Proposed Modifications to Sustainable Capacity Market (SCM) Design
CIFP-RA Meeting – July 17, 2023

Contents

Summary 1
Why the IMM's Sustainable Capacity Market (SCM) design 2
Proposed Modifications to Design Components in the SCM 3
KWA 2 - Reliability Risks and Drivers 3
KWA 3 - Procurement Level and Metric 4
KWA 4 - Performance Assessments 4
KWA 5 - Qualification and Accreditation 5
KWA 9 - Supply-side Market Power Mitigation Rules 5
Modifications to Energy & Capacity Market Rules for Natural Gas Resources 5
Modifications to FRR Rules 5
CIFP-RA Phase II 6

Summary

AMP strongly believes in holistic discussions as the best way to achieve consensus on contentious items as it allows for the greatest opportunity for mutual gains. Nevertheless, the PJM Board has generally limited the scope of the items open for discussion, at this time, per its letter initiating the CIFP-RA process.

AMP is proposing a phased approach to resource adequacy reform, which would kick off following a FERC order on whatever is filed so we know where we stand. AMP did something similar after the MOPR proposal, joined by Calpine, that led to the formation of the RASTF. It would be in this next stage, which would be kicked off most likely in early 2024, where we each can take on the task of trying to incorporate other components of many of the comprehensive market design proposals introduced during the first stage of the CIFP-RA process.

AMP still believes that any reform, both near-term and long-term, needs to adhere to long-standing guiding principles of capacity market design:

- A sustainable market design to procure all required capacity to maintain a formulaic reliability standard on behalf of all loads regardless of the season.
- Reduce the administrative burden that restricts flexibility.
- Market signals that account for risk and supply choice preferences to minimize out of market costs.
- Recognize reliability attributes and delivery capability of the evolving generation mix of new and retiring resources.
- Recognize that exogenous events are a reality.
- Maintain inter-relationship with energy and ancillary service markets.

- Recognize that states have different, if any, renewable targets that require LSEs to procure certain types of capacity.

Until the next phase of development, to meet the PJM Board mandates for an October FERC filing, below are proposed modifications to the IMM' s Sustainable Capacity Market (SCM) design to achieve near-term market reform based on stakeholder comments raised during the CIFP-RA process.

Why the IMM's Sustainable Capacity Market (SCM) design

PJM Markets need reliability to survive. In the near-term, Capacity Market reforms need to be simple not complex, but energy market reforms need to be significant in critical areas like Reserve Markets, Gas Electric Coordination, Circuit Breaker, and DER Integration.

- Reliability starts with real-time market and system operations. Good and accurate load forecasts along with commitment and dispatch of resources based on realities of fuel and unit operations. Generators have the incentive to operate so as to not leave money on the table and so long as prices are consistent with reliability and operational needs.
    - Gas electric coordination is at its core a system operations issue to be managed.
    - Realistic operating parameters that reflect physical realities are essential for efficient system operations.
    - Proper accounting of reserves to ensure contingencies can be met is essential for reliability.
    - Visibility of DERs to know the true energy balance needs by location is required.
    - PJM's capacity market reforms do nothing to address the issues listed above.
- The RAC (after DA Market and before RT operations) commits additional resources to ensure they will be available to meet forecast demand.
    - Again, short-term demand forecasting is needed so that accurate and efficient RAC commitments are made.
- PJM must be willing to make such RAC commitment (again, with realistic operating parameters as part of this decision) and we (market participants) must be willing to incur some small amount of uplift as "insurance" against larger real-time problems that cost everybody more money.
    - PJM's proposed capacity market reforms do nothing to address these operational planning issues.
- The Day-ahead Market commits resources to meet bid in demand. Load has the incentive to accurate bid in demand to avoid high RT prices and/or emergency condition because not enough demand was offered.
    - PJM's proposed capacity market reforms do nothing to address the load bidding accurately into the DA market.
- The PJM Capacity Market ensures sufficient resources will be available to provide energy at all times under all forecast conditions, accounting for load forecast deviations and resource performance. Financially, the capacity market ensures an opportunity (not guarantee) to cover any needed going forward (avoidable) costs of resources to ensure they remain in service.
    - In this sense, the IMM's view that the capacity market exists to make the energy market work is the economic side of the reliability coin that says the energy market is working

when we have enough resources to ensure energy balance and maintain sufficient reserves to meet contingencies and not overload transmission.

- The capacity market is only a sufficient condition, not the only sufficient condition to make energy markets work and ensure reliability.

The IMM's Sustainable Capacity Market (SCM) design is a stable structure for near-term reform.

- The IMM proposal:
    - Places the burden of performance in each and every hour rather than in some unknown period in which there are other factors beyond the control of resources such as blown load forecast, poor situational awareness, and ignoring gas pipeline operating realities.
    - Commits needed resources to meet energy in each and every hour including during shoulder and maintenance periods as well as those periods with correlated outages rather than a single peak hour.
    - Provides a conceptually well-defined demand in every hour.
    - The Board directed the stakeholders to improve accreditation. This means modifying the current method for determining the availability measurement for all resource types. Changing the methodology will have impacts throughout all areas of the capacity construct and new methods have been introduced by both PJM and the IMM:
        - PJM is introducing a Marginal ELCC methodology to replace the existing Average ELCC.
        - The IMM is introducing a new method, Modified Equivalent Availability Factor (MEAF).
    - The IMM's proposed method, the MAF, obviates the need for ELCC which is a great vertically integrated utility planning tool, with what really matters in real-time operations: availability during that hour. One resource's availability does not affect another resource's availability. There are no interactive effects like ELCC where the level of, and order of entry of resources affects the ELCC value. This makes the availability measure a better market tool.
    - Can determine availability by location unlike PJM's use of ELCC.
    - Is much easier to implement than the PJM proposal as it requires no seasonal components per se, but rather accounts for hourly load and availability variation to determine which resources are the last needed. This market clearing is simpler as well.

Proposed Modifications to Design Components in the SCM

KWA 2 - Reliability Risks and Drivers

Design Component 1. Load Forecast Uncertainty

- IMM Proposal: "Continue to account for load forecast uncertainty on the demand side in setting the Reliability Requirements"-
    - Clarification: Explain how the MAF is used similar to the FPR to adjust the IRM metric in the Reliability Requirements. Document the methodology in the matrix and final rule set.

- Modification to IMM Proposal: Modify to adjust for bias in BRA. Establish a % to procure in BRA (i.e., 90%). Change the load forest methodologies by season (i.e., 70/30 or 90/10) and then add in IRM type factor.
    - Modification Design Component #18: IA's will be adjusted by the %
    - Modification in Design Component #57: Must Offer obligation will be adjusted by % (not ICAP, but the availability value).

Design Component 7. Outages / Limitations of Demand Resources

- IMM: "Availability based on history and offers and outages modeled on supply side by unit, class, and fleet wide outage patterns correlated with historical temperatures. DR should be mapped to specific nodes. DR availability based on physical reality."
- Modification to IMM Proposal: Define availability for Supply-side DR vs Demand Side DR differently; GLD for Supply side; pick your PLC for Demand side. Both need to bid/offer into market. Both need to be telemetered in aggregate by bus or zone.

Design Component 9. Emergency Imports

- IMM Proposal: Capacity benefit of ties reevaluated.
- Modification to IMM Proposal: Elimination of CBOT.
    - Rationale: Reason for this is if PJM continues with the idea, it will be exporting during our peaks and emergency conditions, cannot rely on this for RA.

Design Component 10. Internal Transmission Risks / Locational Constraints

- IMM Proposal: Resource availability modeled on unit specific basis and therefore locational. CETO/CETL continue with improved evaluation of expected resources.
- Modification to IMM Proposal: Model Hourly CETO/CETL. This can currently be modeled based upon transmission topology and based on economic energy dispatch of all resources including energy only resources.

KWA 3 - Procurement Level and Metric

Design Component 18. Procurement in each LDA in BRA and Incremental Auction

- IMM Proposal: Goal is to buy 100 percent of demand in BRA. PJM should not sell back any capacity at less than BRA clearing price.
- Modification to IMM Proposal: Adjust the amount of demand in BRA for load forecast (LF) bias adjustment.
    - Rationale: This obviates the need to sell back and also helps ensure IA prices are at least as great as BRA prices.

Design Component 21. Timing of Performance Assessment(s)

- IMM Proposal: Payments hourly based on availability. No hourly capacity payment if not available. Performance assessment hourly based on availability. No PAI.
- Modification to IMM Proposal: Differentiate prices in stress hours that are adjusted for risk of LOL by adjusting cleared quantities to account for risk of LOL Defined as Stress Pricing (Time of Day).

KWA 4 - Performance Assessments

Design Component 36. Generator Summer / Winter Rating Tests

- IMM: Weekly testing/actual performance.
- Modification to IMM Proposal: Different frequency than weekly. Use actual performance can meet the test that would include the results of economic operations. Testing Performed on a monthly basis to minimize unnecessary uplift.

Design Component 38. Other Assessments for Performance Testing

- IMM Proposal: Weekly testing/actual performance.
- Modification to IMM Proposal: Different frequency than weekly. Use actual performance can meet the test that would include the results of economic operations. Testing Performed on a monthly basis to minimize unnecessary uplift.

KWA 5 - Qualification and Accreditation

Design Component 45. Energy Efficiency Resource

- IMM Proposal: EE should be removed from capacity market. If retained, status quo.
- Modification to IMM Proposal: Maintain status quo.

KWA 9 - Supply-side Market Power Mitigation Rules

Design Component 57. Capacity Market Must Offer Requirement

- IMM Proposal: All capacity resources have a must offer obligation in the capacity markets based on CIR/ICAP.
    - Clarification: Please explain how this new obligation will work for all resource types, including all categories (as defined in the ELCC methodology) for Intermittent Resources. Please explain if categorical exemptions still exist for any resource type, including DR. Please explain if a unit-specific exemption process will be maintained.
- Modification to IMM Proposal: Planned Resources must notify PJM of intent to submit a sell offer in the BRA prior to the posting of planning parameters. Otherwise, express intent to be in-service as an energy-only resource for Delivery Year.

Modifications to Energy & Capacity Market Rules for Natural Gas Resources

- Any costs for gas pipeline services such as FT, and shorter-notice FT, storage, and other services must be allowed to be reflected in capacity offers or energy offers.
- Change the parameter limits for gas-fired resources to match the gas pipeline nomination and flow schedules as the default especially regarding start/notification/min run times. Allow gas resources to put start/notification/min run times in shorter to the extent gas pipeline conditions allow it.
    - Rationale: This is a real-time operations adjustment that needs to be made to match up with the realities of the gas pipeline system and reliability needs.
    - Rationale: Gas resources have incentives to be as available as possible still and to run for energy as much as possible when they can do profitably.

Modifications to FRR Rules

- After the last Incremental Auction, FRR entities must true up their portfolios to match the RPM level of capacity. Otherwise, the FRR entities are procuring less, and if effect leaning on the system relative to other LSEs.
- No other mechanisms needed. Given there are no PAIs and penalties, per se, FRR entities have the obligation to ensure their contracted or owned resources make their stated MAF or better.

CIFP-RA Phase II

After receiving a FERC order from the October 2023 filing, initiate a stakeholder process to design:

- Sub-annual procurement with Time-of-Day Procurement Assessments.
- Less than 3-year procurement
    - In the near-term, eliminate one Incremental Auction and adjust procurement quantity for load forecast bias.
- Any further long-term reforms to ensure comparability between RPM and FRR.