



California ISO

Imbalance Conformance Enhancements (ICE) Draft Final Proposal – Stakeholder Meeting

Megan Poage

Sr. Market Design Policy Developer

February 6, 2018

Agenda

Time	Topic	Presenter
10:00 – 10:05	Welcome and Introductions	Kristina Osborne
10:05 – 10:30	Imbalance Conforming <ul style="list-style-type: none">• Scope Changes• Stakeholder Comments• ISO Response	Megan Poage
10:30 – 11:00	Imbalance Conformance Limiter <ul style="list-style-type: none">• Scope Changes• Stakeholder Comments• ISO Response	Megan Poage
11:00 – 11:30	Data Analysis	Megan Poage
11:30 – 12:00	Questions & Next Steps	Kristina Osborne

Imbalance Conformance Enhancements

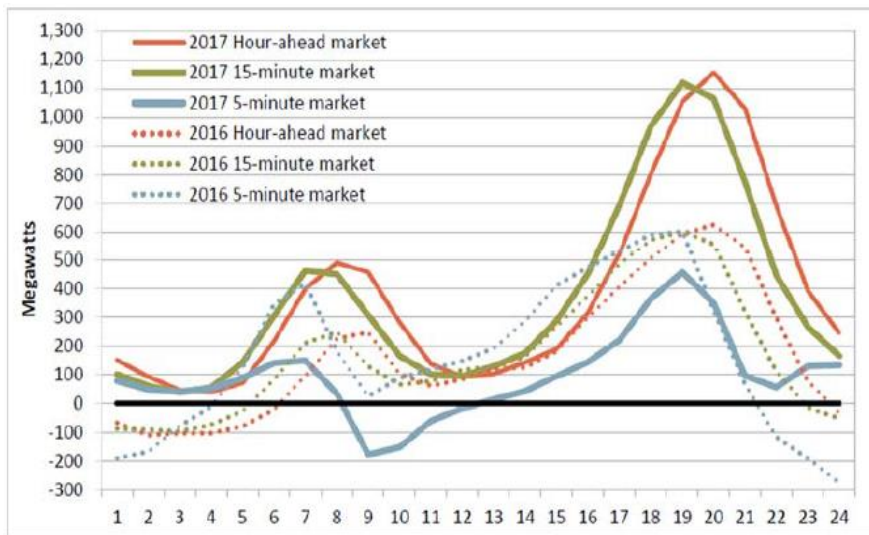
IMBALANCE CONFORMING

Scope related to conforming has been expanded based on stakeholder feedback

- Original Scope:
 - Clarification of the ISO's authority to conform for imbalance in the real-time market, and
 - Clarification of the ISO's authority to conform for imbalance in the day ahead market through the residual unit commitment (RUC) net short process.
- Expanded Scope:
 - Improvements to the conformance process in the ISO BAA.

Stakeholders support tariff clarifications but request improvements to conformance process

- Frequency, magnitude, and pattern with which the ISO conforms should be addressed



Conformance in the ISO BAA
2016 & 2017 Q3

	Positive load adjustments			Negative load adjustments			Average hourly bias MW
	Percent of intervals	Average MW	Percent of total load	Percent of intervals	Average MW	Percent of total load	
<i>California ISO</i>							
15-minute market	57%	674	2.0%	6%	-328	1.2%	367
5-minute market	48%	370	1.1%	29%	-289	1.1%	97
<i>PacifiCorp East</i>							
15-minute market	11%	87	1.4%	4%	-85	1.5%	7
5-minute market	37%	83	1.4%	15%	-76	1.3%	19
<i>PacifiCorp West</i>							
15-minute market	3%	56	2.3%	4%	-42	1.8%	0
5-minute market	6%	55	2.3%	22%	-47	2.2%	-7
<i>NV Energy</i>							
15-minute market	15%	90	1.5%	5%	-136	2.7%	7
5-minute market	22%	63	1.1%	32%	-105	2.1%	-20
<i>Puget Sound Energy</i>							
15-minute market	3%	45	1.5%	14%	-66	2.9%	-8
5-minute market	4%	51	1.8%	21%	-65	2.8%	-11
<i>Arizona Public Service</i>							
15-minute market	91%	155	3.5%	4%	-317	8.0%	129
5-minute market	90%	155	3.5%	4%	-356	9.1%	126

Frequency & Magnitude of Conformance
July – September 2017

The ISO agrees the pattern of conforming should be addressed with tool improvements

- Frequency of Conforming (% of intervals):
 - Conforming in the ISO BAA and EIM BAAs is not directly comparable
 - Result of increased renewable generation in CA (17,000+ MW)
- Magnitude of Conforming:
 - Roughly 1-2% of load
- Pattern of Conforming:
 - Improvements should be made to eliminate the need to manually conform for a known pattern

In addition to tariff clarifications, the initiative scope is expanded to improve the tools used for conforming.

- Existing initiatives will minimize need for conformance:
 - Real-Time Dispatch Persistence Market Model Enhancement
 - Day Ahead Market Enhancements
 - Flexible Ramping Product Improvements
- Tool improvements will provide operator transparency and increase accuracy of imbalance conforming:
 - Imbalance Conformance Tool
 - Ramping Capacity Tool

Imbalance Conformance Enhancements

IMBALANCE CONFORMANCE LIMITER

Scope related to the imbalance conformance limiter has been expanded based on stakeholder feedback.

- **Original Scope:**
 - Implementation of enhancements to improve the imbalance conformance limiter currently used in the real-time market.
- **Expanded Scope:**
 - Removal of the conformance limiter from the real-time market within approximately two years.

Stakeholders have mixed opinions regarding the use of the limiter in the real-time market

	Entity	Reason	Notes
Support	APS DMM PG&E Six Cities	Enhancements improve functionality of the limiter and ensure it triggers accurately	Implementation of enhancements should be monitored. Market improvements should be prioritized.
	SCE	Limiter should be applied in two step approach	Two step approach will minimize price volatility
Conditional	PGP	Requests data analysis to determine pricing impact of proposed limiter	Market design improvements should be prioritized
Oppose	Portland Powerex	Limiter may asymmetrically impact price formation by suppressing valid penalty prices	Limiter should be removed from the real-time market

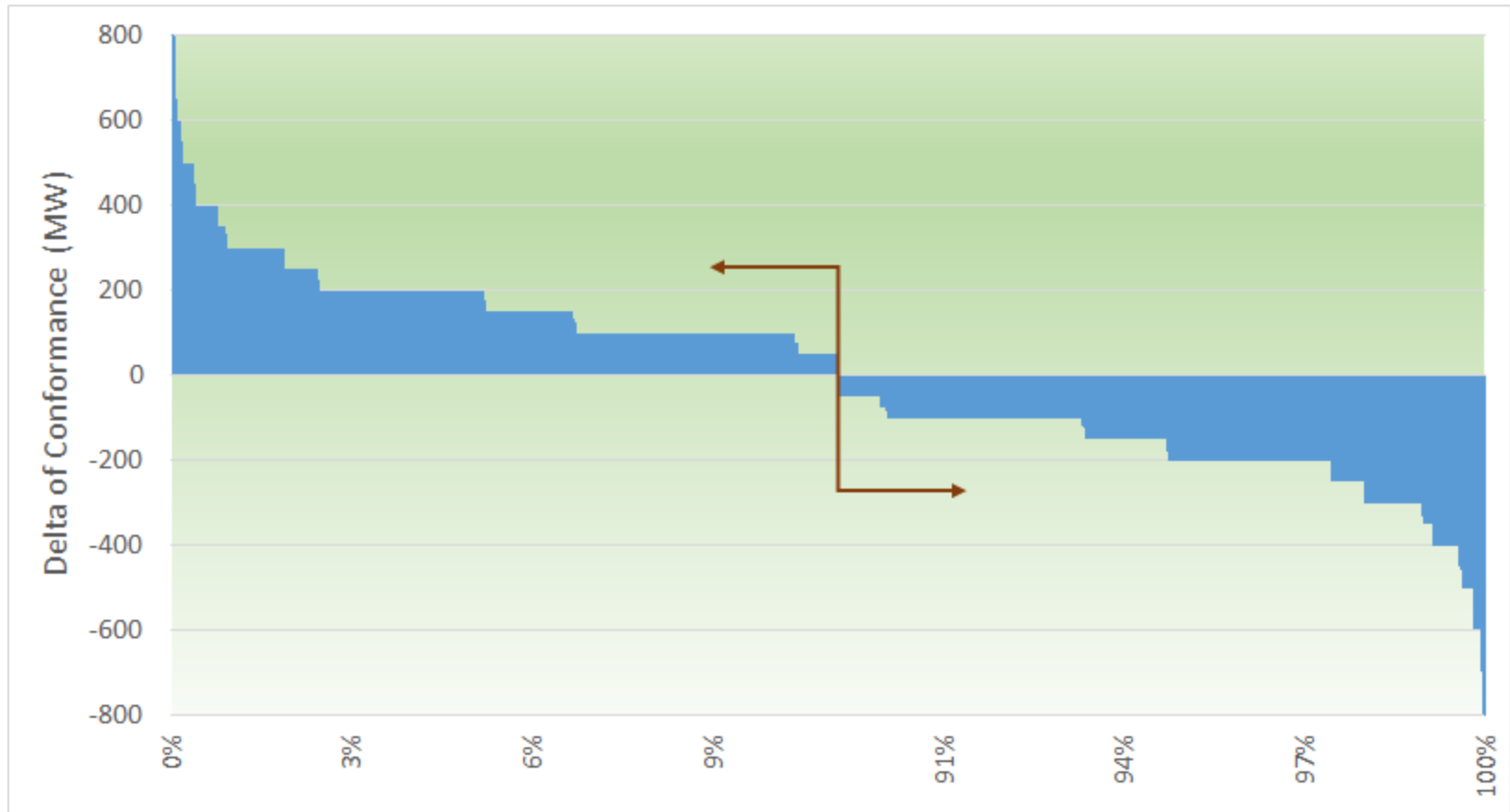
The ISO plans to remove the limiter from the real-time market in two years (Fall 2020)

- Coarse over-estimated adjustments justify use of the limiter
- Valid scarcity condition cannot be recognized or used in the limiter logic
- Implement enhancements (improvement from current limiter) and address coarse conformance adjustments
- When coarseness is corrected, limiter is no longer needed and can be removed from the real-time market

Imbalance Conformance Enhancements

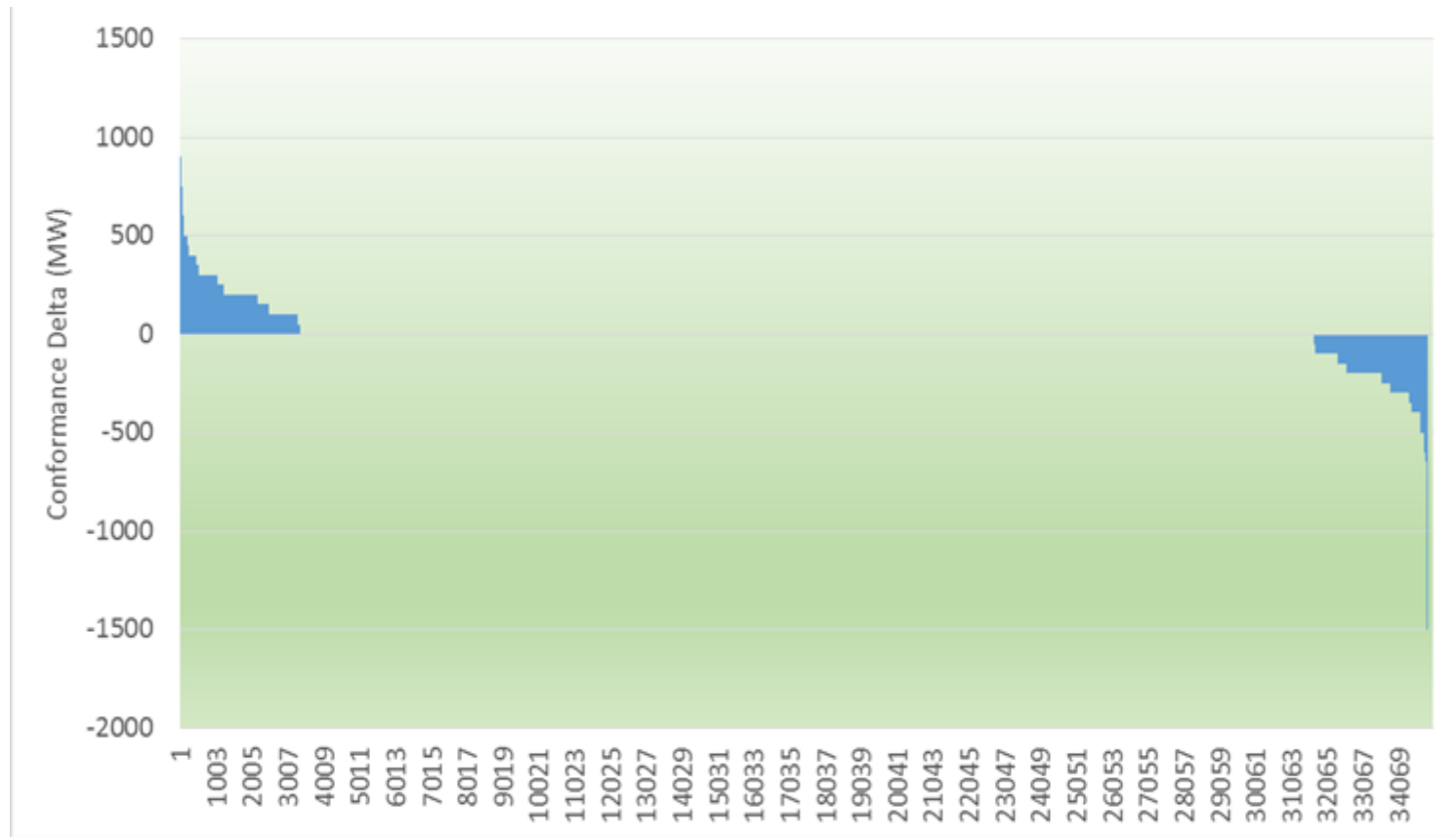
DATA ANALYSIS

CAISO RTD conformances changes (“deltas”) between intervals for 2017



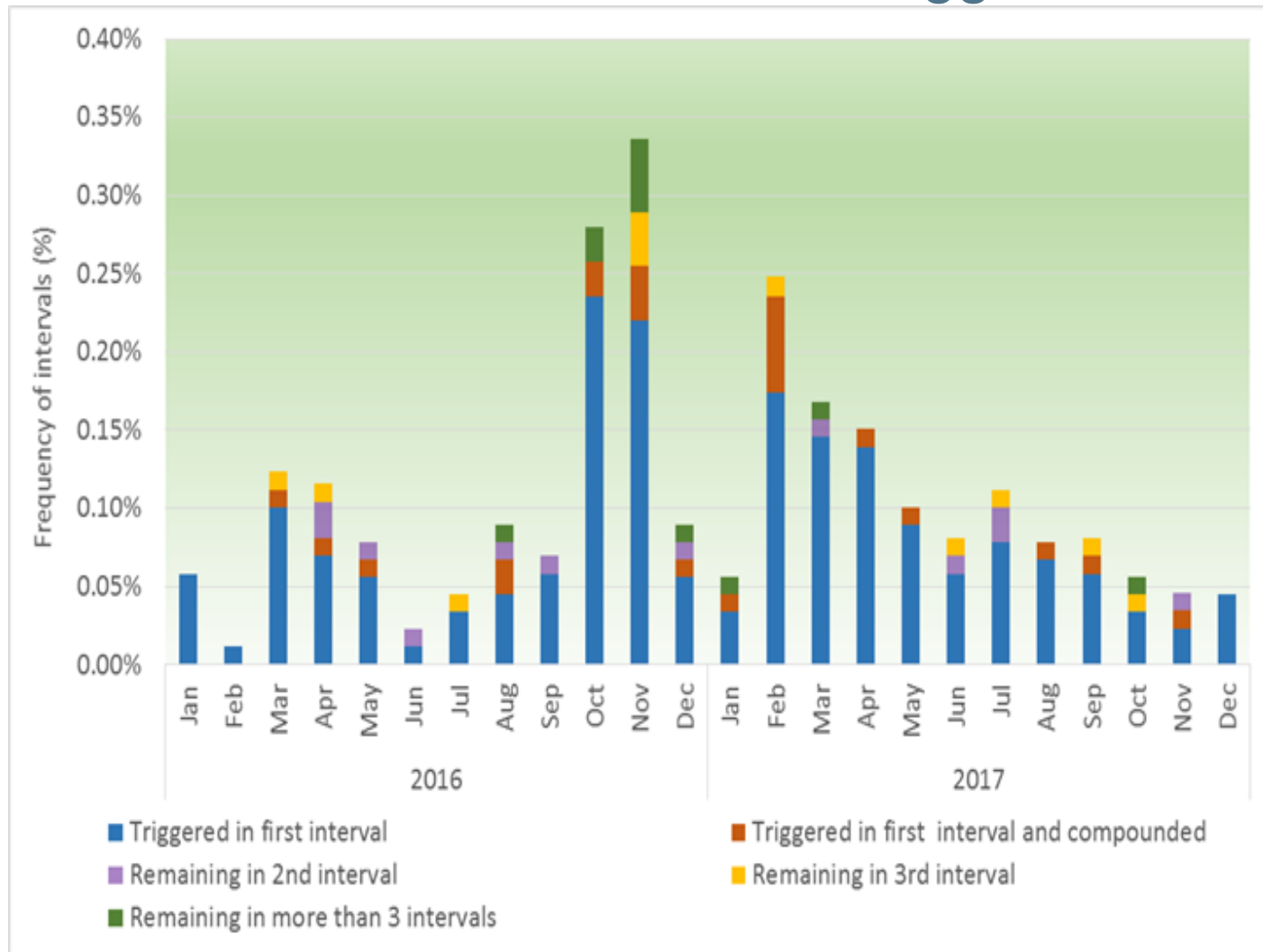
Conformance is “coarse” as indicated by blocks.

CAISO conformances including intervals with no change



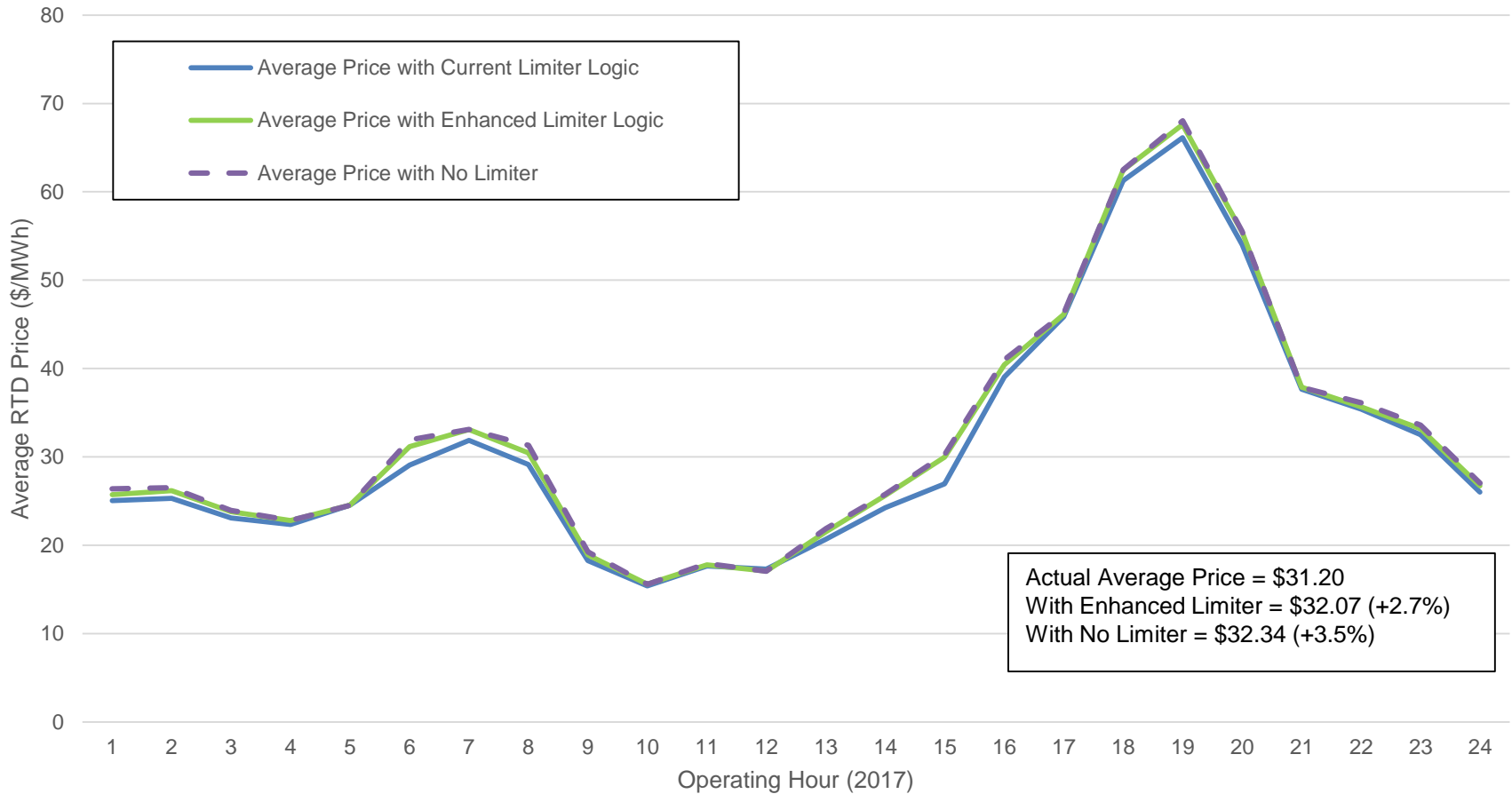
20% of intervals with a conformance have coarse changes.
80% of intervals with a conformance have no change.

CAISO RTD conformances as a percentage of total RTD intervals in which the limiter is triggered



Impact of Enhanced Limiter Logic – CAISO, 2017

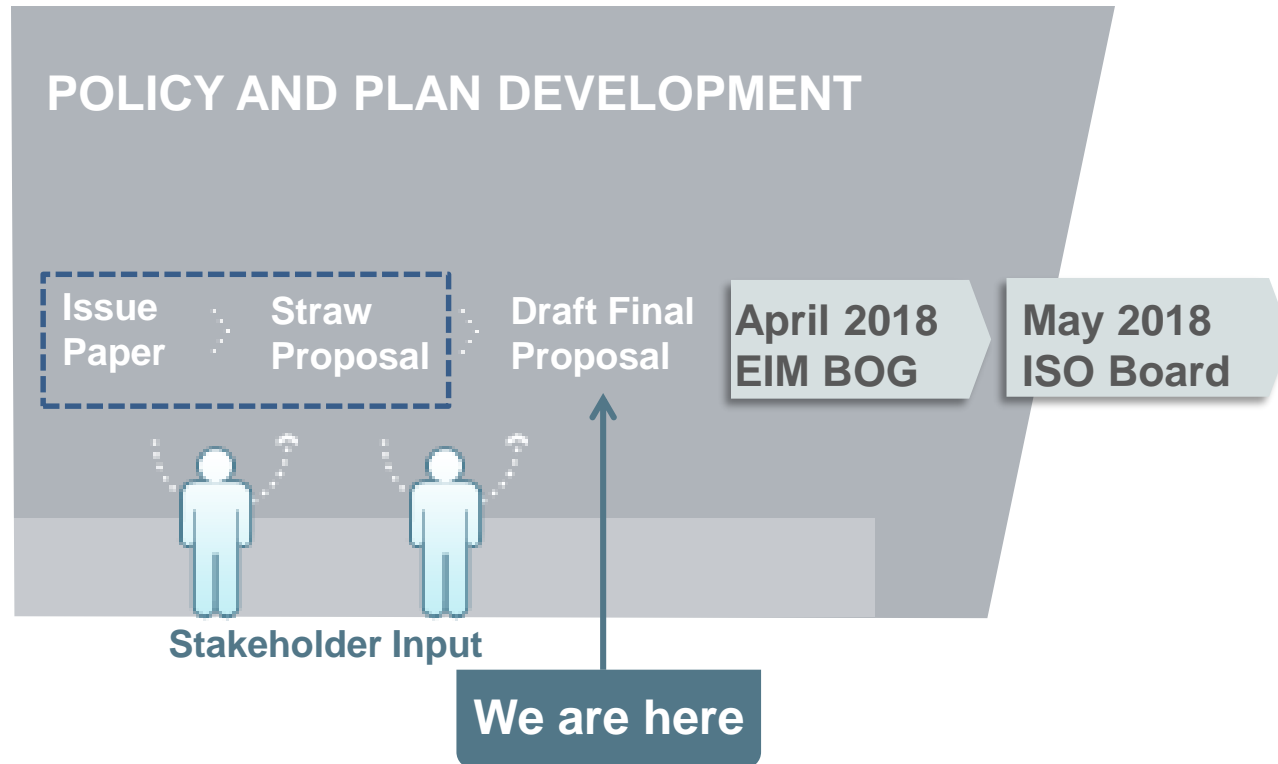
Impact of Enhanced Limiter Logic - CAISO



Imbalance Conformance Enhancements

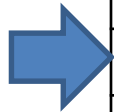
NEXT STEPS

ISO Policy Initiative Stakeholder Process



Initiative Schedule

Milestone	Date
<i>Post Issue Paper/Straw Proposal</i>	<i>November 29, 2017</i>
<i>Stakeholder Conference Call</i>	<i>December 8, 2017</i>
<i>Stakeholder Written Comments Due</i>	<i>December 20, 2017</i>
Post Draft Final Proposal	January 30, 2018
Stakeholder Conference Call	February 6, 2018
Stakeholder Written Comments Due	February 20, 2018
EIM Governing Body Meeting	April 24, 2018
Board of Governors Meeting	May 16, 2018



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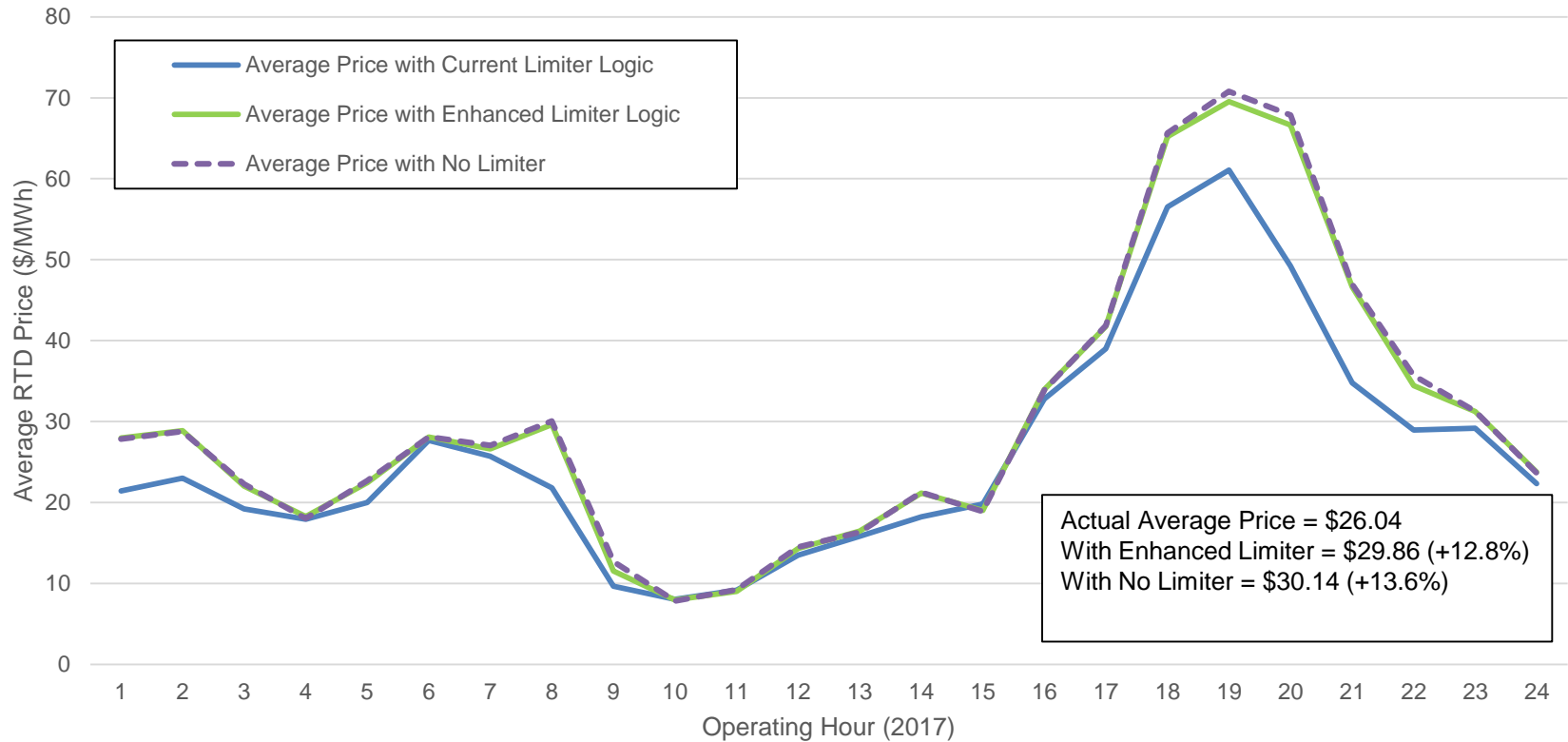
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Imbalance Conformance Enhancements

APPENDIX: IMPACT OF ENHANCED LIMITER LOGIC – EIM ENTITIES

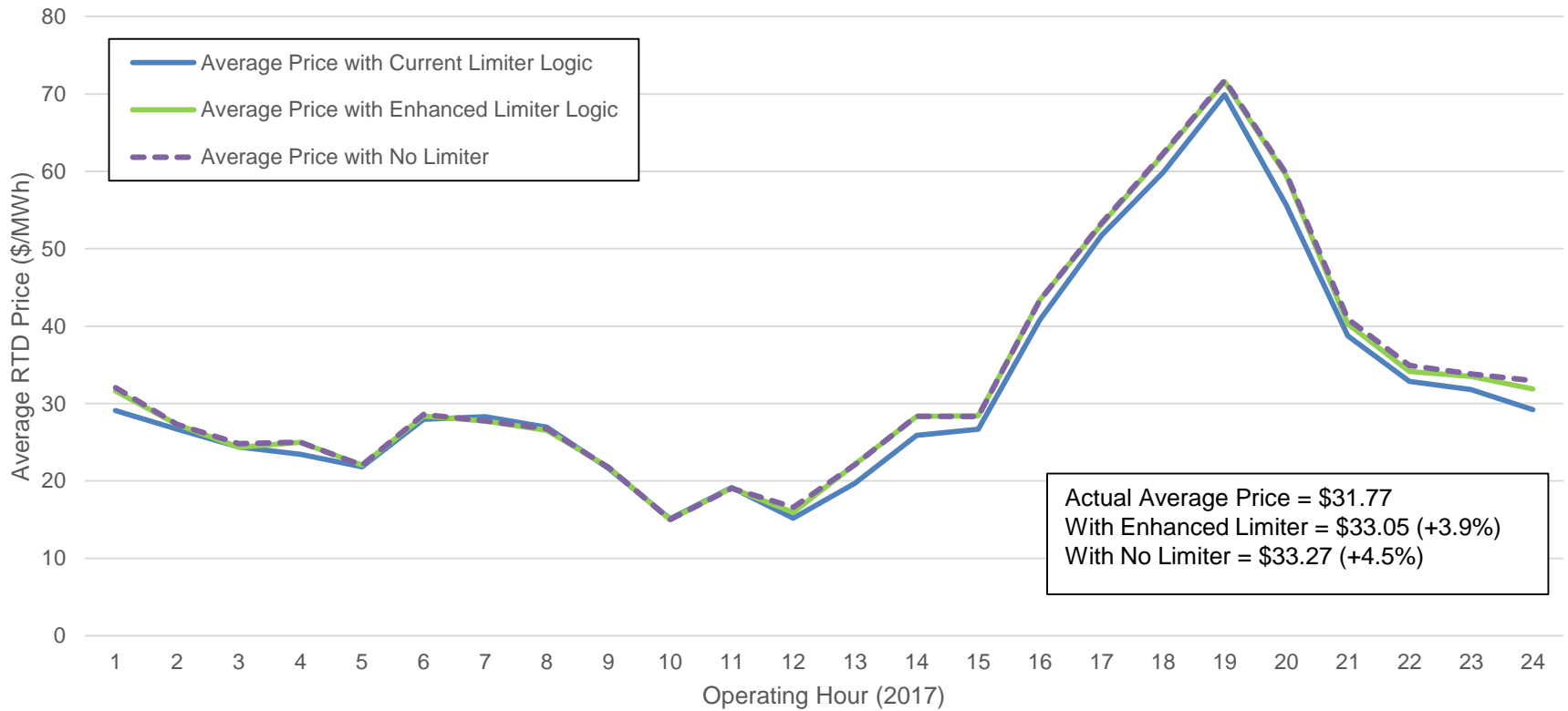
Impact of Enhanced Limiter Logic – AZPS, 2017

Impact of Enhanced Limiter Logic - AZPS



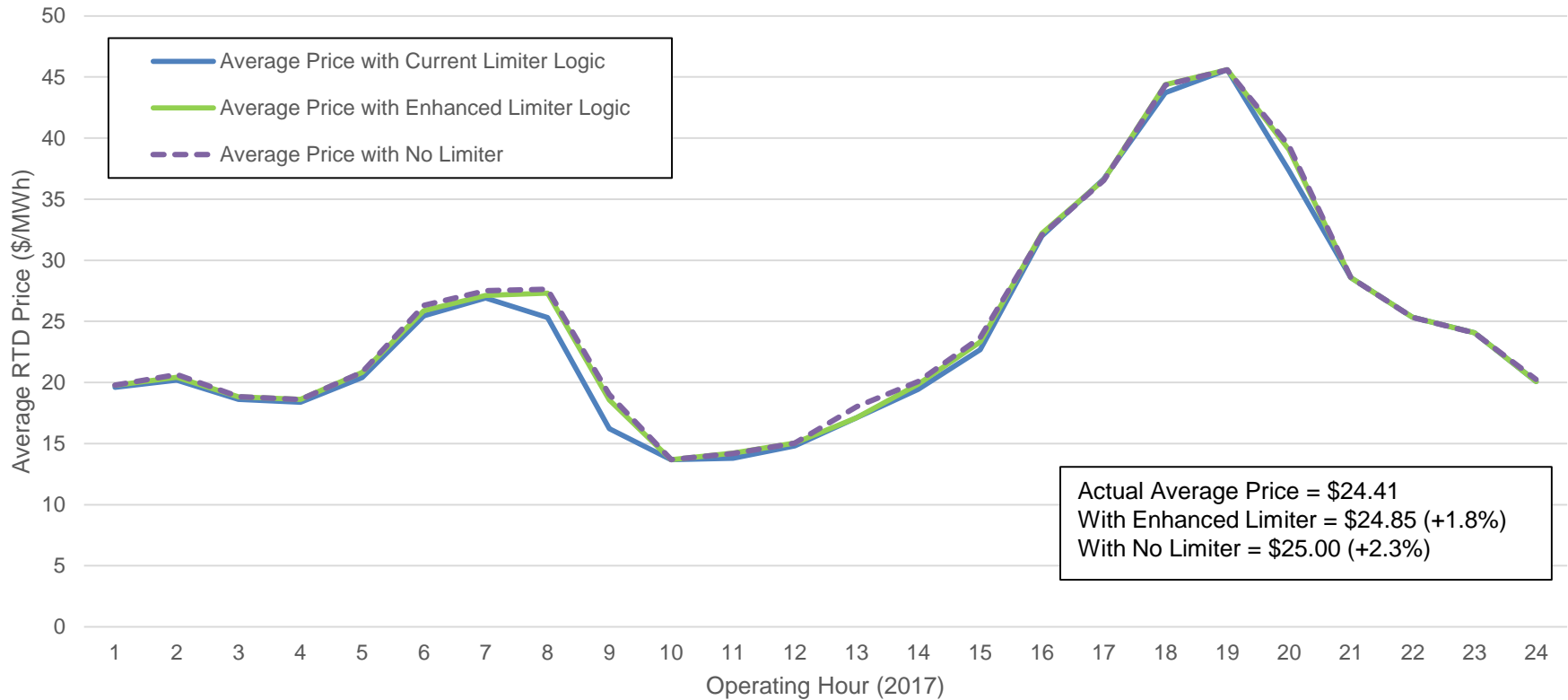
Impact of Enhanced Limiter Logic – NEVP, 2017

Impact of Enhanced Limiter Logic - NEVP



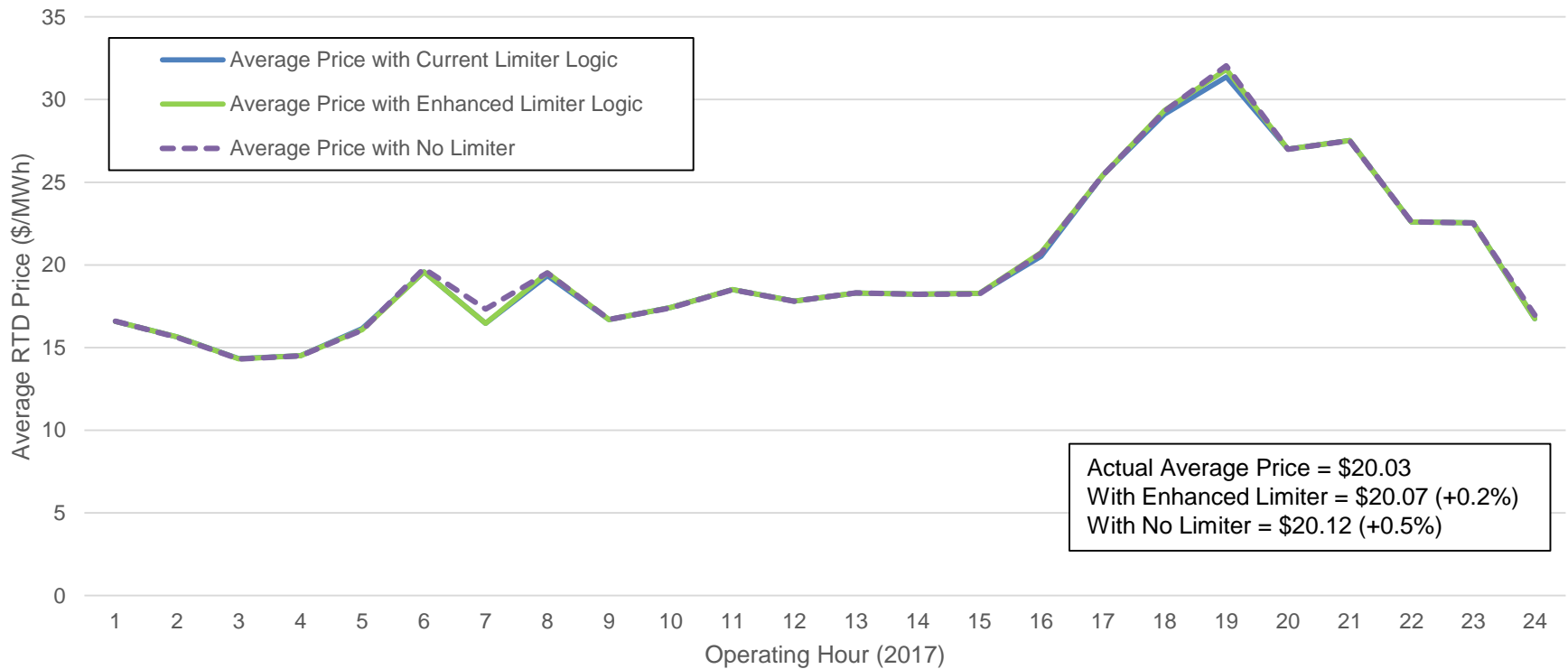
Impact of Enhanced Limiter Logic – PACE, 2017

Impact of Enhanced Limiter Logic - PACE



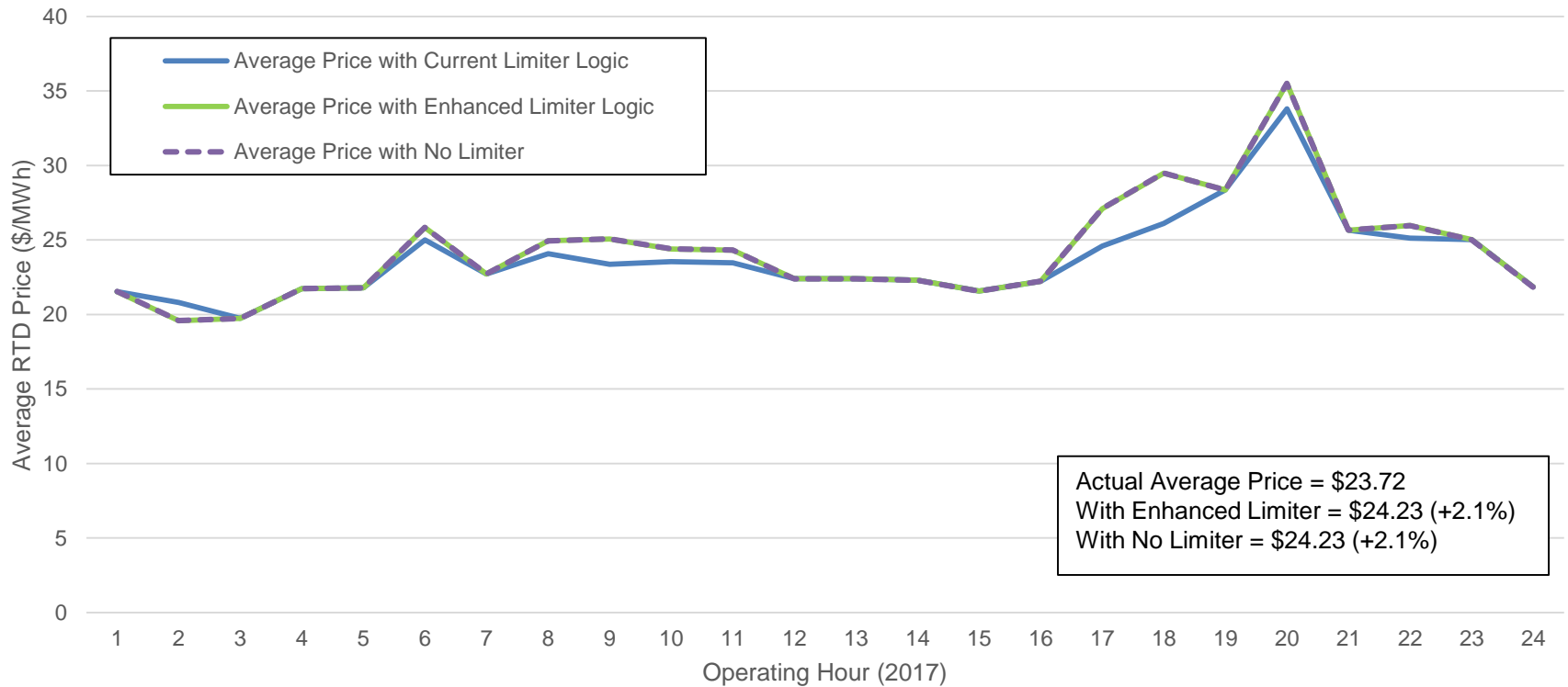
Impact of Enhanced Limiter Logic – PACW, 2017

Impact of Enhanced Limiter Logic - PACW



Impact of Enhanced Limiter Logic – PGE, 2017

Impact of Enhanced Limiter Logic - PGE



Impact of Enhanced Limiter Logic – PSEI, 2017

Impact of Enhanced Limiter Logic - PSEI

