CAR – Prompt

Market Power and Mitigation Design for the Prompt Capacity Auction

Andrew Copland

ECONOMIST

CAR – Prompt: Market Power and Mitigation

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Earliest Target Effective Date: Q2-Q3 2026

- In continuing with our discussion of market power mitigation design in CAR-PD today, the ISO will be:
  - Following up on open questions
  - Providing updates regarding the ISO's current thinking for buyer-side market power review timing
  - Discussing seller-side market power cost workbooks in the Forward Capacity Auction (FCA) and some expected conforming updates moving to prompt
- Consistent with the scoping objectives outlined at the July 2024 MC, the CAR–Prompt mitigation design conforms current market rules and processes for the prompt auction

FOLLOW UPS

From June MC

Impact Test vs. Pivotal Supplier Test

- The ISO appreciates the ideas presented by the IMM in their June MC presentation
  - One recommendation was to replace the pivotal supplier test with an impact test for triggering binding seller-side mitigation in the capacity market
- While the ISO has considered the recommendation, it is continuing to propose using the pivotal supplier test for the CAR-PD filing
  - Developing a new mitigation framework falls outside the scope of CAR-PD
- The ISO is intending to conduct a more general evaluation of mitigation in the capacity market after completing the CAR project

Capacity Offer Requirement for Schedule 25 (CNIC) Resources

- Based on participant feedback, the ISO is revising its tentative recommendation of whether import capacity resources associated with an external ETU will face a capacity offer requirement
- Revised, tentative proposal: The same capacity offer requirement rules will be applied to all import capacity resources (regardless of their association with an external ETU)
  - Any import capacity resource that submits a show of interest and receives a Qualified Capacity value will be required to offer its QC into the primary capacity auction

UPDATES TO BUYER-SIDE MARKET POWER (BSMP) REVIEW TIMING

BSMP Offer Floor Price Applicability

- Offer floor prices are only calculated for resources that:
  i. Have never previously cleared in a primary capacity auction; and
  ii. Do not qualify for an exemption through any one of:
    - De minimis (< 5 MW)
    - Composed of passive demand response assets
    - Sponsored Policy Resource
    - Competitive entrant (not receiving out-of-market revenues from a load-side entity)

- In other words, to face an offer floor price, a resource must: not yet have cleared in a primary auction, be larger than 5 MWs, not be comprised entirely of passive demand response, not be a sponsored policy resource, *and* receive out-of-market support from a load-side interest
  - For these resources, the IMM estimates what capacity price would be necessary such that, over the life of the project and excluding non-market revenues, the project would expect to break even

Fundamentals of the IMM Offer Floor Price

- There are two central components of the IMM's offer floor price calculation:
  1. Expected ISO-NE-market net revenues over the life of the project
  2. Expected development costs for the project

- Straightforwardly, the IMM's calculated floor price is:

$$\text{IMM Offer Floor Price} = \text{Annualized Development Cost} - \text{Expected Annual (Non-Capacity) Market Net Revenues}$$

- The binding floor price applied to the resource in the auction is the higher of the IMM's calculated value and the resource's requested minimum offer price

BSMP Timeline Reevaluation

- At the June MC, the ISO discussed a potential timeline for BSMP reviews
  - The initial timeline considered resources undergoing BSMP reviews two years before their intended first primary auction
- Based on feedback received from market participants, the ISO has reevaluated BSMP timing and offers an updated proposed timeframe

Updated ISO Thinking Regarding BSMP Timing

- Updated ISO proposal: The IMM will accept BSMP review package submissions roughly 3.5 years before the intended first primary auction participation
  - (Conditional on having sufficient information to be able to reasonably estimate development costs and market revenues)
- Projects with shorter development timelines would be able to engage in BSMP reviews closer-in-time to the resource's first primary auction participation
  - The ISO is examining allowing flexibility for resources with shorter development timelines to submit BSMP packages up to ~1 year before their intended first primary auction participation

OVERVIEW OF COST WORKBOOKS FOR SELLER-SIDE MARKET POWER (SSMP) REVIEWS

Basis for Cost Reviews of Capacity Market Offers

- One of the core responsibilities of the IMM is to evaluate whether market offers submitted by suppliers reasonably reflect the costs incurred for providing the good or service in question
- In the capacity market, this oversight is primarily implemented through the submission and review of "cost workbooks"
  - All offers (or "bids," in the FCA) priced at or above a predefined threshold must be accompanied by a cost workbook documenting the basis for the offer price
- Note: This section focuses on cost workbooks submitted for seller-side market power (SSMP) mitigation review

Use of Cost Workbooks in IMM Reviews

- Cost workbooks provide:
  - A standardized structure for identifying, evaluating, and quantifying relevant costs for a resource's competitive offer
  - A clear linkage of input values (such as assumptions and expectations of costs, revenues, system conditions, etc.) to supporting documentation
- Practically, determining what information is collected requires balancing two factors:
  1. Provide resources with sufficient flexibility such that they can accurately, completely, and efficiently identify relevant costs and revenues to reflect the incremental cost of providing capacity
  2. Ensure resource offers are sufficiently precise to facilitate independent review by the IMM

Practical Description of Cost Workbooks

- "Cost workbooks" are a set of routinely updated Excel spreadsheet models published by the IMM to support de-list bids and new supply in the FCA
  - Different spreadsheets are intended for different bid types
    - E.g.: demand response, retirement de-list, generation static de-list, etc.
  - Each is a "multi-sheet" Excel workbook that includes pre-identified fields for resources to identify and document relevant costs they expect to incur as a result of receiving a CSO
  - Each workbook "sheet" is broadly dedicated to calculating a particular element of the resource's competitive capacity offer price
    - E.g.: a risk sheet, avoidable capital cost sheet, expected capacity performance payments sheet, etc.
  - As an example, see here for FCA18 workbooks
- This creates a consistent framework for calculating a resource's competitive offer price
- Resources may modify a workbook's default model(s), assumptions, or calculations, subject to the IMM's approval

Information Collected in SSMP Workbooks

- Resources are asked to provide sufficient information to calculate a competitive offer (or "bid") price, including:
  - Resource characteristics (e.g., capacity factor, technology type, accredited capacity, etc.)
  - Operational costs (e.g., operating expenses, maintenance costs, administrative and general expenses)
  - General expectations (e.g., ISO-NE market revenues)
  - PFP-related expectations (e.g., number of CSC hours, balancing ratio, resource availability)
  - Risk-related beliefs (e.g., 95th percentile for CSC hours, participant-calculated risk premium)
  - Expectations regarding "operational posture" (e.g., expected participation differences with/without a CSO)

Likely Updates to Cost Workbooks to Accommodate CAR-PD Reforms

- Moving to a prompt capacity auction necessitates certain updates in the cost workbooks to ensure all resource types accurately reflect their CSO-relevant costs
  - For ease and familiarity, the ISO expects to base the prompt auction's priced supply offer workbook on the existing static de-list bid workbook
- Some potential updates to the workbook include:
  - Updating risk models to reflect the auction's prompt timing
  - Building in additional flexibility for identifying opportunity costs

High Level Walkthrough of Cost Workbook Cost Components

- Currently, in the Static De-List Bid cost workbook, costs are broadly grouped into three categories:
  1. Net going forward costs (including avoidable capital costs, avoidable operating costs, expected net market revenues, and others)
  2. Expected PFP Payments (opportunity cost of holding a CSO)
  3. PFP-related risk premiums
- The ISO is not expecting to make substantial changes to the treatment of these categories for the prompt auction
- We next walk through each at a high level, including how certain elements of the cost workbooks may change with the move to prompt

Net Going Forward Costs in Forward and Prompt Workbooks

- As discussed at the April MC, at a high level, the core elements that determine a resource's Net Going Forward Cost:

	Cost Component	Source	Relevant For?
[1]	Going Forward Operating + Capital Costs	Participant Reported	All Resources
[2]	Production Costs of Operating as a Capacity Resource	Participant Reported	All Resources
[3]	ISO Non-Capacity Market Revenues	Participant Reported	All Resources
[4]	Expected Pay for Performance Payments	Derived from Reported Beliefs	Resources that expect to sell energy without a CSO
[5]	**Net Going Forward Cost**	**Max([1] + [2] – [3] – [4], 0)**	**All Resources**

Avoidable Capital Costs in Forward and Prompt Workbooks

- Participants will continue to be able to report any qualifying capital expenditures in cost workbooks
- The recoverable portion of capital project costs will continue to be calculated using the remaining economic life of the resource and the pre-tax weighted average cost of capital (WACC)
  - Default WACC of 10%; can be replaced with participant-requested (and supported) value

Reflecting Opportunity Costs in Forward and Prompt Workbooks

- Moving to a prompt auction, and incorporating import and export bids into a single-priced supply offer framework, increases the relative importance of opportunity costs
  - One possible framework may explicitly consider elements like:

	Potential Opportunity Costs in Prompt Priced Supply Offer Workbook	**Source**	**Relevant For?**
[1]	Foregone External Capacity Sale Revenue	Participant Reported	Import Capacity; Potential Capacity Exports
[2]	Foregone Non-Energy, -Ancillary Services, or -Capacity Revenue	Participant Reported	Any Resource with a Relevant Next Best Alternative
[3]	Other Opportunity Costs Incurred if a CSO is Awarded	Participant Reported	Potentially All Resources
[4]	**Total Opportunity Costs**	**[1] + [2] + [3]**	**Potentially All Resources**

PFP – Cost of Financial Obligation (Opportunity Cost)

- By accepting a CSO, a resource agrees to produce its calculated share of the system's real-time energy and reserve requirements during Capacity Scarcity Conditions (CSC)
  - MWhs produced during CSC intervals that exceed a resource's calculated share of the system's real-time energy and reserve requirements are eligible for PFP performance payments
  - Any MWhs of a resource's share of the system's energy and reserve requirements that were not produced by the resource during CSC intervals will incur a financial charge
- A resource without a CSO, by contrast, does not face any potential financial charges and is instead eligible to receive positive performance payments for all MWhs produced during a CSC

PFP – Cost of Financial Obligation (Opportunity Cost) (cont.)

- Mathematically (in "$/MW of QC" terms), this component is calculated:

$$Expected\ CSC\ Hours \times Expected\ Balancing\ Ratio \times PPR$$

- Values for *Expected CSC Hours* and *Expected Balancing Ratio* are based on participant-reported, documented, and supported beliefs
  - Note: The IMM does evaluate and consider the consistency of reported beliefs across a participant's portfolio
- The ISO does not intend to change this component of capacity offers in the prompt auction workbooks

Reflecting Necessary Risk Premiums in FCA Workbooks

- FCA cost workbooks explicitly identify three distinct sources of risk that resources receiving a CSO face:
  1. There are more CSC events than expected during the commitment period
  2. The resource performs worse than expected during CSC hours
  3. The resource experiences a significant decrease in its qualified capacity value after the primary auction but before the commitment period, forcing the resource to buy out of its CSO or incur significant repair costs
- Resources may include other necessary risk premiums (that are not otherwise reflected elsewhere in the offer) if they are sufficiently quantified and supported

Risk Premiums in Prompt Capacity Supply Offers

- All three potential sources of risk remain relevant in the prompt auction
- Practically, the relative magnitudes of each source of risk may differ between a forward and prompt auction, for example:
  - Establishing resource QC values shortly before the start of the commitment period will reduce the risk of experiencing a significant decrease in capability between the auction and commitment period
  - Better information to develop assumptions on scarcity conditions should allow resources to more accurately price CSC-related risk premiums into their offers
- The ISO is exploring additional revisions to the cost workbook's risk premium calculations and default models

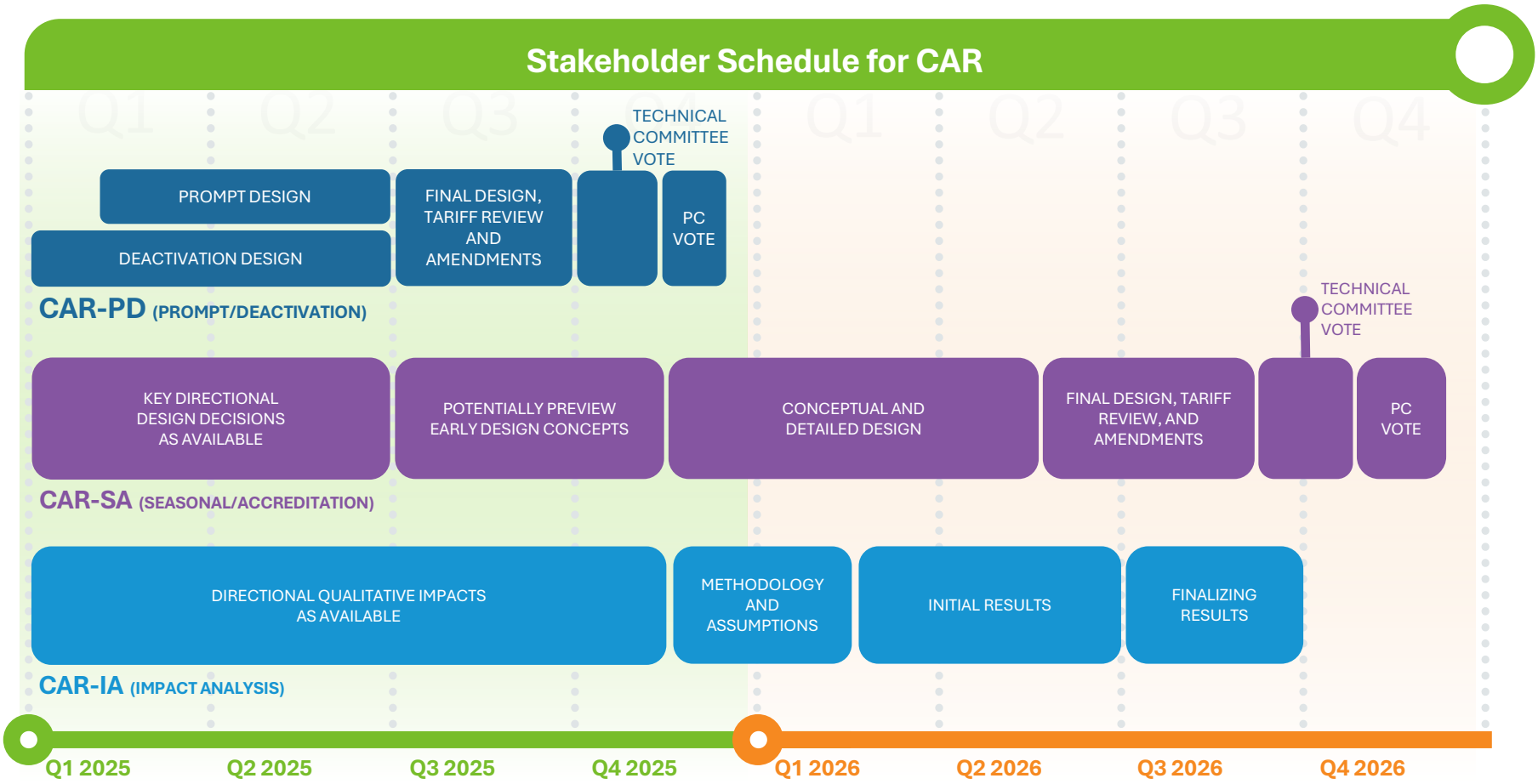
Conclusions and Next Steps

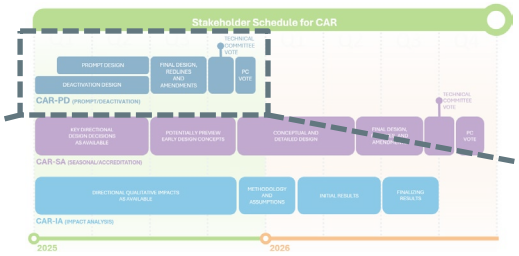
- Today, the ISO:
  - Provided some additional follow-up to questions raised at the June MC
  - Discussed revisions to the ISO's current thinking regarding buyer-side market power review timing
  - Described the fundamentals of seller-side market power review cost workbooks, their use in the FCA, and potential updates for the prompt auction
- If you have any questions following the meeting, please feel free to share those via email with James Woods (Jwoods@iso-ne.com) by July 21, 2025

Questions

STAKEHOLDER SCHEDULE

Stakeholder Schedule for CAR





Stakeholder Schedule for CAR

PROMPT DESIGN

DEACTIVATION DESIGN

FINAL DESIGN, TARIFF REVIEW AND AMENDMENTS

TECHNICAL COMMITTEE VOTE

PC VOTE

CAR-PD (PROMPT/DEACTIVATION)

PROVIDE QUESTIONS AND FEEDBACK ON DESIGN

CONCEPTUAL AMENDMENTS

PRESENT AMENDMENTS

Stakeholder Activity

PRESENT DESIGN & RESPOND TO FEEDBACK

PROVIDE QUESTIONS AND FEEDBACK ON AMENDMENTS

ISO Activity

Q1 2025 **Q2 2025** **Q3 2025** **Q4 2025**

CAR-PD Schedule Projection

- **July**
  - **Budget and Finance Subcommittee:** July 18th introduction to Financial Assurance Policy conforming changes
- **August**
  - **MC/RC/TC Joint Meeting:** A summary of the CAR-PD design will be provided, review detailed design refinements and review core Prompt Tariff revisions. Stakeholders proposing conceptual amendments should contact the MC Secretary for time on the agenda by July 21, 2025
- **September**
  - **MC:** Review design refinements and continue review of Tariff revisions. Stakeholders proposing amendments should contact the MC Secretary for time on the agenda by August 27, 2025
  - **RC:** Review design refinements and continue review of Tariff revisions. Stakeholders proposing amendments should contact the RC Secretary for time on the agenda by September 3, 2025
  - **TC:** Review design refinements and continue review of Tariff revisions. Stakeholders proposing amendments should contact the TC Secretary for time on the agenda by September 11, 2025
- **October – Technical Committee Votes**
- **November – Participants Committee (PC) Vote**

All NEPOOL members are invited to attend meetings where CAR topics are discussed

APPENDIX

Sample of Information Collected in FCA Cost Workbooks and Sample Acceptable Documentation

Basic Resource Characteristics

Input	Sample Acceptable Documentation
Estimated Capacity Factor	1. Independent consulting reports 2. Performance analysis 3. Like unit comparables 4. Publicly available documentation
Equivalent Forced Outage Rate (EFORd)	1. Historical EFORd data 2. Like unit comparison
Estimated Remaining Life (Years)	1. Documentation regarding the age of the resource (COD date)
Pre-Tax WACC (%)	1. Capital Asset Pricing Model or other publicly available references to owner's cost of capital (annual reports, for example) 2. Affidavit from Corporate Officer

Going Forward Cost Components

Input	Sample Acceptable Documentation
Operating Expenses	1. Consultant reports 2. Historical costs and budget forecasts
Maintenance	1. Consultant reports 2. Historical maintenance costs/schedules 3. Budget forecasts
Administrative and General	1. Consultant reports 2. Publicly available documentation 3. Budget forecasts
Incremental Capital Cost Description	1. Major maintenance/capital cost schedule 2. Ten years of historical capital expenditures 3. Consulting reports 4. Like unit comparables

Resource Expectations

Input	Sample Acceptable Documentation
ISO Revenues	1. Consulting reports 2. Forward curves 3. Detailed models (with assumptions, data, formulations and outputs)
Balancing Ratio for CSC Events	1. Historical analysis of RCPF events and scarcity conditions 2. Detailed description of any change in expectation
CSC Hours (H)	1. Analysis determining expected summer and winter scarcity conditions, including assumptions leading into the calculation 2. ISO calculated scarcity condition hours with explanation describing value used in bid/offer
Availability During CSC Hours (A)	1. Resource specific historical analysis of RCPF events and scarcity conditions 2. Detailed description of any change in expectation
Months Operating	1. Detailed analysis regarding expected run hours. This should be consistent with forward curves.

Operational Posture With/Without a CSO

- Participants are also asked to identify:
  - Whether the resource would participate in the energy markets without a CSO
  - Mothballing costs (if the participant indicates the resource will not participate in the energy market for a prolonged period of time without a CSO)
  - Costs associated with different operational postures for constituent assets or components of the resource
    - Allows resources to identify particular CSO-induced costs for each component