



System Market Power Mitigation

Perry Servedio, Danielle Tavel, and Daniel Johnson
Market Design Policy

Guillermo Bautista Alderete, Ph.D.
Director, Market Analysis and Forecasting

Market Surveillance Committee Meeting
General Session
July 30, 2020

DRAFT FINAL PROPOSAL OVERVIEW

Draft final proposal summary (slide 1 of 2)

- Proposed design ensures pivotal supplier test only triggered when cut off from external supply and prices indicate a potential market power concern:
 - The highest marginal energy cost in the EIM while in an import constrained region of EIM
 - Greater than the highest day-ahead bilateral electrical trading hub index price plus 10 percent (Palo Verde and Mid C)
 - Greater than a CAISO proxy cost calculation of a hypothetical gas-fired peaker based on current gas costs plus 10 percent
 - Greater than \$100/MWh

Draft final proposal summary (slide 2 of 2)

- Test in HASP only and apply results to all corresponding FMM and RTD intervals
 - Does not include a test for market power in ramping capability or major increases in demand between HASP and subsequent markets
- Only supply within the CAISO BAA is considered potentially pivotal and only CAISO BAA resources are mitigated
 - All economic import considered offers non-pivotal
 - All EIM supply considered non-pivotal
- Competitive LMP will be calculated as the greater of the trigger prices to ensure mitigation does not result in prices below competitive levels

When to trigger SMPM?

Necessary Condition:

There needs to be price separation among BAAs and CAISO BAA needs to be in the highest price tier

Conditional 1:

CAISO price $> \$100/\text{MWh}$

Conditional 2:

CAISO price $> \text{Max}(\text{Mid C, Paloverde})$
Bilateral prices shaped hourly

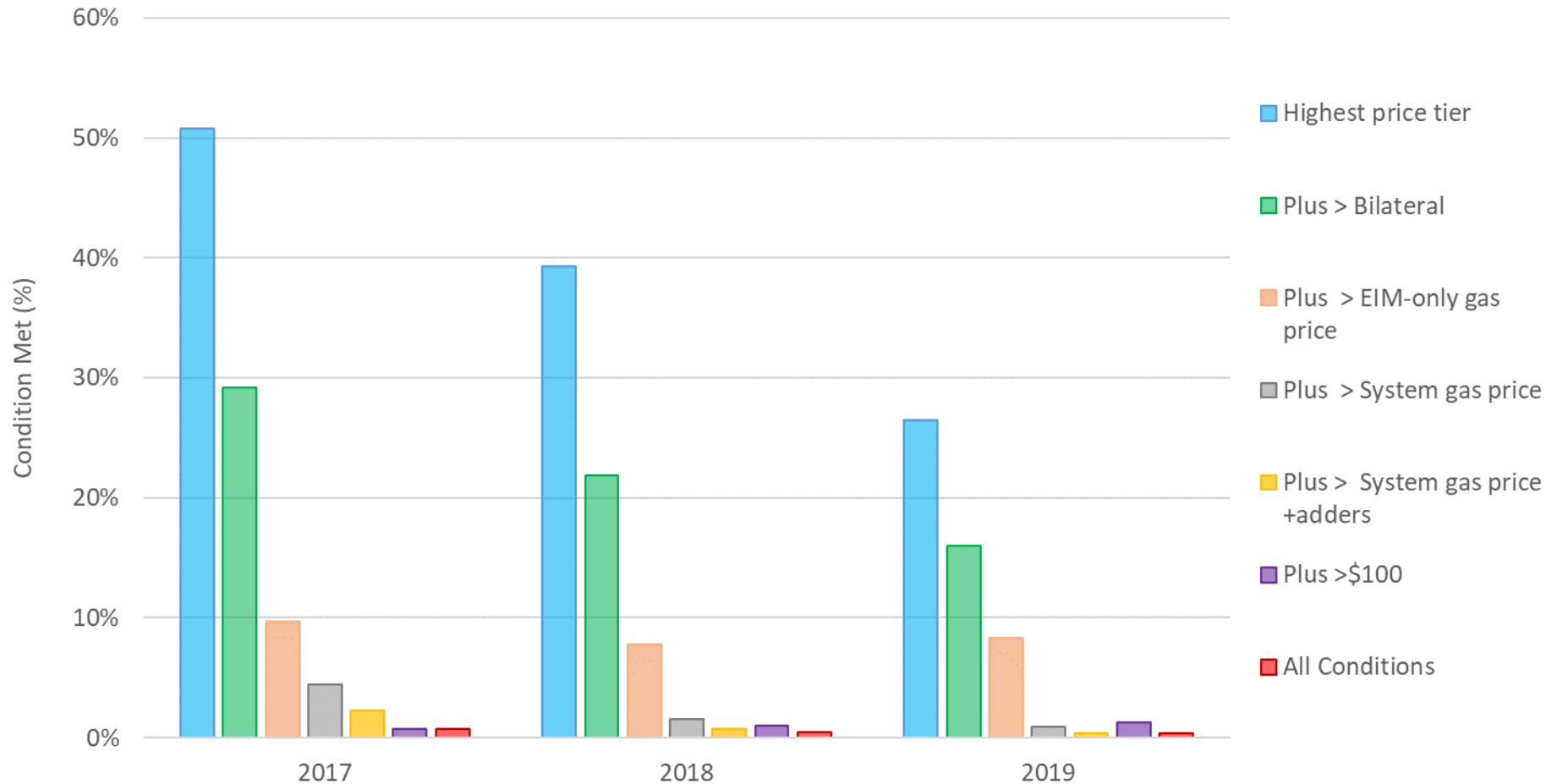
Conditional 3:

CAISO price $> \text{Proxy gas price}$
Includes a 10% headroom

Some nuances in the calculation

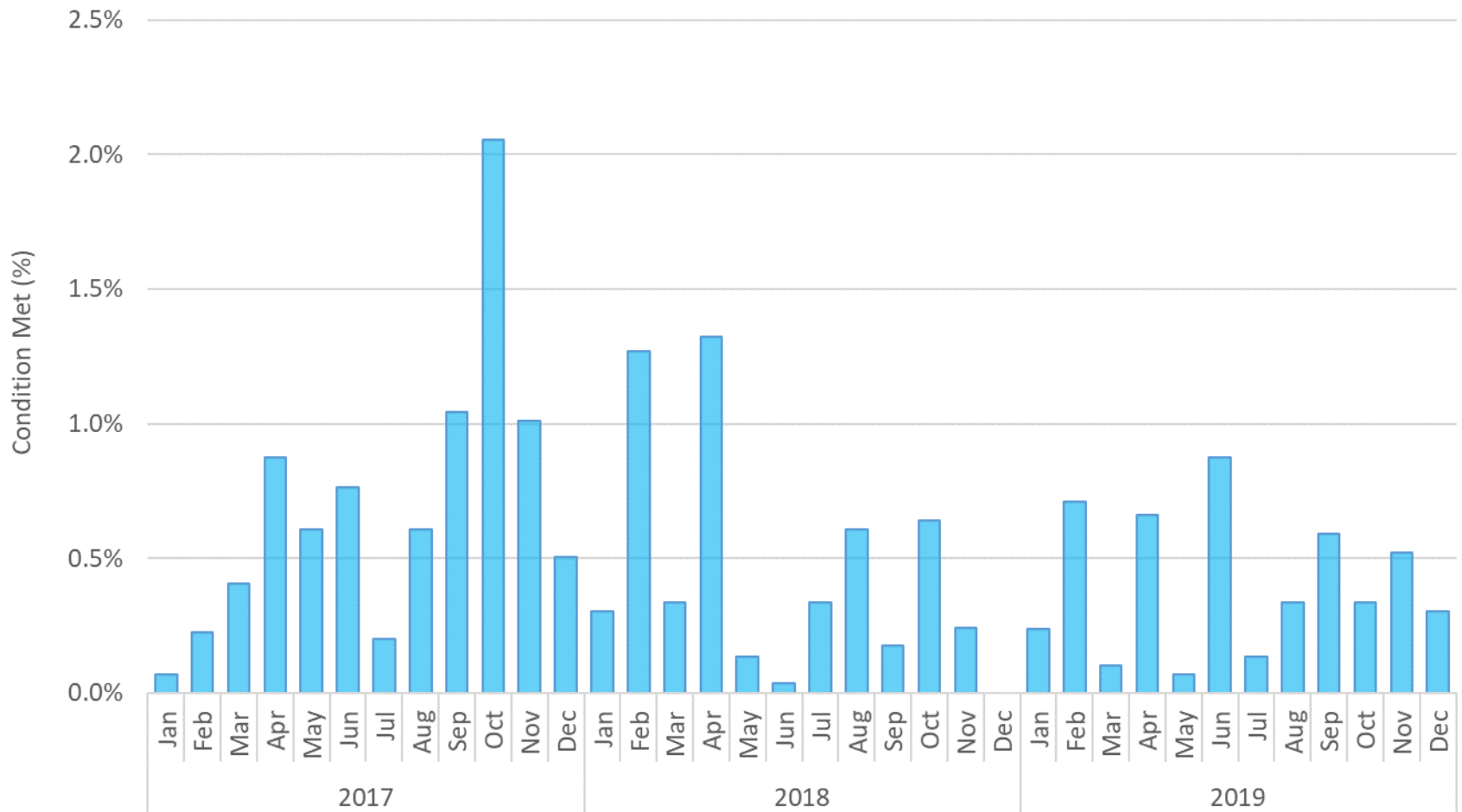
- For bilateral prices, previous similar day is used for reference in the shaping profile, separating weekdays from weekends
- All fuel regions in the system-wide area are assessed (CAISO +EIM areas)
- Proxy gas price is estimated at 110% and also with an adder of \$7.5 to account for additional GHG, GMG and VO&M costs
- Fuel regions are considered as they become available in the CAISO's systems

Any of the additional conditionals reduce the frequency of triggering mitigation significantly

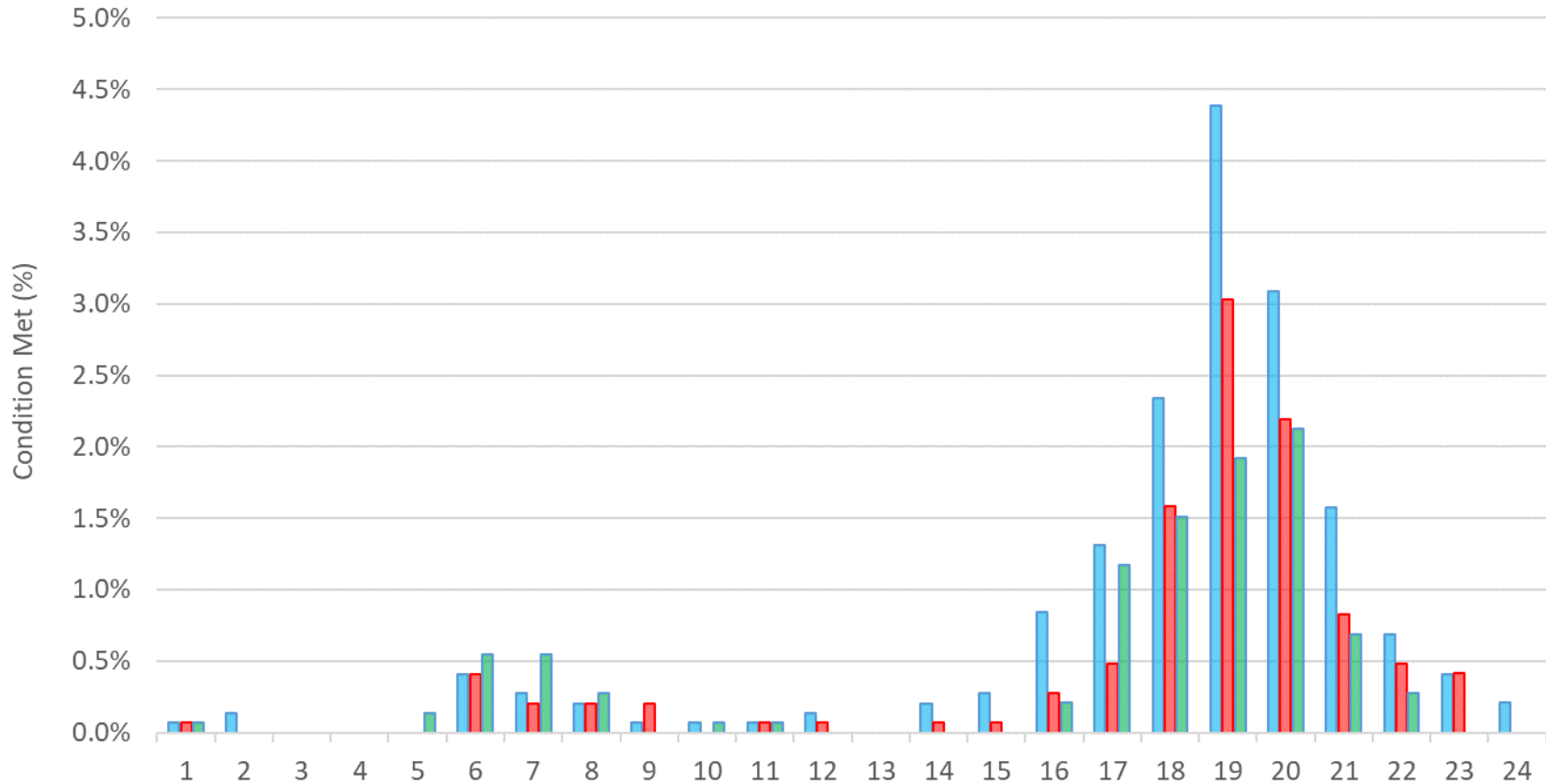


All Conditions= Highest tier price + > Bilateral+ > System Gas price + >\$100

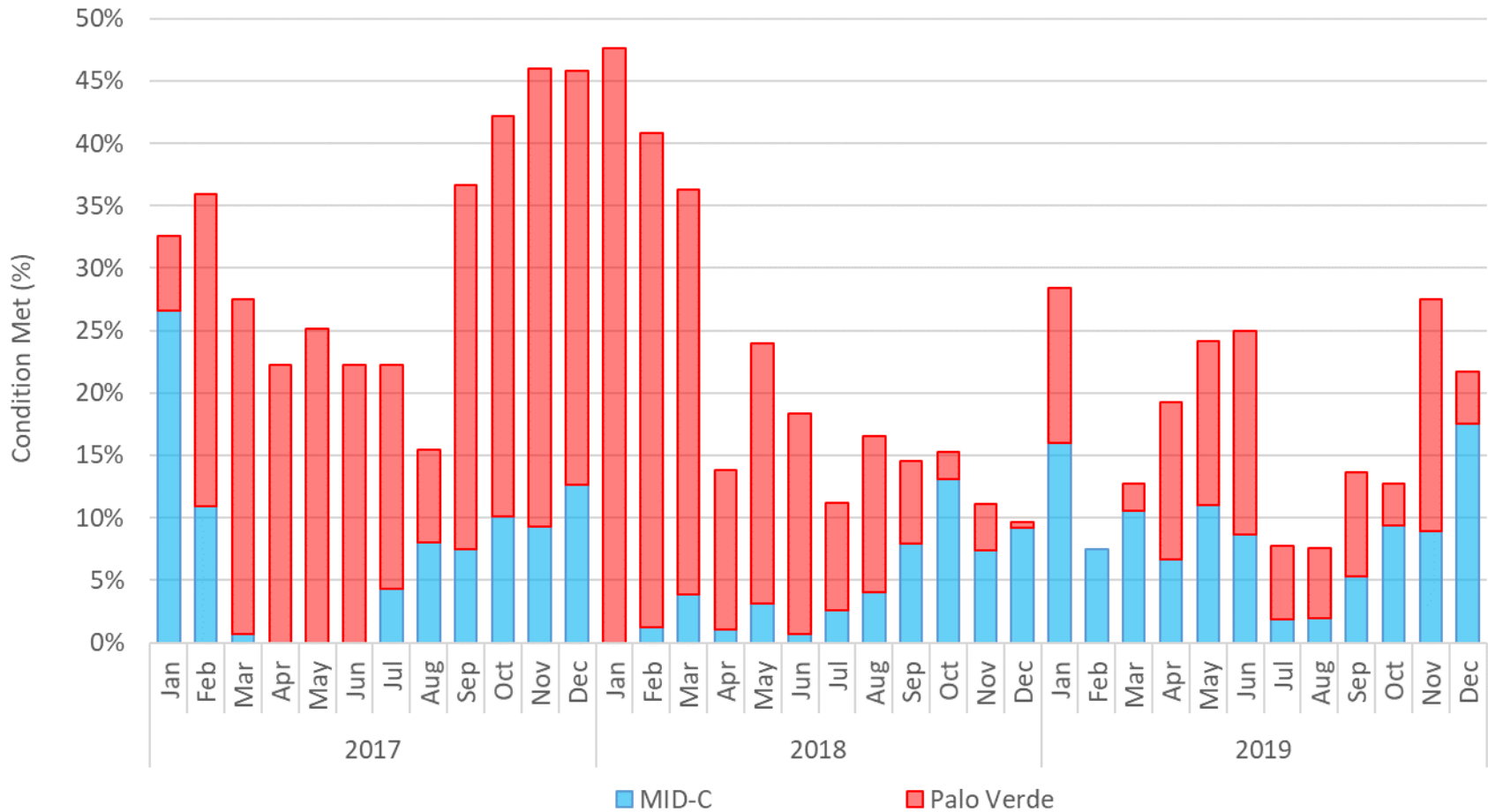
When all conditionals are applied concurrently, mitigation triggers about 0.5% in the three-year assessment period



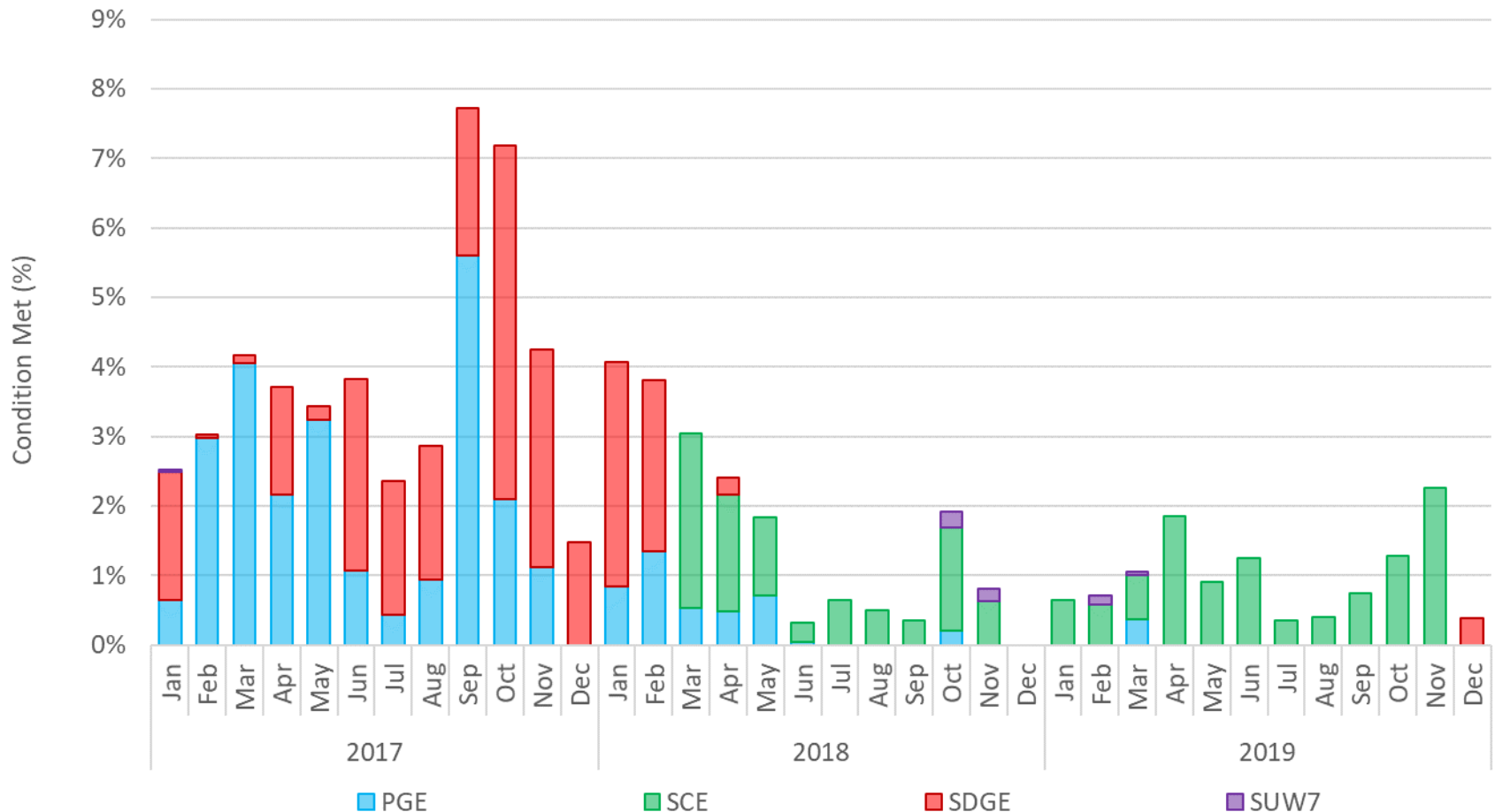
Mitigation triggers mainly during peak hours, which is when CAISO prices tend to be high



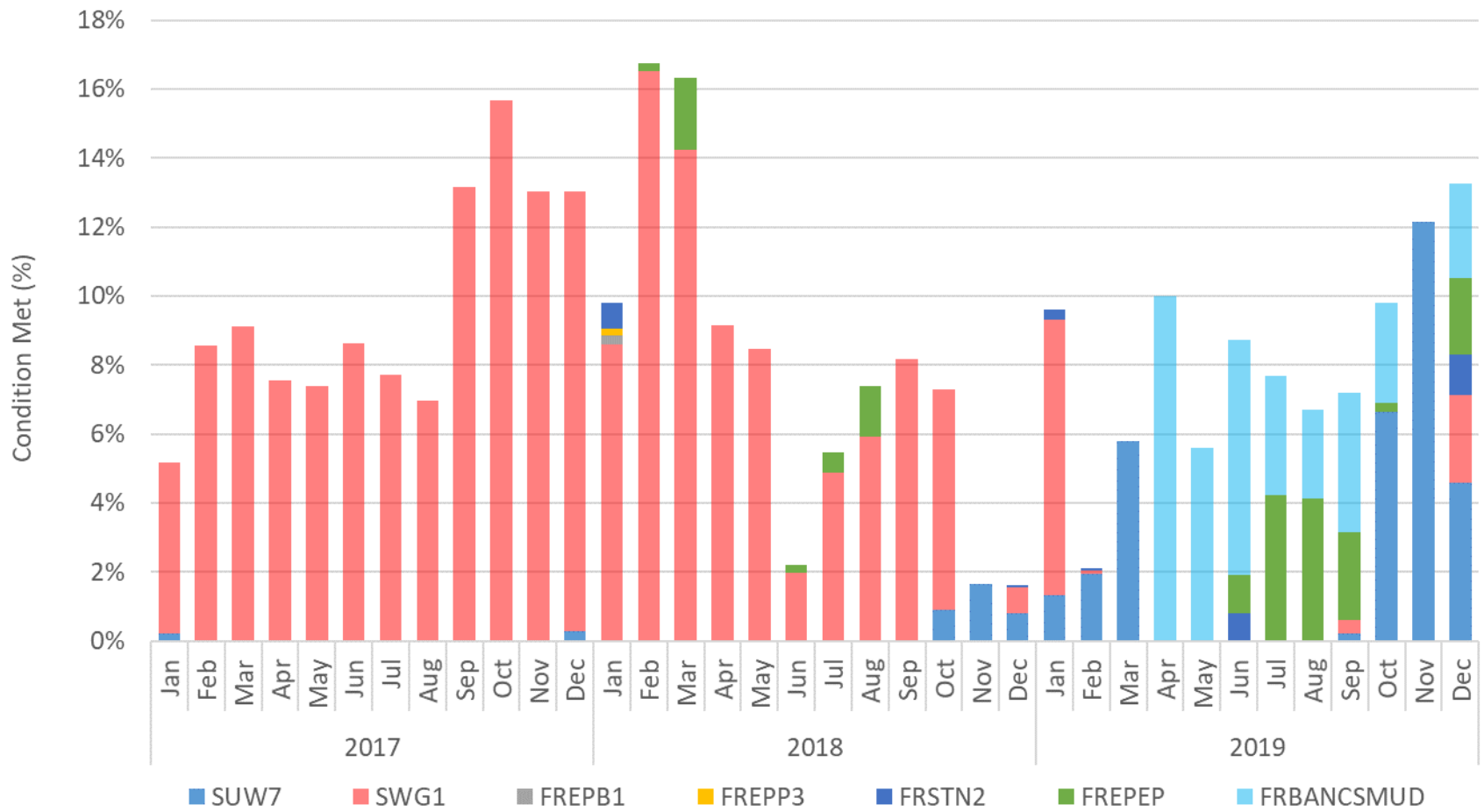
When the Bilateral price conditional triggers, both reference hubs set evenly the price in 2019



If the Proxy system gas price is the active conditional, SCE fuel region in CAISO BAA is the most frequent trigger in 2018 and 2019



If the Proxy EIM gas price is the active conditional, SMPM triggers more frequently with more diverse fuel regions



Fuel regions are considered as they become available into the system
ISO Public

DISCUSSION

Trigger discussion

- The trigger serves two objectives:
 - Identify when the CAISO can be reasonably concerned its balancing authority area is import constrained
 - Identify when the CAISO can be reasonably concerned that suppliers may exercise market power
- Stakeholder expressed concern that there are too many triggering conditions. Triggering conditions may be overly complicated and may miss potentially uncompetitive conditions.
- Stakeholders are concerned that using day-ahead bi-lateral trading hub prices in the real-time market mitigation process will undermine the process because bi-lateral trading hubs prices will incorporate an expectation of un-mitigated day-ahead prices
- Is there an opportunity to achieve the same objectives and improve the trigger?

Trigger discussion

Identify when the CAISO can be reasonably concerned its balancing authority area is import constrained

Draft Final Proposal

- The highest marginal energy cost in the EIM while in an import constrained region of EIM
- Greater than the highest day-ahead bilateral electrical trading hub index price plus 10 percent (Palo Verde and Mid C)
- Greater than a external proxy peaker prices plus 10 percent



Potential Modification

- The highest system marginal energy cost in the EIM while in an import constrained region of EIM
- Greater than **non-CAISO** proxy peaker prices plus 10 percent

Identify when the CAISO can be reasonably concerned suppliers may exercise market power

Draft Final Proposal

- CAISO marginal energy cost greater than \$100/MWh



Potential Modification

- CAISO system marginal energy cost greater than **internal CAISO** proxy peaker prices plus 10 percent

Concerns with bi-lateral hub prices and proxy peaker prices

- Stakeholders are concerned about using bi-lateral trading hub prices
 - Bi-lateral hub could be in a constrained area
 - Bi-lateral hub prices include expectations of day-ahead prices
 - It is more complicated to accurately shape the bi-lateral hub prices
 - It is more straightforward to base trigger on actual real-time cost drivers such as proxy peaker prices
- Stakeholders are concerned that the proxy peaker prices do not include commitment costs and other costs commonly found in default energy bids
 - We could modify the multiplier and/or add other costs

Trigger discussion

- Stakeholders are concerned that the CAISO may be uncompetitive when BAAs are in higher priced EIM areas because they failed their flexible ramp-up sufficiency test
 - BAAs that fail their flexible ramping up sufficiency tests are administratively locked out of EIM, usually pushing them into higher priced tiers
 - In practice, CAISO BAA would have also been in the highest priced EIM region but for the administrative test

Pivotal supplier test discussion

- Stakeholders are concerned that non-CAISO resources affiliated with internal scheduling coordinators may be pivotal
- Can import supply offers affiliated with internal scheduling coordinators, but sourced from the competitive west be pivotal?
 - Self-scheduled imports
 - Economic imports compete for limited transmission to bring external energy into the CAISO
 - If considered potentially pivotal, design would incentivize importers to offer less imports to the CAISO so as to not be considered pivotal
- Are participating EIM resources affiliated with internal scheduling coordinators potentially pivotal to CAISO balancing authority area?
 - Participating EIM resources are likely contracted to serve demand in the other EIM balancing authority area
 - If considered potentially pivotal, design would incentivize supplier to offer less supply to the EIM so as to not be considered pivotal

Competitive locational marginal price discussion

- Stakeholders are concerned that the using the next highest priced EIM region price may also be uncompetitive and should not be used in the competitive LMP
- Basing the competitive LMP on the next highest priced EIM region assumes that the two regions together would be competitive.
 - Is this a reasonable assumption?
- Some stakeholders maintain that it is not known so the competitive LMP calculation should use the lowest priced EIM region price
 - However, this may be a constrained-down region
 - This could result in dispatching CAISO supply up beyond the amount needed to resolve the import constraint
 - Note that the competitive LMP would still not be calculated lower than the proxy peaker price
- A potential broader EIM mitigation design would assess competitiveness of groups of EIM balancing authority areas

Mitigated resource discussion

- Stakeholders are concerned that the proposal does not mitigate resource adequacy imports
 - They point out that resource adequacy imports are needed to meet CAISO demand and have an obligation to offer into CAISO markets
 - CPUC suggests that mitigation could be limited to resource-specific resource adequacy imports for which CAISO has cost information
- The proposal considers all imports as supply outside of the constrained area which should be considered fringe
 - Supply outside constrained areas cannot exercise market power inside the constrained area
 - Import supply must compete for limited import capability