memo

To: NEPOOL Markets Committee (MC)

From: ISO New England

Date: October 9, 2024

Subject: ISO's Thinking on Representing Retained Resources in the Capacity Market

Under current market rules, a resource that is retained for local transmission security receives a Capacity Supply Obligation (CSO) for the period of time it is retained. This is implemented in the capacity auction by treating the resource as a "price taker", meaning it is represented at a price of $0 in the capacity supply curve used to determine capacity awards and set capacity clearing prices. As explained in the materials discussed at the September MC, the ISO is not proposing to change this treatment as part of the Capacity Auction Reforms (CAR), as we find that it continues to be appropriate and logical. While the ISO has noted its rationale for this approach, we provide further details in this memorandum supporting this recommendation and explaining why the ISO is not pursuing a different approach at this time.

Rationale for the Price Taker Treatment

To convey the logic behind the ISO's capacity pricing treatment for retained resources, it is informative to use a simple example. Imagine that there is a resource A that is retained for local transmission security, where this resource is expected to contribute to that local reliability need as well as to the system's resource adequacy more generally. Another resource B that is not being retained only contributes to resource adequacy (that is, it cannot alleviate the local reliability need addressed by resource A) and is submitting a priced offer into the capacity market that will determine whether it is awarded a CSO.

The outcome that occurs under the current market rules is shown in Figure 1, where resource A's capacity is represented as a price-taker (i.e., included in the supply curve at a price of zero). The capacity clearing price is P* and the clearing quantity is Q*. There are two key properties to highlight associated with this outcome.

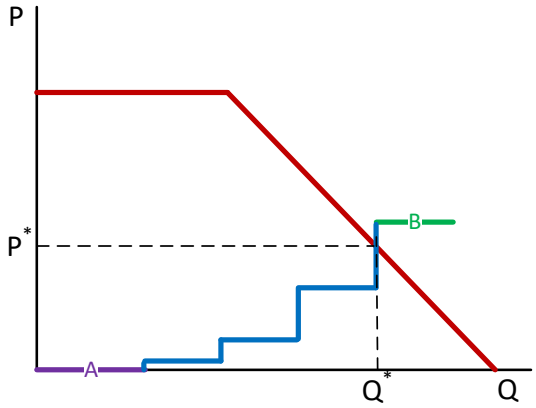

Figure 1

First, resource B's offer price is sufficiently high such that it is not awarded a CSO in addition to resource A's CSO. This outcome occurs because if resource B was to be awarded a CSO, the region would pay for capacity for which the costs (as represented by resource B's supply offer) exceed the incremental reliability value that it provides (represented by the demand curve underneath resource B's offer). Put another way, consumers are not required to 'pay twice' for capacity because, while they will incur the costs to retain resource A through the retention agreement, they are not also forced to buy capacity to replace resource A's capacity quantity since it is accounted for in the capacity auction's supply curve and the auction clearing results.

Second, the price that is paid to all capacity resources, P*, is consistent with capacity's marginal reliability value as specified by the MRI-based capacity demand curve. This result follows from accounting for resource A's expected contributions to resource adequacy in the capacity auction clearing as illustrated in Figure 1. This treatment helps drive economically sensible investment decisions generally, by signaling a capacity clearing price that corresponds with capacity's actual marginal reliability value.

Other Approaches to Representing Retained Resources in the Capacity Market

During the CAR scoping discussions and in earlier conversations, some stakeholders have inquired about other approaches to the treatment of retained resources in the capacity market. While there are variations to the approaches, at the core, they include: (i) excluding the retained resource from the capacity market clearing process (relative to the current approach, this removes the retained resource as a price taker from the capacity supply curve with no other changes), (ii) including the retained resource in the capacity supply curve at a nonzero price (shifting the resource up on the capacity supply curve),[1] and (iii) reducing the quantity of capacity associated with the resource (an alternative that falls in between the current rules and approach (i)). Below, we discuss the implications of excluding retained resources from the capacity market clearing process (approach (i)) before briefly explaining how the logic outlined can be extended to the other scenarios (approaches (ii) and (iii)).

[1] In practice, there are various ways that the retained resource's price could be established. However, any nonzero price will raise the same set of concerns, as discussed further below.

The left panel of Figure 2 below shows how the clearing outcome would change if resource A is excluded from the capacity market clearing process (by removing resource A from the capacity supply curve), consistent with approach (i). This exclusion shifts the capacity supply curve to the left relative to Figure 1. We illustrate this leftward shift and its outcomes in the left panel of Figure 2. By doing so, the capacity auction now buys resource B's capacity. The clearing price is now P^.

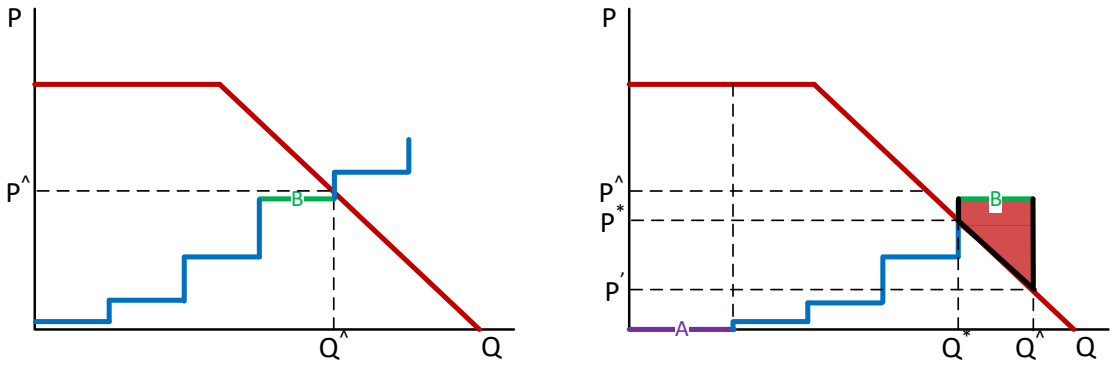

Figure 2

However, by shifting the capacity supply curve to the left, this clearing outcome fails to account for the resource adequacy contributions that would be expected from resource A during the capacity commitment period. The right panel in Figure 2 accounts for these contributions by including A as a price taker in the capacity supply curve, consistent with Figure 1.[2] Once these resource adequacy contributions are considered, it becomes evident that two economic concerns would occur in this situation.

First, it is not economically sensible to award a CSO to resource B given that B's offer price exceeds the incremental resource adequacy value that it provides, as illustrated by the demand curve segment that lies under its offer price in the right panel of Figure 2. More specifically, the dollar-value of the reduction in the economic efficiency of the capacity market that would occur if resource B was to be awarded a CSO is represented via the red shared area in this figure. However, because resource A's contributions to resource adequacy are not considered under this scenario, resource B is awarded a CSO. This leads consumers to effectively 'pay twice' for capacity, first via the retention agreement with resource A, and then again via the procurement of capacity of resource B that only occurs because the resource adequacy contributions of resource A are not considered in the clearing outcome. Such an outcome is inefficient.

Second, we now consider how the clearing price and marginal reliability value of capacity would change relative to current rules. In this example, the clearing price increases from P* to P^ despite the fact that with resource B receiving a CSO, the marginal reliability value of capacity decreases from P* to P'. By not considering resource A's contributions to resource adequacy, the capacity clearing price would exceed the level that is consistent with capacity's marginal reliability value. This creates an inefficient price signal to the market and all of its participants.

[2] Representing A as a price taker is one of several ways one could account for these contributions in the capacity clearing process that yields the same result. For example, another approach would be to remove resource A from the capacity supply curve and decrease capacity demand by an equivalent amount.

Because of these concerns, the ISO's current market rules do not exclude resources retained for local transmission security from the capacity market clearing process. While these concerns were discussed in the context of the approach that would exclude resources retained for local transmission security from the capacity clearing process, they extend to other approaches that have been considered and discussed.

For example, if resource A was entered at a nonzero price into the capacity supply curve (approach (ii) above), the outcome would ultimately depend on whether resource A is 'awarded' a CSO in the auction. If resource A's offer price is below the capacity clearing price and it is awarded a CSO, the outcome is equivalent to the current price taker treatment. If resource A is not awarded a CSO, the outcome is instead equivalent to that which occurs when it is excluded from the capacity market clearing process (approach (i)), where the concerns noted above persist.

Turning to approach (iii) above, if resource A's total quantity of capacity is instead reduced so that it was not commensurate with its expected contribution to reducing expected unserved energy during the associated capacity commitment period, this would again mean that the capacity supply curve determining capacity awards and setting capacity prices would not fully reflect the expected resource adequacy contributions associated with the retained resource. As a result, the two concerns outlined above would persist.

Based on these observations, the ISO does not find either of these approaches, or other approaches that do not fully consider the resource adequacy contributions of any resources retained for local transmission security, to be economically sensible. To do so would lead the region to potentially pay twice for capacity and send inefficient price signals to the market.

Future Assessments

The CAR reforms will also bring a number of changes to the capacity market relating to seasonality and commitment periods, and greater consideration of resource performance and resource adequacy contributions in the accreditation process. As presented at the October NEPOOL Participants Committee meeting on the ISO's draft 2025 Annual Work Plan, the current capacity pricing treatment for resources retained for local transmission security is applicable to the annual market structure, but the outcomes may not be the same under a seasonal market design. The ISO has not yet developed its seasonal design, but it remains committed and focused on completing that effort for CCP 19 as part of its core CAR scope. After that foundational part of the initial design and filing is completed around the end of 2026, the ISO will begin to assess and discuss how transmission reliability reviews will conform to the seasonal commitment periods, including any potential pricing implications.[3]

Additionally, this memorandum focuses on the capacity market treatment of resources retained for local transmission security. The logic put forth that supports treating the retained resource as a price taker is contingent on that resource providing reliability attributes (local transmission security) that cannot be

[3] *See* ISO New England's Draft 2025 Annual Work Plan: https://www.iso-ne.com/static-assets/documents/100015/2025_awp_draft_for_10_10_2024_pc.pdf

provided by a broader set of resources. In the context of the earlier examples, it requires that resource B is not able to provide the same reliability attributes as resource A.

While the current Tariff only allows retentions for local transmission security and the ISO does not plan to resurrect energy security retentions, it also understands stakeholder interest in understanding whether the current price taker approach would be applied in the case where a resource was retained for energy security. For energy security retentions, the reliability need that triggers the retention is not specific to a localized area, but rather is broader and can potentially be met by many resources that may not be paid comparably to the retained resource if using the same construct applied under the local transmission security retention rules.

As part of the core CAR scope for Capacity Commitment Period 19 (CCP 19), starting in early 2025, the ISO will be proposing modifications to the timing and design of the retirement notifications process so that it occurs in advance of the capacity auction. However, if the ISO found itself in a future situation where it needed to again consider retaining resources for energy security, it commits to simultaneously assessing and including a different capacity pricing mechanism for stakeholder consideration as part of that future process.[4]

[4] The ISO's reflection on this item should not be construed as a signal of the need for any energy security retentions.