

January 30, 2023

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. ER06-615-000
Annual Report Evaluating Demand Response Participation in the
CAISO for 2022**

Dear Secretary Bose:

The California Independent System Operator Corporation (“CAISO”)¹ submits this annual report evaluating demand response participation in the CAISO for 2022 (“2022 Annual Report”), pursuant to the Commission’s June 25, 2007 order in this proceeding.²

The information provided in the 2022 Annual Report is in GMT and covers the period from January 1 through December 31, 2022 (“Reporting Period”). For many years, the annual report only covered the period from January 1 through November 30 of the subject year. This was necessary because the December data was not available in time to meet the January 15 filing date set by the June 25, 2007 order. In recent years, as a result of payment acceleration, the December settlement data became available early enough potentially to be included in the annual report. The CAISO attempted to process a full calendar year of data by January 15, but had to file corrected reports each year.³ This year, the CAISO took an additional two weeks to prepare and review the report in an effort to avoid the need for corrections after the fact. In addition, due to the increase in the number of demand response providers, resources, energy, and energy services that are provided, it is no longer necessary to file a redacted version of this report.

¹ Capitalized terms not otherwise defined herein have the meanings set forth in appendix A to the CAISO tariff.

² See *California Independent System Operator Corp.* 119 FERC ¶ 61,313, at P 226 (2007). The CAISO has filed annual reports on demand response participation each January since that order was issued.

³ The settlement data may also be subject to future corrections that may occur through the normal settlement cycle.

I. Summary of the CAISO's Demand Response Programs for the Reporting Period

There are three types of demand response programs: participating, proxy demand resource, and reliability demand response. Participation in each program is summarized below.

A. Participating Load

For the Reporting Period, there were six (6) active participating load resources associated with large pumping resources registered in the CAISO Master File. These participating load resources can be broken down as follows:

Market Participant:	California Department of Water Resources State Water Project
No. of resource IDs:	6 ⁴

These participating load resources represent an aggregation of pumps; they have been aggregated into separate participating load "facilities" for scheduling and settlement purposes.

⁴ These six participating load resources are unique, non-pumped hydro storage facilities. This report follows the CAISO's previous annual reports in not including data for pumped hydro storage facilities. As the CAISO explained in the first annual report (submitted in this proceeding on January 25, 2008), the reason for this approach is that pumped hydro storage facilities operate differently from traditional demand response resources, in that pumped hydro storage facilities affirmatively schedule and increase load as well as provide load curtailment. The CAISO believes that this report's focus on traditional demand response resources results in more meaningful content, because the reported information can be more meaningfully compared with information for other regions and organized markets, which was a primary purpose for implementing the reporting obligation.

B. Proxy Demand Resources

For the Reporting Period, there were One Thousand Three Hundred Thirty-Two (1,332) active proxy demand resources registered in the CAISO Master File. These proxy demand resources can be broken down as follows:

Market Participant:	Pacific Gas and Electric Company
No. of resource IDs:	73
Market Participant:	San Diego Gas & Electric Company
No. of resource IDs:	21
Market Participant:	Southern California Edison Company
No. of Resource IDs:	122
Market Participant:	Olivine, Inc.
No. of Resource IDs:	48
Market Participant:	Galt Power, Inc.
No. of Resource IDs:	566
Market Participant:	Clean Power Alliance of Southern California
No. of Resource IDs:	4
Market Participant:	Leapfrog Power, Inc
No. of Resource IDs:	413
Market Participant:	Shell Energy North America
No. of Resource IDs:	1
Market Participant:	Voltus, Inc.
No. of Resource IDs:	37

Each of these 1,332 proxy demand resources represents an aggregation of retail service

accounts assembled into a single resource for scheduling and settlement purposes.

C. Reliability Demand Response Resources

For the Reporting Period, there were Two Hundred and Sixteen (216) participating reliability demand response resources registered in the CAISO Master File. These reliability demand response resources can be broken down as follows:

Market Participant:	Southern California Edison Company
No. of Resource IDs:	122
Market Participant:	San Diego Gas & Electric Company
No. of Resource IDs:	21
Market Participant:	Pacific Gas and Electric Company
No. of Resource IDs:	73

Each of these 216 reliability demand response resources represents an aggregation of retail service accounts assembled into a single resource for scheduling and settlement purposes.

II. Non-Spinning Capacity Awards and Payment from Demand Response Resources

In the CAISO's wholesale market, market participants can choose to bid ancillary services (such as non-spinning reserves), or to self-provide them. Market participants that choose to bid ancillary services are paid at the ancillary service market clearing price. Accordingly, the CAISO makes payment to them for the ancillary service capacity type that was offered and accepted. Market participants that fulfill their ancillary service obligations by self-providing effectively receive an offset of their ancillary service obligations. The offset reduces or eliminates the quantity of ancillary service capacity that they must procure from the market.

TABLE 1a - Non-Spinning Reserve Capacity Awards and Payment*			
Total non-spinning capacity bid (MW)	Total non-spinning capacity awarded (MW)	Total non-spinning capacity payments (\$)	Total non-spinning capacity self-provided (MW)
1,530,866	554,457	-177,249	0

* These values represent cumulative totals based on all demand response resources.

TABLE 1b - Spinning Reserve Capacity Awards and Payment*			
Total spinning capacity bid (MW)	Total spinning capacity awarded (MW)	Total spinning capacity payments (\$)	Total spinning capacity self-provided (MW)
0	0	0	0

A. No-Pay for Unavailable Non-Spinning Capacity from Demand Response Resources

No-pay is a settlement mechanism to encourage resources, both generators and demand response resources, to keep awarded ancillary services available for CAISO dispatch by following dispatch instructions and avoiding uninstructed deviations. When triggered, the no-pay mechanism results in the rescission of payment for the provision of spinning reserve or non-spinning reserve when the ancillary service becomes either

undispatchable capacity, unavailable capacity, undelivered capacity, or, in certain circumstances, unsynchronized capacity subsequent to the ancillary service award for such ancillary services and the CAISO payment for the services. A portion of the total non-spinning capacity awarded to demand response resources may be rescinded through the no-pay settlement mechanism during the Reporting Period. Table 2 below summarizes the total MW and dollar amounts associated with these rescission results.

TABLE 2 - Summary of Unavailable Non-Spinning Capacity		
Total non-spinning capacity awarded and self-provided (MW)	Total non-spinning capacity unavailable subject to the no-pay provision (MW)	Total non-spinning capacity payment rescinded subject to the no-pay provision (\$)
554,457	11,936	2,425

B. Real-Time Energy and Payment from Demand Response Resources

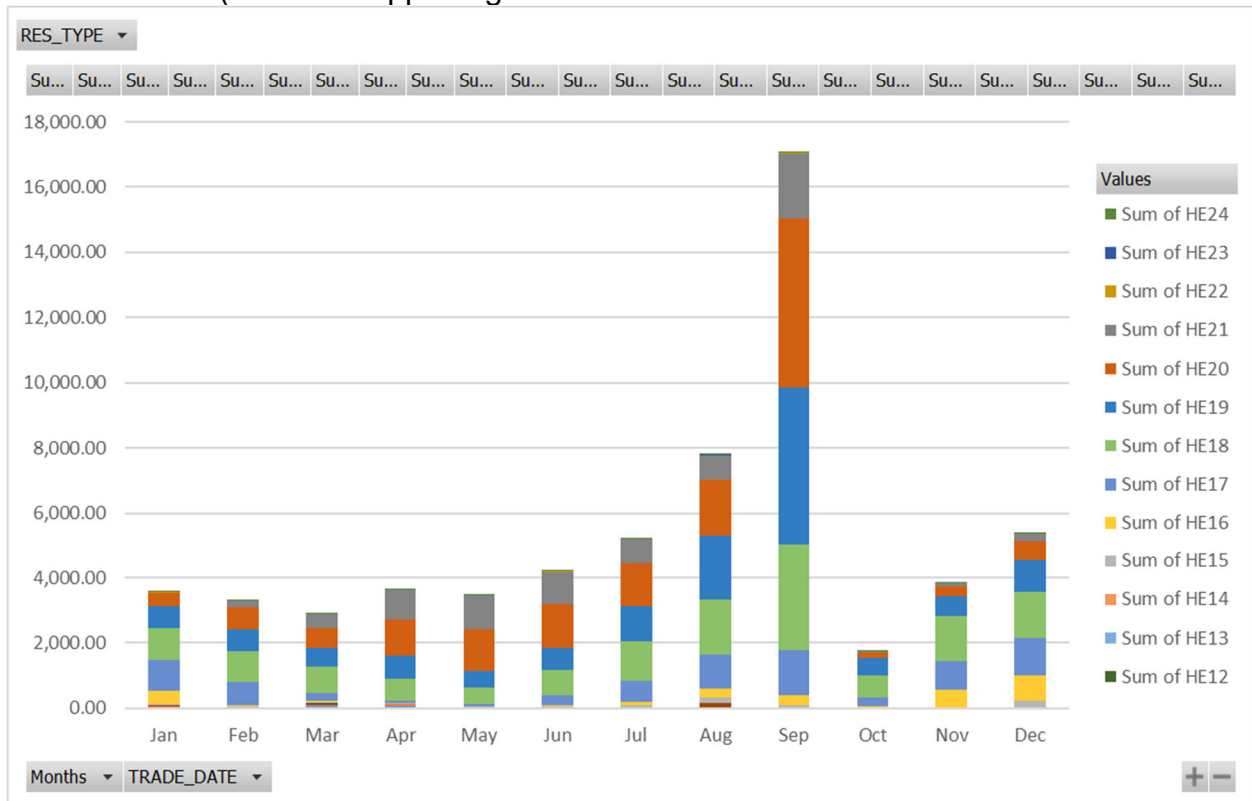
To meet its real-time reliability needs, the CAISO dispatches real-time energy from dispatchable demand response resources when it is economic to do so, based on the submitted bids that the scheduling coordinator has submitted to the CAISO for demand response resources. A demand response resource can bid to curtail energy. Pursuant to CAISO real-time dispatch instructions, a demand response resource is paid for the amount of energy the resource is instructed to curtail. This is analogous to the CAISO paying a generator to increase output relative to the resource's scheduled energy amount. Any deviations associated with the CAISO's real-time dispatches (*i.e.*, under-deliveries or over-deliveries) are settled with the demand response resource as uninstructed energy. Table 3 below summarizes the total MW amounts associated with net settlement of the CAISO's instructed and uninstructed energy for dispatches to decrease consumption during the Reporting Period.

TABLE 3 - Decrease Energy Dispatches - Real-Time Energy and Settlement Summary				
Total real-time energy offered (MW)	Total no. of dispatches (events)*	Total real-time instructed energy (MW)	Total real-time energy delivered (MW)	Total energy settlement payments to demand response resources (\$)
6,726,441	29,387	62,104	56,518	-20,780,207

*Where dispatches equal to or greater than 0.015 MW, in any interval, are aggregated by trading hour.

C. Real-Time Energy Dispatch Detail for Demand Response Resources

Table 4 (the data supporting Table 4 is attached as Attachment A.



III. Communications

Correspondence and other communications regarding this filing should be directed to:

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Respectfully submitted,

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ATTACHMENT A

Real-Time Energy Dispatch Detail

Row Labels	Sum of HE1	Sum of HE2	Sum of HE3	Sum of HE4	Sum of HE5	Sum of HE6	Sum of HE7
Jan	36.17	37.46	2.11	0.00	0.00	0.00	0.00
Feb	16.81	17.04	1.07	0.00	0.00	0.00	0.00
Mar	45.96	46.72	0.00	0.00	0.00	0.00	0.00
Apr	56.49	57.54	0.00	0.00	0.00	0.00	0.00
May	2.73	2.99	0.00	0.00	0.00	0.00	0.00
Jun	4.15	4.65	0.07	0.00	0.00	0.00	0.00
Jul	2.76	2.60	0.00	0.00	0.00	0.00	0.00
Aug	10.19	10.47	0.00	0.00	0.00	0.00	0.00
Sep	8.39	8.00	0.00	0.00	0.00	0.00	0.00
Oct	0.99	0.93	0.00	0.00	0.00	0.00	0.00
Nov	2.00	1.92	0.00	0.00	0.00	0.00	0.00
Dec	1.48	1.54	0.00	0.00	0.00	0.00	0.00
Grand Total	188.13	191.86	3.25	0.00	0.00	0.00	0.00

Row Labels	Sum of HE8	Sum of HE9	Sum of HE10	Sum of HE11	Sum of HE12	Sum of HE13	Sum of HE14
Jan	14.09	0.00	0.00	0.00	0.00	0.00	0.00
Feb	1.09	2.50	2.50	2.50	0.00	0.00	0.00
Mar	1.63	26.33	20.00	12.50	10.00	0.00	0.10
Apr	5.16	11.58	7.48	2.50	2.74	1.35	0.57
May	4.56	15.12	14.26	0.24	0.34	0.64	0.00
Jun	4.45	0.65	4.41	1.99	0.11	0.15	3.72
Jul	0.63	0.31	0.00	0.00	0.00	0.00	0.00
Aug	125.94	0.00	0.69	0.98	3.98	3.13	2.40
Sep	3.61	1.61	0.00	1.51	1.51	1.51	1.51
Oct	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nov	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dec	0.98	0.09	0.00	0.00	0.00	0.00	0.00
Grand Total	162.15	58.20	49.34	22.22	18.68	6.78	8.31

Row Labels	Sum of HE15	Sum of HE16	Sum of HE17	Sum of HE18	Sum of HE19	Sum of HE20	Sum of HE21
Jan	23.77	425.23	922.64	1,000.41	673.59	387.30	18.27
Feb	2.82	54.66	691.11	948.98	690.84	651.90	203.44
Mar	5.05	49.25	245.66	799.80	595.74	591.99	429.38
Apr	10.00	15.00	46.88	702.69	703.55	1,108.78	888.05
May	7.72	13.96	67.74	498.31	514.74	1,274.15	1,047.26
Jun	23.71	35.66	327.10	769.68	658.02	1,347.74	993.77
Jul	86.17	115.24	634.41	1,200.49	1,092.78	1,317.78	745.69
Aug	189.86	264.32	1,019.32	1,686.40	2,001.07	1,705.22	743.22
Sep	75.77	308.80	1,372.57	3,213.88	4,863.29	5,167.92	2,006.06
Oct	0.00	65.30	256.06	695.30	526.52	149.49	48.33
Nov	16.03	537.14	873.92	1,380.11	625.72	309.52	86.07
Dec	209.49	784.78	1,137.88	1,428.36	967.87	577.74	265.80
Grand Total	650.40	2,669.33	7,595.29	14,324.42	13,913.71	14,589.53	7,475.33

CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties listed on the official service list in the above-referenced proceeding, 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 30th day of January 30, 2023

/s/ Ariana Rebanco

Ariana Rebanco