Installed Reserve Margin (IRM), Forecast Pool Requirement (FPR), and Effective Load Carrying Capability (ELCC) for 2029/2030 BRA

Patricio Rocha-Garrido
Resource Adequacy Planning

Members Committee

August 19, 2026

Highlights on Data Inputs: Resource Mix

1. **Notice of Intent to Offer (NOI):**
   Planned resources that submitted a Notice of Intent to Offer for the 2029/30 BRA were included in the assumed resource mix

2. **Installed Capacity Ratings (ICAP Ratings):**
   ICAP Ratings reflect any 2029/30 transitional system capability awarded

3. **Announced Deactivations:**
   Resources with announced deactivations scheduled to occur before June 1, 2030 were removed from the assumed resource mix

Overall increase of 6,1333 MW ICAP in the 29/30 BRA versus the 28/29 BRA

Highlights on Data Input: Load Scenarios

Hourly load profiles for the 2029/30 BRA were derived using the 2026 PJM load forecast

- 2028/29 BRA run also used scenarios from the 2026 PJM Load Forecast
- Summer extreme loads relative to the 50/50 annual peaks are lower for 2029/30 than those for 2028/29
- Winter extreme loads relative to the 50/50 annual peaks are higher in the for 2029/30 than those for 2028/29

2029/30 load shapes resulted in upward pressure on winter risk

2029/30 BRA Assumed Resource Portfolio

ELCC Class	Effective Nameplate (MW)	Installed Capacity (MW)
Onshore Wind	14,609 ↑	3,599 ↓
Offshore Wind	Small Sample Size	Small Sample Size
Solar Fixed Panel	3,136 ↓	1,585 ↓
Solar Tracking Panel	24,664 ↑	14,900 ↑
Landfill Gas Intermittent	144 ↓	100 ↓
Hydro Intermittent	820 ↑	545 ↑
4-hr Storage, 6-hr Storage,	7,144 ↑	7,144 ↑
8-hr Storage, 10-hr Storage		
Solar-Storage Hybrid	Small Sample Size	Small Sample Size
DR	n/a	8,711 ↑

ELCC Class	Effective Nameplate (MW)	Installed Capacity (MW)
Nuclear	n/a	32,220 ↓
Coal	n/a	31,304 ↓
Gas CC *(Single and Dual Fuel)*	n/a	59,922 ↑
Gas CT	n/a	11,378 ↑
Gas CT Dual Fuel	n/a	14,205 ↑
Diesel	n/a	328 ↓
Steam	n/a	10,284 ↑
Waste to Energy Steam	n/a	739 ↑
Oil-Fired CT	n/a	2,887 ↑
Hydro With Non-Pumped Storage	2,015 ↓	1,945 ↓
Other Thermal	n/a	442 ↓

Arrow's direction is relative to values in 2028/29 BRA Portfolio.

2029/30 BRA ELCC Class Ratings

ELCC Class	Final Rating
Onshore Wind	37%
Offshore Wind	65%
Solar Fixed Panel	6%
Solar Tracking Panel	7%
Landfill Gas Intermittent	50%
Hydro Intermittent	34%
4-hr Storage	57%
6-hr Storage	66%
8-hr Storage	69%
10-hr Storage	76%

ELCC Class	Final Rating
DR	90%
Nuclear	96%
Coal	84%
Gas CC	75%
Gas CT	59%
Gas CT Dual Fuel	76%
Diesel	92%
Steam	75%
Waste to Energy Steam	83%
Oil-Fired CT	81%

2029/30 BRA ELCC Class Ratings vs. 2028/29 BRA Ratings

ELCC Class	BRA Rating 2028/2029	BRA Rating 2029/2030	Change (%)
Onshore Wind	34%	37%	3%
Offshore Wind	60%	65%	5%
Solar Fixed Panel	7%	6%	-1%
Solar Tracking Panel	10%	7%	-3%
Landfill Gas Intermittent	50%	50%	0%
Hydro Intermittent	35%	34%	-1%
4-hr Storage	59%	57%	-2%
6-hr Storage	68%	66%	-2%
8-hr Storage	71%	69%	-2%
10-hr Storage	78%	76%	-2%
DR	91%	90%	-1%
Nuclear	96%	96%	0%
Coal	85%	84%	-1%
Gas CC	78%	75%	-3%
Gas CT	67%	59%	-8%
Gas CT Dual Fuel	79%	76%	-3%
Diesel	93%	92%	-1%
Steam	75%	75%	0%
Waste to Energy Steam	84%	83%	-1%
Oil-Fired CT	83%	81%	-2%

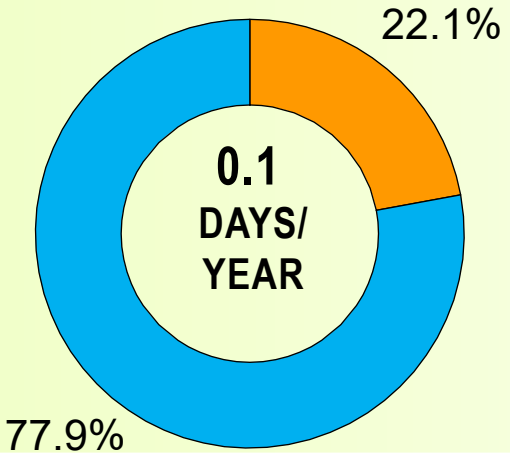
- Majority of ELCC Classes see a decrease in rating due to higher winter risk share.
    - ELCC Classes with larger decreases are those with worse performance in winter risk hours relative to summer risk hours.
- Other factors such as CIR/ENC ratio (for Variable Resources), and class membership also impact the rating change

Seasonal Changes in 2029/2030 BRA vs. 2028/2029 BRA

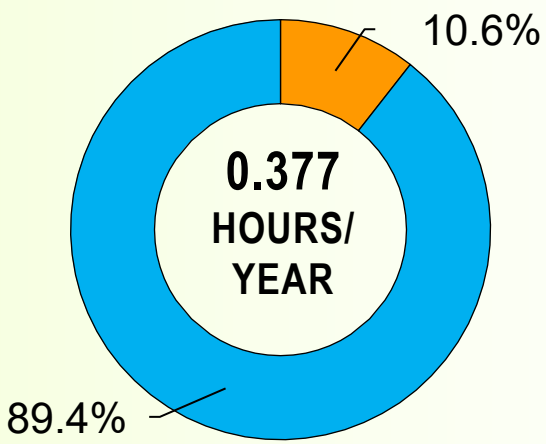
2029/2030
BRA

SEASONAL SHARE OF:

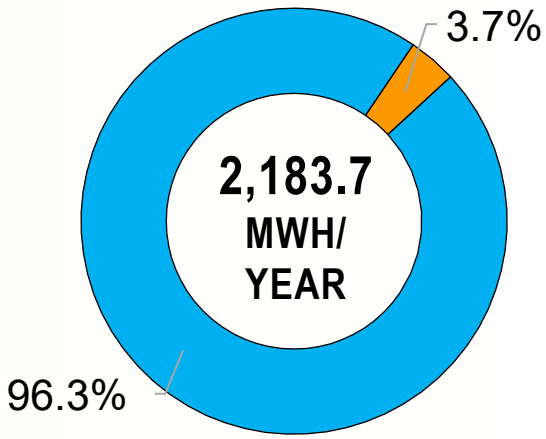
LOLE =



LOLH =



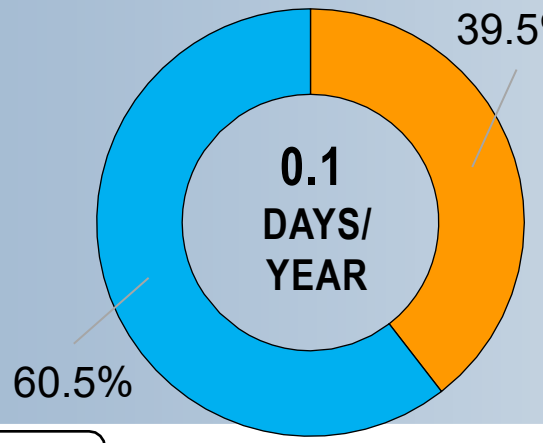
EUE =



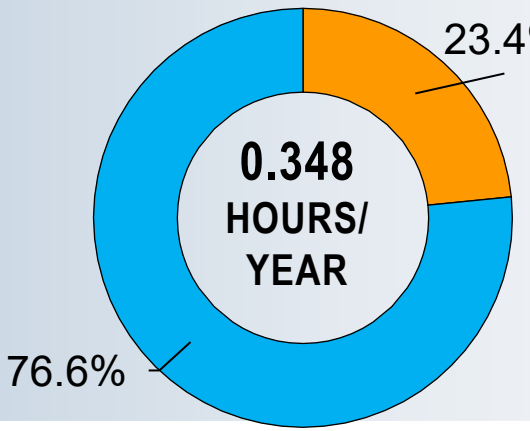
2028/2029
BRA

SEASONAL SHARE OF:

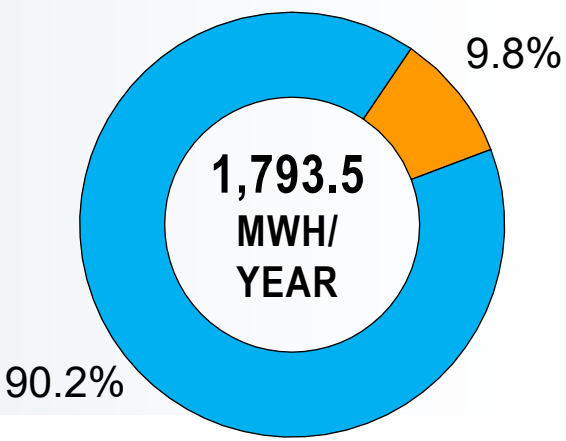
LOLE =



LOLH =



EUE =



Winter Summer

IRM, AUCAP and FPR

- 2029/2030 BRA Installed Reserve Margin (IRM) equals ***20.4%.***
- Calculation of the Accredited UCAP factor is the ratio of Unforced Capacity (UCAP) to Installed Capacity (ICAP) in the model.

  *This ratio is **0.7668.***

The FPR is then:

- (1 + IRM) x Pool-Wide Average Accredited UCAP Factor
- (1 + 0.204) x 0.7668 = 0.9232

2029/2030 BRA IRM and FPR vs. 2028/2029 BRA

PARAMETER	28/29 BRA Value	29/30 BRA Value	Change	Key Factors
ICAP (MW)	196,871	203,004	6,133	Net increase driven by NOIs from gas and solar resources as well as withdrawn deactivations
"Solved Load" (MW)	162,063	166,521	4,458	Higher value due to higher ICAP. However, increase is less than ICAP increase due to higher extreme winter loads
CBOT (%)	1.5%	1.5%	-	
Installed Reserve Margin (IRM)	20.0%	20.4%	0.4%	Higher extreme winter loads put upward pressure on IRM.
Accredited UCAP (MW)	154,234	155,663	1,429	Higher value due to higher ICAP. However, overall accreditation of portfolio (i.e., UCAP Factor) is lower
Pool-Wide Average UCAP Factor	0.7834	0.7668	-0.0166	Higher winter risk share
Forecast Pool Requirement (FPR)	0.9401	0.9232	-0.0169	Lower accreditation of resources

Supply/Demand Balance in 2029/30 BRA vs 2028/29 BRA cases

PARAMETER	BRA Value 28/29	BRA Value 29/30	Change
ICAP (MW)	196,871	203,004	6,133
"Solved Load" (MW)	162,063	166,521	4,458
CBOT (%)	1.5%	1.5%	-
Installed Reserve Margin (IRM)	20.0%	20.4%	0.4%
Accredited UCAP (MW)	154,234	155,663	1,429
Pool-Wide Average UCAP Factor	0.7834	0.7668	-0.0166
Forecast Pool Requirement (FPR)	0.9401	0.9232	-0.0169
Peak Load Forecast (MW)	165,567	171,530	5,963
"Reliability Requirement" (FPR x Peak Load Forecast)	155,650	158,356	2,706
UCAP Surplus (Accredited UCAP – "Reliability Requirement")	-1,416	-2,693	-1,277

The UCAP Surplus in the 29/30 BRA case is 1,277 MW less than in the 28/29 BRA case. Therefore, the 29/30 BRA case is "tighter".

The decrease in UCAP Surplus is mainly driven by the higher Peak Load Forecast.

CAVEAT: "Reliability Requirement" refers to the calculation FPR x Peak Load Forecast assuming that all the PJM load is in the RPM market, which is not accurate due to FRR load and other considerations.

In addition, the Total Accredited UCAP value assumes that all resources included in the assumed resource portfolio count towards the available UCAP, which is not necessarily true in the actual RPM market. Hence, the comparison in the table is focused on the RRS/ELCC cases and not on potential market outcomes.

Requested Action

	Delivery Year	IRM	FPR
Endorsement of the following parameters:	2029/2030	20.4%	0.9232

Contact

SME/Presenter:
Patricio Rocha-Garrido
Patricio.Rocha-Garrido@pjm.com

FPR, IRM, & ELCC for 29/30 BRA

Member Hotline

(610) 666 – 8980

(866) 400 – 8980

custsvc@pjm.com

PROTECT THE POWER GRID

THINK BEFORE YOU CLICK!

pjm

BE ALERT TO MALICIOUS PHISHING EMAILS

Report suspicious email activity to PJM.

Call (610) 666-2244 or email it_ops_ctr_shift@pjm.com

Appendix

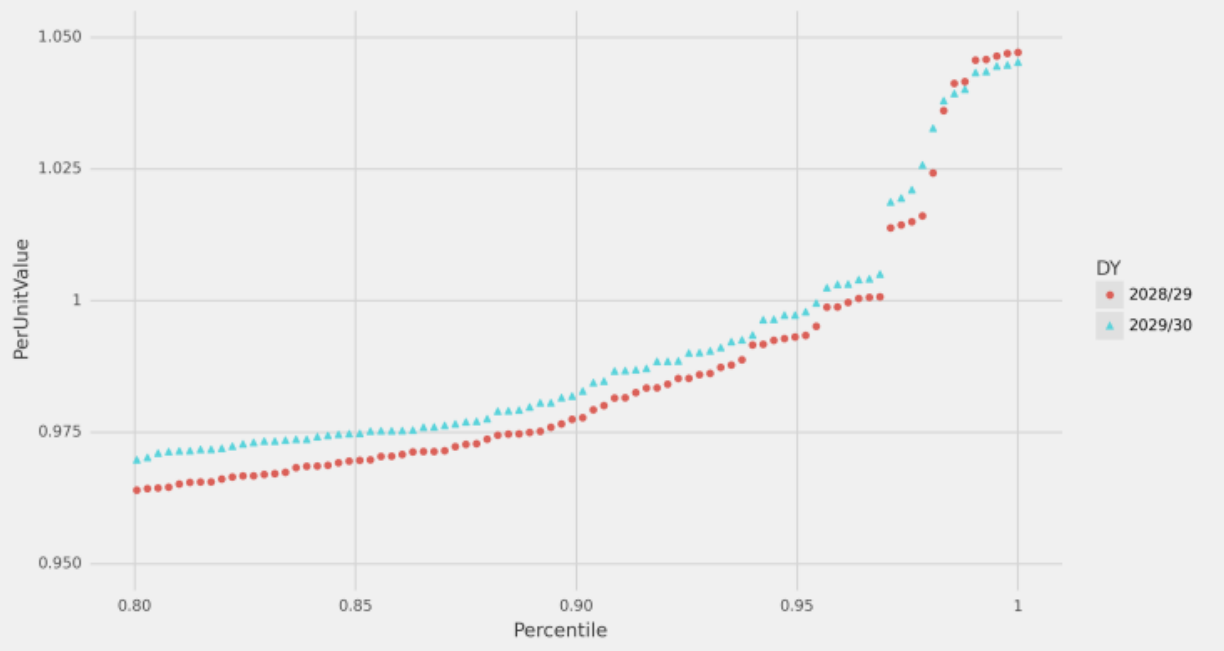
Parameter Overview: 2028/29 BRA vs 2029/30 BRA

Parameter	2028/29 BRA	2029/30 BRA
Load Scenarios	2026 PJM Load Forecast	2026 PJM Load Forecast
Weather Data	June 1, 1993 through May 31, 2025	June 1, 1993 through May 31, 2025
Unlimited Resource Performance Data	June 1, 2012 through May 31, 2025	June 1, 2012 through May 31, 2025
Variable Resource Performance Data	June 1, 2012 through May 31, 2025	June 1, 2012 through May 31, 2025
DR ICAP	2026 PJM Load Forecast	2026 PJM Load Forecast

Top 20th Percentile of Seasonal Peak Distributions: 28/29 BRA vs 29/30 BRA

Drivers:

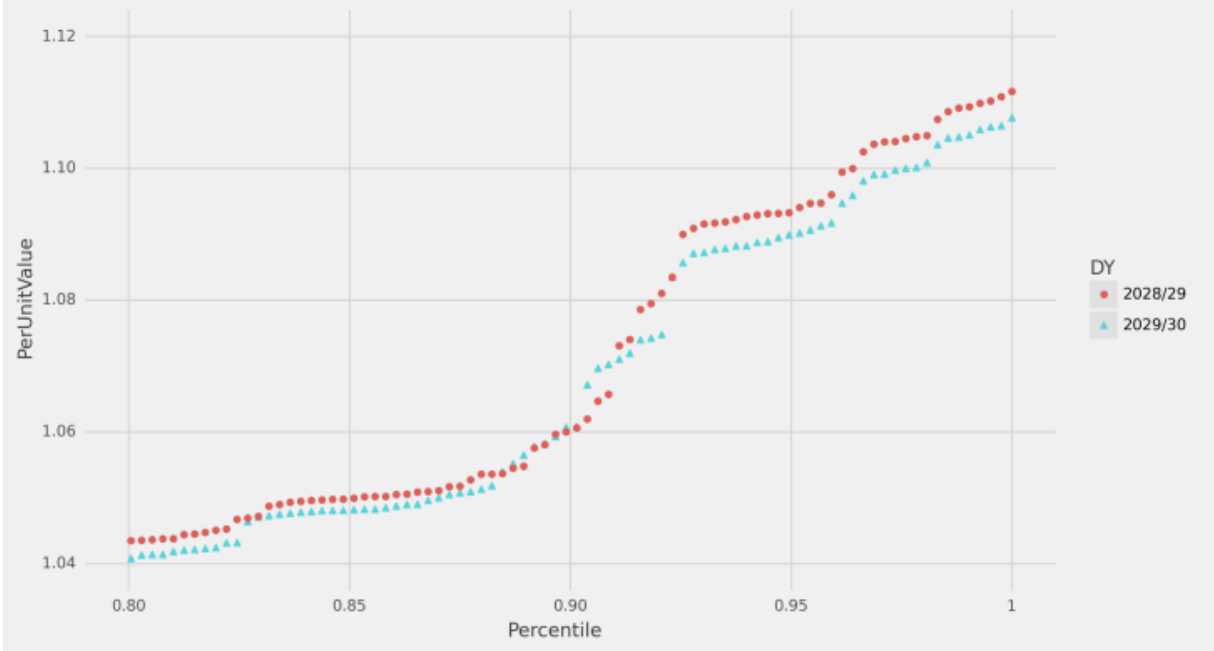
- Data Center Loads: rapid data center growth is resulting in more load in January than the preceding summer
- Forecasted trends: effects of electrification of heating on the system



Winter

Drivers:

- Rooftop Solar: growth in rooftop solar reduced summer peaks, but has minimal impact on winter peaks



Summer

Drivers for changes between 2028/29 BRA and 2029/30 BRA

- IRM Drivers
  - The load shapes for 2029/30 put upward pressure on the IRM (about 0.4 percentage points based on sensitivity run)
  - Other inputs to the 2029/30 BRA case, particularly the updated Resource Portfolio, have negligible impact on the IRM

Drivers for changes between 2028/29 BRA and 2029/30 BRA

- Summer/Winter Risk Share Drivers
  - The load shapes for 2029/30 **put upward pressure on winter risk** (about 8 percentage points on LOLH, for example)
  - Other inputs to the 2029/30 BRA case, particularly the updated Resource Portfolio, **put downward pressure on summer risk (which results in more winter risk)**

Supply/Demand Balance in 2029/30 BRA vs 2028/29 BRA cases (**if peak forecast and ICAP would not have changed in 29/30 BRA**)

PARAMETER	28/29 BRA Value	"29/30 BRA Value"	Change
ICAP (MW)	196,871	196,871	-
Installed Reserve Margin (IRM)	20.0%	20.4%	0.4%
Accredited UCAP (MW)	154,234	150,961	-3,273
Pool-Wide Average UCAP Factor	0.7834	0.7668	-0.0166
Forecast Pool Requirement (FPR)	0.9401	0.9232	-0.0169
Peak Load Forecast (MW)	165,567	165,567	-
"Reliability Requirement" (FPR x Peak Load Forecast)	155,650	152,851	-2,799
UCAP Surplus (Accredited UCAP – "Reliability Requirement")	-1,416	-1,890	-474

- The IRM and FPR have a small impact on the UCAP Surplus change. We can get to that conclusion by using the 28/29 BRA values for ICAP and Peak Load Forecast (instead of the applicable 29/30 BRA values) and observing that the UCAP Surplus decreases by 474 MW in this scenario (which is a fraction of the 1,277 MW shown in slide 11)