



RMDSTF Regulation Requirement

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RMDSTF

June 13, 2023

- Share modifications to baseline requirement MW levels
 - Change in high, low levels
 - Addition of a transition hour
- Share modifications to proposed annual adjustment
 - Change in control metrics
 - Addition of step-down constraint



May RMDSTF: Regulation Requirement Proposal

Season	Dates	Hours Ending	Requirement MW
Winter	Nov. 1 – Feb. 28	HE 5 – 10, HE 17 – 24	800
		HE 1 – 4, HE 11 - 16	500
Spring	March 1 - April 30	HE 19 – 1, HE 6 – 9	800
		HE 2 – 5, HE 10 – 18	500
Summer	May 1 – Sept. 15	HE 5 – 1	800
		HE 2 – 4	500
Fall	Sept. 15 – Oct. 31	HE 6 – 9, HE 18 – 24	800
		HE 1 – 5, HE 10 - 17	500



June RMDSTF: Updated Regulation Requirement Proposal

Season	Dates	Hours Ending	Requirement MW
Winter	Nov. 1 – Feb. 28	HE 5 – 10, HE 17 – 24	750
		HE 1 – 4, HE 11 - 16	550
Spring	March 1 - April 30	HE 19 – 1, HE 6 – 9	750
		HE 2 – 5, HE 10 – 18	550
Summer	May 1 – Sept. 15	HE 5 – 1	750
		HE 2 – 4	550
Fall	Sept. 15 – Oct. 31	HE 6 – 9, HE 18 – 24	750
		HE 1 – 5, HE 10 - 17	550

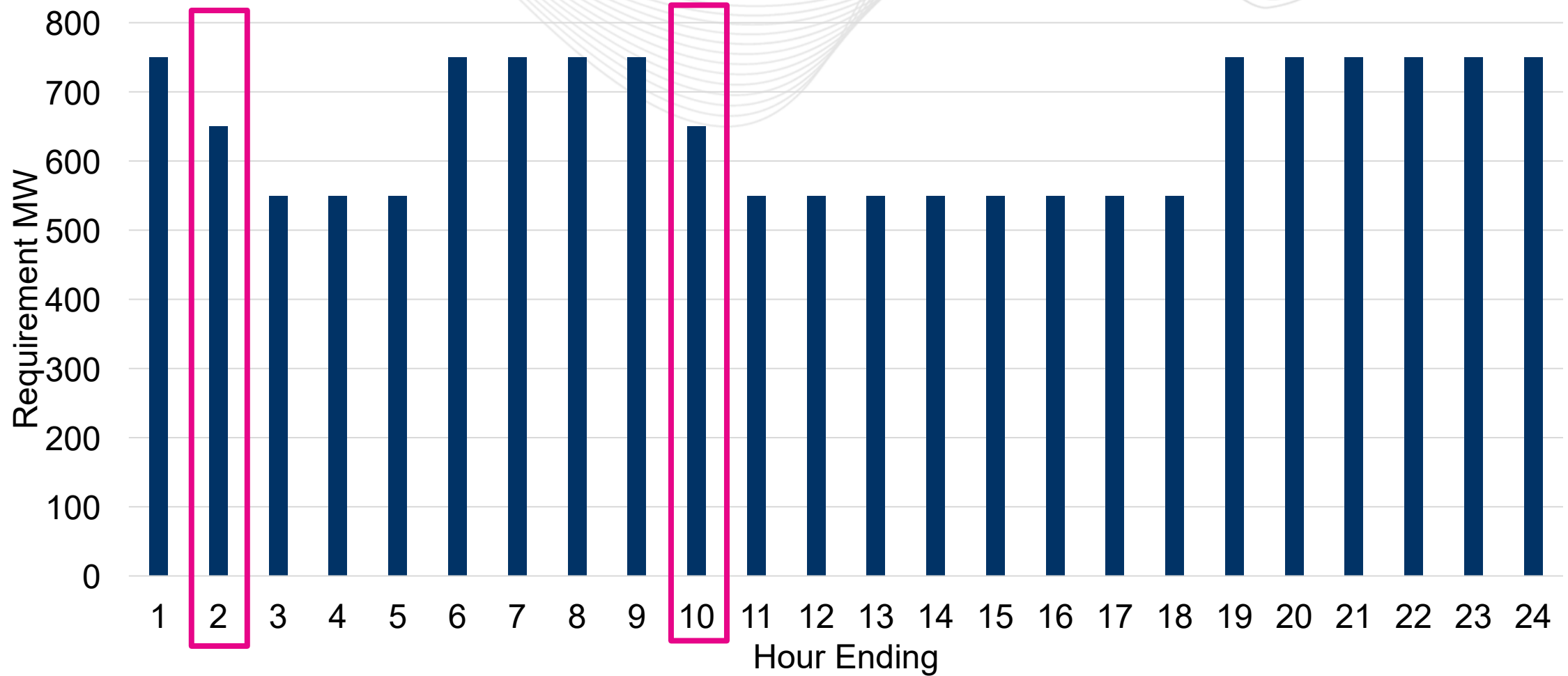
1. Raised low end from 500 to 550 and lowered high end to 750 from 800
2. Added a **transition hour**, where in the downward direction an hour (previously low) will be set to a middle value in order to address operational concerns



June RMDSTF: Updated Regulation Requirement Proposal

Season	Dates	Hours Ending	Requirement MW
Winter	Nov. 1 – Feb. 28	HE 5 – 10, HE 17 – 24	750
		HE 1, HE 11	650
		HE 2 – 4, HE 12 - 16	550
Spring	March 1 - April 30	HE 19 – 1, HE 6 – 9	750
		HE 2, HE 10	650
		HE 3 – 5, HE 9 – 18	550
Summer	May 1 – Sept. 15	HE 5 – 1	750
		HE 2	650
		HE 3 – 4	550
Fall	Sept. 15 – Oct. 31	HE 6 – 9, HE 18 – 24	750
		HE 1, HE 10	650
		HE 2 – 5, HE 9 - 17	550

Example: Spring Baseline Requirement Profile





Regulation Requirement Proposal Breakdown

Season	Sum of High Hours	Sum of All Hours	Pct High Hours
Fall	506	1,104	46%
Spring	671	1,464	46%
Summer	2,760	3,312	83%
Winter	1,680	2,880	58%
Total	5,617	8,760	64%

Requirement	Cumulative Reg (GW)
Previous Proposal 800 High / 500 Low	6065
Final Proposal 750 High / 550 Low / 650 Transition	5986
<i>Status Quo ** 800 High / 525 Low</i>	<i>5778</i>

*** Calculated using status quo season-hour definitions.*

Goal: *Codify an annual review of system performance metrics and adjust requirement using seasonal hourly statistics from past year*

- Selected control metrics used to determine requirement adjustment

ACE Time Out of Bounds (TOB): Time Net ACE spends “out of bounds”

- Bounds set as $2 \times \text{NERC } L_{10}$ value for PJM (CPS2) (NERC BAL-001)

BAAL Minutes (BAAL): Reflects PJM’s negative impact on system frequency

- Sum of BAAL minutes in the interval (NERC BAL-001)

Regulation Utilization (RU): Same as previous proposal

- Quantifies how PJM typically relied on regulation during a period of time

Min/Max Deployment: Time that regulation is pegged in either direction

- Quantifies severity of operational need during a period of time

	Δ Requirement			
	-25 MW	No Change	+25 MW	+50 MW
ACE TOB ($>2 * L_{10}$)	10%	$> 10\%$ and $< 50\%$	50%	60%
BAAL	NA	< 50 Mins	50 Mins	75 Mins
RU	20%	$> 20\%$ and $< 80\%$	80%	90%
Min/Max Deploy.	NA	$< 7.5\%$	7.5%	10%

Step-Down Constraint: Result cannot be $<$ the prior hour by 150 MW or more

*** Adjustment levels -25/+25/+50 are based on 10%/20% of NERC L_{10} value (CPS2).*

- Translation of the discussed requirement to an asymmetric product definition is in line with status quo
 - Recall:* Requirement MW procured today represents a range – i.e. 750 MW Requirement translates to +750, -750 range procured
- 750 MW Requirement in future will look like 750 MW Up, 750 MW Down for hours initially classified as high regulation per the requirement table
- Annual Adjustment will acknowledge direction in its metrics (ACE, BAAL, Utilization, etc.) when PJM moves to Up/Down framework

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PJM RMDSTF Regulation Requirement



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