

Preliminary ELCC Class Ratings for Period 2026/27 through 2034/35

Patricio Rocha Garrido Resource Adequacy Planning Planning Committee June 4, 2024



- As part of FERC-approved Docket No. ER24-99, PJM shall post preliminary ELCC Class Rating values for nine subsequent Delivery Years at least once per year
- Such preliminary ELCC Class Ratings are posted at:

https://www.pjm.com/-/media/planning/res-adeq/elcc/preliminary-elcc-class-ratings-for-period-2026-2027-through-2034-2035.ashx



- Assumed Portfolio for each future Delivery Year
 - Assumed Portfolio for 2025/26 was used as the starting point. Additions and deactivations from a vendor's forecast were then used to derive future deployment levels.
 - The Assumed Portfolio for each future Delivery Year is available upon request. Please send your request to <u>ELCC@pjm.com</u>
- Some trends in the Assumed Portfolio for the study time period:
 - Sustained addition of wind classes, solar classes, 4-hr storage class and solar-storage hybrid classes
 - Some coal units are assumed to deactivate. Negligible additions and deactivations in other Unlimited Resource classes



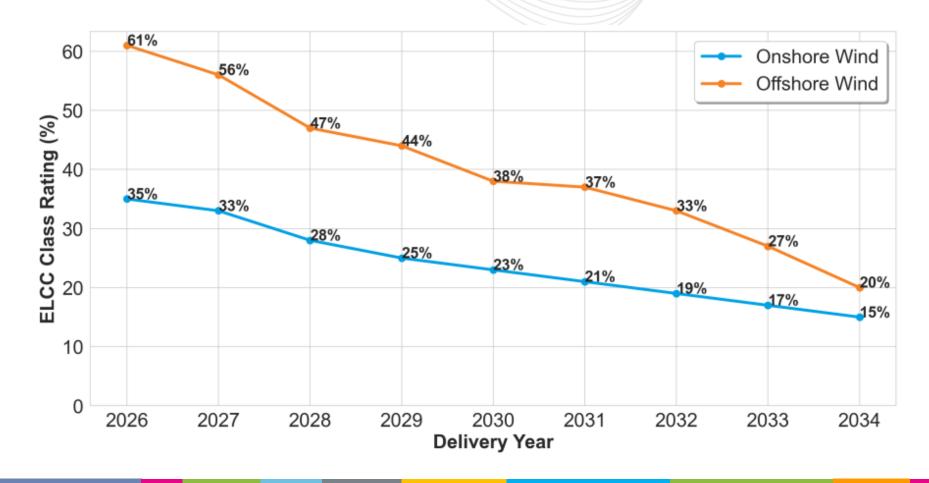
- Hourly outage/derate/output data for Unlimited and Variable
 Resources is representative of the 2025/26 resource mix, scaled up
 or down by each ELCC Class's future deployment levels included in
 the Assumed Portfolio for each future Delivery Year
 - This implies that PJM is not modeling the specific location or characteristics of the expected additions and deactivations
- Hourly load scenarios were derived for each future Delivery Year based on the 2024 PJM Load Forecast model.

pim Preliminary ELCC Class Ratings – DY 26/27 through DY 34/35

ELCC Class 2026/27 2027/28 2028/29 2029/30 2030/31 2032/33 Onshore Wind 35% 33% 28% 25% 23% 21% 19% Offshore Wind 61% 56% 47% 44% 38% 37% 33% Fixed-Tilt Solar 7% 6% 5% 5% 4% 4% 4% Tracking Solar 11% 8% 7% 7% 6% 5% 5% Landfill 54% 55% 55% 56% 56% 56% 56% Intermittent 38% 40% 37% 37% 37% 37% 39% 4-hr Storage 56% 52% 55% 51% 49% 42% 42% 6-hr Storage 64% 61% 65% 61% 61% 54% 54%	2033/ 34 17% 27% 4% 5% 56%	2034/ 35 15% 20% 3% 4%
Onshore Wind 35% 33% 28% 25% 23% 21% 19% Offshore Wind 61% 56% 47% 44% 38% 37% 33% Fixed-Tilt Solar 7% 6% 5% 5% 4% 4% 4% Tracking Solar 11% 8% 7% 7% 6% 5% 5% Landfill 54% 55% 55% 56% 56% 56% 56% Intermittent 38% 40% 37% 37% 37% 37% 39% Intermittent 4-hr Storage 56% 52% 55% 51% 49% 42% 42%	17% 27% 4% 5%	15% 20% 3%
Offshore Wind 61% 56% 47% 44% 38% 37% 33% Fixed-Tilt Solar 7% 6% 5% 5% 4% 4% 4% Tracking Solar 11% 8% 7% 7% 6% 5% 5% Landfill 54% 55% 55% 56% 56% 56% 56% Intermittent 38% 40% 37% 37% 37% 37% 39% Intermittent 4-hr Storage 56% 52% 55% 51% 49% 42% 42%	27% 4% 5%	20% 3%
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Intermittent 4-hr Storage 56% 52% 55% 51% 49% 42% 42%		
4-hr Storage 56% 52% 55% 51% 49% 42% 42%	38%	38%
6-hr Storage 64% 61% 65% 61% 61% 54% 54%	40%	38%
	53%	52%
8-hr Storage 67% 64% 67% 64% 65% 60% 60%	60%	60%
10-hr Storage 76% 73% 75% 72% 73% 68% 69%	70%	70%
Demand 70% 66% 65% 63% 60% 56% 55%	53%	51%
Resource		
Nuclear 95% 95% 95% 96% 95% 96% 96%	94%	93%
Coal 84% 84% 84% 85% 85% 86%	83%	79%
Gas Combined 79% 80% 81% 83% 83% 85% 85%	84%	82%
Cycle		
Gas Combustion 61% 63% 66% 68% 70% 71% 74%	76%	78%
Turbine Turbine		
Gas Combustion 79% 79% 80% 80% 81% 82% 83%	83%	83%
Turbine Dual Fuel		
Diesel Utility 92% 92% 92% 92% 93% 93%	93%	92%
Steam 74% 73% 74% 75% 74% 75% 76%		



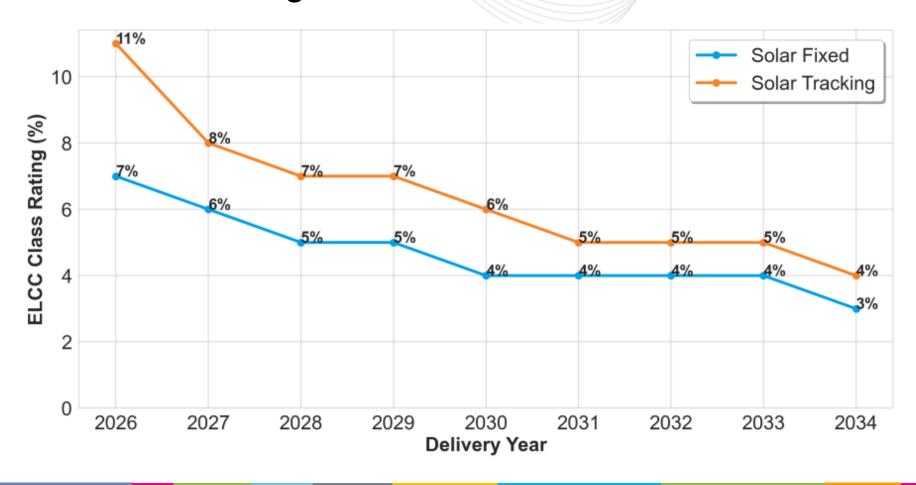
Onshore Wind and Offshore Wind



Sustained decrease in ratings is due to risk patterns shifting to winter days where performance of wind classes is lower.



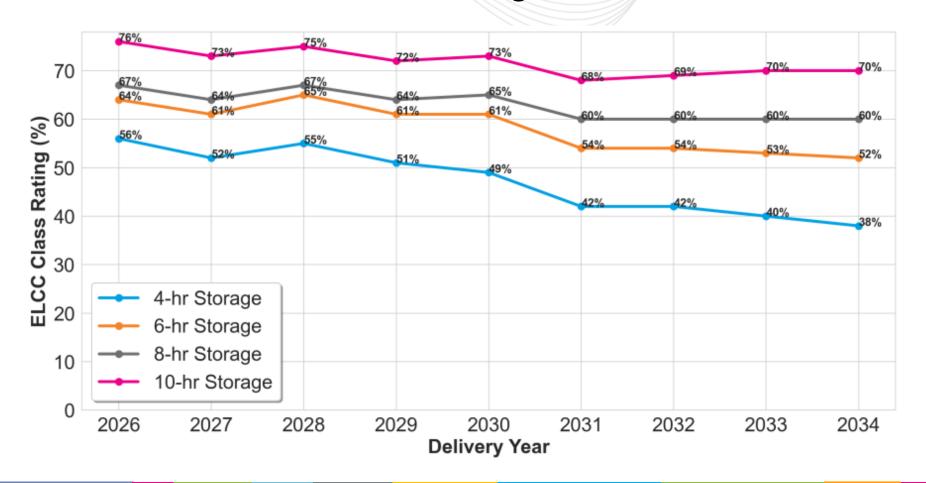
Solar Tracking and Solar Fixed



Sustained decrease in ratings is due to the fact that the majority of risk is in winter throughout the 9-year period



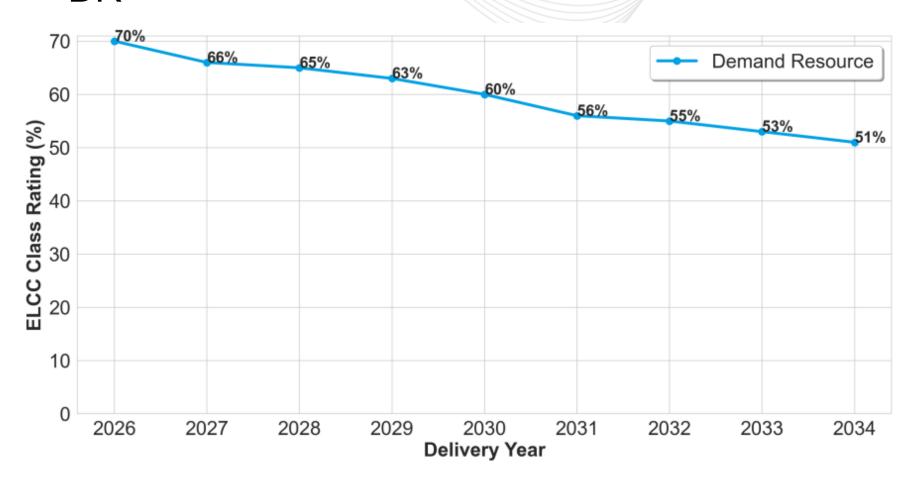
4-hr, 6-hr, 8-hr, 10-hr Storage



Decrease in ratings is due to the fact that the majority of risk is in winter and duration of risk events trends upward



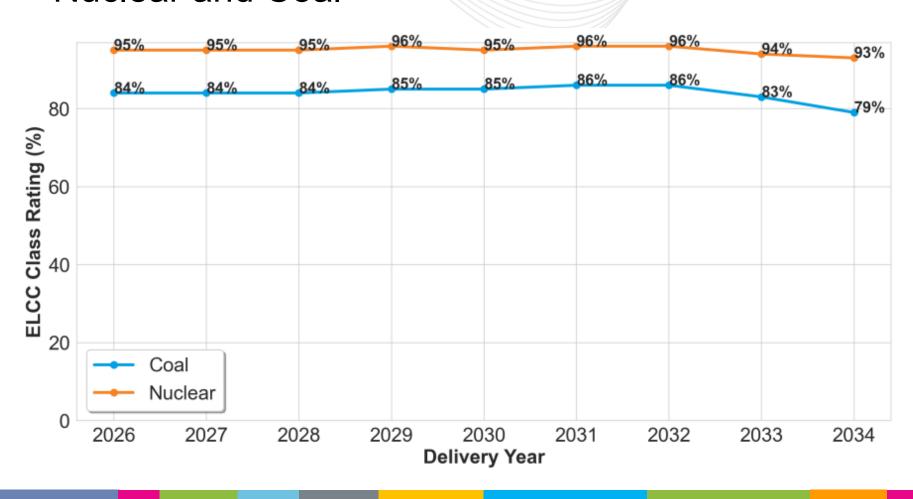
• DR



Decrease in ratings is due to the fact that risk share outside of DR's winter performance window trends upward



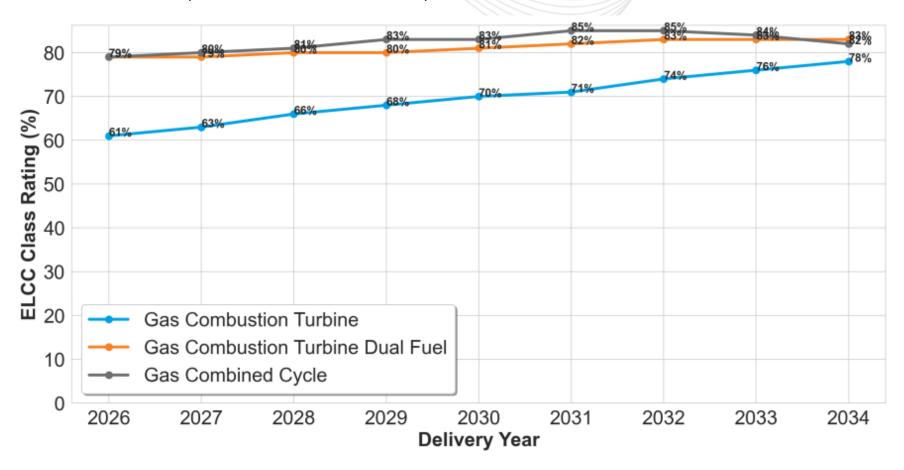
Nuclear and Coal



Ratings are rather stable



Gas CT, Gas CT Dual, Gas CC



Increase in ratings is due to risk patterns shifting to winter days where performance of gas classes is better.



Winter share of LOLE, LOLH and EUE

DY	LOLE (%)	LOLH (%)	EUE (%)	LOLE (days/y ear)	LOLH (hours/ year)	EUE (MWh/y ear)
2025/26	55	70	87	0.1	0.328	1,463
2030/31	49	72	86	0.1	0.287	1,466
2034/35	42	66	82	0.1	0.321	2,043

Winter remains the riskier season from an LOLH and EUE perspective

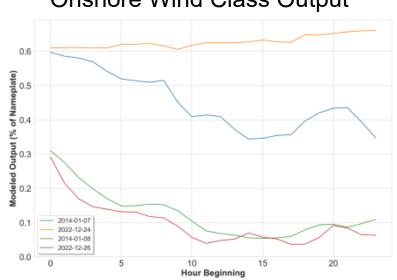




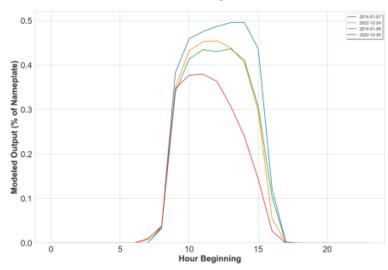
Top Two Historical Performance Days Driving EUE Risk

	2025/26	2030/31	2034/35
Top 1	01/07/2014 (43%)	01/07/2014 (29%)	01/08/2014 (22%)
Top 2	12/24/2022 (12%)	01/08/2014 (19%)	12/26/2022 (12%)

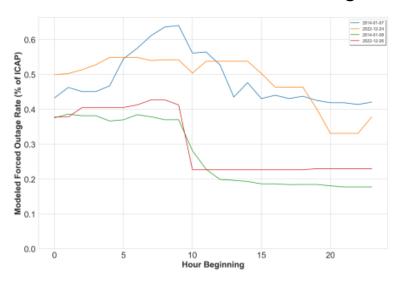
Onshore Wind Class Output



Solar Tracking Class Output



Gas CT Class Forced Outages





Average Number of Hours in a Winter day with loss of load

2025/26	2030/31	2034/35
4.1 hours	4.3 hours	5.1 hours



Share of Winter EUE outside of Winter DR Performance Window

2025/26	2030/31	2034/35
20%	35%	45%

Share of Winter LOLH outside of Winter DR Performance Window

2025/26	2030/31	2034/35
17%	27%	31%



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