

COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE:

Pay for Performance Regulation Year 1 Design Changes

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The California Energy Storage Alliance (CESA)¹ appreciates the opportunity to participate in and comment on the Pay for Performance Regulation Year One Design Changes. These comments are based upon CESA's review of the CAISO's Pay for Performance Regulation Year One Design Changes, Released September 17, 2014, as well as CESA's participation in the September 10, 2014 Stakeholder meeting.

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.

¹ The views expressed in these Comments are those of CESA, and do not necessarily reflect the views of all of the individual CESA member companies. (<http://storagealliance.org>)

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 resources². 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.

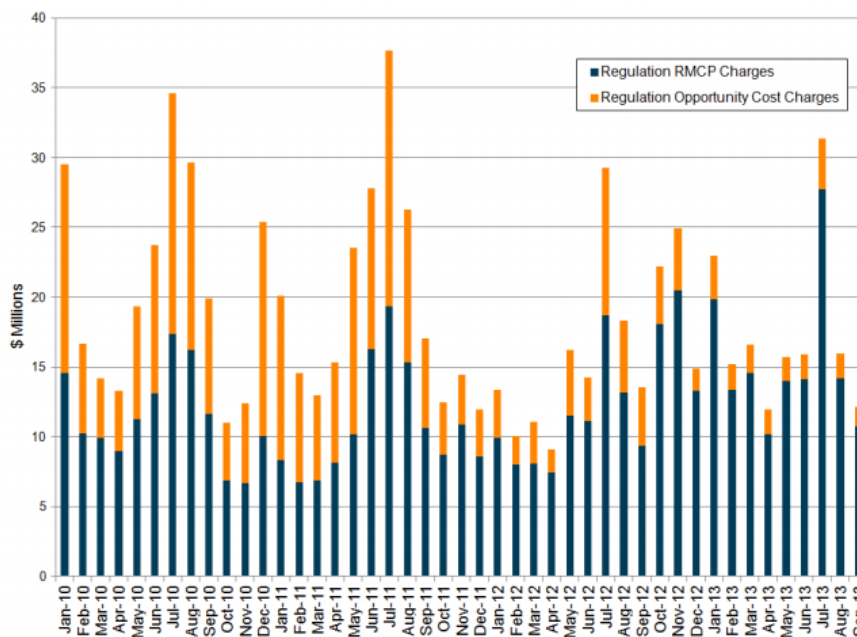


Figure 9 – PJM Monthly Regulation Charges

² PJM Performance Based Regulation: Year One Analysis

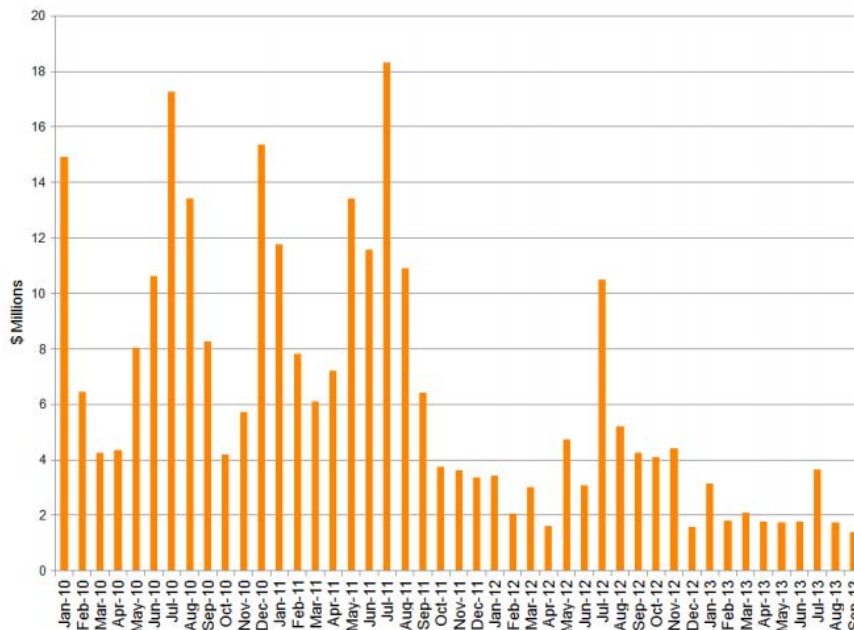


Figure 10 – Regulation Opportunity Cost Charges

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

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.

³ PJM Performance Based Regulation: Year One Analysis

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%

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.

⁴ KEMA: *Emissions Comparison for a 20 MW Flywheel-based Frequency Regulation Power Plant*