

The Coming Energy Transition in PJM.
Localized Challenges Posed by the Transition – Out of Market
“Reliability Must-Run” (RMR) Arrangements/Siloed Transmission Planning.

PJM Public Interest and Environmental Organizations User Group (PIEOUG)
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These comments are my own; they do not necessarily represent the official position of the
Maryland Office of People’s Counsel.

Outline.

1. Anticipated Future (the “Transition”) to be avoided - Resource Retirements (“conventional generation”)>Replacement Capacity (“renewables”), out of synch pacing and contribution to system reliability.
2. Occurring within and shaped by the context of the PJM rule regime -- mixing market constructs (for generation) and planning and regulated cost recovery (for transmission).
3. Special Challenge of RMR arrangements during the Transition – focused problem in Locational Deliverability Areas (LDAs) with constrained transmission – where PJM employs “gap fillers” -- RMR Arrangements and siloed, rushed transmission planning decisions to address grid reliability violations caused if generators seek to deactivate.
4. PJM tool-kit limitations.
5. Potential Solutions.

PJM Operating Regime for Generation and Transmission “Bolt-ons” for RMRs.

- Energy, Ancillary and Reserves Market Construct.
- Capacity Market Construct (for Reliability Assurance (RA)) (the RPM).
- “Voluntary” non-market determined RMRs for generators seeking to deactivate and not committed in the RPM (to address the “reliability gap” when capacity market procurements and uncommitted but still operating capacity do not resolve grid reliability criteria violations created by the generator’s retirement).

Generators with RMR awards can seek compensation cabined between (a) recovery of and on prior investment and on-going operating costs approved by FERC (with criteria in litigation); and (b) a tariff specified default rate allowing recovery of going forward costs, plus an incentive adder.

RMRs are intended to be “rare” “exceptional.”

PJM does accelerated, siloed, wires only transmission planning for grid solutions and assignment to the incumbent transmission owner of construction of facilities.

This improvisation is inadequate in the context of the Transition – anticipating systematic large scale retirements and changes in generation.

Recent Major Resource Deactivation Notices involving RMRs:

- **Indian River Unit No. 4** (proposed date of deactivation, June 1, 2022) (410 MW (coal unit), DPL South LDA) – FERC filing request for \$70MM/yr. fixed revenue requirement (FRR) (RMR term, 6/1/22 to 12/31/26).
- **Brandon Shores 1 and 2** (proposed date of deactivation, June 1, 2025) (1292 MW (coal unit), BGE LDA) – as yet, unknown FRR, likely will not be known until near the beginning of the RMR term (RMR Term, 6/1/25-12/31/28, assuming owner’s agreement to RMR).
- Additional Units in these or other constrained LDAs?

Associated “Fast-Track” Transmission Solutions to address the resulting grid reliability violations, with longer lead times for construction (leading to the extended RMR terms).

- **Indian River Unit 4** – DPL Vienna-Nelson 69kV line – capex \$47MM (PJM Estimate) (now \$57MM, subject to a variance of +/- of 25%)(DPL Filing, 10/4/23 in MD PSC CPCN Case No. 9698)). In-service date anticipated 12/31/26.
- **Brandon Shores 1 and 2** – Extensive 500kV and 200kV (and lower) transmission builds – capex \$785MM (PJM estimate); (latest, \$870 MM, per Exelon 2d Qtr. 2023 Analyst meeting). In-service date anticipated 12/31/28.

A few preliminary conclusions.

Much in-area generation in constrained LDAs are “at risk” of retirement (older plants, low capacity factors). These LDAs are also more likely to incur high cost RMRs, due to grid constraints (already exposed because of LDA status) and insufficiency of new entry by resources.

Relatively thin new entry queues (primarily renewables and storage, and less effective capacity); possible “hoarding” of CIRs by retiring plants chilling further new entry.

Likely higher RPM (capacity construct) clearing prices due to shrinking supply within the LDA.

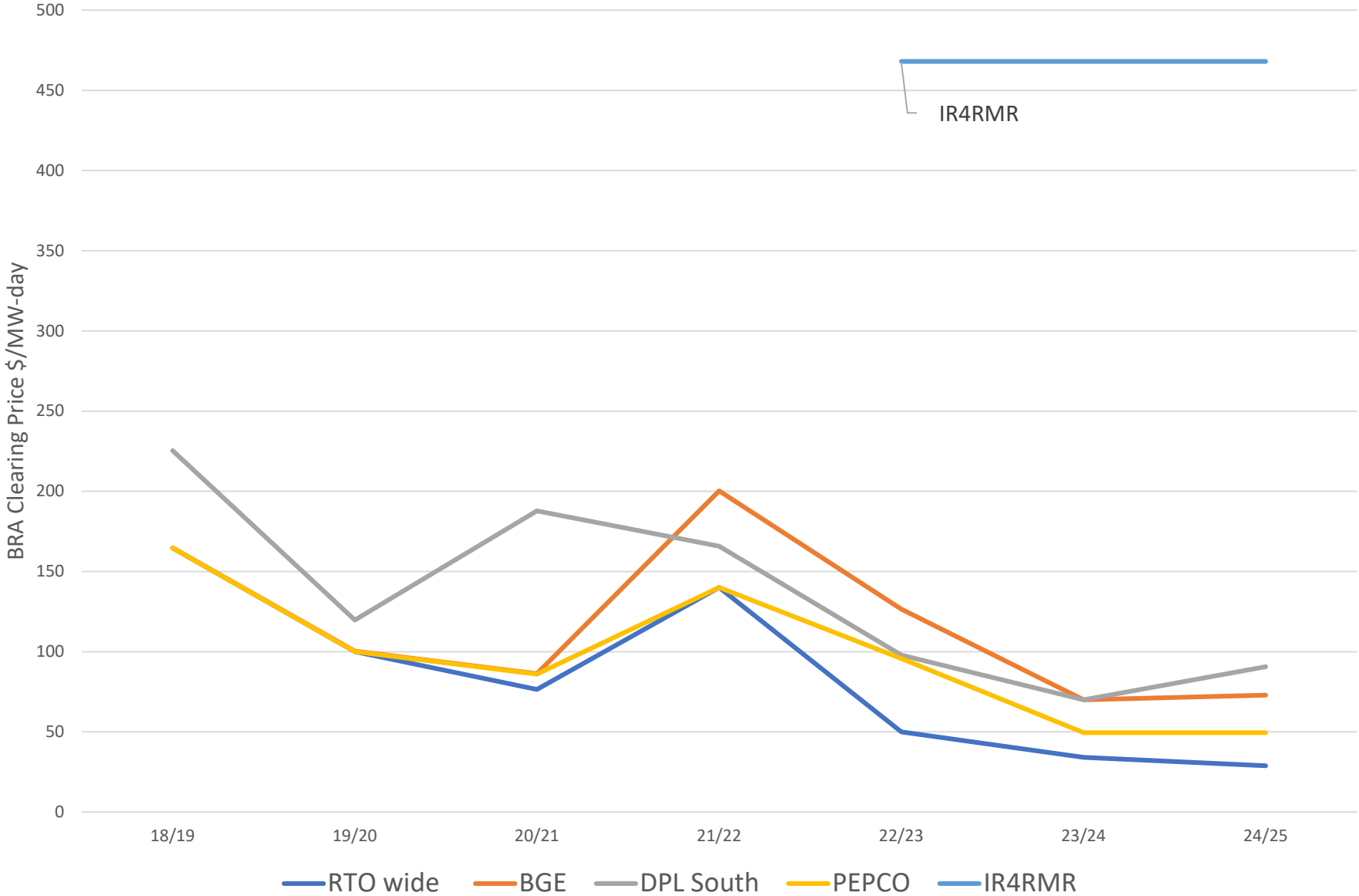
RMR costs at multiples of RPM capacity clearing prices. Undue incentives for retirement?

PJM’s rules allow generator deactivation within 90 days of notice. PJM’s review to determine retention of the generator to prevent grid reliability violations, if identified, and, therefore, to seek an RMR, must occur within this period.

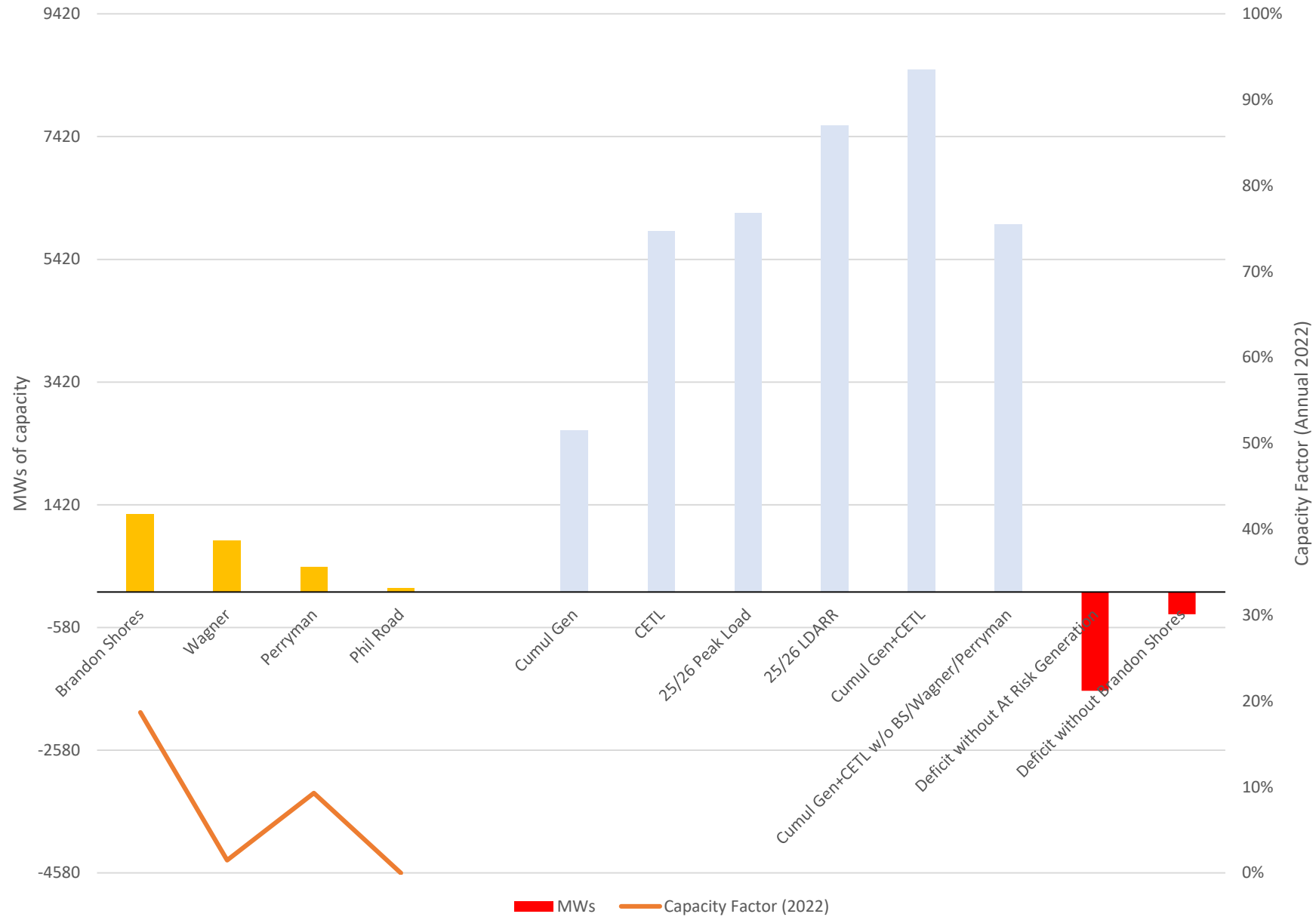
RMR terms of up to 3.5-4.5 years, based on current experience, paced by the time required to complete the PJM approved wires only grid solutions.

Possible longer term potential benefits when transmission solutions are completed, allowing RMR termination, decreasing or removing the LDA transmission constraint; creating increased interconnection headroom for new entrants. But balanced against costly new transmission charged to the LDAs load and possible withholding of the deactivating generator’s capacity interconnection rights (CIRs) impairing timely new entry.

Recent PJM BRA Clearing Prices RPM Delivery Years 18/19 to 24/25, compared to Indian River Unit 4 (IR4) RMR Requested Fixed Revenue Requirement



BGE LDA PJM BRA 25/26 Capacity Parameters



Current PJM tool-kit.

- Siloed accelerated review of alternate transmission solutions (90 days from deactivation notice, grouped by calendar quarter).
 - Seeming cursory or low consideration of non-wires alternatives (any new entry must have an executed interconnection services agreement and be “timely” per PJM’s interconnection reform to be even included in the review).
 - If the grid reliability need shows up in 3 years or less (even if the selected transmission solution will take longer), then the grid solutions are deemed “immediate need” – so categorically not subject to competitive procurement.
 - RMR made available to the deactivating generator until the grid solution can be completed, at potentially very high cost.
- * Ad hoc contingent recourse to US Department of Energy orders under FPA, 202(c) and (d) to force recalcitrant RMR designated generator resource to continue to operate.

Considerations for Reform

- Transmission Planning - PJM on-boarding of a more forward look for “at-risk” of retirement of generation resources, allowing for a more holistic, pro-active full consideration of non-wires and wires solutions. Need to avoid foreclosing “competitive” consideration of alternative wires and non-wires solutions, through the current siloing of and fore-shortened planning review focusing on transmission solutions for deactivating generators.
- Longer notice periods for capacity deactivation.
- Capacity Procurement. Uncertain determinants of RMR compensation in PJM (PJM tariff provisions providing for alternate recovery of “going forward” costs, vs. FERC filed and approved “cost of service” for recovery of “operating costs” in a “voluntary” RMR regime). How to address PJM footprint wide capacity deficiencies creating grid reliability violations (additional PJM RMR authority, alignment of grid reliability requirements with RA procurement targets, other).
- Impact on PJM’s current market operations. RMR unit modeling in on-going PJM capacity market procurement and energy market operations.

PJM Initiated Stakeholder Processes to Address Issues.

There are PJM reform efforts underway to address some of these issues, but late to the game and may be stymied by the stakeholder process where interests benefitted by the current regime may block reform.

Deactivation Process Review recently initiated to address RMRs (the Deactivation Enhancements Sr. Task Force (DESTF) – addressing the RMR compensation issue and timing for advance notification of deactivation -- the remainder not within scope.

Long Term Regional Transmission Planning (LTRTP) initiative.