

Powering Reliability Through Market Design

Initial Considerations and Recommendations

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July 15, 2026

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Executive Summary

- PJM's resource adequacy challenge is being driven by uncertain large load growth that creates capacity obligations irrespective of whether the underlying demand is sufficiently committed or financially accountable.
- Reforms should preserve the benefits of regional resource adequacy while requiring new large loads to fund or bring new capacity, reduce demand, or accept priority curtailment before imposing costs and reliability risks on ordinary customers.

Framing of Current Issues

- The performance of any resource adequacy construct (e.g., ORDC, shortage pricing, capacity demonstration, capacity market) is a function of design decisions
 - All constructs can over or under procure relative to expected need
 - All constructs are prone to changes that create uncertainty in the market
- Different approaches introduce trade-offs around assignment of stranded cost risk and how investment signal is achieved

Framing of Current Issues (cont.)

- PJM correctly identifies that rapidly growing demand from large load, reductions in supply due to retirements, delays in the development of new supply, and investment uncertainty are creating stress on both reliability and affordability.
- Capacity markets can provide value, when functional:
 - Regional pooling reduces the reserve margin needed
 - Competitive entry shifts generation investment risk away from captive retail customers
- However, capacity markets falter when they rely on faulty information (“garbage in, garbage out”) and stray from basic regulatory principles, including beneficiary-pays cost allocation, protection of captive customers, and assignment of risk to the parties best able to manage it.
- Reforms should preserve the benefits of the PJM pool while assigning incremental costs and risks to the entities that cause and can manage them.

Resource Adequacy Construct Evaluation Framework

- 1. Reliability Requirement: What need is PJM procuring?**
2. Reliability Valuation: How much should load pay?
3. Resource Performance: What must resources deliver?
4. Competition: Can all capable resources compete?
- 5. Cost Allocation: Who pays and who benefits?**

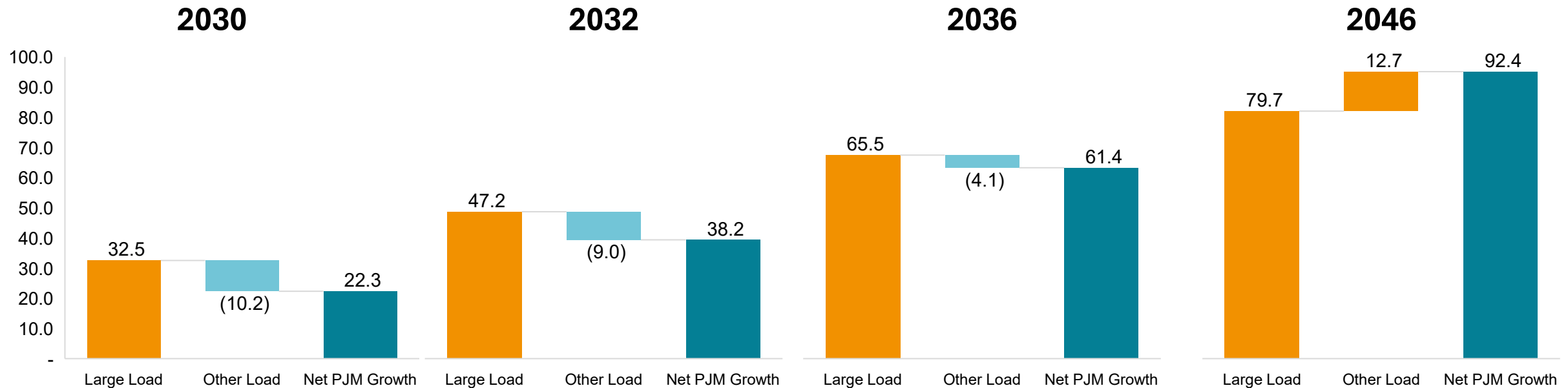
Reliability Requirement: What Need is PJM Procuring?

- All constructs have some level of expectation of future need, generally based on forecasted load
- The adjustments and assumptions applied in the formation of this expectation can have a material impact on the quantity of capacity required
- Over-forecasting loads can result in excess procurement (with accompanying costs) and, when resulting in new entry, can have long-lasting impacts on market outcomes

Reliability Requirement: What Need is PJM Procuring? (cont.)

- Anticipated resource adequacy shortfalls are actually large load-driven shortfalls

Incremental Growth in Coincident Summer Peak Demand (GW, RTO-wide) Compared to 2025 Metered Peak



Reliability Requirement: What Need is PJM Procuring? (cont.)

- Traditional sources of load forecast error: Weather, economic growth, etc.
 - Diverse, probabilistic by nature
- Large load additions create a separate class of uncertainty
 - Discrete, very large increments; strategic actors; enter service quickly
- As a consequence, capacity markets are tethered to “demand” that does not and cannot support credible investment or retirement signals
- Demand uncertainty makes load verification, incentives, and accountability central design questions
- **Design Feature: Large load must make verifiable commitments within an incentive-compatible construct**

Cost Allocation: Who Pays and Who Benefits?

- Costs should be allocated to the parties that cause the costs to be incurred and benefit from the byproducts of those costs
- Cost allocation structures should ensure that, when consumers act, these actions result in reductions in cost over time and do not simply avoid and shift costs to other consumers
- Disconnects between cost allocations and drivers for cost can result in inefficient investment signals as load does or does not take action to avoid costs

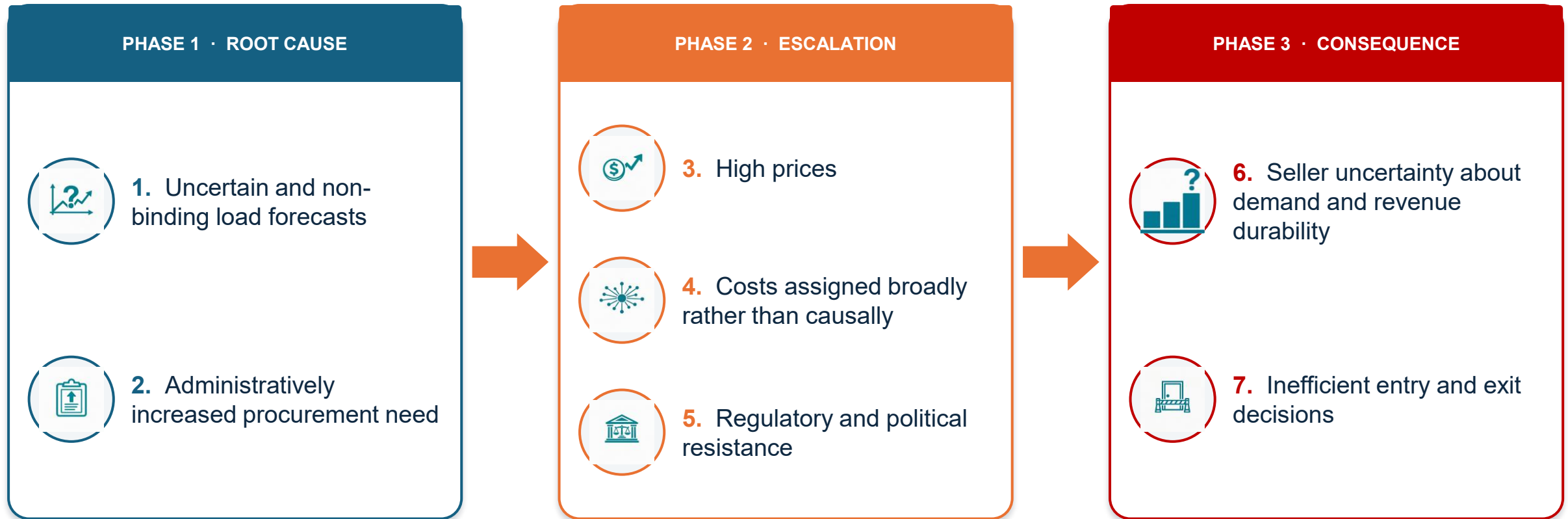
Cost Allocation: Who Pays and Who Benefits? (cont.)

- Cost causation is a resource adequacy tool
 - If uncommitted large loads can create resource adequacy requirements without bearing downside risk, capacity procurement will exceed need
 - Assigning costs and risks to cost causers produces better information and more efficient demand-side decisions
- **Design Feature: Large load should bring / fund new capacity, reduce demand, or accept priority curtailment.**

The Credibility Gap is also a Market and Regulatory Phenomenon, Not Just a Political One

- A market cannot deliver efficient outcomes if the demand side of the equation is not credible
- Regulators cannot accept outcomes that do not ensure cost causers are held responsible
- Political, regulatory, and market credibility risk point to the same design need: durable, verifiable commitments before obligations are created
- The current PJM market is not incentive-compatible

The Credibility Gap is also a Market and Regulatory Phenomenon, Not Just a Political One (cont.)



PJM's Proposed Paths: Key Concerns

- Path A: Who bears the risk?
 - Forward commitments should follow verified, financially accountable load commitments
- Path B: Who bears the reliability consequence?
 - Ordinary customers should not receive lower reliability because new large load enters faster than supply
- Path C: What behavior does the market reward?
 - E&AS reforms should reward flexibility and performance while complementing a transparent capacity construct

Alternative Path: “Commit-to-be-counted”

- **Make the load forecast incentive-compatible:** The entity that wants firm service must reveal true need through commitment, not just through a forecast request
- Example: Use objective gates (e.g., subscription to RBP, contract for BYONC) before large-load additions enter the capacity and transmission planning requirement

Alternative Path: Large Load Reliability Service

- Large loads choose their reliability before being added to the shared pool
 - **Firm backed service:** Pays for or brings capacity, with locational deliverability and transmission responsibility
 - **Non-firm / flexible service:** Can connect sooner, but is excluded from firm RA/RTEP assumptions and is curtailed first
 - **Transition service:** Temporary status with collateral and milestones until capacity backing or firm rights are obtained