

Pay for Performance Stakeholder Comments – Issue Paper and Straw Proposal

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Company	Date	Submitted By
California Department of Water Resources State Water Project	9/17/2014	Deane Burk, dburk@water.ca.gov; Cheryl Luu, cheryl.luu@water.ca.gov
Summary		
<p>During the Pay for Performance (PFP) stakeholder process, CAISO anticipated the need for changes to the PFP market design after one year of operational experience. Shortly after the implementation of PFP, ISO observed that a large majority of its regulation resources did not meet the minimum performance threshold of 50% which puts these resources at risk of becoming decertified to provide regulation services. In order to avoid major market disruptions, CAISO requested a limited waiver for tariff sections 8.2.3.1.1, 8.4.1.1(h), and Appendix K, Part 1.15 on January 10, 2014. In the Pay for Performance Regulation Year 1 Design Changes Issue paper and Straw proposal CAISO proposed two changes to the PFP market design: 1) modify the monthly accuracy calculation to use a weighted average in lieu of a simple average and 2) reduce the minimum performance threshold to 25%.</p>		
ISO Response		
<p>The ISO appreciates SWP's comments.</p>		
Comments		
<p>SWP supports the change to use the weighted average in lieu of the simple average to calculate the monthly accuracy, the weighted average is a better representation of monthly accuracy than the simple average.</p> <p>SWP also supports the reduction of the minimum performance threshold to 25%. As the Issue Paper and Straw Proposal indicated, the system risks losing over 78% of its regulation resources should the minimum performance threshold remain at 50% which puts system reliability in danger. SWP also agrees that with more experience with the regulation performance metrics, the CAISO can propose to make adjustments to the performance threshold.</p>		
ISO Response		

The ISO appreciates SWP's comments.

Company	Date	Submitted By
California Energy Storage Alliance	9/17/2014	Chris Edgette 510.665.7811 x102 cedgette@storagealliance.org

5 Proposed Changes to Minimum Performance Threshold

CESA understands and respects the CAISO's rationale for lowering the minimum performance threshold for regulation resources at this time. CESA appreciates that it is not advantageous to decertify the majority of resources in the existing regulation fleet, when those resources are currently providing functional regulation services to the system - and when faster resources are not yet interconnected in sufficient quantity to take on the regulation requirements of the system.

That said, CESA appreciates that the CAISO has not eliminated the performance standard altogether, and has included language showing a willingness to increase this standard as more fast responding resources come online. CESA believes that increasing the performance of the regulation fleet through fast moving energy storage and other resources will contribute to cleaner, more reliable, and more cost effective operations of the grid, as discussed below.

ISO Response

The ISO appreciates CESA's comments.

Fast regulation can reduce costs

CESA understands that the PJM market is not a direct correlation to the CAISO's market. However, PJM's implementation of Pay for Performance does show positive results with the addition of fast responding resources.. The combination of Pay for Performance and the addition of a fast regulation signal have reduced the total quantity of regulation MW requirements by 30%, as well as having lowered the opportunity cost charges in \$/MW that clear in that market. CESA requests that the CAISO continue to pursue system wide savings through these proven mechanisms.

The overall opportunity cost payments to regulation resources in PJM have been reduced with the addition of fast resources, leading to lower regulation costs overall:

As shown in Figure 9, overall regulation costs (in blue) have not significantly changed from prior years until you take into account the lost opportunity cost (Figure 10). Adding back the lost opportunity cost to regulation costs shows that overall regulation costs have trended down and opportunity cost has decreased.

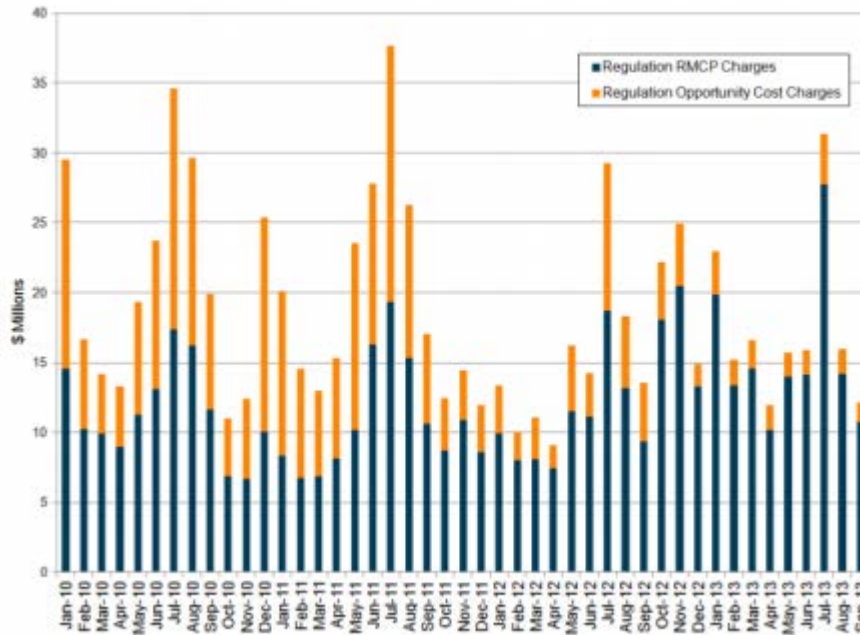


Figure 9 - PJM Monthly Regulation Charges

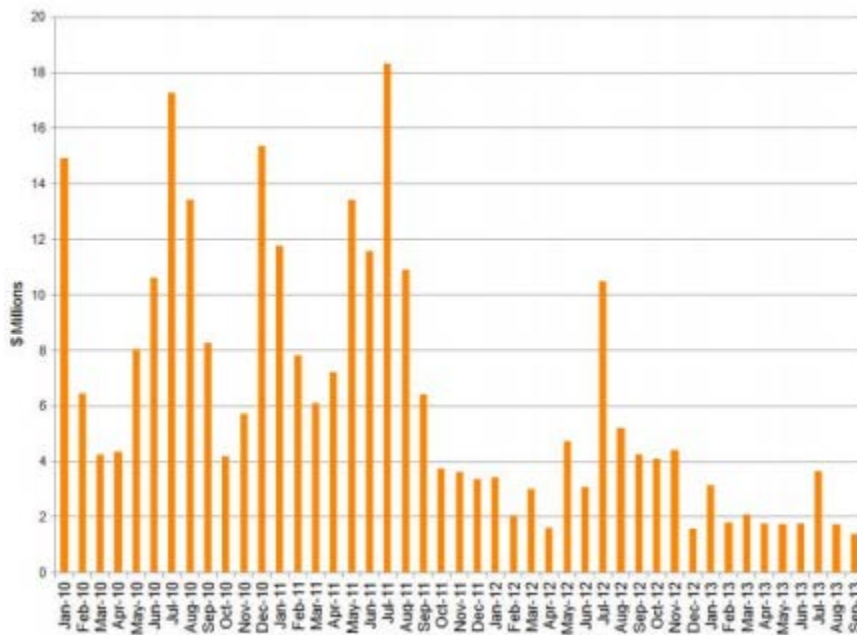


Figure 10 - Regulation Opportunity Cost Charges

The ISO has reviewed the implementation of Pay for Performance regulation in the other ISO/RTOs. CESA correctly states that direct correlation between ISO/RTOs is difficult based upon different implementation of regulation service. The most significant differences for the ISO is that the ISO separates regulation into two products and procures different quantities hourly based upon forecasted differences between RTD and actual system conditions.

Fast Moving Regulation Leads to Reduced Regulation Need in MW

A higher performing regulation fleet could lead to a reduction in the regulation requirements of the system overall. Again, this has been demonstrated in PJM.

“Since October 1, 2012, PJM has lowered the Regulation Requirement on several occasions. In October 2012, the requirement was reduced from 1.0 to 0.78 percent of the peak/valley load forecast. It was further reduced in November 2012 from 0.78 to 0.74 percent. Finally, in December 2012, the Regulation Requirement was lowered to its current value of 0.70 percent of the peak/valley load. Even with these significant reductions to the Regulation Requirement, CPS1 and BAAL metrics have held steady throughout 2013 and show an increase starting in the summer of 2013...”³

³ PJM Performance Based Regulation: Year One Analysis

ISO Response

See comment above.

System and Emissions Benefits of Fast Responding Resources

In addition to the above, faster responding energy storage resources can free slower-responding resources to provide other market services, such as flexible ramping and spinning reserve, reducing wear and tear on the generator fleet, reducing system costs, and increasing system efficiency.

Table 2 is from a KEMA study of a fast responding energy storage (flywheel) system in the CAISO market, which shows significant emissions reductions due to the inclusion of the energy storage resource⁴:

Table 2: Emissions Comparisons for CAISO

Flywheel Emission Savings in Tons, Over 20-year Life: CA-ISO					
	Coal		Natural Gas		Pumped Hydro
	Baseload	Peaker	Baseload	Peaker	
CO2					
Flywheel	67,791	67,791	67,791	67,791	67,791
Alternate Gen.	326,119	625,571	205,939	223,997	110,066
Savings (Flywheel)	258,327	557,780	138,148	156,206	42,275
Percent Savings	79%	89%	67%	70%	38%
SO2					
Flywheel	17	17	17	17	17
Alternate Gen.	1,232	2,961	0	0	27
Savings (Flywheel)	1,216	2,944	-17	-17	11
Percent Savings	99%	99%	n/a	n/a	39%
NOx					
Flywheel	55	55	55	55	55
Alternate Gen.	734	1,765	148	206	89
Savings (Flywheel)	680	1,710	93	151	34
Percent Savings	93%	97%	63%	73%	38%

ISO Response

The ISO has reviewed the KEMA study.

Conclusion

CESA believes that improving the performance of the regulation fleet should remain a priority for the CAISO. CESA asks the CAISO to consider that, while it does not procure generation resources directly, its market rules supports the procurement of certain resource capabilities. CESA asks the CAISO to continue working to ensure that its market rules appropriately value resources that promote reliability and efficiency.

ISO Response

The current Pay for Performance design includes ramp rate and historical accuracy in determining the expected mileage a resource can provide from a MW of regulation capacity. Resources with a higher ramp rate have a higher expected mileage than a resource with a lower ramp rate. Resources with higher accuracy have a higher expected mileage than a resource poor accuracy. Since regulation capacity and expected mileage are co-optimized, fast and accurate resources benefit because their capacity award can provide more mileage to meet the mileage requirement.

Company	Date	Submitted By
Olivine		
Comment		
<p>Olivine appreciates the opportunity to comment on the CAISO Year 1 Design Changes Issue Paper and Straw Proposal and offers one limited suggested change.</p> <p>Setting aside addressing the larger issue of the underlying cause(s) that requires lowering the regulation mileage performance from 50% to 25%, Olivine requests that the CAISO include a formal process to revisit the performance threshold annually rather than relying on the Stakeholder Initiative Catalog process. While the Pay for Performance Regulation process may not be the appropriate place to address broader participant performance issues, it does provide an opportunity for a transparent benchmark that can be included in broader market and participant performance analysis.</p> <p>Olivine believes that an annual review and report to determine if the performance threshold can be increased (or with an undesirable outcome, decreased) will at least provide some incentive for participants to improve performance and related market efficiency. Further, as new resources come online that can displace the current regulation fleet, it will be important to see if they have the expected impact on system wide mileage performance.</p>		
ISO Response		
<p>The ISO includes metrics on regulation accuracy in the Market and Performance Planning Forum (MPPF) which is held approximately every six weeks. This MPPF will provide more regular updates on regulation performance than an annual review. The stakeholder initiatives catalog process can utilize the data presented in the MPPF throughout the year, when prioritizes initiative for the upcoming year.</p>		

Company	Date	Submitted By
PG&E	9/19/14	John Anderson (415) 973-6955
Comments		
<p>Pacific Gas and Electric Company (PG&E) respectfully submits the following comments in the stakeholder process for the California Independent System Operator's (CAISO) Pay for</p>		

Performance Regulation Year 1 Design Changes initiative Sept. 3, 2014 Issue Paper and Straw Proposal (Proposal).

The Proposal calls for two changes to the CAISO's current Order 755 market design: (1) modification of the monthly accuracy calculation from a simple to a weighted average; and (2) reduction of the minimum performance threshold from 50% to 25% accuracy. PG&E supports these changes insofar as they will prevent the decertification of a large portion of the fleet of resources currently providing regulation services in CAISO upon expiration (on Jan. 1, 2015) of the FERC waiver presently exempting CAISO from enforcing certain sections of its tariff. PG&E agrees with the CAISO and other stakeholders that mass decertification of regulation resources could increase regulation procurement costs and jeopardize grid reliability.

PG&E requests that the CAISO include in the Revised Straw Proposal the daily average performance accuracy (since Jun. 1, 2013) that *would have* resulted had the CAISO used the proposed weighted average calculation instead of the current simple average calculation, as well as a discussion of the probable root cause(s) of regulation resources' ongoing poor performance accuracy. This additional information will help stakeholders assess the extent to which the CAISO's proposed changes to the current Order 755 market design will promote fair and efficient functioning of Pay for Performance regulation in CAISO.

ISO Response

The ISO is providing additional data on the monthly accuracy calculations using the weighted average approach.

The root cause of the accuracy is limitations in the control systems of the plants currently providing regulation. The ISO has sent letters to regulation resources with poor accuracy offering to work with the resource owner to modify the AGC signal sent to the resource. In some cases, the resource owner has requested a larger AGC signal than the individual 4 second regulation requirement in order to move the resource. It would be more appropriate for

the ISO to send the individual 4 second regulation requirement and the resource owner to modify its control system to have the resource make whatever output change is necessary to meet the regulation requirement. To date, the ISO understands that resources have been reluctant to make control system changes because of the low mileage prices. The ISO anticipates that has fleet changes from resources that prioritize capacity compensation to resources that prioritize mileage compensation; the incentive for existing resources to update their control systems will increase. Additional information is available in the 1 year report the ISO filed with FERC.

Company	Date	Submitted By
San Diego Gas & Electric	9/17/14	Lisa Olson eolson@semprautilities.com 858-650-6182
Comments		
<p>SDG&E appreciates CAISO's re-evaluation of the Pay for Performance mechanism and opportunity to comment on the issue paper and straw proposal.</p> <p>SDG&E supports the two proposed modifications in the current paper: to lower the minimum performance threshold to 25% from 50% and to calculate the monthly performance calculation on a weighted average. But, while a 50% threshold was found to be unreasonably high, we would like to recommend continued monitoring and evaluation to ensure 25% is the correct level and not too low. It is important to find the highest threshold percentage which incentivizes accuracy while still being realistic. We advise routine re-evaluation of the minimum performance threshold every couple of years to make any needed adjustments to the threshold percentage to incentivize accuracy.</p> <p>We agree with the CAISO that significant redesign is not needed at this point. The CAISO notes possible market enhancements to the Pay for Performance regulation design in the future. Continued systematic monitoring will ensure future design change recommendations are properly coordinated. We also would like to see monitoring and analysis on the interaction of Pay for Performance with the future Flexible Ramping Product.</p>		

ISO Response

The ISO appreciates SDG&E's comments.

Company	Date	Submitted By
Southern California Edison	9/14/14	Aditya Chauhan – (626) 302-3764
Comments		
<p>The following are Southern California Edison's (SCE) comments on the California Independent System Operator's (CAISO) September 3, 2014, Issue Paper and Straw Proposal¹. Full understanding of the implications of the proposal are only possible if the CAISO runs the proposed weighted average accuracy metric on historic data and recalculates the performances it presents in Table 1². The proposed MW weighted accuracy measure and the proposed lowering of the threshold to 25% can only be gauged if the CAISO presents historic data analysis of the weighted accuracy measure to determine that it comports with the 25% threshold.</p> <p>SCE further requests that the CAISO provide the formula used to calculate the accuracy metric. As CAISO states on page 6 of the proposal, the intent of the minimum threshold is to provide "another mechanism to incentivize sustained accuracy improvements over time". It would greatly help generators to diagnose accuracy issues if they understand the calculation along with the inputs used.</p> <p>Last year, the CAISO was working with generators to investigate why generator performance was low. One assumption was that the data used in the accuracy calculation was of poor quality. During those discussions, a CAISO engineer³ pointed out that an AGC set point may be different than the actual dispatch target for the resource. The engineer explained that the CAISO intentionally sends a set point that is greater than the dispatch target in order to get the resource to move to CAISO's desired dispatch target. SCE requests the CAISO elaborate on why such a practice is needed, and how this practice may</p>		

influence the accuracy calculation. SCE was told that the CAISO intends to continue assessing generator performance at a later time. SCE requests the CAISO elaborate on when it intends to reengage these efforts.

¹ http://www.caiso.com/Documents/IssuePaper-StrawProposal_PayForPerformanceRegulation-YearOneDesignChanges.pdf

² Page 6. Ibid.

³ Sirajul Chowdhury

ISO Response

The ISO has provided additional information on the monthly accuracy using the weighted average.

The ISO has sent letters to regulation resources with poor accuracy offering to work with the resource owner to modify the AGC signal sent to the resource. In some cases, the resource owner has requested a larger AGC signal than the individual 4 second regulation requirement in order to move the resource. It would be more appropriate for the ISO to send the individual 4 second regulation requirement and the resource owner to modify its control system to have the resource make whatever output change is necessary to meet the regulation requirement. To date, the ISO understands that resources have been reluctant to make control system changes because of the low mileage prices. The ISO anticipates that has fleet changes from resources that prioritize capacity compensation to resources that prioritize mileage compensation; the incentive for existing resources to update their control systems will increase. Additional information is available in the 1 year report the ISO filed with FERC.