



# Fuel Security Study Update

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Resource Adequacy Planning  
Markets & Reliability Committee  
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# Fuel Security Resource Adequacy Assessment

- Applies a “stress test” to the most recent five-year ahead Regional Transmission Expansion Plan (RTEP) portfolio using historical cold snap events
  - Examines winter of 2026/27
  - RTEP portfolio was updated to reflect recent deactivations
  - Model is probabilistic
- Study computes the conditional LOLE resulting from “generic disruptions” beyond what PJM has experienced during historical cold snaps.

## Inputs

- Winter hourly load shapes derived from historical cold snaps
- Forced outage rates (fuel security-related and random)
- Wind/solar capacity factors
- Generic disruptions of variable impact

## Procedure

- Set impact of generic disruption at X MW
- Calculate conditional LOLE based on each historical cold snap
- Aggregate LOLE values by delivery year
- Calculate average conditional LOLE

## Output

Portfolio's LOLE conditional on the occurrence of a generic disruption of size X MW coincident with a cold snap

Additional details on the methodology are available at the following link:

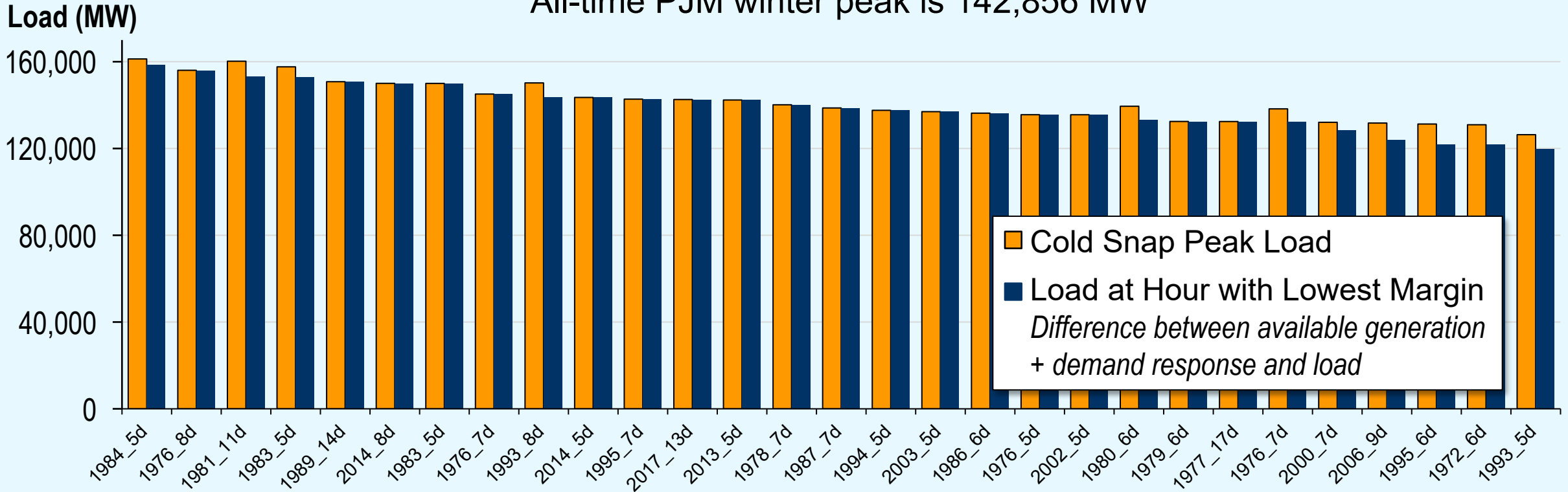
<https://www.pjm.com/-/media/committees-groups/committees/oc/2021/20210610/20210610-item-13-fuel-security-monitoring-methodology.ashx>

# Cold Snap & Load Scenarios

## Analyzed 29 Cold Snap Scenarios, Consistent with 2021 PJM Load Forecast:

Cold snap peaks range from 126,000 MW to 161,000 MW

All-time PJM winter peak is 142,856 MW



# Generator Availability in Cold Snap Scenarios

## Thermal & Hydro Forced Outages *During Hour With Lowest Margin*

Fuel Security Forced Outage Rate (FS-FOR) Unavailability as Share of ICAP

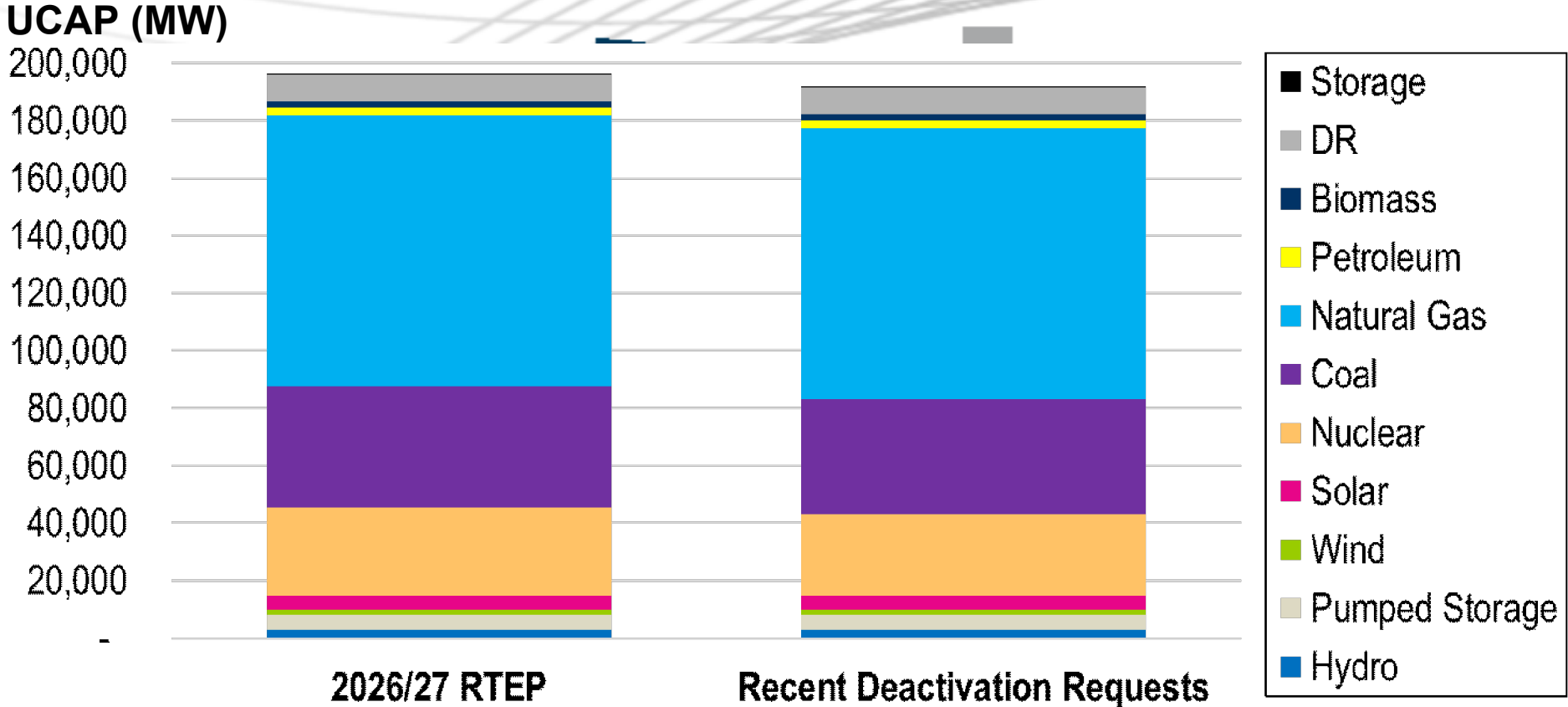
	Natural Gas	Nuclear	Oil	Coal	Hydro	Aggregate Random Forced Outage Rate (R-FOR), <i>EXCLUDING</i> FS-Related Outages
<b>Avg.</b>	14.3%	0.0%	1.9%	0.6%	0.6%	8.3%
<b>Min.</b>	7.3%	0.0%	0.0%	0.1%	0.1%	7.9%
<b>Max.</b>	17.5%	0.0%	4.0%	2.6%	0.8%	9.5%

Solar & Wind Availability  
*During Hour With Lowest Margin*, as Share of Nameplate

	Solar	Wind
<b>Avg.</b>	1.0%	39.9%
<b>Min.</b>	0.0%	16.3%
<b>Max.</b>	9.3%	63.2%

# 2026/27 RTEP Portfolio Adjusted for Recent Deactivation Requests

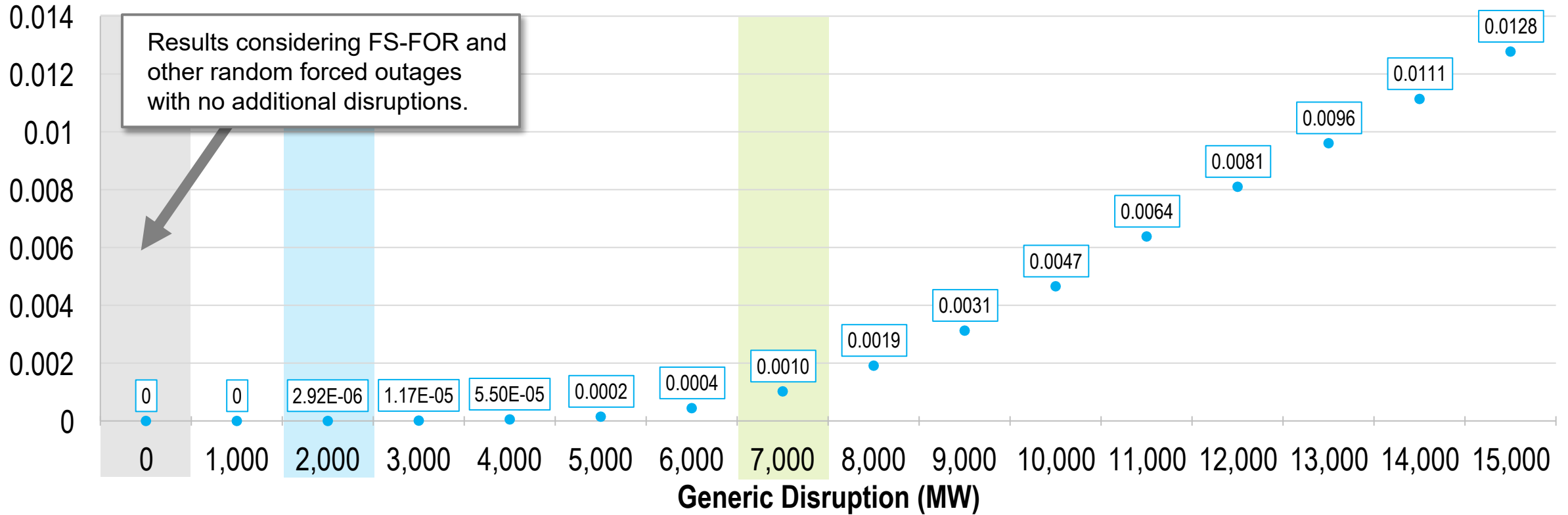
2026/27 RTEP Portfolio updated to reflect Deactivation Requests *as of 6/28/2021*  
Projected UCAP reserve margin in 2026/27 is 28%



# Average Additional\* LOLE vs. Disruption Size, RTO

\* LOLE values are in addition to portfolio LOLE outside of the winter period.

## Conditional LOLE (Days/Winter)



### Conclusion

Results from this Study do not indicate a winter reliability concern in the near-term

- Based on current projection of Winter 2026/27 reserves

### Future Steps

Continue to monitor winter fuel security on an annual basis. Report results to the PJM Operating Committee and the MRC.

Future results may be used to inform the Capacity Market Reform process and/or modify the IRM Study assumptions.



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**Fuel Security Study Update**



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