

WESTERN ENERGY IMBALANCE MARKET

Briefing on western energy imbalance market and benefits

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EIM Governing Body Meeting

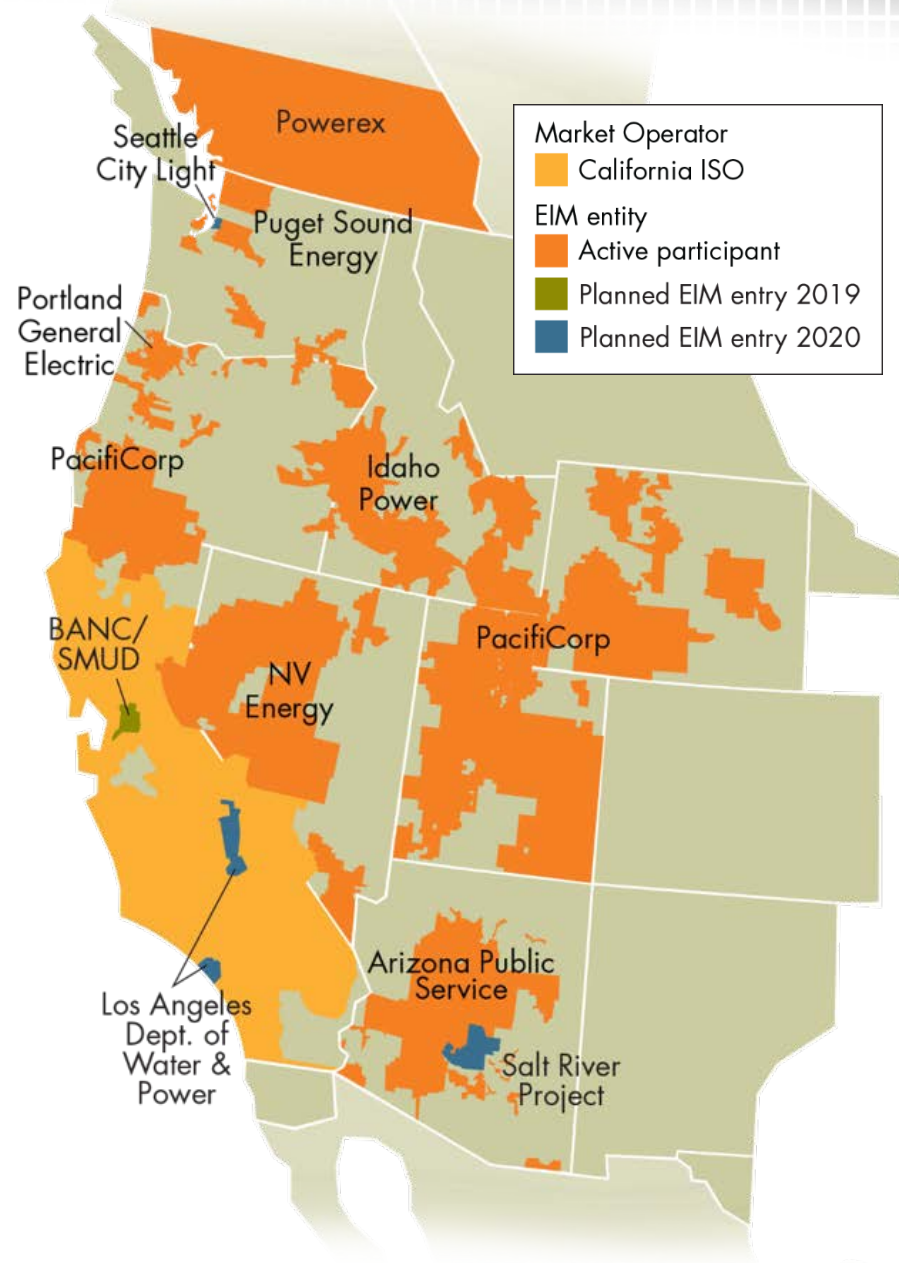
General Session

August 22, 2018



EIM Update

- Idaho and Powerex have been running as expected with no issues.
- SMUD/BANC implementation is on schedule for Spring 2019
- LADWP and SRP to follow in Spring of 2020



Gross economic benefits since start of EIM = \$401.73M

BAA	2014	2015	2016	2017	1st Qtr 2018	2nd Qtr 2018	2018	Total
APS			5.98	34.56	5.90	8.59	14.49	55.03
IPCO						7.75	7.75	7.75
ISO	1.23	12.66	28.34	36.96	14.85	27.93	42.78	121.97
NVE		0.84	15.57	24.20	4.17	5.34	9.51	50.12
PAC	4.73	26.23	45.47	37.41	10.51	11.67	22.18	136.02
PGE				2.83	3.64	5.34	8.98	11.81
PSE			1.56	9.86	3.01	2.32	5.33	16.75
PWRX						2.27	2.27	2.27
Total	5.96	39.73	96.92	145.82	42.08	71.21	113.29	\$ 401.73

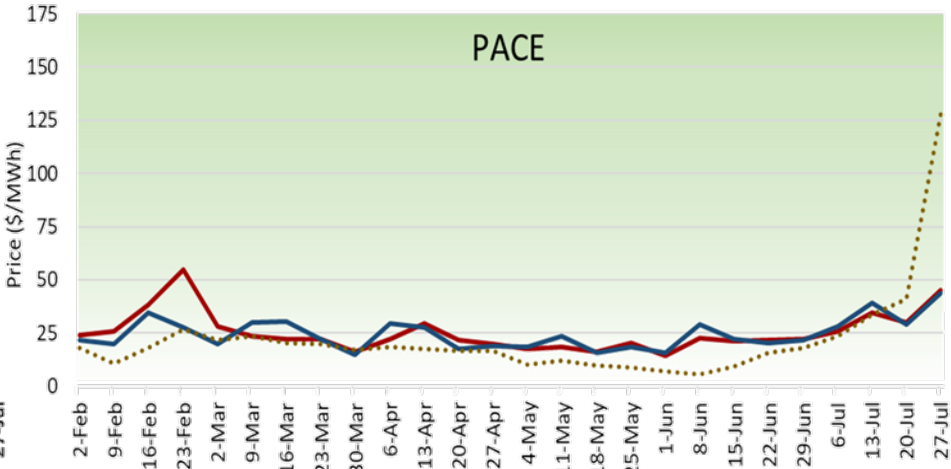
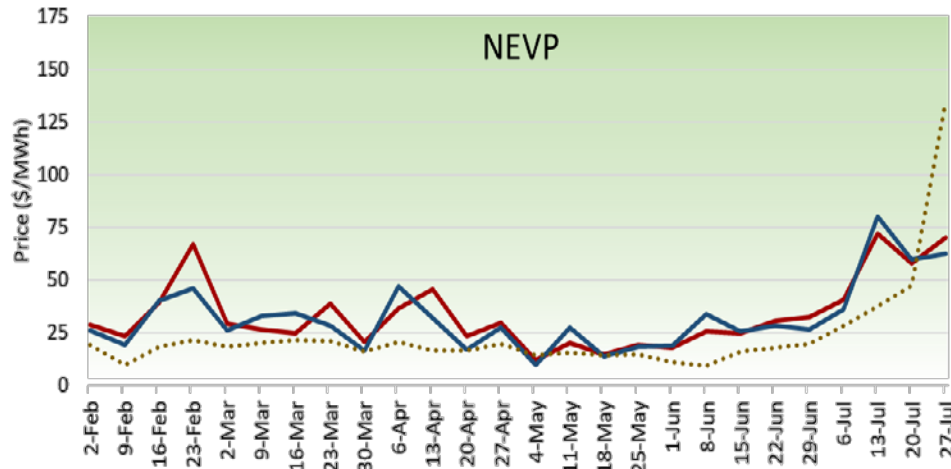
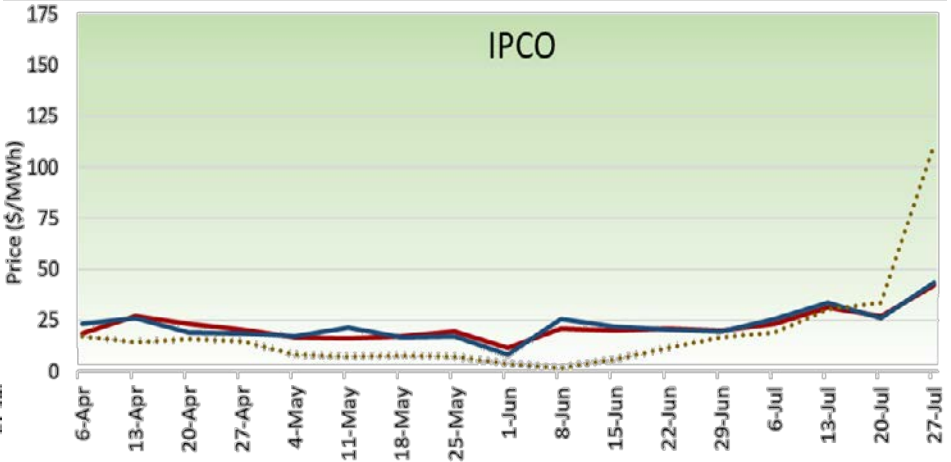
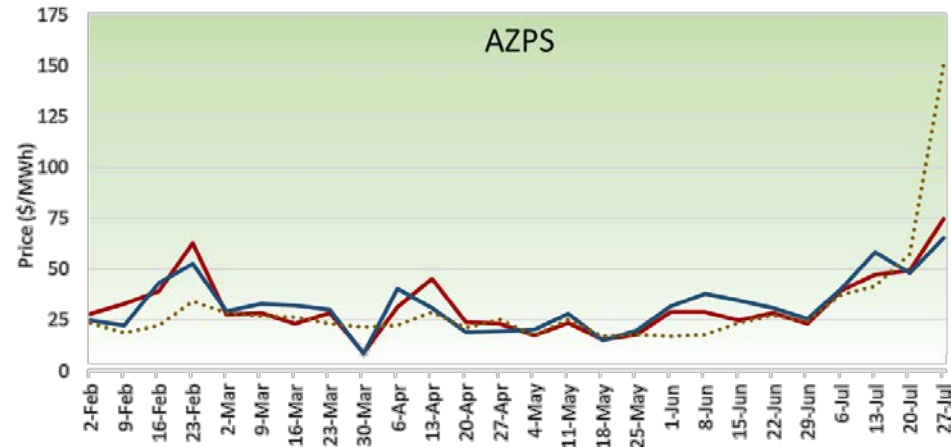
Region	April	May	June	Total
APS	\$3.63	\$2.95	\$2.01	\$8.59
IPCO	\$2.57	\$2.54	\$2.64	\$7.75
ISO	\$9.73	\$9.99	\$8.21	\$27.93
NVE	\$2.55	\$1.98	\$0.81	\$5.34
PAC	\$4.43	\$4.58	\$2.66	\$11.67
PGE	\$1.48	\$1.79	\$2.07	\$5.34
PSE	\$1.06	\$0.58	\$0.68	\$2.32
PWRX	\$0.89	\$0.77	\$0.61	\$2.27
Total	\$26.34	\$25.18	\$19.69	\$71.21

Flexible ramping procurement diversity savings for 2nd quarter, 2018

	April		May		June	
Direction	Up	Down	Up	Down	Up	Down
Average MW saving	736	771	758	748	790	804
Estimated savings	\$992,874	\$107,570	\$209,084	\$105,508	\$43,760	\$35,530
Sum of BAA requirements	1,656	1,681	1,609	1,695	1,649	1,704
Diversity Benefit	44%	46%	47%	44%	48%	47%

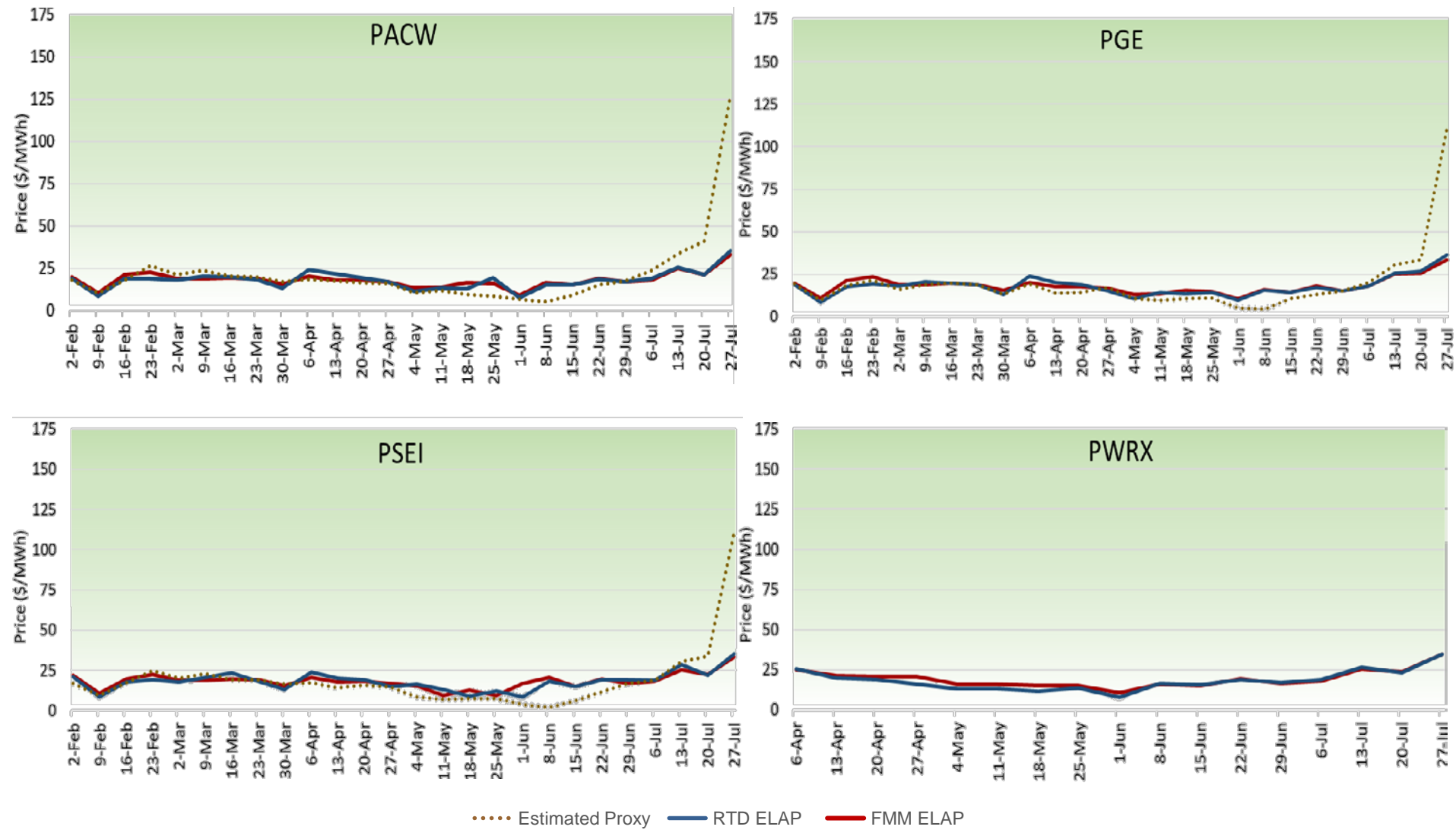
The percentage of savings is the average MW savings divided by the sum of the four individual BAA requirements.

Weekly average prices in EIM areas

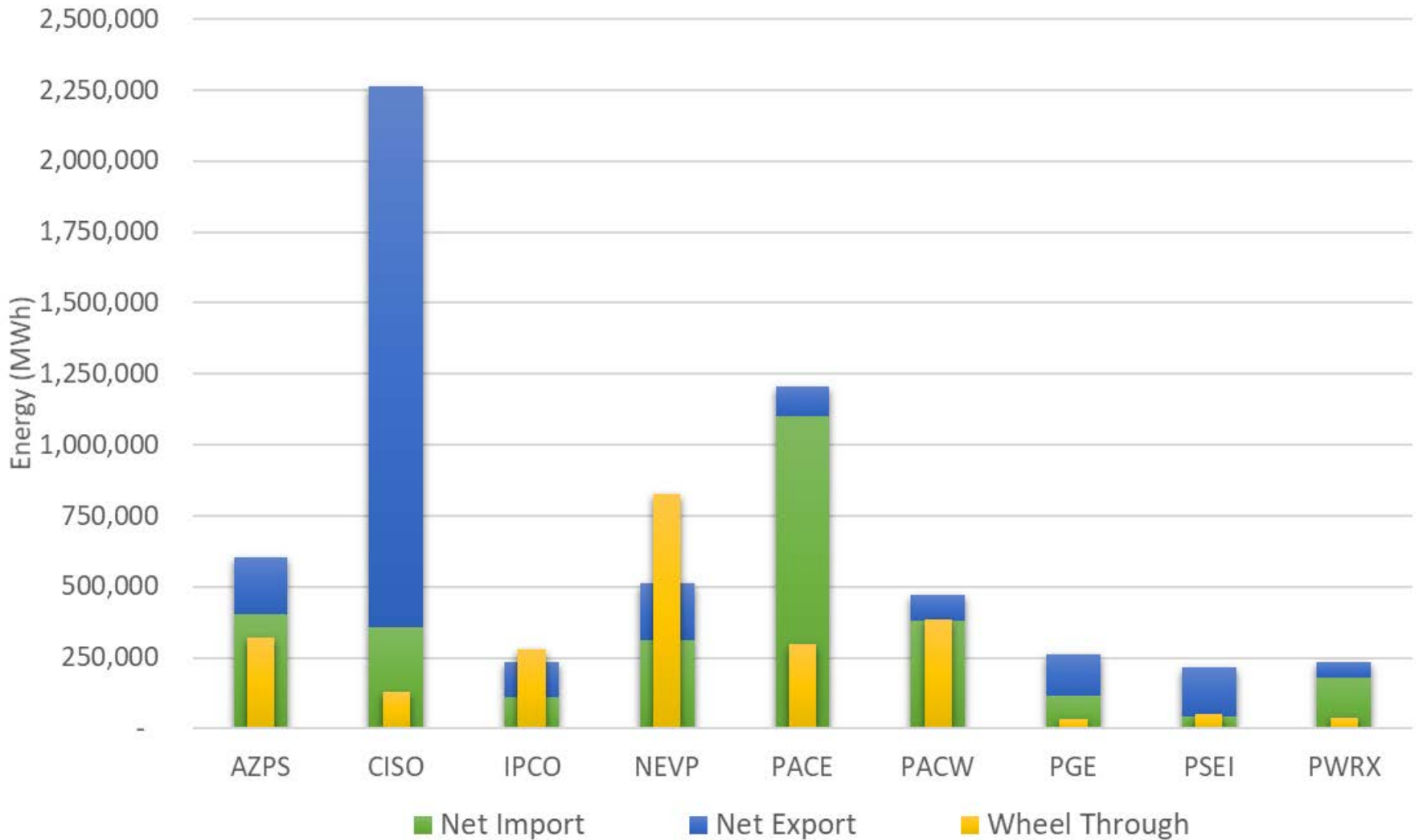


Estimated Proxy RTD ELAP FMM ELAP

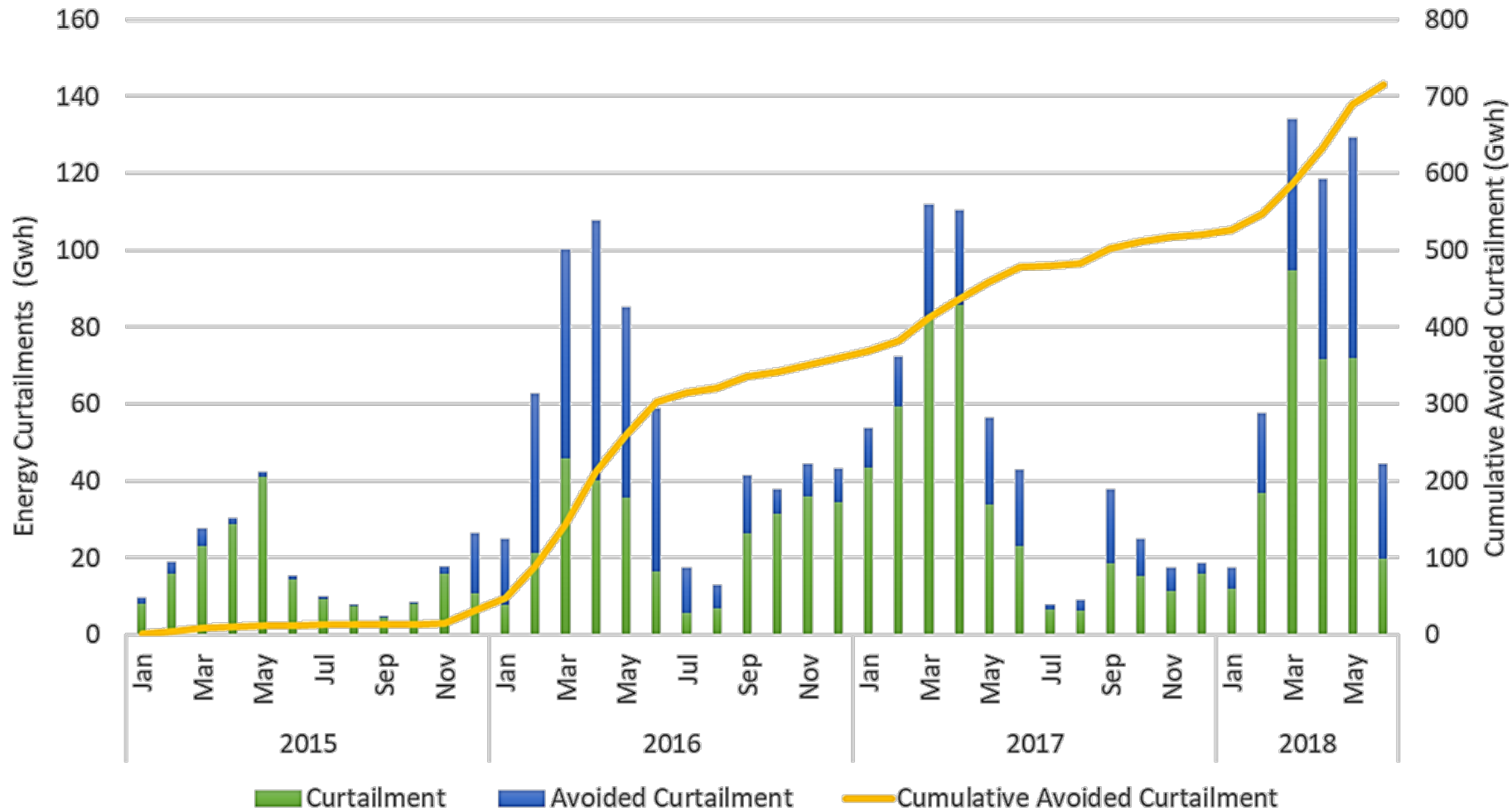
Weekly average prices in EIM areas



Estimated wheel through transfers in Q2, 2018



Energy imbalance market helps avoid curtailment



Robust energy transfers in 2nd quarter, 2018

