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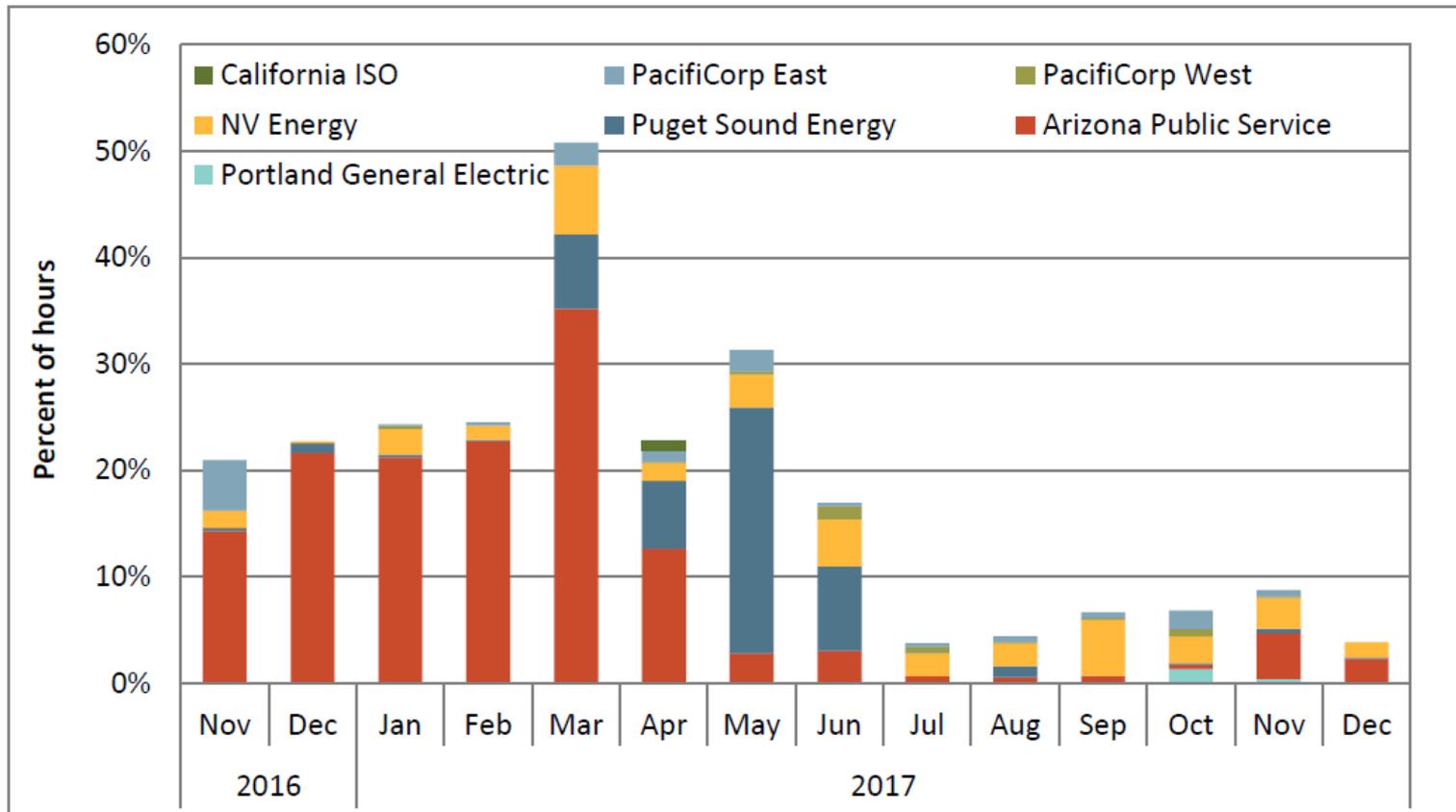
# PSE Flex Ramp Sufficiency Experience

April 2018



# Flex down sufficiency test failures by month

(DMM Q4 2017 Report)



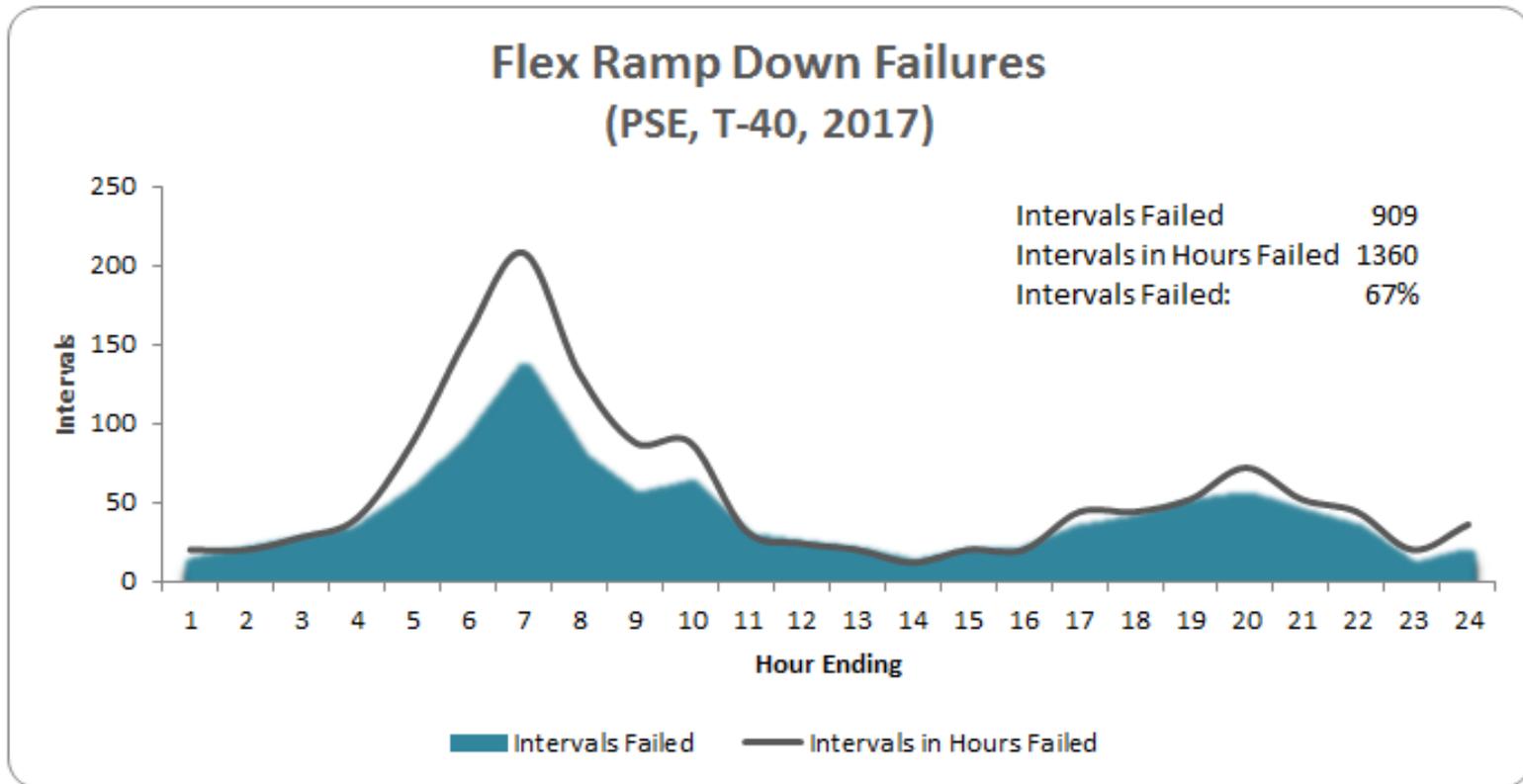
- Wild Horse switch from NPR to PR appears to have reduced failures from May to June, yet there were still frequent test failures in June

# Proposal: Perform FRST with 5 minute granularity and limit consequence of failure

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- PSE and other EIM entities have proposed that the test granularity be changed from the current four 15 minute intervals to twelve 5 minute intervals
- PSE and other EIM entities have proposed that the test is not designed as “fail one fail all”
- PSE and other EIM entities have proposed that the import freezes and financial consequences be only applicable to the failed intervals
- Day Ahead market enhancements proposal is for failure of flexible sufficiency test to only apply to the 15 minute intervals that an entity has failed

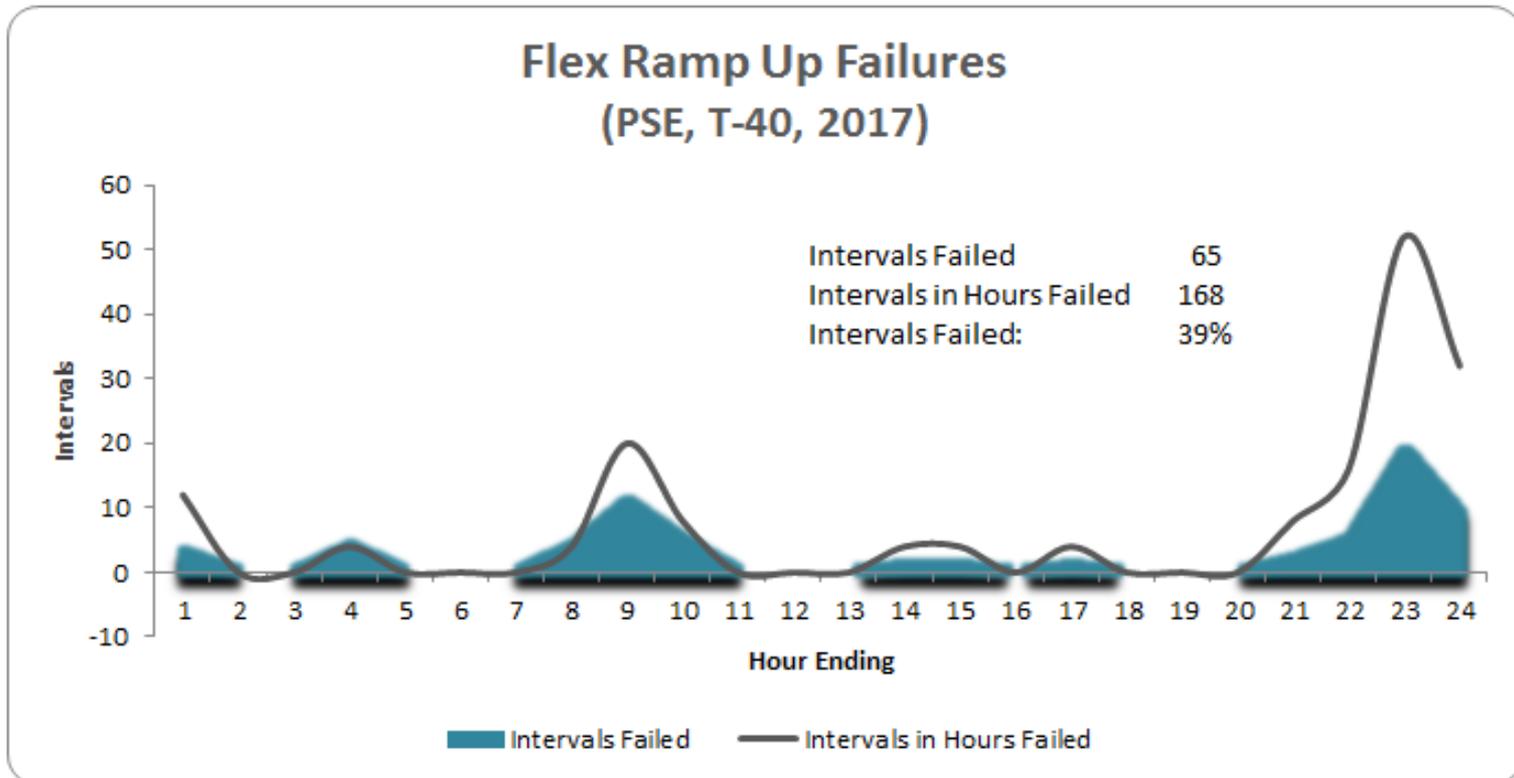
# One insufficient interval results in failure of all intervals in the same hour



- 33% of intervals failed because of “fail one fail all” methodology

\*Source - CMRI

# One insufficient interval results in failure of all intervals in the same hour



- 61% of intervals because of “fail one fail all” methodology

\*Source - CMRI

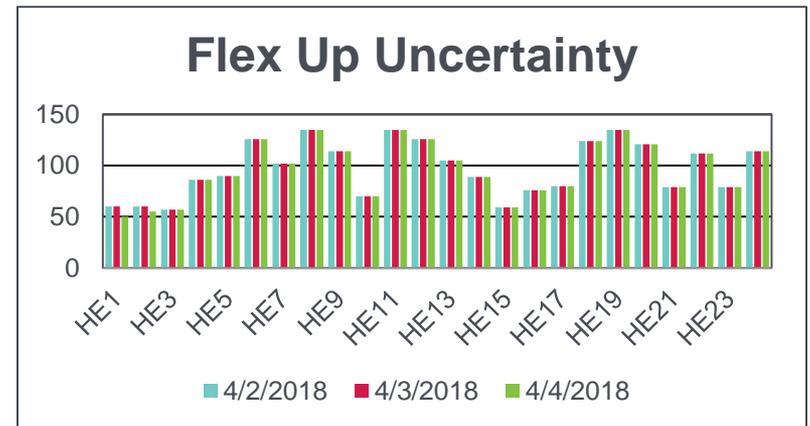
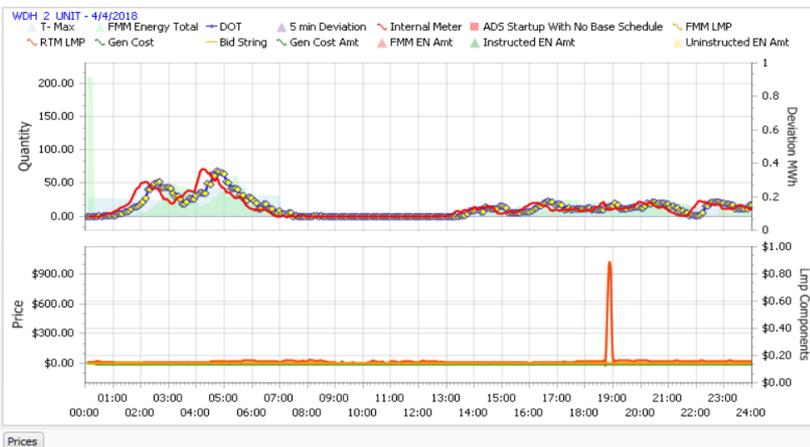
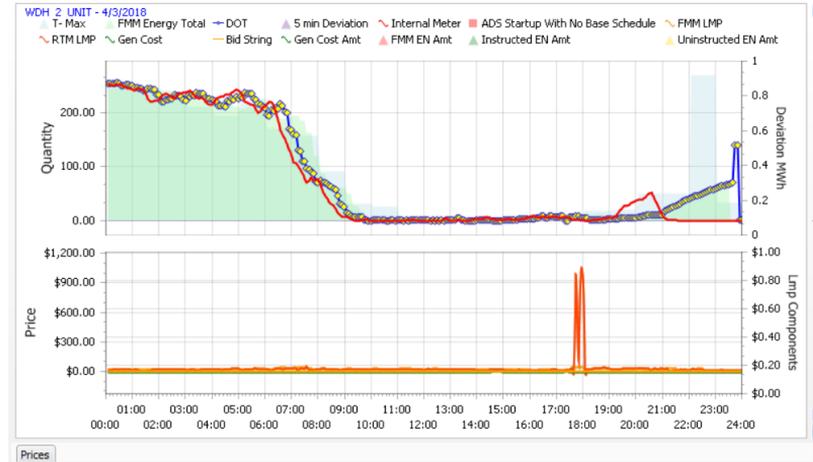
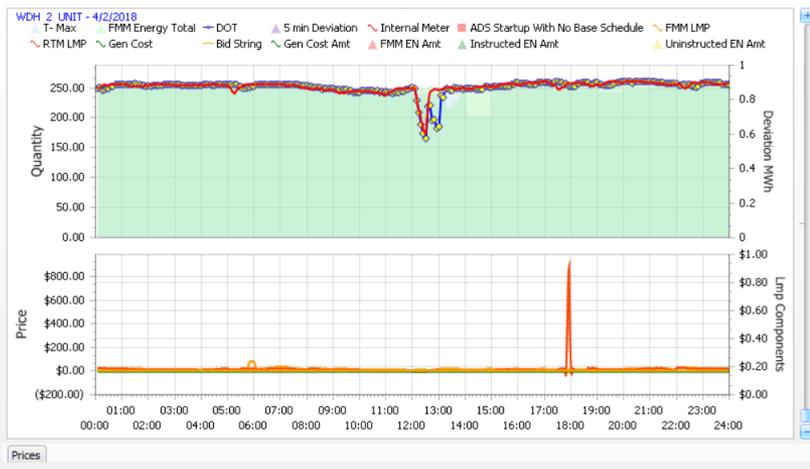
# Proposal: Incorporate current weather conditions in flex requirements and provide more reporting granularity

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- PSE and other EIM entities have proposed that current VER forecast should influence flexible ramping sufficiency requirement
- PSE suggests that reporting uncertainty for the FRST requirement separately for load and VERs would be beneficial to gain better understanding of uncertainty drivers

# Different wind profiles result in same uncertainty

Below are three days in April with very different wind profiles and the exact same flex up uncertainty. PSE would expect higher flex up in windy conditions



## Additional topics for consideration – count regulating capacity towards test requirement

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- Entities currently identify regulation on units and submit to CAISO as Available Balancing Capacity (ABC)
- The market model can be use ABC to avoid infeasibilities and administrative pricing
- Units on AGC automatically respond to oversupply and undersupply conditions to manage ACE and could be counted towards test requirement