Reliability Backstop Design Working Paper

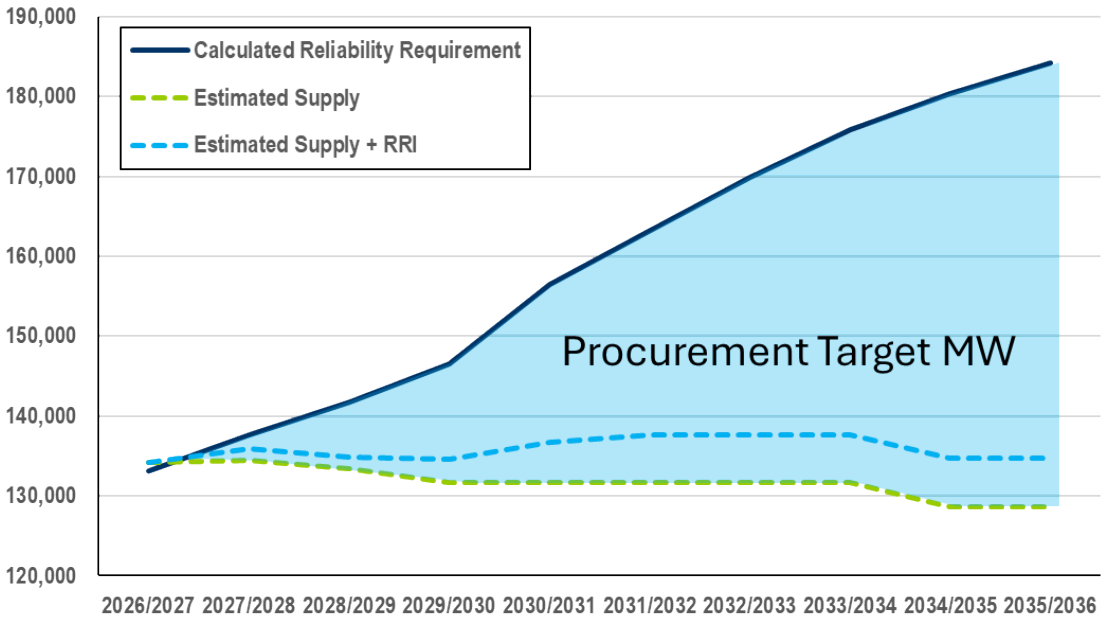
This working paper contains PJM's initial thinking and design preferences for a Reliability Backstop Procurement. PJM intends for this to be part of robust stakeholder discussions and will update this working paper as thinking and proposals evolve. The purpose of this document is to share PJM's thinking on this topic and seek stakeholder feedback on the options being considered.

PJM plans to provide periodic updates to this paper as the concepts and proposals are refined throughout the workshops.

Resource Adequacy in PJM - Background

Over the next decade, the PJM region is forecasted to experience an unprecedented need for net-new supply to connect to the system. For the first time in its history, PJM cleared short of the Reliability Requirement in the 2027/2028 BRA. This shortfall is projected to continuously grow over the next decade as new large loads come on to the system.

Current projections show a potential capacity shortfall of 50-60GW in the next decade primarily driven by large load growth but also forecasted conventional load growth. With longer construction times for some technologies, needed transmission build out, and other infrastructure needs (e.g. natural gas infrastructure), the PJM system needs to prepare for the net-new supply needed to maintain resource adequacy in the region.



Reliability Backstop Procurement

Purpose of the Reliability Backstop

PJM is viewing the Reliability Backstop Procurement (RBP) as a one-time, transitional procurement of capacity designed to begin to address the unprecedented load growth in the region. PJM notes the White House and Governor's observation and longer-range desire to "Return PJM to Market Fundamentals" along with their request that more permanent market-based reforms to the capacity market be implemented for the Base Residual Auction scheduled for May 2027. PJM agrees that this one-time backstop procurement should not subsume those larger efforts. Accordingly, PJM's goal is to procure a quantity of capacity that begins to markedly improve the current and future shortfall of capacity. This one-time procurement will be companioned with a broader review of investment incentives in PJM and a strong focus on returning to competitive markets for resource adequacy as soon as possible thereafter.

Roles and Responsibilities

Designing and executing an RBP that will have meaningful impact in resolving PJM's anticipated capacity shortfall will require a cooperative and collaborative effort between PJM, the states, and the stakeholders. A finalized proposal will need to identify the roles and responsibilities in this process. There are potential roles for PJM, states, EDCs, TOs, large loads/data centers and supply resources.

PJM's Initial Design Thinking

For the RBP to have a meaningful impact as quickly as possible, PJM believes it is necessary to establish two stages of this single procurement. The purpose of these two stages is to recognize the different timeframes needed for development of resources that, for example, already have signed Generation Interconnection Agreements (GIAs) and secured sites, versus those that have not, are much earlier in the design cycle, and therefore simply require more time. An example of how this two-stage procurement could work is shown below.

Reliability Backstop Schedule

RBP Process	Criteria	RBP Offer and Evaluation Timeline
Stage 1 RFP	More "shovel ready" projects, targeting earlier online dates	4-6 Months
Stage 2 RFP	Expanded scope of projects, targeting later online dates	9-12+ Months

A strawman for a staged RBP could be:

- The Stage 1 RBP has a short-term target looking at procuring resources that can be operational on or before the 2030/31 Delivery Year (DY). This will effectively look at addressing the shortfall for DYs 2027/28, 2028/29, 2029/30 and 2030/31. This stage will have stricter resource eligibility criteria to allow for swifter facilitation of the process and higher certainty of completion.
- The Stage 2 RBP (which could be run concurrently or sequentially) will have a longer-term target looking at expanding the resource eligibility to projects that will need more time for design and development. This RBP could look to procure resources that have online dates through the 2032/33 DY (or possibly later) which will help balance the 5+ year development cycle for new build timelines and the risk of load forecast shifts.

Procurement Targets

Procurement under the RBP will be limited to those zones within PJM that, as of the time of auction, have not chosen to procure their needed capacity through a Fixed Resource Requirement (FRR) plan and as a result are participating in the RPM auction. The FRR alternative is a self-supply option. Loads participating in FRR have designated that they will meet their own resource adequacy needs via the options available to them. As a result, load growth in these regions will be excluded from the RBP.

To determine the actual quantity to buy, PJM strongly prefers direct demand-side participation to inform both the quantity and willingness to pay. PJM currently envisions a system-wide cap on the willingness to pay that should be informed by those entities purchasing capacity as part of this process. PJM can propose a cap on the willingness to pay but would do so without knowledge of how the purchasers in this RBP balance affordability and reliability. Input is needed from stakeholders to strike a reasonable balance.

Regarding quantity, stakeholders who are directly involved in the large load nomination process may be the best suited to determine the quantity of capacity to purchase given the uncertainty around the level of large load additions. PJM is still determining exactly who that entity is but it could be one of the following: large load/data centers directly, EDCs, LSEs, Transmission Owners or others that have otherwise not procured sufficient capacity to meet their needs, consistent with the forecast, for the delivery years to be covered in the respective stage of the procurement.

Alternatively, PJM can determine the MW target for procurement based on PJM's most up-to-date load projections and allow updates to that quantity from the buyers in this procurement. As stated previously, this is not the preferred approach but is an implementable one.

If PJM is to determine the procurement target, potential solutions include but are not limited to:

1. a defined percentage of the total load growth over a set period of time, or
2. the expected capacity shortfall by a set DY.

Depending on the structure of the demand, there is likely some interaction between the supply procured in Stage 1 and the demand expressed in Stage 2.

If PJM is determining the MW target for procurement, it will be imperative to work with entities who are directly involved in the large load nomination process. PJM could initially determine a base quantity of demand to procure in the RBP, and then allow EDCs/LSEs/TOs, etc. the flexibility to substitute their desired quantity of demand to be procured in place of PJM's. PJM notes that the cost allocation established will be to the zones where the established demand is located. PJM further notes that should the responsible parties exercise their ability to instruct PJM not to

procure resources on their behalf as part of the RBP, such decision will be reflected in the load shed priority and allocation mechanism under development should incremental load actually materialize in those locations that is not met by incremental resource additions.

PJM seeks stakeholder input on whether quantities included in the load forecasts used for RPM Base Residual Auctions that have already been executed should be included in the demand, and therefore in the cost allocation, associated with the RBP.

Procurement Target

Procurement Target Options	Setting the Target	PJM's Role
Buyer-determined	Buyers submit the quantity they would like to purchase	Collects desired quantity on behalf of buyers.
PJM-determined	PJM proposes a method to determine the quantity to be procured in the backstop procurement and requests FERC approval. Allow buyers to substitute their own.	Calculates the demand based on the FERC-approved method. Allow buyers to substitute their own.

Procurement Model

There are at least two options for such a procurement structure. The first is to have bilateral contracts directly between supply and demand. Note that bilateral contracting is always an option for entities looking to meet their capacity needs. The second is to have PJM procure the needed supply in a similar fashion to the way it does in the current capacity market (not exactly the same) and then allocate the costs. This would be an option offered in addition to bilateral contracting.

- Bilateral Approach:
    - Zones experiencing load growth would receive an obligation based on that load growth that would need to be met via bilateral contracts. This obligation could be given to the large load / data centers directly, EDCs, LSEs, Transmission Owner or others that have not otherwise arranged for supply resources to meet that obligation.
    - PJM would design and facilitate a process ("matchmaker") to identify buyers and sellers looking for similar contractual terms. Execution of contracts would be left to the individual parties.
- PJM as the Administrator and Counterparty[1]:

[1] Note that in this approach PJM is purchasing resources on behalf of other entities and then allocating the cost to them - similar to the current capacity market.

- PJM would act as the procurement entity, obtaining supply to meet the aggregate quantity of participating load subject to the system-wide cap on willingness to pay.
- Awarded resources would receive a price lock at their offered price for the term for which they are committed.
- The costs of these commitments would be allocated to load beginning when the resources come online.

As stated previously, under the "PJM as the Administrator and Counterparty" approach, PJM could implement a uniform cap on the willingness to pay based on input from buyers in the auction and procure for the MWs identified. PJM would select the least cost[2] set of resources that met the demand and all resources committed through this process would be guaranteed to receive their bid price for the term of the commitment.

Cost allocation in the case that the demand is formed from quantity bids from buyers would be pro-rata allocation of the total cost of procurement based on the cleared quantity of buy bids. Cost allocation in the case that the demand is based on a calculation done by PJM would be pro-rata to each transmission zone experiencing large load growth, total load growth or a shortfall (for example) depending on the determination of the demand.

PJM does not have the ability to allocate costs directly to specific load (i.e., new large loads or data centers). The allocation of costs beyond the Zone/EDC will need to be the role of the States to ensure fair and efficient allocations.

Procurement Model

Procurement Model Options	Primary Buyer	Purchase Agreement	PJM's Role
Bilateral Contracts	Entities receiving an obligation based on the determination of demand	Buyer and seller directly contract	"Matchmaker"
PJM as the Administrator and Counterparty	PJM Settlements on behalf of new load in excess of existing or new committed supply	PJM secures the forward commitment of supply and allocates costs back to Zone/EDC where the load is located	Administrator and Counterparty

For various reasons, PJM's current thinking is that the role defined as "PJM as the Administrator and Counterparty" will be necessary to the success of the RBP. Lack of clarity regarding who the buyer is in a bilateral contract and their creditworthiness, challenges with reaching commercial terms and other factors are drivers in this thinking.

[2] In this case cost could include other factors such as interconnection costs.

Eligible Supply

Eligible supply will be limited to new generation (including storage and uprates to existing generation) as stated in the principles document from the White House and Governors for up to a 15-year term. All new generation will be considered with no technology restrictions. This includes uprates to existing facilities but there may need to be additional rules regarding the types of uprates that qualify. In project selection, PJM will need to require evidence provided by the developer of constructability of these projects based on state policies and the willingness to site transmission and other needed infrastructure. Load Management is currently not being considered as eligible to participate given the White House and Governors letter's focus on new generation. Distributed Energy Resources utilizing generation assets are still under discussion.

Resources that are procured under the RBP will be expected to participate as a capacity resource in PJM for the term of their commitment through this process. They may not seek an exception to any must offer requirement in any future PJM resource adequacy procurements for reasons such as opportunity cost related to exporting capacity to load outside of PJM. PJM is exploring a penalty structure for those resources committed in the RBP but not meeting their projected online date.

Deliverability

In line with the goal of maximizing the chance of net-new generation coming online, the RBP will aim to select resources in a way that recognizes the need for and cost of transmission upgrades. PJM will specify the RTEP case that RBP sellers should utilize in designing their proposals. Proposed RBP projects will then be screened for system impact to inform their representation in the procurement structure:

- Projects with known system impact - based on their interconnection agreement or the Decision Point they have reached in the interconnection process - will be eligible for the Stage 1 RBP. Any known network upgrade cost estimate will be included as a cost component.
- Projects not yet in the interconnection process that may have some level of system impact will be eligible for the Stage 2 RBP. This stage will include time for further study and estimation of network upgrades costs. These network upgrade costs will also be included in the total cost of the project.

PJM is considering requiring all sellers offering new projects not currently in the PJM queue to pre-screen their projects for system impacts.

In all cases, the online date associated with bid-in MW should reflect when those MW are reasonably expected to be deliverable. Within the RBP penalty structure, PJM is considering how it would assign accountability for delays in online date to both the resource developer and transmission owner responsible for needed upgrades.

Eligible Supply

RBP	Eligible Supply	Deliverability Requirements

Stage 1 RBP	New generation and uprates	Existing ISA/GIA, TC2, EIT[3]
Stage 2 RBP		No limitation on project interconnection status.

Conclusion

As stated in the opening, this is a document that reflects PJM's current thinking as of its publication. It is intended to be a working document that PJM will periodically update throughout the stakeholder discussion on the RBP. At this time, it contains the components that PJM has discussed but is not an exhaustive list of all design components. As PJM formalizes its thinking around these additional topics, we'll solicit stakeholder feedback on our thinking on those as well.

[3] Given the development of the Expedited Interconnection Track (EIT) is in progress, review will be needed to ensure alignment with eligibility for RBP Stage1.