



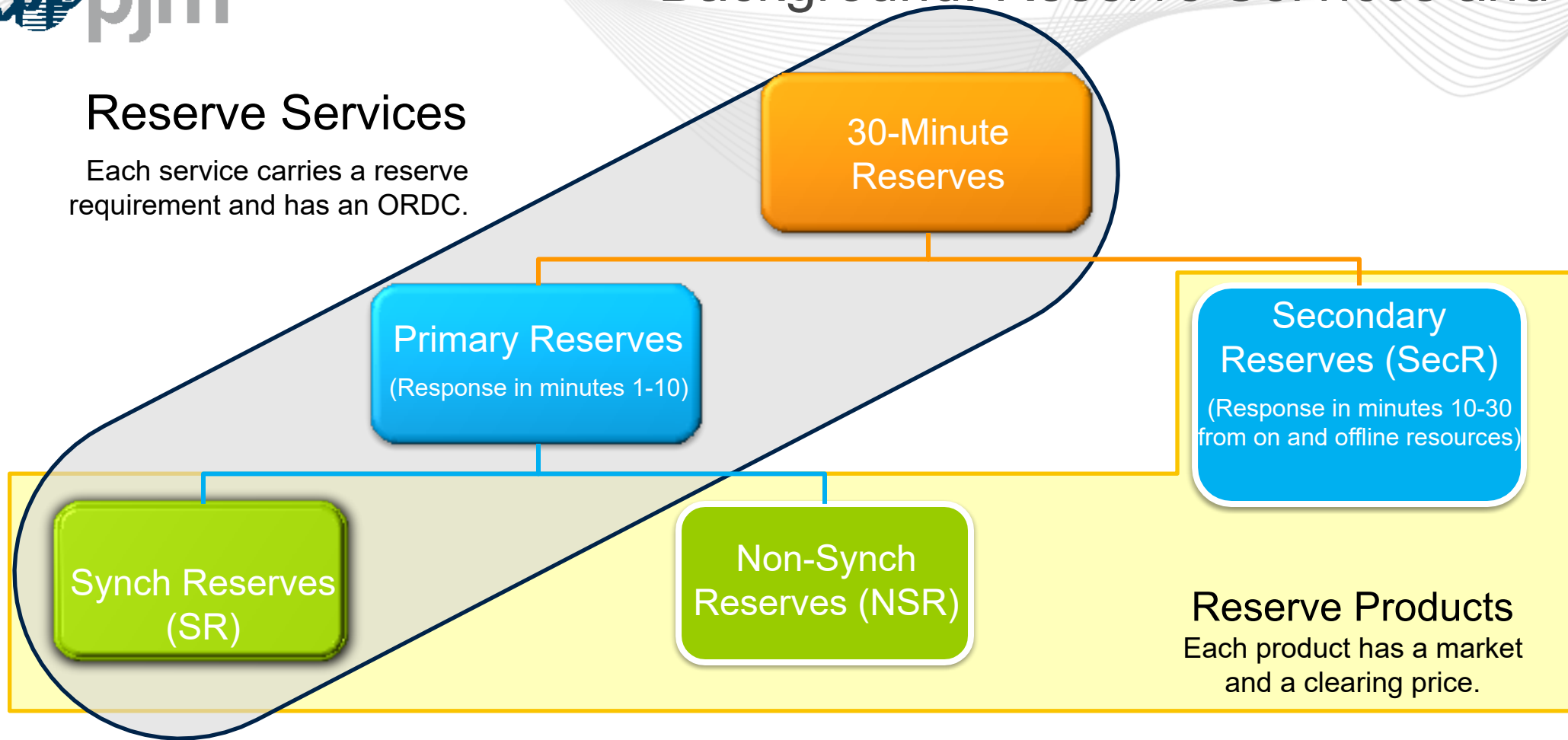
# Reserve Price Formation Update

Market Implementation Committee  
12/7/2022

- The average monthly reserve clearing prices are less than \$2/MWh in both Day-ahead and Real-time Markets
- Reserves clearing prices have been significantly reduced in part due to:
  - Offer cap rule change from \$7.5 to \$0.02
  - The pool of the resources to procure from expanded due to the reserves must offer requirement
- Simulation results presented at Sep. 2022 MIC available [here](#)

## Reserve Services

Each service carries a reserve requirement and has an ORDC.



## Reserve Products

Each product has a market and a clearing price.

- Clearing Price represents procurement of the Synchronized Reserve requirement.
- Clearing price represents procurement of the balance of the Primary Reserve Requirement not met by Synchronized Reserves.
- Clearing price represents procurement of the balance of the 30 Min Requirement not met by Synchronized and Non-Synchronized Reserves.



# Monthly Reserve Market Clearing Price Summary

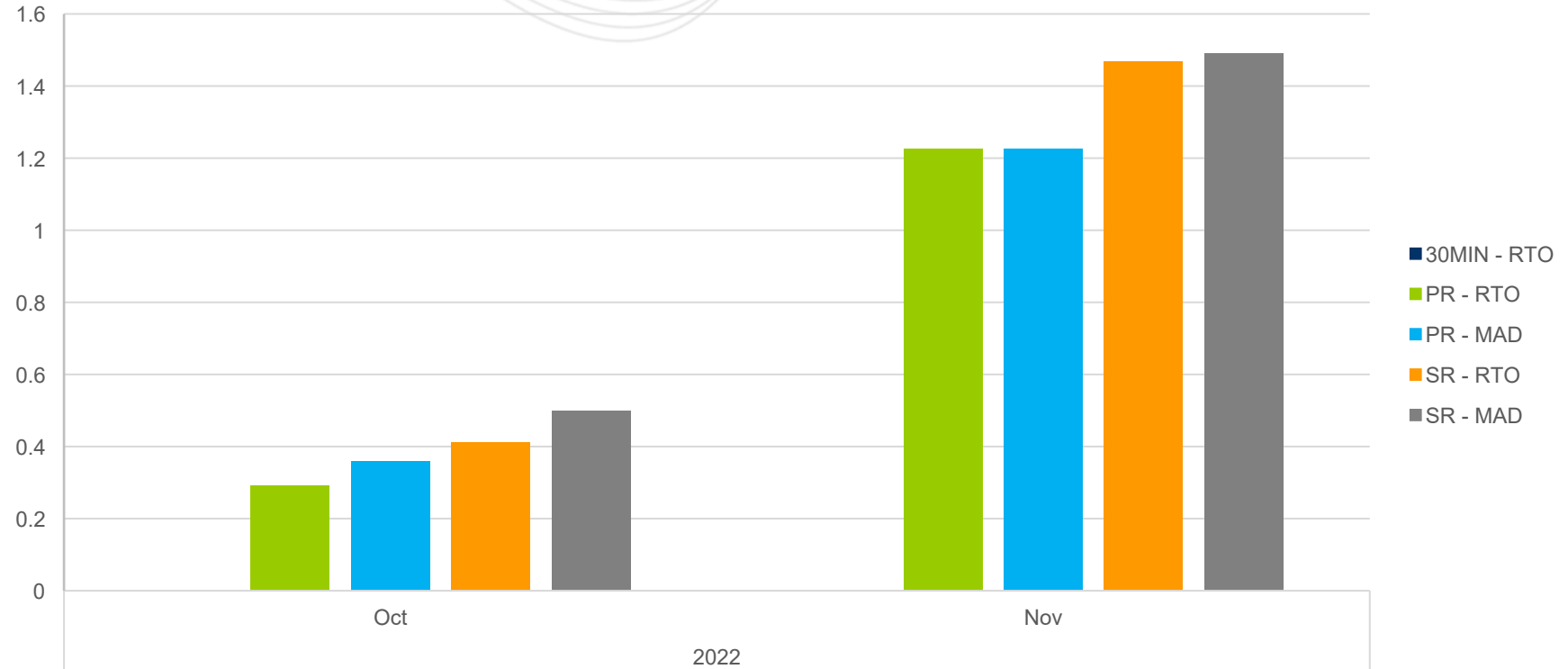
Month	Day-Ahead						Real-Time				
	DASR (\$/MWh)	SRMCP (\$/MWh)		NSRMCP (\$/MWh)		SecRMCP (\$/MWh)	SRMCP (\$/MWh)		NSRMCP (\$/MWh)		SecRMCP (\$/MWh)
	N/A	RTO	MAD	RTO	MAD	RTO	RTO	MAD	RTO	MAD	RTO
Oct. 2021	0.14	N/A	N/A	N/A	N/A	N/A	7.69	7.75	1.21	1.21	N/A
Sep. 2022	0.11	N/A	N/A	N/A	N/A	N/A	4.61	4.61	0.11	0.11	N/A
Oct. 2022	N/A	0.41	0.50	0.29	0.36	0	0.76	0.80	0.11	0.11	0
Nov. 2022	N/A	1.47	1.49	1.22	1.23	0	0.35	0.35	0.02	0.02	0



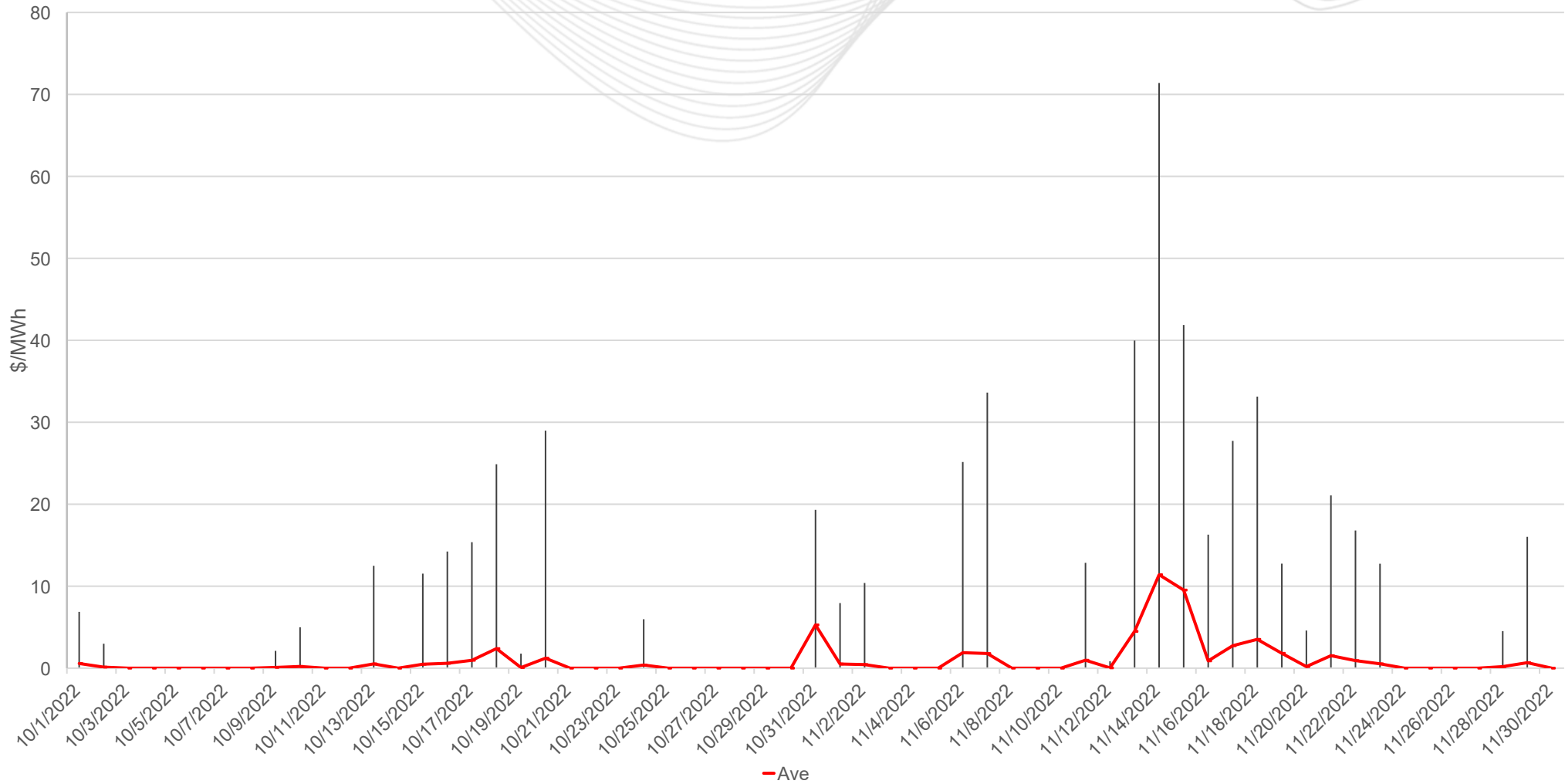
# Day-Ahead Market Metrics

October, 2022 – November, 2022

# Reserve Market Clearing Prices



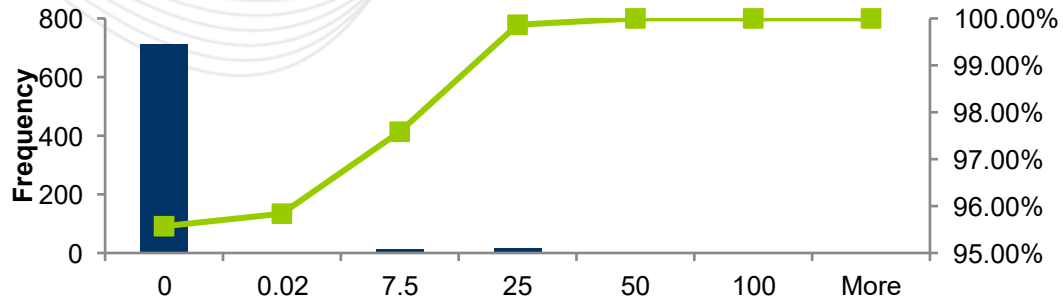
SRMCP (Daily Max vs. Average)



# SRMCP Distribution & Histogram: Oct-Nov, 2022

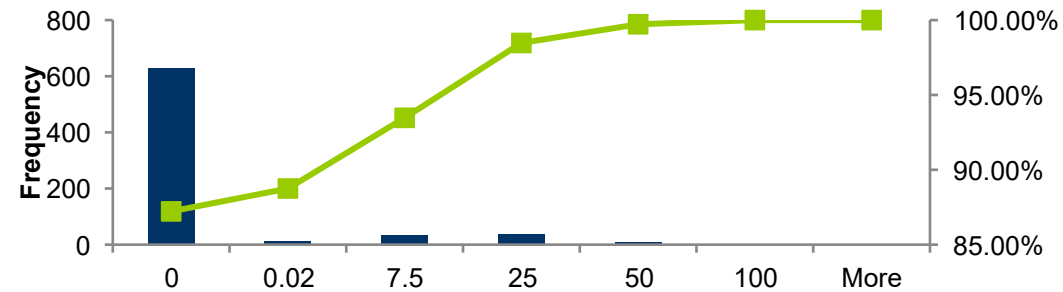
Price	Frequency	Cumulative %
0	712	95.57%
0.02	2	95.84%
7.5	13	97.58%
25	17	99.87%
50	1	100.00%
100	0	100.00%
More	0	100.00%

### SRMCP (Oct, 2022)



Price	Frequency	Cumulative %
0	628	87.22%
0.02	11	88.75%
7.5	34	93.47%
25	36	98.47%
50	9	99.72%
100	2	100.00%
More	0	100.00%

### SRMCP (Nov, 2022)

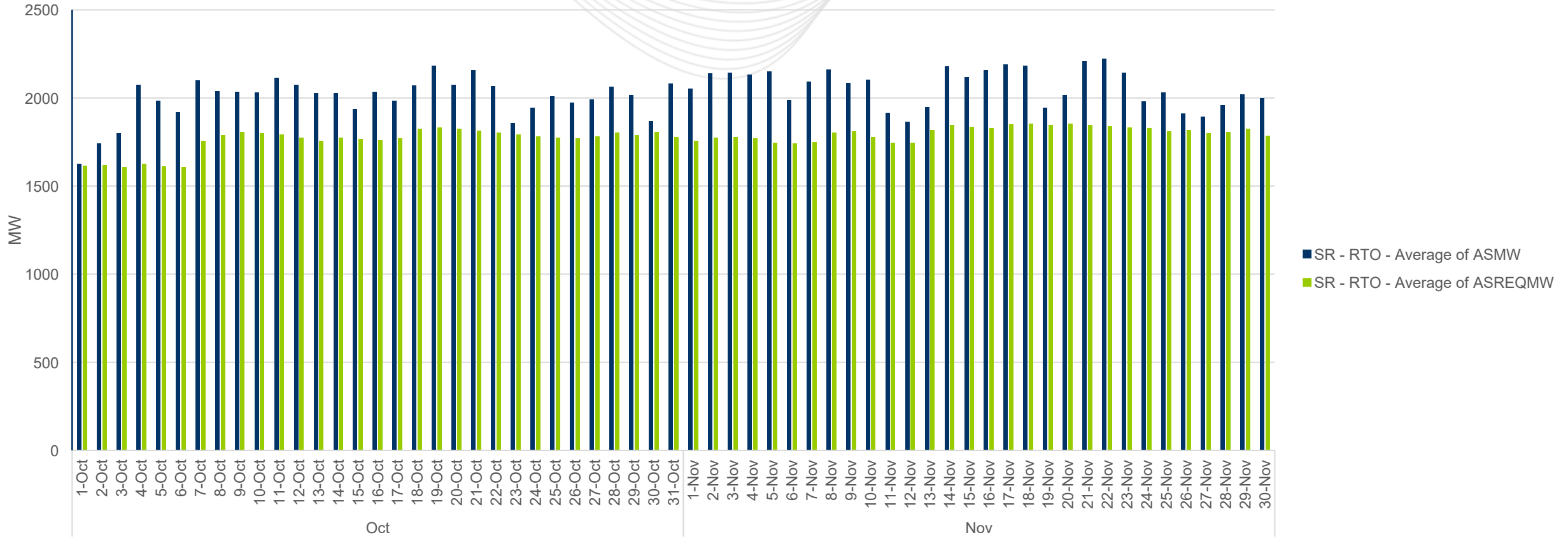


**Key Takeaway:** SRMCPs were less or equal to \$0.02/MWh most of the time.





# AS Requirement (RTO SR) vs. ASMW

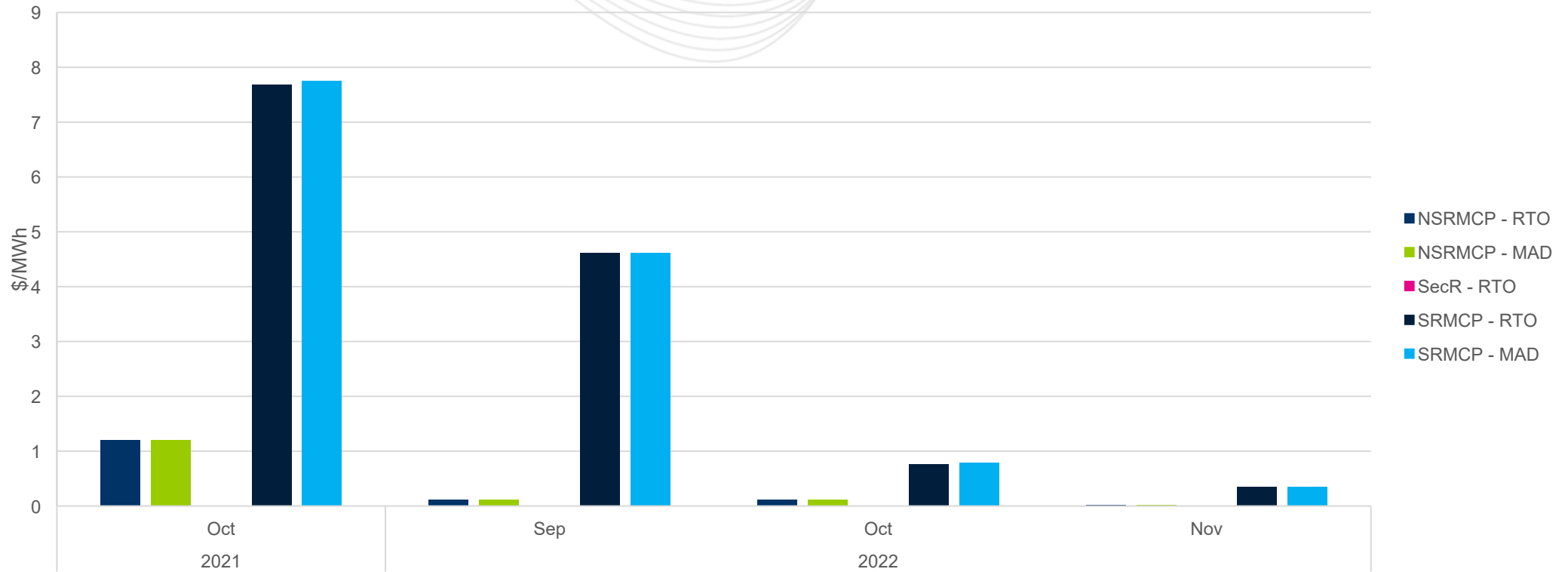




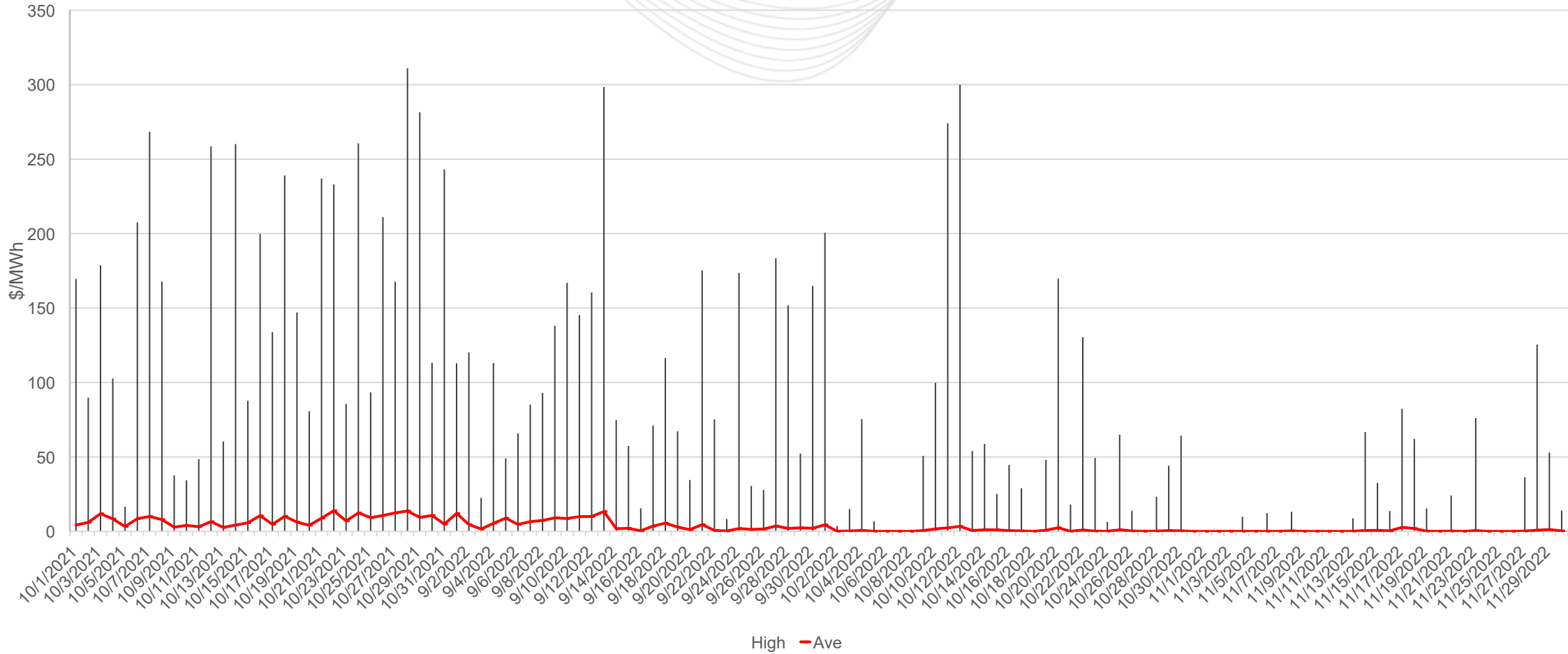
# Real-Time Market Metrics

October, 2021

September, 2022 – November, 2022



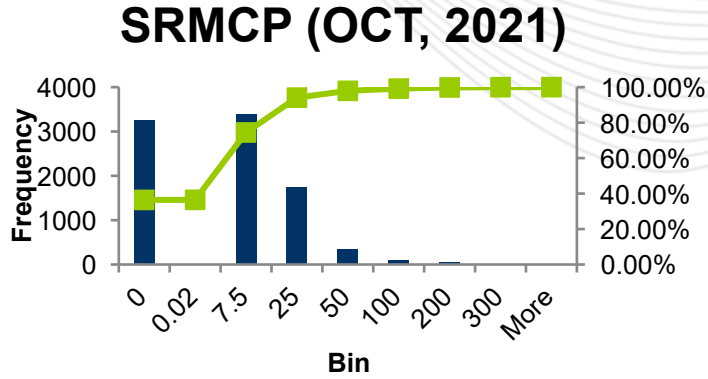
### SRMCP (Daily Max vs. Average)



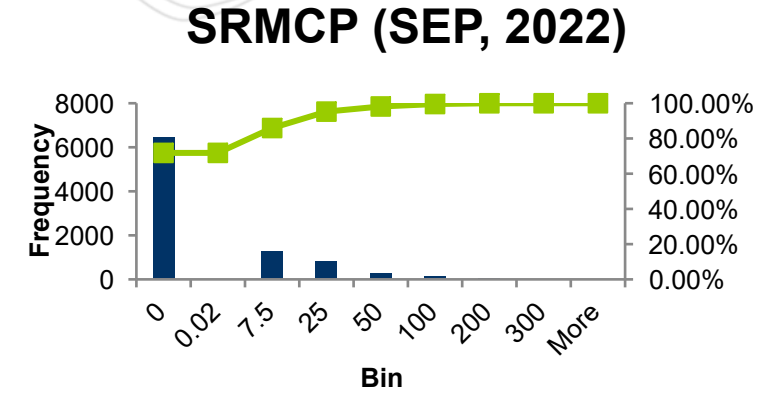


# SRMCP Distribution & Histogram

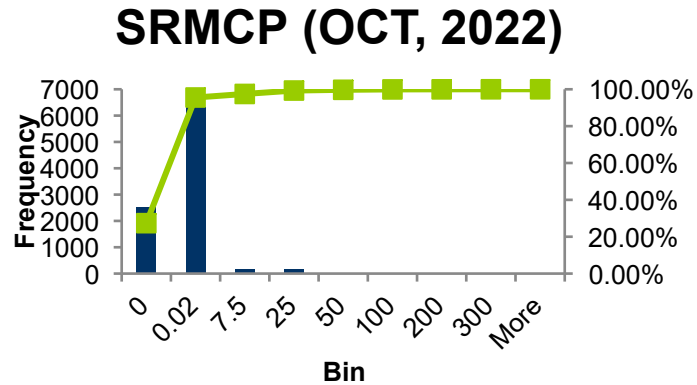
Price	Frequency	Cumulative %
0	3252	36.42%
0.02	4	36.47%
7.5	3391	74.45%
25	1754	94.10%
50	342	97.93%
100	111	99.17%
200	57	99.81%
300	15	99.98%
More	2	100.00%



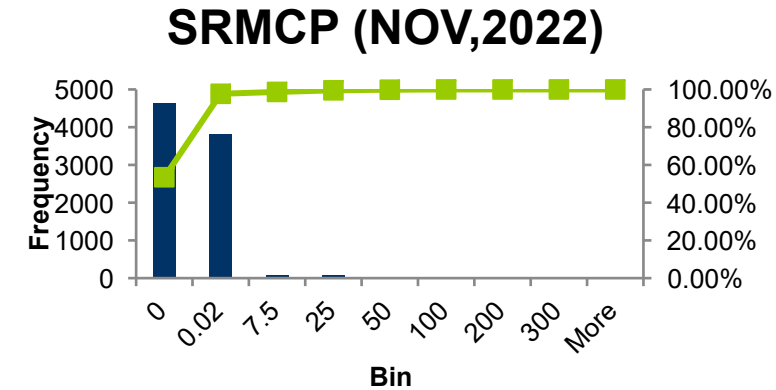
Price	Frequency	Cumulative %
0	6449	71.80%
0.02	1	71.81%
7.5	1268	85.93%
25	837	95.25%
50	262	98.16%
100	125	99.55%
200	39	99.99%
300	1	100.00%
More	0	100.00%



Price	Frequency	Cumulative %
0	2542	27.36%
0.02	6335	95.53%
7.5	179	97.46%
25	172	99.31%
50	37	99.71%
100	20	99.92%
200	4	99.97%
300	3	100.00%
More	0	100.00%

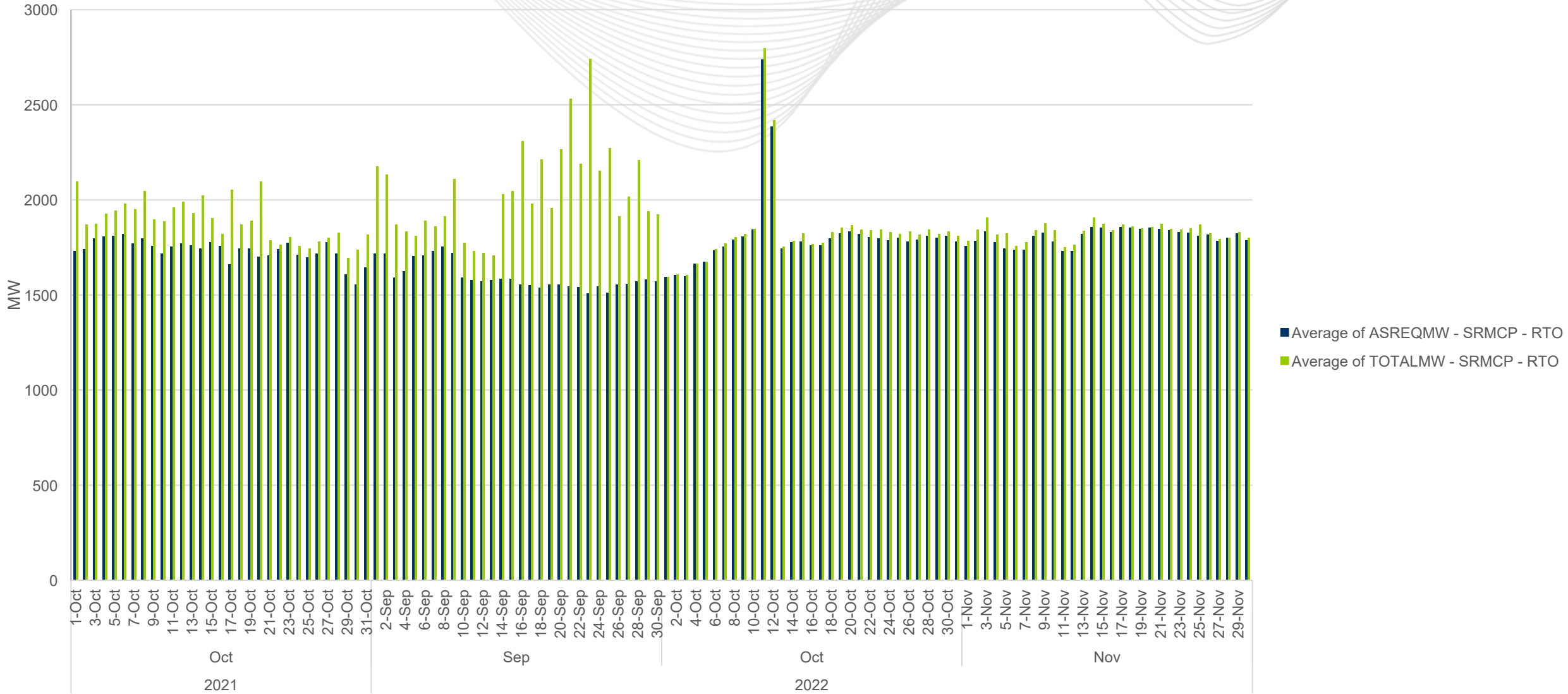


Price	Frequency	Cumulative %
0	4620	53.47%
0.02	3821	97.70%
7.5	86	98.69%
25	74	99.55%
50	27	99.86%
100	12	100.00%
200	0	100.00%
300	0	100.00%
More	0	100.00%



**Key Takeaway:** SRMCPs were less or equal to \$0.02/MWh most of the time after RPF.

# AS Requirement (RTO SR) vs. ASMW



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**Reserve Price Formation Update**



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