



Policy-Driven Generation Retirement Analysis

Independent State Agencies Committee

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Executive Summary

On Dec. 6, 2024, the Independent State Agencies Committee (ISAC) submitted the State Policies Workbook to PJM with policy assumptions to be considered for the 2025 reliability planning cycle. As part of PJM's response to ISAC on which policies will be considered, PJM stated that it will perform "analysis on the 2025 RTEP base case using the list of anticipated deactivating resources provided by ISAC that includes resources expected to retire as a result of state policies and identified private commitments."¹

PJM elected to perform this analysis during the 2025 reliability planning cycle as a scenario to accompany the five-year base case. This scenario included those resources submitted by ISAC that are anticipated to deactivate by 2030 as a result of state policies, as well as those resources identified by PJM that are anticipated to deactivate by 2030 as a result of federal policies. PJM also used the state Renewable Portfolio Standards (RPS) provided by ISAC to inform the analysis of which resources should be built to replace the retiring generation. This scenario was then modeled as Scenario 5 and provided for informational awareness for transmission developers participating in the competitive solicitation process.² For purposes of this effort, the results of Scenario 5 were compared with those of Scenario 3, which represents the transmission system without these projected retirements.

The results of this analysis were presented at the Transmission Expansion Advisory Committee (TEAC) meeting on Dec. 8, 2025, and several key takeaways were identified:³

- Significant new generation is needed in the PJM footprint.
- The forecasted generation expansion will result in higher west-to-east transfers.
- The proposed 2025 RTEP Window 1 projects will mitigate some impacts of this generation expansion.
- Additional transmission reinforcements will be needed.

¹ [PJM Statement on Public Policies Adopted Within the 2025 RTEP, March 31, 2025](#) (PDF)

² [Transmission Expansion Advisory Committee, 2025 RTEP Assumptions Updates, May 6, 2025](#) (PDF)

³ [Transmission Expansion Advisory Committee, Reliability Analysis Update, Dec. 8, 2025](#) (PDF)

Policy Assumptions

State policy assumptions were prepared by the members of the ISAC and shared with the TEAC in January 2025.⁴ The ISAC State Policies Workbook is an inventory of policies that may impact the transmission system and was provided to PJM for consideration in the annual planning cycle.⁵

Generation Retirements

The ISAC requested PJM consider the impacts of the following state policies driving generation retirements:

- **Illinois:** Climate and Equitable Jobs Act (CEJA)
- **New Jersey:** New Jersey Department of Environmental Protection’s CO₂ Emissions Rule (N.J.A.C. 7:27F)
- **Virginia:** Virginia Clean Economy Act

In addition to resources impacted by these policies, ISAC’s list of anticipated retirements included several resources expected to retire by 2030 as a result of private commitments influenced by federal policy. PJM then took this list of resources and added expected retirements resulting from federal policies to craft Scenario 5.

Table 1. Projected Generation Retirements Through 2030

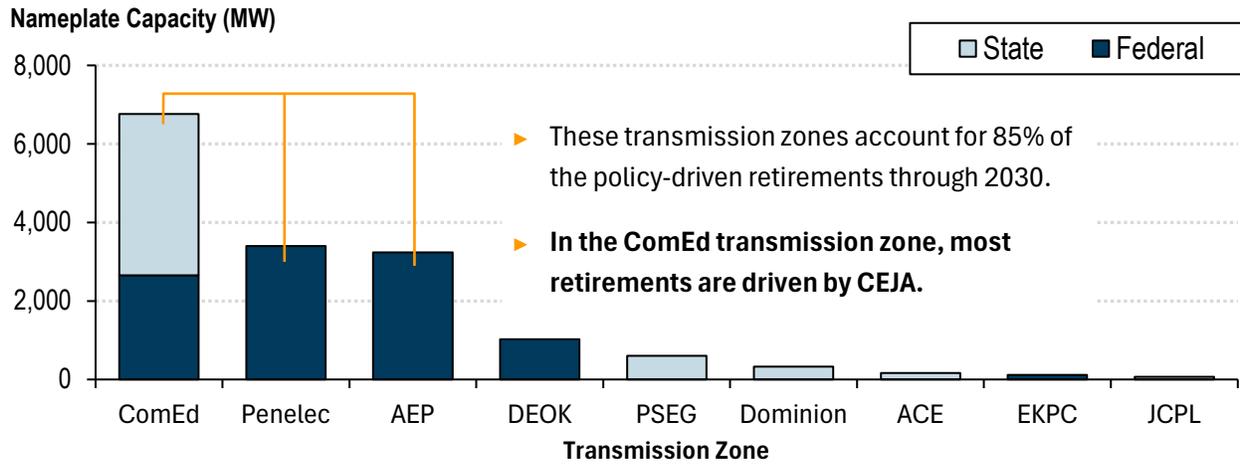
	Retirements (MW)		Total (MW)
	Federal Policy Driven*	State Policy Driven	
ComEd	2,650	4,112	6,762
Penelec	3,400		3,400
AEP	3,238		3,238
DEOK	1,020		1,020
PSEG		605	605
Dominion		331	331
ACE		169	169
EKPC	116		116
JCPL		65	65
Total	10,424	5,283	15,706

***Federal Policy-Driven Retirements* includes private commitments made by generator owners whose retirement decisions were influenced by known federal policies.*

⁴ [Transmission Expansion Advisory Committee, 2025 RTEP Assumptions from the Independent State Agencies Committee, Jan. 7, 2025](#) (PDF)

⁵ [ISAC State Policies Workbook](#) (XLS)

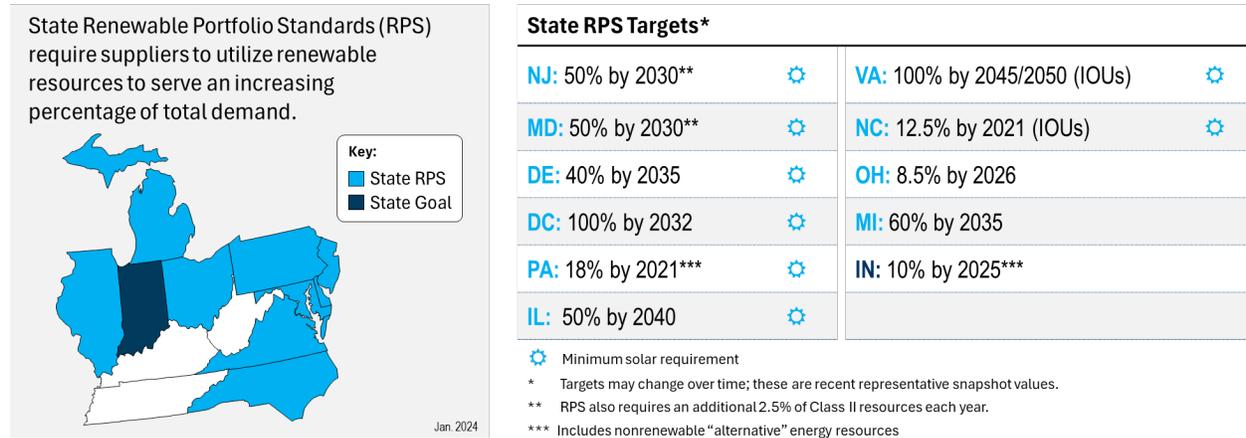
Figure 1. Projected Generation Retirements Through 2030



Renewable Portfolio Standards

ISAC provided the details of each state’s RPS targets, which PJM used as part of the capacity expansion model for the assumed generation to replace the anticipated retiring resources. PJM used the PJM states’ RPS targets to inform the capacity expansion model used for the analysis.

Figure 2. State RPS Targets



Results

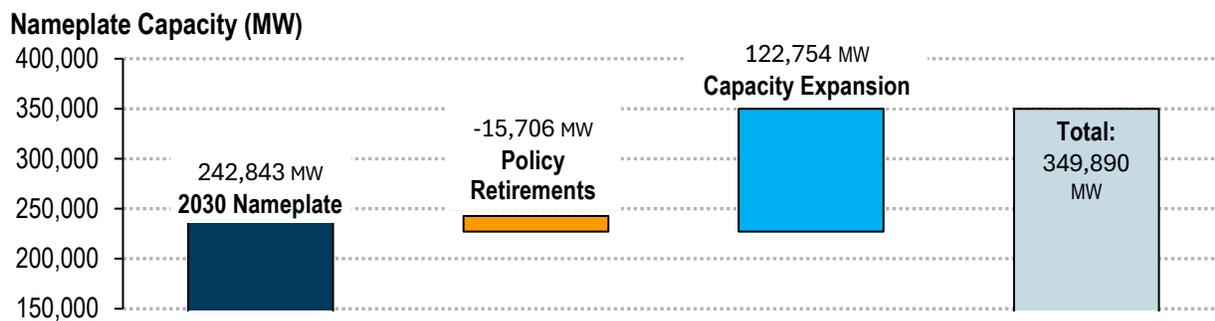
Capacity Expansion

In performing the analysis, PJM determined that the projected policy-driven deactivations would result in insufficient generation to support the projected load growth within PJM. PJM forecasted the capacity expansion that would be required to maintain resource adequacy, which took into account the RPS targets for determining replacement generation. Without making assumptions about the replacement generation for the capacity expansion model, PJM would have been unable to perform the requested reliability analysis.

This capacity expansion analysis incorporated the following assumptions:

- Load growth projected in the [2025 Long-Term Load Forecast](#) (PDF)
- Maintain the resource adequacy target of “1 in 10,” meaning involuntary load shed occurring 1 day in 10 years
- Federal and state policies impacting generation retirements
- State RPS goals
- State resource-specific targets, including 7,500 MW of offshore wind in New Jersey and 8,500 MW of offshore wind in Maryland by 2032

Figure 3. 2032 Scenario 5: Capacity Expansion Study

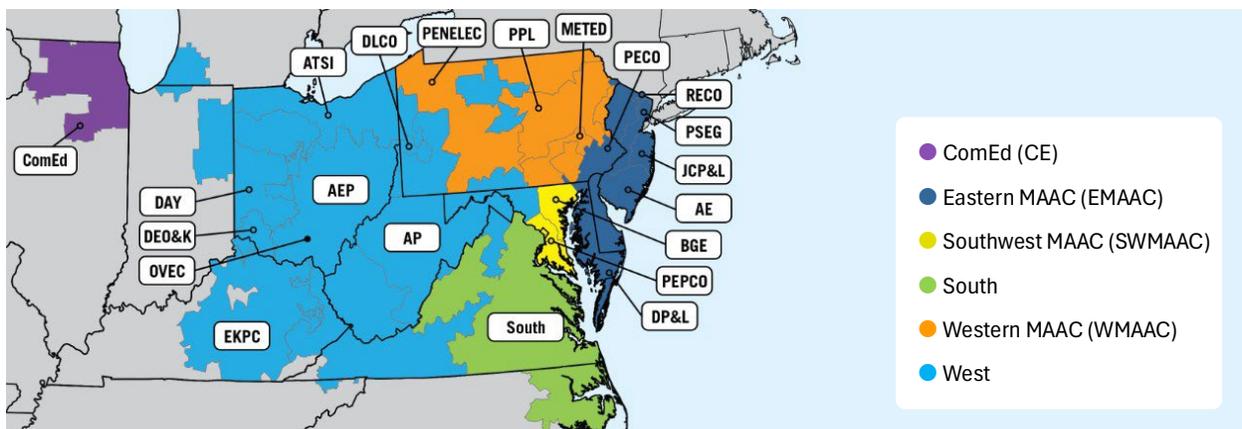


Breakdowns of the capacity expansion by fuel and transmission zone can be found in **Appendix 2: Capacity Expansion Details**.

Transmission System Analysis

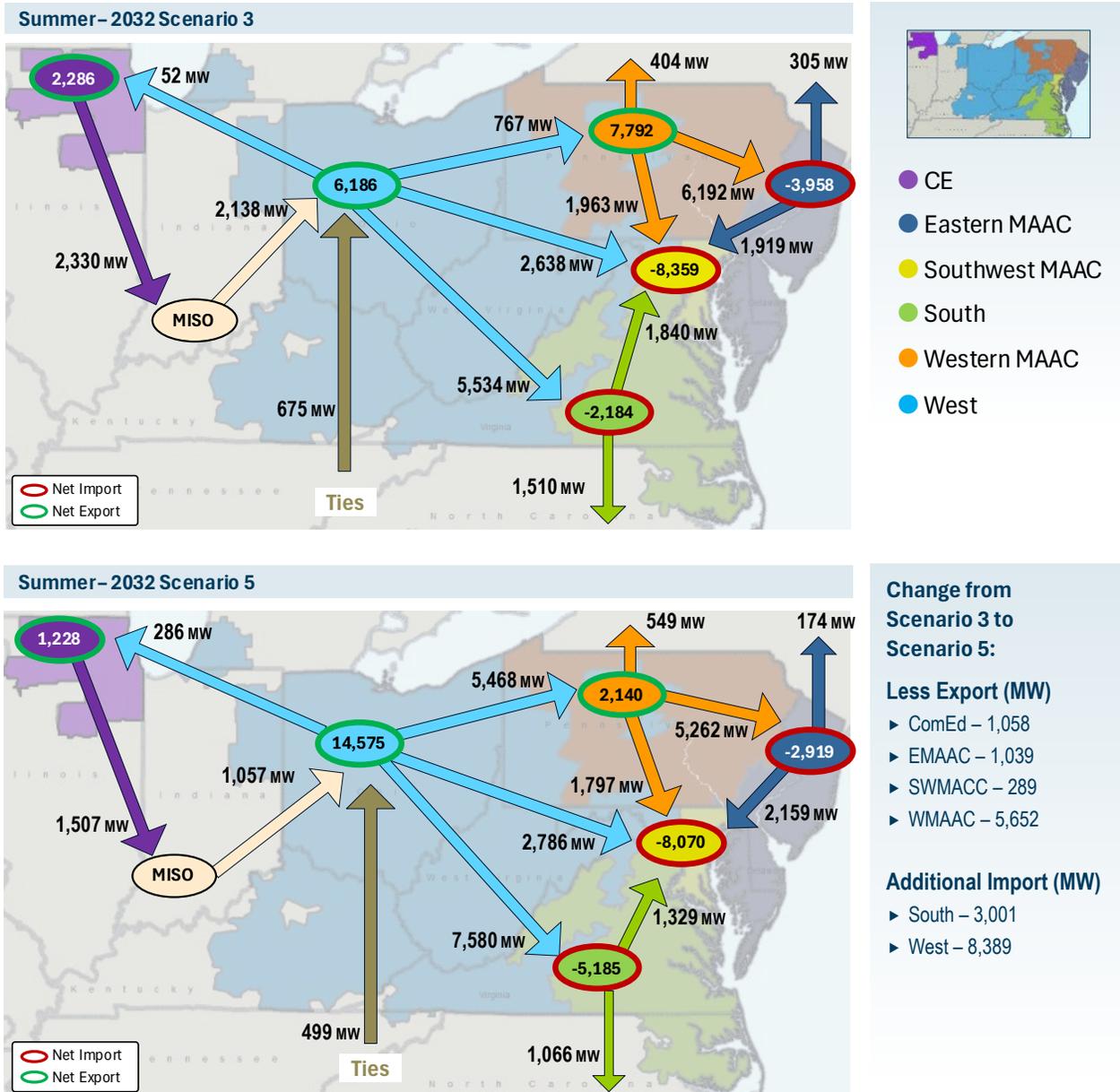
The capacity expansion model used for this analysis was able to identify a significant change in the regional flows on the system in each of the three seasonal conditions (Summer Peak, Winter Peak and Light Load). During Winter Peak and Light Load conditions, some regional flows are projected to change direction.

Map 1. Regions by Transmission Zone

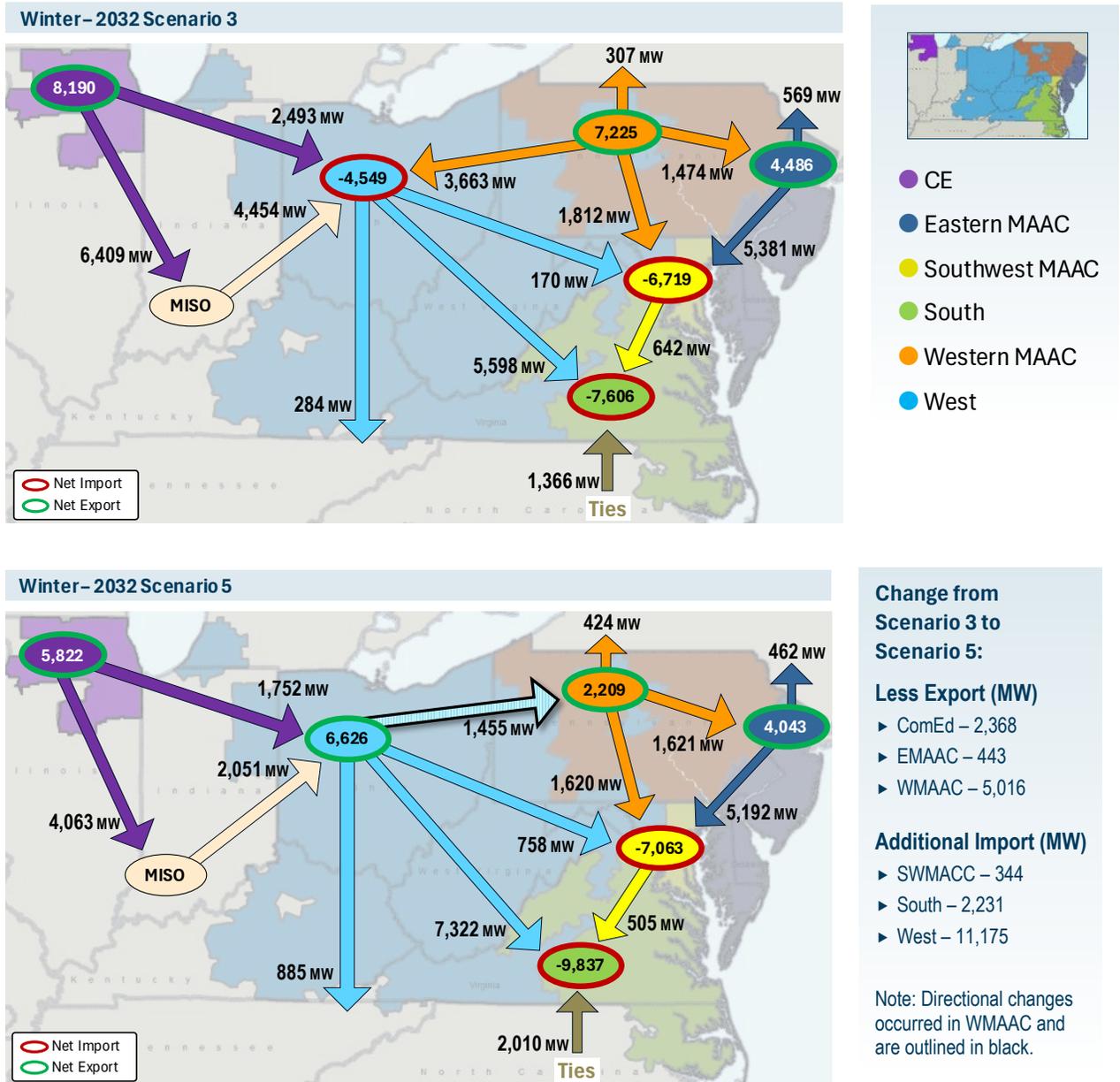


Regional Flows: Summer Peak Conditions

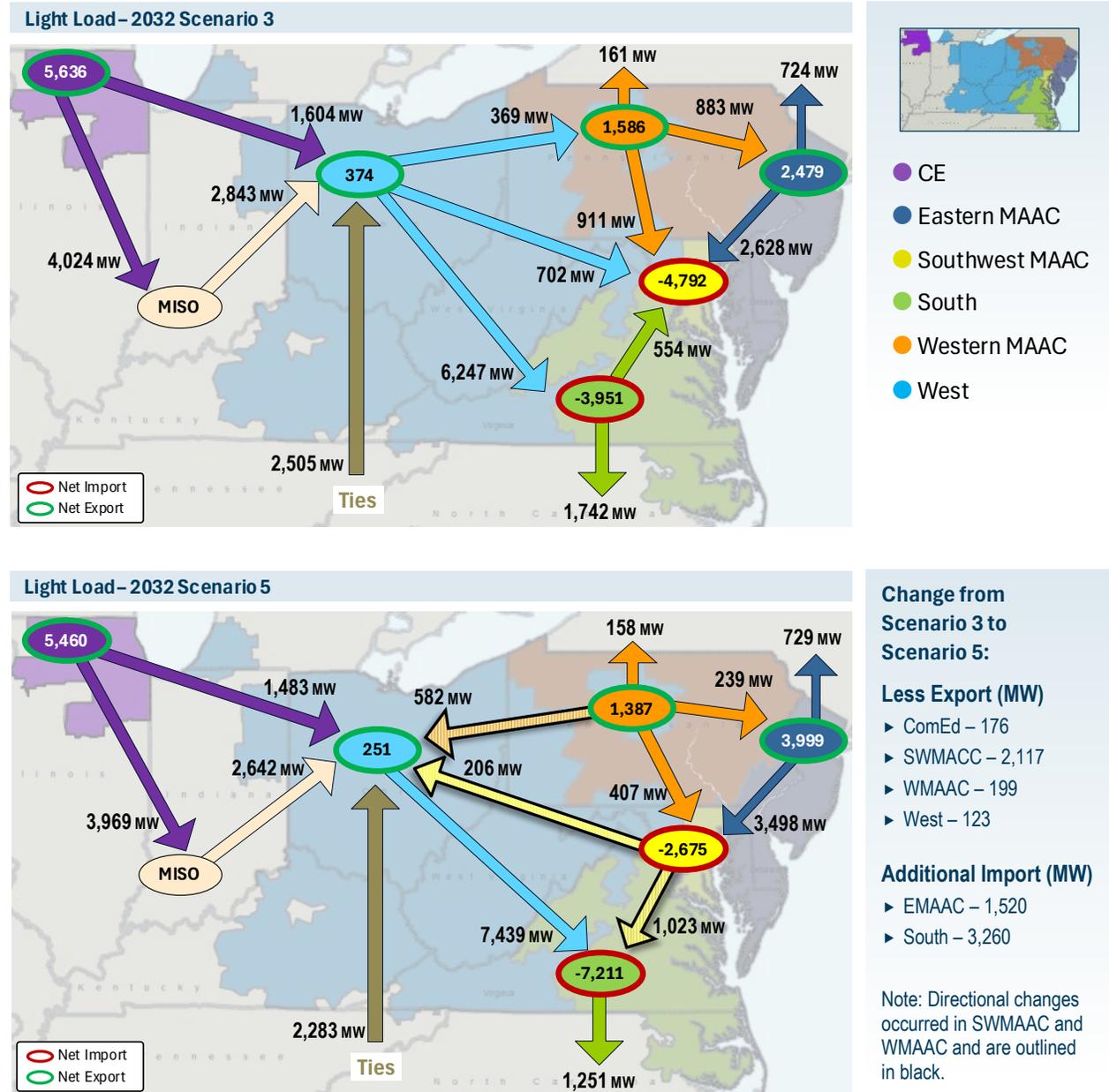
Map 2. Regional Flows: Summer Peak Conditions (Scenario 3 and 5)



Map 3. Regional Flows: Winter Peak Conditions (Scenario 3 and 5)



Map 4. Regional Flows: Light Load Conditions (Scenario 3 and 5)



Reliability Violations

The change in regional flows is attributed to 164 new reliability violations on the Bulk Electric System. The AEP, DPL, Dominion and AP transmission zones account for more than half of these violations.

Table 2. Summary of Reliability Violations

	Additional in Scenario 5*				Total
	230–345 kV		500–765 kV		
	Line	Xfmr**	Line	Xfmr**	
AE	0	0	0	0	0
AEP	20	0	14	2	35
AP	2	0	8	3	13
ATSI	5	0	0	0	5
BGE	3	0	2	1	6
ComEd	7	0	1	0	7
DAY	1	0	0	0	1
DEO&K	2	0	0	0	2
DLCO	1	0	0	0	1
Dominion	7	0	6	2	15
DP&L	19	0	2	2	23
EKPC	0	0	0	0	0
JCPL	9	2	0	0	11
METED	1	0	0	1	2
OVEC	1	0	0	0	1
PECO	6	0	1	0	7
PENELEC	5	0	3	1	9
PEPCO	6	0	3	1	10
PPL	2	0	1	0	3
PSEG	7	0	0	1	8
Total	101	2	39	13	155

*Tie lines between two zones are counted with 0.5 weight for both the zones.

**Xfmr = Transformer

Conclusion

PJM performed capacity expansion analysis on Scenario 5, which accounted for state and federal policy-driven deactivations and also used state RPS targets to inform replacement generation. Upon completion, Scenario 5 was treated as an informational-only scenario due to the significant scale of anticipated retirements by 2030 that were modeled in this analysis and the assumptions that PJM needed to make for replacement generation.

PJM determined that the number of assumptions needed to complete this scenario (i.e., make the model “solve”) were too significant to inform rightsizing and other forms of project selection during the 2025 planning cycle.



The analysis of Scenario 5 alongside all of the scenarios prepared during the 2025 planning cycle indicates the need for significant capacity expansion to overcome the anticipated policy-driven retirements in order to maintain current reliability standards.

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This expansion will require significant improvements to the transmission system to support the new generation as well as the change in regional flows.



The extensive need for capacity expansion in Scenario 5 reduced the effectiveness to just proposals submitted in 2025 RTEP Window 1.

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However, these capacity expansion projects can be used to determine areas of the system where generation is most needed as well as a projection of future transmission system enhancements.

Appendix 1: 2025 Base Case and Scenarios

The 2025 series of cases was developed at the beginning of 2025 and reflects the status of projects as of Jan. 2025. Scenario 1 represents the case used by PJM to solicit transmission solutions in the competitive window. Scenarios 2 through 6 were provided for informational purposes to help transmission developers “rightsize” any proposed solution.

	Scenario #					
	2030		2032			
	1	2	3	4	5	6
Existing Generation All generation currently operating and expected to continue operation through the case year.	✓	✓	✓	✓	✓	✓
ISA/GIA Generation All generation interconnection projects that have completed the study process and signed an Interconnection Service Agreement (ISA) or Generator Interconnection Agreement (GIA).	✓	✓	✓	✓	✓	✓
Coastal Virginia Offshore Wind (CVOW) and Chesterfield Projects The CVOW projects (AF1-123, AF1-124, and AF1-125) and Chesterfield (AF1-128 and AF1-129) projects have advanced with construction even though PJM has not completed all studies required for the interconnection process.	✓	✓	✓	✓	✓	✓
New Jersey and Delaware Offshore Wind The futures of the offshore wind projects covered by the New Jersey State Agreement Approach and interconnection queue positions AB1-056 and AF1-007 are uncertain.	✓	✗	✓	✗	✓	✓
Maryland Offshore Wind Maryland has a legislative target to procure 8,500 MW of offshore wind by 2031.	✗	✗	✗	✗	✓	✓
Projects in the interconnection queue All generation interconnection projects that are still undergoing studies by PJM. This includes Transition Cycle 1 and Transition Cycle 2.	✗	✓	✓	✓	✓	✓
Remove New Deactivation Announcements Announced generation retirements received by PJM in the first quarter of 2025.	✗	✓	✓	✓	✓	✓
Projected Policy Deactivations Generating units projected to retire based on federal and state policies. Unit lists from state policies were provided by the Independent State Agencies Committee (ISAC) in its Policy Workbook.	✗	✗	✗	✗	✓	✗
Battery Dispatch Includes batteries injecting power to the transmission system.	✗	✗	✗	✗	✗	✓

Appendix 2: Capacity Expansion Details

Required Expansion by Fuel

Figure 4. 2032 Scenario 5: Capacity Expansion Summary by Fuel Type

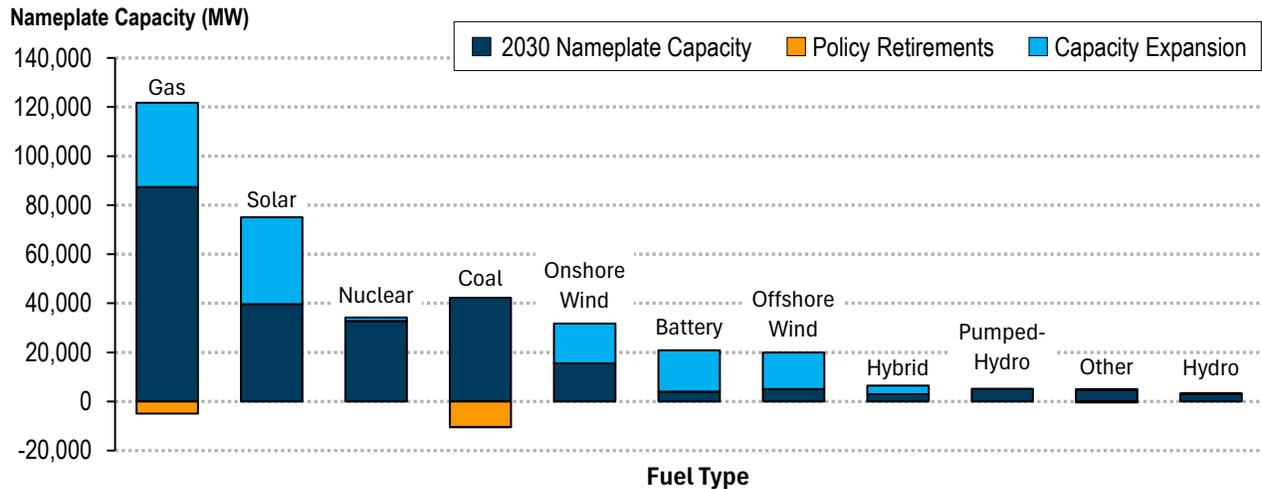
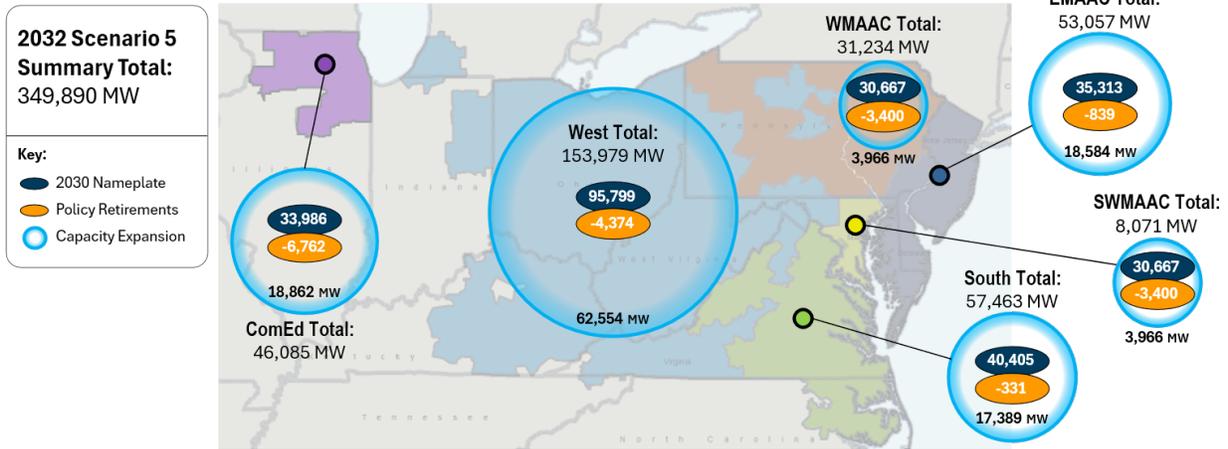


Table 3. 2032 Scenario 5: Capacity Expansion Summary by Fuel Type

Fuel Type:	2030 Nameplate (MW)	Policy Retirements (MW)	Capacity Expansion (MW)	Total
Gas	87,438	(4,952)	34,250	116,736
Solar	39,699	0	35,410	75,108
Nuclear	32,742	0	1,423	34,165
Coal	42,265	(10,423)	(6)	31,836
Onshore wind	15,537	0	16,210	31,747
Battery	4,030	0	16,822	20,852
Offshore wind	5,054	0	14,952	20,006
Hybrid	2,976	0	3,528	6,504
Pumped hydro	5,225	0	0	5,225
Other	4,825	(331)	153	4,647
Hydro	3,052	0	13	3,065
Total	242,843	(15,706)	122,754	349,890

Required Expansion by Transmission Area

Map 5. 2032 Scenario 5: Capacity Expansion Summary by Region

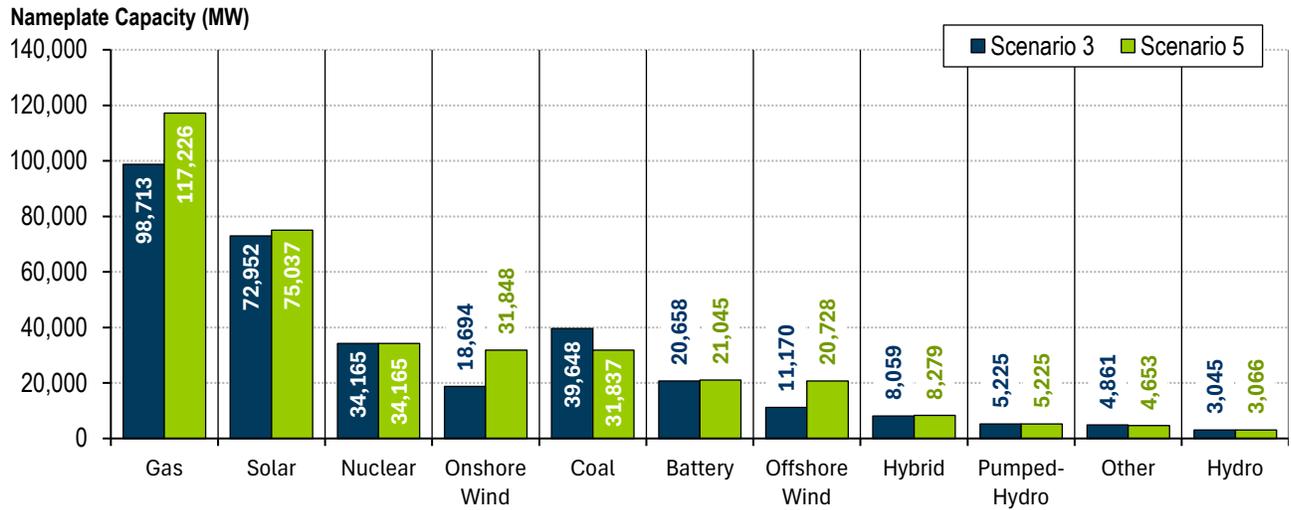


Note: See **Map 1** for a detailed region map with transmission zones.

Appendix 3: Comparing Generation Nameplate Capacity (MW) in Scenarios 3 and 5

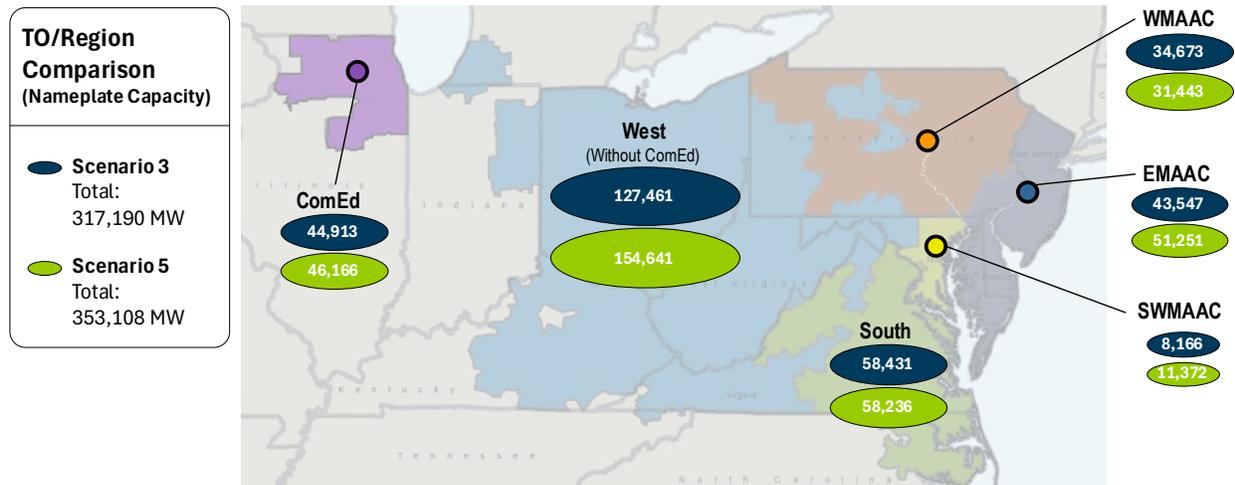
By Fuel

Figure 5. Add text



By Transmission Area

Map 6. Nameplate Capacity: Scenario 3 vs. Scenario 5 by TO/Region



Note: See Map 1 for a detailed region map with transmission zones.

Appendix 4: Unique Overloaded Facilities

Below is a comparison of the transmission analysis conducted using Summer Peak, Winter Peak and Light Load assumptions.

- **Scenario 3:** 7-year case with base assumption for 2032
- **Scenario 5:** Scenario 3 plus policy-driven retirements and capacity expansion analysis

Table 4. Scenario 3 and Scenario 5 – Unique Overloaded Facilities

	Scenario 3	Scenario 5	Additional in Scenario 5
	Total: 257	Total: 412	Total: 155
Takeaways:	▶ Top three TO zones with violations: AEP, ComEd and Dominion	▶ Top three TO zones with violations: AEP, ComEd and Dominion	▶ Top three TO zones with violations: AEP, DP&L and Dominion

Includes: AE, AEP, AP, ATSI, BGE, ComEd, DAY, DEO&K, DLCO, Dominion, DP&L, EKPC, JCPL, METED, OVEC, PECO, PENELEC, PEPCO, PPL, PSEG TO zones