White Paper

Proposed Modifications to Methodology for Competitive Path Designations for Local Market Power Mitigation

Department of Market Monitoring

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1 Background

The Department of Market Monitoring (DMM) has recommended that current local market power mitigation (LMPM) procedures be modified to incorporate virtual supply and demand bids and other changes to ensure that virtual bids do not undermine the effectiveness of these procedures to mitigate potential local market power. DMM has proposed a specific modification it believes would achieve these goals.[1]

After consideration of this issue, the ISO has proposed another method of modifying LMPM procedures to achieve these goals, while also reducing the computational time needed for LMPM procedures.[2] In this whitepaper, we refer to this approach as the *LMP decomposition test*. Based on an initial review of the ISO proposal, DMM agrees that the approach would ensure effective local market power mitigation under virtual bidding. By reducing the computational time needed for current LMPM procedures, this alternative approach would also allow for two additional enhancements to the current LMPM process:

- First, bid mitigation for the 5-minute real-time dispatch (RTD) could be determined in the real-time pre-dispatch (RTPD) process run every 15-minutes, rather than in the hour-ahead scheduling process (HASP). This RTPD process is executed about 23 minutes before the applicable RTD intervals. In comparison, the HASP process is executed about 105 minutes before the applicable RTD intervals. Thus, performing LMPM as part of the RTPD process would allow mitigation to be triggered and applied in a way that more accurately reflects congestion and system conditions in the 5-minute real-time market.
- Second, the competitiveness of binding constraints could be determined by the market software as part of these LMPM procedures. In this paper, we refer to this as an *in-line* competitiveness test, since the competeveness of binding constraints would be determined by the market software as an integrated part of the LMPM procedures. Currently, the competitiveness of constraints is determined in advance on a quarterly basis using the competitive path assessment methodology.[3]

DMM believes that with the inclusion of both these additional modifications the alternative approach proposed by the ISO would allow the overall LMPM process to more accurately reflect actual market and system conditions in the day-ahead and real-time markets. This paper provides a discussion of additional details of how these two additional modifications may be implemented to enhance the current LMPM process.

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[1] DMM white papers on this topic are located at http://caiso.com/2b13/2b13a6296c520.html in the *Convergence Bidding* subsection under the heading *2009 Special Reports and Presentations*. Documentation related to the current initiative for LMPM enhancement is located at http://caiso.com/2822/28229d8a4b370.html.

[2] See *Local Market Power Mitigation Enhancements - Straw Proposal*, published March 18, 2011, at http://caiso.com/2822/28229d8a4b370.html.

[3] Documentation on the CPA methodology is found at http://www.caiso.com/docs/2005/07/01/200507011120583480.html.

2 Applying LMPM in the real-time market

As noted above, DMM believes one of the major benefits of the alternative approach proposed by the ISO is that the reduced processing times would allow LMPM procedures for the 5-minute RTD to be performed as part of the RTPD process run every 15-minutes, rather than only in the HASP. This would allow mitigation to be triggered and applied in a way that more accurately reflects congestion and conditions in the 5-minute real-time market.

The LMP decomposition test is described in a separate whitepaper by the ISO. Provided below is a discussion of additional details of how DMM envisions this process could be implemented.

- The LMP decomposition test is run for each non-competitive binding constraint in the current RTPD run that corresponds to the RTD intervals in which the mitigated bids would be used. Additional details of this are provided in later sections of this whitepaper.[4]

- If the LMP decomposition test indicates mitigation should be triggered for a resource*,* all energy bids for that resource priced above the calculated competitive price[5] for that resource will be mitigated to the higher of the default energy bid (DEB) or the calculated competitive price for that resource. The mitigated bids will apply to the three 5-minute RTD intervals for which the RTPD run applies.

Additional rules would be developed to determine mitigation in RTD if the LMP decomposition test cannot be performed using the current RTPD run. Examples of such potential rules are provided below:

- Mitigation is applied in a 15-minute period if mitigation was applied in the prior 15-minute period.
- Mitigation is applied in a 15-minute period if mitigation was applied in a pre-specified percentage of the most recent y RTD intervals that congestion occurred on a constraint.

3 In-line competitiveness test for binding constraints

The current competitive path assessment (CPA) methodology used to determine whether constraints are deemed to be competitive or non-competitive is based on a three pivotal supplier test. Under this methodology, power flow simulations of the entire ISO system representing different supply and demand scenarios are performed removing the supply controlled by up to three entities. Constraints that cannot be met under any of these scenarios may be deemed to be non-competitive.

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[4] For purposes of the initial discussion we assume the LMP decomposition test is applied only to the constraints that are binding in the applicable RTPD run. Because local market power and mitigation are triggered by congestion of uncompetitive constraints and we have observed significant inconsistencies in congestion between the pre-market (LMPM) and market runs we will consider expanding the pool of uncompetitive constraints to mitigate for beyond the set of binding constraints. This is covered later in this paper.

[5] The calculated competitive price is the sum of the energy, loss, and competitive congestion components of the LMP at that resource. See the ISO March 18, 2011 paper entitled *Local Market Power Mitigation Enhancements - Straw Proposal* for more detail on this calculation and its interpretation.

The pivotal supplier test can also be applied for individual constraints. DMM illustrated this approach in our 2009 annual report.[6] In that report, DMM calculated the residual supply index (RSI) for constraints on which congestion occurred in the integrated forward market (IFM). The residual supply index for counterflow on congested constraints was developed by DMM based on similar metrics used by several other ISOs to assess the competitiveness of transmission constraints.

When the residual supply index is calculated with the three largest suppliers removed, we refer to this as the $RSI_{3.}$ A RSI_3 value less than 1 for a constraint indicates an insufficient supply of counterflow to relieve congestion on the constraint with these suppliers removed. In this case the constraint fails the three pivotal supplier test and is deemed uncompetitive.

Calculating the RSI for congested constraints

The residual supply index for each congested constraint can be defined as follows.

Shift Factor SF(*k*,*i*) represent resource *k*'s shift factor on *i*-th congested constraint

Schedule MW(*k*) represent resource *k*'s output (MW)

Pmax(*k)* equal resource *k*'s maximum output

The dispatched counterflow of resource *k* for SF(*k*,*i*) < 0 is:

D_CFlow(*k*) = SF(*k*,*i*)*MW(*k*)

The supply of potential counter flow of resource *k* for SF(*k*,*i*) < 0 is:

S_CFlow(*k*) = SF(*k*,*i*)*Pmax(*k*)

The total dispatched counterflow from resources controlled by market participant P is:

D_CFlow(P) = ∑D_CFlow(*k*) where *k* belongs to P

The total dispatched counter flow from all resources is:

Total_D_CFlow = ∑D_CFlow(*k*) for all *k*

The total supply of potential counter from all resources is defined as:

Total_S_CFlow = ∑S_CFlow(*k*) for all *k*

An index representing the ratio of total supply of potential counter from all resources (before removing any supplier) relative to the total demand for counterflow, or RSI (0), can then be calculated as follows:

$$RSI(0) = \frac{Total\_S\_CFlow}{Total\_D\_CFlow} = \frac{\sum_k S\_CFlow(k)}{\sum_k D\_CFlow(k)}$$

[6] See Chapter 4 in the *2009 Annual Report on Market Issues and Performance*, pp. 4.30 – 4.36 at http://www.caiso.com/1c5d/1c5dcc0465120.html.

The index with the single largest supplier removed (RSI_1) is calculated as follows:

$$RSI(1) = \frac{Total\_S\_CFlow - S\_CFlow(P1)}{Total\_D\_CFlow}$$

The index with the two largest suppliers removed (RSI_2) is calculated as follows:

$$RSI(2) = \frac{Total\_S\_CFlow - S\_CFlow(P1) - S\_CFlow(P2)}{Total\_D\_CFlow}$$

The index with the three largest suppliers removed (RSI_3) is calculated as follows:

$$RSI(3) = \frac{Total\_S\_CFlow - S\_CFlow(P1) - S\_CFlow(P2) - S\_CFlow(P3)}{Total\_D\_CFlow}$$

If the RSI_3 for a constraint is less than 1, this indicates the constraint fails the three pivotal supplier test.

Important aspects of the residual supply index for counterflow on congested paths include the following:

- One of the main strengths of the index is that it is calculated based the actual supply and demand for counterflow during hours when congestion occurs. Results therefore reflect changes in system conditions not captured in the competitive path assessment. For example, if a transmission line is de-rated, this increases the demand for counterflow used in the test. If a unit effective at providing counterflow is unavailable due to an outage, this decreases the supply of counterflow used in the test. Thus, the residual supply index may vary significantly from hour to hour for a given constraint, reflecting different dispatch patterns at different time.
- A second major advantage of the RSI is that it is computationally simpler. Once automated metrics are developed, the index can be quickly calculated for each congested constraint by combining readily available market data with each unit's shift factors.
- The RSI is analyzed individually for each binding constraint, ignoring potential interaction among multiple constraints. For instance, available counter flow for one constraint may not be fully dispatched because these counter flows may worsen congestion on the other constraint. Such factors among multiple congested constraints are not revealed in the RSI, while the competitive path assessment results reflect the complex network effect by simultaneous constraint modeling.
- Calculation of the available counter-flow depends on the maximum capacity of the unit, which may not be fully available due to operating constraints such as ramping. This is captured by the RSI.

- The RSI can be calculated for a constraint that is binding, violated, or even slack. Meanwhile, the current competitive path assessment identifies an uncompetitive constraint based on overflow criterion.
- The RSI is for counter-flow only and ignores positive flow. This means the test is focuses identification of competitiveness on the side of the constraint where load is concentrated and does not focus on generation pockets.

4 Implementation Details

Provided below is an initial outline of key components and options that may be included when developing an in-line pivotal supplier test based on the RSI that could be implemented as part of the market software.

Resources used in competitiveness test

In the day-ahead market, the LMP decomposition test will be based on results of a pre-market AC run that includes all physical and virtual bids. This aspect of the ISO's proposal addresses the potential deficiency in the current LMPM approach, which is based on the forecast of physical demand and does not include the additional demand that may occur in the market run due to addition of virtual demand bids.

However, the pivotal supplier test used to determine the competitiveness of constraints should be based on market bids for dispatchable physical resources only. This is necessary to avoid the potential for large quantities of relatively high priced virtual supply bids in the day-ahead market to cause a constraint to be deemed competitive when the supply of available physical supply is not competitive.

When assessing constraint competitiveness in the RTPD runs, the pivotal supplier test would again be based on market bids for dispatchable physical resources only. Thus, in these runs, only units that were already on-line or could be committed in the time period for which the LMPM procedures were being performed would be included in the competiveness test.

Mitigation of potential market congestion on constraints that are non-binding in pre-market runs

The ISO's proposal would only trigger mitigation in the event that congestion occurred in the pre-market run of the market software on a constraint deemed to be non-competitive. In practice, a significant portion of congestion occurring in the day-ahead and real-time markets does not occur in the pre-market all constraints (AC) run of the market software.

Table 1 and Table 2 provide a comparison of the frequency of congestion in the AC run and the market runs in the day-ahead and real-time market, respectively for 2010. Inter-tie constraints, metered scheduling limits, and grandfathered paths were not included in the analysis. Inter-tie and metered scheduling limits constraints were not included because they are not currently tested but competitive by default. Internal grandfathered paths are also currently deemed competitive. As shown in Table 1:

- Congestion did not occur in either the pre-IFM AC or day-ahead market run in 10 percent of hours in 2010.
- Congestion occurred on constraints in the pre-IFM AC run about 82 percent of the time that congestion occurred on the same constraints in the day-ahead market.
- During about 18 percent of time that congestion occurred on constraints in the day-ahead market, this congestion did not occur in the pre-IFM AC run.
- About 24 percent of the time that congestion occurred on constraints in the pre-IFM AC runs, this congestion did not occur in the day-ahead market.

As shown in Table 2:

- Congestion did not occur in either the pre-HASP AC or real-time market runs in 69 percent of 15 minute real-time intervals in 2010.
- Congestion occurred in the pre-HASP AC run about 83 percent of the time that congestion occurred on the same constraints in at least one of three 5 minute real-time intervals corresponding to a real time pre-dispatch interval.
- During about 17 percent of time that congestion occurred on constraints in the 5-minute real-ahead market, this congestion did not occur in the pre-HASP AC run.
- About 30 percent of the percent of time that congestion occurred in the pre-HASP AC runs, the congestion did not occurred in the real-time market.

The amount of market congestion that is not detected in the AC run may be reduced by including non-binding constraints from the LMPM run that are likely to bind in the market run can reduce. For instance, the approach could be modified to apply mitigation to include all constraints with net flows in the AC run within some percentage of constraint limit (e.g. 95%).[7]

[7] Each AC run includes a list of critical constraints on which the scheduled flow is at least 85 percent of the constraint limit. We can choose to use this entire list, or choose a different threshold (i.e., where scheduled flow is at least 95 percent of the limit.)

Table 1. Day-ahead congestion in pre-market and market runs (2010)

Pre-market all constraints run			Day-ahead market: Congestion	Day-ahead market: No Congestion	Day-ahead market: Total
	Congestion	Constraint Hours	2,136	690	2,826
		Row Percent	76%	24%	
		Column Percent	82%	0%	
	No Congestion	Constraint Hours	471	15,571,983	15,572,454
		Row Percent	0%	100%	
		Column Percent	18%	100%	
	Total		2,607	15,572,673	

Table 2. Real-time congestion in pre-market and market runs (2010)

Pre-market all constraints run			Real-time market: Congestion	Real-time market: No Congestion	Real-time market: Total
	Congestion	Constraint Intervals	8,439	3,559	11,998
		Row Percent	70%	30%	
		Column Percent	83%	0%	
	No Congestion	Constraint Intervals	1,749	62,287,373	62,289,122
		Row Percent	0%	100%	
		Column Percent	17%	100%	
	Total		10,188	62,290,932	

The formula for calculating the RSI and evaluating the pivotal supplier test are designed for cases in which a constraint s binding. The competitiveness of a constraint can also be evaluated when it is not binding. This could be done in the case where the constraint is not binding in the pre-market run where LMPM is applied, but we anticipate it is likely to be binding in the market run where local market power actually occurs.

In cases where the constraint is not binding in the pre-market run, the calculated counter-flow is based on a net flow that is below the constraint limit. To calculate the RSI for this constraint under a scenario in which it may bind in the market run, the demand for counter-flow can be increased by the amount of slack observed in the pre-market run. In other words, the demand for counter-flow for non-binding constraints can be calculated based on calculated counter-flow from the pre-market run plus the difference between the constraint limit and the net flow on the constraint in the pre-market run. This allows us to measure the competitiveness of a non-binding constraint if it were to bind.

Another issue arises when using non-binding constraints in the mitigation process. The LMP decomposition test that triggers mitigation uses the portion of the LMP derived from congestion on uncompetitive constraints as the trigger for mitigation. This test is applied in the pre-market runs. The LMP decomposition test should be applied if a non-binding constraint in the pre-market run is tested for competitiveness because it is determined to be uncompetitive and is likely to be binding in the market run. However, because the constraint is non-binding, it will have no effect on LMPs and thus will not trigger mitigation using the LMP decomposition test. This creates a gap in the mitigation that is stems from the combination of two factors:

- The inability to perfectly predict which constraints will be binding in the market run, and
- Use of a price-based mitigation trigger that requires a non-competitive constraint to bind in the mitigation run in order to mitigate for that constraint in the market run.

We have not yet developed a detailed proposal for addressing the second aspect of this gap. Some alternatives to addressing this gap are listed below for discussion:

- Mitigate all resources effective to the non-binding uncompetitive constraint to the competitive LMP.[8]
- Use a historical value for the shadow price of non-binding uncompetitive constraints and perform a static recalculation of the LMPs from the LMPM run for purposes of testing for market power and triggering mitigation.
- Use the effective bid curves on either side of the non-binding uncompetitive constraints to estimate the value for the shadow price of these constraints, and then use this shadow price to perform a static recalculation of the LMPs from the LMPM run for purposes testing for market power and triggering mitigation.
- If the constraint has been deemed uncompetitive with resources mitigated in the recent past, mitigate all resources in the current interval that were mitigated in prior runs.

[8] See footnote 5.

Default path designations and mitigation

Default steps need to be in place in the event that either the in-line competitiveness test or the LMP decomposition test cannot be performed (i.e. market run failure, market run cannot find a solution, etc.).

There needs to be a set of default path designations to rely upon in the event the market does not successfully complete the competitiveness test. In this case, we are proposing to have a table available to the LMPM process that has stored default values for competitive designations. Some alternatives for this are:

- All "non-grandfathered" paths are uncompetitive unless tested and passed.
- Historical designations are used as default designations. For example, if a path has been tested in at least 10 intervals over the past 3 days and was deemed competitive at least 70% of the time then the default designation is competitive, otherwise the default designation is uncompetitive.

There is also the chance that the LMP decomposition test is not successfully executed. There needs to be a default action to make sure mitigation is appropriately applied. This is only required in cases when the competitiveness process identified uncompetitive constraints that are likely to bind in the market interval. Some alternatives for this are:

- All resources effective in relieving congestion on the identified uncompetitive constraints are mitigated to their DEB.
- All resources that have historically been mitigated for this constraint are mitigated to their DEB.

Alternatives and details for the default mitigation action can be covered as part of the ISO proposal for enhanced local market power mitigation.

Real-time market

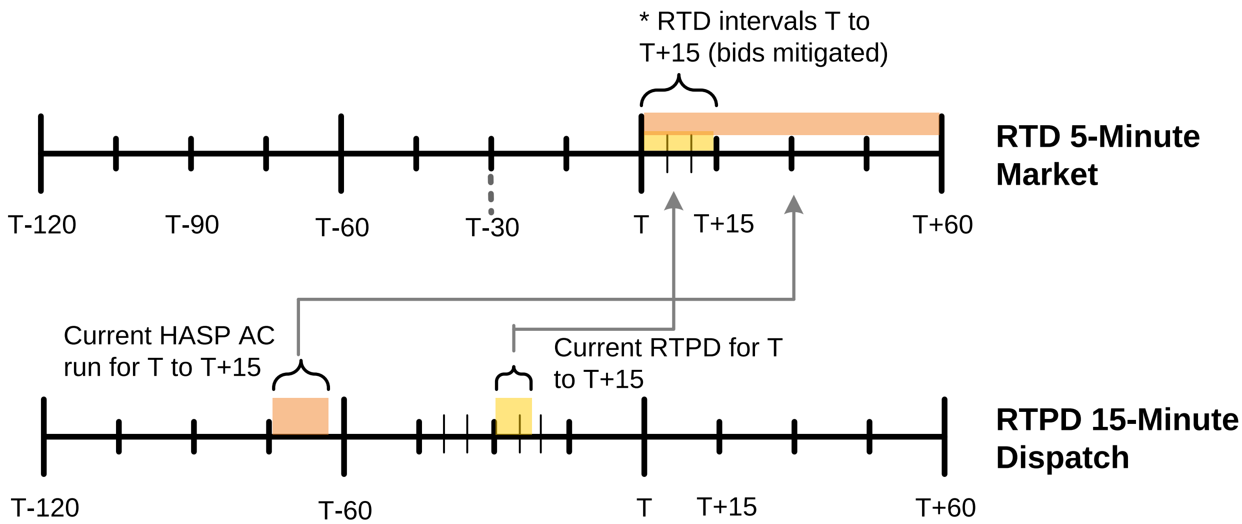
The execution time for the 5-minute RTD runs does not allow for the calculations required to determine path competitiveness, apply the LMP decomposition test and mitigate bids for use in the 5-minute RTD market.

The next closest market where this can be performed is in the 15-minute RTPD runs where ancillary services are procured in real time. This run occurs approximately 25 minutes prior to the first applicable 5-minute RTD interval. Currently, the real time mitigation is performed in the all constraints run of the HASP process which takes place approximately 105 minutes prior to the first applicable 5-minute RTD interval.[9]

The relationship between when market power is evaluated in HASP and RTPD and where the resulting mitigated bids will be applied in RTD is diagramed in Figure 1.

[9] Under the current mitigation methodology, if a resource has its bids mitigated in real time they will be mitigated for the entire hour. The proposed methodology will reevaluate competitiveness and market power every 15 minutes and bids will be mitigated for a 15 minute period.

Figure 1: Market timing



Differences between the pre-RTD and RTD models and information available at the time of the runs can result in inconsistencies in congestion between the RTPD run and the RTD runs. The path competitiveness and LMP decomposition test for mitigation are both triggered by congestion. The proposal is to perform these calculations in the pre-market MPM run of the applicable RTPD run. This will allow for the market run of RTPD to also use mitigated bids to commit short-start units.

The accuracy of mitigation is highly dependent on the accuracy of the congestion detected in RTPD compared to what actually occurs in RTD in the same fashion as described for the IFM. Statistics showing the accuracy of RTPD to predict congestion in RTD are shown in the second data row in Table 3. The same statistics are also shown for congestion observed in the all constraints run of the HASP market for comparison (first data row).

The purpose of this table is to show the difference in the accuracy of predicting congestion in RTD among various choices of pre-RTD market runs. The row headings in Table 3 indicate the information set used from the RTPD run to predict congestion in the RTD interval. We include the current approach where the All Constraint run of the HASP is used for comparison. The remaining rows show different sets of constraints from the RTPD run starting with only the binding constraints and adding additional constraints that are not binding but have a market flow close to the constraint limit.

The first two data columns in Table 3 show the percent of 15-minute periods in RTD where congestion occurred and the average number of binding transmission constraints per 15-minute RTD period.[10] These numbers do not change across the various options (rows) for information used in the path designation process. The next column shows the total number of constraint intervals (number of constraints x number of intervals) which is provided for perspective.

[10] We use 15 minute periods in RTD instead of 5 minute periods since the pre-market runs where mitigation would occur for RTD occur on a 15-minute basis.

The next three sets of columns provide statistics that indicate how well the various information sets predict observed congestion in RTD. The following describes how these statistics are interpreted:

- ***Under Identification*** columns show (a) the percent of intervals with congestion in RTD where the information set (i.e., RTPD with only binding constraints) did not identify some congestion that occurred in the associated RTD market runs and (b) the average number of binding constraints in the associated RTD market runs.
- ***Consistent Identification*** columns show (a) the percent of intervals with congestion in RTD where the information set did identify congestion that occurred in the associated RTD market runs and (b) the average number of binding constraints in the associated RTD market runs.
- ***Over Identification*** columns show (a) the percent of intervals with congestion in RTD where the information set identified congestion that did not occur in the associated RTD market runs and (b) the average number of binding constraints in the associated RTD market runs.

Table 3: Consistency in identifying RTD congestion using RTPD congestion across different binding and non-binding thresholds (2010)

Market runs used to identify congestion for mitigation	Percent of 15 min RTD intervals with congestion	Avg. binding constraints per 15 min RTD interval	Number of constraint hours in set	Under Identification		Consistent Identification		Over Identification	
				% of 15 min RTD Intervals	Avg. number affected constraints	% of 15 min RTD Intervals	Avg. number affected constraints	% of 15 min RTD Intervals	Avg. number affected constraints
HASP all-constraints run	27.4%	1.1	111,522	4.8%	1.1	23.4%	1.0	9.5%	1.1
RTPD 100% limit	27.4%	1.1	111,059	2.7%	1.1	25.3%	1.1	4.5%	1.0
RTPD 97.5% Limit	27.4%	1.1	114,248	2.1%	1.1	25.7%	1.1	12.4%	1.1
RTPD 95% limit	27.4%	1.1	115,951	1.9%	1.0	25.9%	1.1	24.7%	1.2
RTPD 90% Limit	27.4%	1.1	126,678	1.5%	1.0	26.1%	1.1	37.6%	1.5
RTPD 85% Limit	27.4%	1.1	158,504	1.2%	1.0	26.3%	1.1	57.4%	2.4

The information set that provides the most accurate predictor of congestion in RTD would have a very high percent of "Consistent congestion" and low percents for "Under-identified congestion" and "Over-identified congestion".

It is important to note that the purpose here is to identify constraints that are likely to bind in the RTD market and should be tested for competitiveness. That a constraint is identified as likely to be binding in RTD does not mean it is uncompetitive or that effective resources will be mitigated. Identification of binding constraints is the first of four steps in the proposed mitigation process. The second step is to apply the PS test to the binding constraint to determine if it is uncompetitive. The third step is to apply the LMP decomposition test to individual resources to determine which resources have local market power with respect to uncompetitive constraints. The last step is to apply mitigation to resources that are deemed to have local market power. Each of the following conditions must be met in order for a resource to be mitigated:

1. A constraint is identified as likely to be binding for which a resource is effective in relieving congestion,
2. That constraint fails the PS test and is deemed uncompetitive,

3. The LMP at the effective resource fails the LMP decomposition test,
4. The effective resource has a bid price that is above the higher of its DEB or the competitive LMP at that location.

Using only the binding constraints of the RTPD run instead of the HASP All-Constraints run reduces the frequency of under-identified congestion from 4.8 percent of intervals to 2.7 percent of intervals with 1.1 constraints under-identified on average (see first and second rows in Table 3). Using the binding constraints from the RTPD run also results in a decrease of over-identified congestion from 9.5 percent of intervals to 4.5 percent.

Adding additional RTPD critical constraints by reducing the flow-to-limit ratio helps to further identify constraints that are likely to bind in RTD. Moving to constraints where the flow to limit ratio is 97.5 percent further reduces the likelihood of under-identification of congestion to 2.1 percent of intervals. Note also that the frequency of over-identification of binding constraints increases from 4.5 percent of intervals to 12.4 percent of intervals. Two additional alternatives for including non-binding critical constraints from RTPD to reduce the under-identification of congestion are also presented in Table 3.

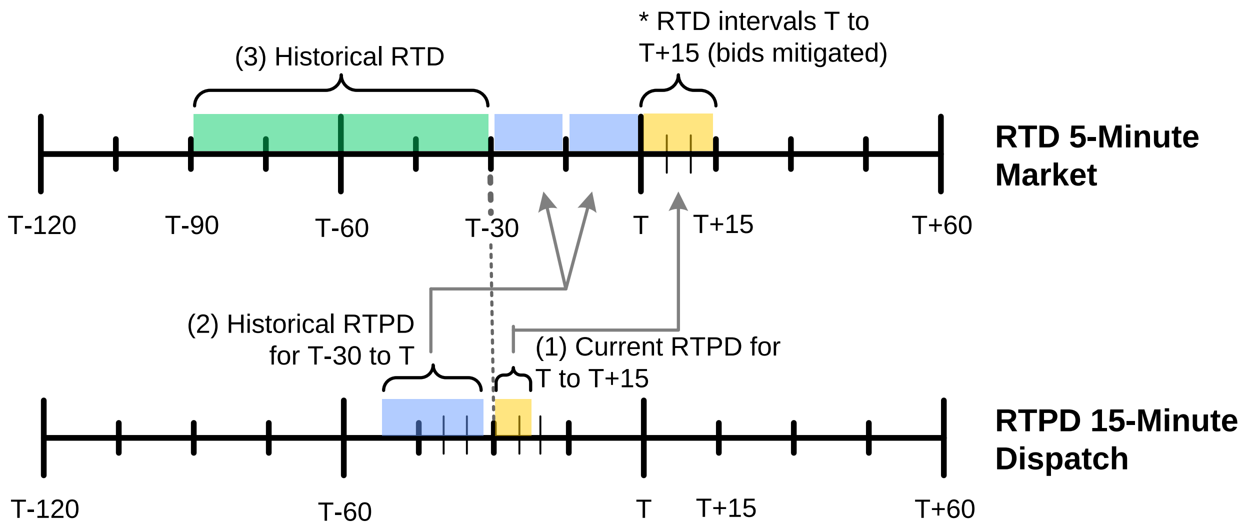
In the case where we under-identify congestion the opportunity for identifying local market power and mitigating if necessary is lost. Under-identification of congestion pre-determines that local market power will go un-tested and un-mitigated. Over-identifying congestion is not deterministic in this way. The identified constraint will still be tested for competitiveness and the LMP decomposition test applied to determine if mitigation is triggered.

Other alternatives for including additional information in developing the list of constraints that are likely to bind in RTD include:

- Use binding constraints from more than one RTPD run (area (2) in Figure 2).
- Use binding constraints from historical RTD runs (area (3) in Figure 2). There is about a 30 minute lag in the availability of this data since the information must be prepared for use in the current RTPD run.

It is important to note that the only constraints enforced in the RTD runs are those that are in the critical constraint list from the associated RTPD run. Given this, using other historical market runs may identify candidate constraints that will not be in the current RTPD critical constraint list and therefore cannot be binding in RTD. This limits the usefulness of the information from other market runs relative to the critical constraint list from the current RTPD run.

Figure 2: Timing of market runs and information availability



There are challenges with using information from market runs other than the current RTPD run. While including additional pre-RTD information reduces under-identification of binding constraints, it does create difficulty with calculating the LMP decomposition test since the binding constraints, energy prices, and shift factors will come from market runs other than the current RTPD run.