our recommended ATWACC based primarily on financial metrics from publicly traded companies. In particular, we considered financial metrics from publicly traded companies with substantial merchant power generation assets and operations—that is, Independent Power Producers (“IPPs”)—to estimate the COE, COD, and D/E. These metrics allow us to estimate company-level ATWACC values, which we then use to inform our recommended ATWACC.¹

Our assessment accounts for potential differences between project- and company-level ATWACC values, as specific projects may have different risk profiles than the company as a whole.² The appropriate cost of capital for a specific project should reflect the particular risks faced by that project, not the risks associated

¹ There is limited publicly available information on the terms of financing arrangements for plants developed through stand-alone project financing by either privately-held or publicly-traded IPPs. Various publicly available sources have reported estimates of the cost of capital for merchant facilities bearing risks comparable to a new plant in the ISO-NE control area that exceed contemporaneous estimates of company-wide cost of capital for IPPs. *For example, see* Energy Sector Planning and Analysis, “Update of Recommended Project Finance Structures for the Economic Analysis of Fossil-Based Energy Projects”, report prepared for Department of Energy National Energy Technology Laboratory, September 29, 2011, p. 2, which indicates that a 15% to 25% COE is common for low and high risk power projects at debt ratios of 60% to 70%; and Chadbourne, “Merchant Gas Projects: How Many More?” *Project Finance NewsWire*, August 2016, p. 40, which quoted a developer describing long-term equity investors as seeking “returns ... in the low teens to low 20s.”

² “The company cost of capital is *not* the correct discount rate if the new project is more or less risky than the firm’s existing business. Each project should in principle be evaluated at its *own* opportunity cost of capital” Brealey, Richard, Stewart Myers, and Franklin Allen, *Principles of Corporate Finance*, Tenth Edition, *New York: McGraw-Hill/Irwin*, 2011, p. 214 (emphasis in original).

with the company or investors that are considering the development of that project.³ The ATWACC for a new merchant project may exceed that of publicly-traded IPP companies because these companies typically have portfolios of assets that balance and mitigate risks, and thus lower the overall ATWACC at the company level. These portfolios include: portfolios of physical assets spanning varied technologies, fuels, vintages, and geographies (including regions with different load profiles); various financial assets, including long-term contracts; and non-IPP businesses, including competitive retail suppliers and regulated generation, transmission and distribution suppliers, with different financial risks than the risks of a stand-alone IPP. Even accounting for this limitation to the data on publicly-traded IPPs, the data's availability and reliability makes reliance on it the best approach to estimating the ATWACC for a merchant plant in New England.

Our recommendations are based on our professional judgment, reflecting the particular circumstances of merchant development of a plant in the ISO-NE market context; the sources of information identified and described in this report; past professional experience, including conversations with developers and people in the finance community; our view of industry conditions, market factors, and relevant federal and state policy at the time of this study, including past experience with merchant development in the ISO-NE and similar markets; and an appropriate balancing of these various sources of information and experiences considering the market risks faced by a new merchant plant being developed within the ISO-NE markets.

In principle, the approach and assumptions underlying our estimates capture industry expectations of the costs, benefits, and risks faced by investors, including development risks and risks to future cash flows for a merchant developer. Many factors can affect investor risks, such as: uncertainty and variability in fuel prices and demand for capacity and energy; changes in market infrastructure over time (e.g., the development of new generation and transmission assets); changes in market rules that affect competition to supply energy, capacity and ancillary services and price received for delivered supplies; the development of energy and environmental policies with implications for industry demand, costs, revenues and the operability of the facility; and the pace and nature of technological change.

Further, the values of metrics associated with individual components of the ATWACC can vary with factors specific to circumstances, including location, corporate structure, prevailing economic/financial conditions, fuel and electricity market expectations, financial hedges, and the nature and impact of current and potential future market and regulatory factors. Ultimately, the recommended ATWACC reflects our view of the risks associated with the merchant development of a plant in the ISO-NE market context, and the return required by investors to compensate for those risks.

³ For example, in their textbook, Brealey et al. note that: "It is clearly silly to suggest that [a company] should demand the same rate of return from a very safe project as from a very risky one." Brealey, Richard, Stewart Myers, and Franklin Allen, *Principles of Corporate Finance*, Tenth Edition, New York: McGraw-Hill/Irwin, 2011, p. 214.

Below, we present our estimates and recommended assumptions for the ATWACC based on our careful review of all of the relevant factors from the perspective of potential resource developers in the New England electricity market.

II. After-Tax Weighted Average Cost of Capital

The ATWACC is computed according to the following equation:⁴

$$ATWACC = \frac{D}{D+E} COD(1 - T_m) + \frac{E}{D+E} COE$$

Where:

- $\frac{D}{D+E}$ is the target percentage of debt;
- COD is the cost of debt;
- T_m is the marginal tax rate;
- $\frac{E}{D+E}$ is the target percentage of equity;
- COE is the cost of equity.

The equation illustrates the role played by the three main components of ATWACC, that is, the COD, COE, and D/E. The following sections describe how we estimate each of these components. Ancillary to these analyses is the selection of an appropriate sample of IPP companies with meaningful ownership of merchant units, representative of a potential merchant developer of a plant in the ISO-NE market context. Accordingly, we start by describing our sample selection process.

A. Sample of representative IPP companies

In evaluating which companies to include in our sample, we considered the nature of the business in which they operate, their geography, the availability of their financial information, and whether publicly available data was sufficient to reliably measure each type of financial parameter.

Due to their idiosyncratic characteristics, no single company can perfectly capture the risks and returns of a potential merchant developer of a plant in the ISO-NE market context. Accordingly, we rely on the use of a sample—as opposed one single reference company—to capture the range of company-specific characteristics and ensure that our results are generalizable to a generic potential merchant developer. When computing ATWACC, multiple considerations inform the choice of which companies to include in the sample. In principle, the larger the sample, the more representative average values are because of

⁴ See Koller, Tim, Mark Goedhart, and David Wessels, *Valuation – Measuring and Managing the Value of Companies*, Fifth Edition, *McKinsey & Company, Wiley*, 2010, p. 113.

increased statistical power. At the same time, the larger the sample, the higher the risk of including companies that are less representative of a potential merchant developer of a plant in the ISO-NE market context. Our sample selection was performed with this tradeoff in mind. Moreover, we also rely on the computation of different scenarios where we change our sample composition and evaluate how much the estimates for the recommended ATWACC vary as a function of the inclusion of specific IPPs.

Given these considerations, we use—to varying degrees—the following publicly traded IPPs:⁵

- AES Corporation ("AES")
- Constellation Energy Corp. ("Constellation")
- NRG Energy, Inc. ("NRG")
- TransAlta Corporation ("TransAlta")
- Vistra Corp. ("Vistra")

We use all data on peer companies with two exceptions. First, while we consider Constellation Energy Corp, a recent IPP that originated from the utility holding company Exelon in February 2022, we limit use of its financial metrics because Constellation's limited period of public ownership results in a smaller sample of data that can affect its ability to reliably represent underlying financial parameters. Specifically, we limit its use in estimating the cost of equity and do not evaluate its capital structure. Second, while we also consider metrics for an additional IPP company, TransAlta, we only do so on a very limited basis (in one cost of equity scenario) because the company's generation assets primarily participate in wholesale electricity markets in Canada.

B. Debt-to-equity ratio (or capital structure)

The choice of capital structure—that is, the ratio of debt to equity—can vary depending on many factors, particularly the nature of the revenue streams (with certain sure revenue streams supporting higher levels of debt), the structure of the project's management and financing, and the nature of the capital supporting the investment. Thus, a merchant plant could reasonably be developed through a range of capital structures.

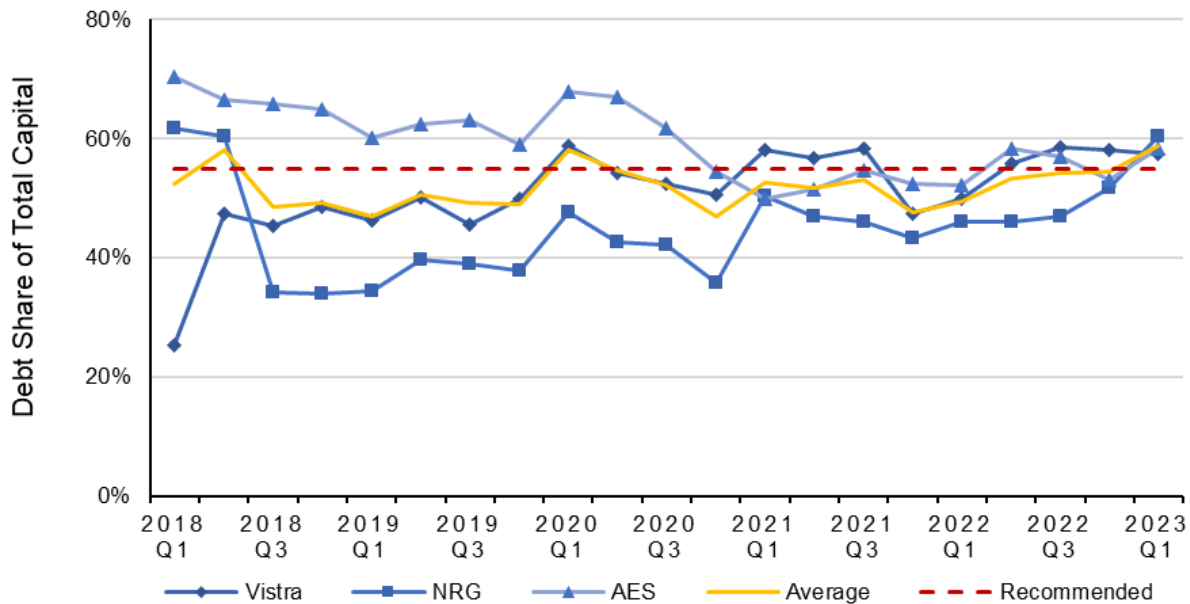
We recommend a D/E ratio of 55 percent debt to 45 percent equity given a balance of tradeoffs involved with greater or lesser leverage. Our recommendation reflects several considerations. First, the recommendation is consistent with the capital structure of many new plants and reflects a reasonably balanced capital structure.⁶ Accordingly, our recommended capital structure is consistent with other studies

⁵ We also considered Atlantic Power Corp (taken private by I Squared Capital in January 2021), Calpine Corp (taken private by Energy Capital Partners in March 2018), and Talen Energy (taken private by Riverstone Holdings LLC in December 2016). However, we excluded these companies because, as the companies are now privately held and, therefore, we do not observe the current data on financial metrics to estimate up-to-date ATWACC values.

⁶ See, e.g., California Energy Commission, "Estimated Cost of New Utility-Scale Generation in California: 2018 Update", May 2019, Table B-1; National Energy Technology Laboratory, "Cost and Performance Baseline for Fossil Energy Plants Volume 1: Bituminous Coal and Natural Gas to Electricity," September 24, 2019, p. 558.

of the net CONE, which also recommend a 55-45 debt-to-equity ratio.⁷ Second, the proposed capital structure is generally consistent with the evolution of the capital structure of IPP companies (at the corporate, not the project level) in our sample. **Figure 1** shows the capital structure for the IPPs in our sample since 2018 (Q12018-Q12023).⁸ As the figure shows, after a period when capital structures diverged across companies, the structures have converged to relatively similar levels. The average capital structure at the end of 2022 is about 54 percent debt, and this level has been fairly consistent in recent periods. Overall, the corporate capital structure of our IPP sample is consistent with our recommended structure.

Figure 1. Debt Share of Total Capital for Representative IPP Companies, Q1 2018 to Q1 2023



Source: S&P Global Market Intelligence.

Note: Debt Share of Total Capital is equal to the total net debt divided by the sum of the total net debt and the market value of equity.

C. Cost of Debt

The cost of debt reflects a project developer’s ability to raise funds on debt markets. To estimate such cost,

⁷ See Analysis Group Inc. and Burns & McDonnell, “Independent Consultant Study to Establish New York ICAP Demand Curve Parameters for the 2021/2022 through 2024/2025 Capability Years – Final Report,” September 9, 2020 (“AG 2020 NYISO Study”), p. 69; Concentric Energy Advisors, Inc. and Mott MacDonald, “An Evaluation of the Net Cost of New Entry and Offer Review Trigger Price Parameters to be Used in the Forward Capacity Auction FCA-16 and Forward,” December 2020 (“Concentric 2020 ISO-NE Study”), p. 56; The Brattle Group and Sargent & Lundy, “PJM CONE 2026/2027 Report,” April 21, 2022 (“Brattle April 2022 PJM Study”), p. 38; Affidavit of Johannes P. Pfeifferberger and Bin Zhou on Behalf of PJM Interconnection, LLC., September 2022 (“Brattle September 2022 PJM Study”), Attachment F, p. 2.

⁸ Consistent with valuation textbooks, we compute D as the value of net debt, derived as the sum of long-term and short-term debt minus cash and cash-equivalent items for each IPP, and we compute E as the market value of equity, derived as the market capitalization of each IPP. See, e.g., Koller, Tim, Mark Goedhart, and David Wessels, *Valuation – Measuring and Managing the Value of Companies*, Fifth Edition, *McKinsey & Company, Wiley*, 2010, p. 114.

we rely on the following sources of information:

1. The yields to maturity of bonds issued by the representative companies in our sample over the past ninety days from April 16, 2023 to July 15, 2023; and
2. The generic cost of corporate debt for bonds of comparable credit rating to the power companies in our sample.

Starting on March 17, 2022, the Federal Reserve initiated a series of interest rate increases. The higher interest rates and other changes in macroeconomic conditions have in turn increased debt costs for corporate borrowers. Relying on recent bond yields to inform our estimates of the cost of debt ensures that these estimates reflect the impact of these increases in risk-free debt. **Figure 2** shows the average yield to maturity across all bonds with maturities between 10 years and 30 years for each IPP in our sample over April 16 – July 15, 2023. Over that period, bond yields to maturity ranged across companies from 5.42 percent and 7.06 percent, with average (median) values of 6.10 (5.95).⁹ Most of the variation in reported bond yields can be explained by differences in credit quality across IPP companies.

Figure 2. Average Credit Rating and Yield to Maturity of Bonds of Representative IPP Companies, April 16, 2023 – July 15, 2023

Company	Average Credit Rating	Average Yield to Maturity
AES	BBB-	5.61
Constellation	BBB	5.42
NRG	BB	7.06
Vistra	BB	6.30
Average		6.10
Median		5.95
Min		5.42
Max		7.06

Source: Bloomberg.

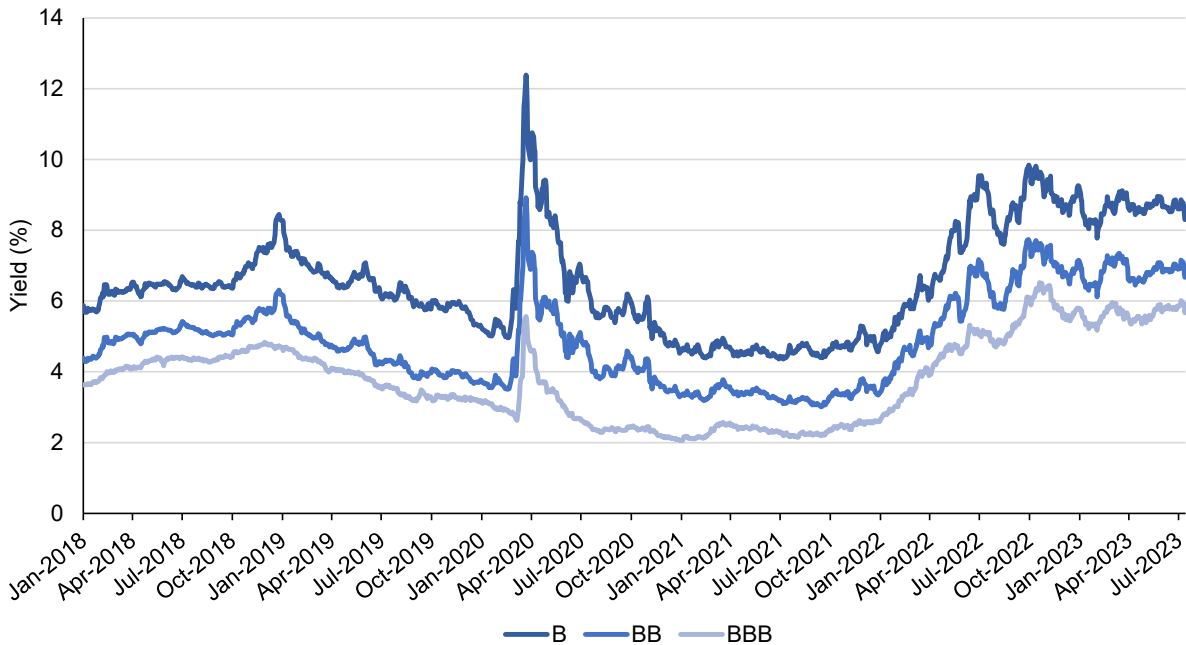
We also consider data on the generic corporate COD given company credit quality. **Figure 3.** provides estimates of the generic corporate COD for companies with BBB, BB, and B credit ratings. The first two ratings correspond to the credit ratings of the IPPs in our sample. We also include the B credit rating as project financing is inherently riskier than company financing, and the lower credit rating conveys some of that higher risk.

Since the spike in COD from the COVID-19 outbreak, the COD have gradually declined, back to levels prior to the COVID-19 pandemic. However, changing economic conditions in 2022, including rising inflation and subsequent actions by the Federal Reserve, have triggered a generalized, gradual increase in interest rates during 2022 and into 2023. While these increases in the COD have plateaued, the resulting COD is

⁹ An examination of bond coupon rates of recent issuances among the considered IPPs provides results in line with Figure 2.

meaningfully higher than levels prior to the Federal Reserve actions. As of July 15, 2023, average bond yields (over 90 days, April 16 – July 15, 2023) are 8.67 percent for B-rated bonds, 6.85 percent for BB-rated bonds, and 5.70 percent for BBB-rated bonds.

Figure 3. Bond Yields for BBB, BB, and B Bonds, Jan 1, 2018 – July 15, 2023



Sources: St. Louis Federal Reserve Bank of St. Louis, FRED, ICE BofA BBB US High Yield Effective Yield Index (series BAMLH0A2HYBEY, BAMLH0A1HYBBEY, and BAMLC0A4CBBBEY).

In estimating the COD, we rely on both bond yields from our sample of representative IPPs and bond yields from the generic corporate bond pools. Bond yields from the sample of representative IPPs reflect market and operational risks that are closer to those faced by a potential merchant developer of a new plant. However, bond yields from this sample tend to be somewhat illiquid and are likely to reflect idiosyncratic characteristic of each IPP, including their specific credit or default risk. By contrast, the generic cost of corporate debt is less industry-specific but based on a larger sample, which mitigates issues related to illiquidity or idiosyncratic default risk. Notably, both sources of COD reflect company-level (rather than project-level) risk and, thus, are unlikely to fully capture the risk profile of a specific project.

Based on these factors, **we recommend a COD of 6.85 percent.**¹⁰ This recommendation reflects a number of factors, including: (i) the yield at which corporate debt with credit rating around BB—a commonly

¹⁰ Because bond yields reflect current forward expectations about financial risks to IPPs, our analysis and recommended COD in principle incorporates the impact of recent changes in market conditions and market structures, including changes in market rules for the ISO-NE wholesale electricity markets.

observed rating among our sample of IPPs—recently traded; (ii) the bond yields at which corporate debt of the IPPs in our sample recently traded; (iii) the effect that recent monetary policies had on interest rates; (iv) differences between company-level and project-level risks, given typical project finance debt structures relying on non-recourse debt; and (v) other market conditions.

D. Cost of Equity

The recommended COE is primarily based on our analysis of the COE for our representative publicly traded IPPs and reflects multiple considerations that cause these company-level estimates to differ from the ATWACC for a new merchant plant in the New England.

1. Estimation of the COE using the Capital Asset Pricing Model and the sample of representative IPPs

We estimate the COE for our sample of publicly traded IPPs using the Capital Asset Pricing Model (“CAPM”), a commonly-used framework for estimating expected returns to equity. The CAPM assumes that the expected rate of return demanded by equity investors—and, therefore, the COE for the enterprise—is equal to a risk-free rate of return plus an additional return commensurate to the risk undertaken by equity investors in funding the specific enterprise.

Specifically, the CAPM is computed as:

$$E(R_i) = r_f + \beta_i[E(R_m) - r_f]$$

Where:

- $E(R_i)$ is the expected return of a stock security i ;
- r_f is the risk-free rate;
- β_i is the sensitivity of the stock security i to the market;
- $E(R_m)$ is the expected return of the market.

The term $E(R_m) - r_f$ is referred to as the equity risk premium (“ERP”), and it measures the additional expected compensation required by equity investors in excess of the risk-free rate. The CAPM reflects an equilibrium or market-clearing price, such that the COE to developers equals the expected return to investors (*i.e.*, $E(R_i)$).

The following sections provide details on the estimation of each parameter in the above equation required to estimate the COE. We estimate the COE under multiple scenarios reflecting different assumptions used in deriving the COE. Below, we start by describing our estimates for Scenario 1 and then describe the other Scenarios in **Section II.D.1.d**.

a. Risk-free rate

The most commonly used proxy for risk-free rates are long-term governmental bonds, *i.e.*, treasury bonds with maturities equal to 10 years or longer. The economic life of a project for new power generation resources is typically around 20 years. Over the past 90 days (April, 16 – July 15 2023), the rate for 20-year

treasury bonds was 4.00 percent, which we select as the risk-free rate for Scenario 1. We also note that treasury bonds tend to be volatile and that they might unexpectedly increase in the future. We consider the effect of an increase in yield of treasury bonds in one of our alternative Scenarios in **Section II.D.1.d**.

b. Beta

Beta is the sensitivity of a company's stock return to the market's return. Beta is not directly observable and must therefore be estimated. We use the following common approach to estimate beta:

1. *Step 1. Estimate levered betas.* We regress industry comparable companies' (IPPs', in our case) observed returns on the equity market's observed returns. This regression yields an "equity" beta for each comparable company. This equity beta is referred to as the "levered" beta, as it is a function of both the operating risk of a company and its financial risk arising from the company's "leverage" – that is, ratio of debt to equity.
2. *Step 2. "Unlever" the betas.* To control for differences in each company's leverage, estimated levered betas are "unlevered" using data on each companies' capital structure. This operation yields "unlevered" or "asset" betas.¹¹ We estimate the average and upper bound of the unlevered betas from the sample of comparable companies. We evaluate the upper bound, as well as the average, value given that new project-level risk is generally higher than company-level risk for IPPs.
3. *Step 3. "Relever" the beta.* Lastly, we "relever" the resulting average and maximum unlevered beta using the target capital structure of the company being analyzed.¹²

For Scenario 1, we (1) estimate the levered betas using beta values reported by Bloomberg that reflect the following assumptions: (i) monthly returns, (ii) a five-year time period; and (iii) the Standard & Poor's 500 as the proxy for market returns,¹³ and (2) consider three IPPs, AES, NRG and Vistra. We do not include Constellation because there is insufficient data to measure Constellation's beta over a five-year time period, but include it in a different scenario. **Figure 4** presents the results of steps 1-2 above for Scenario 1 for the three IPPs.

¹¹ To "unlever" the beta, we rely on the Hamada equation: $\beta_u = \beta_l / \left[1 + (1 - T_m) \frac{D}{E} \right]$, where β_u (β_l) is the unlevered (levered) beta, $(1 - T_m)$ is the tax benefit, and $\frac{D}{E}$ is the debt to equity ratio. See Hamada, Robert S., "The Effect of the Firm's Capital Structure on the Systematic Risk of Common Stocks," *Journal of Finance* (May 1972): 435–452. This specification of the Hamada equation assumes that tax shields (*i.e.*, $(1 - T_m)$) are subject to the same level of risk as the company debt, that the level of debt assumed by the company is constant over time, and that the company is far from insolvency (*i.e.*, debt is substantially risk-free). We relax the latter assumption in additional analyses.

¹² To "relever" the beta, we rely on the same Hamada equation, which rearranged yields a levered beta equals to: $\beta_l = \beta_u \times \left(1 + (1 - T_m) \frac{D}{E} \right)$.

¹³ We obtain similar results when we estimate betas manually using returns downloaded from S&P CapitalIQ Pro.

Figure 4. Computation of Levered and Unlevered Betas of Representative IPP Companies

Company	Levered beta (β_l)	D/E	Tax Rate (T_m)	($1 - T_m$)	Unlevered Beta (β_e)
AES	0.94	1.40	25.74%	74.26%	0.46
NRG	1.02	1.53	21.00%	79.00%	0.46
Vistra	1.00	1.35	21.00%	79.00%	0.48
Average					0.47
Min					0.46
Max					0.48

Sources: Bloomberg; S&P Global Market Intelligence.

Notes: Levered beta is the beta obtained from Bloomberg using monthly returns over the past five years. D/E is the ratio of net debt over market capitalization at the end of Q1 2023 obtained from S&P Global Market Intelligence. The tax rate is the combined federal and state tax rate, assuming that state taxes are deductible from federal taxes and using the state tax rate of each company headquarters.

To “relever” the beta, we apply the recommended target capital structure of 55% debt and 45% equity (which yields a D/E ratio of 1.22), the average unlevered beta of 0.47 from the figure above, and a tax rate of 26.93%,¹⁴ as indicated in the equation below:

$$\beta_l = 0.47 \times [1 + 1.22 \times (1 - 0.293)] = 0.89$$

c. Equity market return and Equity Risk Premium (“ERP”)

The equity risk premium (ERP) is a measure of the additional remuneration that investors require for their invested capital, above the risk-free rate. It is common practice to measure the ERP as the difference between the market returns and the risk-free rate. The ERP has remained somewhat constant over the last few decades. The Kroll Cost of Capital calculator provides estimates of ERP for discounted cash flow valuation purposes. Over the past 90 days (April 16 – July 15, 2023) Kroll recommends an ERP of 5.83 percent.¹⁵ This estimate is consistent with but toward the upper end of estimates of equity risk premium from various texts and other sources.¹⁶ We recommend an ERP of 5.83 percent based on the Kroll Cost of Capital calculator reflecting current market conditions and investors’ risk appetite.

¹⁴ To relever the betas, we use a federal tax rate of 21 percent and a state tax rate of 7.5 percent, which yields a combined tax rate of 26.9 percent ($0.21 + 0.075 - (0.21 \times 0.075) = 0.2693$). Using tax rates of other states in New England does not meaningfully change our results.

¹⁵ The estimate from January 2023 is 6 percent, which was updated in mid-June to 5.5 percent. The 90-day average of these values yield an estimated ERP equals to 5.83 percent. See Kroll, “Cost of Capital in the Current Environment,” January 2023, available at <https://www.kroll.com/-/media/kroll-images/pdfs/cost-of-capital-infographics-jan-2023.pdf> and <https://www.kroll.com/en/insights/publications/cost-of-capital>

¹⁶ One valuation textbook recommends an ERP between 4.5 percent and 5.5 percent, for a company (not project) cost of capital. Koller, Tim, Mark Goedhart, and David Wessels, Valuation – Measuring and Managing the Value of Companies, Fifth Edition, *McKinsey &*

Figure 5 reports the main components of the CAPM and the resulting COE of 9.18 percent given Scenario 1 assumptions.

Figure 5. Cost of Equity (COE) Components According to CAPM for Representative IPP Companies

COE Components	
Risk-free Rate	4.00%
Levered Beta	0.89
ERP	5.83%
Cost of Equity (COE)	9.18%

d. Additional Scenarios for estimating the COE

Given the uncertainty embedded in the use of the CAPM, we estimate the COE under multiple scenarios reflecting different assumptions regarding the risk-free rate and beta. We do not consider any scenario (including Scenario 1) to be a preferred scenario and consider all of the scenarios more or less on equal terms when arriving at our recommended COE. By analyzing multiple scenarios, we are able to assess the range of company-level COE and sensitivity to important assumptions.

As discussed, in Scenario 1, we compute the COE according to the components shown in **Figure 5** above.

In Scenario 2, in place of the estimated betas from Bloomberg, we use (levered) beta values from ValueLine for the IPPs in our sample.¹⁷ ValueLine reports that the levered beta for each of the IPPs in Figure 4 is 1.1. We keep all other assumptions unchanged. This scenario yields a COE of 9.78 percent and a relevered beta of 0.99.

In Scenario 3, we include Constellation in our sample of IPP companies. Given its recent listing, there is only one year of data share price data, less than is available for the other IPPs in our sample. Given the data limitation, to maintain a sufficiently large number of observations and improve the precision of our estimate, we estimate Constellation’s beta using daily returns over a one-year window. The inclusion of Constellation yields a higher relevered beta and COE: 1.04 and 10.06 percent, respectively.¹⁸

Company, Wiley, 2010, p. 249. Damoradan estimates an ERP between 4.5 percent to 5.7 percent across May, June, and July 2023. See Damodaran, Aswath, “Implied ERP by month for previous months,” available at <https://pages.stern.nyu.edu/~adamodar/pc/implprem/ERPbymonth.xlsx>, tab “Historical ERP,” columns H and J, rows 178-180.

¹⁷ See ValueLine, Browse Research for AES, NRG, and Vistra, available at https://research.valueline.com/research?_ga=2.81886613.2095197307.1684419763-797578168.1684419763#list=recent&sec=company&sym=vst; https://research.valueline.com/research?_ga=2.81886613.2095197307.1684419763-797578168.1684419763#list=recent&sec=company&sym=nrg; https://research.valueline.com/research?_ga=2.81886613.2095197307.1684419763-797578168.1684419763#list=recent&sec=company&sym=aes.

¹⁸ The increase in beta is not due to the use of daily returns over a shorter time period. The average levered beta obtained for the other three IPPs in our sample does not change using five-year monthly returns or one-year daily returns (0.89 in both cases).

In Scenario 4, we exclude AES Corporation from our sample. AES's assets and businesses include substantial operations outside the U.S., particularly in Central and South America and two regulated electric utilities, neither of which entail financial risks comparable to an IPP. Excluding AES yields similar values for levered beta and COE (0.90 and 9.23 percent, respectively).

In Scenario 5, we expand our IPP representative sample to include TransAlta Corporation, a Canadian corporation whose business, other than a single natural gas pipeline, consists exclusively of power generation using hydropower, renewable, and natural gas resources across Alberta, the rest of Canada, the United States, and Australia. Given that the company is not U.S.-based, we do not include it in other scenarios. However, from an operational point of view, its profile reflects largely merchant generation activity without the benefit of long-run contracts (on a forward-looking basis) operating in wholesale markets similar in many respects to ISO-NE and thus is a reasonable comparable to include in the sample. The addition of TransAlta Corp. yields a beta of 0.94 and an overall COE equal to 9.47 percent.

In Scenario 6, we assume a higher risk-free interest rate in light of interest rate uncertainty prompted by potential Federal Reserve interest rate actions. For example, the 90-day (April 16 – July 15) average of the 20-year treasury bond rates went from 3.33 to 4.00 percent between 2022 and 2023. Given this uncertainty, in this scenario we assume an increase of 25 basis points in the risk-free rate (*i.e.*, a risk-free rate of 4.25 percent). Using this new figure to estimate the risk-free rate, we obtain a COE of 9.43 percent.

In Scenario 7, we consider estimates of beta measured over a shorter, one-year time period using daily rather than monthly returns, but otherwise keep the same assumptions as Scenario 1.¹⁹ Evaluating beta over a shorter time period allows us to capture the effects of recent changes in market conditions or market structure that would affect the financial risks faced by IPP firms. For example, centralized wholesale electricity markets have recently undergone changes in capacity market buyer-side market mitigation rules, which some observers have indicated would be expected to affect financial risks and the cost of capital for new projects in these markets.²⁰ Finance theory holds that current prices reflect forward-looking expectations of market conditions, such that market prices would reflect changes in market conditions after information about those changes are known to the market. Thus, in principle, estimates of beta based on recent market data (*i.e.*, occurring after rule changes are known) would be expected to capture the full effect of these changes in market rules. By comparison, because our estimates of beta in Scenario 1 use five years of data, these estimates may not fully capture the effects of these recent change in market conditions

¹⁹ These estimates are calculated using adjusted returns from S&P Global Market Intelligence.

²⁰ The Minimum Offer Price Rule ("MOPR") in the markets operated by ISO-NE, the New York Independent System Operator, and PJM Interconnection were eliminated on May 27, 2022, May 10, 2022, and September 29, 2021, respectively, per Federal Energy Regulatory Commission ("FERC") orders. The FERC orders approving these rule changes was preceded by stakeholder discussions and formal proposals to the FERC by each ISO for elimination of these rules. Analysis by ISO-NE's external market monitor, Potomac Economics, comes to the conclusion that revenue streams would be more volatile in the absence of the MOPR and that this volatility would thus increase the WACC. Potomac Economics, "Evaluation of Changes in the Minimum Offer Price Rules on Financial Risk in New England," November 2021, available at https://www.iso-ne.com/static-assets/documents/2021/11/a03a_mc_2021_11_09_10_ccm_without_mopr_emm_presentation.docx.

or market structure. When evaluating beta over a one-year, rather than five-year, time period, we obtain a beta of 0.89 and a COE of 9.19 percent, similar to the values obtained in Scenario 1.

A maintained assumption of the scenarios above is that the representative IPP companies are sufficiently far from insolvency and, thus, their debt is not risky. This assumption is commonly used when calculating the COE.²¹ However, as highlighted in **Figure 2**, some companies in our sample are below investment grade and all are within proximity of below investment grade. Given our sample of companies, we relax the assumption that the representative IPPs have negligible insolvency risk and, for each of the scenarios listed above, we estimate a beta using a modified estimation method to “unlever” and “relever” the betas in steps 2 and 3 described above. This modified estimation method accounts the potential impact of default risk on the COE by including a “debt beta,” and it may provide a more accurate measure of levered beta.²² Using this alternative approach, we estimate a COE ranging from 11.50 and 12.10 across the seven scenarios.

2. Recommended COE

Our recommended COE is based on the estimates of company-level COE and multiple additional considerations.

As with any merchant plant investment, new investments in a plant in New England face a mix of market and regulatory risks that could increase or decrease future returns. Future policy and regulatory changes may affect market conditions, including changes in loads (which may increase or decrease over time) and the mix of resources given legislative changes and energy and environmental policies. Our assessment accounts for these various considerations, along with the other general risks facing new merchant investment.

Our recommendations also reflect changing economic conditions, including the recent increases in risk-free return due to the action of the Federal Reserve on interest rates, increases in the risk-premium due to elevated market risks and uncertainties as a consequence of these changing economic conditions, and the likely duration of these effects given the requirement to determine a forward-looking COE for the timeframe of interest in this net CONE (i.e., for new facilities operational in June 2028).

While the companies in our sample have substantial merchant generation holdings, they also have substantial holdings in other regulated and unregulated businesses in the electric power sector, including generation facilities operated under long-term contracts and competitive retail supply operations. As these

²¹ See Koller, Tim, Mark Goedhart, and David Wessels, *Valuation – Measuring and Managing the Value of Companies*, Fifth Edition, *McKinsey & Company, Wiley*, 2010, Chapter 11.

²² Specifically, assuming that the default risk of companies is non-negligible yields the following modified Hamada formula that we use to unlever beta: $\beta_u = \left[\beta_l + (1 - T_m) \times \frac{D}{E} \times \beta_d \right] / \left[1 + (1 - T_m) \times \frac{D}{E} \right]$, where β_u (β_l) is the unlevered (levered) beta, β_d is the beta associated to an IPP's debt, T_m is the tax rate, and $\frac{D}{E}$ is the debt to equity ratio. Similar to the equity beta, the debt beta is a measure of systematic risk that debt holders hold in the investment. We compute debt beta using the CAPM approach but we replace COE with COD. To compute the company-specific beta debt, we use the same values for risk-free and ERP used to compute COE, the company-specific COD reported in Figure 2, and solve the equation for beta.

companies' business activities extend outside of merchant power generation and their generation asset holdings reflect a portfolio of assets with various vintages (and contract structures), their cost of equity is not necessarily comparable to the required return on equity for a new merchant plant in New England.

All assets and operations funded by IPP companies do not have the same cost of capital, and new generation resources, particularly financed through project finance, have higher COE compared to company COE estimates, as they are subject to higher idiosyncratic risk. Thus, the COE for new capacity in the New England control area would typically be expected to have a higher cost of capital than the corporate cost of capital for an IPP company, all else equal.

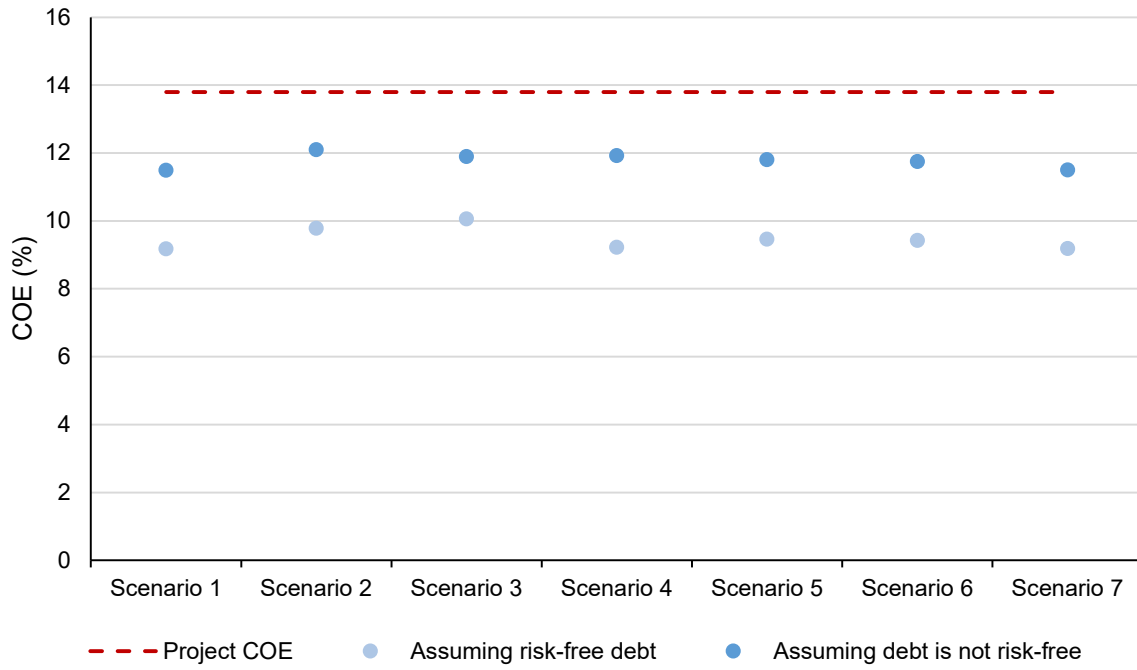
Mapping the estimated COE from the company- to the project-level inevitably requires some judgment, as there is no prescribed formula or equation. In accounting for the differences in company- and project COE, our recommended COE reflects several considerations. First, as discussed, a single project is usually riskier than a portfolio of projects (such as the ones found in publicly-traded IPPs), because the risk of a single project cannot be hedged against the risk of other projects. Thus, we expect a project-level COE to be higher than company-level COEs. Second, one potential metric to account for this difference is the size premium, usually around 2–4 percent, used by some practitioners when evaluating small companies.²³ The idea behind the size premium is that smaller companies face higher risks and therefore investors require higher rates of returns to invest in these firms, driving up the COE. Small companies COE shares some characteristics with single project COE, as both are smaller, more uncertain, and less diversified than large, publicly-traded company IPPs.²⁴ Third, given the inherent higher riskiness of the project- rather than company-level COE, our assessment emphasizes the upper bound, instead of the average, of the betas obtained using the representative IPP companies (“Step 3. Evaluate the range of unlevered beta,” mentioned in **Section II.D.1.b**).

Based on the information reviewed and the considerations described above, **we recommend a COE of 13.8 percent**. This recommendation is close to but above the upper bound of the values analyzed above. To facilitate the comparison of our recommendation and the obtained estimated values, **Figure 6** and **Figure 7** plot our recommendation against and the company-level COE values obtained in the baseline and additional scenarios. **Figure 6** uses the average unlevered beta to perform Step 3 in **Section II.D.1.b**, while **Figure 7** uses the upper bound of the range of unlevered betas to perform that step. In each figure, the lighter dots (“Assuming risk-free debt”) represents the company COE estimated assuming that the IPP companies in our sample have negligible default risk. The darker dots (“Assuming debt is not risk-free”), conversely, assume that default risk for these IPPs is non-negligible and add a “beta-debt” component to the estimation of beta. The recommended COE remains within the range of COE values observed in previous CONE studies (see **Section III** of this report).

²³ For example, the Kroll Cost of Capital Navigator, available at <https://www.kroll.com/en/cost-of-capital>, suggests a small size premium of 3.05 percent for companies with a capitalization between \$2 million and \$374 million, categorized as “Micro Cap.”

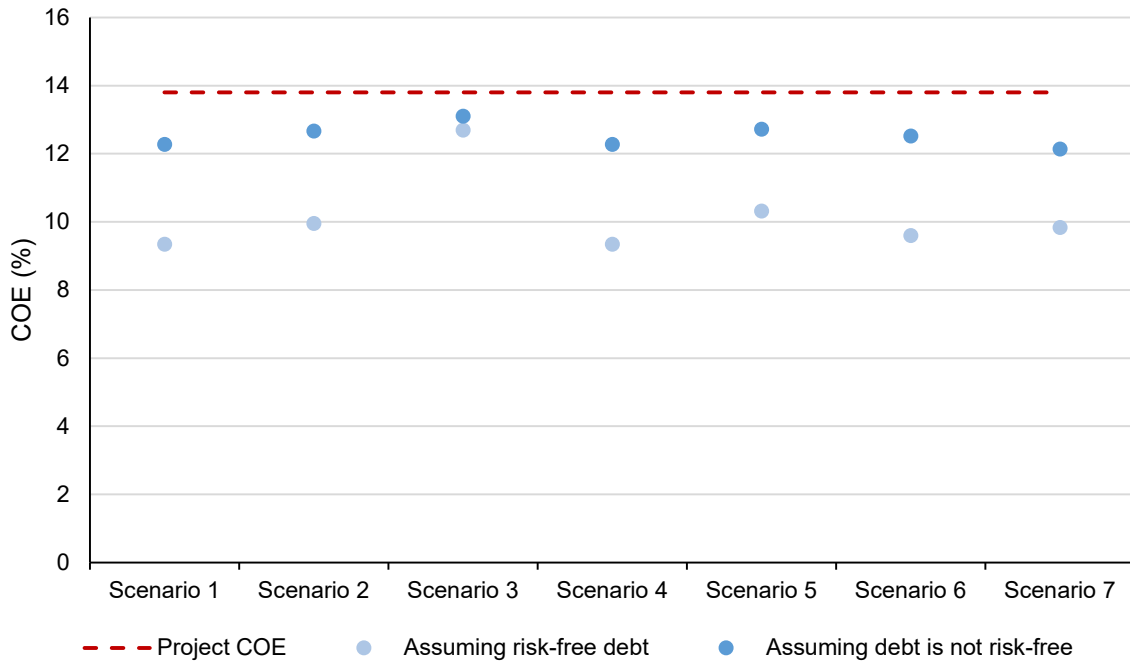
²⁴ We note that the validity of the application of a small size premium is still debated in the literature. See, e.g., Pratt, Shannon P. and Roger R. Grabowski, *Cost of Capital: Application and Examples*, Fifth Edition, Wiley, 2014, Chapter 15.

Figure 6. Company COE for Scenarios 1 to 7 Using Average of Representative IPP Betas



Note: The dashed red line represents the recommended project COE, while the blue dots the estimated company COE. The lighter dots ("Assuming risk-free debt") represents the company COE estimated assuming that the IPP companies in our sample have negligible default risk. The darker dots ("Assuming debt is not risk-free") assume that default risk for these IPPs is non-negligible and add a "beta-debt" component to the estimation of beta.

Figure 7. Company COE for Scenarios 1 to 7 Using Upper Bound of Representative IPP Betas



Note: The dashed red line represents the recommended project COE, while the blue dots the estimated company COE. The lighter dots ("Assuming risk-free debt") represents the company COE estimated assuming that the IPP companies in our sample have negligible default risk. The darker dots ("Assuming debt is not risk-free") assume that default risk for these IPPs is non-negligible and add a "beta-debt" component to the estimation of beta.

E. Calculation of the ATWACC

Our assessment of factors related to the calculation of the ATWACC has considered the data on the following: COE, COD, and D/E ratios presented above; facts and circumstances unique to the ISO-NE markets, including the extent of past experience with merchant development; the rapidly-changing nature of federal and state energy and environmental policies, recent changes in regulation; and likely project/ownership structures for new plant development in New England.

As shown above:

$$ATWACC = \frac{D}{D + E} COD(1 - T_m) + \frac{E}{D + E} COE$$

Recall further that our recommended values for each of the components in the ATWACC equation are:

- $\frac{D}{D+E} = 0.55$;
- $COD = 0.0685$;

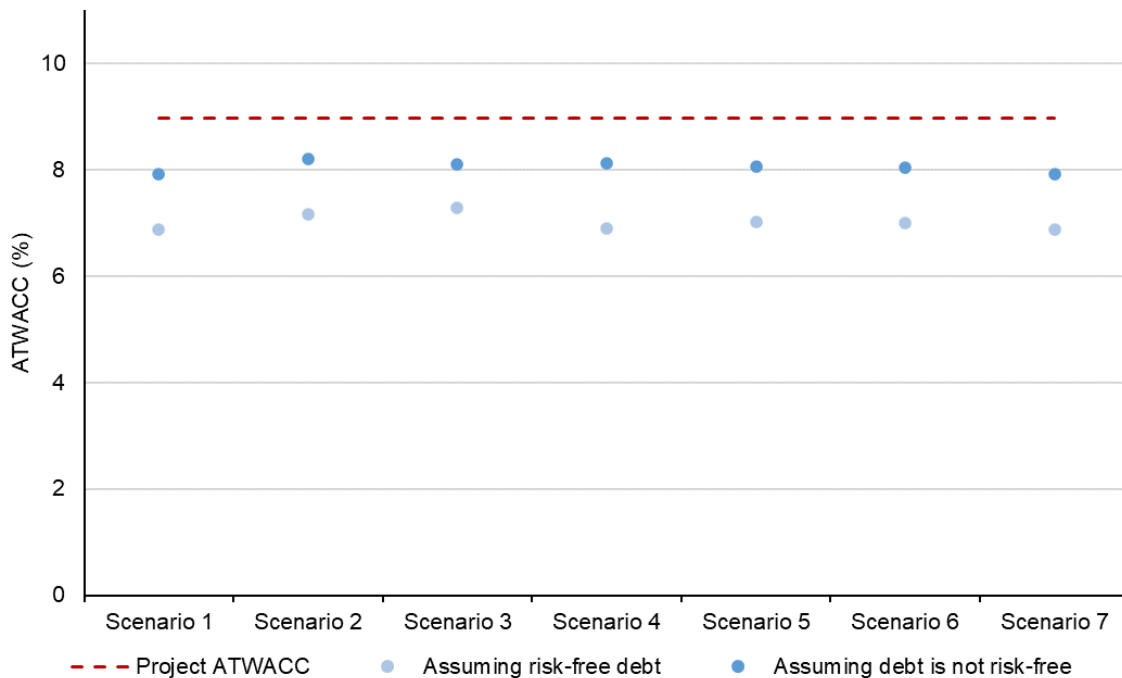
- $T_m = 0.269$;²⁵
- $\frac{E}{D+E} = 0.45$;
- $COE = 0.138$.

Plugging these values into the equation above, we obtain:

$$ATWACC = 0.55 \cdot 0.0685 \cdot (1 - 0.2693) + 0.45 \cdot 0.138 = 0.0896$$

Accordingly, **we recommend an ATWACC of 8.96 percent**. Similarly to **Figure 6** and **Figure 7**, **Figure 8** and **Figure 9** report the recommended ATWACC and the set of ATWACC values obtained in our seven scenarios.

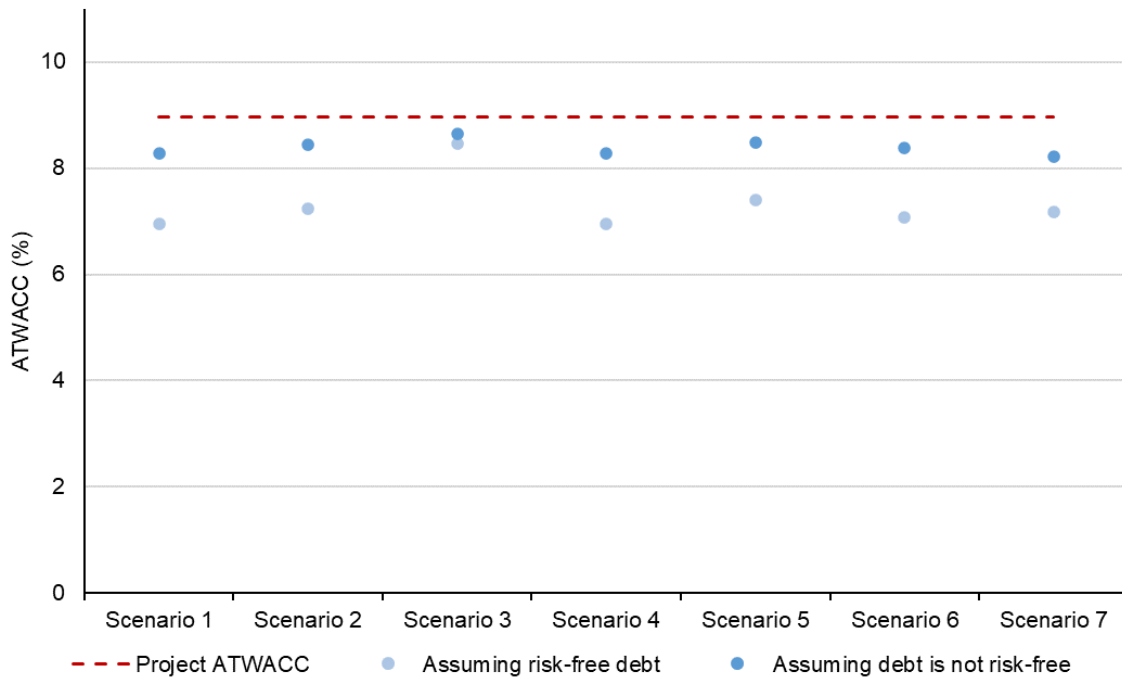
Figure 8. Company ATWACC for Scenarios 1 to 7 Using Average of Representative IPP Betas



Note: The dashed red line represents the recommended project ATWACC, while the blue dots the estimated company ATWACC. The lighter dots ("Assuming risk-free debt") represents the company ATWACC estimated assuming that the IPP companies in our sample have negligible default risk. The darker dots ("Assuming debt is not risk-free") assume that default risk for these IPPs is non-negligible and add a "beta-debt" component to the estimation of beta.

²⁵ In our calculations we use a federal tax rate of 21 percent and a state tax rate of 7.5 percent, which yields a combined tax rate (T_m) of 26.9 percent, calculated as: $0.21 + 0.075 - (0.21 \times 0.075) = 0.2693$.

Figure 9. Company ATWACC for Scenarios 1 to 7 Using Upper Bound of Representative IPP Betas



Note: The dashed red line represents the recommended project ATWACC, while the blue dots the estimated company ATWACC. The lighter dots ("Assuming risk-free debt") represents the company ATWACC estimated assuming that the IPP companies in our sample have negligible default risk. The darker dots ("Assuming debt is not risk-free") assume that default risk for these IPPs is non-negligible and add a "beta-debt" component to the estimation of beta.

III. Comparison with existing ATWACC in other CONE studies

Figure 10 presents COE, COD, capital structure, and ATWACC estimates from prior CONE studies for ISO-NE, NYISO, and PJM.

The recommended ATWACC is consistent with previous and currently approved capital cost values in NYISO and other neighboring market (e.g., ISO-NE and PJM) for net CONE evaluations utilized for capacity market purposes. The current ATWACCs are 8.52 and 8.20 percent in NYISO (NY State and NYC, respectively) and 8.85 percent in PJM, while the current ATWACC for ISO-NE, as approved in 2020, is 8.3 percent.

Figure 10. ATWACC Estimates from Prior Net CONE Studies²⁶

Period	RTO	COE	COD	D/(D+E)	ATWACC
Past Studies					
2014	ISO-NE	13.8%	7.0%	0.60	8.0%
2014	PJM	13.8%	7.0%	0.60	8.0%
2016	NYISO	13.4%	7.75%	0.55	8.6% (NY State) 8.36% (NYC)
2016	ISO-NE	13.4%	7.75%	0.60	8.1%
2018	PJM	12.8%	6.5%	0.65	7.5%
Most Recent Studies (by RTO)					
2020	ISO-NE	13.0%	6.0%	0.55	8.3%
2020	NYISO	13.0%	6.7%	0.55	8.52% (NY State) 8.20% (NYC)
2022 (April)	PJM	13.6%	4.7%	0.55	8.0%
2022 (September)	PJM	14.1%	6.3%	0.55	8.85%
Current Study					
2023	ISO-NE	13.8%	6.85%	0.55	8.96%

²⁶ See Brattle September 2022 PJM Study; Brattle April 2022 PJM Study; AG 2020 NYISO Study; Concentric 2020 ISO-NE Study; The Brattle Group and Sargent & Lundy, "PJM Cost of New Entry Combustion Turbines and Combined-Cycle Plants with June 1, 2022 Online Date," April 19, 2018; Concentric Energy Advisors, "ISO-NE CONE and ORTP Analysis," December 2, 2016; Analysis Group, Inc. and Lummus Consultants International, Inc., "Study to Establish New York Electricity Market ICAP Demand Curve Parameters," September 13, 2016; The Brattle Group and Sargent & Lundy, "Cost of New Entry Estimate for Combustion Turbine and Combined Cycle Plants in PJM With June 1, 2018 Online Date," May 15, 2014; Testimony of Dr. Samuel A. Newell and Mr. Christopher D. Ungate on Behalf of ISO New England Inc. Regarding the Net Cost of New Entry for the Forward Capacity Market Demand Curve, April 1, 2014.

AFFIDAVIT OF TODD SCHATZKI

1. My name is Todd Schatzki. I am Principal at Analysis Group, Inc. at their Boston office. Analysis Group is one of the largest international economics consulting firms, with more than 1,200 professionals across 14 offices in North America, Europe, and Asia. Analysis Group provides services in many areas of economics and finance, such as accounting, antitrust and competition, economic damages, finance, data science and statistical modeling, and energy, climate and natural resources.
2. I have over 25 years of experience as an economist in antitrust, finance, and energy and environmental economics and regulation. My experience in energy market and regulation includes wholesale and retail electricity markets, natural gas markets, and other fuels markets. I have extensive experience in wholesale power markets in many regions of North America, including work in markets for energy, capacity and ancillary services. I have worked with independent system operators in New England and New York, and other work has involved many organized and non-organized wholesale markets, including Alberta Electric System Operator, California Independent System Operator, ISO-New England (the "ISO"), Midcontinent Independent System Operator, Inc., New York ISO, PJM Interconnection, Southwest Power Pool and Western US wholesale electricity markets. Across engagements, I have worked on behalf of system and market operators, market monitors, and market participants. I have submitted testimony to federal, state and provincial (Canada) regulatory commissions.
3. I have been with Analysis Group since 2005 in support of projects across the globe. Prior to joining Analysis Group, I worked at two economic consulting firms, LECG and National Economic Research Associates.
4. I hold a Ph.D. in Public Policy from Harvard University, a M.C.P. in Environmental Policy from the Massachusetts Institute of Technology, and a B.A. in Physics from Wesleyan University.
5. I, in cooperation with Carlo Gallimberti was responsible for preparing the *Analysis of the ATWACC of New Entry for the ISO New England Forward Capacity Market* (referred to as the "ATWACC Report") and the information contained in that report is true and correct to the best of my knowledge.
6. I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on November 1, 2023

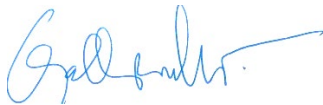
A handwritten signature in black ink, appearing to read 'Todd Schatzki', written over a horizontal line.

Todd Schatzki, PhD

AFFIDAVIT OF CARLO GALLIMBERTI

1. My name is Carlo Gallimberti. I am a Manager at Analysis Group, Inc. at their Boston office. Analysis Group is one of the largest international economics consulting firms, with more than 1,200 professionals across 14 offices in North America, Europe, and Asia. Analysis Group provides services in many areas of economics and finance, such as accounting, antitrust and competition, economic damages, finance, data science and statistical modeling, and energy, climate and natural resources.
2. I have over 11 years of advisory and academic experience in the field of economics, finance, and accounting. I was a faculty member at Boston College for eight years, where I continue to teach financial accounting. My academic research focuses on firms' funding decisions and the impact of borrower financial reporting on banks' asset quality and lending decisions. My research also investigates potential spillover effects among capital markets triggered by companies' financial disclosure and regulatory actions. My advisory experience includes the valuation of private and listed companies and their cost of capital, asset impairment decisions, debt restructuring, and the impact of complex financial transactions on companies' financial results.
3. I have been with Analysis Group since 2022 in support of projects across the globe. Prior to joining Analysis Group, I was an assistant professor of accounting at Boston College and a consultant and CPA in Milan, Italy.
4. I hold a Ph.D. in Economics and Finance and a bachelor and M.S. in Law and Business Administration from Bocconi University.
5. I, in cooperation with Todd Schatzki, was responsible for preparing the *Analysis of the ATWACC of New Entry for the ISO New England Forward Capacity Market* (referred to as the "ATWACC Report") and the information contained in that report is true and correct to the best of my knowledge.
6. I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on November 1, 2023



Carlo Gallimberti

New England Governors, State Utility Regulators and Related Agencies*

Connecticut

The Honorable Ned Lamont
Office of the Governor
State Capitol
210 Capitol Avenue
Hartford, CT 06106
bob.clark@ct.gov

Connecticut Attorney General's Office
165 Capitol Avenue
Hartford, CT 06106
john.wright@ct.gov

Connecticut Department of Energy and
Environmental Protection
79 Elm Street
Hartford, CT 06106
eric.annes@ct.gov
robert.snook@ct.gov

Connecticut Public Utilities Regulatory Authority
10 Franklin Square
New Britain, CT 06051-2605
steven.cadwallader@ct.gov
seth.hollander@ct.gov
robert.marconi@ct.gov
scott.muska@ct.gov

Maine

The Honorable Janet Mills
One State House Station
Office of the Governor
Augusta, ME 04333-0001
jeremy.kennedy@maine.gov
elise.baldacci@maine.gov

Maine Governor's Energy Office
62 State House Station
Augusta, ME 04333
dan.burgess@maine.gov

Maine Public Utilities Commission
18 State House Station
Augusta, ME 04333-0018
maine.puc@maine.gov

Massachusetts

The Honorable Maura Healey
Office of the Governor
State House
Boston, MA 02133
rebecca.l.tepper@mass.gov
Jason.R.Marshall@mass.gov
Mary.L.Nuara@mass.gov

Massachusetts Attorney General's Office
One Ashburton Place
Boston, MA 02108
matthew.saunders@mass.gov
elizabeth.a.anderson@mass.gov

Massachusetts Department of Energy
Resources
100 Cambridge Street, Suite 1020
Boston, MA 02114
robert.hoaglund@mass.gov
ben.dobbs@state.ma.us

Massachusetts Department of Public Utilities
One South Station
Boston, MA 02110
nancy.stevens@state.ma.us
morgane.treanton@state.ma.us
william.j.anderson2@mass.gov
dpu.electricsupply@mass.gov

New Hampshire

The Honorable Chris Sununu
Office of the Governor
26 Capital Street
Concord, NH 03301
New Hampshire Department of Energy
21 South Fruit Street, Ste 10
Concord, NH 03301
jared.s.chicoine@energy.nh.gov
christopher.j.ellmsjr@energy.nh.gov
thomas.c.frantz@energy.nh.gov
amanda.o.noonan@energy.nh.gov
joshua.w.elliott@energy.nh.gov
david.j.shulock@energy.nh.gov

New Hampshire Public Utilities Commission
21 South Fruit Street, Ste. 10
Concord, NH 03301-2429
regionalenergy@puc.nh.gov

New England Governors, State Utility Regulators and Related Agencies*

Rhode Island

The Honorable Daniel McKee
Office of the Governor
82 Smith Street
Providence, RI 02903
rosemary.powers@governor.ri.gov

Rhode Island Office of Energy Resources
One Capitol Hill
Providence, RI 02908
christopher.kearns@energy.ri.gov

Rhode Island Public Utilities Commission
89 Jefferson Blvd.
Warwick, RI 02888
ronald.gerwatowski@puc.ri.gov
todd.bianco@puc.ri.gov

Vermont

The Honorable Phil Scott
Office of the Governor
109 State Street, Pavilion
Montpelier, VT 05609
jason.gibbs@vermont.gov

Vermont Public Utility Commission
112 State Street
Montpelier, VT 05620-2701
mary-jo.krolewski@vermont.gov
margaret.cheney@vermont.gov

Vermont Department of Public Service
112 State Street, Drawer 20
Montpelier, VT 05620-2601
bill.jordan@vermont.gov
june.tierney@vermont.gov

New England Governors, Utility Regulatory and Related Agencies

Heather Hunt, Executive Director
New England States Committee on Electricity
424 Main Street
Osterville, MA 02655
heatherhunt@nescoe.com
jeffbentz@nescoe.com
nathan.forster@mass.gov

shannonbeale@nescoe.com
sheilakeane@nescoe.com

George Twigg, Executive Director
New England Conference of Public Utilities
Commissioners
67 Merchants Row, Suite 3, The HUB
Rutland, VT 05401
gtwigg@necpuc.org

Anthony Roisman and Margaret Cheney, Co-
Presidents
New England Conference of Public Utilities
Commissioners
112 State Street
Montpelier, VT 05620-2701
anthony.roisman@vermont.gov
margaret.cheney@vermont.gov