

Fast Start Metrics Update

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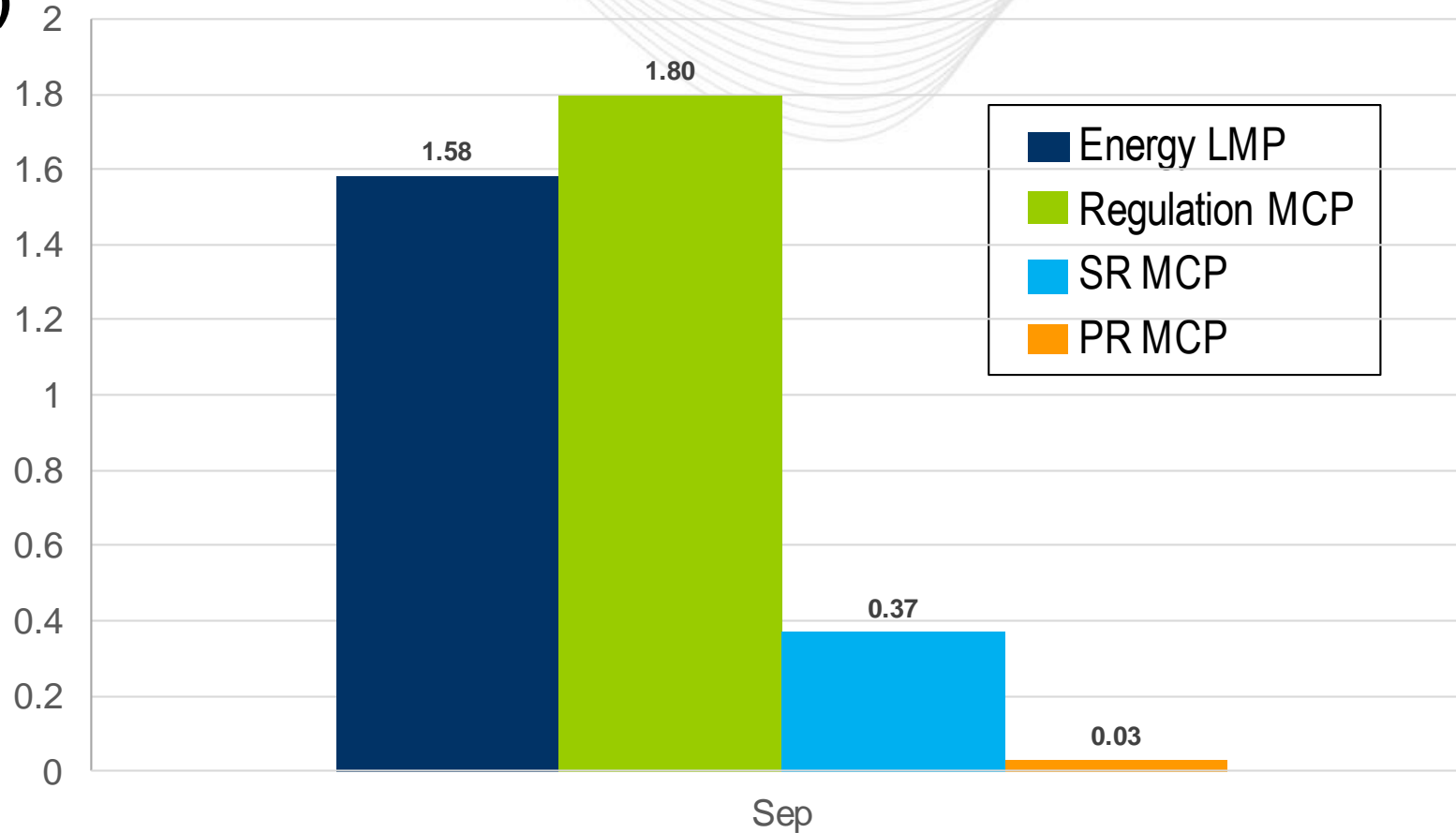
October 6, 2021

- PJM launched Fast Start Pricing on September 1, 2021
- PJM will post Fast Start metrics information monthly
- Uplift summary will be posted in November's update and will include September and October data
- The average energy price increase was \$1.58/MWh, which is a 3.4 percent increase for September
 - Production data reflecting Fast Start Pricing implementation



Fast-Start Pricing: September 2021

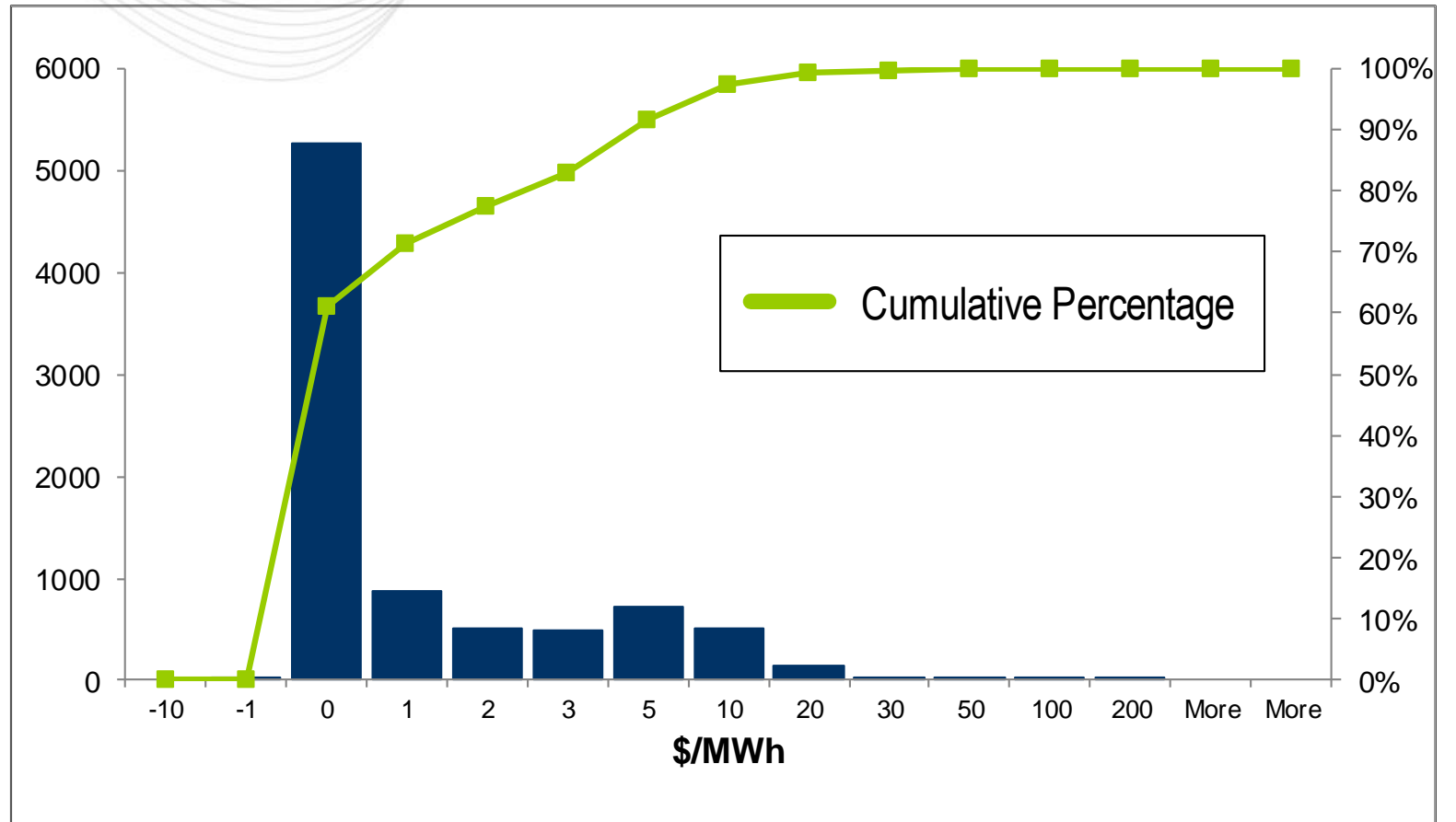
**Average Increase
(\$/MWh)**



Key Takeaway: Energy and Ancillary Service Market clearing prices all increased due to co-optimization.

Energy LMP Increase	Frequency	Cumulative
-10	3	0.03%
-1	22	0.29%
0	5256	61.12%
1	879	71.30%
2	517	77.28%
3	496	83.02%
5	724	91.40%
10	519	97.41%
20	143	99.06%
30	37	99.49%
50	30	99.84%
100	12	99.98%
200	2	100.00%

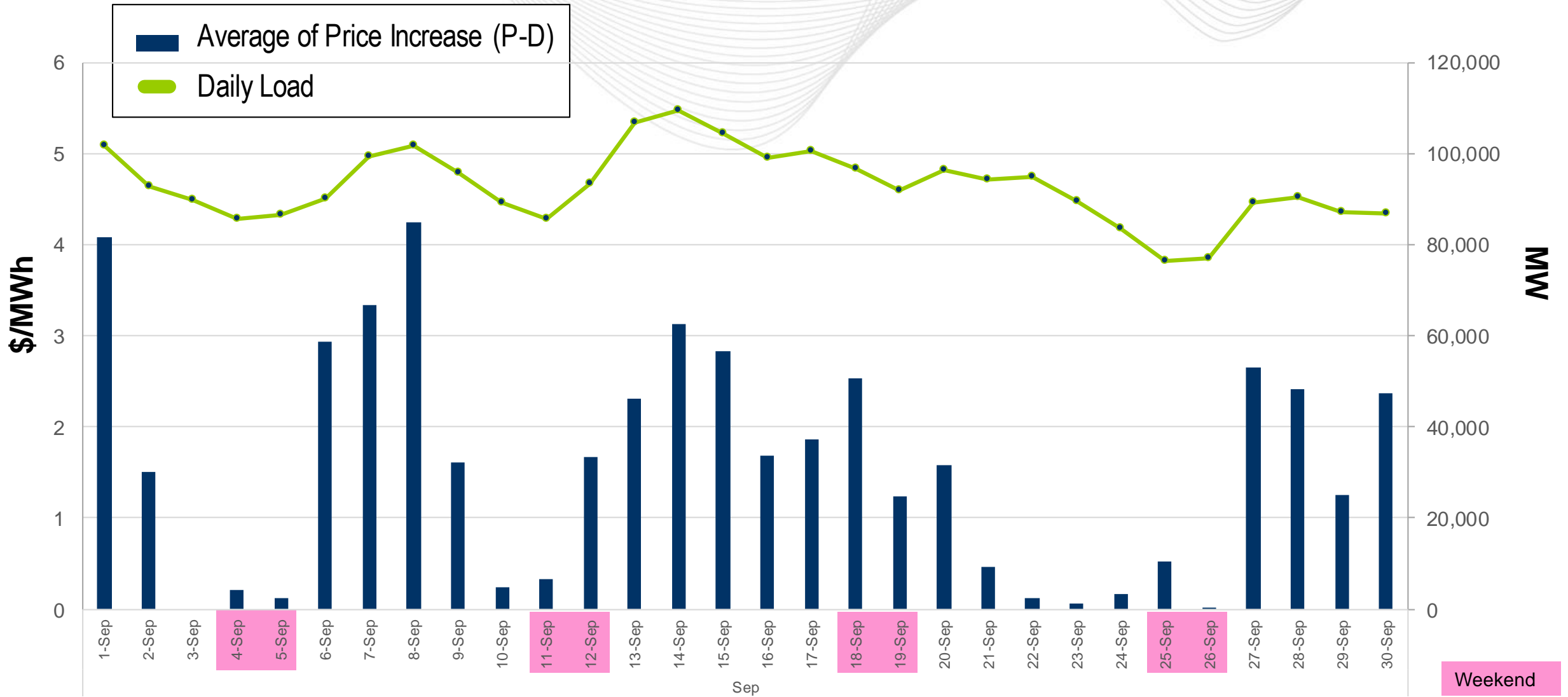
**Frequency
(Number of Intervals)**



Key Takeaway: Over 50% of the time, there was zero impact on Energy LMPs.

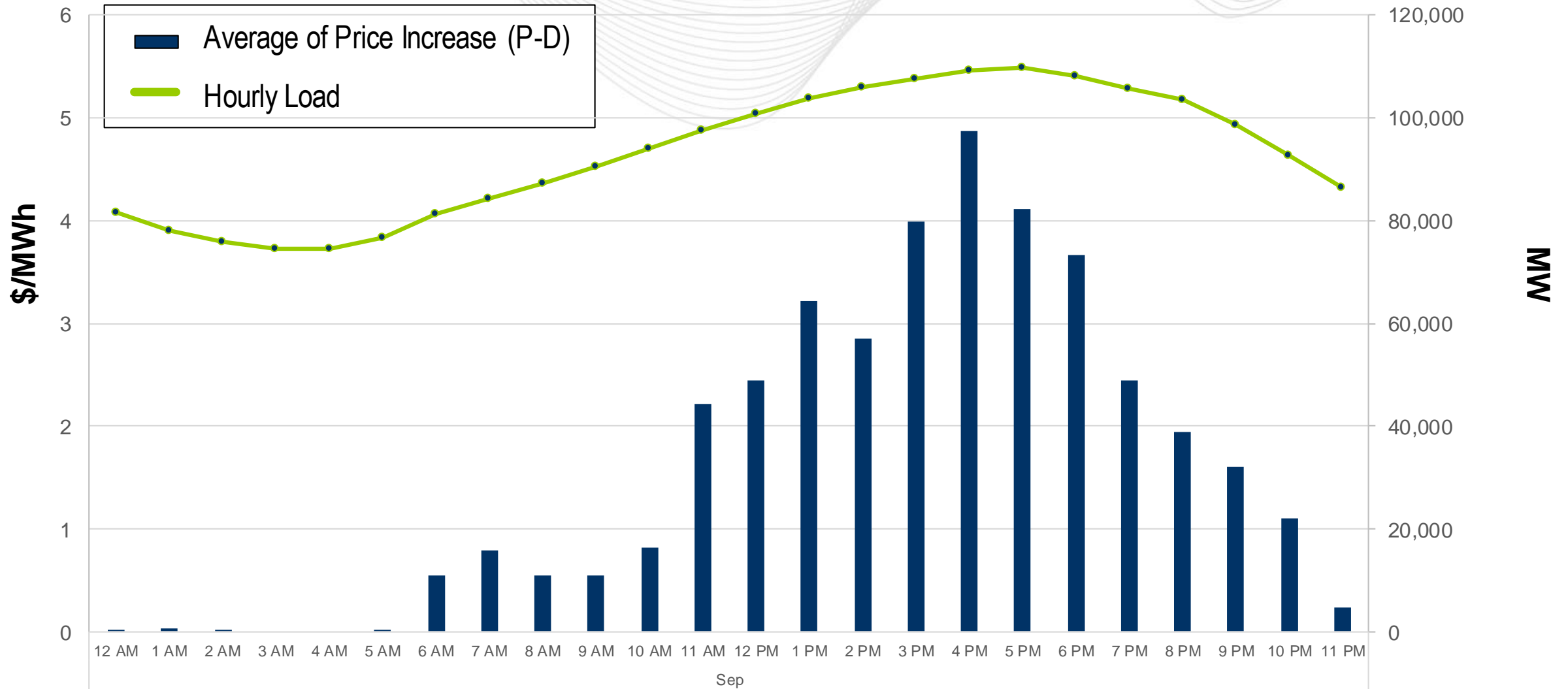


Fast-Start Daily Distribution: September 2021



Key Takeaway: LMP increases are more apparent on higher load days.

Fast-Start Hourly Distribution: September 2021

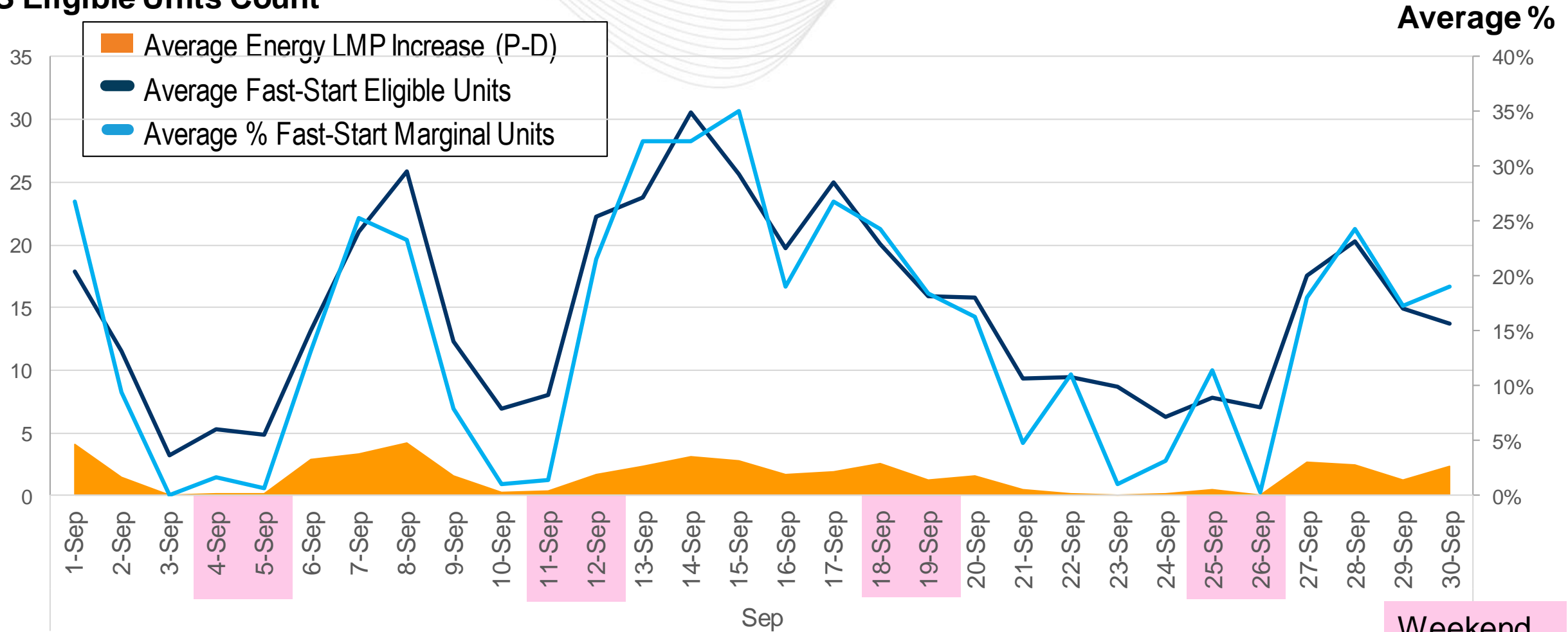


Key Takeaway: Largest impact on LMPs occur during on-peak hours.



Fast-Start Eligible and Marginal Units: September 2021

FS Eligible Units Count



Key Takeaway: Fast-start units and price increase are correlated.

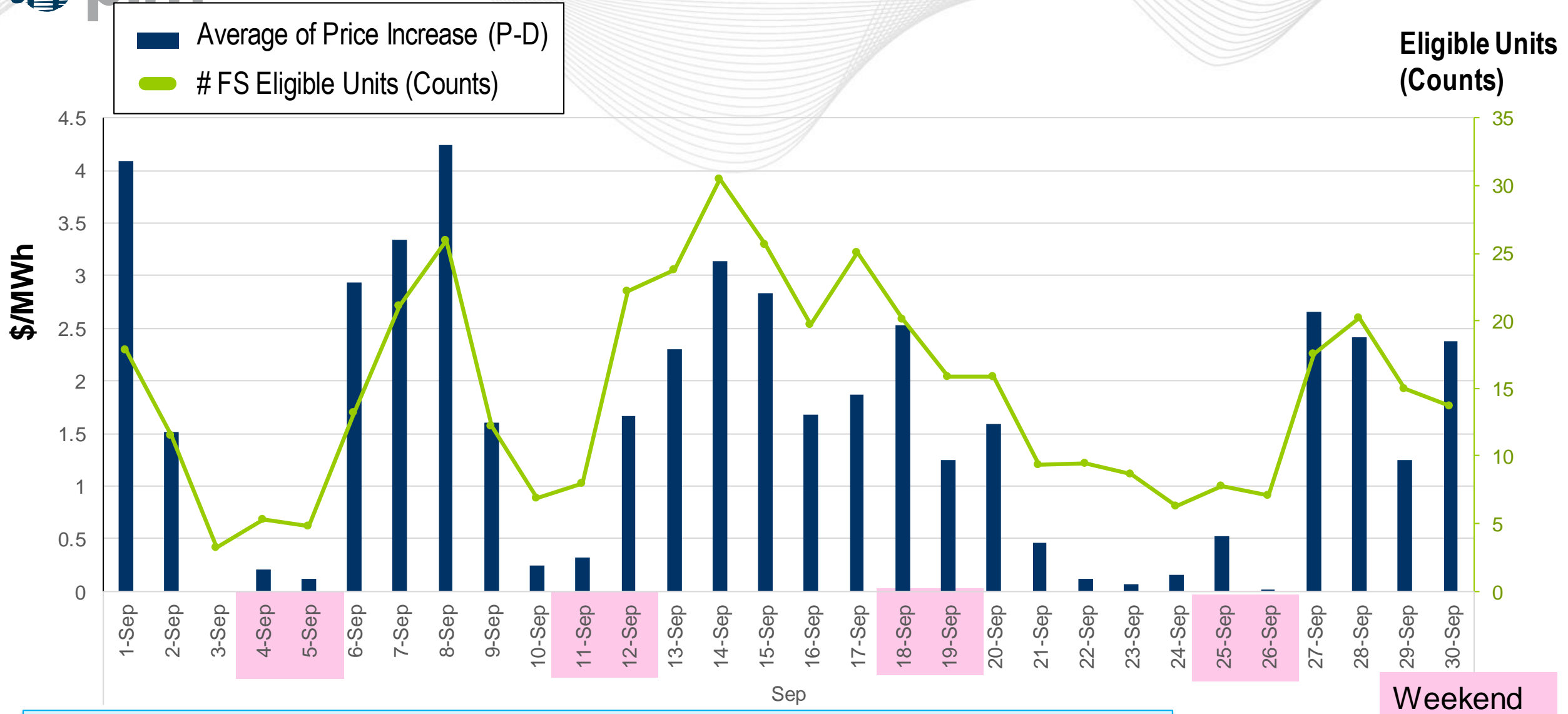


Fast-Start Eligible and Marginal Units: September 2021

	EnergyLMP Increase (\$/MWh)	FS Eligible Units	% FS_Marginal
1-Sep	4.08	18	27%
2-Sep	1.51	12	9%
3-Sep	0.00	3	0%
4-Sep	0.21	5	2%
5-Sep	0.12	5	1%
6-Sep	2.94	13	13%
7-Sep	3.34	21	25%
8-Sep	4.24	26	23%
9-Sep	1.60	12	8%
10-Sep	0.24	7	1%
11-Sep	0.33	8	1%
12-Sep	1.67	22	22%
13-Sep	2.30	24	32%
14-Sep	3.13	31	32%
15-Sep	2.83	26	35%
16-Sep	1.68	20	19%
17-Sep	1.87	25	27%
18-Sep	2.53	20	24%
19-Sep	1.24	16	18%
20-Sep	1.59	16	16%
21-Sep	0.46	9	5%
22-Sep	0.12	10	11%
23-Sep	0.07	9	1%
24-Sep	0.16	6	3%
25-Sep	0.52	8	11%
26-Sep	0.01	7	0%
27-Sep	2.66	18	18%
28-Sep	2.41	20	24%
29-Sep	1.25	15	17%
30-Sep	2.37	14	19%
Monthly Average	1.58	15	15%



Fast Start Eligible Units vs. Energy Price Increase

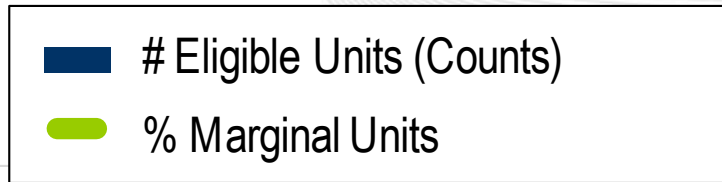


Key Takeaway: More Fast-start eligible units leads to higher energy price increase.

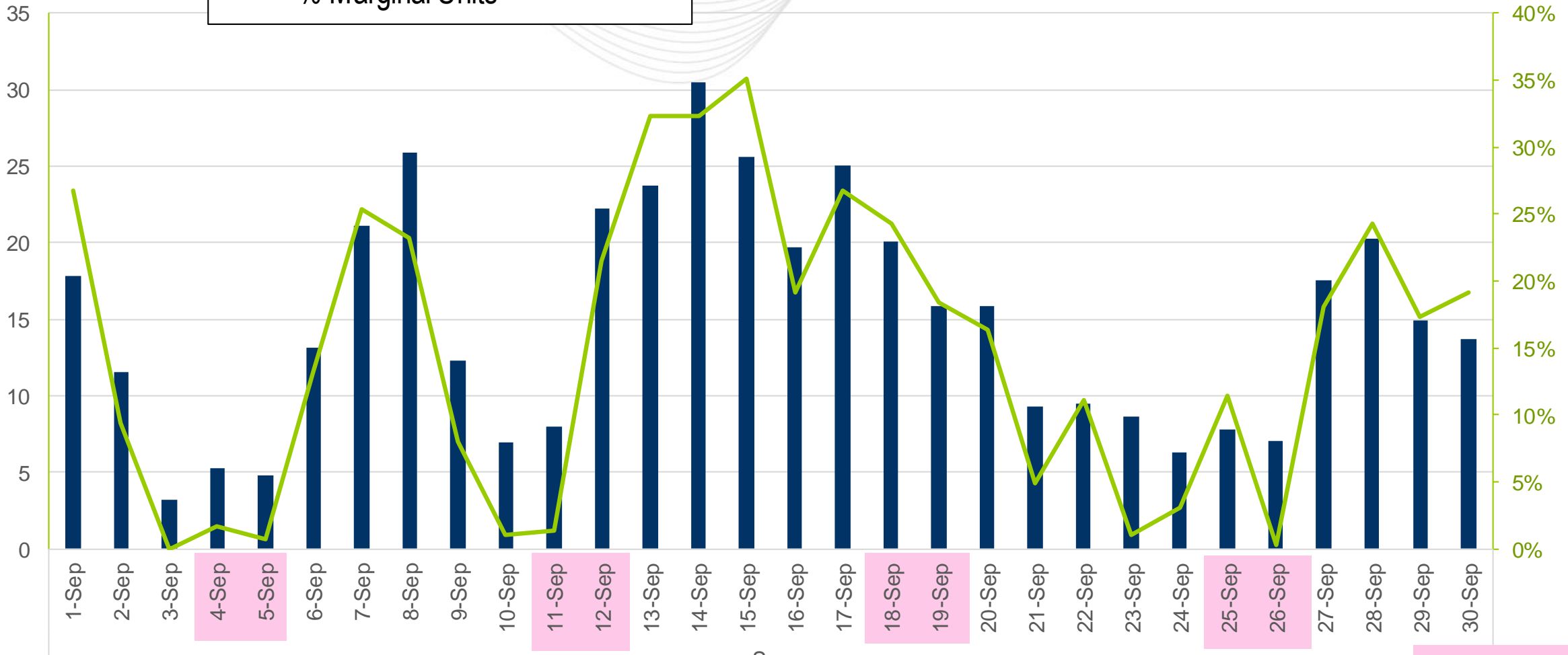


Fast Start Eligible Units vs. % Fast Start on Marginal

Eligible Units (Counts)



Average %



Key Takeaway: On average Fast-start units are marginal 15% of the time.

Weekend

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Fast Start Metrics Update



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