Presentation to the PA DEP Climate Change Advisory Committee

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Disclaimer

- My presentation and opinions expressed do not necessarily represent those of the Commission, or any of the Commissioners

PUC Regulatory Overview and Updates

- The Electricity Generation Customer Choice and Competition Act mandated the Pennsylvania Public Utility Commission (PUC or Commission) to ensure levels of reliability that existed prior to the restructuring of the electric utility industry continue in the new competitive markets
- Section 524(a) of the Public Utility Code, 66 Pa.C.S. § 524(a), requires jurisdictional electric distribution companies (EDCs) to submit annually to the PUC information concerning plans and projections for meeting future customer demand

PUC Regulatory Overview and Updates

(cont'd)

- Section 524(b) of the Code requires the Commission to prepare an annual report summarizing and discussing the data provided, on or before September 1 – informational report
- House Bill 416, a Fiscal Code Bill and a segment of the Pennsylvania budget package for Fiscal Year 2025-26, now known as Act 45 of 2025
- Act 45 of 2025 amends the Fiscal Code by adding Article XVIII-B, Electricity Load Forecast Accountability, Sections 1802-B – 1805-B. 72 P.S., Chp. 1, Article XVIII-B

PUC Regulatory Overview and Updates
(cont'd)

- Act 45 of 2025 Directs the PUC to "investigate the methodologies, data and assumptions used by utilities when developing load forecasts submitted to PJM" by:
  - Reviewing materials, data sets and filings that EDCs provide to PJM for load forecasting
  - Evaluating the accuracy, consistency and transparency of EDC forecasting methods and assumptions
  - Reviewing and auditing specific large-load interconnection requests to ensure that only projects with a high likelihood of development are included in a forecast

PUC Regulatory Overview and Updates

(cont'd)

- Act 45 of 2025 Directs the PUC to "investigate the methodologies, data and assumptions used by utilities when developing load forecasts submitted to PJM" by:
  - Coordinating with PJM so that Pennsylvania forecasts are incorporated into regional planning on a fair, accurate and nonduplicative basis
  - Collaborating with PJM and other state utility commissions within the PJM footprint to prevent double counting of new large loads and customer contracts and to assess whether other state practices would improve this commonwealth's approach

PUC Regulatory Overview and Updates
(cont'd)

- Act 45 of 2025 requires the PUC to complete an annual report by June 30 of each year that describes:
  - actions taken by the commission to implement this article during the prior fiscal year
  - findings from the commission's review of utility load-forecast processes and materials submitted to PJM
  - coordination with PJM and other states to prevent duplicative counting of projects and customer contracts
  - recommendations for statutory or regulatory changes to improve load-forecast oversight and reliability

PUC Regulatory Overview and Updates
(cont'd)

- PUC staff issued a data request to EDCs at Docket No. M-2025-3058814
- PUC staff collecting information on EDC load forecasts and large load customers (50 MW and above individually or 100 MW aggregate for multiple locations)
- PUC, prior to Act 45, issued an RFP for a contractor to, among other things, perform a load forecast for each of the zones in PJM
  - Contractor selected (Synapse) and onboarding process is continuing

PUC Regulatory Overview and Updates
(cont'd)

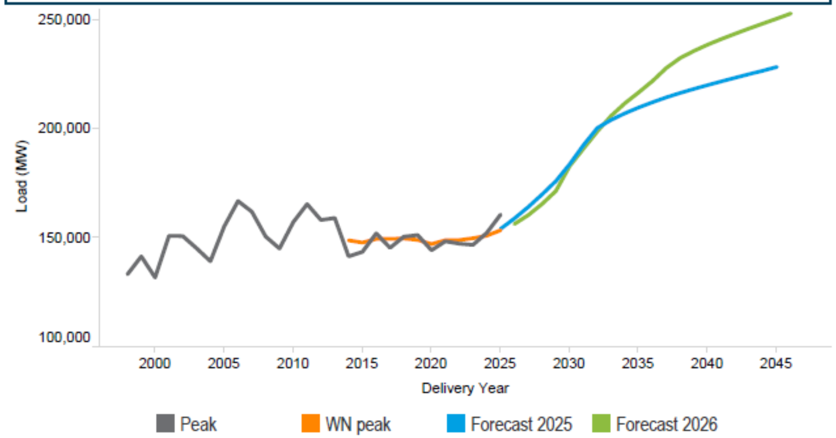
- PUC issued a Tentative Order on November 6, 2025, with a draft Model Tariff for language related to large load customers for EDCs. Docket No. M-2025-3054271. Comments received and undergoing review.

Load Forecasts for PJM

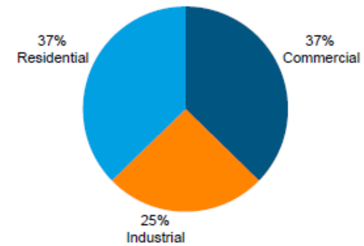
Source: PJM 2026 Long-Term Load Forecast

PJM RTO

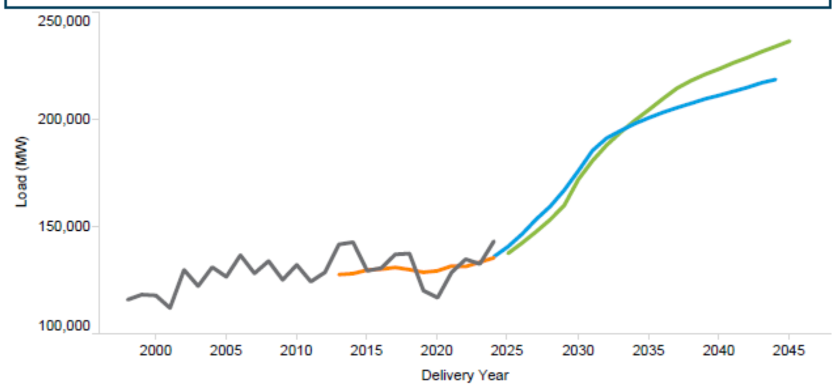
Summer Peak



RCI Makeup



Winter Peak



Weather - Annual Average 1994-2024

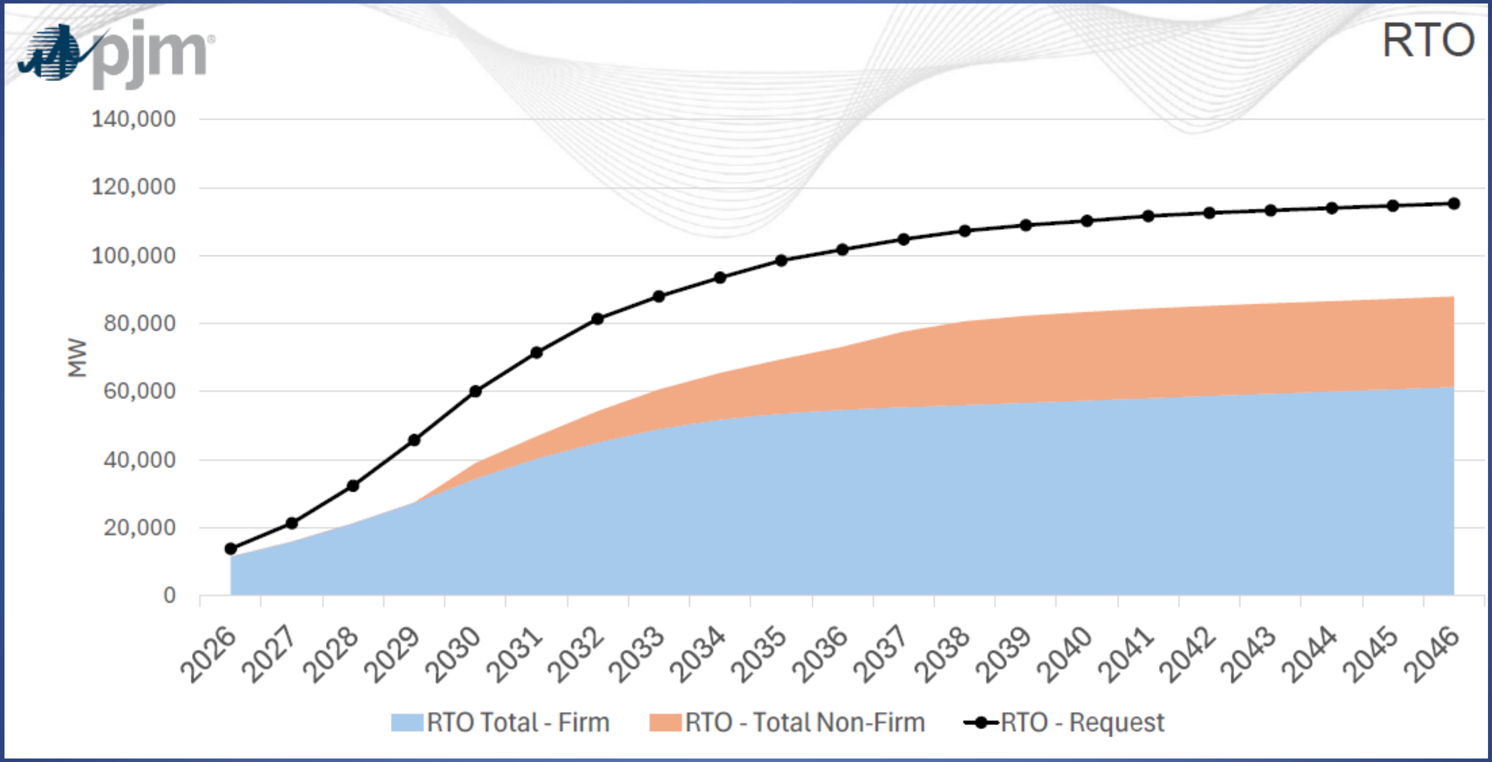
Avg Summer Daily Temp	*74.3*
Avg Summer Max Temp	*95.2*
Avg Winter Daily Temp	*34.4*
Avg Winter Min Temp	*4.2*

Zonal 10/15/20 Year Load Growth

SUMMER	3.6%	2.9%	2.4%
WINTER	4.0%	3.3%	2.7%

Large Load Adjustments (Summer Peak)

Source: PJM 2026 Long-Term Load Forecast – note that the total peak has been adjusted downward by PJM

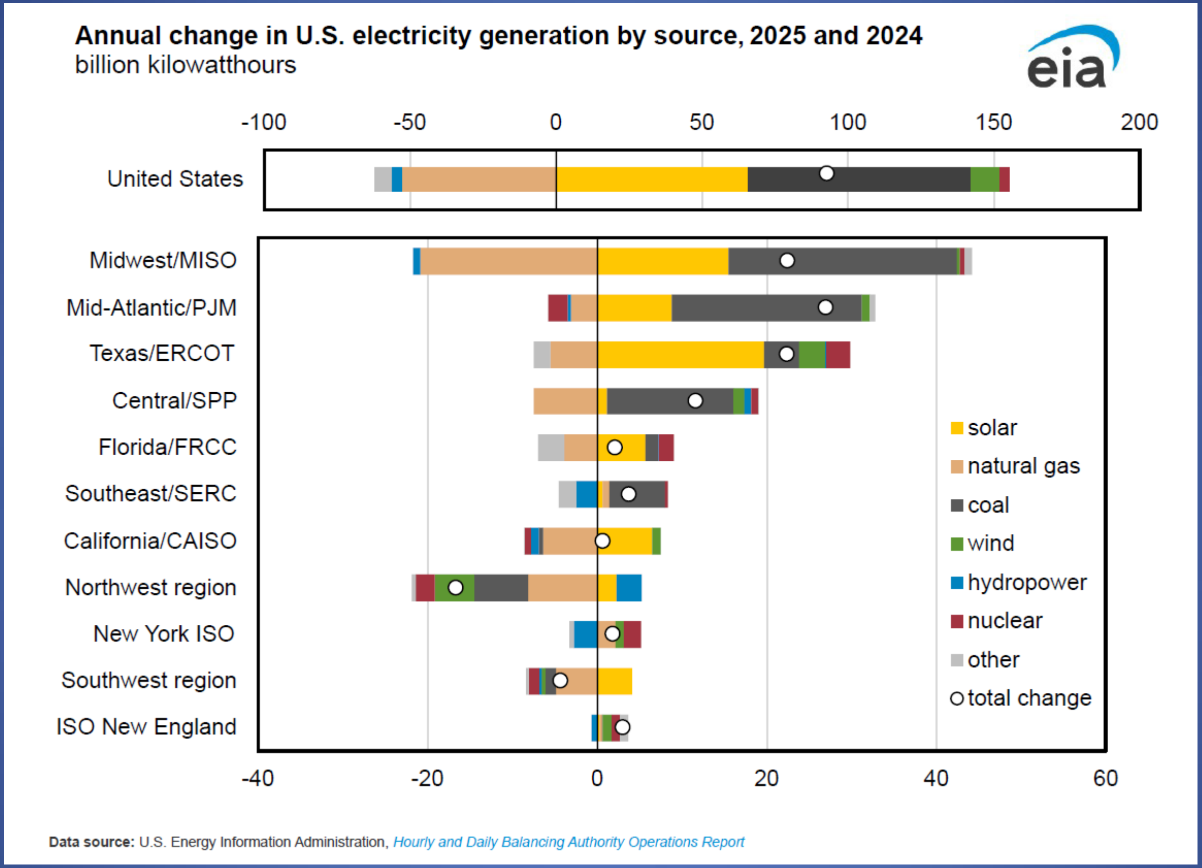


- Firm: those with signed ESO and/or CC with a 70% utilization factor applied

Large Load Adjustments in PJM (Summer Peak)

- Approximately 82,000 MW of large load adjustment is estimated by 2046 and 34,000 MW by 2030
- In 2030, approximately 18% of the large load adjustment is from PA EDCs – almost all PPL
- By 2046, approximately 11% of the large load adjustment is from PA EDCs
- The largest drivers of large load adjustment (over 82%) by 2030 are: PPL 14.8%, AEP 23.48%, ComED 14.35%, and DOM 30% and by 2046 (over 83%): PPL 7.68%. AEP 24.5%, ComED 12.8%, and DOM 38.7%

Current Electric Generation Fuels



- Increase in solar generation in 2025, but a higher increase in coal generation

Current Electric Generation Fuels (cont'd)

Source: Monitoring Analytics, PJM State of the Market – 2025, 3rd QT, Section 3 – Energy Market

Table 3-62 Generation (By fuel source (GWh)): January through September, 2024 and 2025

	2024 (Jan-Sep)		2025 (Jan-Sep)		Change in
	GWh	Percent	GWh	Percent	Output
Coal	95,995.4	14.8%	111,408.4	16.7%	16.1%
Bituminous	83,607.3	12.9%	93,212.5	14.0%	11.5%
Sub Bituminous	7,668.9	1.2%	12,837.2	1.9%	67.4%
Other Coal	4,719.3	0.7%	5,358.7	0.8%	13.5%
Nuclear	203,815.3	31.5%	204,130.4	30.7%	0.2%
Gas	291,909.4	45.1%	287,121.7	43.1%	(1.6%)
Natural Gas CC	263,984.9	40.8%	256,754.7	38.6%	(2.7%)
Natural Gas CT	16,536.3	2.6%	17,712.2	2.7%	7.1%
Natural Gas Other Units	10,525.8	1.6%	11,853.6	1.8%	12.6%
Other Gas	862.3	0.1%	801.2	0.1%	(7.1%)
Hydroelectric	13,092.2	2.0%	12,696.9	1.9%	(3.0%)
Pumped Storage	5,188.7	0.8%	5,295.3	0.8%	2.1%
Run of River	6,264.7	1.0%	5,886.6	0.9%	(6.0%)
Other Hydro	1,638.8	0.3%	1,515.0	0.2%	(7.6%)
Wind	21,814.7	3.4%	22,209.4	3.3%	1.8%
Waste	2,936.2	0.5%	2,926.0	0.4%	(0.3%)
Oil	3,287.4	0.5%	4,136.1	0.6%	25.8%
Heavy Oil	119.8	0.0%	183.8	0.0%	53.4%
Light Oil	1,840.3	0.3%	2,549.8	0.4%	38.6%
Diesel	24.6	0.0%	107.1	0.0%	335.9%
Other Oil	1,302.8	0.2%	1,295.4	0.2%	(0.6%)
Solar	13,913.5	2.1%	20,375.1	3.1%	46.4%
Battery	38.0	0.0%	50.4	0.0%	32.6%
Biofuel	997.9	0.2%	931.6	0.1%	(6.6%)
Total	647,800.1	100.0%	665,986.1	100.0%	2.8%

- First 3 quarters of 2025 saw increase in usage of renewables and coal and oil

Future Capacity Fuel Sources

Source: PJM 2027/2028 Base Residual Auction Report

Table 6. Offered and Cleared MWs by Type for RPM and Committed FRR for Previous BRAs

Offered and Cleared UCAP

	2024/25		2025/26 (Reflects ELCC Accreditation)		2026/27 (Reflects ELCC Accreditation)		2027/28 (Reflects ELCC Accreditation)		2027/28 - 2026/27 Change	
Type	Offered	Cleared	Offered	Cleared	Offered	Cleared	Offered	Cleared	Offered	Cleared
Coal	35,114	31,532	30,081	30,081	30,948	30,948	30,366	29,766	(582)	(1,182)
Distillate Oil (No.2)	2,776	2,674	2,408	2,408	2,608	2,608	2,421	2,421	(187)	(187)
Gas	85,469	83,258	66,354	66,354	63,377	63,377	62,800	62,634	(577)	(743)
Nuclear	31,835	31,629	30,549	30,549	30,562	30,562	30,552	30,552	(10)	(10)
Oil	2,493	2,220	578	578	1,155	1,155	1,167	1,167	12	12
Solar	4,234	4,232	1,337	1,337	1,584	1,567	1,481	1,465	(103)	(103)
Water	6,137	6,137	5,365	5,361	5,597	5,597	6,002	6,002	405	405
Wind	1,396	1,396	2,618	1,676	4,507	3,717	4,144	3,526	(363)	(191)
Battery/Hybrid	36	36	14	14	35	35	205	205	171	171
Other	1,153	1,153	911	911	899	899	1,005	1,005	106	106
Demand Response	10,334	8,180	6,363	6,342	5,795	5,795	7,641	7,641	1,847	1,847
Aggregate Resource	503	503	327	273	58	49	-	-	(58)	(49)
Total (without EE)	181,481	172,951	146,905	145,883	147,125	146,309	147,786	146,385	661	76
Energy Efficiency	8,417	7,669	1,460	1,460	-	-	-	-	NA	NA

The table shows the UCAP MW quantities that offered and cleared in the BRA of each DY plus the UCAP MW committed to FRR Capacity Plans. Notes: Offered and Cleared MW quantities include sum of Annual, Summer-Period, and Winter-Period Capacity Performance sell offers. Other consists of: Kerosene, Other Gas, Other Liquid, Other Solid, Wood.

- Next 3 years of capacity – essentially status quo

PJM Fast Track Generation Additions

Source: PJM News Release May 2,2025

Fuel	Uprates (MWE)*	No. of Projects	New Construction (MWE)*	No. of Projects	Combined Total
Battery	0	0	2,275	5	2,275
Coal	14	1	0	0	14
Gas CC	1,613	20	6,143	6	7,756
Gas CT	365	13	0	0	365
Nuclear	496	4	887	1	1,383
Onshore Wind**	0	1	0	0	0
TOTAL (Energy)	**2,488**	**39**	**9,305**	**12**	**11,793**
TOTAL (UCAP)	**2,108**		**7,253**		**9,361**

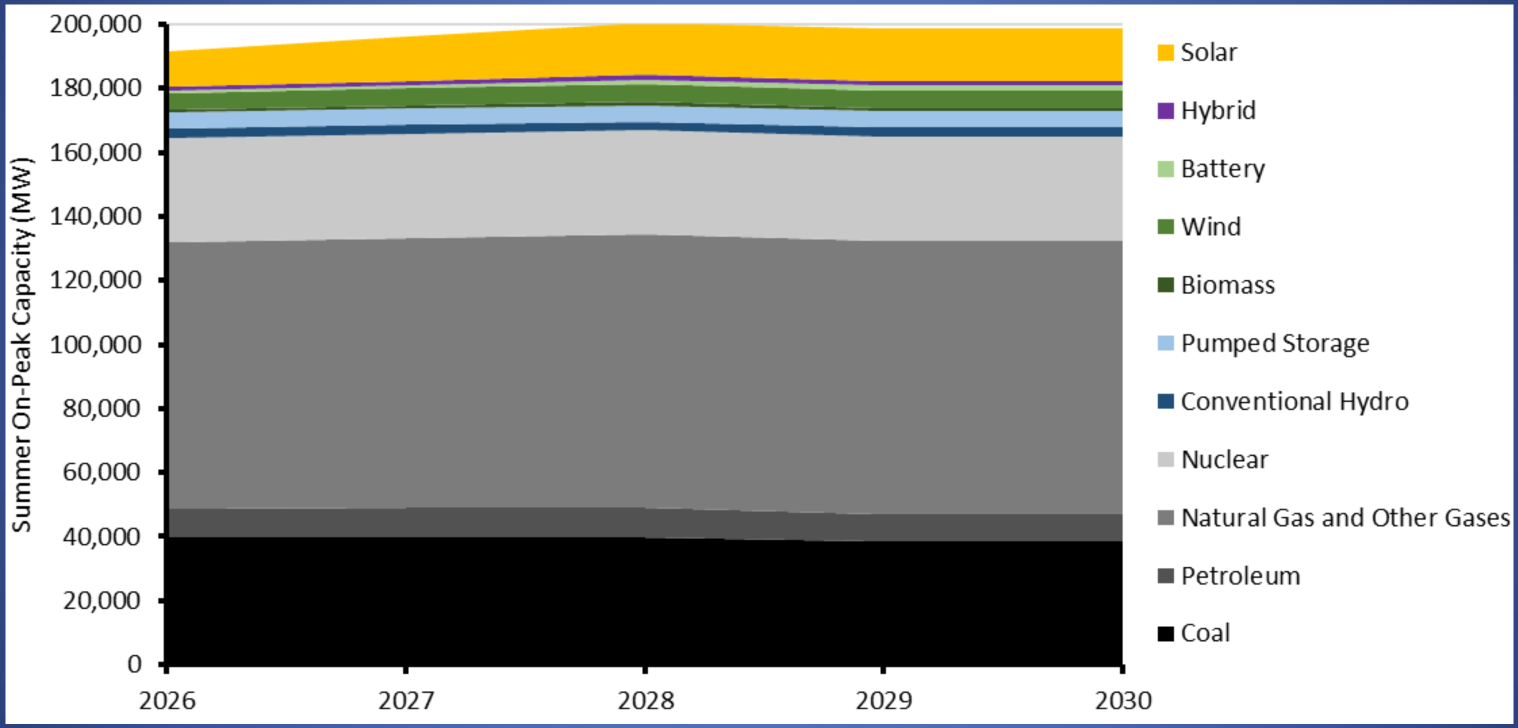
**Megawatts energy (MWE) reported in submitted summer values*

***Onshore wind is a ~20 MW increase in Capacity Interconnection Rights (CIR) only.*

- Most of the projects, or 90%, are expected to be online by 2030 and all are projected to be online by 2031

NERC Long-Term Reliability Assessment

PJM Existing and Tier 1 Resources



NERC Long-Term Reliability Assessment
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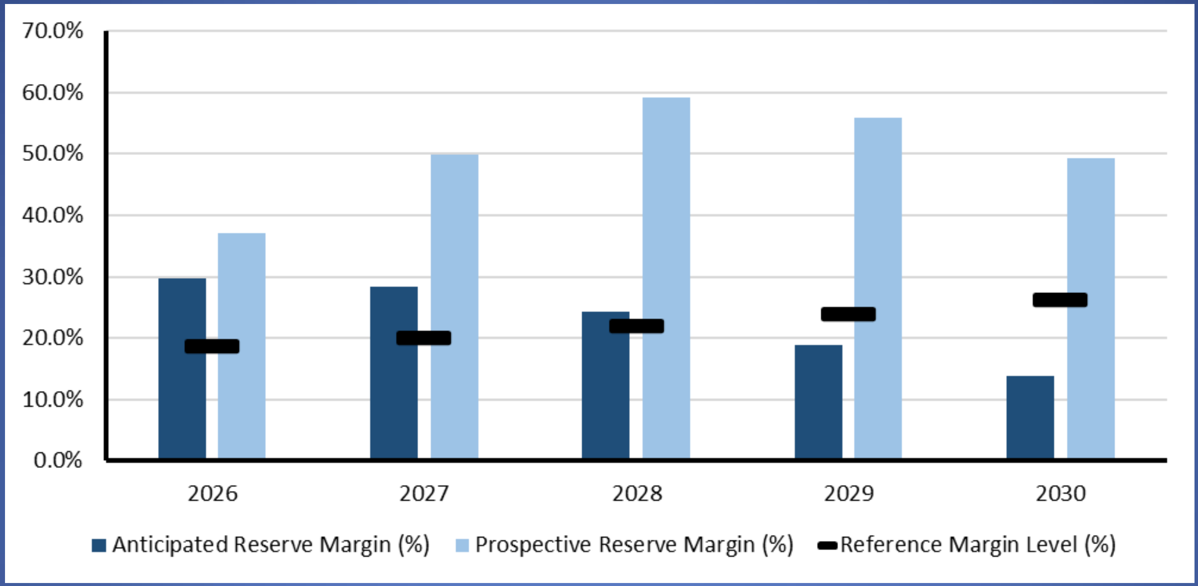

- PJM falls below Reference Margin Level (RML) in 2029
- RML: the amount of reserve capacity in the system above the forecasted peak demand that is needed to ensure sufficient supply to meet peak loads

Summary Comments

- Again, comments are my own opinion
- Legislature and PUC reviewing large load projections of EDCs and “vetting”, in a sense, large load customers
- Even if PUC/PJM review lowers large load projections some, the expected growth in load is still very large and will cause reliability challenges
- More electric generation is needed and it is not clear what type of generation will produce the majority of the new MWs – fossil fuels, renewables, nuclear?

Summary Comments (cont'd)

- Current signals seem to indicate fossil generation "sticking around" due to increased load forecasts
- Possible BYOG by large loads – what fuel source after all nuclear capacity is bought up?
- Federal influence on new generation unknown
- All subject to change with the dynamic circumstances faced, i.e., new technology, efficiencies, state and federal policy changes, etc.

Thank You

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