Initial Margining Proposal

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Financial Risk Mitigation Senior Task Force

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Calculate Monthly Historical and Adjusted Historical* Path Specific Requirement

Add Individual FTR Credit Requirement

Add Undiversified Adder, if applicable

Apply 10¢ per-MWh Minimum

Subtract ARR Credits in Account

Sum All Positive Monthly Subtotals

Add MTA, if applicable

*Adjusted Historical includes modeling of future transmission upgrades

Initial Margin:

A collateral deposit, posted by a trading participant to protect against the financial consequences of default

Covers the time period between the last auction clearing and the expected unwinding of the portfolio in the event of default
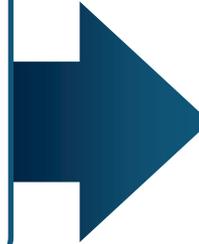
Is not a fixed quantity set at the position inception, but is computed and updated at the time of every auction

Simulate scenarios of price movements over the liquidation period for all paths in a portfolio using historical price data
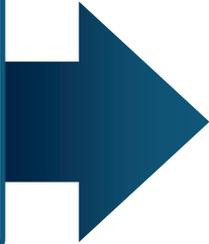
Use price movement scenarios to generate the distribution of portfolio value changes

IM is the 3rd percentile of the distribution; portfolio value changes are above this quantity 97% of the time

Jan. 24-Hr Contract for 1.5 MW Purchased in Dec. 2020 Auction

Prevailing flow at time of purchase

Status Quo Requirement

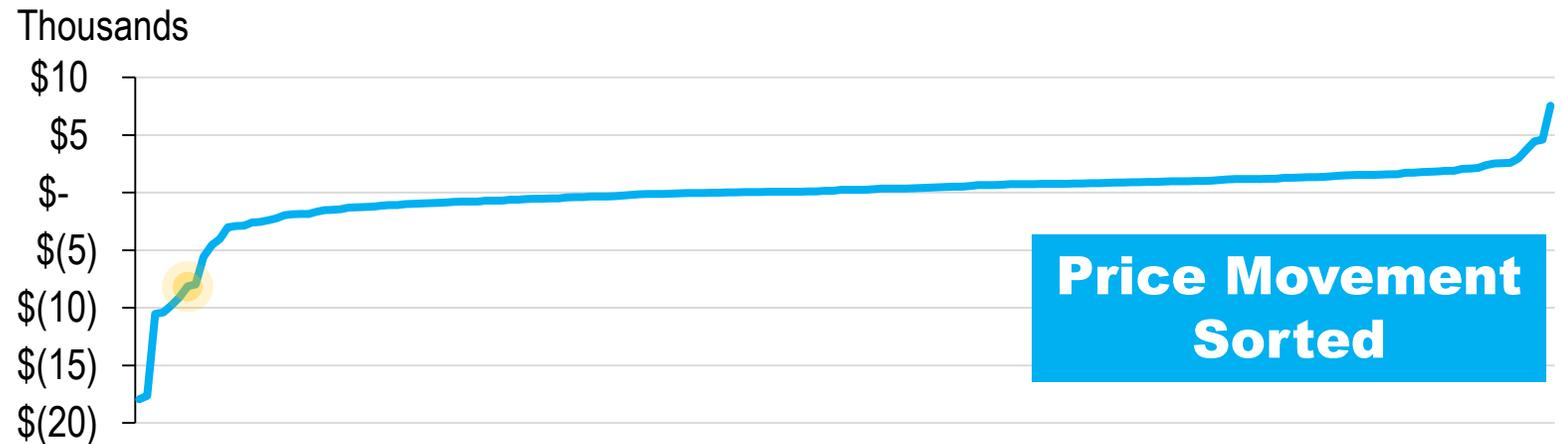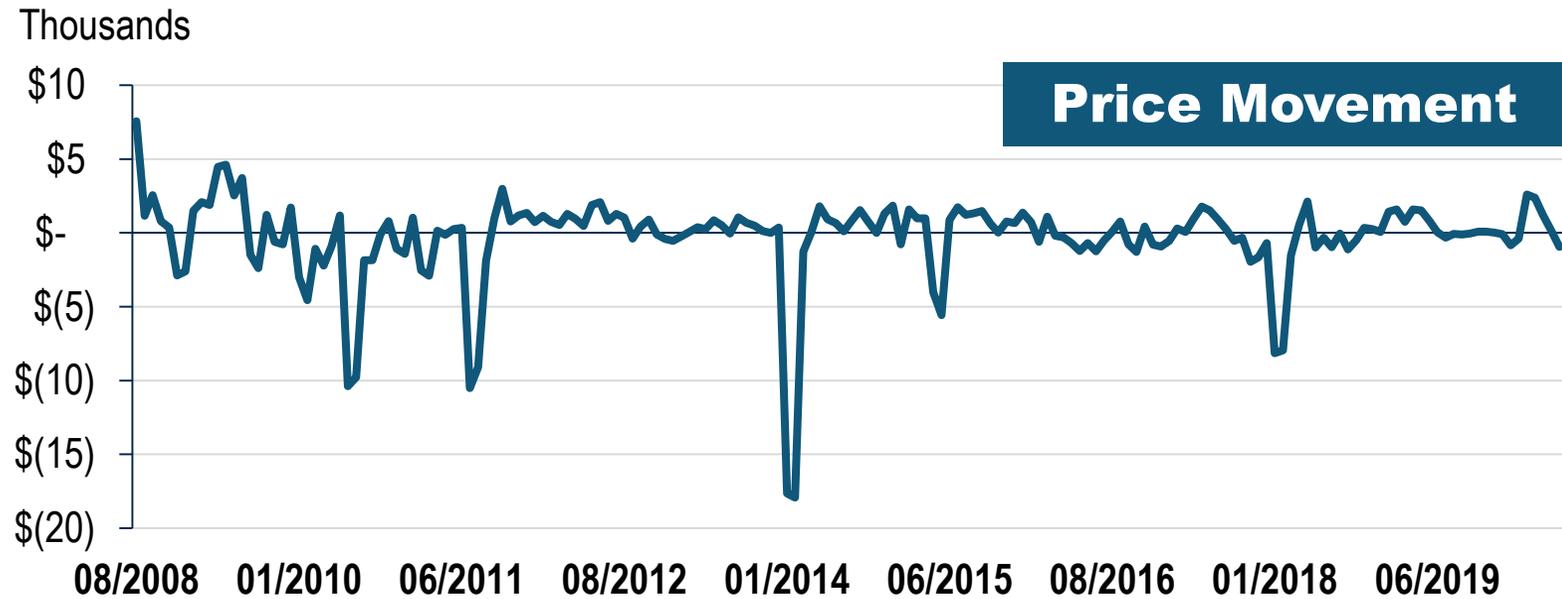$$Max(\; \$3,866_{Path \; Requirement}$$

New Requirement		
(Using Standard Deviation and Cushion Factor)		
PERCENTILE:		
99th	**97**th	**95**th
$7,928	$6,242	$5,388

Thousands

Price Movement

Price Movement Sorted

Dec. 24-Hr Contract for 1.6 MW Purchased in Dec. 2020 Auction

Counter-flow at time of purchase

Status Quo Requirement

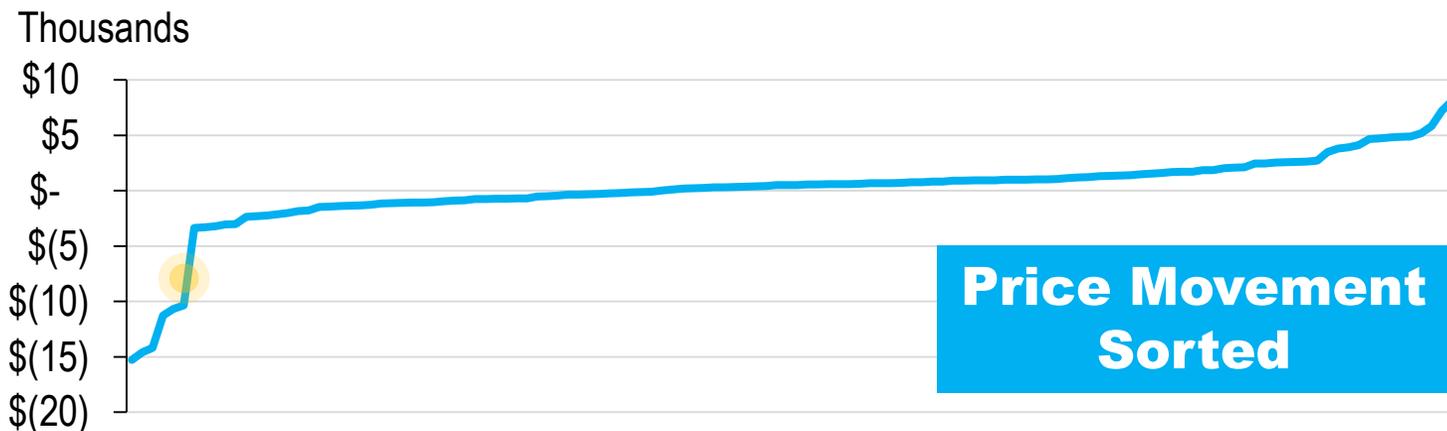$$Max(\ \$185_{Path\ Requirement}$$
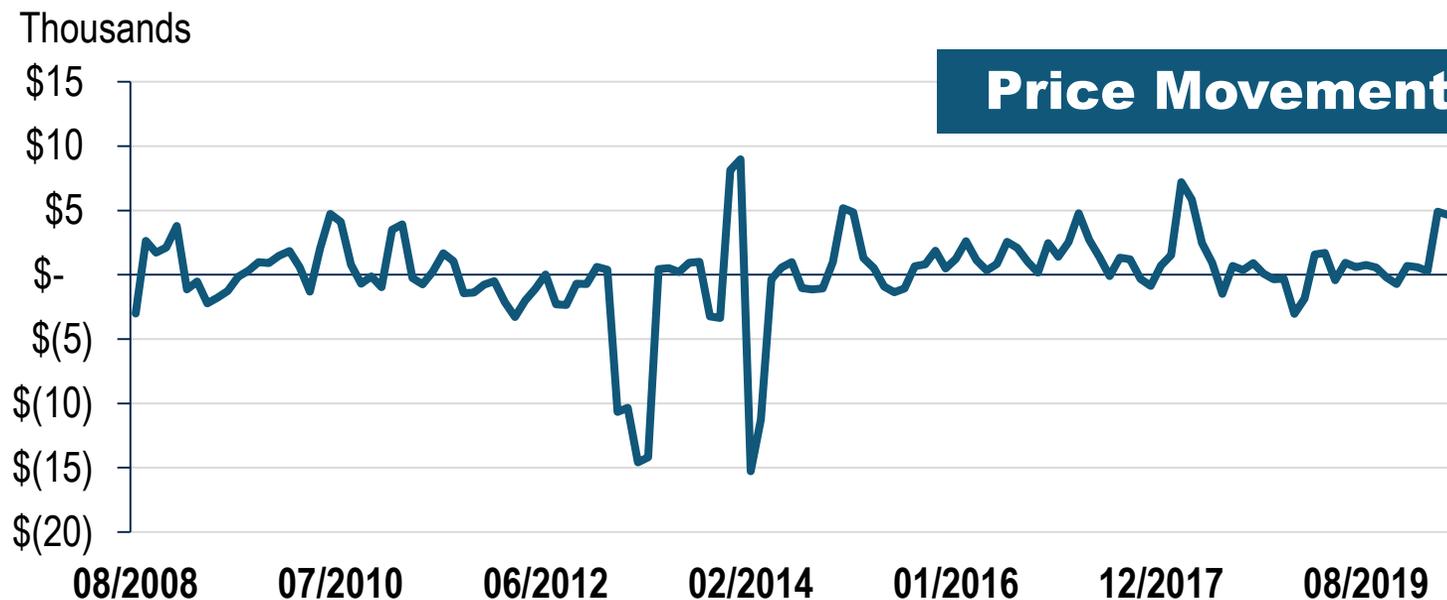
New Requirement

(Using Standard Deviation and Cushion Factor)

	PERCENTILE:	
99th	**97th**	**95th**
$9,525	$7,499	$6,473

Thousands

Price Movement

Thousands

Price Movement Sorted

Tenor Calculations

- **The IM for Balance of Planning Period (BOPP) positions** are evaluated by the methodology for each monthly contract; then the monthly IMs are aggregated to obtain one IM quantity for the portfolio

  The aggregation method uses a weighted combination of straight sum and root sum of squares

- **The IM for long-term positions** are evaluated by the methodology for each annual contract

Confidence Interval

- Range of values likely to include a population value with a certain degree of confidence

- Typically, the higher the confidence interval, the higher the IM result

- Analysis performed at 3 confidence levels (99%, 97% and 95%)

Liquidation Period

- Indicates the number of auctions by which a portfolio can be liquidated

- 2 auction periods means 2 months for BOPP portfolios and approximately 2 months for long-term portfolios

- A liquidation period of 2 has been recommended to stakeholders and aligns with the potential unwinding of defaulted positions

- Averaged across multiple measurements in time (Q1 2021)
- Status quo had a failure rate* of 8% based on backtesting

| Confidence Interval	REQUIREMENT		Change	Failure Rate*	Failure Rate Winter
	Status Quo ($B)	IM-H with ARR ($B)			
99%	$1.334	$1.716	29%	0.65%	1.00%
97%	$1.334	$1.314	-2%	0.90%	1.54%
95%	$1.334	$1.133	-15%	1.21%	2.16%

Failure rate represents the % of instances when collateral was insufficient to cover actual market moves during backtesting.

Average Collateral and % Change From Historical Requirement by Category (<$4 M)
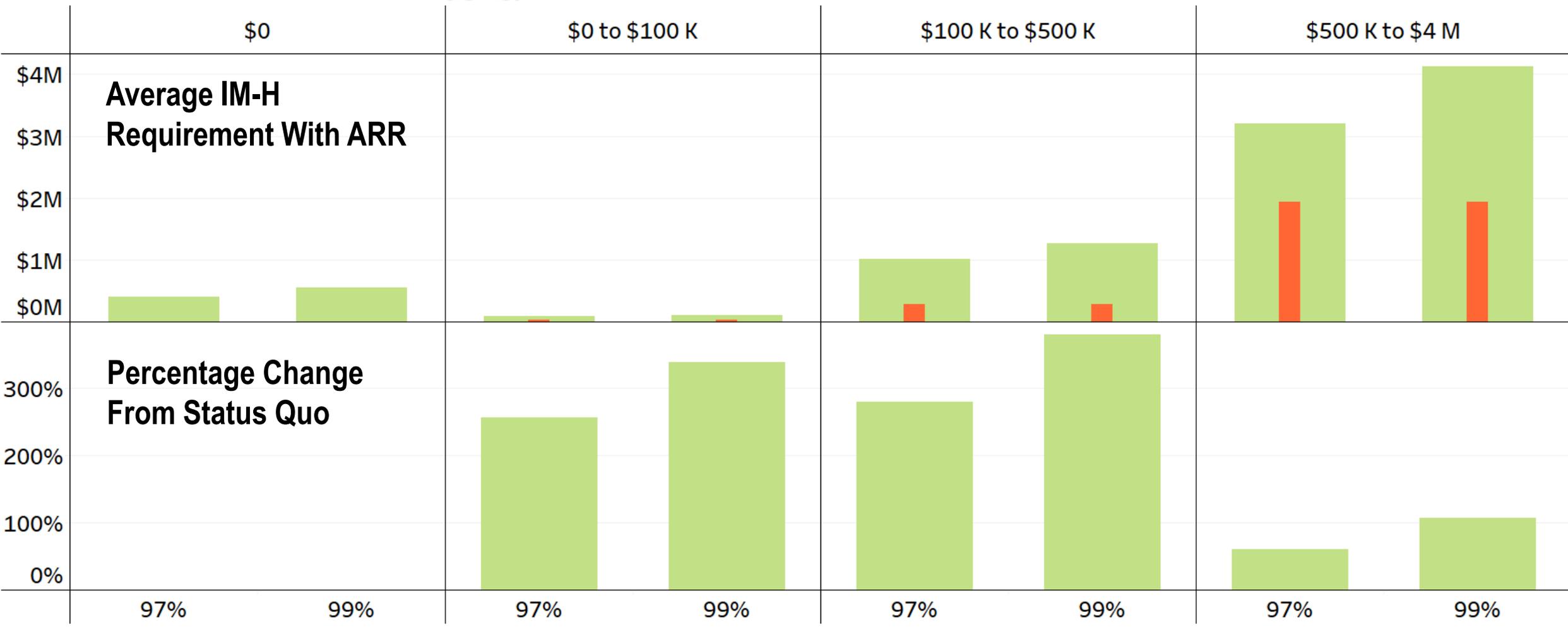
PJM©2020

Average Collateral and % Change From Historical Requirement by Category (≥$4 M)
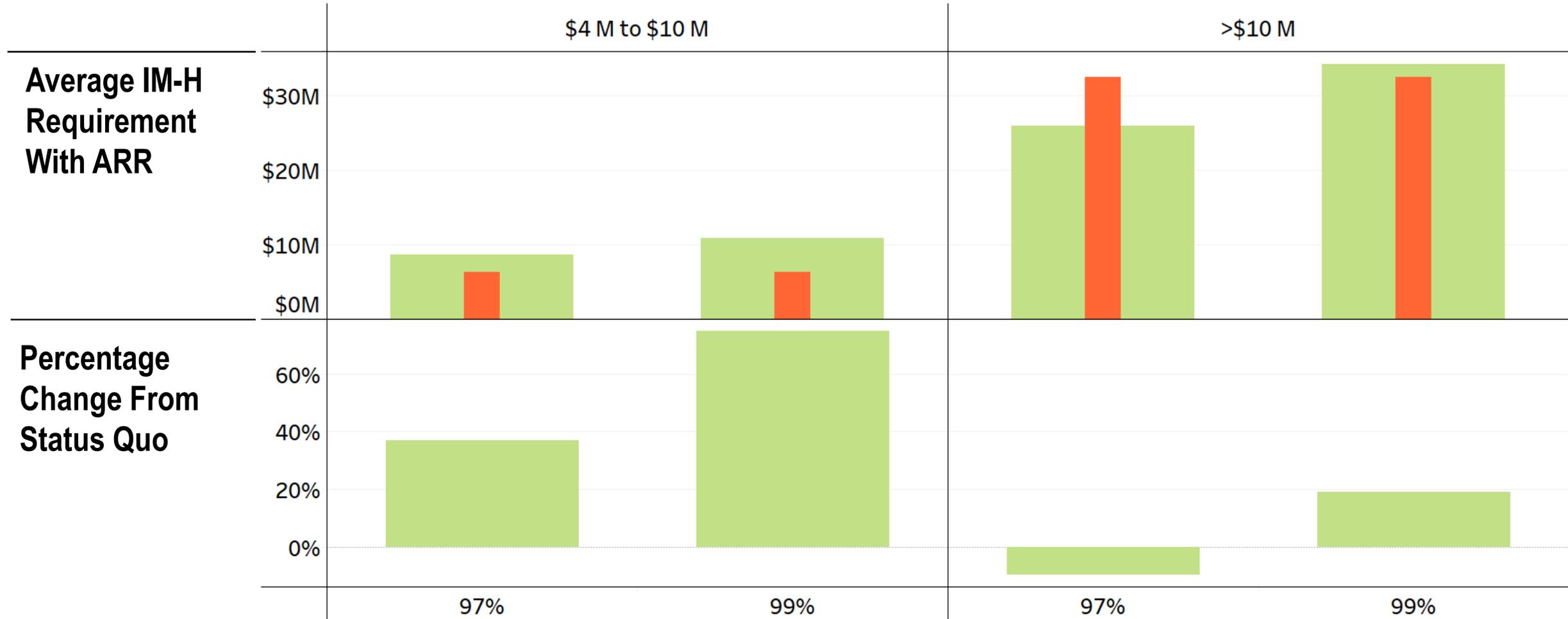
Changing of Status Quo Components

- No undiversified adder

- Consider both positive and negative MTA as part of the total FTR collateral equation

- IM-H calculation for all bids submitted

- Calculate IM-H while using ARR credits for municipals, cooperatives and EDCs

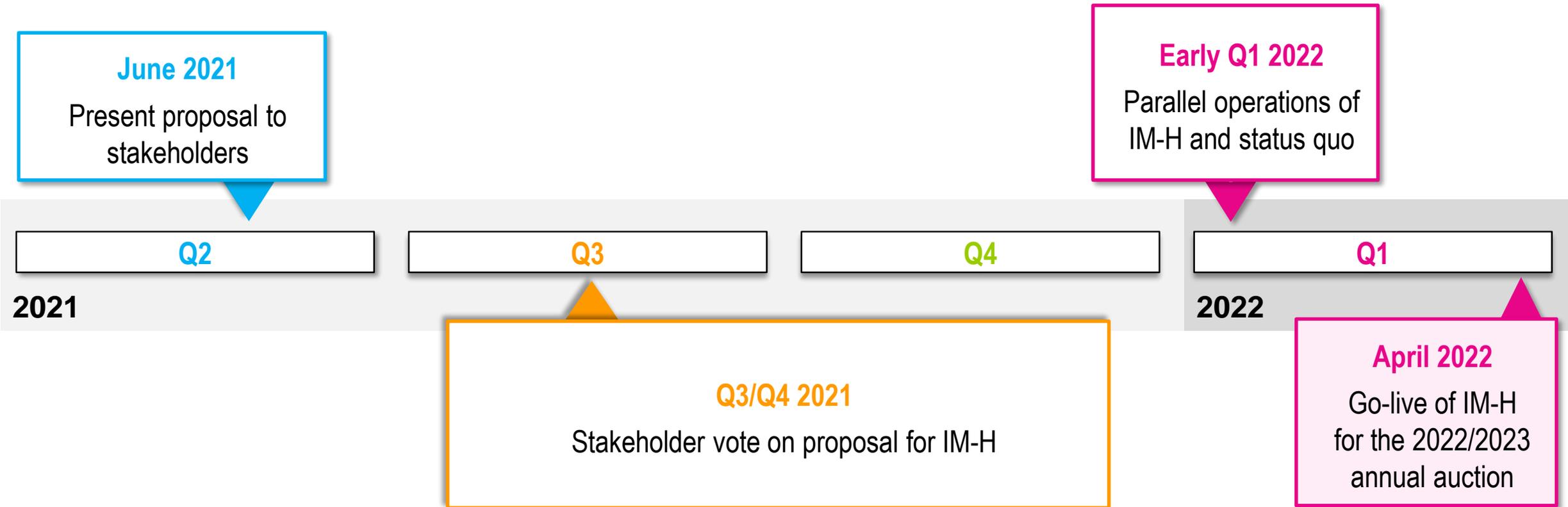- No use of adjusted historical values (based on modeled future transmission upgrades)
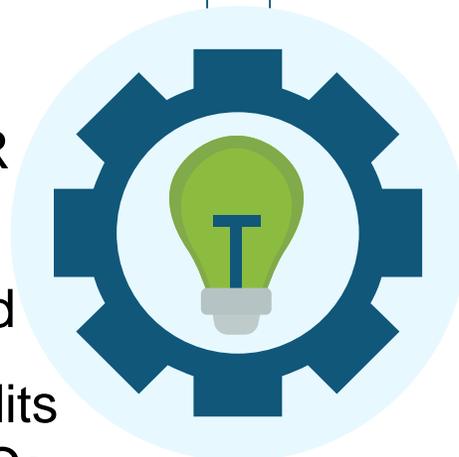
IM-H Specific Components

Select the confidence interval of 97%

Use a liquidation period of 2

IM-H Timeline

June 2021
Present proposal to stakeholders

Early Q1 2022
Parallel operations of IM-H and status quo

Q2	Q3	Q4	Q1

2021

2022

Q3/Q4 2021
Stakeholder vote on proposal for IM-H

April 2022
Go-live of IM-H for the 2022/2023 annual auction

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Initial Margining Proposal

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