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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local and Flexible Procurement Obligations for the 2019 and 2020 Compliance Years.

Rulemaking 17-09-020

**ASSIGNED COMMISSIONER'S RULING ON ENERGY DIVISION'S
RESOURCE ADEQUACY STATE OF THE MARKET REPORT**

Summary

This Assigned Commissioner's Ruling attaches the Commission's Energy Division's State of the Market Resource Adequacy Report, as directed by Decision (D.) 19-02-022.

1. Background

In D.19-02-022, the Commission recognized that it is of critical importance that parties to the Resource Adequacy (RA) proceeding have reasonable insight about the current and future state of the RA market. The Commission recognized that certain information regarding the broader RA procurement outlook is not publicly available and only visible to Energy Division Staff. Therefore, in order to increase transparency into the state of the RA market, D.19-02-022 directed Energy Division Staff to prepare two reports that address the following:

- (1) Total MW for any/all resources procured (gas, storage, renewable/DER) to meet RA requirements;
- (2) Development of preferred resources in local and system areas;

- (3) Information regarding local deficiencies, including the number of load service entities (LSEs) that are deficient, type of LSE (IOU, CCA, ESP), location of deficiencies, amount of deficiencies (in MW), number of local RA waiver requests, and anonymized statements from the LSE as to the reason for the deficiency (such as which generators bid into the solicitation, whether the bids included dispatch rights or other terms addressing how local resources bid in the energy market);
- (4) Information regarding system and flexible capacity deficiencies, including anonymized statements from the LSE as to the reason for the deficiency; and
- (5) Resources on the Net Qualifying Capacity list that are not shown in RA filings as under contract to an LSE(s).¹

The Commission further directed that “Energy Division’s first report shall be submitted within 60 days of the decision setting the year-ahead RA requirements. The second report shall be issued by Energy Division within 60 days of the October 31, 2019 filings for the 2020-2022 RA compliance years.”²

2. RA State of the Market Report

Energy Division’s second Resource Adequacy State of the Market report is hereby attached to this ruling as Appendix A.

IT IS RULED that Energy Division’s second Resource Adequacy State of the Market report is attached to this ruling as Appendix A.

Dated January 14, 2020, at San Francisco, California.

/s/ LIANE M. RANDOLPH

Liane M. Randolph
Assigned Commissioner

¹ D.19-02-022 at 32.

² *Id.* at 48, Ordering Paragraph 17.

APPENDIX A



THE STATE OF THE RESOURCE ADEQUACY MARKET - REVISED



January 13,
2019

October-December 2019 Month Ahead &
2020 Year Ahead Filing Information

CALIFORNIA PUBLIC UTILITIES COMMISSION ENERGY DIVISION

A digital copy of this report can be found at:

<https://www.cpuc.ca.gov/RA/>

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LIST OF ACRONYMS

CAISO	California Independent System Operator	LSE	Load Serving Entity
CAM	Cost Allocation Mechanism	MA	Month Ahead
CCA	Community Choice Aggregator	MIC	Maximum Import Capability
CHP	Combined Heat and Power	MW	Megawatt
CPUC	California Public Utilities Commission	NQC	Net Qualifying Capacity
DER	Distributed Energy Resource	PG&E	Pacific Gas & Electric
DR	Demand Response	PRM	Planning Reserve Margin
DRAM	Demand Response Auction Mechanism	RA	Resource Adequacy
ELCC	Effective Load Carrying Capability	RFO	Request for Offers
ESP	Electric Service Provider	RMR	Reliability Must Run
IOU	Investor Owned Utility	SCE	Southern California Edison
IV	Imperial Valley	SDG&E	San Diego Gas & Electric
LA	Los Angeles	TAC	Transmission Access Charge
LCR	Local Capacity Requirement	YA	Year Ahead

1.INTRODUCTION

California Public Utilities Commission (CPUC) Decision 19-02-022 directed Energy Division staff to prepare two reports that would provide “reasonable insight about the current and future state of the Resource Adequacy (RA) market”¹ in order to assist parties as they developed proposals for a central buyer of local RA.

The decision outlines five elements that the reports must address:

1. Total Megawatts (MW) for any/all resources procured – (gas, storage, renewable)/distributed energy resource (DER)) – to meet RA requirements;
2. Development of preferred resources in local and system areas;
3. Information regarding local deficiencies, including the:
 - a. number of load serving entities (LSEs) that are deficient,
 - b. type of LSE (investor owned utility (IOU), community choice aggregator (CCA), electric service provider (ESP)),
 - c. location and amount of deficiencies (in MW),
 - d. number of local RA waiver requests, and anonymized statements from the LSE as to the reason for the deficiency (such as which generators bid into the solicitation, whether the bids included dispatch rights or other terms addressing how local resources bid in the energy market);
4. Information regarding system and flexible capacity deficiencies, including anonymized statements from the LSE as to the reason for the deficiency; and
5. Resources on the Net Qualifying Capacity list that are not shown in RA filings as under contract to an LSE(s).²

The initial State of the Market Report, issued September 3, 2019, covered RA filings from the 2019 year ahead filing through the September month ahead filing. This revised report adds data from the remainder of the 2019 month ahead filings and the 2020 year ahead filing.

¹ D.19-02-022 at 31.

² D.19-02-022 at 31-32.

2. RESOURCES PROCURED FOR RA-2019 MONTH AHEAD FILINGS

This section is largely the same as Section 2 of the initial State of the Market Report. The main difference here is that Tables 1 through 5 are expanded to include the months of October, November, and December.

Table 1 provides the MW of each resource type shown by CPUC-jurisdictional LSEs on their month ahead RA plans to meet system RA requirements from January through December 2019.

Resources procured to meet reliability needs by the IOUs and allocated to all customers through the cost allocation mechanism (CAM) are listed under CAM/RMR/LCR resources unless their capacity was later sold to another LSE. Combined heat and power (CHP) and demand response procured through the demand response auction mechanism (DRAM) are allocated in the same manner as CAM resources and are included under CAM.³

LSEs also receive a credit for any RA capacity procured by the CAISO as reliability must run (RMR) resources. LSEs serving load in the Southern California Edison (SCE) transmission access charge (TAC) area receive a local capacity requirement (LCR) credit for behind-the-meter resources procured to meet reliability needs in the Los Angeles Basin. These resources are included under RMR/LCR/DRAM PRM with the planning reserve margin adder CPUC credits to DRAM resources. Capacity from utility demand response programs is also allocated to all LSEs by TAC area and shown here as DR Credit. CAM Natural Gas MW were adjusted to account for outages so that resources shown in Table 1 equal the CAM credit shown in Table 3.

As seen below, natural gas generators comprise the majority of RA resources for IOUs, CCAs, and ESPs and can account for approximately two thirds of total RA capacity in some months.

³ A list of 2019 CAM resources is available at <https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442461336>.

Table 1: Resources Shown on Month Ahead System RA Plans by LSE Type (MW)

LSE Type	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All	Battery Storage	85	81	80	80	82	80	79	93	92	89	87	80
	Biogas & Biomass	285	267	227	245	236	360	327	325	346	250	208	242
	CHP	1,465	1,429	1,305	1,224	1,299	1,553	1,380	1,496	1,455	1,356	1,318	1,349
	Demand Response	121	188	180	231	257	258	323	289	235	204	191	192
	Geothermal	1,155	1,101	1,066	1,029	1,036	1,073	1,075	1,036	1,035	1,070	1,006	1,079
	Hydro	2,117	1,755	2,528	2,297	2,650	4,030	4,081	3,978	3,729	3,046	3,005	2,924
	Natural Gas	22,146	21,081	20,255	20,134	20,691	22,452	23,197	24,482	24,629	23,626	22,696	21,961
	Nuclear	1,846	1,659	1,337	1,498	2,668	2,869	2,888	2,869	2,857	2,057	94	1,755
	Pumped Hydro	1,256	1,258	883	976	1,457	1,457	1,457	1,457	1,457	1,084	948	1,258
	Solar	10	189	716	2,480	2,403	4,335	4,117	4,105	3,388	2,223	264	21
	Unspecified Import	944	928	832	919	1,806	2,320	3,736	3,968	4,737	2,409	1,416	866
	Wind	602	895	975	1,609	1,708	2,567	1,630	1,487	1,514	454	327	522
	DR Credit	937	973	989	1,182	1,335	1,515	1,586	1,612	1,549	1,549	1,549	1,549
	RMR/LCR/DRAM PRM	316	372	373	336	345	361	367	370	367	367	367	367
	Total	33,284	32,176	31,744	34,238	37,972	45,229	46,243	47,568	47,389	39,783	33,475	34,164
	CPUC RA Requirement	30,953	30,827	30,032	32,928	36,803	44,540	45,992	47,176	47,881	39,332	31,716	32,397
	% of Requirement	108%	104%	106%	104%	103%	102%	101%	101%	99%	101%	106%	105%
IOU	Battery Storage	6	2			2		2	4	3			
	Biogas & Biomass	165	117	107	142	121	208	217	171	178	111	75	120
	CHP	397	198	314	173	302	478	429	465	418	230	48	312
	Geothermal	931	869	863	852	855	851	858	863	858	866	819	876
	Hydro	1,239	1,088	1,432	1,497	1,490	2,748	2,788	2,761	2,806	2,215	2,253	1,746
	Natural Gas	10,487	9,147	9,005	8,682	8,504	9,342	10,599	11,805	11,457	10,546	10,102	9,034
	Nuclear	1,741	1,606	1,337	1,498	2,416	1,875	2,068	1,877	2,085	1,869		1,591
	Pumped Hydro	919	1,133	744	259	1,339	1,313	1,389	1,239	1,084	953	751	1,082
	Solar	0	144	592	1,828	1,862	3,300	3,258	3,092	2,627	1,621	169	
	Unspecified Import	328	259	259	264	739	916	1,912	2,302	2,527	1,047	429	287
	Wind	538	770	841	1,287	1,423	2,103	1,411	1,258	1,267	376	254	397
	Total	16,751	15,332	15,493	16,483	19,051	23,134	24,930	25,837	25,310	19,834	14,899	15,445
CCA	Battery Storage							10	10	10			
	Biogas & Biomass	88	116	80	51	74	126	56	99	127	95	86	79
	CHP	47	280	1	123	115	47	49	27	46	231	351	59

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LSE Type	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Demand Response								1	29			
	Geothermal	139	150	137	118	120	159	159	115	113	129	129	145
	Hydro	800	609	984	647	1,017	991	1,011	1,075	701	680	643	1,018
	Natural Gas	3,861	4,060	3,561	3,607	4,372	4,934	4,508	4,503	4,736	4,993	4,365	4,987
	Nuclear	105	53			167	868	745	902	697	178	91	164
	Pumped Hydro	306	85	136	650	85	116		218	338	17	171	176
	Solar	0	16	46	422	294	776	487	603	375	375	38	0
	Unspecified Import	161	286	124	235	627	924	1,291	1,090	1,661	802	516	227
	Wind	33	56	68	189	143	172	133	148	125	44	39	71
	Total	5,539	5,712	5,138	6,043	7,015	9,112	8,449	8,790	8,957	7,544	6,428	6,926
ESP	Battery Storage						2				9	9	
	Biogas & Biomass	32	34	40	51	41	27	53	56	41	43	48	44
	CHP	17	54	20	22	19	24	18	48	16	16	20	24
	Geothermal	85	82	66	59	61	63	58	58	64	75	58	58
	Hydro	78	58	111	153	143	290	282	142	222	151	109	160
	Natural Gas	1,822	1,846	1,756	1,843	1,799	1,906	1,850	1,948	2,234	2,057	2,016	1,879
	Nuclear					85	126	75	90	75	10	3	
	Pumped Hydro	31	40	2	66	33	29	68		35	114	25	
	Solar	10	29	78	231	248	259	372	410	385	226	57	21
	Unspecified Import	455	383	449	420	440	480	534	576	549	560	471	352
	Wind	31	69	66	132	142	291	86	82	121	35	35	54
	Total	2,560	2,596	2,589	2,977	3,010	3,498	3,395	3,409	3,742	3,296	2,851	2,592
CAM/ RMR/ LCR	Battery Storage	80	80	80	80	80	78	68	80	80	80	78	80
	CHP	1,004	897	969	905	864	1,003	884	955	976	878	900	953
	Demand Response	121	188	180	231	257	258	323	288	206	204	191	192
	Natural Gas	5,977	6,027	5,933	6,001	6,016	6,271	6,240	6,226	6,202	6,031	6,213	6,061
	DR Credit	937	973	989	1,182	1,335	1,515	1,586	1,612	1,549	1,549	1,549	1,549
	RMR/LCR/ DRAM PRM	316	372	373	336	345	361	367	370	367	367	367	367
	Total	8,434	8,536	8,524	8,736	8,897	9,484	9,468	9,532	9,379	9,108	9,297	9,201

In Table 1, dynamically scheduled imports and pseudo-ties (resources located outside of the California Independent System Operator (CAISO) balancing area that bid into the CAISO market as individual resources) are listed under their resource type (nuclear,

hydro, solar, etc.), while unspecified imports are listed separately. Table 2 shows total imports for each month when unspecified imports are combined with dynamically scheduled imports and pseudo-ties.

Table 2: All Imports Shown on 2019 Month Ahead RA Plans by LSE Type (MW)

LSE Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IOU	1,398	1,134	1,337	935	1,434	2,068	3,061	3,505	3,664	1,953	800	1,318
CCA	161	286	124	235	627	924	1,291	1,090	1,661	802	516	227
ESP	455	383	449	420	440	480	602	644	603	607	477	352
Total	2,014	1,803	1,910	1,590	2,501	3,472	4,954	5,238	5,928	3,362	1,793	1,897

Table 3 shows the contribution of internal resources, imports, CAM, RMR, LCR and DR towards meeting RA requirements by LSE type. On aggregate, LSEs have met RA requirements in most months, though there was an approximately 500 MW cumulative deficiency in September resulting from the five LSE month ahead system deficiencies described in Section 4.

Table 3: Resource Types Used to Meet 2019 System Requirements on Monthly RA Plans (MW)

LSE Type	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All	Internal Resources	22,836	21,836	21,311	23,913	26,575	32,273	31,821	32,798	32,081	27,312	22,385	23,066
		69%	68%	67%	70%	70%	71%	69%	69%	68%	69%	69%	69%
	Imports	2,014	1,803	1,910	1,590	2,501	3,472	4,954	5,238	5,928	3,362	1,793	1,897
		6%	6%	6%	5%	7%	8%	11%	11%	13%	9%	6%	6%
	CAM/RMR/ LCR Credit	7,496	7,563	7,535	7,553	7,561	7,970	7,882	7,919	7,830	7,446	6,995	7,381
		23%	24%	24%	22%	20%	18%	17%	17%	17%	19%	22%	22%
	DR Credit	937	972	989	1,182	1,335	1,514	1,585	1,612	1,549	1,332	1,060	948
		3%	3%	3%	3%	4%	3%	3%	3%	3%	3%	3%	3%
	Total	33,283	32,175	31,744	34,238	37,972	45,229	46,242	47,567	47,389	39,453	32,233	33,292
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
IOU	CPUC RA Requirement	30,953	30,827	30,032	32,928	36,803	44,540	45,992	47,176	47,881	39,332	31,716	32,397
	% Shown	108%	104%	106%	104%	103%	102%	101%	101%	99%	100%	102%	103%
	Internal Resources	15,352	14,198	14,156	15,548	17,617	21,067	21,869	22,332	21,645	17,881	14,099	14,127
		66%	66%	66%	69%	70%	71%	69%	68%	68%	70%	71%	68%
	Imports	1,398	1,134	1,337	935	1,434	2,068	3,061	3,505	3,664	1,953	800	1,318
		6%	5%	6%	4%	6%	7%	10%	11%	12%	8%	4%	6%

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LSE Type	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	CAM/RMR/ LCR Credit	5,714	5,379	5,322	5,252	5,137	5,482	5,703	5,727	5,421	4,871	4,275	4,819
		25%	25%	25%	23%	20%	18%	18%	18%	17%	19%	22%	23%
	DR Credit	744	716	722	858	917	1,024	1,135	1,163	1,065	895	706	650
		3%	3%	3%	4%	4%	3%	4%	4%	3%	3%	4%	3%
	Total	23,208	21,428	21,537	22,593	25,105	29,640	31,768	32,727	31,795	25,600	19,880	20,914
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	IOU RA Requirement	22,420	20,623	20,590	21,942	24,317	29,128	31,604	32,528	31,689	25,608	19,783	20,738
	% Shown	104%	104%	105%	103%	103%	102%	101%	101%	100%	100%	100%	101%
CCA	Internal Resources	5,378	5,426	5,014	5,808	6,388	8,188	7,159	7,701	7,297	6,742	5,912	6,699
		81%	75%	75%	76%	72%	74%	70%	73%	67%	71%	70%	75%
	Imports	161	286	124	235	627	924	1,291	1,090	1,661	802	516	227
		2%	4%	2%	3%	7%	8%	13%	10%	15%	8%	6%	3%
	CAM/RMR/ LCR Credit	982	1,317	1,342	1,400	1,577	1,652	1,449	1,496	1,624	1,689	1,771	1,750
		15%	18%	20%	18%	18%	15%	14%	14%	15%	18%	21%	20%
	DR Credit	104	158	166	199	288	349	320	324	339	295	237	214
		2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	2%
	Total	6,626	7,187	6,646	7,641	8,880	11,113	10,219	10,610	10,921	9,528	8,436	8,889
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	CCA RA Requirement	5,431	6,913	6,111	7,291	8,700	11,056	10,309	10,538	11,577	9,456	8,260	8,464
	% Shown	122%	104%	109%	105%	102%	101%	99%	101%	94%	101%	102%	105%
ESP	Internal Resources	2,105	2,212	2,140	2,557	2,570	3,018	2,793	2,765	3,139	2,689	2,374	2,240
		61%	62%	60%	64%	64%	67%	66%	65%	67%	62%	61%	64%
	Imports	455	383	449	420	440	480	602	644	603	607	477	352
		13%	11%	13%	10%	11%	11%	14%	15%	13%	14%	12%	10%
	CAM/RMR/ LCR Credit	800	867	871	901	847	836	730	696	785	886	949	812
		23%	24%	24%	23%	21%	19%	17%	16%	17%	20%	24%	23%
	DR Credit	89	98	101	125	130	142	130	125	146	142	117	85
		3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%
	Total	3,449	3,560	3,561	4,004	3,987	4,477	4,255	4,230	4,673	4,324	3,917	3,489
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	ESP RA Requirement	3,102	3,291	3,331	3,695	3,786	4,355	4,079	4,110	4,615	4,268	3,673	3,195
	% Shown	111%	108%	107%	108%	105%	103%	104%	103%	101%	101%	107%	109%

Since local RA requirements are based on a study of peak August load by the CAISO but applied to each month of the year, CPUC has adopted rules to count local resources

at their August NQC values for all months when evaluating compliance with local requirements. Therefore, Table 1 uses monthly values for resources with NQC values that vary, while Table 4 employs the CPUC counting convention of counting local resources at their August NQC values for all months in presenting similar information on resources procured to meet local RA requirements.

Table 4: Resources Shown on 2019 Month Ahead Local RA Plans by LSE Type (MW)

LSE Type	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All	Battery Storage	83	80	80	80	83	82	83	83	83	80	78	80
	Biogas & Biomass	133	163	148	122	148	166	157	156	135	129	135	130
	CHP	954	873	1,029	984	1,159	1,165	1,171	1,151	1,152	903	995	942
	Geothermal	474	482	453	427	431	472	467	423	420	729	712	728
	Hydro	1,690	1,841	2,219	1,959	1,985	2,379	2,383	2,208	2,106	2,192	2,558	2,490
	Natural Gas	16,146	16,084	15,590	15,493	15,927	15,975	16,032	16,959	16,475	17,279	16,010	16,365
	Pumped Hydro	1,256	1,258	883	976	1,258	1,223	1,258	1,231	1,258	885	948	1,258
	Solar	606	823	667	772	814	895	904	908	890	731	725	529
	Wind	440	452	446	480	464	508	475	469	469	383	375	433
	DR Credit	1,190	1,190	1,190	1,190	1,190	1,190	1,190	1,190	1,190	1,190	1,190	1,190
	RMR/LCR/DRAM	499	499	499	522	522	522	522	522	522	522	522	522
	Total	23,471	23,746	23,203	23,005	23,982	24,576	24,642	25,299	24,699	25,023	24,248	24,665
	CPUC Requirement	22,104	21,931	21,936	21,972	22,376	22,254	22,733	22,733	22,733	22,733	22,733	22,733
	% of Requirement	106%	108%	106%	105%	107%	110%	108%	111%	109%	110%	107%	108%
IOU	Battery Storage	4				4		4	3	3			
	Biogas & Biomass	53	52	53	54	67	80	83	59	60	48	39	35
	CHP	407	195	405	187	375	456	411	407	458	185	66	317
	Geothermal	250	250	250	250	250	250	250	250	250	525	525	525
	Hydro	866	1,263	1,375	1,396	1,094	1,560	1,413	1,374	1,417	1,520	1,866	1,476
	Natural Gas	8,400	7,832	7,037	7,720	7,788	7,580	7,925	8,168	7,820	8,307	7,329	7,511
	Pumped Hydro	919	1,133	744	259	1,140	1,114	1,190	1,040	885	754	751	1,082
	Solar	416	622	502	514	476	608	655	552	657	446	506	328
	Wind	359	359	359	333	359	359	359	359	359	312	311	359
	Total	11,675	11,706	10,726	10,715	11,552	12,006	12,291	12,212	11,909	12,097	11,393	11,633

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LSE Type	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CCA	Biogas & Biomass	66	98	60	41	67	77	54	75	65	66	84	75
	CHP	47	228	1	112	80	1	48	22		185	304	13
	Geothermal	139	150	137	118	120	159	159	115	108	129	129	145
	Hydro	758	529	777	498	812	761	874	791	546	628	621	917
	Natural Gas	2,362	2,340	2,531	2,137	2,236	2,452	2,304	2,375	2,266	2,337	2,203	2,195
	Pumped Hydro	306	85	136	650	85	91		191	338	17	171	176
	Solar	65	75	91	160	226	200	145	195	94	200	90	75
	Wind	38	44	37	87	58	76	57	54	54	31	31	33
	Total	3,780	3,550	3,772	3,804	3,685	3,816	3,641	3,817	3,471	3,593	3,633	3,630
ESP	Battery Storage						2						
	Biogas & Biomass	14	14	34	27	14	10	20	22	10	15	12	19
	CHP	13	47	12	12	9	13	17	44	11	11	14	15
	Geothermal	85	82	66	59	61	63	58	58	62	75	58	58
	Hydro	66	48	68	65	79	58	95	43	143	43	71	97
	Natural Gas	1,430	1,445	1,457	1,409	1,422	1,462	1,323	1,409	1,361	1,440	1,486	1,450
	Pumped Hydro	31	40	2	66	33	19	68		35	114	25	
	Solar	125	126	73	97	112	87	103	161	139	85	129	126
	Wind	43	49	50	60	47	73	59	56	56	39	34	40
	Total	1,806	1,851	1,761	1,794	1,778	1,788	1,743	1,793	1,817	1,822	1,830	1,806
CAM/ RMR/ LCR Credit	Battery Storage	80	80	80	80	80	80	80	80	80	80	78	80
	CHP	488	403	610	673	695	695	695	678	683	523	611	596
	Natural Gas	3,953	4,468	4,565	4,227	4,481	4,481	4,481	5,007	5,027	5,196	4,992	5,209
	DR Credit	1,190	1,190	1,190	1,190	1,190	1,190	1,190	1,190	1,190	1,190	1,190	1,190
	RMR/LCR/DR AM	499	499	499	522	522	522	522	522	522	522	522	522
	Total	6,209	6,639	6,944	6,692	6,967	6,967	6,967	7,477	7,501	7,510	7,392	7,596

Table 5 shows the same resources as Table 4, but breaks down showings by local area rather than LSE type. Table 5 indicates that, despite the deficiencies described in Section 4, CPUC-jurisdictional LSEs have, in aggregate, provided sufficient capacity for all local areas except San Diego-Imperial Valley (San Diego-IV), which had deficiencies during the peak months of July through September and November.

Table 5: Resources Shown on 2019 Month Ahead Local RA Plans by Local Area (MW)

Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bay Area	Battery Storage	4				4	2	4	3	3			
	Biogas & Biomass	4	5	6	1	1	5	3	0	0			5
	CHP	236	236	233	121	230	233	232	236	233	231	236	237
	Natural Gas	3,926	3,768	3,863	3,819	3,835	3,842	3,758	3,715	3,750	4,675	3,717	3,984
	Solar	4	12	12	12	12	12	12	12	12	12	12	4
	Wind	184	185	181	191	189	193	189	188	188	183	183	181
	DR Credit	116	116	116	116	116	116	116	116	116	116	116	116
	RMR/DRAM	203	203	203	203	203	203	203	203	203	203	203	203
	Total	4,677	4,525	4,614	4,463	4,590	4,606	4,516	4,473	4,505	5,421	4,467	4,730
	CPUC Requirement	4,031	4,031	4,031	4,031	4,031	4,031	4,031	4,031	4,031	4,031	4,031	4,031
	% of Requirement	116%	112%	114%	111%	114%	114%	112%	111%	112%	134%	111%	117%
Big Creek-Ventura	Biogas & Biomass	21	21	21	21	21	35	30	30	30	19	11	11
	CHP	418	333	333	394	418	418	418	413	403	236	252	288
	Hydro	352	437	486	377	352	352	352	352	363	577	630	639
	Natural Gas	1,431	1,431	1,372	1,430	1,430	1,430	1,430	1,430	1,432	1,385	1,369	1,366
	Solar	67	107	82	148	148	185	162	147	176	99	78	19
	DR Credit	169	169	169	169	169	169	169	169	169	169	169	169
	DRAM	10	10	10	10	10	10	10	10	10	10	10	10
	Total	2,459	2,499	2,463	2,538	2,538	2,589	2,562	2,541	2,573	2,495	2,519	2,502
	CPUC Requirement	2,390	2,390	2,390	2,390	2,390	2,390	2,390	2,390	2,390	2,390	2,390	2,390
	% of Requirement	103%	105%	103%	106%	106%	108%	107%	106%	108%	104%	105%	105%
LA Basin	Battery Storage	42	42	42	42	42	42	42	42	42	42	40	42
	Biogas & Biomass	2	2	2	2	2	2	2	2	2	2	2	2
	CHP	133	133	343	343	343	343	343	328	343	263	341	325
	Hydro	6	3	3	1	1	7	7	7	7	8	6	7
	Natural Gas	6,376	6,360	6,146	6,135	6,138	6,190	6,191	7,191	6,747	6,322	6,295	6,221
	Solar	31	31	31	31	31	31	31	31	28	19	24	
	Wind	131	142	141	165	151	190	162	157	157	75	68	127
	DR Credit	686	686	686	686	686	686	686	686	686	686	686	686
	LCR/DRAM	173	173	173	173	173	173	173	173	173	173	173	173
	Total	7,580	7,572	7,567	7,578	7,567	7,664	7,637	8,617	8,184	7,590	7,635	7,583
	CPUC Requirement	7,417	7,417	7,417	7,417	7,417	7,417	7,417	7,417	7,417	7,417	7,417	7,417
	% of Requirement	102%	102%	102%	102%	102%	103%	103%	116%	110%	102%	103%	102%

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Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Other PG&E Areas	Biogas & Biomass	97	127	110	90	118	119	116	117	96	102	116	105
	CHP	162	166	114	122	163	166	166	166	166	166	159	84
	Geothermal	474	482	453	427	431	472	467	423	420	729	712	728
	Hydro	1,332	1,401	1,730	1,582	1,632	2,020	2,024	1,849	1,736	1,607	1,922	1,845
	Natural Gas	1,437	1,521	1,315	1,328	1,380	1,489	1,413	1,382	1,315	1,380	1,323	1,374
	Pumped Hydro	1,216	1,218	843	936	1,218	1,183	1,218	1,191	1,218	845	908	1,218
	Solar	176	345	214	253	296	339	371	390	346	267	283	178
	DR Credit	184	184	184	184	184	184	184	184	184	184	184	184
	RMR/DRAM	101	101	101	101	101	101	101	101	101	101.25	101.25	101.25
	Total	5,179	5,545	5,065	5,023	5,522	6,073	6,060	5,804	5,583	5,381	5,708	5,817
	CPUC Requirement	4,868	4,868	4,868	4,868	4,868	4,868	4,868	4,868	4,868	4,868	4,868	4,868
	% of Requirement	106%	114%	104%	103%	113%	125%	124%	119%	115%	111%	117%	119%
San Diego-IV ⁴	Battery Storage	38	38	38	38	38	38	38	38	38	38	38	38
	Biogas & Biomass	9	9	9	9	7	7	7	7	7	7	7	7
	CHP	5	5	5	5	5	5	11	7	7	7	7	7
	Natural Gas	2,975	3,005	2,894	2,780	3,144	3,023	3,240	3,241	3,231	3,518	3,307	3,420
	Pumped Hydro	40	40	40	40	40	40	40	40	40	40	40	40
	Solar	328	328	328	328	328	328	328	328	328	334	328	328
	Wind	125	125	125	125	125	125	125	125	125	125	125	125
	DR Credit	34	34	34	34	34	34	34	34	34	34	34	34
	DRAM	12	12	12	35	35	35	35	35	35	35	35	35
	Total	3,566	3,595	3,485	3,394	3,755	3,634	3,857	3,855	3,844	4,136	3,920	4,033
	CPUC Requirement	3,398	3,225	3,230	3,266	3,670	3,548	4,027	4,027	4,027	4,027	4,027	4,027
	% of Requirement	105%	111%	108%	104%	102%	102%	96%	96%	95%	103%	97%	100%

⁴ The San Diego-IV requirement varies by month because CPUC caps LSE local requirements at their system requirement.

3. RESOURCES PROCURED FOR RA-2020 YEAR AHEAD FILINGS

In year ahead filings, LSEs must demonstrate that they have procured resources that meet 90% of their RA requirements for the summer months of May through September. Although there were individual deficiencies, on aggregate CPUC-jurisdictional LSEs met the total CPUC year ahead RA requirement. Table 6 indicates that similar to 2019, the bulk of capacity procured by all LSEs is natural gas.

Table 6: Resources Shown on 2020 Year Ahead (90%) System RA Plans by LSE Type (MW)

LSE Type	Resource Type	May	Jun	Jul	Aug	Sep
All	Battery Storage	99	118	135	132	135
	Biogas and Biomass	279	366	367	371	357
	CHP	1,167	1,316	1,343	1,348	1,286
	Demand Response	20	21	21	22	29
	Geothermal	985	996	1,017	1,008	1,010
	Hydro	3,277	3,949	3,857	3,819	3,723
	Natural Gas	24,858	25,765	25,781	25,512	25,603
	Nuclear	1,597	1,426	2,076	2,078	1,684
	Pumped Hydro	1,038	1,450	1,458	1,456	1,457
	Solar	1,539	3,343	4,046	2,774	1,653
	Unspecified Import	1,520	2,041	2,214	2,655	3,231
	Wind	1,233	1,813	1,302	1,154	845
	DR Credit	1,291	1,417	1,422	1,472	1,399
	RMR/LCR Credit	324	327	327	327	333
	Total	39,227	44,347	45,366	44,128	42,746
	CPUC RA Requirement (90%)	33,272	38,054	42,001	42,376	42,403
	% of Requirement	118%	117%	108%	104%	101%
IOU	Battery Storage	9	12	12	9	12
	Biogas and Biomass	67	119	121	127	125
	CHP	44	175	198	172	152
	Geothermal	652	694	702	702	713
	Hydro	2,501	3,127	2,885	3,004	2,768
	Natural Gas	10,945	10,760	10,974	11,140	11,120
	Nuclear	1,597	1,426	2,076	1,907	1,684
	Pumped Hydro	946	1,402	1,372	1,238	1,369
	Solar	1,109	2,730	3,215	2,153	1,397

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LSE Type	Resource Type	May	Jun	Jul	Aug	Sep
	Unspecified Import	152	569	568	563	1,225
	Wind	1,006	1,465	1,043	936	679
	Total	19,028	22,480	23,166	21,951	21,244
CCA	Battery Storage	10	25	25	25	25
	Biogas and Biomass	195	220	199	211	198
	CHP	131	112	127	154	114
	Demand Response	20	21	21	22	29
	Geothermal	265	234	247	238	229
	Hydro	528	547	644	617	681
	Natural Gas	5,197	5,638	5,438	4,680	4,795
	Nuclear				151	
	Pumped Hydro	73	37	48	153	77
	Solar	293	420	605	452	136
	Unspecified Import	1,220	1,324	1,337	1,783	1,697
	Wind	130	222	163	116	92
	Total	8,062	8,800	8,854	8,602	8,073
ESP	Biogas and Biomass	17	27	47	33	34
	CHP	83	84	83	86	87
	Geothermal	68	68	68	68	68
	Hydro	248	275	328	198	274
	Natural Gas	2,083	2,125	2,004	2,129	2,111
	Nuclear				20	
	Pumped Hydro	19	11	38	65	11
	Solar	137	193	226	169	120
	Unspecified Import	148	148	309	309	309
	Wind	97	126	96	102	74
	Total	2,900	3,057	3,199	3,179	3,088
CAM/RMR/LCR Credit	Battery Storage	80	81	98	98	98
	CHP	909	945	935	936	933
	Natural Gas	6,634	7,242	7,365	7,564	7,577
	DR Credit	1,291	1,417	1,422	1,472	1,399
	RMR/LCR Credit	324	327	327	327	333
	Total	9,238	10,012	10,146	10,397	10,340

Table 7 provides the total amount of imports procured to meet year ahead requirements. This includes both the unspecified imports that are broken out in Table 6, and those categorized by resource type above.

Table 7: All Imports Shown on 2019 Month Ahead RA Plans by LSE Type (MW)

LSE Type	May	Jun	Jul	Aug	Sep
IOU	1,298	1,763	1,743	1,713	2,323
CCA	1,220	1,324	1,337	1,783	1,697
ESP	180	191	358	349	339
Total	2,698	3,278	3,438	3,844	4,359

Table 8 shows the contribution of internal resources, imports, CAM, RMR, LCR and DR towards meeting RA requirements by LSE type. On aggregate, each LSE type met year ahead system RA requirements. Overall about 70% of RA capacity is comprised of internal resources, 7-10% is imports, about 20% is CAM, RMR and LCR resources and the remaining 3% is IOU DR programs.

Table 8: Resource Types Used to Meet 2020 System Requirements (90%) on Year Ahead RA Plans (MW)

LSE Type	Resource Type	May	Jun	Jul	Aug	Sep
All	Internal Resources	27,323	31,102	31,831	29,927	28,077
		70%	70%	70%	68%	66%
	Imports	2,666	3,235	3,389	3,804	4,328
		7%	7%	7%	9%	10%
	CAM/RMR/LCR Credit	7,534	8,594	8,724	8,925	8,940
		19%	19%	19%	20%	21%
	DR Credit	1,291	1,417	1,422	1,472	1,399
		3%	3%	3%	3%	3%
	Total	38,814	44,347	45,365	44,128	42,745
		100%	100%	100%	100%	100%
IOU	Internal Resources	33,275	38,054	41,438	41,832	41,787
		117%	117%	109.5%	105%	102%
	Imports	17,730	20,717	21,423	20,238	18,921
		71%	70%	71%	69%	66%
	CAM/RMR/LCR Credit	1,298	1,763	1,743	1,713	2,323
		5%	6%	6%	6%	8%
	DR Credit	5,123	6,021	6,111	6,452	6,541
		20%	20%	20%	22%	23%
	Total	876	968	969	1,006	968
		3%	3%	3%	3%	3%

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LSE Type	Resource Type	May	Jun	Jul	Aug	Sep
	Total	25,026	29,469	30,245	29,409	28,753
		100%	100%	100%	100%	100%
	IOU RA Requirement	21,899	25,318	27,573	27,889	28,193
	% Shown	114%	116%	110%	105%	102%
CCA	Internal Resources	6,842	7,476	7,517	6,819	6,376
		69%	69%	69%	64%	63%
	Imports	1,220	1,324	1,337	1,783	1,697
		12%	12%	12%	17%	17%
	CAM/RMR/LCR Credit	1,558	1,708	1,771	1,701	1,666
		16%	16%	16%	16%	17%
	DR Credit	283	317	325	336	312
		3%	3%	3%	3%	3%
	Total	9,903	10,824	10,950	10,639	10,051
		100%	100%	100%	100%	100%
	CCA RA Requirement	7,992	9,156	10,053	10,117	9,886
	% Shown	124%	118%	109%	105%	102%
ESP	Internal Resources	2,752	2,909	2,891	2,870	2,780
		71%	72%	69%	70%	71%
	Imports	148	148	309	309	309
		4%	4%	7%	8%	8%
	CAM/RMR/LCR Credit	853	865	842	771	733
		22%	21%	20%	19%	19%
	DR Credit	132	132	128	131	120
		3%	3%	3%	3%	3%
	Total	3,885	4,054	4,170	4,080	3,940
		100%	100%	100%	100%	100%
	ESP RA Requirement	3,384	3,580	3,812	3,825	3,708
	% Shown	115%	113%	109%	107%	106%

In Decision 19-02-022, the CPUC made two significant changes to local RA requirements for 2020. The biggest change is that there is now a three-year local RA requirement which requires each LSE to procure capacity to meet 100% of its local requirements for 2020 and 2021 and 50% of its local requirement of 2022. Table 9, 10, and 11 show the capacity procured to meet year ahead local requirements for 2020, 2021 and 2022, respectively. In aggregate, LSEs procured sufficient local MW to meet the applicable local RA requirements for each year. However, there were collective deficiencies among CPUC jurisdictional LSEs in some local areas as detailed below in

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Table 12.

Table 9: Resources Shown on 2020 Year Ahead Local RA Plans by LSE Type (MW)

LSE Type	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All	Battery Storage	83	80	83	84	84	85	85	85	85	85	85	270
	Biogas and Biomass	189	180	165	168	161	175	168	177	173	172	145	151
	CHP	848	835	823	789	738	807	849	855	838	821	817	850
	Demand Response	2	2	2	2	3	3	3	4	3	3	2	2
	Geothermal	635	635	635	635	635	635	645	645	635	635	635	635
	Hydro	2,096	1,944	1,894	1,927	1,953	1,960	1,920	1,721	1,971	1,933	1,909	1,997
	Natural Gas	15,599	15,457	15,436	15,636	15,504	15,367	15,250	15,211	15,273	15,386	15,457	15,369
	Pumped Hydro	532	847	851	808	839	713	802	1,113	795	839	958	894
	Solar	380	382	396	424	391	419	430	408	394	407	392	408
	Wind	327	321	369	293	290	317	290	284	273	252	267	272
	DR Credit	1,076	1,076	1,076	1,076	1,076	1,076	1,076	1,076	1,076	1,076	1,076	1,076
	RMR/LCR Credit	319	319	319	319	319	319	319	319	319	319	319	319
	Total	22,087	22,079	22,050	22,160	21,993	21,876	21,838	21,899	21,835	21,928	22,062	22,244
	CPUC Requirement	21,721	21,721	21,721	21,721	21,721	21,721	21,721	21,721	21,721	21,721	21,721	21,721
	% of Total	102%	102%	102%	102%	101%	101%	101%	101%	101%	101%	102%	102%
IOU	Battery Storage	3	0	3	4	4	4	4	4	4	4	4	39
	Biogas and Biomass	51	47	41	52	52	51	41	52	52	52	52	52
	CHP	153	150	142	43	36	148	175	152	167	158	163	198
	Geothermal	342	342	342	342	342	342	342	342	342	342	342	342
	Hydro	1,369	1,277	1,320	1,264	1,266	1,282	1,253	1,139	1,348	1,308	1,283	1,448
	Natural Gas	7,268	7,182	7,036	7,290	6,641	5,966	5,911	5,869	5,862	6,051	5,979	5,981
	Pumped Hydro	409	619	708	601	747	665	717	895	707	710	721	584
	Solar	259	256	255	295	258	253	254	259	270	276	261	306
	Wind	246	246	248	182	203	182	181	194	180	179	201	180
	Total	10,100	10,119	10,095	10,073	9,549	8,893	8,878	8,906	8,932	9,080	9,006	9,130
CCA	Biogas and Biomass	128	122	113	106	98	113	114	115	111	104	83	89
	CHP	142	135	134	205	154	110	127	151	119	124	109	109
	Demand Response	2	2	2	2	3	3	3	4	3	3	2	2
	Geothermal	225	225	225	225	225	225	235	235	225	225	225	225
	Hydro	539	479	378	478	478	481	434	404	419	382	428	369

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LSE Type	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Natural Gas	2,322	2,334	2,358	2,231	2,273	2,254	2,265	2,245	2,272	2,268	2,409	2,424
	Pumped Hydro	98	146	106	166	73	37	48	153	77	108	172	220
	Solar	96	101	104	95	99	119	120	104	93	107	107	80
	Wind	51	46	83	75	51	95	74	56	62	45	36	62
	Total	3,603	3,591	3,503	3,583	3,454	3,437	3,420	3,467	3,381	3,366	3,571	3,579
ESP	Biogas and Biomass	10	11	11	10	11	11	13	10	10	16	10	10
	CHP	37	34	31	35	32	33	31	36	36	30	36	34
	Geothermal	68	68	68	68	68	68	68	68	68	68	68	68
	Hydro	188	188	196	185	209	197	233	178	204	243	198	180
	Natural Gas	1,260	1,192	1,289	1,313	1,282	1,292	1,218	1,241	1,283	1,209	1,212	1,311
	Pumped Hydro	25	82	37	41	19	11	38	65	11	21	66	91
	Solar	25	25	38	34	35	48	56	45	31	24	24	23
	Wind	30	29	37	36	36	40	35	34	31	27	29	30
	Total	1,643	1,629	1,707	1,721	1,691	1,699	1,691	1,677	1,674	1,638	1,643	1,746
CAM/ RMR/ LCR	Battery Storage	80	80	80	80	80	81	81	81	81	81	81	231
	CHP	516	516	516	506	516	516	516	516	516	509	509	509
	Natural Gas	4,749	4,749	4,753	4,802	5,308	5,855	5,856	5,856	5,856	5,858	5,857	5,653
	DR Credit	1,076	1,076	1,076	1,076	1,076	1,076	1,076	1,076	1,076	1,076	1,076	1,076
	RMR/LCR Credit	319	319	319	319	319	319	319	319	319	319	319	319
	Total	6,740	6,740	6,744	6,783	7,299	7,847	7,848	7,848	7,848	7,843	7,842	7,788

Table 10: Resources Shown on 2021 Year Ahead Local RA Plans by LSE Type (MW)

LSE Type	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All	Battery Storage	639	639	670	667	667	1,007	1,010	1,010	1,016	1,013	1,013	1,091
	Biogas and Biomass	151	154	159	152	144	164	151	150	145	151	152	160
	CHP	753	755	756	698	729	723	684	690	689	680	689	692
	Demand Response	17	17	17	18	18	20	20	20	19	18	17	17
	Geothermal	593	593	593	593	593	593	593	593	593	593	593	593
	Hydro	2,622	2,224	2,232	2,344	2,366	2,348	2,415	2,300	2,494	2,370	2,300	2,407
	Natural Gas	14,232	14,137	14,117	14,195	14,165	13,879	13,799	13,710	13,722	13,706	13,754	13,660
	Pumped Hydro	600	1,088	1,133	1,009	1,005	1,019	1,022	1,265	1,006	1,002	1,182	1,000
	Solar	542	543	568	593	618	593	624	580	569	539	533	538
	Solar Hybrid	0	0	0	0	0	41.175	103.5	85.5	66	48	48	45
	Wind	308	310	292	267	268	283	257	257	297	204	228	238
	DR Credit	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057
	RMR/LCR Credit	344	344	344	344	344	344	344	344	344	344	344	344
	Total	21,858	21,861	21,939	21,936	21,974	22,072	22,079	22,062	22,017	21,724	21,910	21,842
	CPUC Requirement	21,728	21,728	21,728	21,728	21,728	21,728	21,728	21,728	21,728	21,728	21,728	21,728
	% of Total	101%	101%	101%	101%	101%	102%	102%	102%	101%	100%	101%	101%
IOU	Battery Storage	62	62	62	59	59	59	62	62	62	59	59	62
	Biogas and Biomass	57	64	64	55	62	68	66	56	65	65	65	65
	CHP	259	259	280	220	242	265	267	258	272	256	260	272
	Geothermal	310	310	310	319	310	310	310	310	310	318	310	310
	Hydro	2,012	1,662	1,665	1,703	1,694	1,714	1,724	1,673	1,820	1,823	1,695	1,875
	Natural Gas	5,304	5,254	5,189	5,425	5,341	5,047	5,025	4,926	4,874	4,964	4,938	4,873
	Pumped Hydro	486	872	962	759	802	815	827	1,010	846	833	979	745
	Solar	378	378	380	408	429	382	394	376	383	378	373	386
	Wind	251	255	212	203	214	211	178	196	232	159	169	169
	Total	9,119	9,116	9,124	9,151	9,153	8,871	8,853	8,867	8,864	8,855	8,848	8,757
CCA	Battery Storage	5	5	5	5	5	5	5	5	5	5	5	5
	Biogas and Biomass	77	76	81	83	67	71	49	59	50	66	73	81
	CHP	73	70	55	57	66	61	63	73	58	70	72	61
	Demand Response	17	17	17	18	18	20	20	20	19	18	17	17
	Geothermal	216	216	216	216	216	216	216	216	216	216	216	216

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LSE Type	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Hydro	390	364	361	410	448	401	434	395	439	303	410	345
	Natural Gas	2,364	2,309	2,329	2,174	2,268	2,295	2,234	2,255	2,296	2,211	2,259	2,228
	Pumped Hydro	88	168	144	250	168	159	185	202	125	152	176	233
	Solar	135	134	152	148	152	175	194	168	150	132	132	130
	Solar Hybrid	0	0	0	0	0	41	104	86	66	48	48	45
	Wind	34	39	65	49	39	62	64	51	55	34	44	54
	Total	3,399	3,398	3,425	3,409	3,448	3,506	3,566	3,530	3,478	3,256	3,453	3,415
ESP	Battery Storage	0	0	0	0	0	0	0	0	0	0	0	0
	Biogas and Biomass	17	14	14	14	15	25	36	35	30	20	14	14
	CHP	1	6	1	1	1	6	1	6	6	1	4	6
	Geothermal	67	67	67	58	67	67	67	67	67	59	67	67
	Hydro	220	198	206	231	224	233	257	232	235	244	195	187
	Natural Gas	1,154	1,164	1,184	1,208	1,171	1,157	1,157	1,144	1,167	1,145	1,171	1,174
	Pumped Hydro	26	48	27	0	35	45	10	52	35	16	26	21
	Solar	29	31	37	37	37	37	37	37	37	28	28	22
	Wind	23	15	15	15	15	10	15	10	10	10	15	15
	Total	1,537	1,544	1,551	1,564	1,565	1,580	1,580	1,583	1,587	1,524	1,520	1,506
CAM/ RMR/ LCR	Battery Storage	572	572	603	603	603	943	943	943	949	949	949	1,024
	CHP	420	420	420	420	420	391	353	353	353	353	353	353
	Natural Gas	5,410	5,410	5,415	5,388	5,385	5,380	5,383	5,385	5,385	5,386	5,386	5,385
	DR Credit	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057
	RMR/LCR Credit	344	344	344	344	344	344	344	344	344	344	344	344
	Total	7,803	7,803	7,839	7,812	7,809	8,115	8,080	8,082	8,088	8,089	8,089	8,163

Table 11: Resources Shown on 2022 Year Ahead Local RA Plans by LSE Type (MW)

LSE Type	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All	Battery Storage	995	992	992	992	992	992	992	992	992	992	992	992
	Biogas and Biomass	128	110	117	109	100	107	103	113	97	102	100	103
	CHP	651	653	653	629	667	664	414	417	419	415	422	423
	Demand Response	2	2	2	2	2	2	2	2	2	2	2	2
	Geothermal	372	372	372	372	372	372	372	372	372	372	372	372
	Hydro	1,275	1,198	1,195	1,202	1,222	1,231	1,304	1,116	1,259	1,090	1,312	1,286
	Natural Gas	8,443	8,490	8,448	8,510	8,326	8,427	8,576	8,620	8,654	8,596	8,468	8,471
	Pumped Hydro	345	392	433	332	427	336	403	505	327	394	378	400
	Solar	468	467	485	516	545	561	565	558	539	523	523	526
	Solar Hybrid	96.12	93.34	135	126.7	129.5	171.2	193.4	160.06	123.92	90.56	90.56	85
	Wind	208	202	252	233	233	254	226	220	204	179	191	194
	DR Credit	513	513	513	513	513	513	513	513	513	513	513	513
	RMR/LCR Credit	169	169	169	169	169	169	169	169	169	169	169	169
	Total	13,666	13,654	13,766	13,705	13,697	13,800	13,833	13,758	13,671	13,438	13,533	13,536
	CPUC Requirement	10,408	10,408	10,408	10,408	10,408	10,408	10,408	10,408	10,408	10,408	10,408	10,408
	% of Total	131%	131%	132%	132%	132%	133%	133%	132%	131%	129%	130%	130%
IOU	Battery Storage	66	63	63	63	63	63	63	63	63	63	63	63
	Biogas and Biomass	54	41	43	48	49	46	43	53	42	42	42	41
	CHP	221	221	221	221	260	260	260	260	260	260	309	309
	Geothermal	153	153	153	153	153	153	153	153	153	153	153	153
	Hydro	768	715	714	719	691	753	782	693	784	732	838	861
	Natural Gas	1,920	2,019	1,926	2,034	1,960	2,007	2,216	2,250	2,237	2,233	2,073	2,075
	Pumped Hydro	345	319	409	257	406	311	364	409	326	378	378	351
	Solar	315	315	315	349	374	369	362	372	371	372	372	377
	Wind	170	168	183	180	180	187	177	175	169	157	162	163
	Total	4,012	4,014	4,027	4,024	4,136	4,149	4,420	4,428	4,405	4,390	4,390	4,393
CCA	Battery Storage	5	5	5	5	5	5	5	5	5	5	5	5
	Biogas and Biomass	67	62	67	54	44	54	53	53	48	43	49	53
	CHP	40	39	39	33	32	29	42	43	48	40	2	3
	Demand Response	2	2	2	2	2	2	2	2	2	2	2	2
	Geothermal	187	187	187	187	187	187	187	187	187	187	187	187

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LSE Type	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Hydro	314	290	288	290	334	285	326	232	284	188	278	234
	Natural Gas	1,534	1,485	1,531	1,484	1,493	1,543	1,489	1,501	1,537	1,485	1,547	1,552
	Pumped Hydro		73	24	75	21	25	33	87	1	16		40
	Solar	132	131	149	145	149	170	182	165	147	129	129	127
	Solar Hybrid	96	93	135	127	129	171	193	160	124	91	91	85
	Wind	38	34	69	53	53	67	49	45	35	22	29	31
	Total	2,415	2,401	2,495	2,454	2,449	2,539	2,561	2,481	2,417	2,208	2,319	2,319
ESP	Battery Storage	18	18	18	18	18	18	18	18	18	18	18	18
	Biogas and Biomass	7	7	7	7	7	7	7	7	7	17	9	9
	CHP	2	5	5	5	5	5	2	4	1	5	1	1
	Geothermal	32	32	32	32	32	32	32	32	32	32	32	32
	Hydro	193	193	193	193	197	193	196	191	191	170	196	191
	Natural Gas	1,125	1,122	1,122	1,122	1,118	1,122	1,116	1,114	1,125	1,122	1,094	1,091
	Pumped Hydro							6	9				9
	Solar	22	22	22	22	22	22	22	22	22	22	22	22
	Total	1,399	1,399	1,399	1,399	1,399	1,399	1,399	1,396	1,396	1,386	1,372	1,373
CAM/ RMR/ LCR	Battery Storage	906	906	906	906	906	906	906	906	906	906	906	906
	CHP	388	388	388	370	370	370	110	110	110	110	110	110
	Natural Gas	3,864	3,864	3,869	3,870	3,755	3,755	3,755	3,755	3,755	3,756	3,754	3,753
	DR Credit	513	513	513	513	513	513	513	513	513	513	513	513
	RMR/LCR Credit	169	169	169	169	169	169	169	169	169	169	169	169
	Total	5,840	5,840	5,845	5,828	5,713	5,713	5,453	5,453	5,453	5,454	5,452	5,451

The other significant change in RA requirements that was introduced for 2020 was the disaggregation of the “PG&E Other” area. Fresno, Humboldt, Kern, North Coast/North Bay, Sierra, and Stockton were previously aggregated to one “PG&E Other” local area for compliance purposes, whereas now, local RA requirements are assigned for each of the 10 local areas separately. For 2020, aggregate deficiencies among CPUC jurisdictional LSEs were seen for the Bay Area, Big Creek-Ventura, Kern, North Coast/North Bay, San Diego-IV, Sierra and Stockton local areas as depicted in

Table 12.

Table 12: Resources Shown on 2020 Year Ahead Local RA Plans by Local Area (MW)

Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bay Area	Battery Storage	3	0	0	0	0	0	0	0	0	0	0	0
	Biogas and Biomass	1	1	1	0	0	0	5	5	2	0	0	0
	CHP	230	226	215	199	122	197	230	231	216	215	199	231
	Natural Gas	3,441	3,455	3,424	3,586	3,557	3,436	3,412	3,416	3,443	3,453	3,517	3,504
	Solar	8	8	8	3	3	3	3	3	3	3	3	3
	Wind	137	133	165	94	90	111	90	86	80	66	77	81
	DR Credit	100	100	100	100	100	100	100	100	100	100	100	100
	RMR	148	148	148	148	148	148	148	148	148	148	148	148
	Total	4,068	4,071	4,061	4,130	4,020	3,995	3,988	3,989	3,992	3,985	4,044	4,067
	CPUC Requirement	4,087	4,087	4,087	4,087	4,087	4,087	4,087	4,087	4,087	4,087	4,087	4,087
	% of Total	100%	100%	99%	101%	98%	98%	98%	98%	98%	98%	99%	100%
Big Creek-Ventura	Battery Storage	0	0	1	1	1	1	1	1	1	1	1	151
	Biogas and Biomass	15	15	15	15	15	15	15	15	15	15	15	15
	CHP	160	160	160	150	160	160	160	160	160	160	160	160
	Hydro	227	227	227	227	227	227	227	227	227	227	227	227
	Natural Gas	1,496	1,496	1,496	1,496	1,496	1,496	1,496	1,496	1,496	1,496	1,496	1,395
	Solar	52	51	60	59	59	68	73	66	58	51	51	50
	DR Credit	137	137	137	137	137	137	137	137	137	137	137	137
	Total	2,087	2,086	2,096	2,085	2,095	2,104	2,109	2,102	2,094	2,087	2,087	2,135
	CPUC Requirement	2,183	2,183	2,183	2,183	2,183	2,183	2,183	2,183	2,183	2,183	2,183	2,183
	% of Total	96%	96%	96%	95%	96%	96%	97%	96%	96%	96%	96%	98%
Fresno	Biogas and Biomass	41	36	43	43	43	43	43	43	43	43	22	20
	CHP	1	3	3	2	2	2	3	3	3	2	2	3
	Hydro	407	256	248	252	274	259	295	137	402	355	266	378
	Natural Gas	709	567	547	583	501	585	540	485	534	513	502	519
	Pumped Hydro	492	807	811	768	799	673	762	1,073	755	799	918	855
	Solar	62	66	72	100	73	84	82	76	68	66	60	65
	DR Credit	38	38	38	38	38	38	38	38	38	38	38	38

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Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Total	1,750	1,773	1,762	1,787	1,731	1,684	1,764	1,854	1,843	1,816	1,808	1,878
	CPUC Requirement	1,524	1,524	1,524	1,524	1,524	1,524	1,524	1,524	1,524	1,524	1,524	1,524
	% of Total	115%	116%	116%	117%	114%	111%	116%	122%	121%	119%	119%	123%
Humboldt	Biogas and Biomass	28	28	28	28	28	28	28	28	28	28	28	28
	Natural Gas	107	107	107	112	107	107	105	105	101	97	115	116
	Total	135	135	135	140	135	135	133	133	129	125	144	144
	CPUC Requirement	121	121	121	121	121	121	121	121	121	121	121	121
	% of Total	112%	112%	112%	116%	112%	112%	110%	110%	107%	103%	119%	119%
Kern	Biogas and Biomass	3	3	3	4	4	3	3	4	4	4	4	4
	CHP	53	40	37	54	55	57	56	57	54	47	56	58
	Demand Response	0	0	0	1	1	2	2	2	2	1	1	0
	Natural Gas	274	274	274	274	274	274	274	274	274	274	274	219
	Solar	23	22	22	27	21	29	38	30	30	53	43	57
	DR Credit	84	84	84	84	84	84	84	84	84	84	84	84
	Total	437	423	420	444	439	449	457	451	448	463	462	422
	CPUC Requirement	422	422	422	422	422	422	422	422	422	422	422	422
	% of Total	104%	100%	100%	105%	104%	107%	108%	107%	106%	110%	110%	100%
LA Basin	Battery Storage	42	42	44	44	44	45	45	45	45	45	45	80
	Biogas and Biomass	2	2	2	2	2	2	2	2	2	2	2	2
	CHP	350	350	350	350	350	350	350	350	350	350	350	350
	Hydro	11	11	11	11	11	11	11	11	11	11	11	11
	Natural Gas	5,776	5,764	5,793	5,791	5,798	5,788	5,787	5,786	5,783	5,759	5,757	5,799
	Solar	18	18	18	18	18	18	18	18	18	18	18	18
	Wind	90	89	101	97	97	104	98	97	92	86	89	90
	DR Credit	645	645	645	645	645	645	645	645	645	645	645	645
	LCR Credit	171	171	171	171	171	171	171	171	171	171	171	171
	Total	7,105	7,092	7,135	7,129	7,136	7,134	7,127	7,125	7,117	7,087	7,088	7,166
	CPUC Requirement	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667
	% of Total	107%	106%	107%	107%	107%	107%	107%	107%	107%	106%	106%	107%
NCNB	Biogas and	4	4	4	4	4	4	4	4	4	4	4	4

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Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Biomass												
	Geothermal	635	635	635	635	635	635	645	645	635	635	635	635
	Hydro	10	10	10	10	10	10	10	10	10	10	10	10
	DR Credit	5	5	5	5	5	5	5	5	5	5	5	5
	Total	654	654	654	654	654	654	664	664	654	654	654	654
	CPUC Requirement	667	667	667	667	667	667	667	667	667	667	667	667
	% of Total	98%	98%	98%	98%	98%	98%	100%	100%	98%	98%	98%	98%
San Diego-IV	Battery Storage	38	38	38	39	39	39	39	39	39	39	39	39
	Biogas and Biomass	6	6	6	6	6	6	6	6	6	6	6	6
	CHP	4	4	4	4	4	4	4	4	4	4	4	4
	Natural Gas	3,317	3,317	3,317	3,317	3,314	3,208	3,156	3,156	3,156	3,317	3,317	3,317
	Pumped Hydro	40	40	40	40	40	40	40	40	40	40	40	40
	Solar	216	216	216	216	216	216	216	216	216	216	216	216
	Wind	100	100	102	102	102	102	101	101	100	100	100	100
	DR Credit	15	15	15	15	15	15	15	15	15	15	15	15
	Total	3,736	3,736	3,738	3,739	3,736	3,630	3,577	3,577	3,576	3,737	3,737	3,737
	CPUC Requirement	3,896	3,896	3,896	3,896	3,896	3,896	3,896	3,896	3,896	3,896	3,896	3,896
	% of Total	96%	96%	96%	96%	96%	93%	92%	92%	92%	96%	96%	96%
Sierra	Biogas and Biomass	61	52	29	39	30	39	29	38	38	38	34	38
	CHP	8	8	8	8	8	8	8	8	8	0	0	0
	Hydro	1,331	1,334	1,296	1,329	1,333	1,344	1,269	1,242	1,239	1,250	1,301	1,275
	Natural Gas	163	163	165	163	145	163	179	185	175	164	163	184
	DR Credit	28	28	28	28	28	28	28	28	28	28	28	28
	Total	1,591	1,586	1,526	1,567	1,543	1,582	1,512	1,501	1,488	1,480	1,527	1,525
	CPUC Requirement	1,587	1,587	1,587	1,587	1,587	1,587	1,587	1,587	1,587	1,587	1,587	1,587
	% of Total	100%	100%	96%	99%	97%	100%	95%	95%	94%	93%	96%	96%
Stockton	Biogas and Biomass	30	35	35	28	31	36	34	34	33	34	32	36
	CHP	44	45	45	22	38	30	39	43	44	42	46	45
	Demand Response	2	2	2	2	2	2	2	2	2	2	2	2
	Hydro	109	106	104	99	98	110	108	94	82	80	94	96

The State of the Resource Adequacy Market - Revised

Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Natural Gas	315	315	314	313	313	310	302	310	311	314	317	317
	Solar	0	0	0	0	1	0	0	0	0	0	0	0
	DR Credit	23	23	23	23	23	23	23	23	23	23	23	23
	Total	523	525	522	487	505	510	507	506	495	495	513	518
	CPUC Requirement	567	567	567	567	567	567	567	567	567	567	567	567
	% of Total	92%	93%	92%	86%	89%	90%	89%	89%	87%	87%	90%	91%

As shown in Table 13, for 2021, LSEs were collectively able to meet local requirements in more local areas, though deficiencies were still present in the Kern, San Diego-IV, Sierra and Stockton local areas. Table 14 reflects the fact that no collective deficiencies were present for 2022, though LSEs were only required to meet 50% of the local requirement for Year 3.

Table 13: Resources Shown on 2021 Year Ahead Local RA Plans by Local Area (MW)

Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bay Area	Battery Storage	196	196	196	193	193	493	496	496	496	493	493	571
	Biogas and Biomass	1	1	1	0	0	0	1	0	1	0	0	1
	CHP	216	216	217	177	202	218	218	217	213	213	215	217
	Natural Gas	3,394	3,390	3,406	3,488	3,463	3,125	3,141	3,141	3,102	3,138	3,179	3,085
	Solar	8	8	8	3	3	3	8	8	8	3	3	8
	Wind	123	129	111	87	88	100	77	78	119	34	48	55
	DR Credit	100	100	100	100	100	100	100	100	100	100	100	100
	RMR	148	148	148	148	148	148	148	148	148	148	148	148
	Total	4,186	4,188	4,187	4,196	4,197	4,187	4,189	4,188	4,187	4,129	4,186	4,185
	CPUC Requirement	4,053	4,053	4,053	4,053	4,053	4,053	4,053	4,053	4,053	4,053	4,053	4,053
	% of Total	103%	103%	103%	104%	104%	103%	103%	103%	103%	102%	103%	103%
Big Creek-Ventura	Battery Storage	175	175	206	206	206	206	206	206	206	206	206	206
	Biogas and Biomass	26	23	26	25	22	29	26	26	25	25	25	24
	CHP	79	79	79	79	79	79	41	41	41	41	41	41
	Hydro	735	735	735	735	735	735	735	735	735	735	735	735

The State of the Resource Adequacy Market - Revised

Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Natural Gas	989	989	995	999	1,003	1,005	1,003	1,003	1,003	999	989	989
	Pumped Hydro	199	199	199	199	199	199	199	199	199	199	199	199
	Solar	166	166	166	166	166	163	157	166	166	166	166	166
	DR Credit	133	133	133	133	133	133	133	133	133	133	133	133
	Total	2,502	2,499	2,539	2,542	2,543	2,549	2,500	2,509	2,508	2,504	2,494	2,493
	CPUC Requirement	2,332	2,332	2,332	2,332	2,332	2,332	2,332	2,332	2,332	2,332	2,332	2,332
	% of Total	107%	107%	109%	109%	109%	109%	107%	108%	108%	107%	107%	107%
Fresno	Biogas and Biomass	26	26	26	26	26	26	19	19	19	19	26	26
	CHP	2	2	2	2	2	2	3	3	3	3	2	3
	Hydro	483	91	91	122	174	143	204	91	302	314	174	350
	Natural Gas	674	579	536	589	525	578	486	396	444	402	407	408
	Pumped Hydro	362	850	894	769	765	780	783	1,026	767	763	943	761
	Solar	65	63	81	111	136	111	147	97	85	68	62	65
	Solar Hybrid	0	0	0	0	0	41	104	86	66	48	48	45
	DR Credit	38	38	38	38	38	38	38	38	38	38	38	38
	Total	1,650	1,649	1,669	1,658	1,667	1,720	1,783	1,756	1,724	1,655	1,701	1,696
	CPUC Requirement	1,527	1,527	1,527	1,527	1,527	1,527	1,527	1,527	1,527	1,527	1,527	1,527
	% of Total	108%	108%	109%	109%	109%	113%	117%	115%	113%	108%	111%	111%
Humboldt	Biogas and Biomass	15	15	15	15	15	15	15	15	15	15	15	15
	Natural Gas	113	118	118	117	119	119	119	119	119	110	119	119
	Total	128	133	133	133	134	134	134	134	134	125	134	134
	CPUC Requirement	122	122	122	122	122	122	122	122	122	122	122	122
	% of Total	105%	109%	109%	109%	110%	110%	110%	110%	110%	103%	110%	110%
Kern	Biogas and Biomass	4	4	4	4	4	4	4	4	4	4	4	4
	CHP	57	57	57	57	57	57	57	57	57	57	57	57
	Demand Response	1	1	1	1	2	3	3	3	3	2	1	1
	Natural Gas	214	214	214	214	214	215	215	215	215	214	214	214
	Solar	57	57	57	57	57	59	59	55	57	57	57	62
	DR Credit	84	84	84	84	84	84	84	84	84	84	84	84
	Total	417	417	417	417	418	422	422	418	420	418	417	422

The State of the Resource Adequacy Market - Revised

Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	CPUC Requirement	421	421	421	421	421	421	421	421	421	421	421	421
	% of Total	99%	99%	99%	99%	99%	100%	100%	99%	100%	99%	99%	100%
LA Basin	Battery Storage	200	200	200	200	200	200	200	200	200	200	200	200
	Biogas and Biomass	7	7	7	7	7	7	7	7	7	7	7	7
	CHP	350	350	350	350	350	321	321	321	321	321	321	321
	Demand Response	15	15	15	15	15	15	15	15	15	15	15	15
	Hydro	11	11	11	11	11	11	11	11	11	11	11	11
	Natural Gas	5,079	5,079	5,079	5,069	5,079	5,079	5,079	5,079	5,079	5,079	5,079	5,079
	Solar	20	20	20	20	20	20	20	20	20	20	20	20
	Wind	68	68	72	72	72	74	71	70	68	52	54	54
	DR Credit	628	628	628	628	628	628	628	628	628	628	628	628
	LCR Credit	196	196	196	196	196	196	196	196	196	196	196	196
	Total	6,574	6,574	6,578	6,568	6,578	6,551	6,548	6,547	6,545	6,529	6,531	6,531
	CPUC Requirement	6,474	6,474	6,474	6,474	6,474	6,474	6,474	6,474	6,474	6,474	6,474	6,474
	% of Total	102%	102%	102%	101%	102%	101%	101%	101%	101%	101%	101%	101%
NCNB	Biogas and Biomass	4	4	4	4	4	4	4	4	4	4	4	4
	Geothermal	593	593	593	593	593	593	593	593	593	593	593	593
	Hydro	10	10	10	10	10	10	10	10	10	10	10	10
	DR Credit	5	5	5	5	5	5	5	5	5	5	5	5
	Total	612	612	612	612	612	612	612	612	612	612	612	612
	CPUC Requirement	608	608	608	608	608	608	608	608	608	608	608	608
	% of Total	101%	101%	101%	101%	101%	101%	101%	101%	101%	101%	101%	101%
San Diego-IV	Battery Storage	69	69	69	69	69	109	109	109	115	115	115	115
	Biogas and Biomass	6	6	6	6	6	6	6	6	6	6	6	6
	CHP	4	4	4	4	4	4	4	4	4	4	4	4
	Natural Gas	3,309	3,309	3,309	3,309	3,308	3,306	3,305	3,306	3,307	3,309	3,309	3,309
	Pumped Hydro	40	40	40	40	40	40	40	40	40	40	40	40
	Solar	225	227	234	234	234	235	233	233	233	223	223	216
	Wind	117	114	109	109	109	109	109	109	109	117	127	129
	DR Credit	16	16	16	16	16	16	16	16	16	16	16	16

The State of the Resource Adequacy Market - Revised

Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Total	3,786	3,785	3,787	3,787	3,786	3,825	3,822	3,823	3,830	3,830	3,840	3,835
	CPUC Requirement	4,037	4,037	4,037	4,037	4,037	4,037	4,037	4,037	4,037	4,037	4,037	4,037
	% of Total	94%	94%	94%	94%	94%	95%	95%	95%	95%	95%	95%	95%
Sierra	Biogas and Biomass	29	34	36	36	30	39	38	38	33	38	34	38
	Hydro	1,284	1,278	1,288	1,366	1,334	1,348	1,353	1,353	1,341	1,215	1,276	1,205
	Natural Gas	145	145	145	95	142	142	142	142	142	142	142	142
	DR Credit	28	28	28	28	28	28	28	28	28	28	28	28
	Total	1,487	1,486	1,498	1,525	1,535	1,558	1,562	1,562	1,545	1,424	1,480	1,413
	CPUC Requirement	1,589	1,589	1,589	1,589	1,589	1,589	1,589	1,589	1,589	1,589	1,589	1,589
	% of Total	94%	94%	94%	96%	97%	98%	98%	98%	97%	90%	93%	89%
Stockton	Biogas and Biomass	35	35	35	30	31	36	33	33	33	34	33	36
	CHP	44	47	46	29	35	42	41	46	49	40	48	49
	Demand Response	2	2	2	2	2	2	2	2	2	2	2	2
	Hydro	98	98	97	100	102	101	102	100	96	85	94	96
	Natural Gas	315	315	314	313	312	310	309	310	311	313	315	314
	Solar	0	0	0	0	1	1	0	0	0	0	0	0
	DR Credit	23	23	23	23	23	23	23	23	23	23	23	23
	Total	517	519	517	497	505	514	509	513	514	497	514	519
	CPUC Requirement	567	567	567	567	567	567	567	567	567	567	567	567
	% of Total	91%	91%	91%	88%	89%	91%	90%	90%	91%	88%	91%	92%

Table 14: Resources Shown on 2022 Year Ahead Local RA Plans by Local Area (MW)

Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bay Area	Battery Storage	571	568	568	568	568	568	568	568	568	568	568	568
	CHP	217	217	217	217	217	217	217	217	217	217	217	217
	Natural Gas	1,646	1,655	1,651	1,651	1,651	1,650	1,664	1,663	1,650	1,650	1,653	1,654
	Solar	3	3	3	3	3	3	3	3	3	3	3	3
	Wind	66	62	91	75	75	86	72	69	60	49	56	57
	DR Credit	49	49	49	49	49	49	49	49	49	49	49	49

The State of the Resource Adequacy Market - Revised

Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	RMR	74	74	74	74	74	74	74	74	74	74	74	74
	Total	2,627	2,629	2,654	2,638	2,638	2,648	2,648	2,644	2,622	2,611	2,621	2,623
	CPUC Requirement	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012	2,012
	% of Total	131%	131%	132%	131%	131%	132%	132%	131%	130%	130%	130%	130%
Big Creek-Ventura	Battery Storage	192	192	192	192	192	192	192	192	192	192	192	192
	Biogas and Biomass	15	12	15	13	10	17	14	15	13	13	13	12
	CHP	66	66	66	66	66	66	66	66	66	66	66	66
	Hydro	294	294	294	294	294	294	294	294	294	294	294	294
	Natural Gas	609	609	614	617	620	622	620	620	620	617	609	609
	Solar	166	166	166	166	166	163	157	166	166	166	166	166
	DR Credit	64	64	64	64	64	64	64	64	64	64	64	64
	Total	1,406	1,403	1,411	1,412	1,412	1,418	1,407	1,417	1,415	1,412	1,404	1,403
	CPUC Requirement	1,169	1,169	1,169	1,169	1,169	1,169	1,169	1,169	1,169	1,169	1,169	1,169
	% of Total	120%	120%	121%	121%	121%	121%	120%	121%	121%	121%	120%	120%
Fresno	Biogas and Biomass	19	19	19	19	19	19	19	19	19	19	19	19
	CHP	2	2	2	2	2	2	3	3	3	3	2	3
	Hydro	178	91	91	119	143	143	143	91	225	174	171	143
	Natural Gas	411	452	409	448	356	443	396	351	399	357	362	363
	Pumped Hydro	305	352	392	291	387	297	363	465	287	354	338	359
	Solar	65	63	81	111	85	103	114	97	79	62	62	65
	Solar Hybrid	51	50	72	68	69	92	104	86	66	48	48	45
	DR Credit	19	19	19	19	19	19	19	19	19	19	19	19
	Total	1,050	1,047	1,085	1,077	1,080	1,117	1,160	1,130	1,098	1,036	1,021	1,016
	CPUC Requirement	768	768	768	768	768	768	768	768	768	768	768	768
	% of Total	137%	136%	141%	140%	141%	146%	151%	147%	143%	135%	133%	132%
Humboldt	Biogas and Biomass	15	15	15	15	15	15	15	15	15	15	15	15
	Natural Gas	71	71	71	71	73	73	75	75	75	71	69	69
	DR Credit	0	0	0	0	0	0	0	0	0	0	0	0
	Total	86	86	86	86	88	88	90	90	90	86	84	84
	CPUC Requirement	64	64	64	64	64	64	64	64	64	64	64	64

The State of the Resource Adequacy Market - Revised

Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	% of Total	135%	135%	135%	135%	138%	138%	141%	141%	141%	135%	132%	132%
Kern	Biogas and Biomass	0	0	0	0	4	4	4	4	4	4	4	4
	CHP	18	18	18	0	39	39	39	39	39	39	39	39
	Natural Gas	168	168	168	168	66	67	67	67	67	66	66	65
	Solar	2	2	2	2	59	59	59	59	59	59	59	59
	Solar Hybrid	45	44	63	59	60	80	90	75	58	43	43	40
	DR Credit	42	42	42	42	42	42	42	42	42	42	42	42
	Total	275	274	293	271	270	291	301	286	269	253	253	249
	CPUC Requirement	215	215	215	215	215	215	215	215	215	215	215	215
	% of Total	128%	128%	136%	126%	126%	135%	140%	133%	125%	118%	118%	116%
LA Basin	Battery Storage	100	100	100	100	100	100	100	100	100	100	100	100
	CHP	304	304	304	304	304	304	44	44	44	44	44	44
	Hydro	11	11	11	11	11	11	11	11	11	11	11	11
	Natural Gas	2,402	2,402	2,402	2,402	2,402	2,402	2,680	2,680	2,680	2,680	2,680	2,680
	Solar	17	17	17	17	17	17	17	17	17	17	17	17
	Wind	29	28	33	32	32	35	32	31	29	23	24	24
	DR Credit	303	303	303	303	303	303	303	303	303	303	303	303
	LCR Credit	95	95	95	95	95	95	95	95	95	95	95	95
	Total	3,262	3,261	3,266	3,265	3,265	3,268	3,283	3,282	3,280	3,274	3,275	3,275
	CPUC Requirement	2,825	2,825	2,825	2,825	2,825	2,825	2,825	2,825	2,825	2,825	2,825	2,825
	% of Total	115%	115%	116%	116%	116%	116%	116%	116%	116%	116%	116%	116%
NCNB	Biogas and Biomass	4	4	4	4	4	4	4	4	4	4	4	4
	Geothermal	372	372	372	372	372	372	372	372	372	372	372	372
	Hydro	9	9	9	9	9	9	9	9	9	9	9	9
	DR Credit	3	3	3	3	3	3	3	3	3	3	3	3
	Total	387	387	387	387	387	387	387	387	387	387	387	387
	CPUC Requirement	310	310	310	310	310	310	310	310	310	310	310	310
	% of Total	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%	125%
San Diego-IV	Battery Storage	132	132	132	132	132	132	132	132	132	132	132	132
	Biogas and Biomass	6	6	6	6	6	6	6	6	6	6	6	6

The State of the Resource Adequacy Market - Revised

Local Area	Resource Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	CHP	4	4	4	4	4	4	4	4	4	4	4	4
	Natural Gas	2,774	2,774	2,774	2,774	2,774	2,774	2,774	2,774	2,774	2,774	2,774	2,774
	Pumped Hydro	40	40	40	40	40	40	40	40	40	40	40	40
	Solar	216	216	216	216	216	216	216	216	216	216	216	216
	Wind	113	111	128	125	125	133	123	121	114	107	111	112
	DR Credit	9	9	9	9	9	9	9	9	9	9	9	9
	Total	3,294	3,292	3,309	3,306	3,306	3,314	3,304	3,302	3,295	3,288	3,292	3,293
	CPUC Requirement	1,966	1,966	1,966	1,966	1,966	1,966	1,966	1,966	1,966	1,966	1,966	1,966
	% of Total	168%	167%	168%	168%	168%	169%	168%	168%	168%	167%	167%	168%
Sierra	Biogas and Biomass	39	24	29	39	30	29	29	38	24	28	24	28
	Hydro	765	776	774	762	757	767	753	709	717	600	733	734
	Natural Gas	142	142	142	142	142	142	142	142	142	142	142	142
	DR Credit	13	13	13	13	13	13	13	13	13	13	13	13
	Total	959	956	958	957	942	952	937	902	896	783	912	918
	CPUC Requirement	794	794	794	794	794	794	794	794	794	794	794	794
	% of Total	121%	120%	121%	120%	119%	120%	118%	114%	113%	99%	115%	116%
Stockton	Biogas and Biomass	30	30	29	13	13	13	13	13	13	13	15	15
	CHP	39	41	41	35	34	31	40	43	45	41	49	49
	Demand Response	2	2	2	2	2	2	2	2	2	2	2	2
	Hydro	18	18	17	7	8	7	93	2	2	2	93	95
	Natural Gas	220	217	217	237	242	253	157	249	247	238	115	115
	DR Credit	11	11	11	11	11	11	11	11	11	11	11	11
	Total	319	317	317	304	309	316	316	320	320	307	285	286
	CPUC Requirement	285	285	285	285	285	285	285	285	285	285	285	285
	% of Total	112%	111%	111%	107%	108%	111%	111%	112%	112%	107%	100%	100%

4.DEVELOPMENT OF PREFERRED RESOURCES IN LOCAL AND SYSTEM AREAS

Resources must be on the Net Qualifying Capacity (NQC) List in order to be counted for RA. Table 15 identifies the new preferred resources that were added to the NQC list from August to December 2019. Only nine new preferred resources with a combined net dependable capacity of 136.1 MW were added during this period, however most are currently “energy only” resources so have NQC values of 0. Total August NQC added was 32.4 MW. All of these resources are contracted with IOUs.

Table 15: New Preferred Resources on NQC List August-December 2019.

Local Area	LSE Type	Resource ID	Resource Name	Technology	NQC	Net Dependable Capacity
Big Creek-Ventura	IOU	BGSKYN_2_BS3SR3	Big Sky Solar 3	Solar PV	5.4	20
		DELSUR_6_SOLAR4	Radiance Solar 4	Solar PV	0	1.5
		DELSUR_6_SOLAR5	Radiance Solar 5	Solar PV	0	1.5
		SAUGUS_6_CREST	East Portal Hydro	Hydro	0	1.0
Fresno	IOU	GIFFEN_6_SOLAR1	Aspiration Solar G	Solar PV	0	9.0
		STROUD_6_WWHSR1	Winter Wheat Solar Farm	Solar PV	0	1.5
		SCHNDR_1_OS2BM2	Open Sky Digester Genset 2	Biogas	0	0.8
		DAIRLD_1_MD2BM1	Madera Digester Genset 2	Biogas	0	0.8
CAISO System	IOU	VALTNE_2_AVASR1	Valentine Solar	Solar PV	27	100

5. LOCAL, SYSTEM AND FLEXIBLE RA DEFICIENCIES

On October 31, 2018, 10 of the 36 Commission-jurisdictional LSEs, submitted local waiver requests due to their inability to procure sufficient capacity in one or more local areas to meet their 2019 year ahead local RA requirements. These LSEs included:

- one IOU (San Diego Gas & Electric Company (SDG&E));
- six CCAs (East Bay Community Energy, Monterey Bay Community Power Authority, Peninsula Clean Energy Authority, San Jose Clean Energy, Sonoma Clean Power Authority, and Valley Clean Energy Authority); and
- three ESPs (Constellation NewEnergy, Inc., Direct Energy Business, and Just Energy Solutions, Inc. Additionally, a fourth ESP, Commercial Energy of Montana, was found to have a local deficiency but did not file a waiver).

This was not the first year that numerous LSEs have experienced difficulty procuring local capacity – but the underlying facts differed significantly from 2019. In the 2018 year ahead filings, most individual local deficiencies were concentrated in the San Diego-IV local area and were a result of LSEs’ inability to contract with Encina Generating Station due to the resource’ stated intent to retire at the end of 2017 in compliance with State Water Board once-through-cooling requirements. For 2019, local deficiencies were much more dispersed with deficiencies in the Other PG&E, Bay Area, LA Basin, and San Diego-IV local areas.

LSEs cited several reasons for these deficiencies in their local waiver requests. All of the LSEs issued Requests for Offers (RFOs) and/or bid into RFOs issued by other entities. While some were able to procure capacity, none of the LSEs seeking local waivers received enough to meet local RA requirements at prices they deemed reasonable. While some LSEs rejected offers they considered too high, many were unable to procure capacity even when they offered prices well above the local trigger price of \$40/kw-year. LSEs also reached out directly to generators, brokers, and other LSEs, but were unable to identify sufficient available capacity to meet their requirements.

Specific 2019 local deficiencies are detailed in Table 16. Despite these deficiencies, CAISO determined that there were no aggregate deficiencies in the SCE and SDG&E

TAC areas. The Humbolt, Sierra, North Coast/North Bay, Stockton, and Fresno local areas were still aggregated into the Other Pacific Gas & Electric (PG&E) area for 2019 RA compliance purposes. Despite collective deficiencies in several of these local areas, CAISO performed no backstop procurement.⁵

Table 16: 2019 Year Ahead Local Deficiencies

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bay Area	MW	1.92	69.87	3.85	1.92	4.87	1.92	1.92	1.92	22.87	8.87	0	1.92
	# of LSEs	1	2	2	1	2	1	1	1	2	2	0	1
Other PG&E	MW	27.77	169.09	7.09	10.69	130.77	44.81	192.96	30.96	338.65	205.73	108.25	145.45
	# of LSEs	5	4	3	2	6	5	7	4	9	7	7	8
LA Basin	MW	1.24	1.24	1.24	1.24	1.24	2.12	2.12	2.12	2.12	2.12	2.12	2.12
	# of LSEs	1	1	1	1	1	2	2	2	2	2	2	2
San Diego-IV	MW	0	0	0	17.29	0	255.24	255.02	255.24	255.57	97.79	0	0
	# of LSEs	0	0	0	1	0	1	1	1	1	1	0	0

The year ahead local deficiencies generally persisted in month ahead filings, though some LSEs were able to cure their deficiencies in certain months. Additionally, a small deficiency occurred in Big Creek/Ventura for July that had not previously been present. Table 17 shows local deficiencies on month ahead showings from January through December 2019.

⁵ See

http://www.caiso.com/Documents/EvaluationReport_LoadServingEntitiesCompliance_2019Local_SystemResourceAdequacyRequirements.pdf.

Table 17: 2019 Month Ahead Local Deficiencies

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bay Area	MW	1.92	62.95	0	1.92	0	0	1.92	1.92	3.87	0	0	1.92
	# of LSEs	1	1	0	1	0	0	1	1	2	0	0	1
Other PG&E	MW	19.56	163.77	0.89	0.89	89.65	32.09	126.65	3.77	282.43	163.98	46.06	104.88
	# of LSEs	3	3	1	1	4	3	4	2	6	4	3	4
LA Basin	MW	1.24	1.24	1.24	0	0	2.12	1.24	1.24	2.12	1.24	1.24	1.24
	# of LSEs	1	1	1	0	0	2	1	1	2	1	1	1
Big Creek/Ventura	MW	0	0	0	0	0	0	0.81	0	0	0	0	0.81
	# of LSEs	0	0	0	0	0	0	1	0	0	0	0	1
San Diego/IV	MW	0	0	0	0	0	0	239.02	239.24	249.58	63.79	0	0
	# of LSEs	0	0	0	0	0	0	1	1	1	1	0	0

Table 18 shows system RA deficiencies in the year ahead (YA) and month ahead (MA) filings for 2019. Year ahead filings cover only the five summer months (May through September) so there were no deficiencies for off-peak months the year ahead timeframe. Even in the month ahead timeframe, deficiencies were minimal in those months. Larger deficiencies have been seen on the system level for the peak summer months, particularly July and September. While deficiencies were cured to some extent between the year ahead and month ahead filings, collective deficiencies of 159.15 MW for July and 847.02 MW for August remained for CPUC jurisdictional LSEs. A similar trend was seen for flexible deficiencies with a 114.1 MW deficiency remaining for September in the month ahead filings (Table 19).

Table 18: 2019 Year Ahead and Month Ahead System Deficiencies

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
YA	MW					5.49	23.25	528.12	35.80	979.21			
	# of LSEs	NA	NA	NA	NA	1	3	5	4	6	NA	NA	NA
MA	MW	1.8	2.45	0	0.6	6.86	20.8	159.15	27.8	847.02	0	2.62	5.61
	# of LSEs	1	1	0	1	2	2	4	3	5	0	1	2

Table 19: 2019 Year Ahead and Month Ahead Flexible Deficiencies

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
YA	MW	8	9	2	2	2	5	36.1	3	130.1	86.1	4	7
	# of LSEs	2	2	1	1	1	3	2	1	5	4	1	2
MA	MW	3	0	2	2	0	2	1	3	114.1	1	1	6
	# of LSEs	2	0	1	1	0	1	1	1	4	1	1	2

On October 31, 2019, 20 of the 42 Commission-jurisdictional LSEs, submitted local waiver requests due to their inability to procure sufficient capacity to meet their 2020-2022 year ahead local RA requirements in one or more local areas. These LSEs include:

- two IOUs (Pacific Gas and Electric Company (PG&E) and San Diego Gas & Electric Company (SDG&E));
- nine CCAs (CleanPowerSF, East Bay Community Energy, Monterey Bay Community Power Authority, Peninsula Clean Energy Authority, Pioneer Community Energy, Redwood Coast Energy Authority, San Jose Clean Energy, Silicon Valley Clean Energy Authority, and Sonoma Clean Power Authority; and
- nine ESPs (Commercial Energy, Constellation NewEnergy, Inc., Direct Energy Business, EDF Industrial Power Services, Just Energy Solutions, Inc., Pilot Power Group, Shell Energy North America, Three Phases Renewables, University of California).

LSEs cited similar procurement challenges in their 2020-2022 waiver requests as in the 2019 requests, – especially tightness in the market and inability to find available capacity. The introduction of a multiyear requirement as well as disaggregation of the PG&E Other local areas appear to have been factors in the increased number of waiver requests for 2020-2022. As noted by PG&E in its Advice Letter submission, the total level of generating capacity available in the Kern, Sierra, and Stockton local areas is very close to the 2020 local requirement for those areas. Additionally, the local requirements were generated using the 2019 NQC list, so they do not reflect reduced solar and wind effective load carrying capability (ELCC) values adopted for 2020.

Table 20, Table 21, and Table 22 outline year ahead 2020-2022 local deficiencies. 2020 system and flexible deficiencies are described in Table 23. Note that these are

preliminary determinations as the year ahead compliance process has not yet been completed for 2020. LSEs will be given the opportunity to cure any deficiencies during this process.

Table 20: 2020 Year Ahead Local Deficiencies (MW)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bay Area	0	0	0	0	0	12.22	13.18	13.18	0.99	0.03	0	0
Fresno	12.81	12.62	64.59	64.82	64.82	83.58	47.79	0.97	45.79	45.79	0	0
Humboldt	6.98	6.98	6.98	6.98	6.98	6.98	9.97	9.97	16.95	16.95	0	0
Kern	18.97	29.16	28.57	6.27	6.69	4.17	1.86	1.33	3.60	1.33	1.33	8.54
LA Basin	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
NCNB	30.4	30.4	30.4	30.4	30.4	30.4	20.4	20.4	30.4	30.4	30.4	30.4
San Diego-IV	183.21	183.44	181.64	180.98	183.85	288.82	341.94	342.17	342.84	182.88	182.44	182.32
Sierra	77.04	76.89	80.39	78.2	78.38	78.38	120.59	114.89	132.8	145.23	78.13	77.92
Stockton	53.04	53.33	53.87	86.12	72.19	66.41	68.21	69.26	80.02	86.53	61.74	55.36
# of LSEs	10	11	11	12	10	11	14	15	15	12	12	12

Table 21: 2021 Year Ahead Local Deficiencies (MW)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bay Area	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	49.18	6.26	6.26
Big Creek-Ventura	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Fresno	18.99	18.99	18.99	18.99	18.99	18.99	18.99	18.99	18.99	19.96	18.99	18.99
Kern	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40
LA Basin	15.45	15.45	15.45	15.45	15.45	15.45	15.45	15.45	15.45	15.45	15.45	15.45
NCNB	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4
San Diego-IV	293.73	293.96	292.16	292.5	289.57	242.69	242.3	244.04	240.48	247.38	235.14	240.21
Sierra	120.73	124.64	120.09	114.76	113.00	94.14	99.34	99.34	117.78	220.16	140.35	196.12
Stockton	57.14	57.54	58.29	75.66	68.92	72.09	77.68	74.17	71.89	77.35	57.62	52.61
# of LSEs	18	18	18	18	19	16	18	17	17	18	19	20

Table 22: 2022 Year Ahead Local Deficiencies (MW)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bay Area	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Fresno	0	0.575	0	0	0	0	0	0	0	0	1.25	2.6
Humboldt	1.99	1.99	1.99	1.99	1.99	1.99	0	0	0	0	1.99	1.99
NCNB	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74	7.74
Sierra	42.3	46.72	41.77	42.05	55.45	46.92	66.17	94.85	95.51	120.61	94.08	89.7
Stockton	8.34	8.34	8.34	19.14	8.34	8.34	3.38	3.38	3.38	3.38	45.36	45.36
# of LSEs	5	5	5	6	5	5	6	7	8	10	9	9

Table 23: 2020 Year Ahead System and Flexible Deficiencies

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
System	MW					0	11.44	16.17	17.34	266.67			
	# of LSEs	NA	NA	NA	NA	0	1	2	2	5	NA	NA	NA
Flexible	MW	2	2	2	1	1	4	5	6	6	5	4	1
	# of LSEs	1	1	1	1	1	1	2	2	2	1	2	1

6. RESOURCES NOT SHOWN IN YEAR AHEAD RA FILINGS

Table 24 depicts the amount of capacity internal to California that was not shown in 2020 year ahead RA filings. To calculate these values, the amount of resources under construction shown by LSEs in their year ahead filings was added to the amount of capacity listed on the 2020 NQC list. Resources shown by CPUC jurisdictional LSEs on year ahead RA plans, non-jurisdictional LSEs on year ahead supply plans and RMR resources were then subtracted from the total. (Demand response resources are not included since most are not listed on RA plans.) LSEs must meet 90% of their system requirements in the year-ahead process for the five summer months; thus, many of these resources would be expected to be shown in the month-ahead system RA process.

Table 24: In State Resources not Shown on 2020 Year Ahead (90%) RA Filings (MW)

	May	Jun	Jul	Aug	Sep
Battery Storage	4				
Biogas & Biomass	222	176	173	173	181
CDWR Pumps	439	418	418	418	418
CHP	308	295	243	242	230
Geothermal	249	234	222	232	232
Hydro	2,342	1,895	2,396	2,195	1,760
Natural Gas	2,670	2,244	2,243	2,484	2,482
Nuclear	1,306	1,477	827	825	1,219
Pumped Hydro	575	110	85	74	42
Solar	488	254	277	310	173
Wind	455	377	262	271	182
Total	9,057	7,480	7,146	7,224	6,918

In addition to the internal resources listed above, Table 25 shows the unused maximum import capability (MIC) for the peak months of 2020 after imports of both CPUC jurisdictional and non-jurisdictional LSEs year ahead showings of import RA are accounted for. For September, which is forecast to be the peak load month of 2020, 4,368 MW of MIC were unused.

Table 25: Remaining Import Capability (MW)

	May	Jun	Jul	Aug	Sep
Total MIC	10,193	10,193	10,193	10,193	10,193
CPUC Imports on RA Plans	2,666	3,235	3,389	3,804	4,328
Non-CPUC Imports on Supply Plans	1,244	1,364	1,516	1,574	1,497
Remaining MIC	6,283	5,594	5,288	4,815	4,368

Table 26 compares the remaining internal capacity listed on the NQC list and unused MIC with the capacity needed for CPUC-jurisdictional LSEs to meet system RA requirement. While LSEs have already shown sufficient resources to meet requirements for May and June, additional resources must be shown to reach 100% of the requirement in July, August, and September. The system appears particularly tight in September where an additional 6,189 MW of capacity is needed out of a remaining 11,286 MW of remaining internal resources and MIC.

Table 26: Remaining System Resources

	May	Jun	Jul	Aug	Sep
Total Requirement (100%)	36,968	42,282	46,668	47,085	47,114
YA CPUC Internal Resources Shown	34,855	39,248	40,117	38,433	36,597
YA CPUC Imports Shown	2,666	3,235	3,389	3,804	4,328
Remaining Requirement	(553)	(201)	3,162	4,848	6,189
Internal Resources Not Shown	9,057	7,480	7,146	7,224	6,918
Remaining MIC	6,283	5,594	5,288	4,815	4,368
Total Remaining	15,341	13,075	12,434	12,039	11,286

7. CONCLUSION

Overall, the data provided in this report suggest that the RA market remains tight.

In 2019, 11 LSEs had year ahead local deficiencies, six had year ahead system deficiencies, and five had year ahead flexible deficiencies, and many of these deficiencies persisted through the year in month ahead filings. In addition, some LSEs reported being unable to identify available capacity at any price. September, which was the forecasted peak load month of 2019, proved to be the most challenging. Five LSEs had September 2019 deficiencies totaling 847.02 MW which resulted in a cumulative deficiency for CPUC jurisdictional LSEs for the first time.

This trend continued in the 2020 year ahead filings, in which, preliminarily, 20 LSEs had year ahead local deficiencies, five had year ahead system deficiencies, and four had year ahead flexible deficiencies. These totals may change once LSEs have had the opportunity to cure deficiencies.

Despite this increasing number of deficiencies, there does appear to be unused capacity in the system. An estimated 6,368 MW of unused capacity was listed on the NQC list for September 2019. While not all of this capacity was available (due to retirements, water limitations, etc.), it is highly likely that significantly more than 850 MW was physically available. Additionally, while a higher than normal amount of imports was shown for RA in September, 2,685 MW of MIC went unused.

Similarly, although there were system deficiencies in the 2020 year ahead filings, in aggregate LSEs were able to meet CPUC year ahead system RA 90% requirements as a result of some LSEs showing more MW than required. Additionally, for September 2020, there were 6,918 MW of capacity on the NQC list that was not shown and 4,368 MW of remaining MIC, although most of that capacity is needed to meet 100% month ahead RA requirements.

On a local level, however, it may not be possible for LSEs to meet requirements in all local areas due to a mismatch between 2020 local requirements and NQC values for solar and wind resources due to adoption of revised ELCC values and disaggregation of the PG&E Other local area. In addition, non-CPUC jurisdictional LSEs may have capacity in

these local areas that they are unwilling to sell because they do not have disaggregated local requirements.

One trend of note has been the increased use of imports to meet RA requirements, particularly among CCAs. Nearly 6,000 MW of import RA was shown on September 2019 RA plans, a significant increase over previous years. This was 13% of total capacity shown including 12% of IOU capacity, 15% of CCA capacity, and 13% of ESP capacity. In year ahead showings for September 2020, 17% of MW shown by CCAs were imports, compared with 8% for both IOUs and ESPs and 10% of total resources shown.

Although it appears that there is currently sufficient capacity on the system, and compliance with RA requirements is possible, we can expect that the market will continue to tighten. Few new resources came online in 2019 though more are expected in 2020 and beyond. As we move forward, it will be important to ensure that adequate resources are available to maintain local and system reliability and a robust RA market.