October 28, 2013

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: California Independent System Operator Corporation
Docket No. ER12-2539-____
Exceptional Dispatch Report

Dear Secretary Bose:

Pursuant to the Commission's October 26, 2012 order in the above-referenced docket, the California Independent System Operator Corporation ("ISO") submits the attached report. The attached report provides details concerning the frequency of exceptional dispatch and mitigation, along with the the steps the ISO has taken to reduce its reliance on exceptional dispatch since October 26, 2012.

Respectfully submitted,

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Exceptional Dispatch Report

Prepared by
California Independent System Operator Corporation

October 28, 2013

Table of Contents

I. Introduction

This report provides information concerning the frequency of exceptional dispatch and mitigation along with the steps the California ISO has taken to reduce its reliance on exceptional dispatch since October 26, 2012, the date the Commission issued its order in ER12-2539.[1]

With respect to frequency, this report includes a comparison of 2012 and 2013 data from January to September.[2] This comparison demonstrates a significant reduction in the volume (MWhs) and frequency (number) of exceptional dispatch. For the January to September period the exceptional dispatch volume decreased by 51% from 1,647,079 MWh in 2012 to 811,538 MWh in 2013 and the frequency of exceptional dispatch also declined from 4,868 in 2012 to 2,084 in 2013.

This report also includes information on the frequency of exceptional dispatches subject to mitigation over the last 12 months. As the frequency of exceptional dispatch has been reduced generally, the frequency of mitigation is also reduced, particularly for the purposes of accessing stranded ancillary services or residual unit commitment capacity and for moving resources to their dispatchable minimum operating level.

The Commission specifically directed the ISO to include a discussion of specific new products it has considered, developed or proposed to develop. This report discussed the steps it has taken and the products under consideration including

- Improved modeling of transmission constraints
- Software improvements
- Operational enhancements
- New market products and capabilities including the contingency modeling enhancement.

II. Exceptional Dispatch Reduction

The volume of exceptional dispatch in 2012 was 2,103,455 MWhs. The volume of exceptional dispatch declined significantly in 2013 compared with 2012 comparing the months of January through September. The volume of exceptional dispatch in 2013 was 811,538 MWh to date (September 30), dropping significantly from 1,647,079 MWh in 2012 in the same time period.

Figure 1: Exceptional Dispatch Volume below shows that the annual average exceptional dispatch volume decreased to 90,171 in 2013 from 175,288 in 2012.

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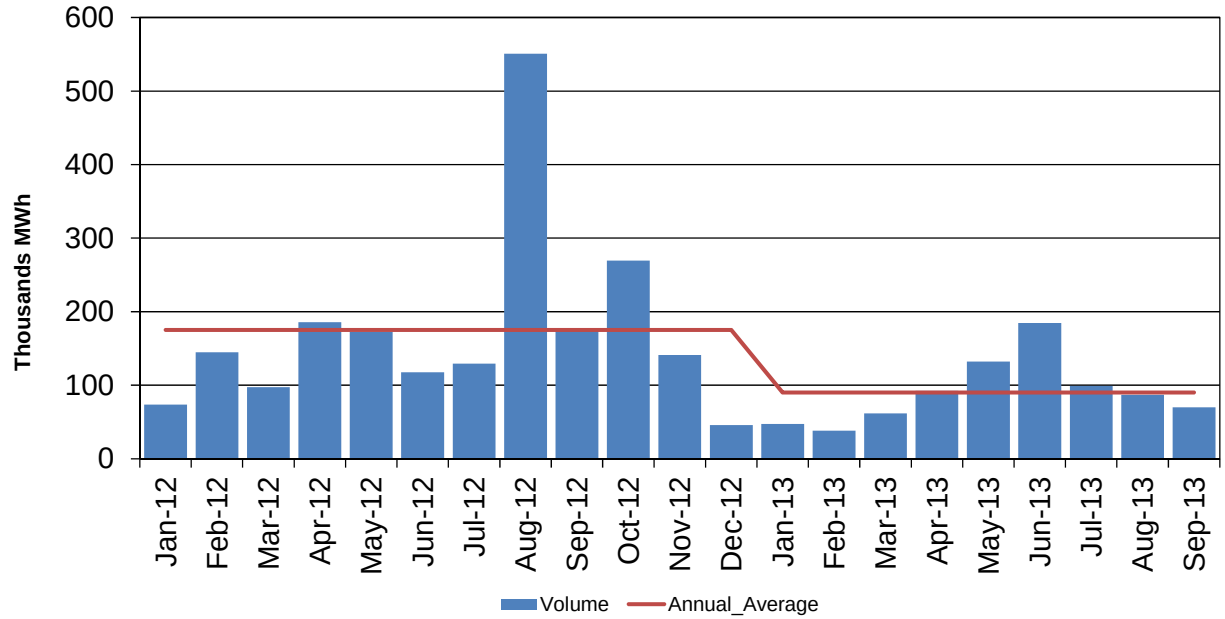
1 *Order Accepting Tariff Revisions and Ordering a Non-Public Formal Investigation,* 141 FERC ¶ 61,069 at ¶ 45 (2012) (October 26 Order).

2 The ISO selected the January to September time period because at the time it was preparing the only available 2013 data was from January to September.

Figure 1: Exceptional Dispatch Volume



From January to September, the exceptional dispatch volume in 2013 was below 2012 level for each month except June, which can be seen in Figure 2. The different reasons for the highest volume month in 2012 and 2013, respectively, are telling. For 2012, the highest volume month was August 2012. This was the month with the highest frequency of exceptional dispatches as a result of abusive bidding practices.[3] On the other hand, the reason for the higher volume in June 2013 is due to the ISO issuing exceptional dispatches to new resources, mostly solar and wind, to perform pre-commercial operations testing. Specifically, unit testing accounted for nearly 60% of total exceptional dispatch volume for June 2013.

The ISO issues exceptional dispatches for test purposes for several reasons and a large percentage are at the request of customers. This includes pre-commercial operations testing and other tests for existing units, such as testing prior to returning from a planned outage or testing to determine the maximum output of the resource. The ISO also may issue tests through exceptional dispatch, such as unannounced ancillary services testing. This category of exceptional dispatch is one that is increasing due to the multitude of new resources and the ISO's increased emphasis on unannounced testing to ensure the availability and reliability of resources with certified ancillary services capacity and resource adequacy capacity. The ISO believes that the test category of exceptional dispatch is not relevant for purposes of the ISO's overall goal of reducing exceptional dispatches. In other words, the ISO's goal of reducing

[3] This bidding practice caused the ISO to file a tariff amendment to extend the mitigated exceptional dispatch energy settlement to resources that need to be at their dispatchable minimum operating level. The ISO's filing demonstrated that this bidding practice forced the ISO to issue exceptional dispatches at prices far above any competitive level. The Commission accepted the tariff amendment in its October 26 Order.

exceptional dispatch should be focused on those exceptional dispatches that can be reduced as a result of improved modeling of resources and outages, forecasting improvements and other improvements in the ISO's systems and the functioning of the ISO markets. The category of test exceptional dispatch, on the other hand, is inherently out of market and appropriately so.

Accordingly, the ISO believes that the comparison between 2012 and 2013 is much more meaningful if the category of test exceptional dispatches is removed from the data for both years. With test exceptional dispatch data excluded from both 2012 and 2013, then the exceptional dispatch volume in 2013 is lower than 2012 for each month as shown in Figure 3.

Figure 2: Exceptional Dispatch Volume Comparison

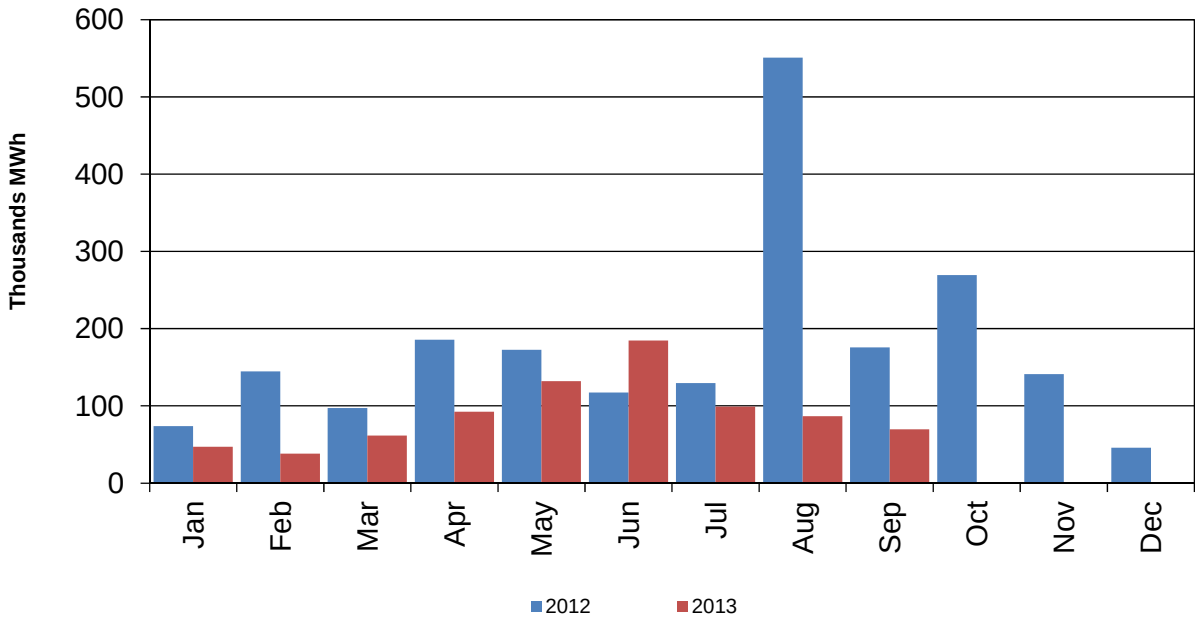


Figure 3: Exceptional Dispatch Volume Comparison (Excluding Unit Testing)

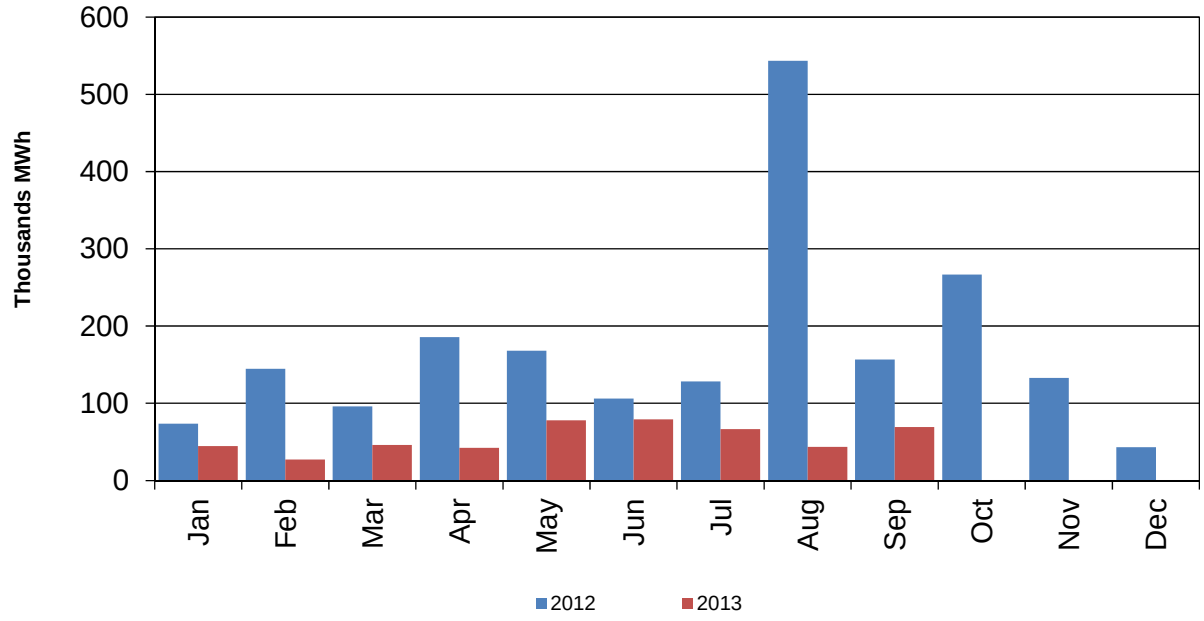
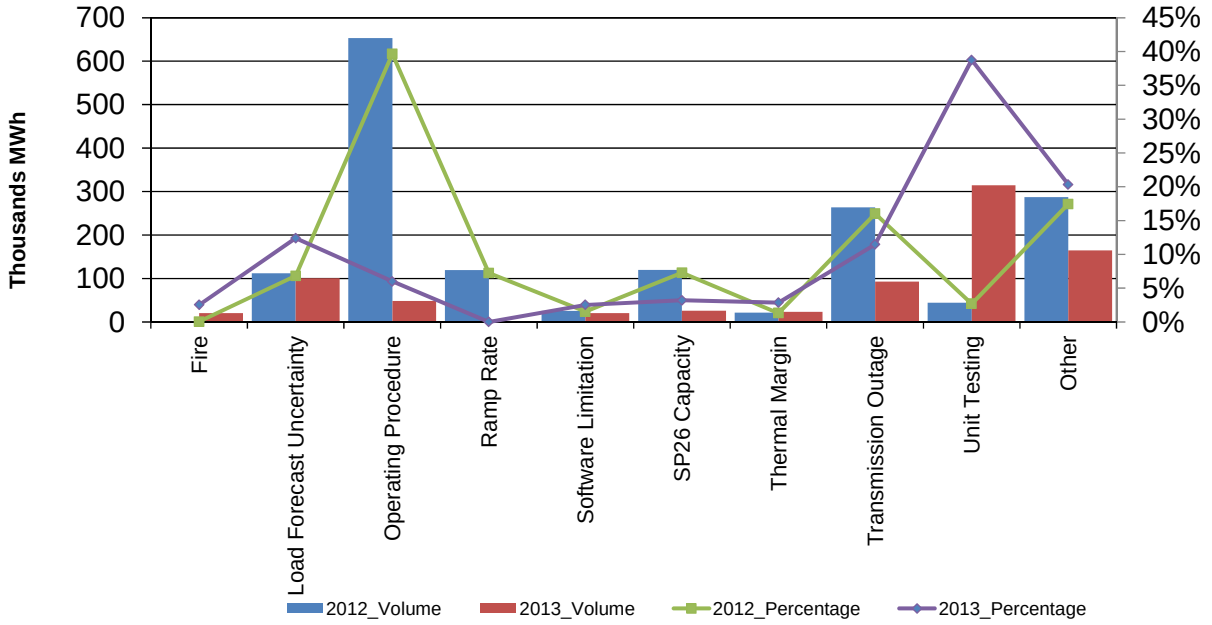


Figure 4 presents the information by reason, comparing January to September. Unit Testing accounted for approximately 39% of total volume in 2013 compared with 3% in 2012. The increase in test exceptional dispatches is primarily attributable to new resources, many of which are renewable energy resources, performing pre-commercial operations testing. The volume of exceptional dispatches related to operating procedure[4] dropped significantly to 48,569 MWh in 2013 from 653,117 MWh in 2012. This was due in part to modeling enchantments, as discussed further below.

[4] These are exceptional dispatches to ensure requirements specified in operations procedures are met.

Figure 4: Exceptional Dispatch Volume by Category



In addition to the exceptional dispatch volume (in MWhs), the frequency of the number of exceptional dispatches also declined in 2013 as shown in Figure 5. The annual average count in 2013 was 232, much lower than 509 in 2012. For each month from January to September, the count of exceptional dispatch in 2013 was lower than 2012, which is shown in Figure 6. Therefore, both the exceptional dispatch volume and frequency in 2013 were significantly below 2012 level.

Figure 5: Exceptional Dispatch Count

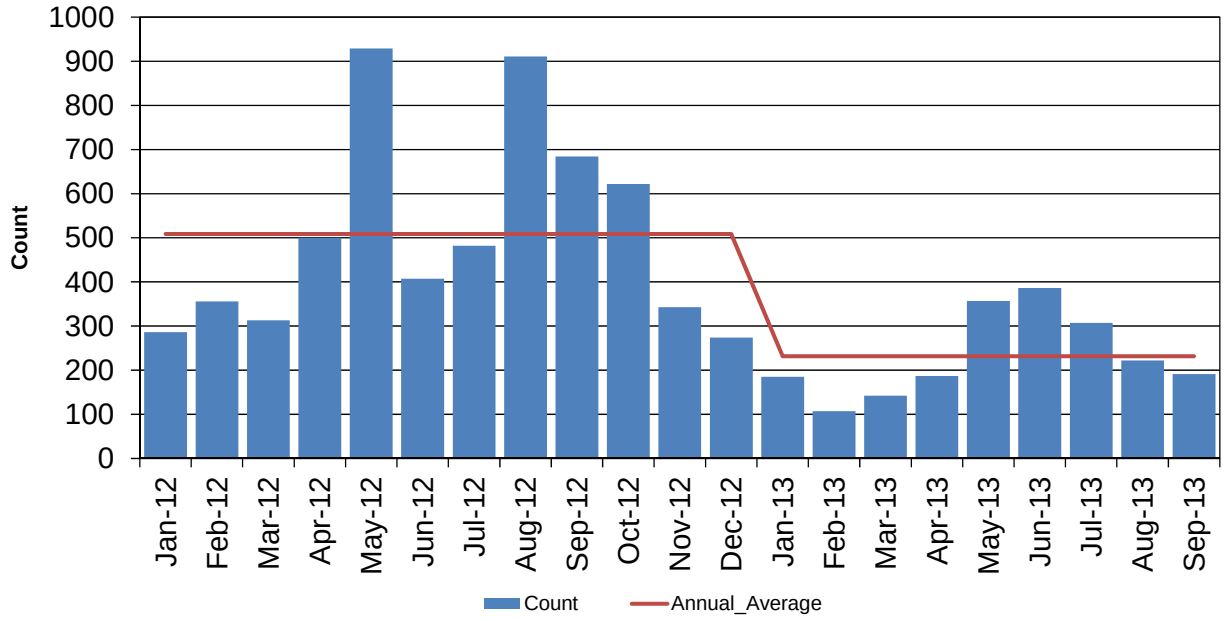
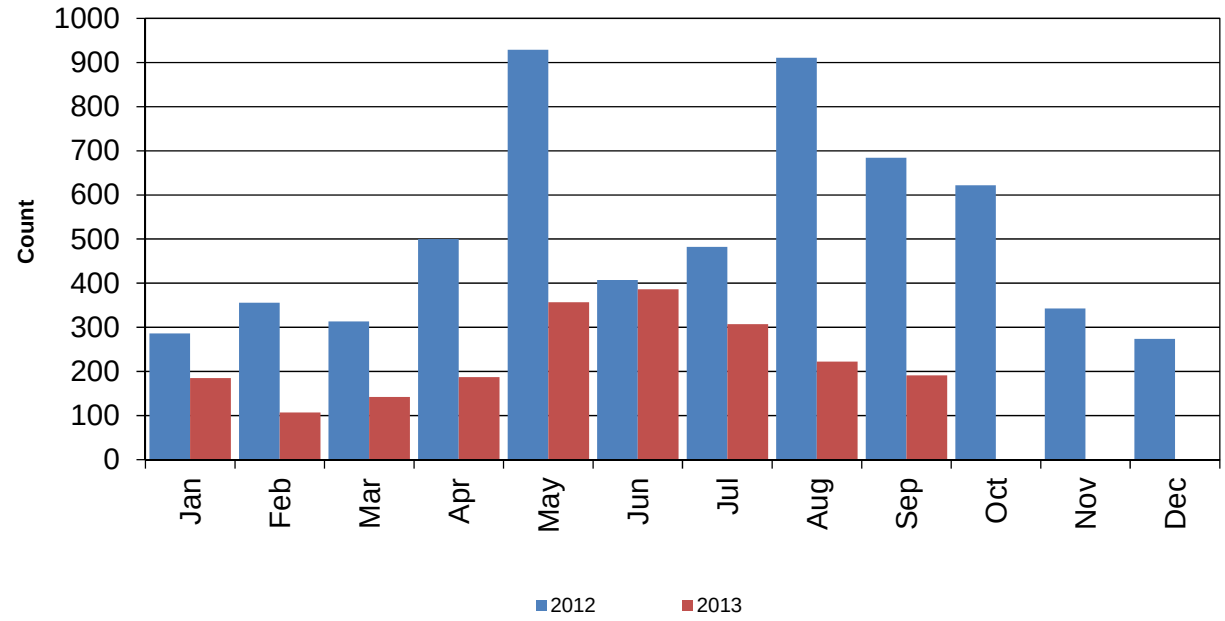


Figure 6: Exceptional Dispatch Count Comparison



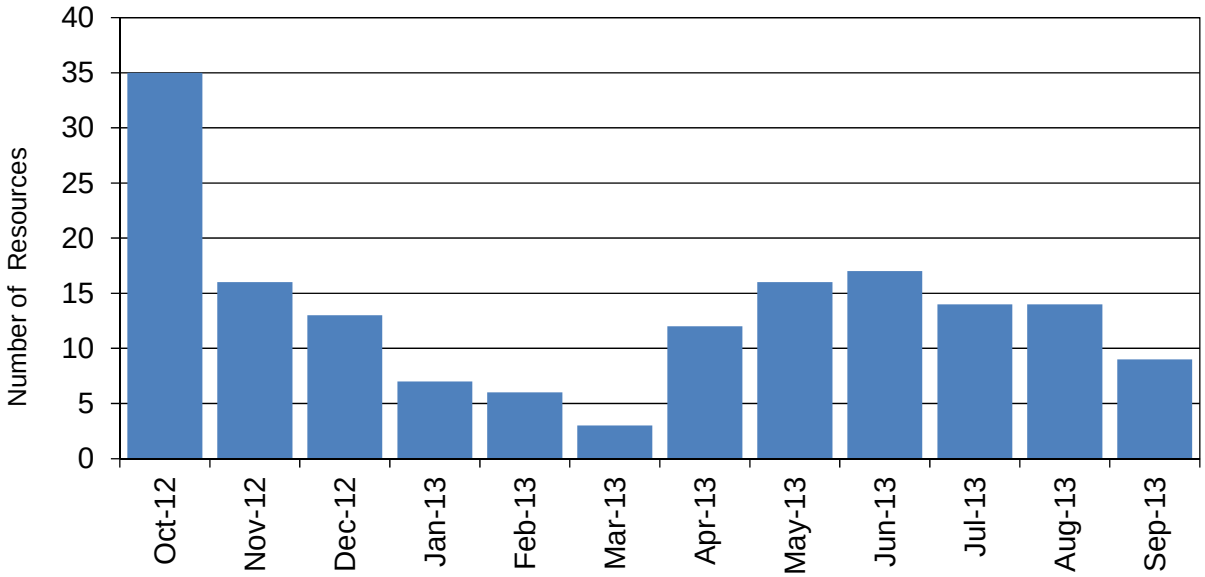
III. Frequency of Mitigation

The ISO continues to issue exceptional dispatches that are subject to the mitigated exceptional dispatch settlement.

Figure 7 provides information provided to the Commission in its monthly exceptional dispatch reports for the last 12 month period. The ISO mitigates exceptional dispatches due to the

following circumstances in accordance with ISO tariff section 39.10: non-competitive constraints; stranded ancillary services or residual unit commitment capacity; ramping units to their minimum dispatchable level; and to address environmental constraints. The most frequent reason for mitigation relates to non-competitive constraints. Due to the implementation of the flexi-ramp constraint and more cost based bidding in the ISO markets, the frequency of exceptional dispatches for stranded ancillary services or residual unit capacity and exceptional dispatches to move resource to their minimum dispatchable level has decreased. For stranded ancillary series or residual unit commitment capacity, the ISO has not issued an exceptional dispatch for this reason in 2013 to date. Accordingly, the ISO's efforts to reduce exceptional dispatch generally have resulted in reduced mitigation.

Figure 7: Number of Resources Mitigated



IV. Steps taken to Reduce Exceptional Dispatch

This section describes the steps that have been taken to reduce exceptional dispatch in the year since the order ER12-2539 was issued on October 26, 2012, as well as actions that are currently underway or planned for future implementation.

1. Modeling Improvements.

The ISO has increased its efforts to expand the network modeling to include more transmission constraints and reliability requirements in the market, resulting in reduced reliance on exceptional dispatch. First, the number of nomograms[5] enforced in the

[5] A nomogram is a set of scheduling rules which are used to ensure that simultaneous operating limits are respected, in order to meet NERC and WECC reliability standards, and any requirements of the NRC.

market increased in 2013. Figure 8 shows that the monthly average count of nomograms enforced in the market increased to 43 in 2013 from 39 in 2012. Figure 9 indicates that the number of nomograms in 2013 is higher than 2012 for each month from January to September.

Figure 8: Monthly Average count of Nomograms

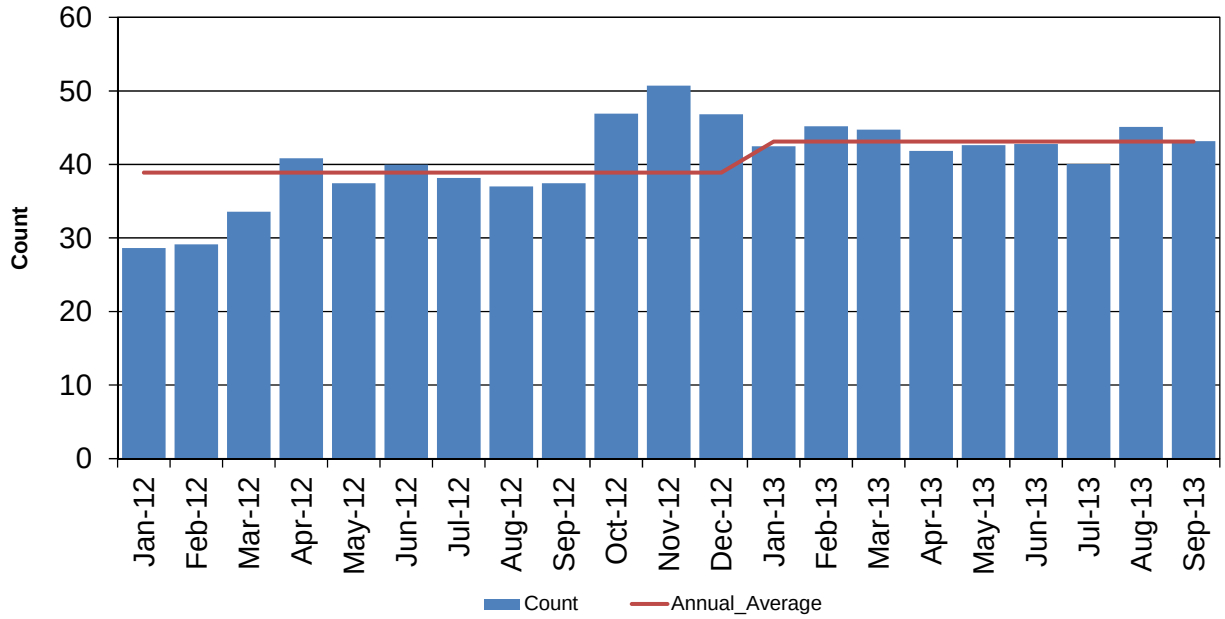
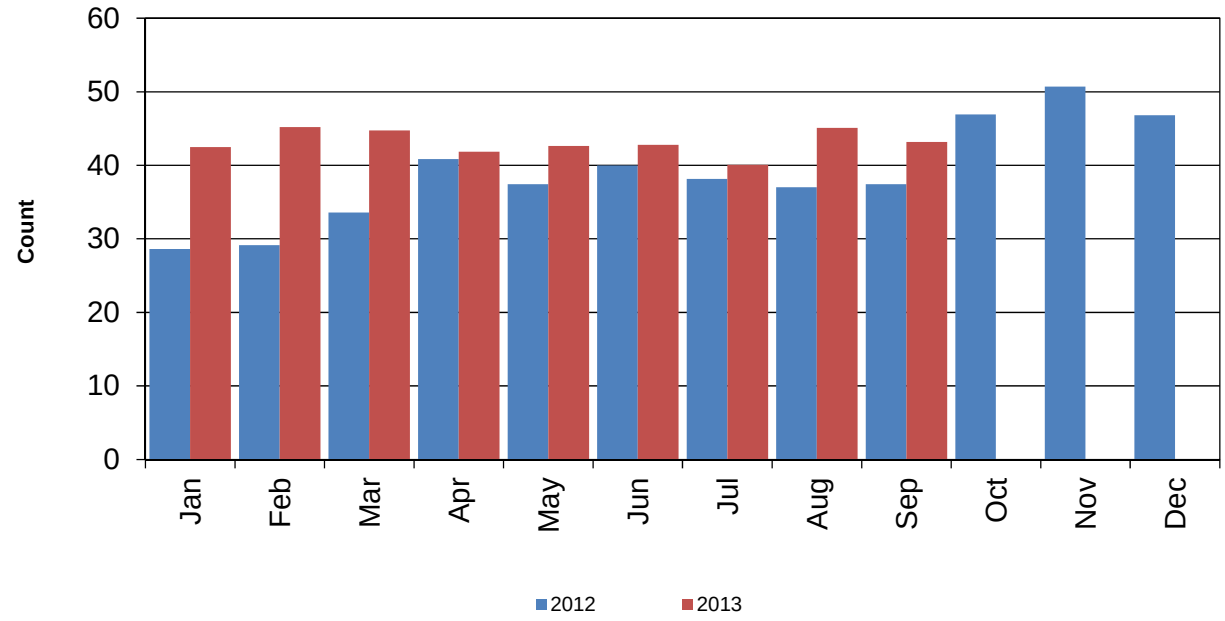
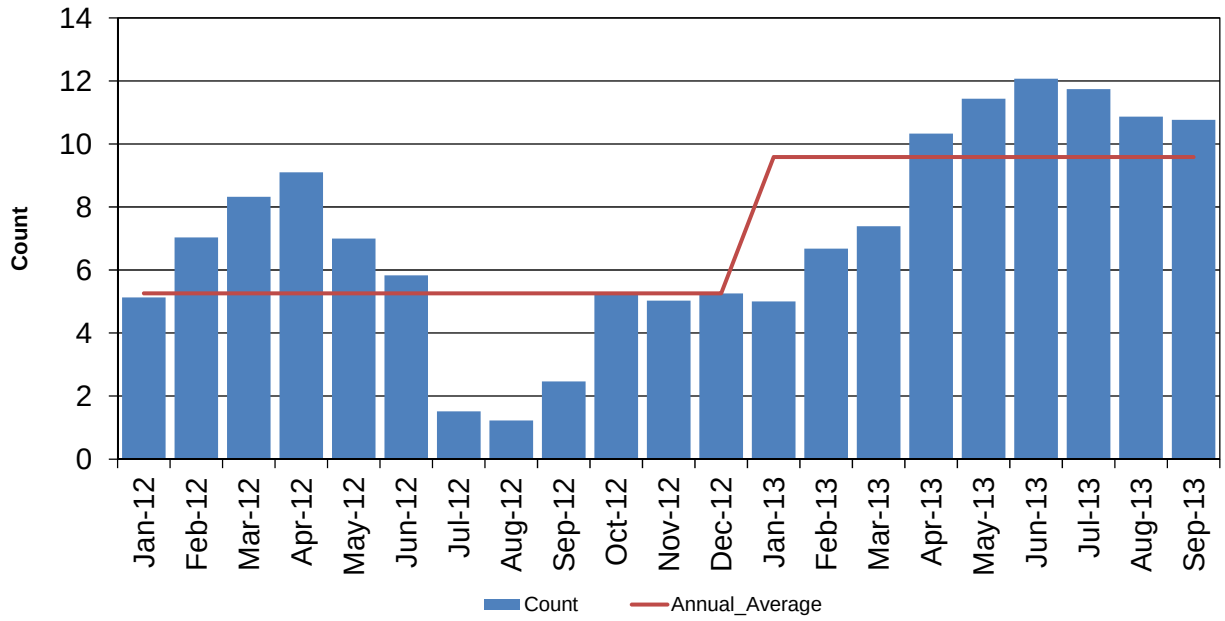


Figure 9: Monthly Average count of Nomograms Comparison



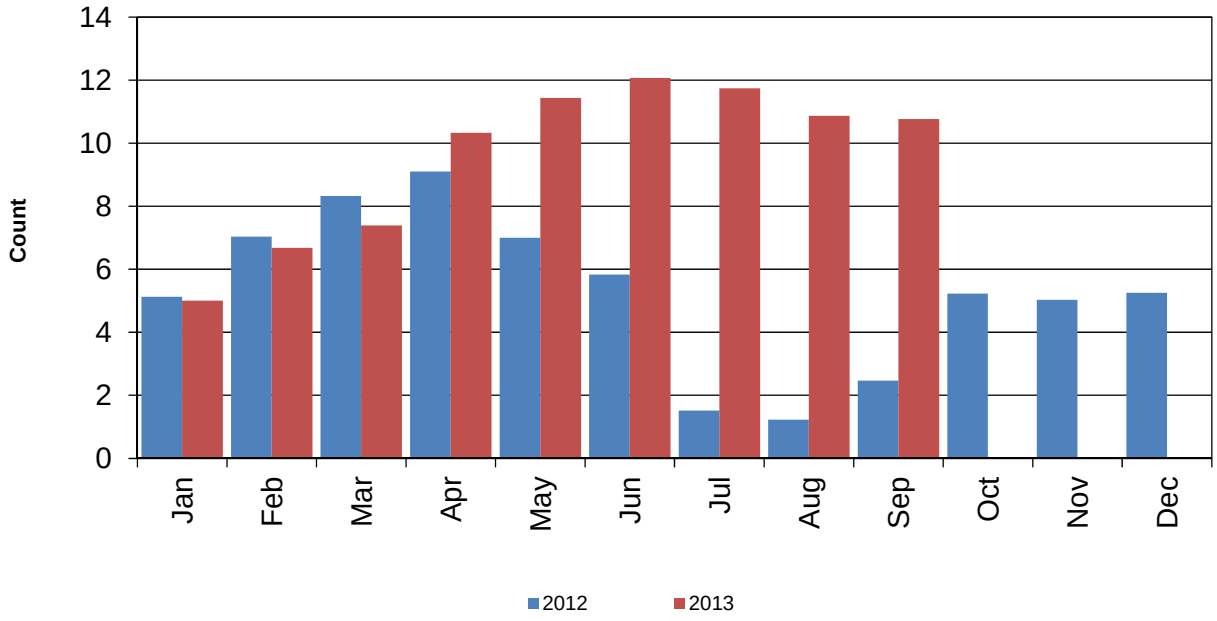
Second, the number of minimum online commitment (MOC)[6] constraints enforced in the day-ahead market increased in 2013. Figure 10 shows that the monthly average count of MOC constraints in the market increased to 9.6 in 2013 from 5.3 in 2012. Figure 11 indicates that the number of MOC constraints in 2013 is higher than 2012 level from April to September and slightly lower than 2012 level from January to March.

Figure 10: Monthly Average count of MOC



6 An MOC is a constraint that identifies a group of market resources that can meet the minimum generation capacity needed to meet a reliability requirement and specifies the minimum amount of capacity needed from the group to be committed based on bids and other costs.

Figure 11: Monthly Average Count of MOC Comparison



Third, new group constraints were implemented with the 2012 fall release. These constraints improve the accuracy of generation modeling. The new group constraints can ensure the ordering of startups of resources in a group where there are dependencies such as where a resource in a group cannot be online unless another resource is online. Any member resource with precedence value of "2" will not be committed to start, for example, if no other resource in the same group has already been started. Therefore, the new group constraints can reduce the exceptional dispatches that start up or shut down a unit due to such dependencies.

2. Software Improvements.

The ISO implemented 72 hour residual unit commitment (RUC) in the market with 2012 fall release. This enhancement extended the RUC unit commitment functionality to span over a configurable 72 hour period including the applicable trading day for the specific RUC run. The ISO utilizes this functionality to provide optimal decisions regarding extremely long start resources as well as other resources over a longer time horizon. This approach provides benefits of reducing uneconomic cycling of resources that was occurring based on the original RUC design which had less visibility and helps to reduce the exceptional dispatches that were issues for that purpose.

In addition, the ISO has engaged in continuous improvement in the area of multi-stage generation (MSG) modeling beginning in the spring 2013. The ISO has implemented enhancements in several areas to improve the accuracy of how MSG resources are modeled. These enhancements reduce the need to issue exceptional dispatches to MSG resources that elect to be modeled as MSG resources.

3. Operational enhancements.

The ISO has implemented three enhancements to reduce the use of exceptional dispatch. First, introducing the flexi-ramp constraint into the market improved the availability of in-market ramping capacity thereby reducing the need for exceptional dispatches to anticipate morning and evening load pulls and intertie ramping.[7] This enhancement has also reduced the need to use exceptional dispatch to move resources to their dispatchable minimum operating levels. Second, the ISO has improved the accuracy of its hour-ahead load adjustment. This results in more internal generation capacity to be available and positioned for morning and evening load pulls.[8] Third, the ISO has improved the accuracy of its load flow estimates in its use of compensating injections. This has reduced the need to issue exceptional dispatch for congestion caused by loop flow from other balancing areas.[9]

4. Work underway to further reduce exceptional dispatch.

First, the ISO is working with stakeholders on the initiative known as flexible ramping product. Flexible ramping product is the 5-minute ramping capability continuously being procured and dispatched in the real-time market to meet the net system movement. This new product will handle the uncertainties realized before the binding real-time interval and can help the system to maximize the benefits of dispatchable flexibility in terms of maintaining ramping capability. This is an ongoing stakeholder initiative.[10]

Second, the ISO is also working with stakeholders on the contingency modeling enhancements initiative. When implemented, the market will be able to respond to certain transmission contingencies without relying on exceptional dispatch. This stakeholder initiative is focused on alternatives to exceptional dispatch and the MOC constraints in addressing the post-contingency 30 minute system operating limit requirement from NERC and WECC. This is also an ongoing stakeholder initiative.[11]

Third, the ISO has been working with stakeholders on the initiative known as the Renewable Integration Market Product and Review ("RI-MPR"). The ISO and stakeholders are trying to find what new products might be necessary and appropriate

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7 Flexi-ramp was effective as of December 13, 2011 pursuant to the Commission's December 12, 2011 order in docket no. ER12-50.

8 This operational enhancement does not involve a tariff amendment but rather an improvement in the ISO's practices for adjusting the hour-ahead load in anticipation of real-time requirements. The ISO's discussed operational improvements at its regularly scheduled Market Performance and Planning Forums.

9 Similarly, this operational enhancement does not involve a tariff amendment but rather an improvement in the ISO's use of its existing compensating injection tariff authority to better manage loop flows,

10 Information on flexible ramping product can be found at http://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleRampingProduct.aspx.

11 Information on contingency modeling enhancements can be found at http://www.caiso.com/informed/Pages/StakeholderProcesses/ContingencyModelingEnhancements.aspx.

in light of the ISO's new market design and its renewable integration goals. The efforts are expected to have a positive impact on reducing exceptional dispatch. The ISO will examine the development of new products to ensure that sufficient resources are available in the market to meet the increased variability that is expected on the grid with higher levels of variable energy resources than today. The ISO also anticipates the enhancements will result in increased dispatch-ability for variable energy resources. On September 25, 2013 the ISO filed tariff changes to implement policies approved in the Renewable Integration Market Product and Review Phase 1 initiative. This is also an ongoing stakeholder initiative.[12]

V. Conclusion

The ISO has made improvements in modeling, software, and process to reduce its reliance on exceptional dispatch and has significantly reduced the volume and frequency of exceptional dispatch. In 2013, the year to date (September 30) volume and the frequency of exceptional dispatch were well below the 2012 level for the same period, especially when adjusted to remove test exceptional dispatches. The annual average volume and count of exceptional dispatch in 2013 were also lower than the 2012 level. From January to September, the exceptional dispatch frequency in 2013 was lower than 2012 for each month when test exceptional dispatches were removed.

To further reduce the exceptional dispatch, the ISO has been working with stakeholders to identify various alternatives to exceptional dispatch. New product, modeling change, and process change are under consideration. These measures are expected to decrease exceptional dispatch in the future.

[12] Information on Phase 1 can be found at http://www.caiso.com/informed/Pages/StakeholderProcesses/RenewablesIntegrationMarketProductReviewPhase1.aspx. Information on Phase 2 can be found at http://www.caiso.com/informed/Pages/StakeholderProcesses/RenewablesIntegrationMarketProductReviewPhase2.aspx.

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 28th day of October 2013.

/s/ Sarah Garcia
Sarah Garcia