PJM's Implementation of the Three-Pivotal Supplier Test Update

TPSTF

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Context of TPS Test Results

- TPS test is triggered in real time whenever PJM's Unit Dispatch System (UDS) dispatch software detects the need to provide incremental relief for a transmission constraint.
- The universe of real-time TPS tests is all intervals in which PJM's UDS software identifies the need to provide incremental relief for a transmission constraint.

Units Subject to Offer Capping

- Only offline units are subject to offer capping
- In the majority of cases, the relevant supply curve consists of units which are already operating
- Such units (already operating) are not subject to offer capping, regardless of the TPS test result

Context of TPS Test Results

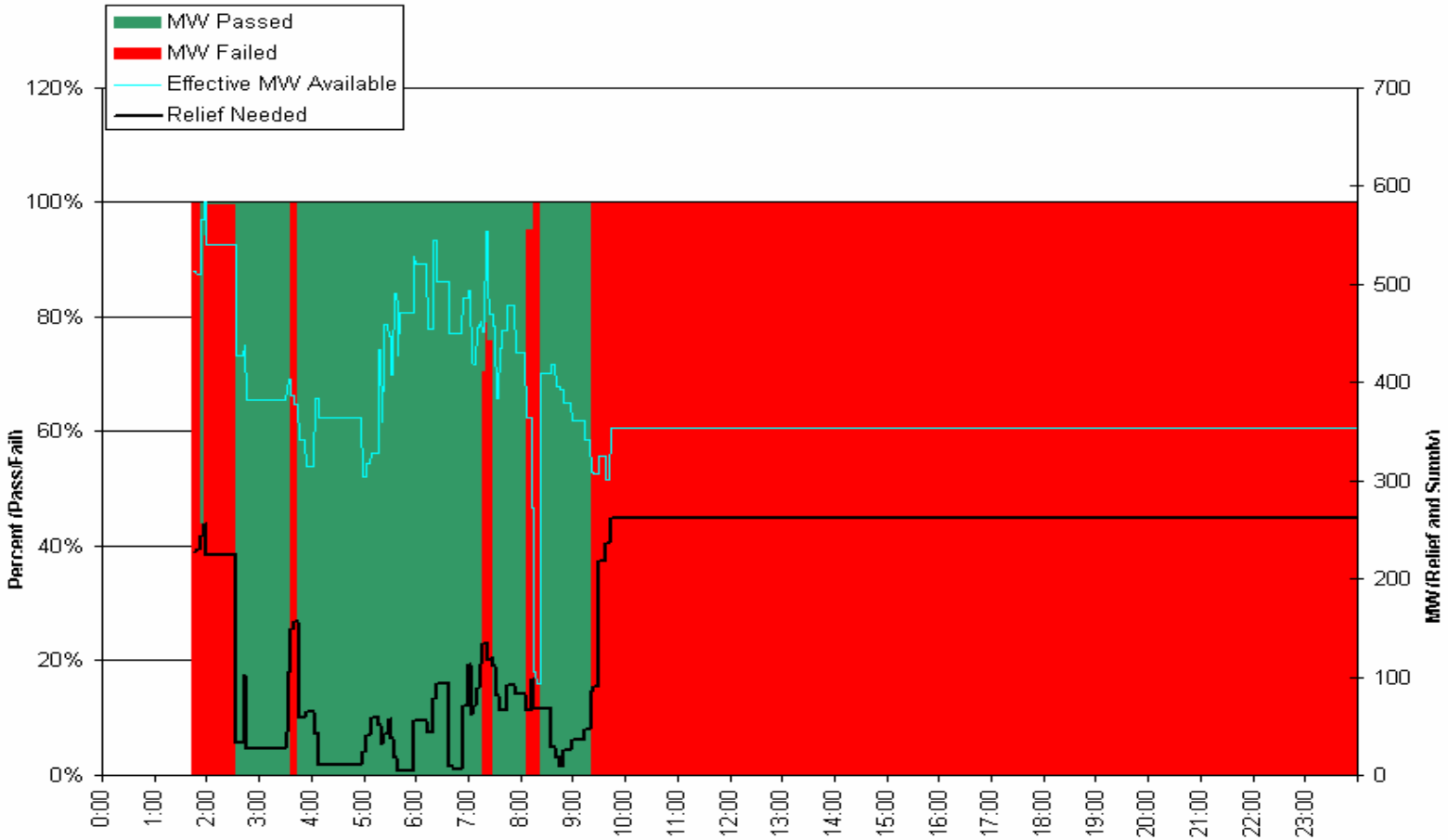
- The existence of a TPS test does not mean that dispatchers made any decision based on the test result
- Only a subset of the test results result in a dispatcher's decision to impose or not impose mitigation on a newly started unit
- The existence of a failed test result does not mean that mitigation was imposed
- Only a subset of failed tests result in mitigation

Units Eligible for Mitigation - Results

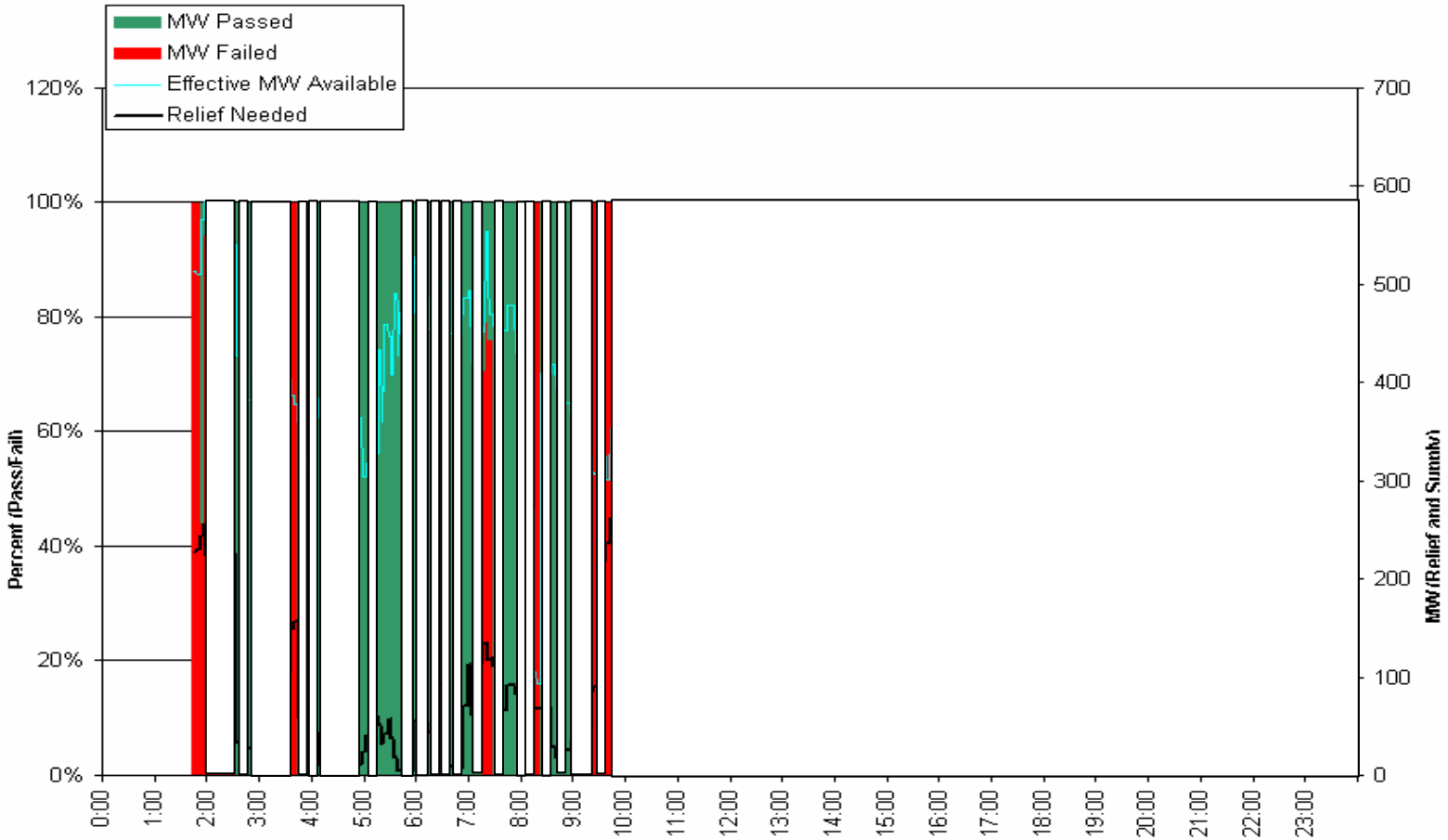
Constraint	Period	Average Number Units	Average Number of Units Eligible for Mitigation	Average Percent of Units Eligible for Mitigation
5004/5005 Interface	Peak	412.5	2.6	1.1%
	Off Peak	354.2	1.5	0.4%
Bedington - Black Oak	Peak	253.6	1.8	0.8%
	Off Peak	227.3	1.2	0.5%
AP South	Peak	372.0	5.5	1.8%
	Off Peak	330.6	3.9	1.1%
Western	Peak	426.7	0.3	0.1%
	Off Peak	392.4	0.7	0.1%
Central	Peak	448.7	0.7	0.3%
	Off Peak	434.1	0.0	0.0%
Eastern	Peak	257.8	10.6	6.5%
	Off Peak	292.0	42.0	14.4%

- The results indicate that a very small proportion of the units failing TPS are eligible for mitigation.
- Units actually mitigated are a subset of the units that both fail the TPS and are eligible for mitigation.
- Most available constraint relief is from units that are currently operating.
- Units that fail the TPS are mitigated only when they are the least cost solution to the constraint and they are brought on to relieve the constraint.

Markets Division Presentation of Cloverdale-Lexington TPS Test Results August 6, 2006



Actual TPS Test Results – Applicable Time Periods
Cloverdale-Lexington
August 6, 2006



Observations Regarding Presentation of Results

- TPS test results do not carry forward in time. (Last test for the day was at 0943)
- The absence of testing means that no incremental relief was required for the constraint during that interval.
- The absence of a test result does not support a conclusion regarding the competitiveness of the market.
- In the absence of a test after 0943, no MW pass or fail.
- In the absence of a failed test, no mitigation may be applied.
- A failed test does not mean that a unit was offer capped.

- PJM suggests that the TPS test may result in “excessive” mitigation or “false positive” results, but neither defines nor supports these assertions.
- The small number of tests which may result in mitigation does not support PJM’s assertions.
- The results of the three pivotal supplier test are based on actual, underlying market dynamics as faced by dispatchers in real time.

- PJM suggests that the use of a single price-based offer curve by generators each day makes it unlikely that a generation owner could exercise market power when an owner has a non-competitive test result for only a few intervals.
- There are a number of daily strategies for exercising market power in such a case, absent offer capping.

- PJM suggests that “oscillation” in TPS results in the potential application of mitigation when not necessary.
- PJM has not defined and therefore not measured “oscillation” in a meaningful way.
- PJM has not linked specific TPS results to actual or potential dispatcher mitigation actions.
- PJM has not determined if the TPS results could have resulted in a mitigation decision for a unit not currently operating.
- The TPS test measures actual, real-time system market structure based on actual system conditions and the test results reflect the dynamic nature of actual supply and demand.

- If the actual market conditions faced by system operators change, then the test results change. That is the intended and appropriate result.
- The time lag between running a test and actual unit response and the dynamic nature of the actual system conditions can result in changed pass/fail results for the owner of a given unit within a short period of time.
- The potential for short term changes in the market and corresponding changes in TPS test results exists in the real-time energy market and not in the day-ahead market.
- The TPS test results cannot change mitigation for an owner and a unit after a mitigation decision has been made.

- PJM does not currently log which occurrence of the TPS test forms the basis for a dispatcher's mitigation decision for a specific unit for a specific constraint at a specific time.
- There is a time lag between when the mitigation decision is made, contact is initiated with the unit's owner and the request is logged by PJM.
- During this time, multiple TPS tests may be applied by the PJM system software.
- For analysis, there is no clear link between test inputs, test results and dispatcher action.
- Many TPS tests are not relevant to a dispatcher decision.

- Meaningful analysis of changes in test results is not possible without this data.
- When the data is available, the MMU will include such an analysis in its quarterly reports.

- The LMP impact in a single hour of not offer capping a unit does not capture the full impact of that decision.
- A comprehensive analysis must begin with the day-ahead market, the impact of the offer capping decision in the day-ahead market and the effect of mitigation on the selection of units which run in real time.
- The analysis in real time must analyze the impacts of not offer capping throughout the operating day.
- The analysis must include the impact of not offer capping on operating reserve payments to such units.
- The mark up of units that are part of the supply curve for resolving specific constraints is an important measure of potential impact of not offer capping.
- The total dollar impact of not offer capping is an important measure of the impact of not offer capping, in addition to the per MWh impact.

- PJM stated that “The offer exemption is necessary because it reduces the potential for excessive mitigation during times of regional scarcity.”
- This statement is not supported in the PJM document and the statement is not correct.
- PJM has clearly defined FERC approved scarcity pricing rules.
- The scarcity rules explicitly state that all offer caps are relaxed during scarcity conditions, regardless of three-pivotal supplier testing results.
- The MMU has stated that the PJM scarcity pricing rules should be modified to ensure that economic scarcity conditions are actually reflected in prices.
- Scarcity pricing, in every case, would mean that offer capping would not be imposed.

- When there are no binding transmission constraints, the relevant market is the entire PJM footprint. In that case, there is a presumption of competitiveness in PJM and there is no offer capping.
- When there is a binding transmission constraint, the relevant market is the incremental supply available to solve the demand for MW to relieve that constraint.
- PJM's reference to the overall competitiveness of the "subregion" does not refer to an identifiable market from an economics or operational perspective.
- Mixing the results of different markets is not meaningful.

- PJM suggests that there should be no offer capping for the exempt interfaces because they are used as reference points for bilateral trading and providing certainty is an important objective.
- It would be preferable for the markets to have the certainty that the interface prices are not subject to market power but are the outcome of competitive forces.

- Determine whether offer capping is applied to all non-exempt constraints in the day-ahead market.
- Clearly define the link between test inputs, test results and market operator offer capping decisions.
- Save data which will permit a reproducible, detailed analysis of the application of the TPS test in the day ahead market.
- Cooperate with the MMU to facilitate a complete review by the MMU of the implementation of the TPS test in the day-ahead market.
- These tasks must be completed in order to permit a full evaluation of the application of the TPS in the day-ahead market and to ensure that it is being applied as intended.

- Create an automated method for identifying the specific real-time TPS test result used by the dispatcher in making mitigation decisions.
- Modify scarcity pricing rules to ensure that economic scarcity conditions are reflected in prices.
- Cooperate with the MMU to facilitate a complete review by the MMU of the implementation of the TPS test in the real-time market.
- These tasks must be completed in order to permit a full evaluation of the application of the TPS in the real-time market and to ensure that it is being applied as intended.

