Market Efficiency Update

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Transmission Expansion Advisory Committee
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2024/25 Market Efficiency Update

2024/25 ME Cycle Assumptions Update

- PROMOD Database posted on ME secure page (2029 and 2032 modeled years).
  - Topology consistent with the 2029 and 2032 Summer Peak powerflows.
- 2024 ME Input Assumptions workbook posted on ME public page.
- Generation Expansion based on queue status as of May 14, 2024.
  - Includes NJ SAA 1.0 (See tab **NJ SAA 1.0** in **2024 ME Input Assumptions** workbook).
  - Includes additional capacity, FSA level, needed in 2032 to meet the assumed 17.8% Installed Reserve Margin (See tab **FSA Level Added Through 2032** in **2024 ME Input Assumptions** workbook).

2024/25 Market Efficiency
Simulated Congestion 2029 and 2032
PJM Facilities > $1M

2024/25 ME Base Case Simulated Congestion

Constraint	Area	Type	Simulated 2029 Annual Congestion ($M)	Simulated 2029 Hours Binding	Simulated 2032 Annual Congestion ($M)	Simulated 2032 Hours Binding
Huffman-Willis Gap 138 kV	AEP	Line	71.73	853	176.90	1517
Clifford-Boxwood 138 kV	AEP	Line	16.47	770	24.93	778
Scottsville-Bremo 138 kV	AEP-DOM	Line	6.98	578	14.55	993
Museville-Smith Mountain 138 kV	AEP	Line	6.24	196	13.88	331
Maliszewski 765/138 kV XFMR	AEP	XFMR	3.35	23	3.75	26
East Danville-Banister 138 kV	AEP	Line	1.11	33	1.29	49
Roberts-Kenny 138 kV	AEP	Line	1.03	15	1.64	19
Axton-Danville 138 kV	AEP	Line	0.33	38	5.78	51
Westvaco-Mt Zion 138 kV	APS	Line	34.69	1279	74.49	1679
Frostburg-Ridgeley 138 kV	APS	Line	0.79	37	1.64	73

2024/25 ME Base Case Simulated Congestion (cont.)

Constraint	Area	Type	Simulated 2029 Annual Congestion ($M)	Simulated 2029 Hours Binding	Simulated 2032 Annual Congestion ($M)	Simulated 2032 Hours Binding
AD1-100 Tap-Wilton 345 kV	COMED	Line	296.45	1562	310.06	1500
Wolfs Crossing 345/138 kV XFMR	COMED	XFMR	60.21	541	88.69	576
University Park-Green Acre 345 kV	COMED-NIPS	Line	56.69	393	55.01	339
Cherry Valley-Silver Lake 345 kV	COMED	Line	13.47	174	8.25	117
Kewanee-Putnam 138 kV	COMED-AMIL	Line	8.35	174	9.06	159
Olive-Green Acre 345 kV	AEP-NIPS	Line	7.64	78	5.68	57
Kewanee 138 kV Disconnect	COMED	DISC	6.68	517	5.69	450
Cherry Valley 138 kV CB	COMED	CB	3.48	27	0.59	6
Nelson-Electric Junction 345 kV	COMED	Line	1.35	32	2.14	32
Kincaid-AD2-100 345 kV	COMED	Line	1.07	30	3.03	85

2024/25 ME Base Case Simulated Congestion (cont.)

Constraint	Area	Type	Simulated 2029 Annual Congestion ($M)	Simulated 2029 Hours Binding	Simulated 2032 Annual Congestion ($M)	Simulated 2032 Hours Binding
Powerton-Tazewell 345 kV	COMED-AMIL	Line	0.91	37	3.95	97
Quad Cities-Rock Creek 345 kV	COMED-ALTW	Line	0.02	1	1.42	16
Spotsylvania-Morrisville 500 kV	DOM	Line	4.15	28	2.58	13
St. Johns-Four Rivers 230 kV	DOM	Line	3.30	100	0.83	24
Northern Neck-Sanders DP 230 kV	DOM	Line	2.74	44	0.02	1
Turkey Run-Walnut Creek 230 kV	DOM	Line	2.27	227	6.51	374
Westmoreland-Oak Grove 230 kV	DOM	Line	1.77	41	0.06	9
Ladysmith CT-Summit DP 230 kV	DOM	Line	1.74	15	0.39	2
Bremo-Fork Union 115 kV	DOM	Line	1.04	78	2.40	153
Grapevine-Mt Eagle 230 kV	DOM	Line	0.94	2	1.49	51

2024/25 ME Base Case Simulated Congestion (cont.)

Constraint	Area	Type	Simulated 2029 Annual Congestion ($M)	Simulated 2029 Hours Binding	Simulated 2032 Annual Congestion ($M)	Simulated 2032 Hours Binding
Chesterfield-Ironbridge 230 kV	DOM	Line	0.61	24	6.53	183
Chesterfield-Basin 230 kV	DOM	Line	0.34	18	16.29	260
Aspen-Brambleton 500 kV	DOM	Line	0.30	13	80.19	975
Dahlgren-Oak Grove 230 kV	DOM	Line	0.00	0	7.72	139
West Cambridge-Linkwood 69 kV	DPL	Line	0.66	636	1.19	877
Red Lion-Keeney 230 kV	DPL	Line	0.00	0	85.41	724
Bullitt County-Cedar Grove 161 kV	EKPC-LKE	Line	0.14	5	3.29	39
Leroy Center-Spruce 138 kV	FE-ATSI	Line	1.10	100	0.15	20
Kittatinny-Bushkill 230 kV	JCPL-PPL	Line	5.26	36	2.68	12
South Reading-Boonetown 230 kV	METED	Line	3.65	272	36.99	2602

2024/25 ME Base Case Simulated Congestion (cont.)

Constraint	Area	Type	Simulated 2029 Annual Congestion ($M)	Simulated 2029 Hours Binding	Simulated 2032 Annual Congestion ($M)	Simulated 2032 Hours Binding
Hunterstown 500/230 kV XFMR	METED	XFMR	1.24	61	0.64	23
Three Mile Island-Jackson 230 kV	METED	Line	0.11	2	21.6	175
Bair-Jackson 115 kV	METED	Line	0.00	0	1.20	30
AP South Interface	PJM	INT	5.44	68	36.34	333
Blackoak-Bedington Interface	PJM	INT	1.19	12	4.16	46
AEP-DOM Interface	PJM	INT	0.10	4	1.58	31
Dauphin-Juniata 230 kV	PPL	Line	8.71	82	15.49	68
Hosensack-Elroy 500 kV	PPL	Line	4.78	25	0.00	0
Siegfried #4 230/138 kV XFMR	PPL	XFMR	4.37	17	2.75	8
Cumberland-Williams Grove 230 kV	PPL	Line	0.11	4	3.21	67

2024/25 ME Base Case Simulated Congestion (cont.)

Constraint	Area	Type	Simulated 2029 Annual Congestion ($M)	Simulated 2029 Hours Binding	Simulated 2032 Annual Congestion ($M)	Simulated 2032 Hours Binding
Cumberland-Juniata 230 kV	PPL	Line	0.00	0	1.73	11
Juniata #1 500/230 kV XFMR	PPL	XFMR	0.00	0	1.29	4
Juniata #2 500/230 kV XFMR	PPL	XFMR	0.00	0	1.68	8

2024/25 ME Base Case Status and Next Steps

- Post the updated 2024/2025 ME Base Case database:
  - Case to be posted on the ME secure page in the following days.
  - 2029 and 2032 congestion report to be posted with July TEAC materials.

- PJM requested stakeholders to provide feedback on the ME Base Case by August 31, 2024.

- Next Steps – add modeled years 2035 and beyond:
  - Update interregional data.
  - Update generation expansion to observe 17.8% IRM (beyond year 2032).
  - Update powerflows for consistency with reliability Window 1 2024.

Congestion Impact of RTEP Enhancements
(Comparison of ASIS and RTEP Topology)

Congestion Impact of RTEP Enhancements

Constraint*	Area	Type	Simulated 2025 Annual Congestion ASIS Topology ($M)	Simulated 2025 Annual Congestion RTEP Topology ($M)
Lincoln-Straban 115 kV	METED	Line	152.05	0.0
Juniata #2 500/230 kV XFMR	PPL	XFMR	23.13	0.0
Nottingham Reactor 230 kV	PECO	Line	18.56	0.0
Haumesser Road-W De Kalb 138 kV	COMED-NIPS	Line	15.94	0.0
Dumont-Stillwell 345 kV	AEP-NIPS	Line	14.54	0.0
Northwest-Conastone 230 kV	BGE	Line	13.92	0.0
Powerton-Towerline 138 kV	COMED-AMIL	Line	11.47	0.0
St John-Crete 345 kV	NIPSCO-COMED	Line	10.54	0.0
Face Rock #2 115/69 kV XFMR	PPL	XFMR	7.50	0.0
Olive-University Park 345 kV	AEP-COMED	Line	6.94	0.0

*Includes top 10 constraints with largest annual congestion reduction.

RTEP enhancements that are approved but not yet in service account for more than a **$294 million** reduction in congestion when comparing the 2025 simulations with the 2024 ASIS and 2029 RTEP topologies.

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Market Efficiency Update

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Revision History

- V1 – 7/02/2024 – Original slides posted

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