Capacity Auction Reforms: Seasonal/Accreditation (CAR-SA)

Design Kickoff Discussion

Chris Geissler

DIRECTOR, ECONOMIC ANALYSIS

CAR-SA Project Overview

WMPP ID: 185

Proposed Effective Date: Q2-Q3 2027

- CAR-SA includes changes to introduce seasonality and accreditation reforms to the capacity auction
- The introduction of accreditation reforms will help ensure that the capacity procured is helping to meet the region's resource adequacy needs cost-effectively
- Moving to seasonal auctions will better allow the capacity market to consider seasonal factors when determining how to most effectively meet the unique resource adequacy challenges in summer and winter
- This presentation provides an overview of the key topic areas that we plan to consider as part of the CAR-SA proposal

Capacity Market Design Objectives

As the ISO has previously outlined, the objectives associated with the capacity market focus on three key areas:

1. **Reliability**
   - Designing the auction in a manner to satisfy the region's 1-day-in-10 Loss of Load Expectation (LOLE) resource adequacy standard
2. **Sustainability**
   - Incent the levels of investment, including entry and exit decisions, to meet this standard over time, as system and market conditions change
3. **Cost-effectiveness**
   - Procuring capacity to meet these objectives in a cost-effective manner

CAR-SA Includes Two Core Changes to the Capacity Market

1. **Accreditation**
   - Change the methodology that determines how much capacity resources can sell to better align with resource adequacy contributions
2. **Seasonal**
   - Separately procure capacity for summer and winter seasons
   - Procurement would occur in separate auctions for each season; the rationale for this decision was explained in presentations at the October and November MCs from 2024
   - See ISO's March 2025 presentation explaining the basis for choosing six-month summer and winter seasons

Accreditation Supports Project Design Objectives

1. **Reliability**: Better aligns capacity with the marginal reliability value it provides to the region (as measured in Expected Unserved Energy (EUE))
2. **Sustainability**: Allows the region to ensure that procured capacity will continue to align with the resource adequacy standard as system and market conditions evolve
3. **Cost-effectiveness**: Improves the degree to which capacity is substitutable between resources and helps address ‘money for nothing’ concerns that could exist under today’s accreditation framework

Seasonal Supports Project Design Objectives

1. **Reliability**: Buy the set of resources needed to meet resource adequacy standards on a seasonal basis
2. **Sustainability**: Allows the procurement of a resource mix that responds to the load growth and resource adequacy needs in each season
3. **Cost-effectiveness**: More granular modeling and procurements lead to more efficient outcomes (e.g., accreditation values correspond with seasonal resource adequacy values)

CAR-SA Timing and Interactions with CAR-PD

- The ISO is targeting filing the CAR-SA changes in Q4 of 2026, with the changes expected to go into effect for the auctions that correspond with Capacity Commitment Period (CCP) 19
  - CCP 19 begins on June 1, 2028, meaning the changes need to be in effect well ahead of this date
- This is the same CCP for which the CAR-PD changes are expected to go into effect
- Because CAR-PD will be filed before CAR-SA, the seasonal and accreditation changes will be developed on top of the prompt auction framework

Purpose of Today's Discussion

- Today's discussion is intended to highlight several of the key workstreams ahead to provide stakeholders with a sense of the key topic areas for CAR-SA
- It is not intended to cover every potential topic or design area, or to go into detail about the potential design details
- While the assessment of many of the key topics is underway, the ISO is not yet ready to begin substantive discussions on many of these items
  - Will begin discussions related to the accreditation framework and modeling approach later this meeting and at the September Reliability Committee
- The substantive discussions will begin in future meetings, where the ISO will make every effort to share its thinking on key items as soon as possible

KEY DESIGN ELEMENTS

Overview of Key CAR-SA Design Elements

- Core accreditation reforms to better align how much capacity resources can sell with their resource adequacy contributions
- Development of a winter gas constraint
- Core changes to capacity demand
- Offer/price formation and mitigation
- Changes required to facilitate sub-annual procurements
- Updated activity schedule
- Other conforming changes
- Transition questions for first (truncated) summer period
- Impact Analysis

Core Accreditation Reforms

- Accreditation reforms require developing a methodology to estimate the maximum quantity of capacity that resources can sell based on each resource's marginal reliability contribution
  - This approach would effectively replace the existing Qualified Capacity (QC) methodology
- Generally, expect that this maximum capacity value would be set to the product of two values: (i) the resource's maximum capability, and (ii) the resource's marginal reliability impact
  - The marginal reliability impact is calculated based on how an increment of capacity from the resource would reduce the total amount of expected unserved energy (EUE), where this will depend on the resource's expected performance in hours when resource adequacy is at risk

Core Accreditation Reforms (cont.)

- As illustrated during the earlier Resource Capacity Accreditation (RCA) discussions, the process to estimate accreditation values is involved and requires careful consideration of many factors, including:
  - Data on resource capabilities and performance (e.g., Equivalent Demand Forced Outage Rate (EFORd), performance profiles, limited energy characteristics, Capacity Network Resource Capability (CNRC or equivalent) values)
  - Methodologies to estimate/approximate capabilities and performance when such data is not available (e.g., because a resource is newly commercial)
  - Approaches to represent this performance in GE Vernova's Resource Adequacy software (formerly GE MARS), the ISO's resource adequacy simulation platform
- Further discussion is included in the September MRI framework memo and presentation

Development of a Winter Gas Constraint

- As part of CAR-SA, the ISO proposes to develop a market-based gas constraint for the winter season
- This constraint will:
  - Allow the capacity market to reflect the region's limited gas infrastructure
  - Reflect the fact that capacity from gas resources without a firm contract may provide less marginal reliability value than other resources during the winter
  - Determine how to trade off between procuring additional gas and non-gas capacity in a cost-effective manner
- For more information on the economic logic of a gas constraint, see the ISO's January 2024 memorandum to the MC

Development of a Winter Gas Constraint (cont.)

- The derivation of this constraint requires the use of both economic theory and empirical data
  - What mathematical equations are used to derive the constraint
  - What data is used in these equations
  - Assessment of how the region's infrastructure impacts deliverability across New England
- How does the gas constraint interact with other capacity market constraints (e.g., import- and export-constrained zones) concerning market clearing and pricing?

Criteria for and Treatment of Firm Gas Contracts

Several key questions must be considered when determining what gas contracts are not subject to the constraint, including:

- What conditions must a gas resource satisfy for its contract to be exempt from the constraint?
- How will the design translate such contracts to capacity quantities?
- If a gas contract is exempt, how does this impact the gas that is assumed to be available to other generators and reflected in the (updated) gas constraint?

Changes to Capacity Demand - Accreditation

- Under current rules, the capacity demand curves are derived using the marginal reliability impact (MRI) value associated with an increment of qualified capacity
  - Consistent with the fact that this is the product that capacity suppliers currently sell
- With the accreditation reforms, the capacity demand curves will need to be modified so that they are derived based on the new accredited capacity construct
  - Ensuring consistency in how capacity is reflected in supply offers and the demand curve
  - May require an update to the Net Cost of New Entry (CONE) value used to scale the demand curves

Changes to Capacity Demand - Seasonal

- Annual demand curves are derived to satisfy two key criteria:
  - Reliability: Specify a price of Net CONE at the annual Net ICR value that corresponds with a 0.1 LOLE
  - Cost-Effectiveness: The demand curves are scaled at all capacity levels (and locations) so that the price is proportional to the capacity's MRI value
- With the introduction of seasons, the methodology to derive the demand curves gets more complex, as the derivation of two separate sets of demand curves introduces numerous design questions

Changes to Capacity Demand – Seasonal (cont.)

- Will need to derive the curves in a way that continues to satisfy the 0.1 LOLE standard on an annual basis
  - The annual 0.1 LOLE standard could be satisfied in numerous ways
- Anticipate that the demand curves for each season (and for capacity zones) will continue to be based on capacity's MRI value for that season
  - Expect different MRI values for a given capacity level between seasons

Changes to Capacity Demand – Seasonal (cont.)

- Seasonality may allow modeling to more accurately reflect system conditions and expected resource performance on a seasonal basis
- This may include accounting for seasonal attributes in the modeling process used to determine capacity demand (and accreditation values), such as:
  - Maximum capability and performance metrics
  - Tie benefits

Offer/Price Formation

- Assessment of competitive offers with the move to seasonal CCPs
- Anticipate that competitive offers will continue to be based on costs/revenues associated with a resource's next best alternative if they do not sell capacity

Changes Required to Move to Sub-Annual Procurements

The move to seasons requires changes to some auction inputs and parameters, as well as other capacity market mechanisms based on an annual CCP, including:

- **Maximum Offer Price**: Annual value set to the greater of CONE and 1.6 times Net CONE
- **Competitive Offer Price Threshold** (COPT): Currently calculated using historic auction results; there will not be historic seasonal results upon which to base the seasonal COPT values (at least at first)
- **Annual Pay for Performance stop loss**: The annual stop loss limits a resource's total performance charges over the annual CCP; the seasonal procurement of capacity will create a misalignment in timing

Updated Activity Schedule - Accreditation

Changes to the accreditation process will introduce new activities that must be incorporated into the capacity activity schedule, including:

- The process by which the maximum capability is determined
- When and how accreditation values are estimated and shared with market participants
- Process by which gas contracts are submitted
- Anticipate that as the region works through the design, we will identify other new activities or processes that require reforms to accommodate the proposed accreditation changes

Updated Activity Schedule - Seasonal

The introduction of separate summer and winter seasons requires additional auction activities, and raises questions about the interactions and potential overlap associated with the summer and winter auctions:

- What activities (e.g., determination of capacity demand curves) can be established across both seasons simultaneously?
- How much overlap is possible between the summer and winter auction activities schedules?
- Introduction of two deactivation notification windows each year

Transition Changes for CCP 19

- CCP 18 runs through May 31, 2028
- The proposed summer season is six months, beginning on May 1 and running to October 31
- Implication: The summer season for CCP 19 will only consist of five months: June 1, 2028 to October 31, 2028
- This potentially impacts the auction assumptions and parameters in addition to the activity schedule for the first summer CCP
  - Is the activity schedule pushed back a month for the first summer auction? How would this impact interactions between the summer and winter schedules for CCP 19?
  - For the first summer, are the assumptions and inputs used to derive the demand curve and accreditation values based on the 'steady state' summer period, or the months that will comprise this first CCP?

Impact Analysis (IA)

- Understandably, there is considerable interest from stakeholders in assessing the potential impacts of the changes proposed under CAR
- Current thinking: Follow a similar structure to the IA that was used under RCA, focusing on two distinct but related sets of outcomes:
  - Auction inputs: Provide information on how resource accreditation values and the MRI demand curves would change under various scenarios (e.g., FCA 18 resource mix); results will generally focus on MW values
  - Auction results: Derive capacity supply offers to simulate market clearing results, including auction clearing prices and costs/revenues; outputs here will include information on market impacts
- Auction results will compare outcomes under current rules and CAR to determine market impacts of proposed changes

Impact Analysis (cont.)

- The ISO will also aim to provide information about the key drivers of change in the results
  - Stakeholders requested such information, given that CAR includes numerous capacity market design changes
- Plan to start the process of discussing the IA and soliciting stakeholder input on what information will be of greatest value in the coming months

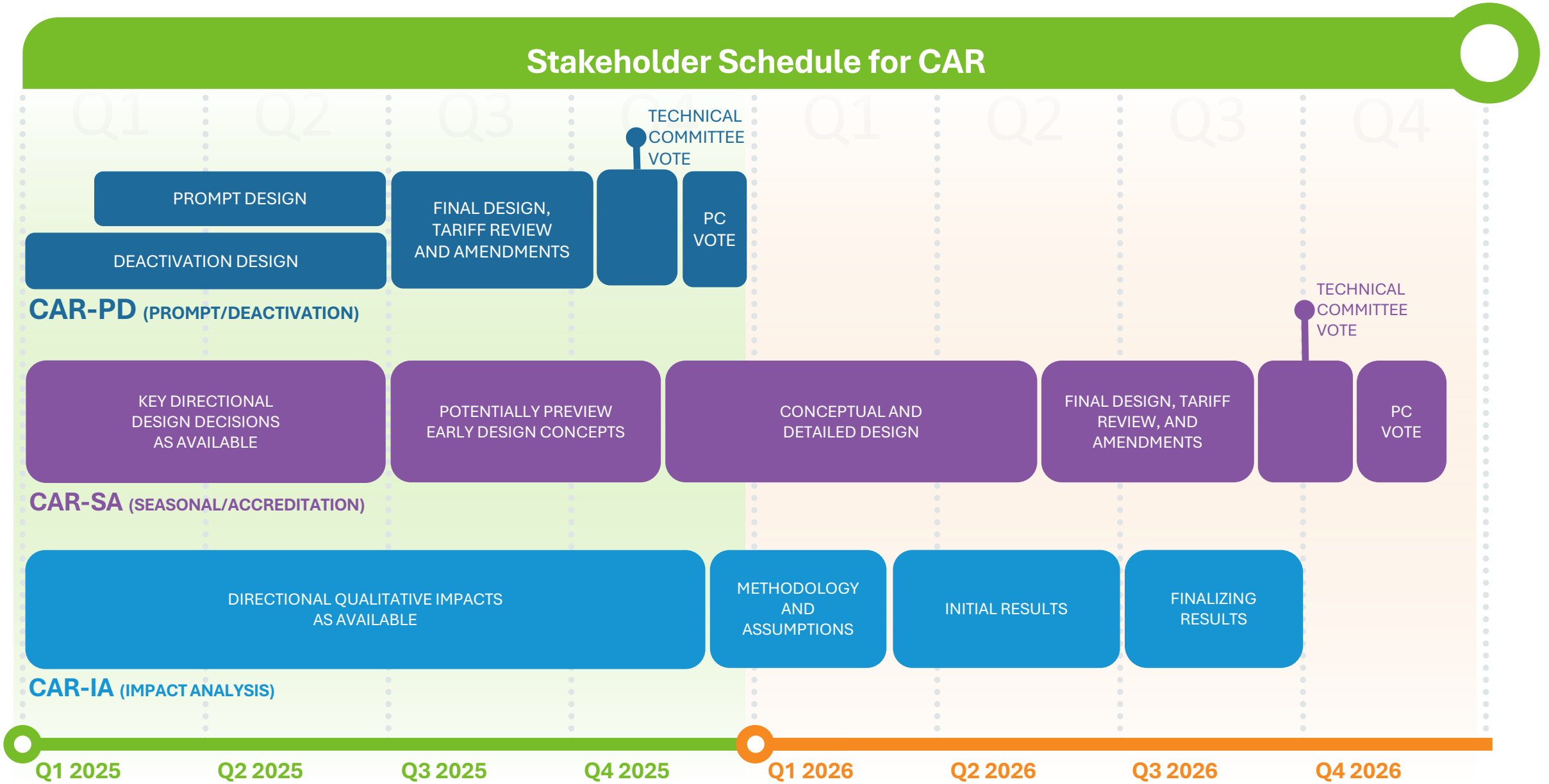
Conclusion

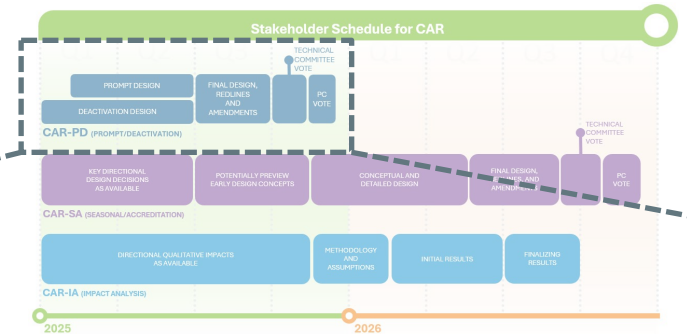
- With CAR-PD approaching a vote, the ISO is excited to begin working closely with stakeholders on the next phase, which focuses on the seasonal and accreditation reforms
- These changes, layered on top of the prompt design, will help the capacity market meet its core objectives related to reliability, sustainability, and cost-effectiveness
- In the coming months, ISO looks forward to beginning design discussions and diving into the core accreditation design topics
- If you have any questions following this meeting on this content, please submit them to Jasleen Singh (jsingh@iso-ne.com) by September 24, 2025

Questions

NEXT STEPS AND STAKEHOLDER SCHEDULE

Stakeholder Schedule for CAR





Stakeholder Schedule for CAR-PD

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

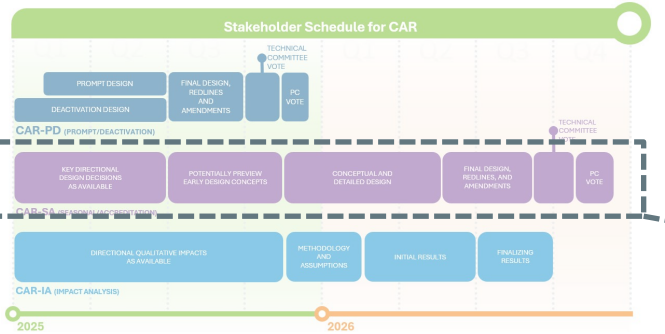
Stakeholder Activity

PRESENT DESIGN & RESPOND TO FEEDBACK

PROVIDE QUESTIONS AND FEEDBACK ON AMENDMENTS

ISO Activity

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



Stakeholder Schedule for CAR-SA

MODELING OVERVIEW

ACCREDITATION FRAMEWORK OVERVIEW

SEASONAL/ACCREDITATION MODELING AND MARKET DESIGN

CONFORMING DESIGN DETAILS

FINAL DESIGN, TARIFF REVIEW AND AMENDMENTS

TECHNICAL COMMITTEE VOTE

PC VOTE

CAR-SA (SEASONAL/ACCREDITATION)

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

Q4 2025 | **Q1 2026** | **Q2 2026** | **Q3 2026** | **Q4 2026**

CAR-PD Schedule Projection

- **September**
  - **MC/RC/TC Joint Meeting:** Review and discuss any additional detailed design refinements and review of remaining Prompt Tariff revisions. Review stakeholder amendments.
  - See Officers' memo regarding schedule updates.
- **October – Review Any Design Refinements and Incremental Tariff Revisions**
  - **MC:** Stakeholders proposing amendments should contact the MC Secretary for time on the agenda by October 1, 2025
  - **RC:** Stakeholders proposing amendments should contact the RC Secretary for time on the agenda by October 9, 2025
  - **TC:** Stakeholders proposing amendments should contact the TC Secretary for time on the agenda by October 15, 2025
- **November – Technical Committee Votes**
  - **MC:** Stakeholders proposing amendments should contact the MC Secretary for time on the agenda by November 3, 2025
  - **RC:** Stakeholders proposing amendments should contact the RC Secretary for time on the agenda by November 4, 2025
  - **TC:** Stakeholders proposing amendments should contact the TC Secretary for time on the agenda by November 6, 2025
- **December – Participants Committee (PC) Vote**

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

CAR-SA Schedule Projection

- **September**
  - Goal of Overall SA Reforms, CAR Design Objectives, Scope/Roadmap (MC timeframe)
  - Overview of the CAR-SA Accreditation Approach (MC timeframe)
  - Overview of Accreditation Modeling and Modeling Enhancements (RC timeframe)
    - Including the load forecast updates
- **October**
  - Modeling Concepts & Key Drivers of Accreditation
    - Qualified Capacity (QC) Definition Update (MC timeframe)
    - Application of CNRC to Resource Modeling (RC timeframe)
    - Updates to EFORd/Outage Rate Modeling (MC timeframe)
    - Non-Energy Limited Thermal Resource Modeling (MC timeframe)

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

CAR-SA Preliminary Topic Schedule November and Beyond

- The list below provides a projection of when core accreditation committee discussions will begin:

Topics	Projected Start of Committee Discussions
Gas Availability Study (Analysis Group)	November
Oil-only and Dual Fuel Resource Modeling and Accreditation	November
Demand Response (Including EE) Modeling and Accreditation	November
ICR under CAR-SA, Seasonal Tie Benefits Modeling and HQICC Accreditation	November

CAR-SA Preliminary Topic Schedule November and Beyond (Cont.)

- The list below provides a projection of when core accreditation committee discussions will begin:

Topics	Projected Start of Committee Discussions
Gas Availability Study Follow-up	December
Development of Gas Market Constraint	December
Energy Storage Resource Modeling and Accreditation (Includes Pumped Hydro)	December
Risk Split	December

CAR-SA Preliminary Topic Schedule November and Beyond (Cont.)

- The list below provides a projection of when core accreditation committee discussions will begin:

Topics	Projected Start of Committee Discussions
Overview of Impact Analysis Plan	December
Gas-only Resource Modeling and Accreditation	January
Intermittent Power Resource Modeling and Accreditation	January
Import Resource Modeling and Accreditation	February

CAR-SA Preliminary Topic Schedule November and Beyond (Cont.)

- The list below provides a projection of when core accreditation committee discussions will begin:

Topics	Projected Start of Committee Discussions
Hybrid Resource Modeling and Accreditation	February
Seasonal Demand Curve Estimation	February
Impact Analysis Initial Results	March
Gas-only Resource Contract Requirements	April