



Reserve Price Formation Update

Market Implementation Committee
10/4/2023

- The average monthly reserve clearing prices in September are similar to previous month in Day-ahead Market and Real-time Market



Monthly Reserve Market Clearing Price Summary

Month	Day-Ahead					Real-Time				
	SRMCP (\$/MWh)		NSRMCP (\$/MWh)		SecRMCP (\$/MWh)	SRMCP (\$/MWh)		NSRMCP (\$/MWh)		SecRMCP (\$/MWh)
	RTO	MAD	RTO	MAD	RTO	RTO	MAD	RTO	MAD	RTO
Oct. 2022	0.41	0.50	0.29	0.36	0	0.76	0.80	0.11	0.11	0
Nov. 2022	1.47	1.49	1.22	1.23	0	0.35	0.35	0.02	0.02	0
Dec. 2022	2.28	3.57	0.41	1.02	0	24.41	35.66	18.38	28.68	0.97
Jan. 2023	0.33	0.33	0.22	0.21	0	0.88	1.01	0.62	0.75	0
Feb. 2023	0.23	0.42	0.13	0.21	0	0.19	0.32	0.17	0.31	0
Mar. 2023	0.30	0.31	0.26	0.26	0	0.23	0.23	0.16	0.16	0
Apr. 2023	1.47	1.47	0.94	0.94	0	1.05	1.05	0.86	0.86	0
May. 2023	4.07	4.07	2.05	2.05	0	6.26	6.26	4.64	4.64	0
Jun. 2023	1.88	1.91	1.63	1.66	0	0.88	0.88	0.82	0.82	0
Jul. 2023	4.53	4.56	4.48	4.52	0	1.62	1.62	1.58	1.58	0
Aug. 2023	1.18	1.19	1.18	1.18	0	0.43	0.43	0.42	0.42	0
Sep. 2023	1.25	1.32	1.18	1.24	0	0.63	0.70	0.52	0.60	0



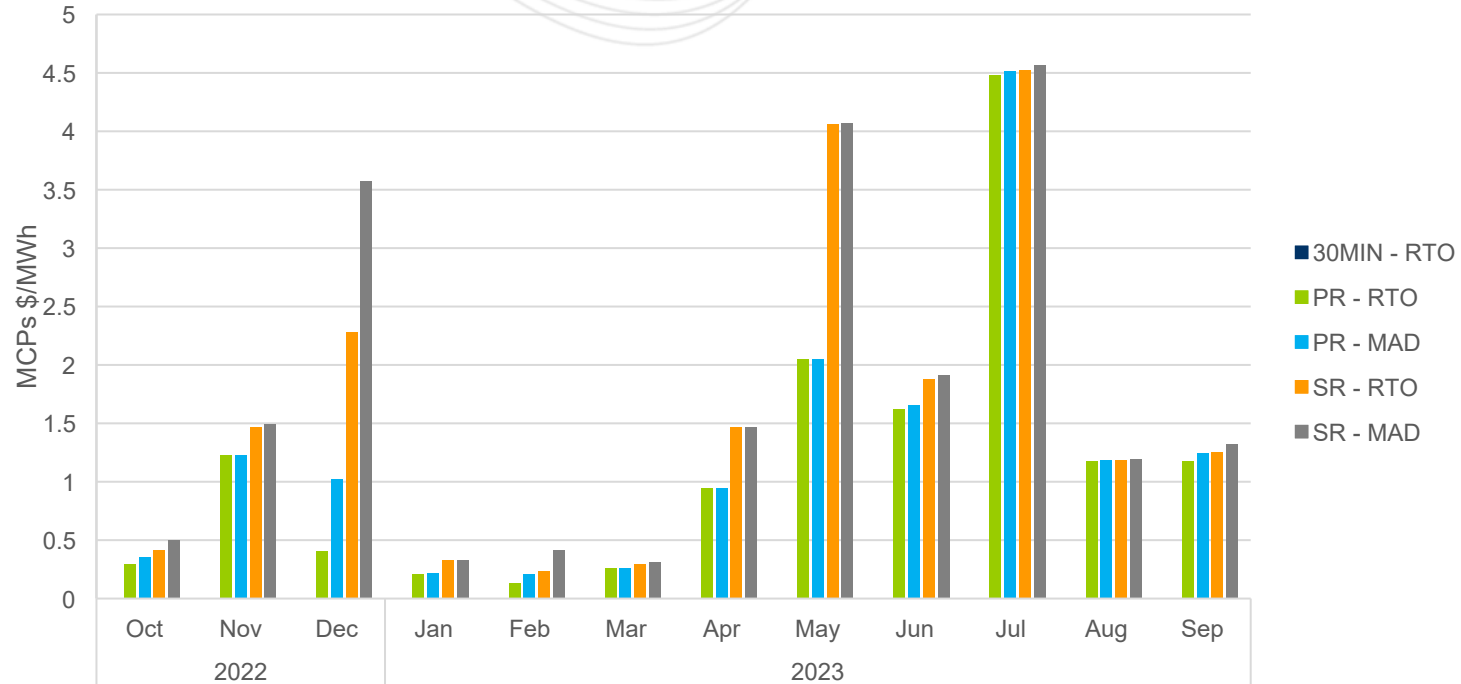
Reserve Offer Price Cap

Month	Reserve Offer Price Cap
Oct. 2022	\$0.02/MWh
Nov. 2022	\$0.02/MWh
Dec. 2022	\$0.11/MWh
Jan. 2023	\$0.09/MWh
Feb. 2023	\$0.14/MWh
Mar. 2023	\$0.11/MWh
Apr. 2023	\$0.09/MWh
May. 2023	\$0.07/MWh
Jun. 2023	\$0.06/MWh
Jul. 2023	\$0.06/MWh
Aug. 2023	\$0.05/MWh
Sep. 2023	\$0.05/MWh
Oct. 2023	\$0.04/MWh



Day-Ahead Market Metrics

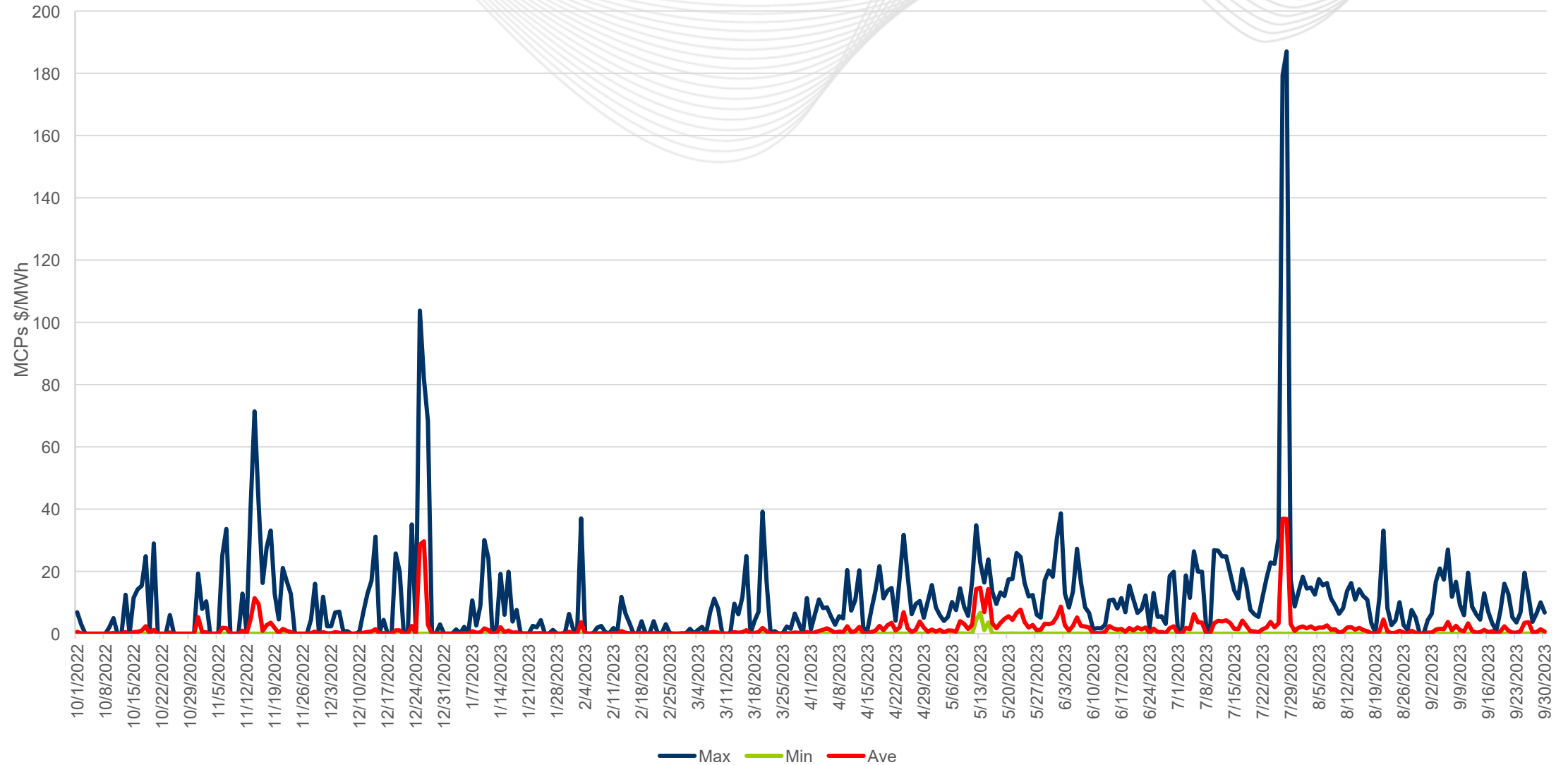
October, 2022 – September, 2023





Daily SRMCP

SRMCP (Daily Max, Min, Average)

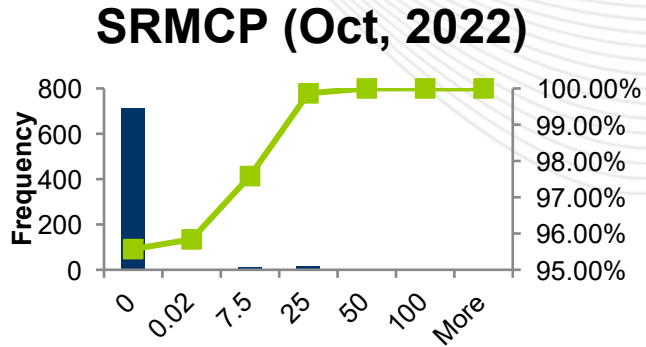


Max Min Ave

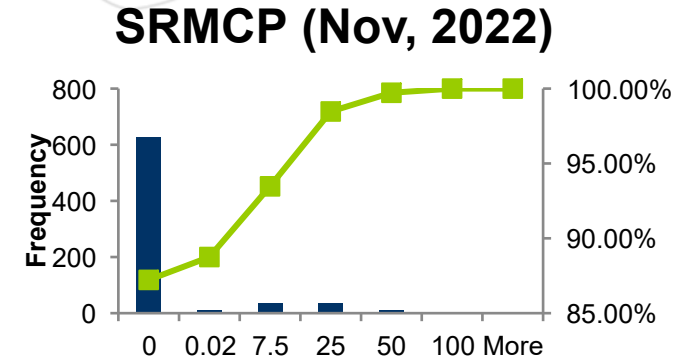


SRMCP Distribution & Histogram: Oct, 2022 – Jan, 2023

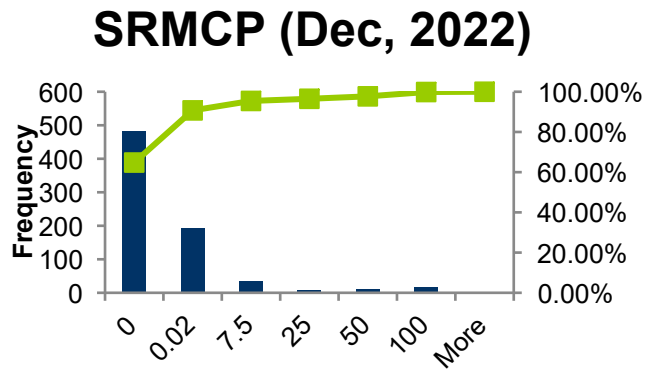
Price	Frequency	Cumulative %
0	712	95.57%
0.02	2	95.84%
7.5	13	97.58%
25	17	99.87%
50	1	100.00%
100	0	100.00%
More	0	100.00%



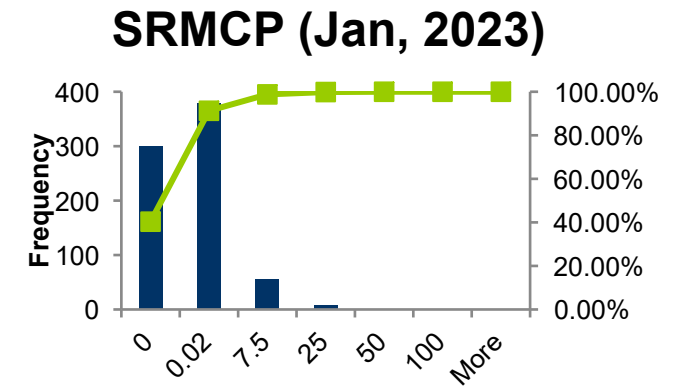
Price	Frequency	Cumulative %
0	628	87.22%
0.02	11	88.75%
7.5	34	93.47%
25	36	98.47%
50	9	99.72%
100	2	100.00%
More	0	100.00%



Price	Frequency	Cumulative %
0	482	64.78%
0.02	193	90.73%
7.5	35	95.43%
25	8	96.51%
50	9	97.72%
100	16	99.87%
More	1	100.00%



Bin	Frequency	Cumulative %
0	300	40.32%
0.02	379	91.26%
7.5	56	98.79%
25	8	99.87%
50	1	100.00%
100	0	100.00%
More	0	100.00%

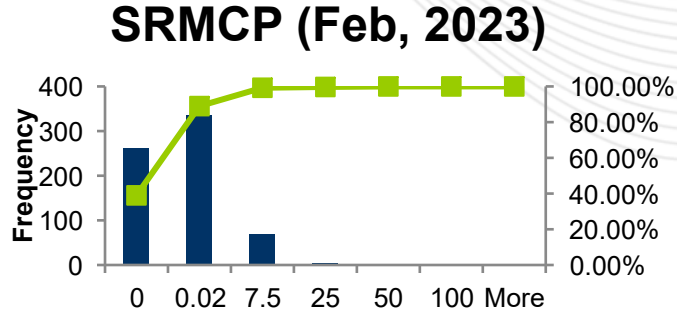


Key Takeaway: SRMCPs were less or equal to \$0.02/MWh most of the time.

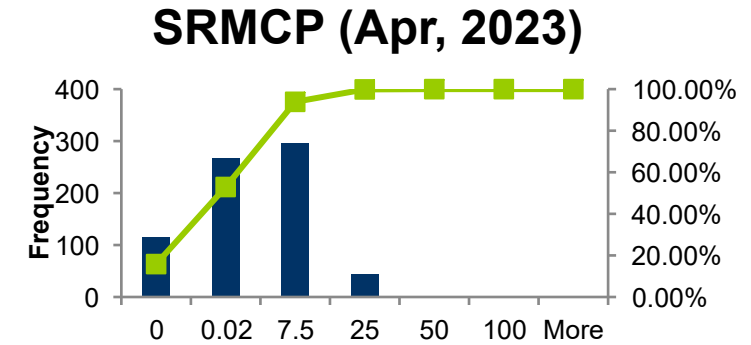


SRMCP Distribution & Histogram: Feb – May, 2023

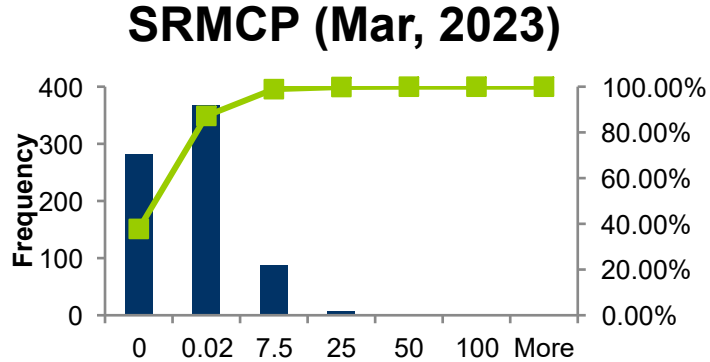
Price	Frequency	Cumulative %
0	262	38.99%
0.02	336	88.99%
7.5	69	99.26%
25	3	99.70%
50	2	100.00%
100	0	100.00%
More	0	100.00%



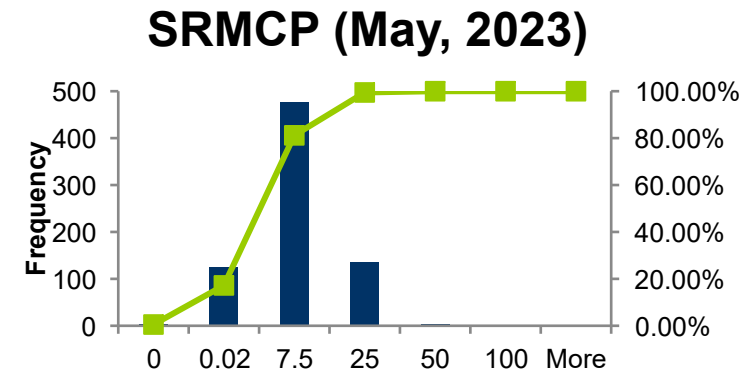
Price	Frequency	Cumulative %
0	114	15.83%
0.02	267	52.92%
7.5	295	93.89%
25	43	99.86%
50	1	100.00%
100	0	100.00%
More	0	100.00%



Price	Frequency	Cumulative %
0	281	37.77%
0.02	368	87.23%
7.5	87	98.92%
25	7	99.87%
50	1	100.00%
100	0	100.00%
More	0	100.00%



Price	Frequency	Cumulative %
0	4	0.53%
0.02	124	17.20%
7.5	476	81.18%
25	136	99.46%
50	4	100.00%
100	0	100.00%
More	0	100.00%

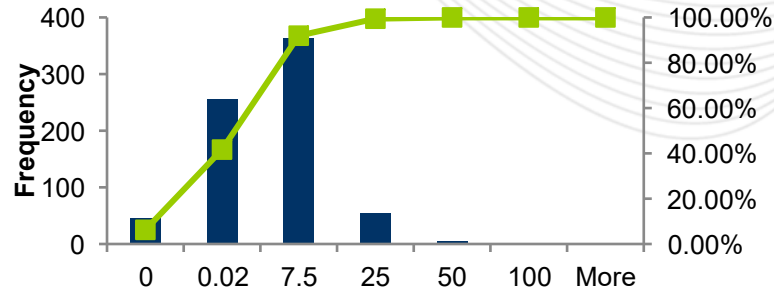




SRMCP Distribution & Histogram: Jun - Sep, 2023

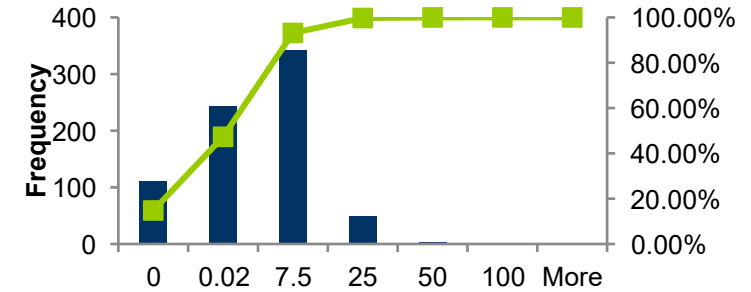
Price	Frequency	Cumulative %
0	45	6.25%
0.02	255	41.67%
7.5	362	91.94%
25	54	99.44%
50	4	100.00%
100	0	100.00%
More	0	100.00%

SRMCP (Jun, 2023)



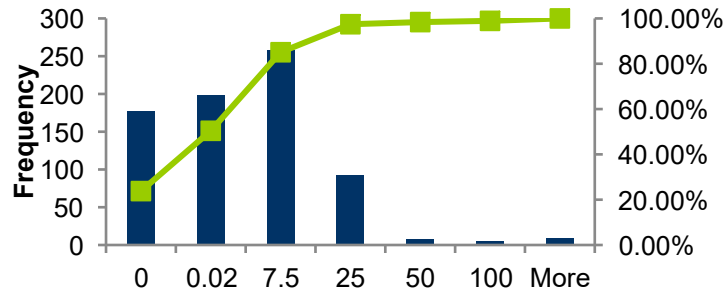
Price	Frequency	Cumulative %
0	110	14.78%
0.02	242	47.31%
7.5	341	93.15%
25	49	99.73%
50	2	100.00%
100	0	100.00%
More	0	100.00%

SRMCP (August, 2023)



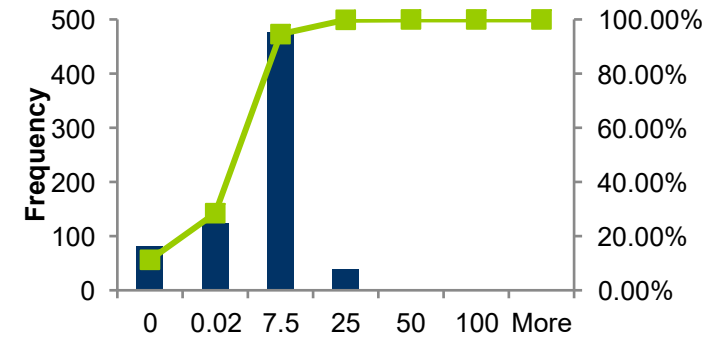
Price	Frequency	Cumulative %
0	177	23.79%
0.02	198	50.40%
7.5	258	85.08%
25	92	97.45%
50	7	98.39%
100	4	98.92%
More	8	100.00%

SRMCP (Jul, 2023)



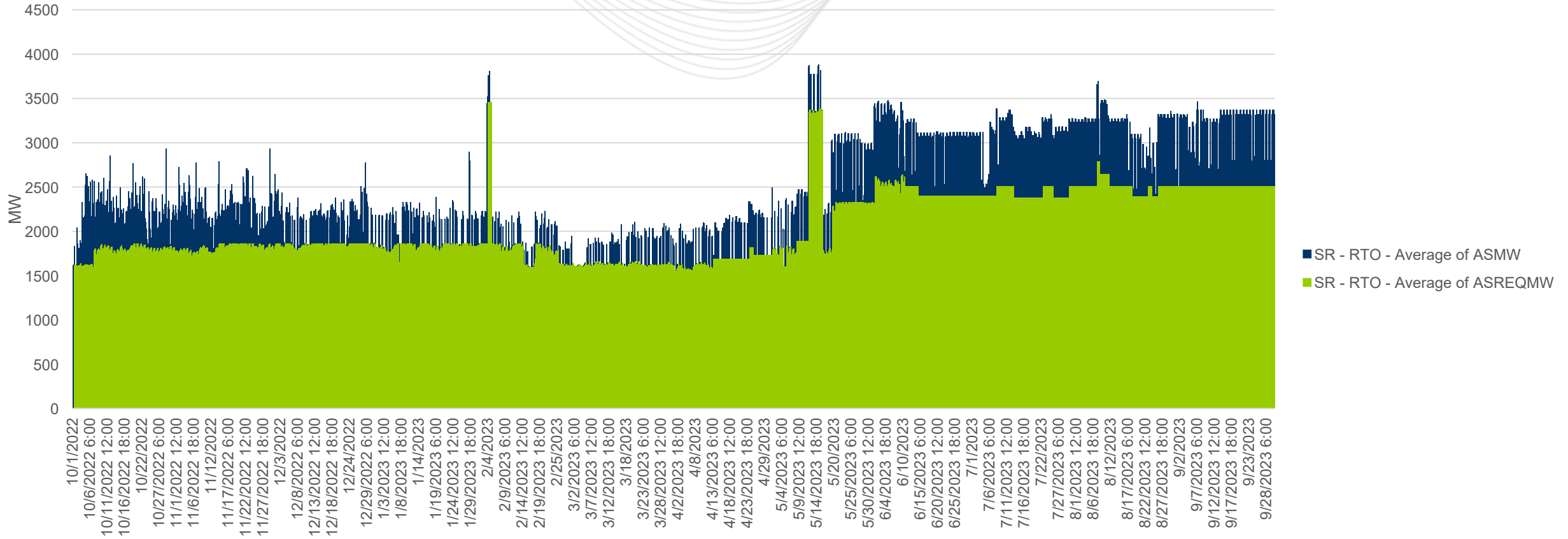
Price	Frequency	Cumulative %
0	81	11.25%
0.02	124	28.47%
7.5	476	94.58%
25	38	99.86%
50	1	100.00%
100	0	100.00%
More	0	100.00%

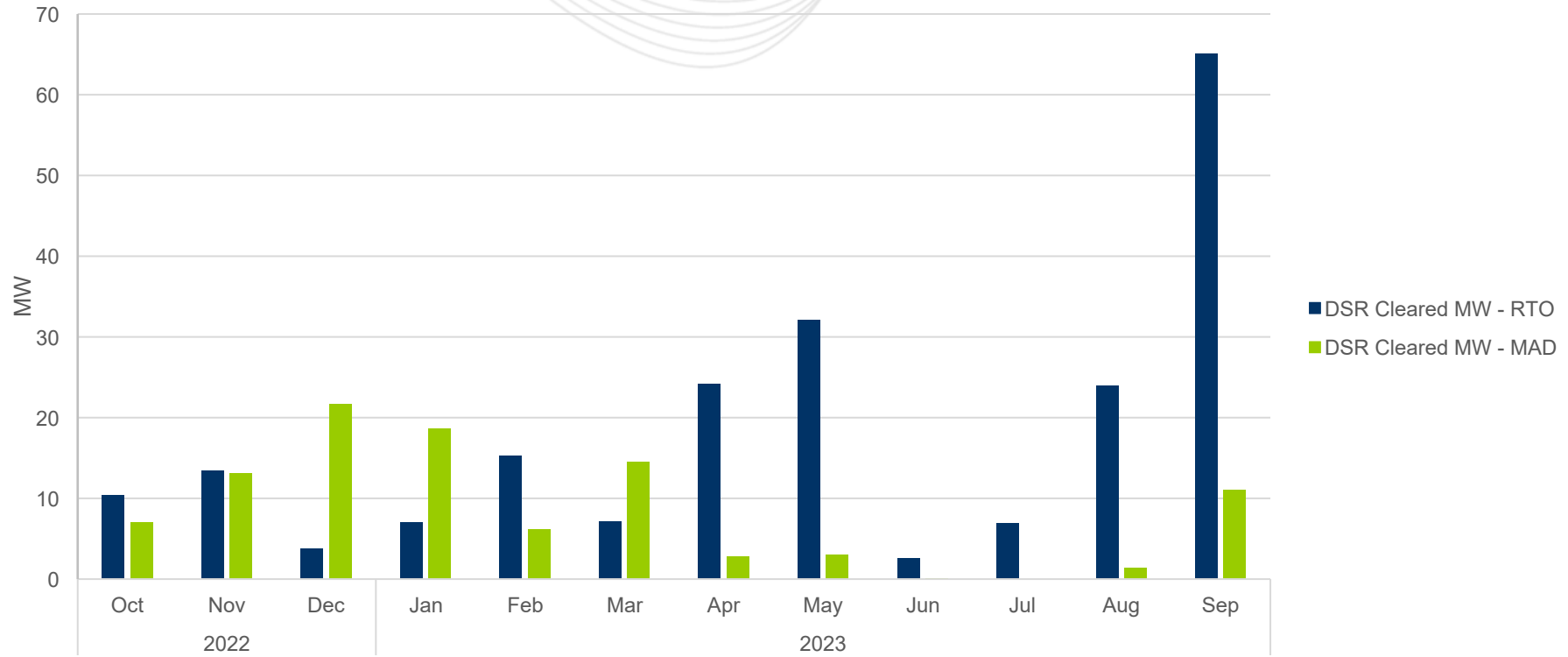
SRMCP (Sep, 2023)





AS Requirement (RTO SR) vs. ASMW

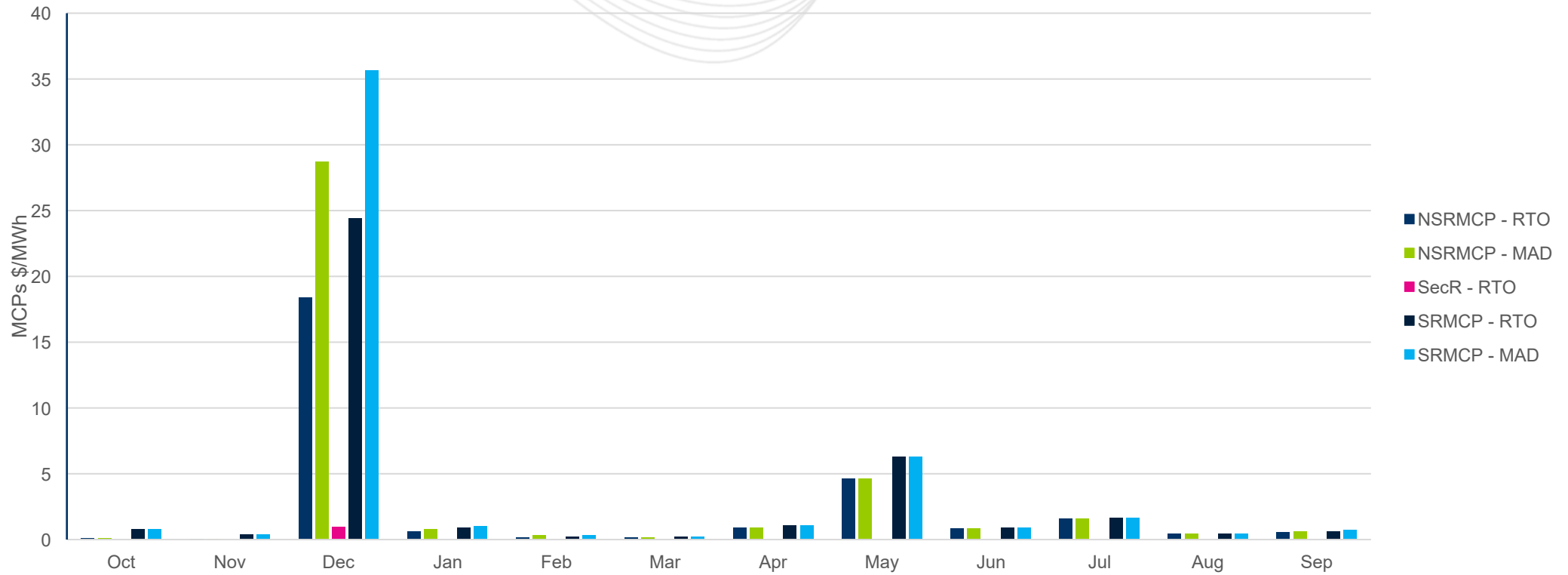




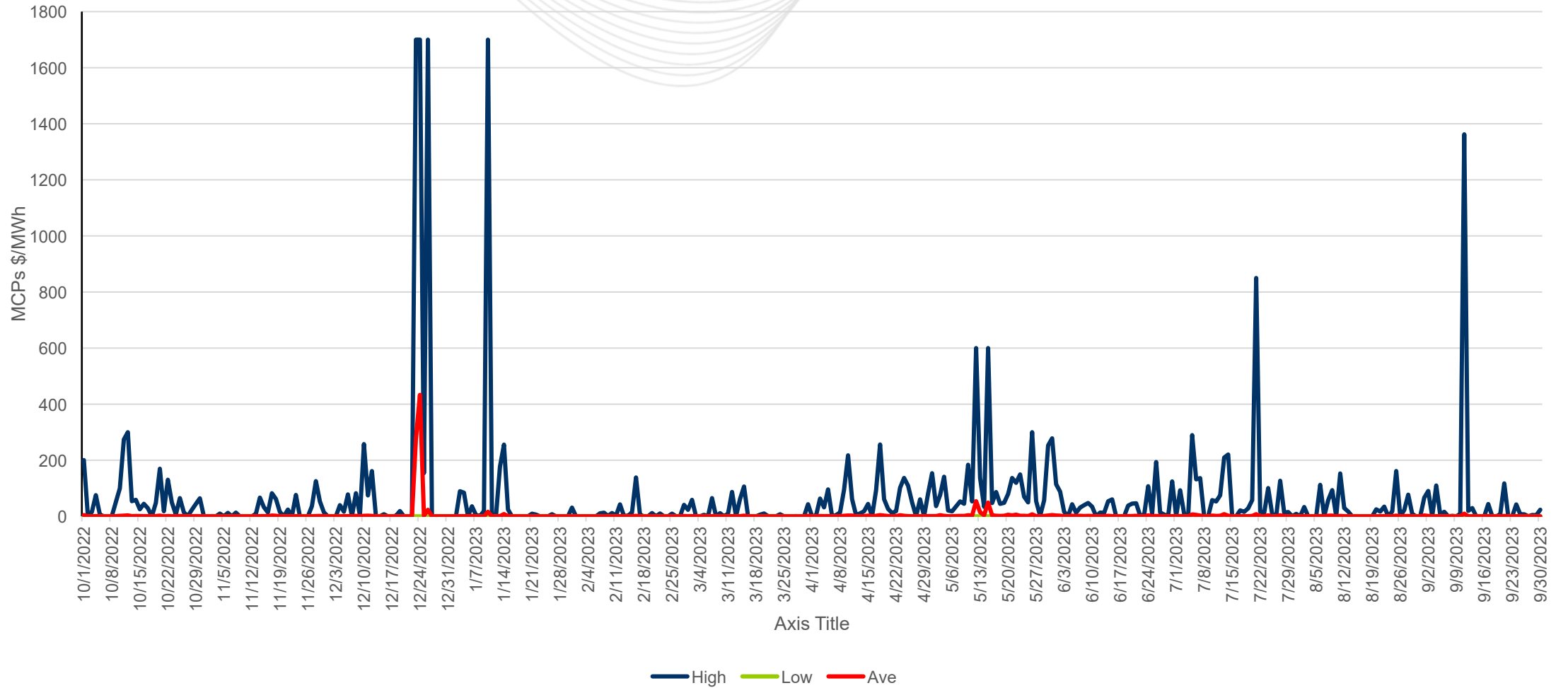


Real-Time Market Metrics

October, 2022 – September, 2023



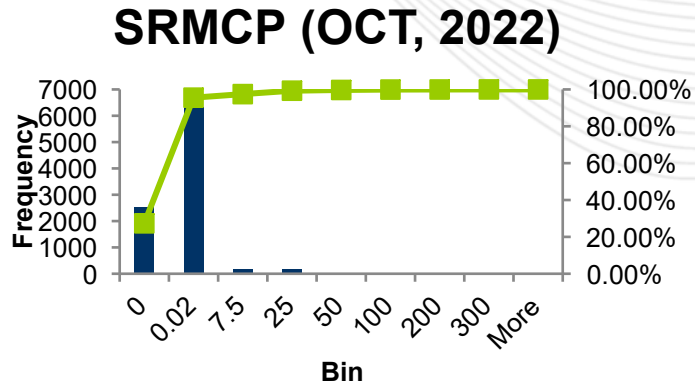
SRMCP (Daily Max, Min, Average)



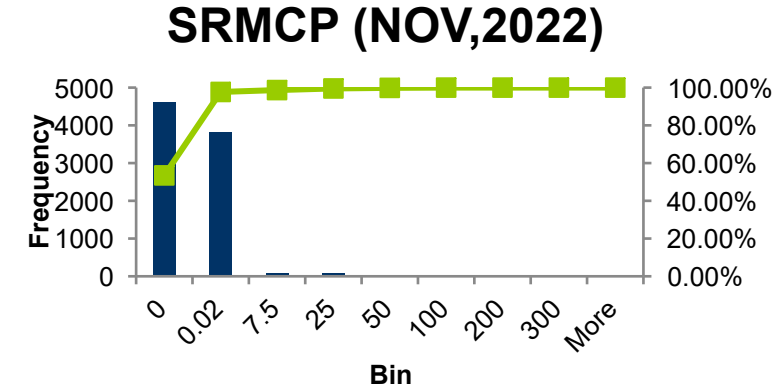


SRMCP Distribution & Histogram: Oct, 2022 – Jan, 2023

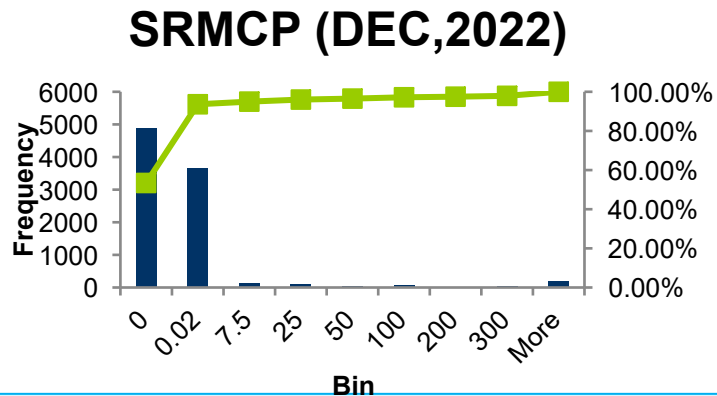
Price	Frequency	Cumulative %
0	2542	27.36%
0.02	6335	95.53%
7.5	179	97.46%
25	172	99.31%
50	37	99.71%
100	20	99.92%
200	4	99.97%
300	3	100.00%
More	0	100.00%



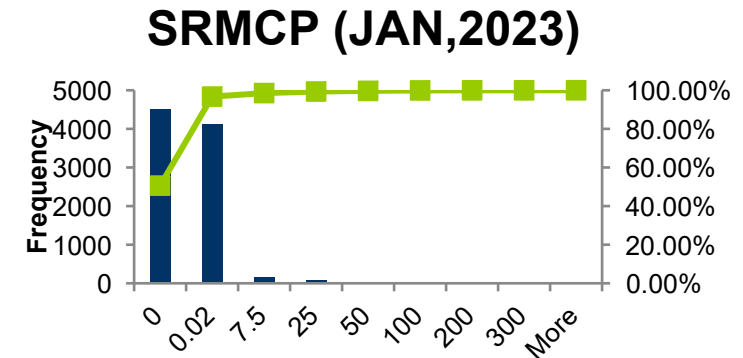
Price	Frequency	Cumulative %
0	4620	53.47%
0.02	3821	97.70%
7.5	86	98.69%
25	74	99.55%
50	27	99.86%
100	12	100.00%
200	0	100.00%
300	0	100.00%
More	0	100.00%



Price	Frequency	Cumulative %
0	4881	53.41%
0.02	3676	93.63%
7.5	123	94.98%
25	96	96.03%
50	45	96.52%
100	62	97.20%
200	27	97.49%
300	40	97.93%
More	189	100.00%



Price	Frequency	Cumulative %
0	4518	50.60%
0.02	4116	96.71%
7.5	163	98.53%
25	73	99.35%
50	30	99.69%
100	20	99.91%
200	5	99.97%
300	0	99.97%
More	3	100.00%



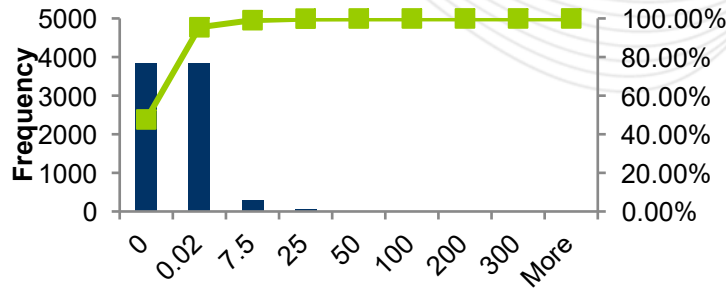
Key Takeaway: SRMCPs were less or equal to \$0.02/MWh most of the time after RPF.



SRMCP Distribution & Histogram: Feb - May, 2023

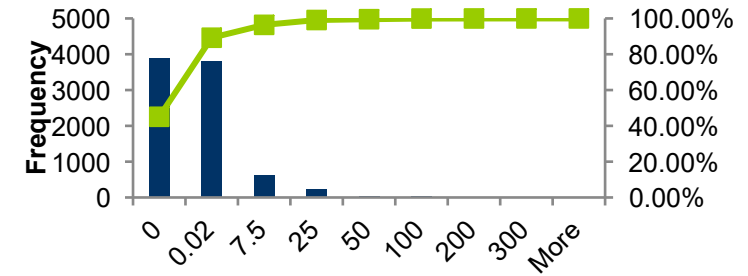
Price	Frequency	Cumulative %
0	3844	47.67%
0.02	3852	95.44%
7.5	296	99.11%
25	64	99.90%
50	6	99.98%
100	1	99.99%
200	1	100.00%
300	0	100.00%
More	0	100.00%

SRMCP (FEB,2023)



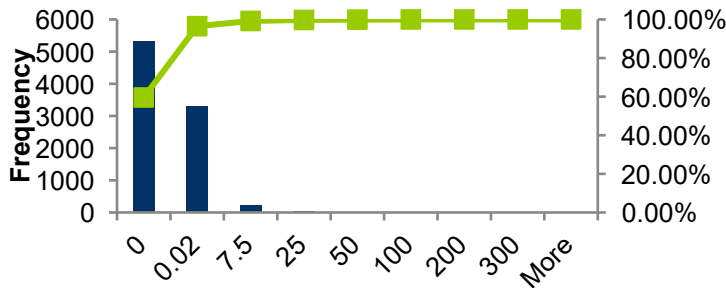
Price	Frequency	Cumulative %
0	3894	45.07%
0.02	3815	89.22%
7.5	621	96.41%
25	234	99.12%
50	39	99.57%
100	31	99.93%
200	4	99.98%
300	2	100.00%
More	0	100.00%

SRMCP (APR,2023)



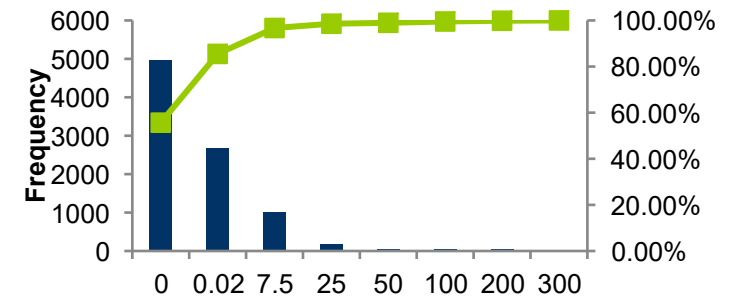
Price	Frequency	Cumulative %
0	5318	59.57%
0.02	3297	96.49%
7.5	242	99.20%
25	47	99.73%
50	14	99.89%
100	9	99.99%
200	1	100.00%
300	0	100.00%
More	0	100.00%

SRMCP (MAR,2023)



Price	Frequency	Cumulative %
0	4968	55.65%
0.02	2663	85.48%
7.5	1003	96.72%
25	165	98.57%
50	36	98.97%
100	51	99.54%
200	29	99.87%
300	12	100.00%
More	0	100.00%

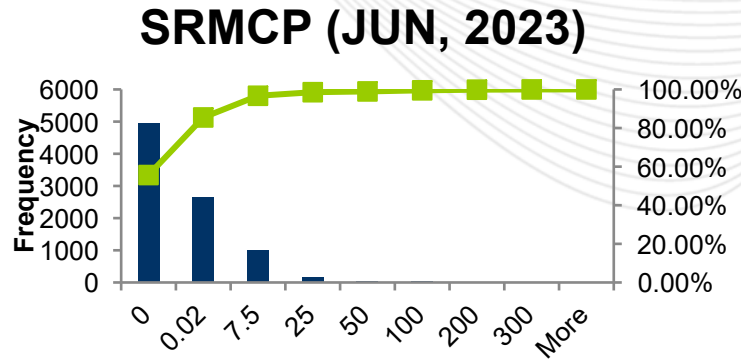
SRMCP (MAY,2023)



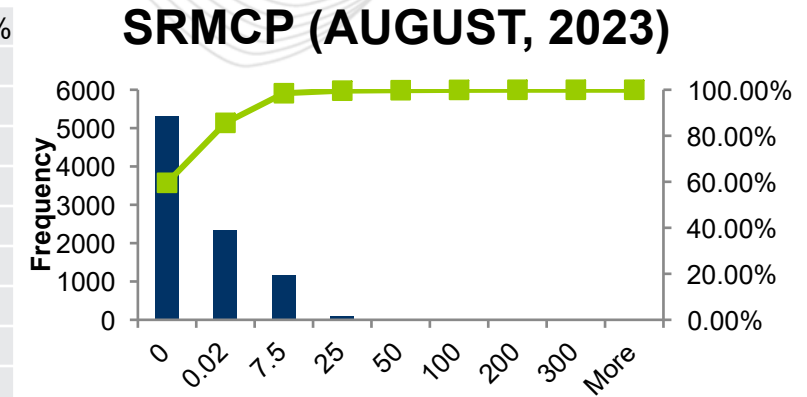


SRMCP Distribution & Histogram: Jun-Sep, 2023

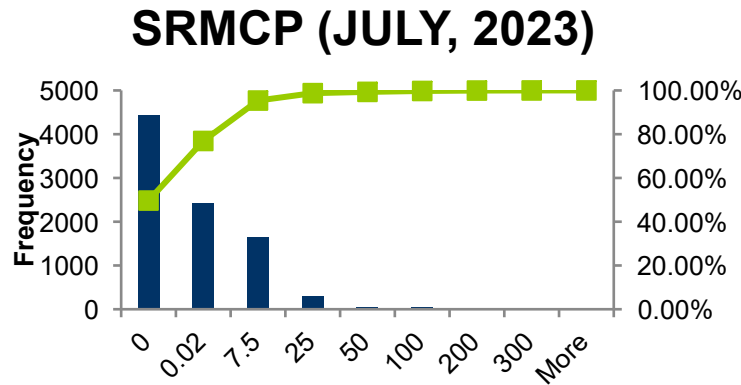
Price	Frequency	Cumulative %
0	2123	24.57%
0.02	4849	80.69%
7.5	1352	96.34%
25	262	99.38%
50	38	99.81%
100	11	99.94%
200	5	100.00%
300	0	100.00%
More	0	100.00%



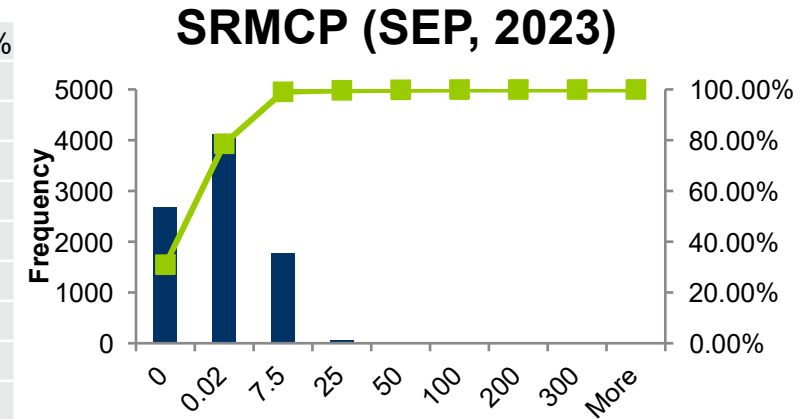
Price	Frequency	Cumulative %
0	5317	59.55%
0.02	2327	85.62%
7.5	1150	98.50%
25	99	99.61%
50	18	99.81%
100	12	99.94%
200	5	100.00%
300	0	100.00%
More	0	100.00%



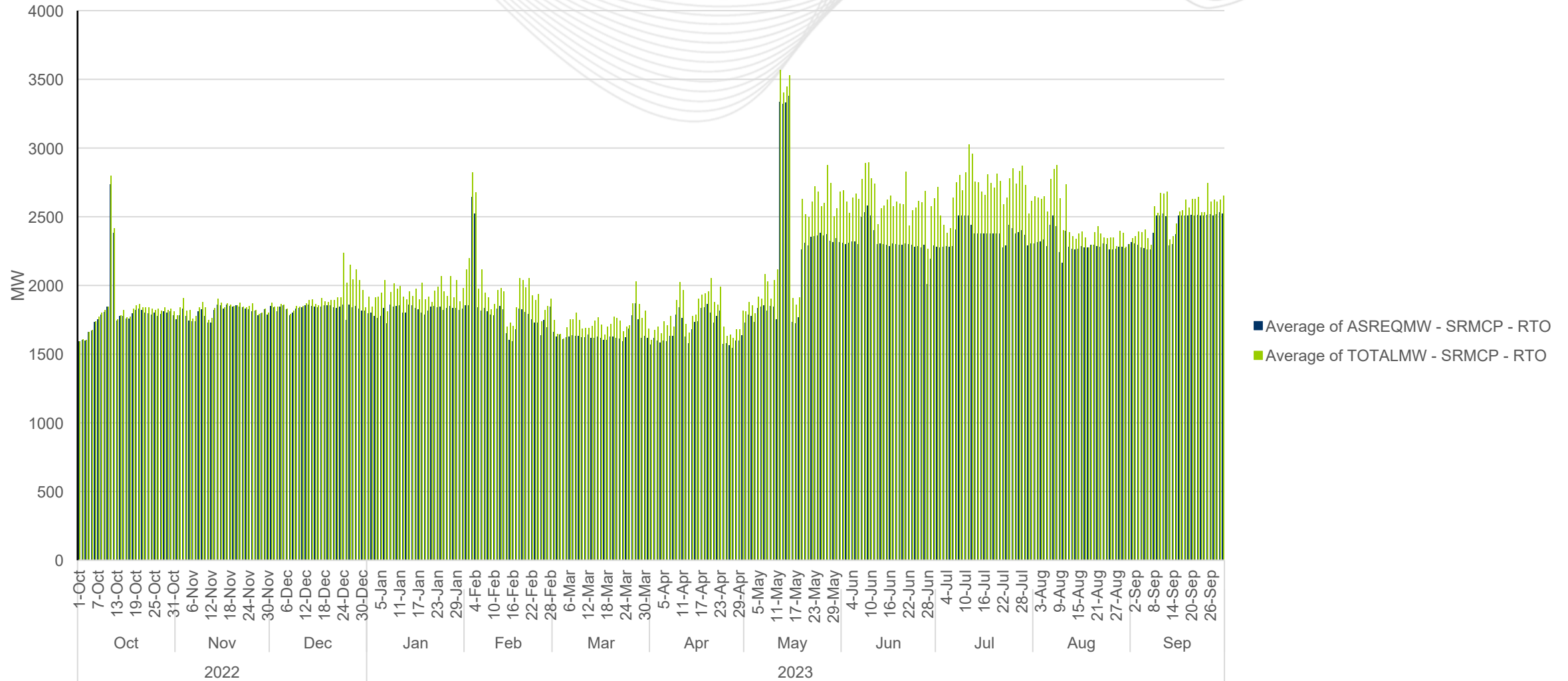
Price	Frequency	Cumulative %
0	4434	49.66%
0.02	2432	76.90%
7.5	1649	95.37%
25	302	98.76%
50	52	99.34%
100	37	99.75%
200	17	99.94%
300	4	99.99%
More	1	100.00%

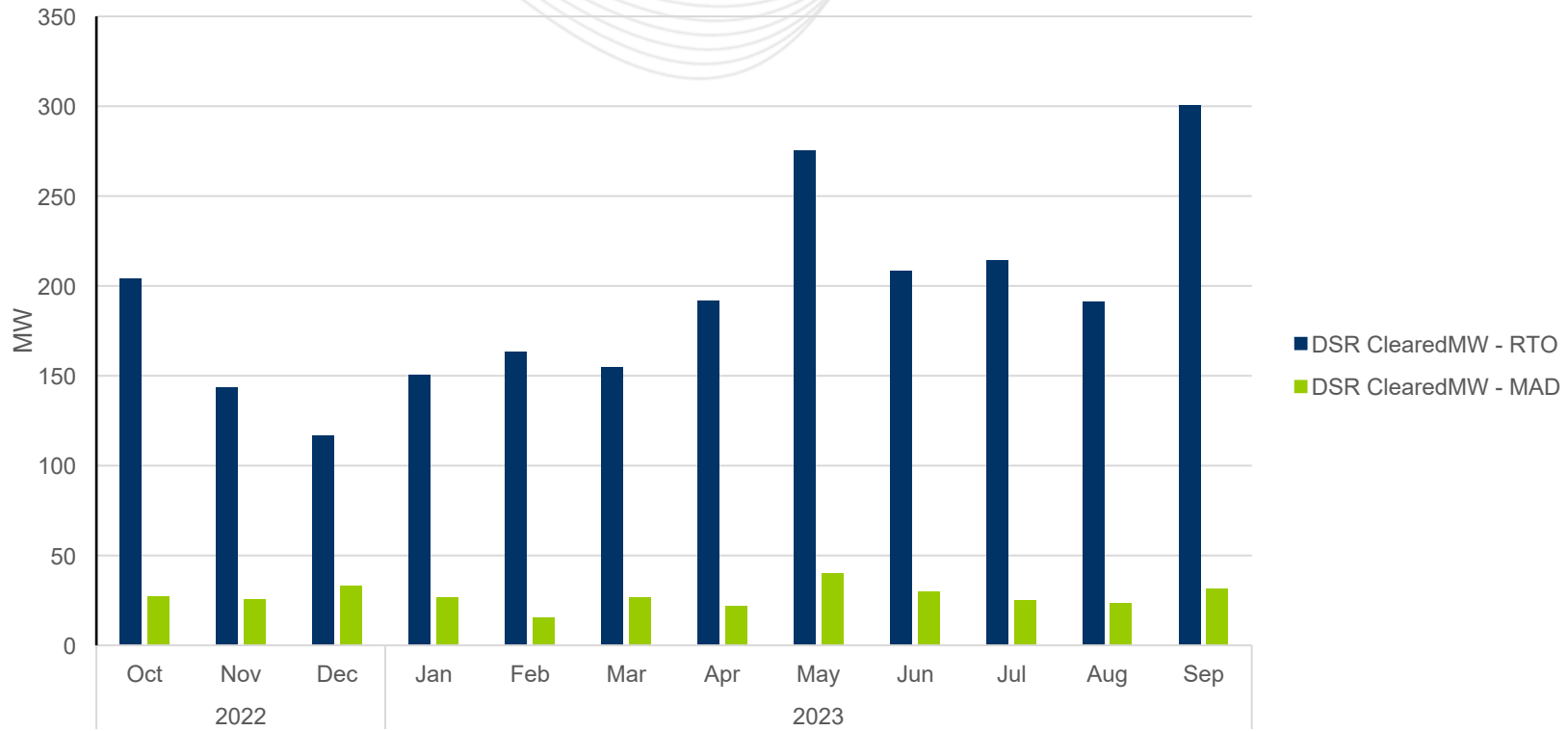


Price	Frequency	Cumulative %
0	2674	30.95%
0.02	4116	78.59%
7.5	1769	99.06%
25	51	99.65%
50	17	99.85%
100	9	99.95%
200	2	99.98%
300	0	99.98%
More	2	100.00%



AS Requirement (RTO SR) vs. ASMW





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Reserve Price Formation Update



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