



RMDSTF Regulation Requirement

PJM's Current Proposal

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RMDSTF

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- Current requirement has several ways in which it could be improved
 - Reduce frequency of changes between MW levels
 - Add responsiveness to macro system changes over time
 - Add responsiveness to real-time events
- Yet we want to retain the transparency and predictability of the status quo
- Modifications to the existing requirement provide an opportunity to do both

$$\textit{Requirement} = \textit{BaseReq} + \textit{SeasonalAdder} + \textit{WeathAlertAdder}$$

- Three components: a variable base requirement (BaseReq), a seasonal adder and weather alert adder
- **Base Requirement (BaseReq)**
 - Schedule-based, varies by hour, with yearly adjustments
 - Base MW scaled to account for system changes since 2017
- **Seasonal Adder (SeasonalAdder)**
 - Adds a % back to the requirement given typical seasonal conditions
- **Weather Alert Adder (WeathAlertAdder)**
 - Adds a % back to the requirement given atypical RT conditions

- Base Requirement**

	Hours	Hour Ending	Base Requirement MW
On-Peak	5:00 AM – 1:00 AM	HE6 – HE1	817
Off-Peak	1:00 AM – 5:00 AM	HE2 – HE5	525

- Why 1:00 AM – 5:00 AM off-peak?**
 - Less variability and need in these hours, year-round
 - Minimizes number of changes between requirement levels per day
- Why 817 MW?**
 - $817 \text{ MW} = 525 \text{ MW} + (10\% * 2920 \text{ MW})$, where 2920 MW = solar and wind capacity MW installed since 2017

- CPS1 scores for hours On and Off Peak throughout the year:

Peak	Average of Hourly CPS1 Scores (%)	Min of Hourly CPS1 Scores (%)
Off	144.48	-130.90
On	136.34	-326.07

- *Note: CPS1 score can reflect a number of factors but is used as an initial control metric throughout this presentation*
 - *All CPS1 data in this presentation is from 10/01/21 – 10/01/22*
- *Additional metrics beyond CPS1 are relevant and can be explored in future sessions*

- In addition to scaling up front, proposing an **annual adjustment** to the base requirement that scales the requirement by 10% *
Net Newly Installed Wind + Solar MW
 - Uses same scale factor as the was used to bring 2017 requirement to 2022
 - **Adds solely to the on-peak requirement**
 - Would allow requirement to be responsive over time
i.e. 100 MW of new resource capacity installed = +10 MW to the requirement

- Seasonal Adder**

$$Requirement = BaseReq + (10\% * BaseReq) + WeathAlertAdder$$

- Add 10% to the **on-peak** requirement in Summer and Winter

	On Peak Base Requirement MW	Off Peak Base Requirement MW
Spring	817	525
Summer	900	525
Fall	817	525
Winter	900	525

- In part meant to address steeper summer and winter ramps, higher summer and winter peaks, as well as shifting load profiles

- **Weather Alert Adder**

- More generation moves and higher interchange volatility
- In real-time, if a Hot Weather Alert or Cold Weather Alert are active during the hour in question, then:

$$Requirement = BaseReq + SeasonalAdder + (10\% * BaseReq)$$

Season	# Days with Weather Alerts
Fall	4
Spring	12
Summer	41
Winter	12

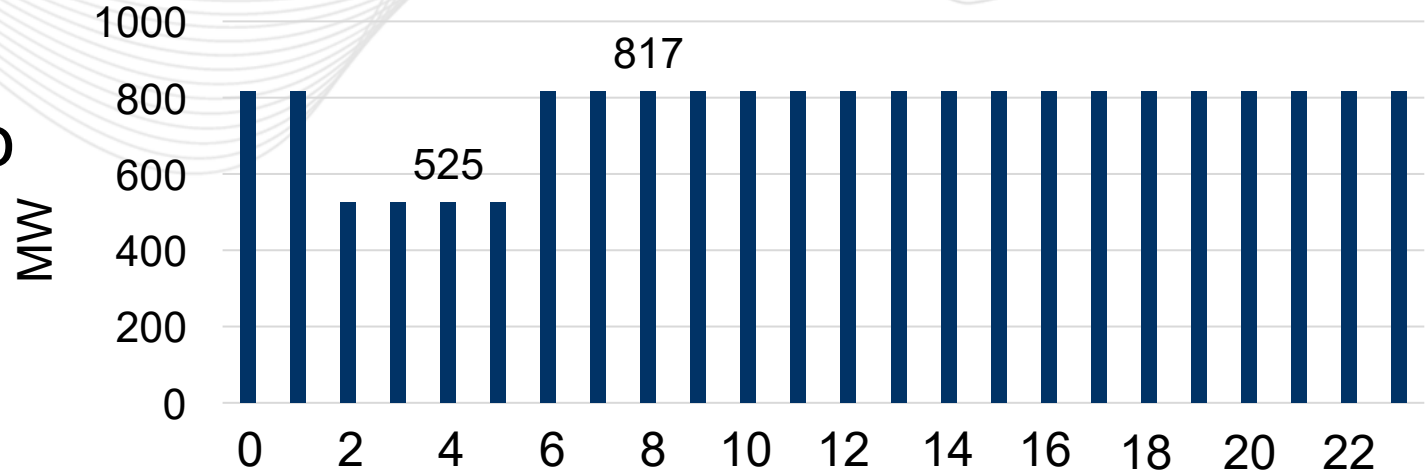
- Selected four days arbitrarily in order to illustrate or capture the following:
 - Seasonal variation
 - Weekdays only
 - Hot and Cold Weather Alerts (01/19, 07/19)
 - Days with unexpected ACE deviations (09/20)

Season	Date (2022)	Avg. Hourly CPS1	Min. Hourly CPS1	HWA/CWA
Spring	Weds. April 6	138.9%	-68.5%	N
Summer	Tues. July 19	116.3%	-27.4%	Y
Fall	Tues. Sept. 20	132.3%	46.8	N
Winter	Fri. Jan. 19	124.7%	5.8%	Y

Regulation Requirement: Spring & Summer Examples

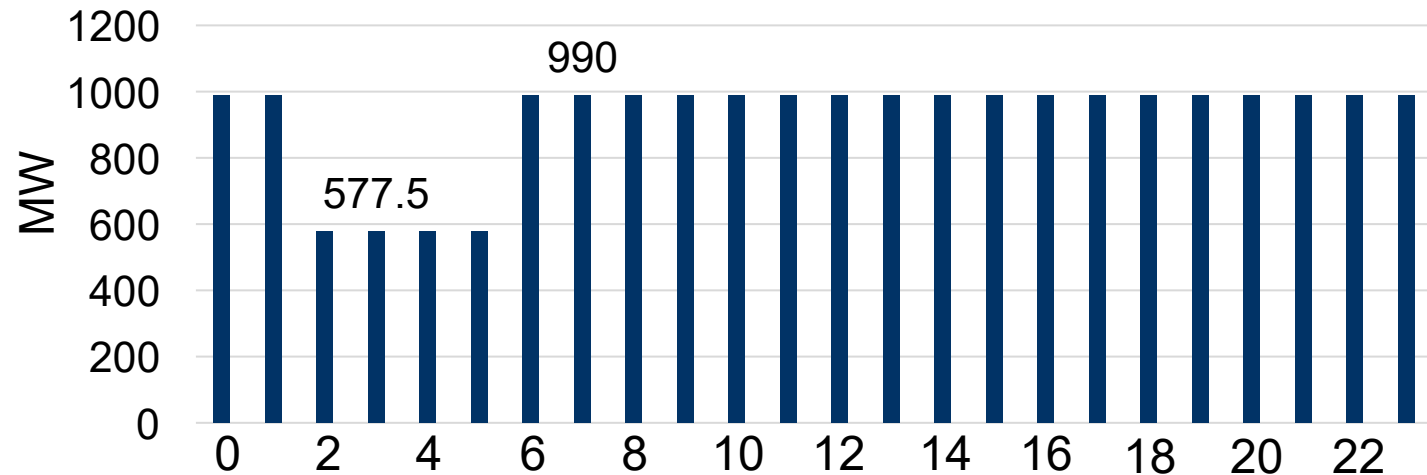
- **Spring:** Normal On and Off Peak levels, no Seasonal or Alert Adders

April 6, 2022 Requirement Mockup



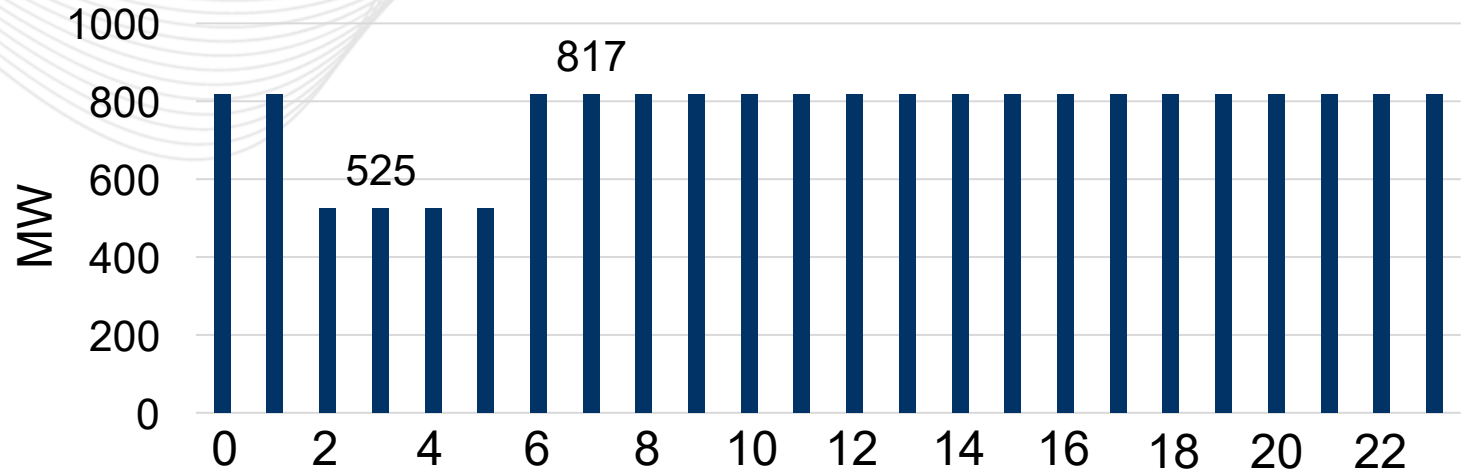
- **Summer:** Active Hot Weather Alert and Summer Adder in effect

July 19, 2022 Requirement Mockup

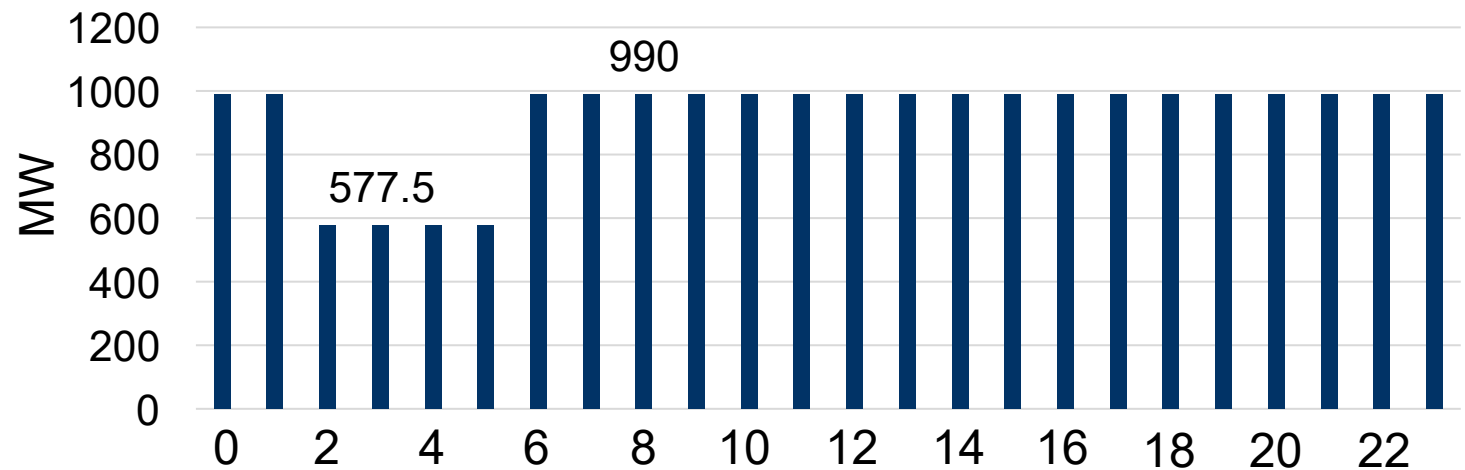


- **Fall:** Normal On and Off Peak levels, no Seasonal or Alert Adders

August 20, 2022 Requirement Mockup



January 19, 2022 Requirement Mockup



- **Winter:** Active Cold Weather Alert and Summer Adder in effect

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Regulation Requirement



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