



# Peak Market Activity Updates

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Analytics

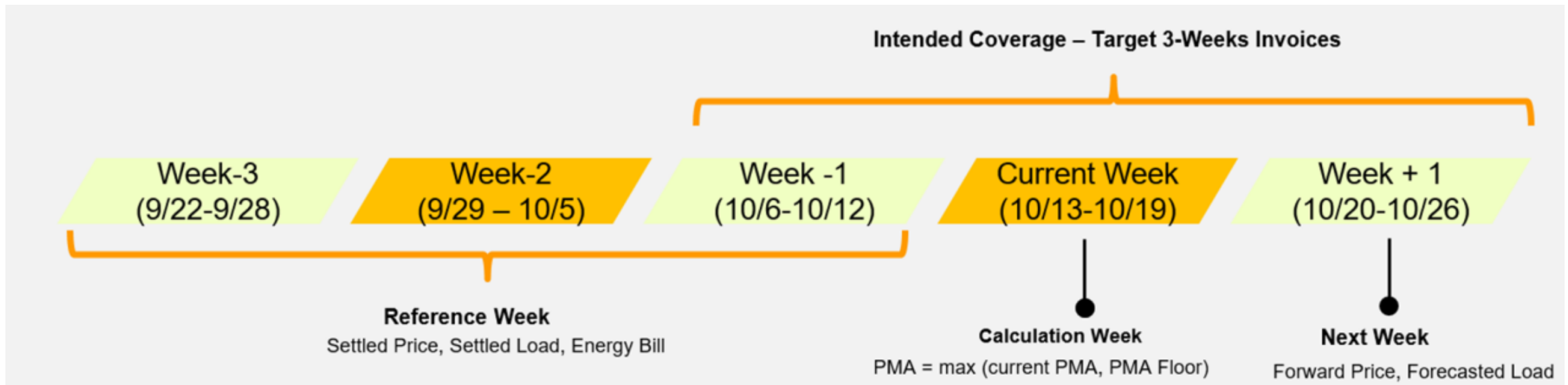
Risk Management Committee

November 15, 2022

- PMA Timeline
- Objectives
- Scenarios and Key Measures
- Back Test Observations

- PMA should cover 3 weeks of Member invoices
- Status quo calculation is based on a look-back methodology that resets every April and October

## Timeline



1. Test inclusion of a forward price/load adjustment to improve PMA estimate
2. Test shorter PMA reset frequency to improve PMA holding period

PJM tested various scenarios to assess improvements to Current PMA

Minimize root mean square error of PMA calculation subject to having adequate collateral across time periods and the membership

### Test Data

- Approximately 420 Members with PMA requirement greater than \$1,000
- Assessment period = Jan 2020 to Sep 2022; 143 weekly invoices

### Scenarios Tested

- 6 Month(Current), 3 Month, 1 Month and Rolling 3-weeks PMA Reset
- Price and Load forward stress adder
- Price only adder

### Key Measures

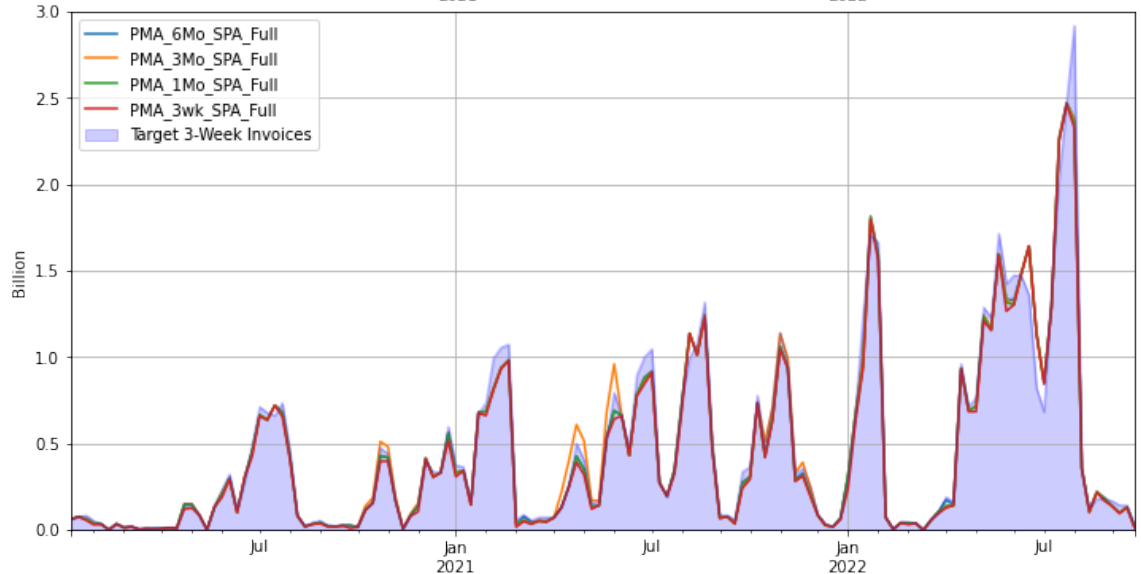
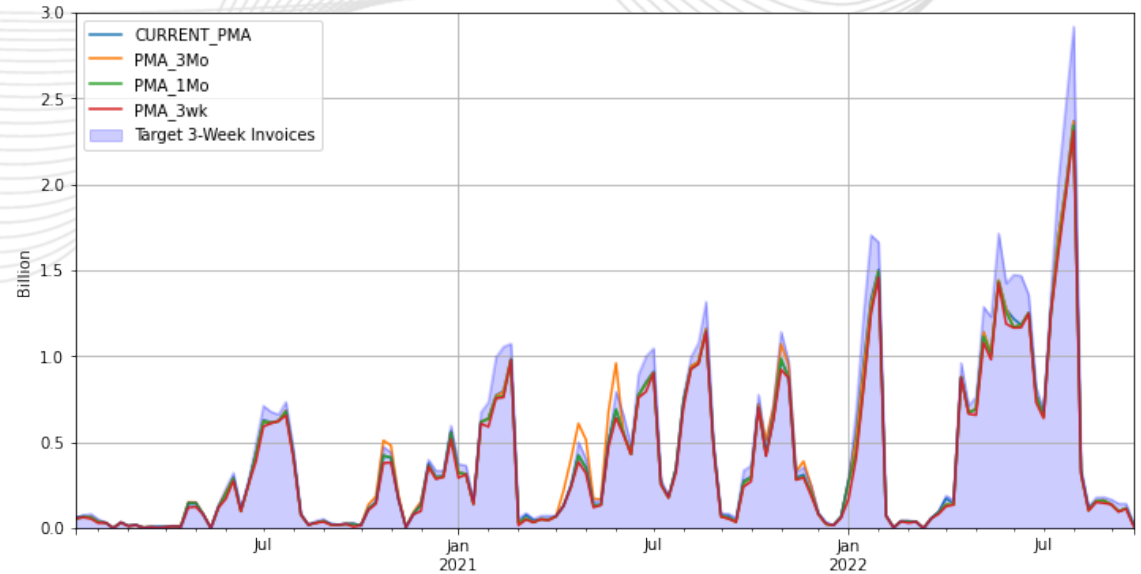
- **Shortfall:** Amount in dollars when PMA is lower than Target 3-Week invoices
- Failure rate = Percentage of times PMA is lower than Target 3-Week invoices
- Root Mean Square Error (RMSE) of Shortfall

- PMA short fall is when PMA is less than Target 3-week Invoice
- Shortfalls occur periodically for some Members across sectors and credit rating categories
- In the period tested
  - Shortfall median amount under Current PMA was \$25k
  - The top 50 shortfalls averaged \$43MM, and maximum was ~\$100MM

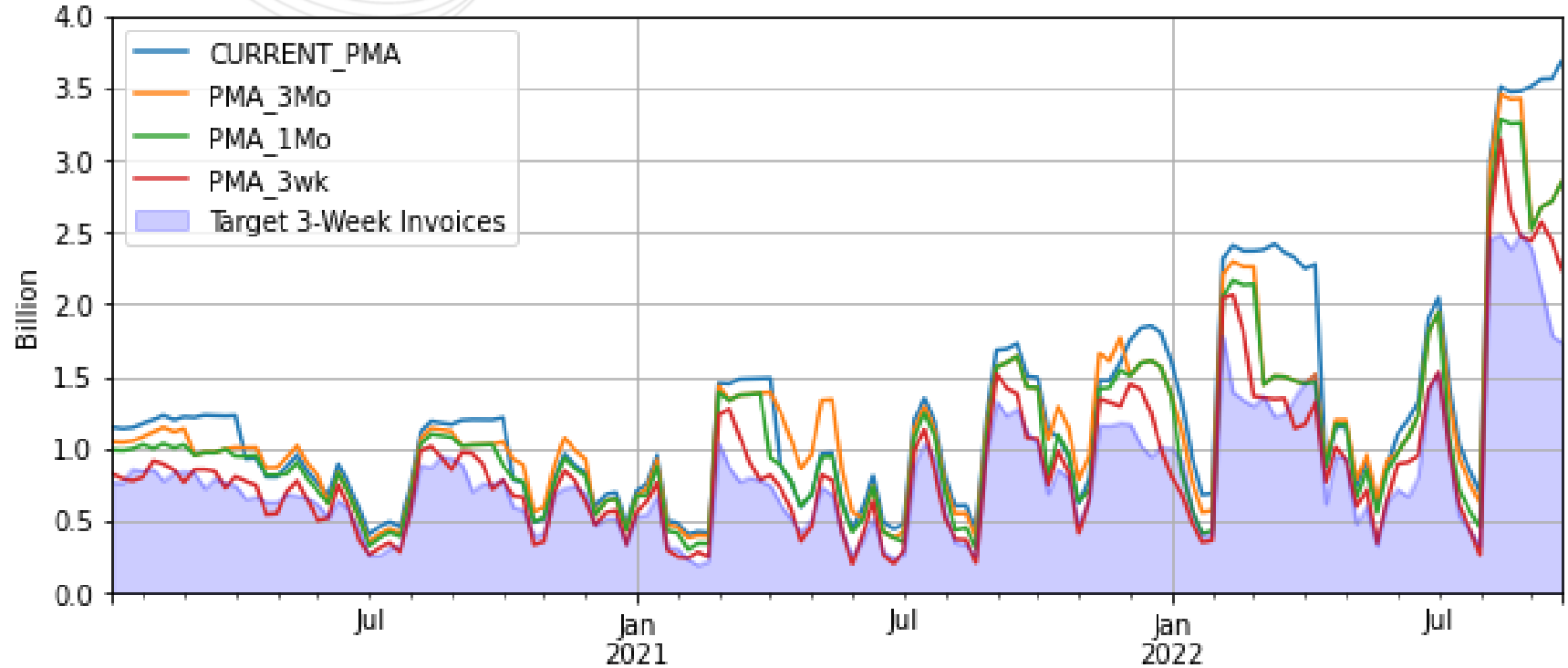
- Applying the price + load stress adder provided some reduction in shortfall **but** none of the proposed solutions completely resolved the issue

### Shortfall After Price & Load Adjustment

	6 Month Reset	3 Month Reset	1 Month Reset
<b>Median</b>	\$ 10,057	\$ 6,720	\$ 11,990
<b>Top 50 average (\$MM)</b>	\$ 32	\$ 33	\$ 34



- Current PMA holds Members PMA requirement at 3-week peak since the last PMA reset
- Current PMA resets in April and in October
- PMA excess is held until the reset
- PJM tested scenarios to shorten the PMA hold period



- Increasing the frequency of resets
  - Reduces over-collection
  - Increasing the frequency of resets does not address the under-collection of collateral during stress periods
    - During higher price and higher load periods the 52-week average PMA calculation does not bind for collateral requirements
    - All of the proposals are effectively a trailing three-week PMA calculation during high price-high load scenarios
- Price + Load stress period adder provides better coverage than price stress adder alone



Price + Load stress adder reduces shortfall; It also lowers Root Mean Square Error (RMSE) when there is a shortfall

Proposal	Total Member		Top 5 Shortfall		Top 5 Over		Total RMSE
	Shortfalls Out of 56,311 samples		(\$MM)	RMSE of Shortfall	Collection (\$MM)		
Current PMA	9,047	\$	(84)	1,663,416	\$	215	6,369,183
PMA with 3 Mon Reset	10,265	\$	(89)	1,805,006	\$	145	5,316,972
PMA with 1 Mon Reset	12,683	\$	(89)	1,911,990	\$	141	4,464,401
Rolling 3-week PMA	21,464	\$	(92)	2,274,152	\$	95	3,182,726
Current PMA + Price & Load Stress	7,520	\$	(67)	1,217,876	\$	215	6,493,638
PMA with 3 Mon Reset + Price & Load Stress	8,703	\$	(73)	1,356,789	\$	145	5,479,951
PMA with 1 Mon Reset + Price & Load Stress	10,728	\$	(73)	1,429,164	\$	141	4,650,889
Rolling 3-week PMA + Price & Load Stress	18,198	\$	(85)	1,789,539	\$	116	3,585,989

- Addition of Price + Load Forward stress period adder improves coverage
- Too short of a reset frequency results in higher funding volatility
- None of the scenarios tested completely prevents PMA shortfalls due to variabilities among Members such as hedging, generation, load and price changes, and other non-energy invoice drivers
- 6-Month or 3-Month Reset with Price + Load adders provided improvements with less frequency of shortfall comparatively

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### Member Hotline

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