

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**California Independent System
Operator Corporation**

Docket No. ER15-____

**PETITION OF THE
CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION
FOR MARKET POWER MITIGATION AUTHORITY**

The California Independent System Operator Corporation (“CAISO”) requests Commission authorization to include Energy Imbalance Market (“EIM”) transfer constraints between the NV Energy balancing authority area and the CAISO and PacifiCorp East balancing authority areas in the CAISO’s local market power mitigation procedures, consistent with section 29.39(d)(2) of the CAISO tariff.¹ The CAISO’s Department of Market Monitoring conducted a structural competitiveness assessment and found that application of market power mitigation when EIM transfer constraints into the NV Energy balancing authority area are binding is necessary to avoid the potential exercise of market power by NV Energy. The CAISO requests that this authorization be effective concurrent with the date on which the CAISO integrates the NV Energy balancing authority area into the Energy Imbalance Market.²

¹ The CAISO submits the petition pursuant to Rule 207 of the Commission’s Rules of Practice and Procedure, 18 C.F.R. § 385.207 (2014).

² See Docket No. ER15-1919-000 (requesting tariff changes in support of the NV Energy implementation targeted for October 1, 2015).

I. Introduction

Section 29.39(d) of the CAISO tariff authorizes the CAISO to apply real-time market power mitigation procedures upon a filing with, and authorization by, the Commission.³ This filing requests such authorization. The Commission has previously approved application of such measures to EIM transfers between the CAISO and PacifiCorp balancing authority areas.⁴

II. Request for Authorization

The Department of Market Monitoring has prepared an assessment of potential energy imbalance market power in the NV Energy balancing authority area dated July 9, 2015. Based on this assessment, the Department of Market Monitoring concluded that it is necessary to include the EIM transfers from the PacifiCorp East and CAISO balancing authority areas into the NV Energy balancing authority area in the CAISO's market power mitigation procedures. The Department of Market Monitoring reached this conclusion based on its findings that, although the demand for imbalance energy by other entities within the NV Energy balancing authority area may be relatively low, NV Energy owns and operates all of the generating resources within the NV Energy balancing authority that it is registering to participate in the EIM. While over 1,500 MW of competitive supply from the ISO may be available for scheduling into the NV Energy balancing authority area during many hours, the supply of EIM transfers from the CAISO may be limited or even not exist under some circumstances. Therefore, the

³ *Id.* at PP 218.

⁴ *Cal. Indep. Sys. Operator Corp.*, 148 FERC ¶ 61,222 at P 13 (2014).

Department of Market Monitoring determined that it was unable to conclude that the NV Energy balancing authority area is structurally competitive at this time. The details of this determination are include in the full Department of Market Monitoring report, Attachment A.

The CAISO reviewed the Department of Market Monitoring structural competitiveness assessment and agrees that the NV Energy balancing authority area is not structurally competitive. Accordingly, the CAISO requests that the Commission authorize it to apply its market power mitigation procedures to EIM transfers from the PacifiCorp East and CAISO balancing authority areas into the NV Energy balancing authority area. These are the current EIM transfer paths into NV Energy's balancing authority area, which when binding create conditions for the potential exercise of market power by NV Energy, that should be subject to mitigation.

The CAISO continues to evaluate its approach to addressing market power at the EIM internal interties such as those noted above, and will discuss this with stakeholders during its EIM year one enhancements, phase 2 stakeholder process.⁵ The CAISO had earlier thought this initiative might produce a new approach to be implemented concurrent with planned integration of NV Energy into the Energy Imbalance Market, but circumstances have deferred that development.

III. Effective Date

The CAISO requests an effective date for the authorization that coincides with the first planned Energy Imbalance Market trading day for NV Energy.

⁵ See [Energy Imbalance Market Year 1 Enhancements, Phase 2, Issue Paper and Straw Proposal](#), date June 30, 2015.

IV. Service

The CAISO has served copies of this filing upon all scheduling coordinators, the California Public Utilities Commission, and the California Energy Commission. In addition, the CAISO has posted the filing on the CAISO website.

V. Contents of this Filing

In addition to this petition, this filing includes the Department of Market Monitoring's structural competitiveness assessment as Attachment A.

VI. Correspondence

The CAISO requests that all correspondence, pleadings, and other communications concerning this filing be served upon the following:

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XIV. Conclusion

The CAISO respectfully requests that the Commission accept this filing and permit the authorization to be effective as requested herein.

Respectfully submitted,

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ATTACHMENT A

California ISO

Assessment of potential structural market power within NV Energy balancing authority area

July 24, 2015

Prepared by: Department of Market Monitoring

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Executive Summary

Under the CAISO tariff, market power mitigation tests and mitigation procedures are only applied to energy imbalance market (EIM) transfer constraints when congestion occurs into an EIM entity balancing authority area if: (1) the CAISO determines that market power may exist based on a structural competitiveness assessment and (2) the FERC accepts a filing by the CAISO to include EIM transfer constraints in market power mitigation tests and procedures. This report provides an assessment of the potential structural competitiveness of the NV Energy EIM balancing authority area scheduled for implementation in October 2015.

Although the demand for imbalance energy by other entities within the NV Energy balancing authority area may be relatively low, NV Energy owns or controls all the generating resources it is registering to participate in the EIM within the NV Energy balancing authority area. While over 1,500 MW of competitive supply from the CAISO may be available for scheduling into the NV Energy balancing authority area during many hours, the supply of EIM transfers from the CAISO may be limited or even not exist under some circumstances.

Based on currently available information, the Department of Market Monitoring (DMM) cannot conclude that the NV Energy EIM balancing authority area will be structurally competitive. Therefore, DMM recommends that the CAISO apply the market power mitigation tests and procedures when congestion occurs on scheduling constraints into the NV Energy balancing authority area from the CAISO and other EIM balancing authority areas.

1 Background

The California Independent System Operator Corporation (CAISO) tariff specifies that the CAISO will apply the same Real-Time Local Market Power Mitigation procedures described in Section 39.7 to the Energy Imbalance Market, except as modified in Section 29.39 (EIM Market Power Mitigation).

Section 29.39 (2) and Section 29.39 (3) specify that bid mitigation will be triggered and applied to units within an EIM area when congestion occurs on a constraint within the EIM area in which the resource is located, except as described Section 29.39(d). Under these provisions, mitigation is only applied to internal constraints within an EIM area and is not applied to EIM transfer constraints between EIM areas unless approved by FERC pursuant a filing by the CAISO under the process described Section 29.39(d) (Market Power Mitigation of EIM Transfer Constraint).

Section 29.39 (d) states that:

(1) **Structural Competitiveness Assessment.** The Department of Market Monitoring may conduct a structural competitiveness assessment of an individual or group of entities within an EIM Entity Balancing Authority Area prior to or subsequent to the EIM Implementation Date for the EIM Entity to evaluate market power based on factors, which may include

- (A) the Demand for Real-Time Imbalance Energy within the EIM Entity Balancing Authority Area;
- (B) the Supply owned or controlled by different entities within the EIM Entity Balancing Authority Area; and
- (C) the potential Supply available to the EIM Entity Balancing Authority Area from EIM Transfers.

(2) **Application of Market Power Mitigation.** The Department of Market Monitoring may include EIM Transfer constraints into an EIM Entity Balancing Authority Area on an EIM Internal Intertie in the Local Market Power Mitigation procedures under Section 39.7 if the CAISO determines that market power may exist based on a structural competitiveness assessment pursuant to Section 29.39(d)(1) and the FERC accepts a filing by the CAISO to implement such inclusion, and the Department of Market Monitoring may exclude the EIM Transfer constraints into an EIM Entity Balancing Authority Area on an EIM Internal Intertie from Local Market Power Mitigation if it determines that market power no longer exists based on a structural competitiveness assessment pursuant to Section 29.39(d)(1) and the FERC accepts a filing by the CAISO to implement the exclusion.

This report provides an assessment of the structural competitiveness and the potential for market power in the NV Energy EIM balancing authority area (BAA) based on currently available data pursuant to Section 29.39 (d) of the CAISO tariff.

2 EIM market power mitigation

The EIM design includes provisions to mitigate market power in the real-time market within each BAA participating in the EIM. This process mirrors market power mitigation (LMPM) currently applied in the CAISO's real-time market. This section describes the CAISO's current market power mitigation procedures and how these will be applied under the CAISO's proposed EIM design.

As in the CAISO real-time market, EIM market power mitigation procedures will be performed on a 15-minute basis based on projected system and market conditions 52 minutes in advance of each 15-minute interval. This process utilizes results of the CAISO's 15-minute dispatch runs to identify future 15-minute intervals when congestion is projected to occur on specific individual constraints. For each constraint that is projected to be binding, a 3-pivotal supplier test is performed to determine if the supply available to relieve the binding constraint is structurally competitive or non-competitive.

If this test determines that the constraint is structurally non-competitive, bids of resources that are effective at relieving congestion on the constraint are subject to potential bid mitigation. Under the EIM design, only resources within the BAA in which this constraint is located will be subject to this bid mitigation.

Resources subject to bid mitigation may have their market bids lowered if these bids exceed the maximum of (1) a competitive market price calculated based on system energy prices plus any congestion on competitive constraints, or (2) Default Energy Bids that reflect the marginal cost or opportunity costs of the resource.

Bids mitigated in the 15-minute process will remain mitigated in the 5-minute process. No additional bid mitigation is performed if congestion occurs on a constraint in the 5-minute market that was not projected to occur in the 15-minute process.

The CAISO tariff includes three modifications in how these market power mitigation procedures will be applied in EIM compared to the CAISO's current market power mitigation procedures.

First, real-time the CAISO applies the LMPM procedures separately within the CAISO BAA and each EIM BAA by performing tests for constraint competitiveness and bid mitigation only on resources within the same BAA in which a constraint is located.¹ This ensures that resources can only be subject to bid mitigation for market power within the same BAA in which they are located. The CAISO and DMM chose this component of the EIM design to prevent potentially low scheduling limits between EIM BAAs in a given interval from undermining the results of local market power mitigation on constraints within a BAA.

Second, all suppliers participating in the EIM will be considered potentially pivotal suppliers in the three pivotal supplier test used to determine the competitiveness of constraints.² In the CAISO BAA, suppliers classified as net buyers are not considered potentially pivotal suppliers. Therefore, supply controlled by participants classified as net buyers is not excluded under the 3 pivotal supplier test since participants that are consistently net buyers in the CAISO BAA do not have an incentive to raise prices. However, DMM believes it is not possible to reliably determine which entities are net sellers or net

¹ 29.39 (c)

² 29.39 (b) (2)

buyers of imbalance energy or the net impact that congestion has on an entity's overall settlement each time interval in the EIM.

Finally, a different reference bus for determining shift factors used in the LMP decomposition step of the LMPM procedures may be utilized based on the topology and control of resources within each EIM BAA.³ The goal is to select a reference bus at which the congestion component of LMPs are least influenced by market power. The CAISO is currently using the same reference buses used in the CAISO's current LMPM procedures. The CAISO uses this reference bus based on DMM's assessment that the market power within the BAAs that join the EIM will not significantly influence the congestion component of LMPs at these buses. However, as the CAISO gains more experience with BAAs in the EIM, it may be possible to identify a different reference bus in each EIM BAA that would be more appropriate for use in the LMP decomposition.

Under the CAISO tariff, market power mitigation does not apply to the scheduling constraints between EIM BAAs and the CAISO BAA unless the CAISO demonstrates market power may exist based on a structural competitiveness assessment, and FERC accepts a filing by the CAISO to implement such inclusion.⁴

Including these EIM scheduling constraints in market power procedures is akin to treating these constraints the same as any other constraint within the combined CAISO and EIM footprint. For example, if congestion occurs within the CAISO into the Pacific Gas & Electric (PG&E) service territory on the major transmission line connecting PG&E service territory with southern California (Path 15), the competitiveness of this constraint is assessed based on the supply of resources effective in relieving this congestion in the PG&E area north of Path 15. These resources are subject to bid mitigation if Path 15 is deemed structurally non-competitive in the south-to-north direction.

Excluding these EIM scheduling constraints from market power mitigation procedures is akin to treating these constraints like an inter-tie constraint from another BAA into the CAISO. When interties into the CAISO become congested in the import direction, the competitiveness of these interties is not assessed based on the available supply within the CAISO to relieve this import congestion. This reflects the assumption incorporated in the CAISO market design that the supply within the total CAISO system, that is effective in relieving import congestion, is sufficiently competitive and is unnecessary to mitigate bids of all resources within the CAISO to relieve import congestion on these interties. In the case of the CAISO, years of experience have confirmed that the total supply within the CAISO system available when import congestion does occur on interties is generally highly competitive.

As described in this report, DMM believes that since NV Energy controls all of the supply of capacity within the NV Energy area that may participate in EIM, structural market power is likely to exist, so that EIM scheduling constraints into the NV Energy area should be included in market power mitigation procedures pursuant to Section 29.39 (d) of the CAISO tariff.

³ 29.39 (b) (3)

⁴ 29.39 (d)

3 Structural competitiveness of NV Energy area

This section provides an assessment of potential structural market power in the NV Energy EIM area based on:

- the supply owned or controlled by different entities with the NV Energy EIM area;
- the potential supply available to the NV Energy EIM area from EIM transfers; and
- the demand for real-time imbalance energy within the EIM area.

3.1 Supply of generation within NVE

Table 1 summarizes the maximum capacity of all resources registered to participate in EIM based on information that NV Energy has submitted to the CAISO.⁵ NV Energy owns or controls all generating resources it is registering within the NV Energy EIM area.

As shown in Table 1, NV Energy has indicated that about 5,970 MW of gas-fired capacity will be eligible to participate in EIM, or about 80 percent of NV Energy's total gas-fired capacity. NV Energy has registered about 270 MW of coal capacity or about 27 percent of its total coal capacity. The remaining 1,407 MW of capacity not registered to participate is comprised mainly of solar, geothermal, hydro, and wind resources.

Even if units are registered to participate in EIM, however, these resources have no obligation to make capacity available in the EIM. EIM rules include a Capacity Test and a Flexible Ramping Sufficiency Test designed to help ensure that sufficient capacity is scheduled or bid to meet potential demand in the EIM. However, if an EIM area fails either of these tests, the consequence is that the amount of energy scheduled into that EIM is frozen at the transfer from the prior interval.⁶ This can further limit the amount of energy that the CAISO can schedule into an EIM area from the CAISO or other neighboring EIM areas.

Table 1. Maximum capacity of NV Energy resources currently registered to participate in EIM

Fuel	Participating	Non-participating	Total
Gas	5,970	1,445	7,415
Coal	260	960	1,220
Solar	0	528	528
Geothermal	0	469	469
Hydro	0	242	242
Wind	0	149	149
Other	0	25	25
Totals	6,230	3,818	10,048

⁵ Based on Master File data for all resource data submitted to the ISO as of June 29, 2015.

⁶ Tariff section 29.34 (n). Also see *Business Practice Manual for the Energy Imbalance Market*, version 2, October 24, 2014, Section 10.3.2, pp. 33-34.

3.2 EIM scheduling constraints

The incentive for any entity to exercise market power within the NV Energy area can be limited by competition from imports from the CAISO. Figure 1 illustrates DMM's understanding of the maximum amount of the scheduling limits between the CAISO and NV Energy that may be incorporated in the EIM at the point of implementation in October 2015. Figure 3 is based on the following information provided to DMM by NV Energy.

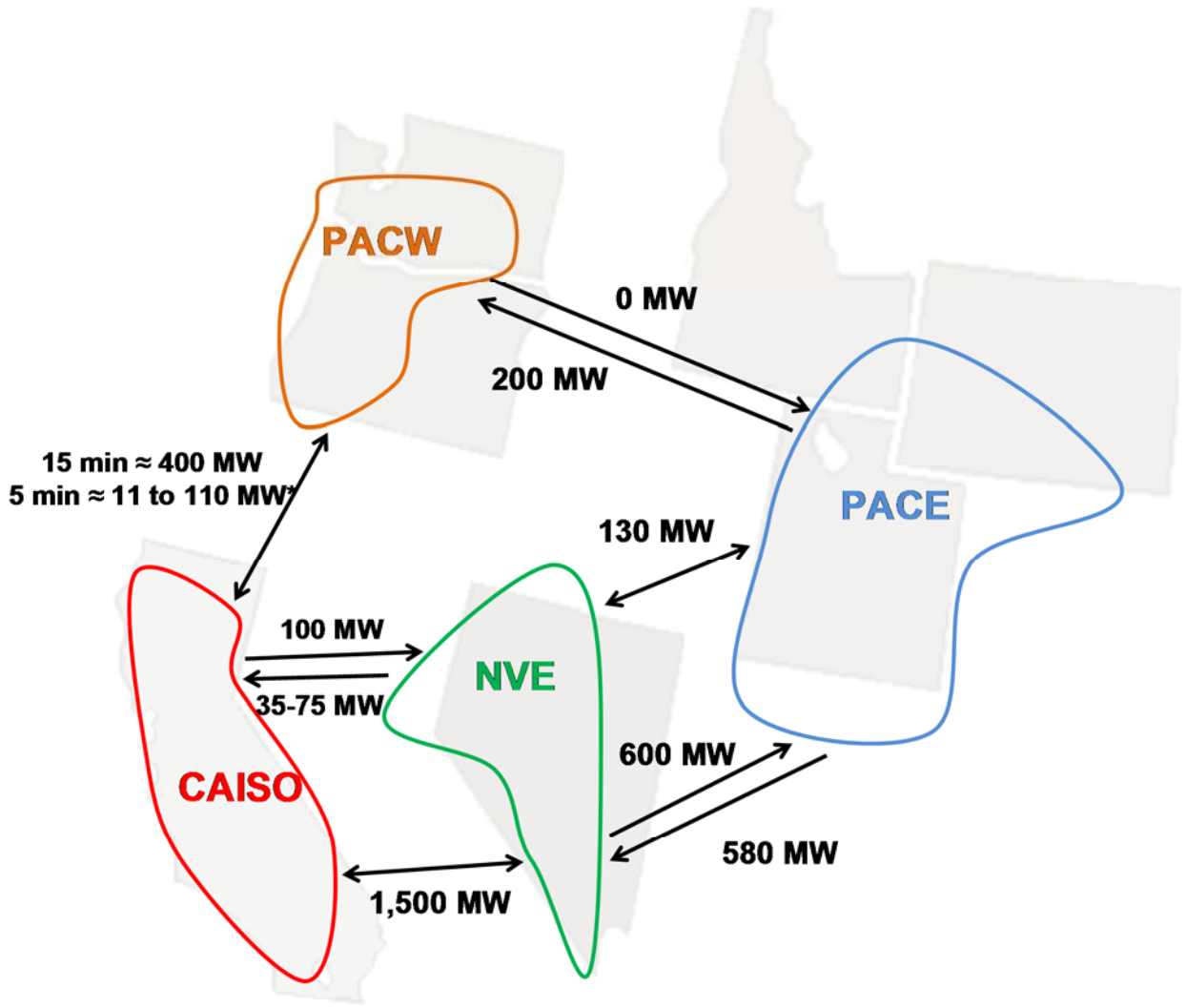
According to NV Energy, all of the tie-point capacity for the four ties NV Energy will use for EIM transfers will be based on available transmission capacity (ATC). The ATC will depend upon how much of the total transmission capacity (TTC) is used at any given time for non-EIM flows. The total transmission capacity NV Energy plans to use for use in EIM is as follows:

- **Summit: In= 100 MW, Out = 35-75 MW.** Summit is a metering point at the intersection of two 120 kV lines and a 60 kV line. This point interconnects Sierra Pacific and PG&E. While Sierra Pacific Power may take up to 100 MW from PG&E's system, PG&E is at times constrained by hydro-power flows and cannot receive as much in the way of deliveries from Sierra to PG&E.
- **Eldorado: In/Out = 1,500 MW.** Nevada Power has two 230 kV lines that connect into the Eldorado project (a project jointly owned by SCE, NV Energy, LADWP, and SRP). Eldorado is a strong system with thousands of MW of capacity. NV Energy has rights to a solid 1,500 MW of TTC into and out of Eldorado at any given time.
- **Red Butte: In = 600 MW, Out = 580 MW.** Red Butte substation in Utah is owned by PacifiCorp. It connects to Nevada Power's system with a line that extends to the Harry Allen 345 kV substation. That physical path underlies the virtual path in NV Energy's OASIS from Red Butte to South System. PacifiCorp has recently completed an upgrade, and posts 600 MW of capacity from its system to Red Butte ("in" or "N to S") as of June 1, 2015 (subject to seasonal adjustments). NV Energy may transfer up to 580 MW from its system to Red Butte ("out" or "S to N").
- **Gonder: In/Out =130 MW.** Gonder is a connection between Sierra Pacific and the PacificCorp East area. Sierra Pacific connects by a 230 kV line into Gonder. Sierra Pacific receives a fair amount of power at this tie, including Spring Valley wind generation. Thus, the intertie may be constrained at times.

As described above and shown in Figure 3, the Red Butte and Gonder transmission lines connect NV Energy with supply in the PacificCorp East area. Since PacificCorp and NV Energy are both owned by the same holding company (Berkshire Hathaway), supply controlled by these two companies are considered Affiliates controlled by a single supplier under CAISO market rules for assessing structural market power in the context of market power mitigation.⁷ Thus, for purposes for assessing potential structural market power, DMM would not consider potential supply from PacificCorp into NV Energy as representing additional competitive supply at this time.

⁷ Section 39.7.2.2 (b) (iv) and Section 4.5.1.12.

Figure 1. Potential EIM inter-BAA scheduling limit constraints



* Dynamic transfer constraint limit (DTC) on change in 15-minute transfer allowed in 5-minute market based on limitations set by BPA. Current limits are usually about ± 11 MW in peak hours and ± 110 MW in off-peak hours.

In addition, DMM notes that the potential maximum scheduling limits depicted in Figure 3 may be lower during any period for a variety of reasons:

- The amount of NV Energy transmission capacity that is available in EIM can be de-rated for physical outages and other operational reasons,⁸ and by entitlement constraints reflecting the impact of EIM transfers on power flows on interties or transmission corridors in other BAAs.⁹
- Although NV Energy had indicated it will make all available capacity available for use in the EIM, it is DMM’s understanding that the amount of capacity available also could be limited to the extent any of this capacity is “encumbered, reserved, scheduled, or being used by its transmission customers or by others.”¹⁰
- If an EIM area fails the Capacity Test or Flexible Ramping Sufficiency Test, the amount of energy scheduled into that EIM is frozen at the transfer from the prior interval.¹¹
- In the event of an EIM disruption the CAISO may enforce a net transfer constraint for an EIM BAA to separate it from other BAAs and may reduce or suspend EIM Transfers between one or more EIM BAAs¹².

Thus, the amount of transfer capacity available in the EIM between the CAISO and NV Energy remains uncertain at this time and may be somewhat dynamic from hour to hour.

Finally, DMM also notes that in the case of the initial EIM implementation in November 2014, the amount of EIM transfers allowed from the CAISO into the PacifiCorp EIM areas were much more limited by various factors that were not anticipated in advance. This experience further illustrates how the amount of transfer capacity available in the EIM between the CAISO and NV Energy remains uncertain at this time.

3.3 Demand for imbalance energy

The incentive for the exercise of market power in the NV Energy balancing authority area would also depend largely on the amount of net imbalance energy demand associated with load and generation deviations by entities other than NV Energy, such as other load serving entities or non-NV Energy intermittent resources. DMM expects that most of the imbalance energy met in the EIM is likely to be associated with NV Energy’s own load and generation deviations. However, DMM does not have any historical information on the actual demand for imbalance energy by other load serving entities and or generation resources not controlled by NV Energy. In addition, DMM notes that even if the demand for imbalance energy by other entities within the NV Energy balancing authority area is relatively low, effective market power mitigation measures are appropriate to ensure just and reasonable rates for these transmission customers.

⁸ *Business Practice Manual for the Energy Imbalance Market*, version 2, October 24, 2014, Section 10.1.5, p 26.

⁹ *Business Practice Manual for the Energy Imbalance Market*, version 2, October 24, 2014, Section 10.1.6, p 26.

¹⁰ Tariff section 29.26 (c) (d) (e) (f)

¹¹ Tariff section 29.34 (n). Also see *Business Practice Manual for the Energy Imbalance Market*, version 2, October 24, 2014, Section 10.3.2, pp. 33-34.

¹² Tariff section 29.7 (j)(2)

4 Conclusions and Recommendations

Although the demand for imbalance energy by other entities within the NV Energy balancing authority area may be relatively low, NV Energy owns or controls all generating resources it is registering to participate in the EIM within the NV Energy balancing authority area. While over 1,500 MW of competitive supply from the CAISO may be available for scheduling into NV Energy during many hours, the supply of EIM transfers from the CAISO may be limited or even not exist under some circumstances.

Thus, based on currently available information, DMM cannot conclude that the NV Energy EIM balancing authority area will be structurally competitive and therefore recommends that market power mitigation tests and procedures be applied when congestion occurs on scheduling constraints into NV Energy from the CAISO and other EIM entity balancing authority areas.

CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties listed on the official service lists in the above-referenced proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California this 24th day of July 2015.

/s/ Anna Pascuzzo
Anna Pascuzzo