

# WESTERN ENERGY IMBALANCE MARKET

## Briefing on western energy imbalance market and benefits

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EIM Governing Body Meeting

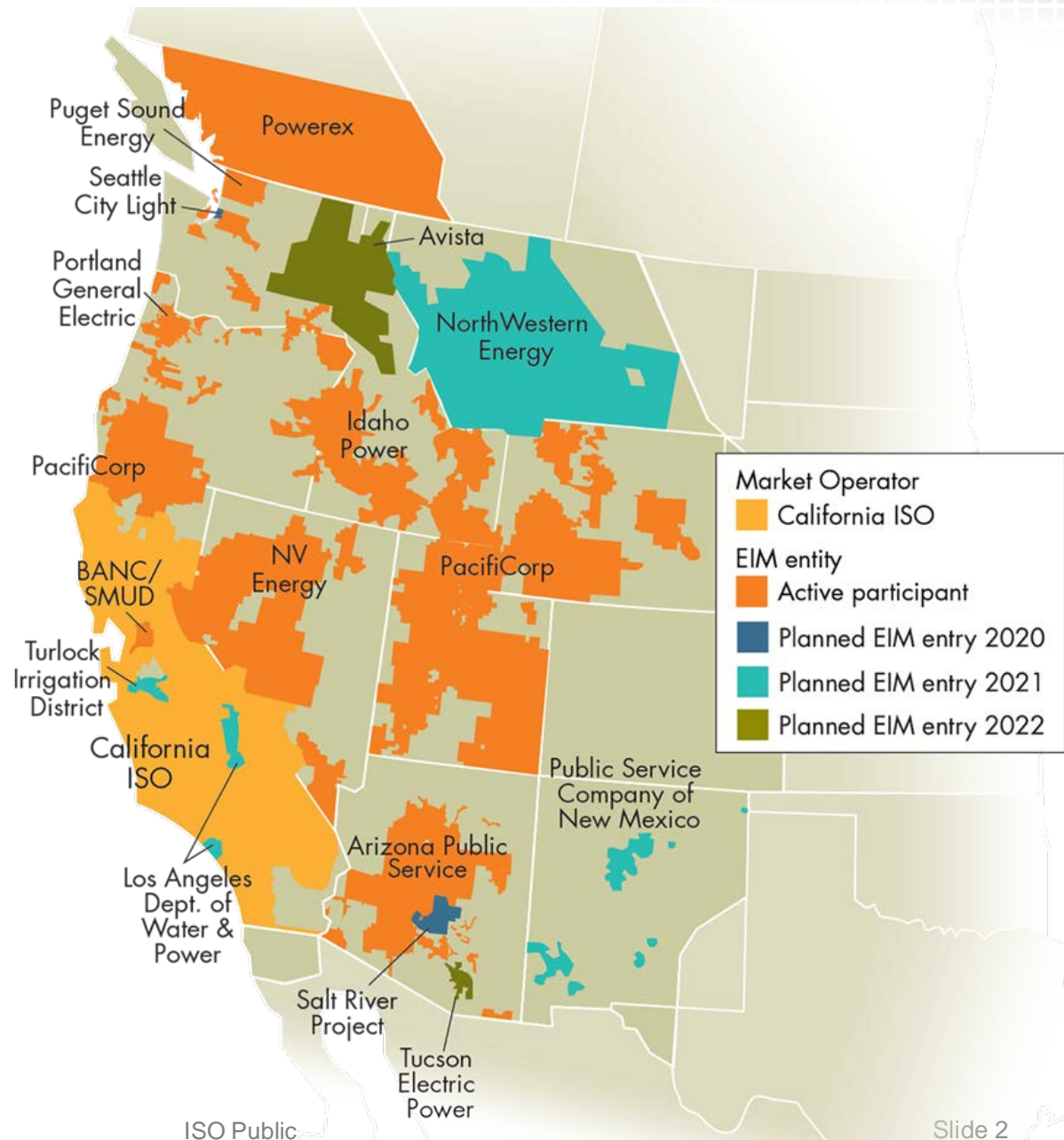
General Session

June 28, 2019

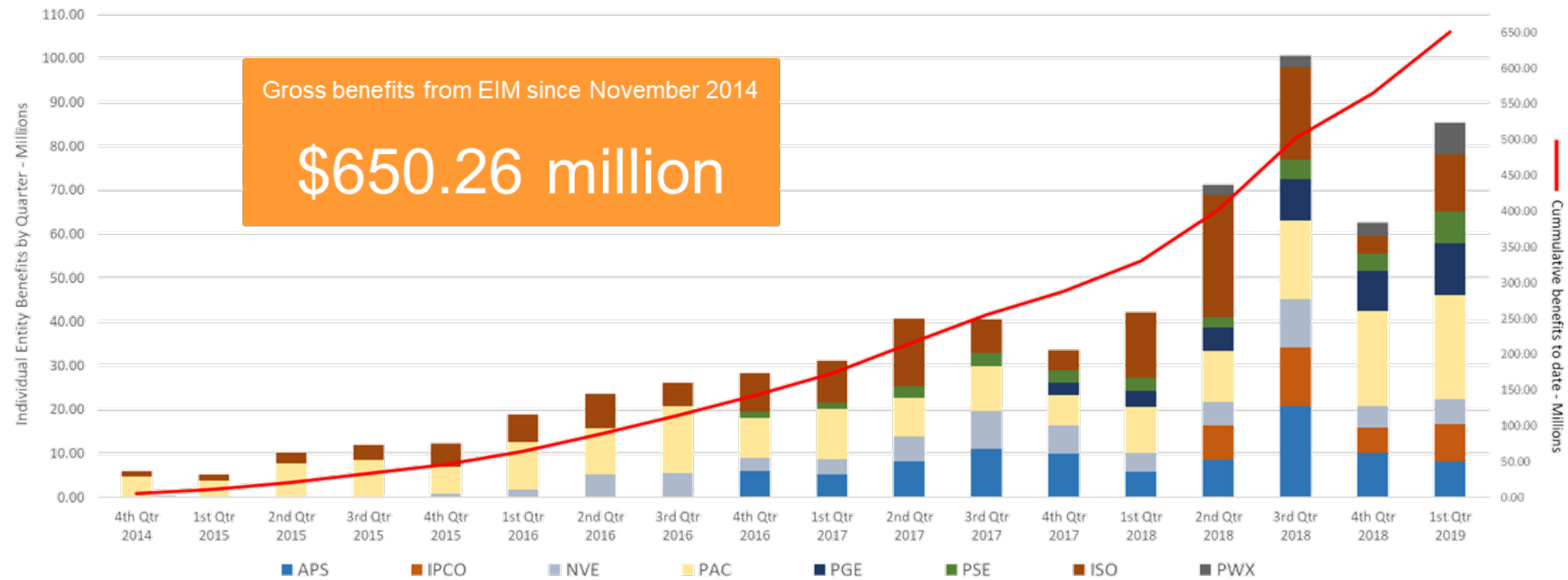


# EIM Update

- BANC/SMUD entered EIM market on April 4<sup>th</sup>
- Seattle City Light and Salt River Project go-live in April 2020
- Entities with signed implementation agreements:
  - 2021 – LADWP, NorthWestern Energy, Public Service Company of New Mexico & Turlock Irrigation District
  - 2022 – Avista & Tucson Electric Power



# Gross economic benefits – 2019 1<sup>st</sup> Quarter



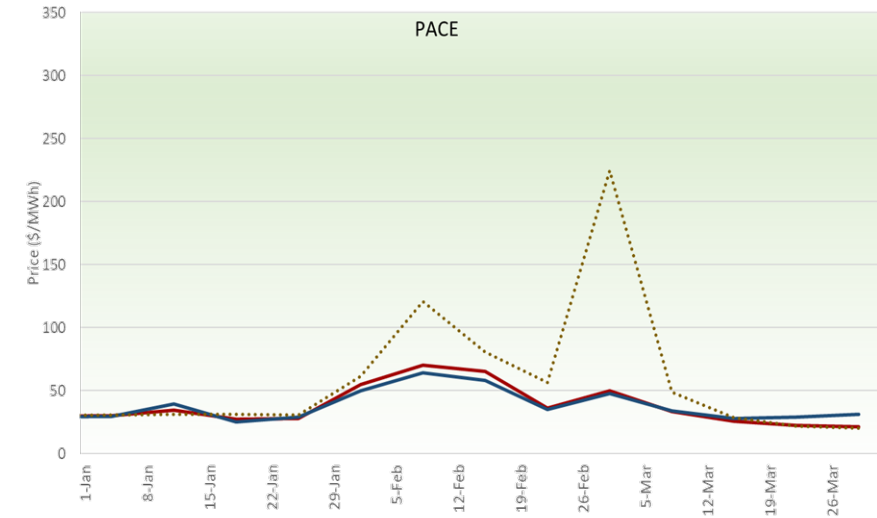
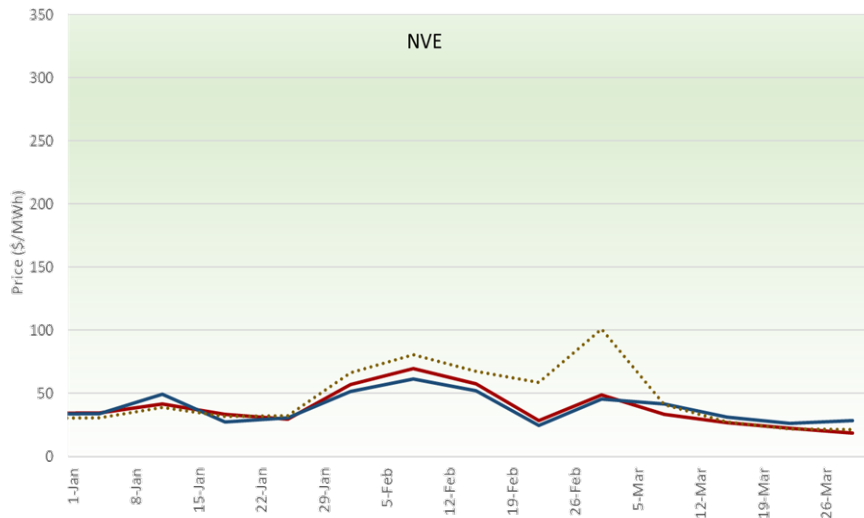
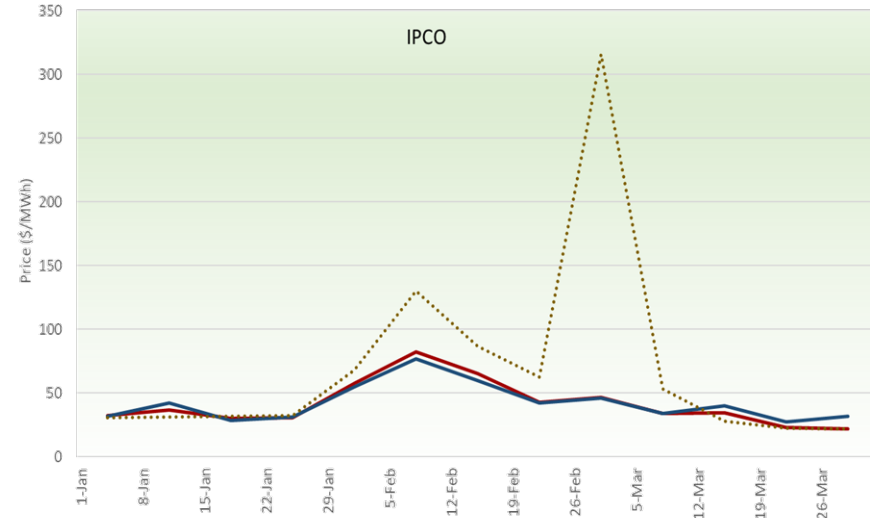
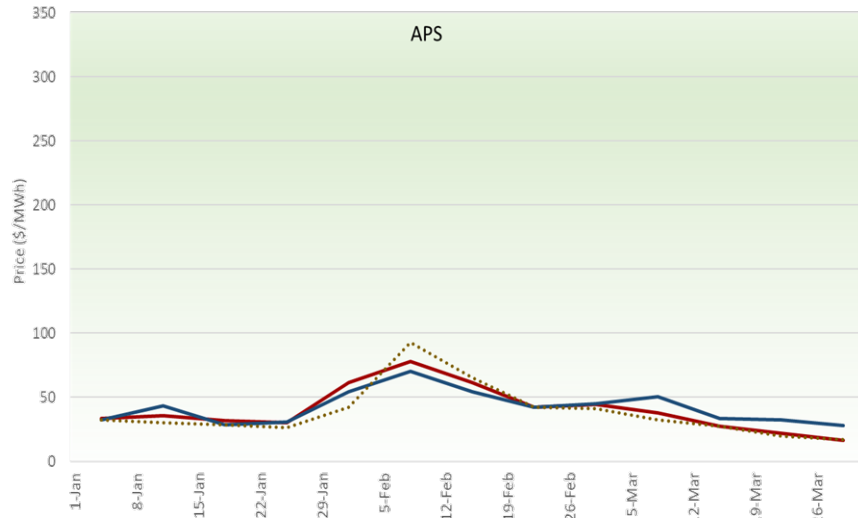
Region	January	February	March	Total
APS	\$1.10	\$4.76	\$2.34	\$8.20
IPCO	\$1.64	\$4.21	\$2.60	\$8.45
ISO	\$1.25	\$5.63	\$6.20	\$13.08
NVE	\$1.09	\$2.20	\$2.42	\$5.71
PAC	\$5.56	\$11.01	\$7.19	\$23.76
PGE	\$1.36	\$5.36	\$5.02	\$11.74
PSE	\$0.85	\$4.18	\$2.18	\$7.21
PWX	\$1.23	\$2.91	\$3.09	\$7.23
<b>Total</b>	<b>\$14.08</b>	<b>\$40.26</b>	<b>\$31.04</b>	<b>\$85.38</b>

# Flexible ramping procurement diversity savings for 1<sup>st</sup> Quarter, 2019

	January		February		March	
Direction	Up	Down	Up	Down	Up	Down
Average MW saving	753	759	778	761	789	800
Sum of BAA requirements	1,649	1,648	1,692	1,747	1,782	1,853
Diversity Benefit	46%	46%	46%	44%	44%	43%
Estimated Savings	\$234,677	\$742	\$601,554	\$0	\$701,776	\$58,007

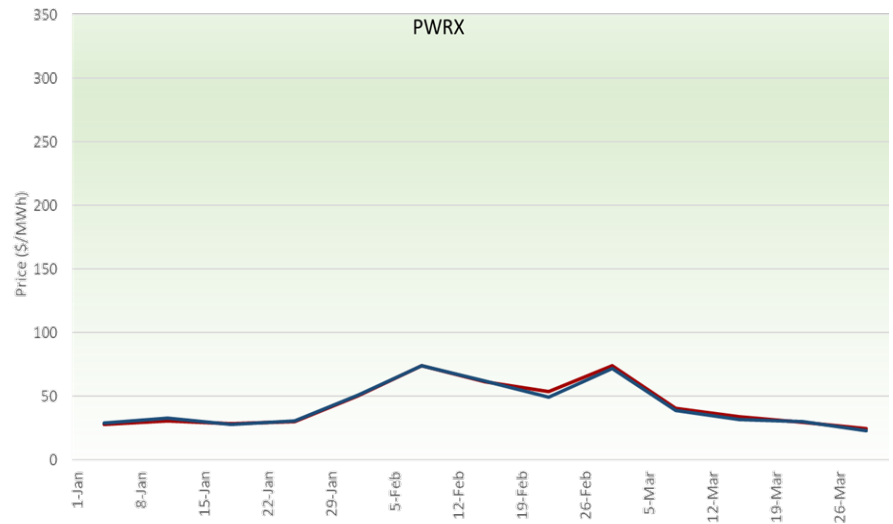
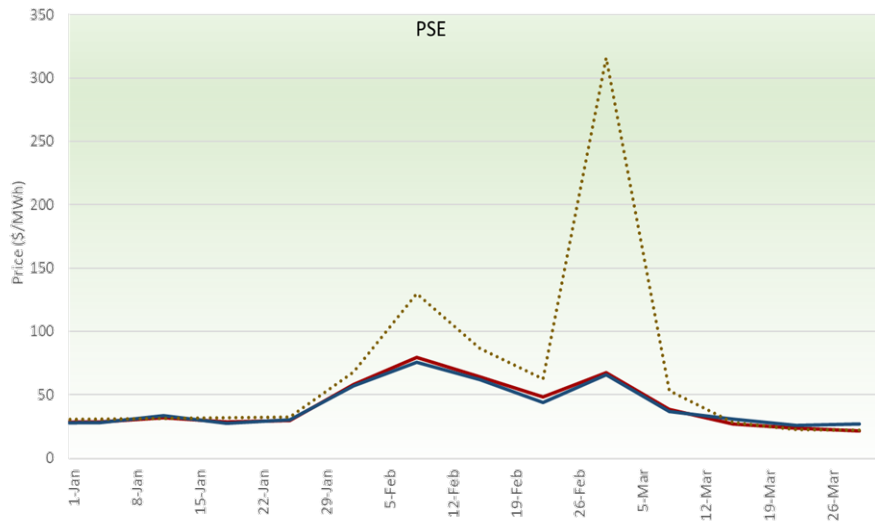
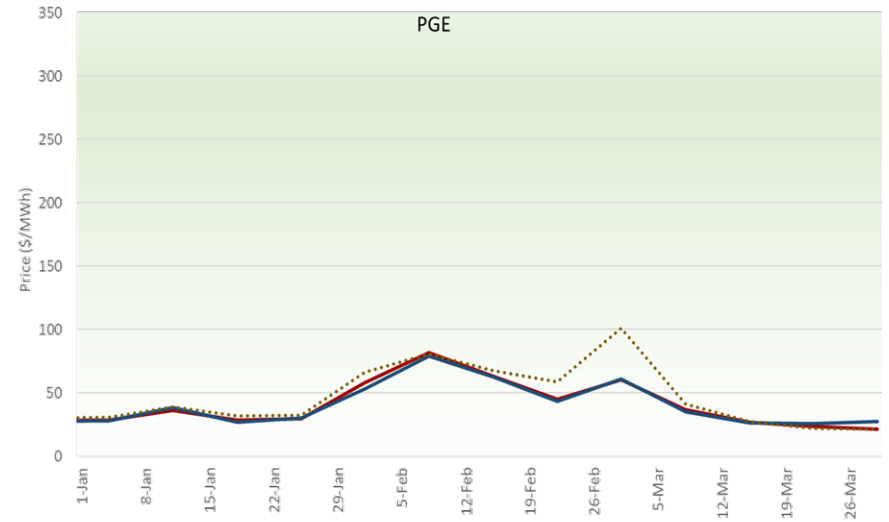
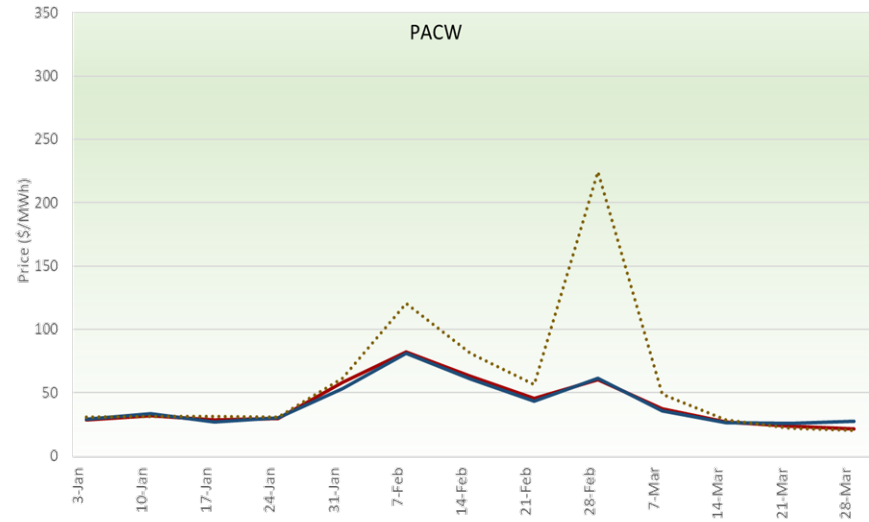
The percentage of savings is the average MW savings divided by the sum of the four individual BAA requirements.

# Weekly average prices in EIM areas



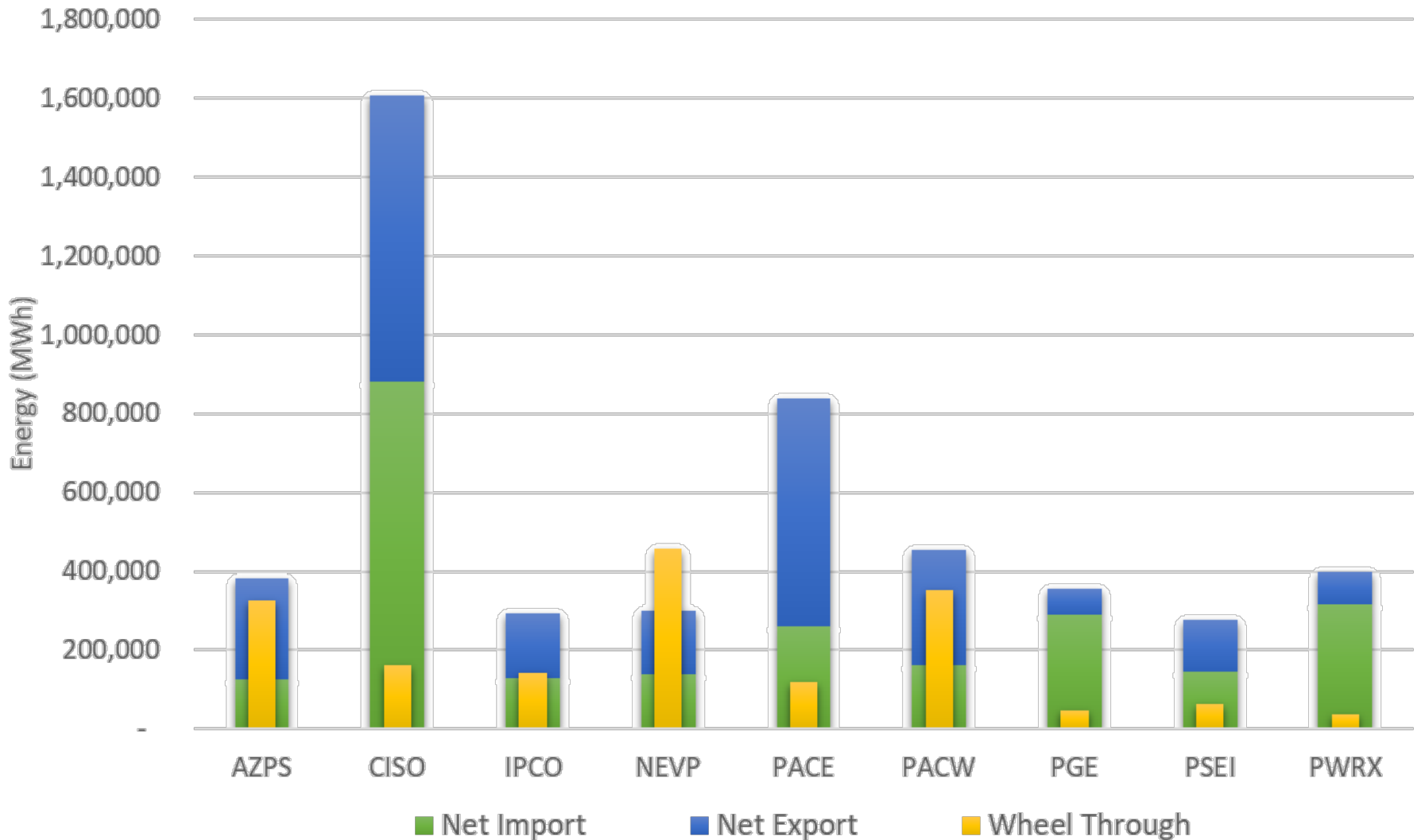
Estimated Proxy RTD ELAP FMM ELAP

# Weekly average prices in EIM areas

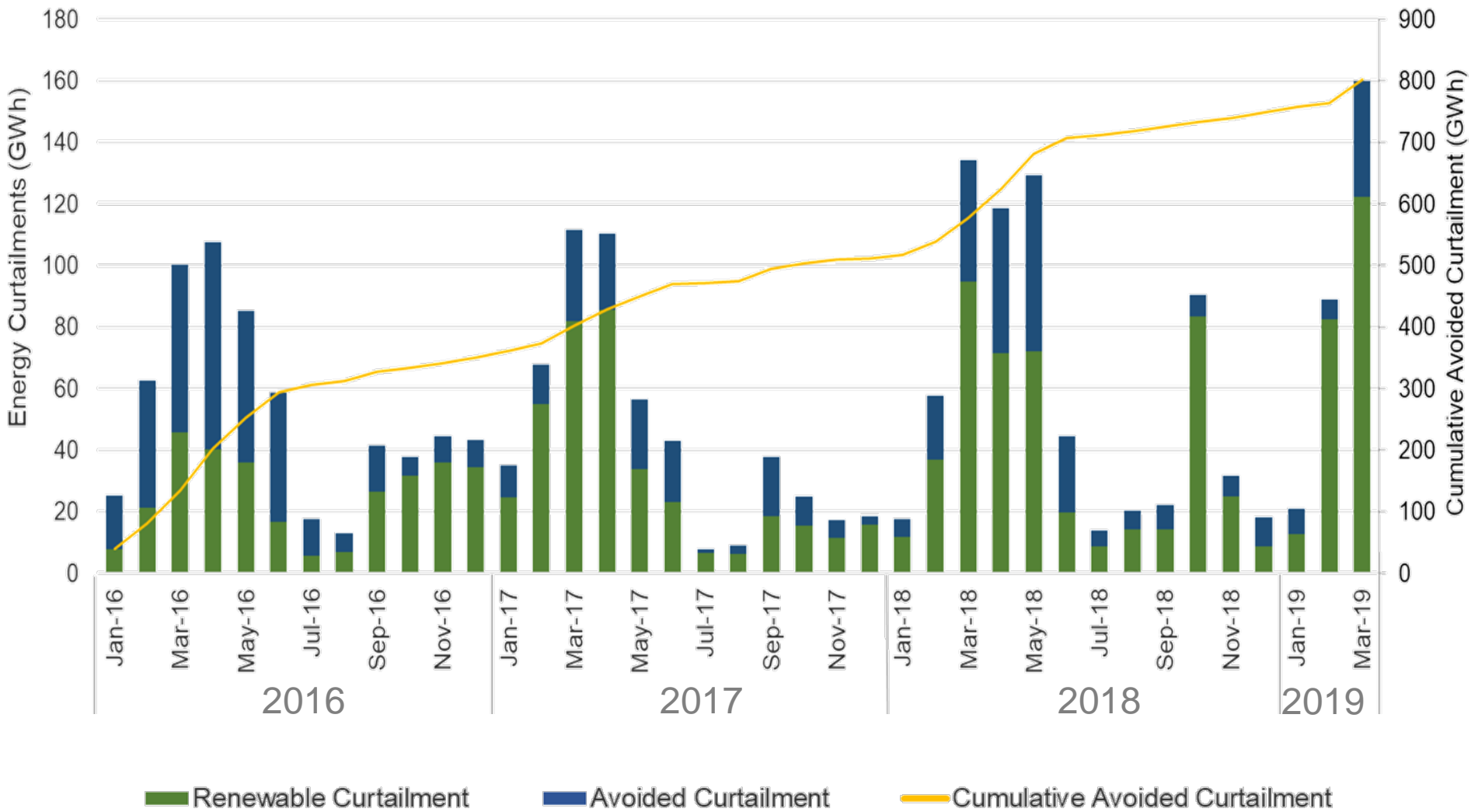


Estimated Proxy RTD ELAP FMM ELAP

# Estimated wheel through transfers in Q1, 2019

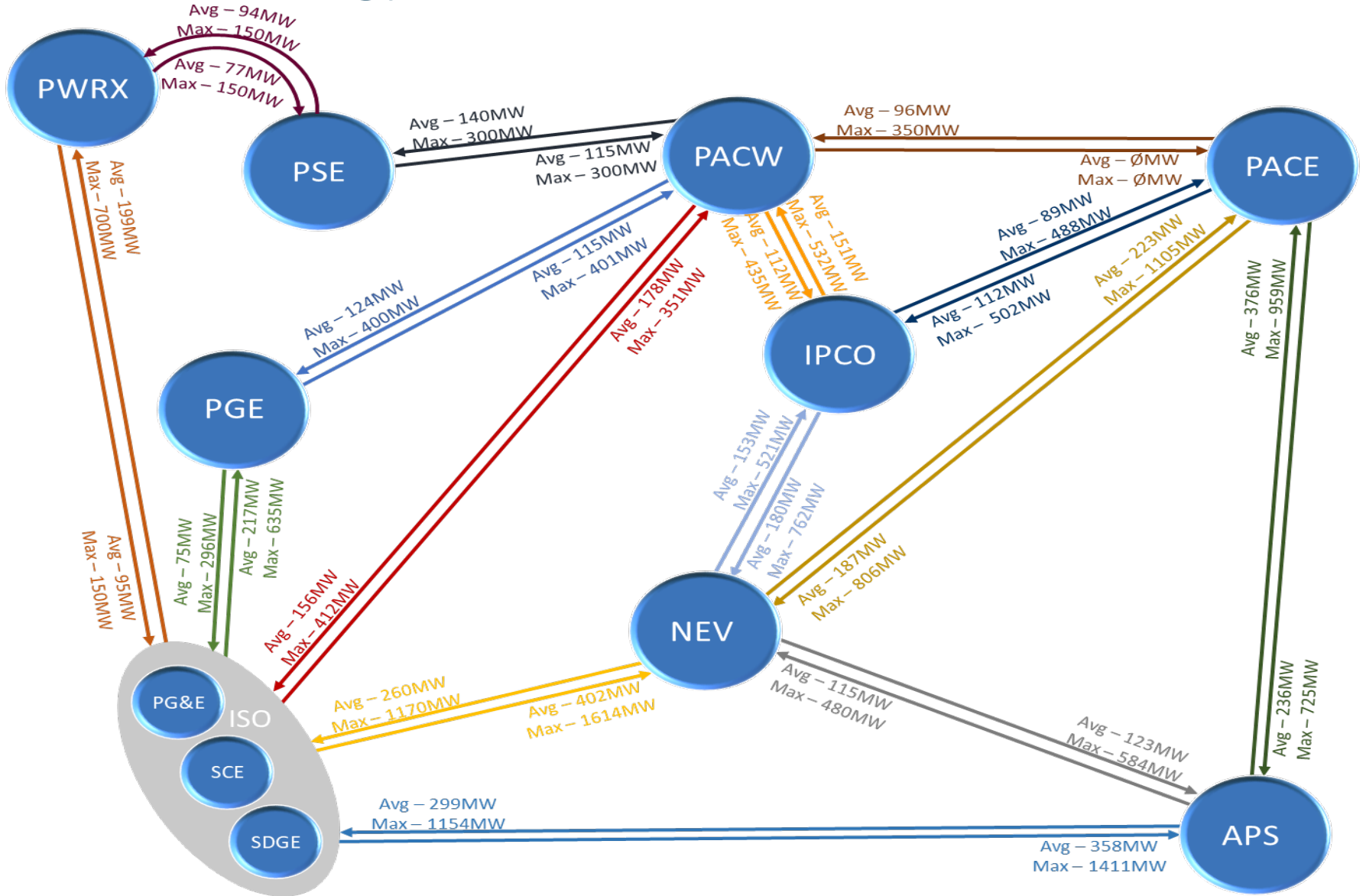


# Energy imbalance market helps avoid curtailment





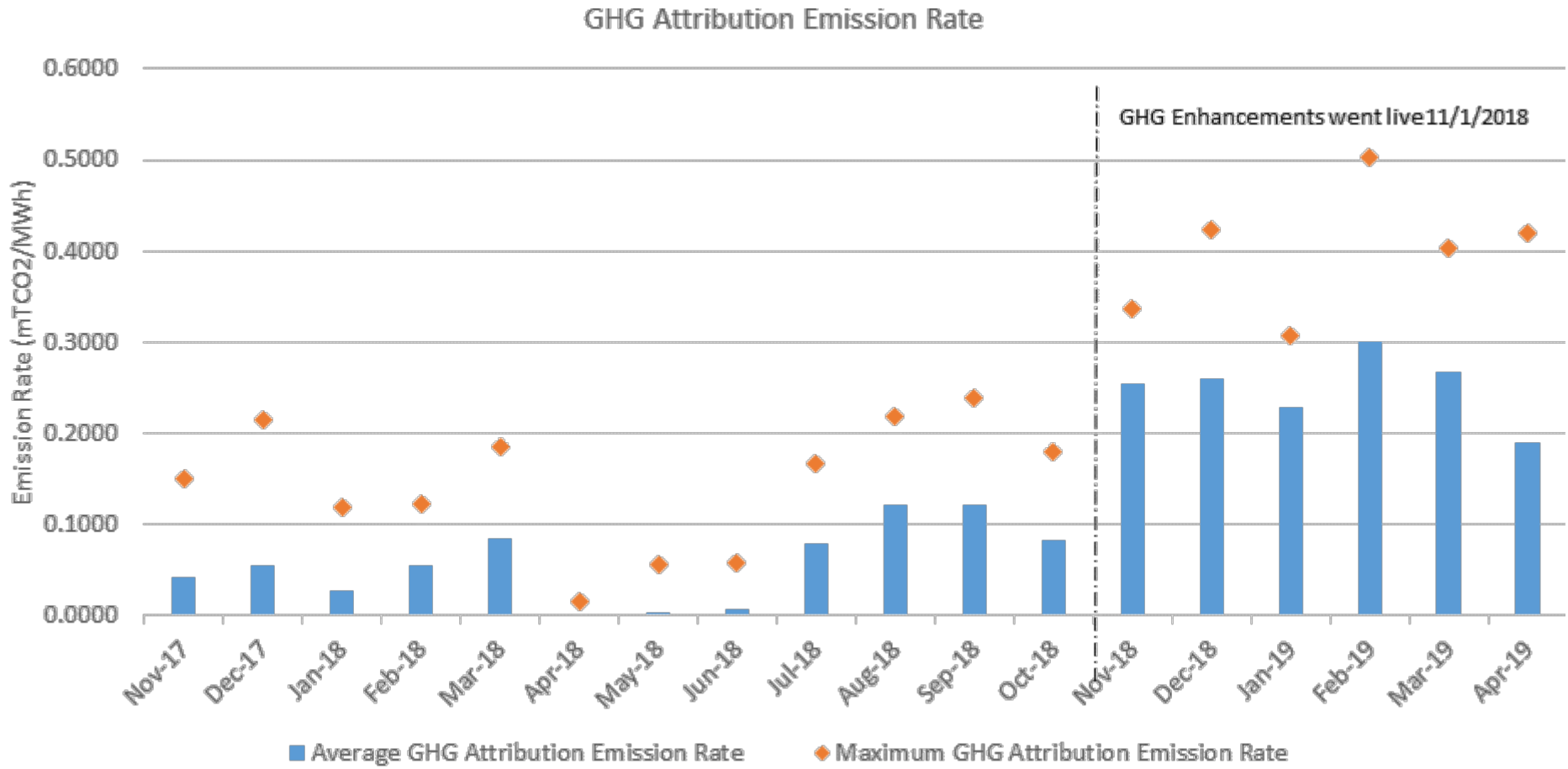
# Robust energy transfers in 1<sup>st</sup> quarter, 2019



# Report out on GHG performance since November 2018 implementation of GHG tracking enhancement

- Observations since implementation of GHG tracking enhancement:
  - Increased accounting of GHG from EIM resources serving ISO load
  - Reduction of potential secondary dispatch
- No market efficiency issues observed related to either:
  - Base schedule forecast greater than real-time energy need
  - Resources changing base schedule behavior
- However, unrelated to GHG enhancement observed the following:
  - Interplay with GHG cost and Real-Time Imbalance Energy Offset
  - Unintended effects between secondary dispatch on EIM entities that are using Asset Controlling Supplier for GHG accounting of non-EIM transactions

# Accounting of GHG from resources attributed to meet ISO demand increased



# Potential for secondary dispatches decreased

