DOCKETED

Docket Number:	23-IEPR-01
Project Title:	General Scope
TN #:	252301
Document Title:	CALIFORNIA COMMUNITY CHOICE ASSOCIATION'S COMMENTS ON THE SCOPING ORDER FOR THE 2023 INTEGRATED ENERGY POLICY REPORT
Description:	N/A
Filer:	Shawn-Dai Linderman
Organization:	CALIFORNIA COMMUNITY CHOICE ASSOCIATION
Submitter Role:	Public Agency
Submission Date:	9/18/2023 1:48:49 PM
Docketed Date:	9/18/2023

STATE OF CALIFORNIA
CALIFORNIA ENERGY COMMISSION

In the Matter of: The 2023 Integrated Energy Policy Report	Docket No.: 23-IEPR-01

CALIFORNIA COMMUNITY CHOICE ASSOCIATION'S COMMENTS ON THE SCOPING ORDER FOR THE 2023 INTEGRATED ENERGY POLICY REPORT

Evelyn Kahl,
General Counsel and Director of Policy
Leanne Bober,
Senior Counsel
Eric Little,
Director of Regulatory Affairs
CALIFORNIA COMMUNITY CHOICE ASSOCIATION
One Concord Center
2300 Clayton Road, Suite 1150
Concord, CA 94520
(510) 980-9459
regulatory@cal-cca.org

September 18, 2023

TABLE OF CONTENTS

STATE OF CALIFORNIA
CALIFORNIA ENERGY COMMISSION

In the Matter of: The 2023 Integrated Energy Policy Report	Docket No.: 23-IEPR-01

CALIFORNIA COMMUNITY CHOICE ASSOCIATION'S COMMENTS ON THE SCOPING ORDER FOR THE 2023 INTEGRATED ENERGY POLICY REPORT

The California Community Choice Association[1] (CalCCA) submits these Comments to the California Energy Commission (Commission) in response to the *Scoping Order for the 2023 Integrated Energy Policy Report*, dated March 29, 2023 (Scoping Order). As set forth in the Scoping Order, the 2023 Integrated Energy Policy Report (IEPR) "will be based on the record developed during the proceeding, including data and technical analyses by the staff and stakeholders."[2] CalCCA provides the following information, as well as the technical analyses and data submitted as Attachments 1 and 2, to submit into the IEPR record for the Commission's consideration.

---

[1] California Community Choice Association represents the interests of 24 community choice electricity providers in California: Apple Valley Choice Energy, Central Coast Community Energy, Clean Energy Alliance, Clean Power Alliance, CleanPowerSF, Desert Community Energy, East Bay Community Energy, Energy For Palmdale's Independent Choice, Lancaster Energy, Marin Clean Energy, Orange County Power Authority, Peninsula Clean Energy, Pico Rivera Innovative Municipal Energy, Pioneer Community Energy, Pomona Choice Energy, Rancho Mirage Energy Authority, Redwood Coast Energy Authority, San Diego Community Power, San Jacinto Power, San José Clean Energy, Santa Barbara Clean Energy, Silicon Valley Clean Energy, Sonoma Clean Power, and Valley Clean Energy.

[2] *Scoping Order for the 2023 Integrated Energy Policy Report*, (Mar. 29, 2023), at 4: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=23-IEPR-01.

I. INTRODUCTION

The IEPR process is the first step in developing strategies to meet California's energy needs. It is used by other processes to execute on those strategies, including steps at the California Public Utilities Commission (CPUC), to meet electricity needs through the Integrated Resource Plan (IRP) and Resource Adequacy (RA) programs. In addition, the ability to develop new resources is being hampered by a number of causes. CalCCA therefore recommends that the IEPR consider within its scope:

- The evaluation of reliability needs within California not only from an energy perspective but also from a capacity perspective (*i.e.,* RA); and
- The causes and likely outcomes of delays in the development of new resources, including actions needed to alleviate these barriers.

In its development of the IEPR, CalCCA recommends that the Commission consider not only the analysis provided herein, but also the following attachments: Attachment 1: CalCCA whitepaper titled *California's Constrained Resource Adequacy Market: Ratepayers Left Standing in a Game of Musical Chairs*, Updated September 15, 2023, on RA scarcity; and Attachment 2: *Procurement Issues*, presentation to Commissioner's Monahan and Gunda, and also CEC Staff on delays impacting the development of new resources.

II. THE IEPR SHOULD CONSIDER ALL RELIABILITY ELEMENTS INCLUDING THE RA CONSTRUCT TO ENSURE THAT SUFFICIENT CAPACITY IS AVAILABLE FOR DISPATCH TO MEET ALL RELIABILITY NEEDS

California uses multiple analyses to evaluate the sufficiency of resources to meet California electricity customers' needs. The IEPR focuses on energy need over the most constrained period of the year. In response to the 2000-2001 energy crisis in California, the CPUC structured a RA program designed to ensure that load-serving entities (LSEs) within its jurisdiction have procured sufficient capacity from resources to meet the peak load of each month. In addition, the CPUC incorporated measures to ensure that this capacity is sufficiently available in other hours to meet those needs. In consideration of a local regulatory authority not adopting their own RA program, the California Independent System Operator Corporation (CAISO) incorporated similar requirements into their tariff, including minimum RA requirements that it can apply to any non-CPUC jurisdictional entity in the CAISO BA that has not established their own RA program.[3]

Originally, the CPUC ensured that load needs in all hours were met by limiting those resources available for a small number of hours per day (for example, four-hour peak load resources). The CPUC is now changing that methodology to account for specific RA targets in each hour as well as accounting specific to the expected output of a resource in that hour. At present, the CAISO is retaining its tariff modeled on the original CPUC design. None of the non-CPUC jurisdictional entities have indicated that they will change their RA program from the original design.

The RA program differs from the IEPR analysis in that it seeks to ensures that capacity is available for the entire month to meet the peak load need of that month. This requires a contract with a resource to provide capacity for the entire month in all available hours include the peak load day as well as all other days. This is a significant commitment on the part of a resource owner as opposed to committing a resource to the CAISO's energy or ancillary service markets for as little as a single interval that could be as short as five minutes. Evaluating the capability of the fleet to meet this compliance obligation based on reliability should be included in the IEPR as well as the ability of the fleet to meet energy needs throughout the year.

While the peak need for RA is not greater than the IEPR energy need, it is required for a lengthy period of time and thus becomes more difficult to obtain as the capacity procured is

---

[3] All non-CPUC jurisdictional entities in the CAISO Balancing Authority (BA) have adopted their own RA program consistent with the original CPUC design.

obligated not just for the peak hour but every hour of that month. This is important because resource owners face a significantly greater obligation to meet a purchaser's needs than they do to sell energy at the single peak hour of the year. For example, while the IEPR may assume that 6,000 megawatts (MW) of imports will be available to serve energy needs at the peak hour of the year, it is not clear that the same 6,000 MW is willing to commit its capacity to California for the entire month in which that peak load occurs.

To ensure the RA program meets reliability needs, LSEs are faced with penalties through the CPUC program for failing to procure sufficient resources. These penalties can range from as low as $4.44/ kilowatt (kW) month in the winter to as high as $26.64/kW-month in the summer. In addition, a deficient entity can be faced with an allocation of backstop costs from the CAISO. These backstop costs have a soft-offer cap of $6.31/kW-month but could be higher if the resource owner demonstrates to the Federal Energy Regulatory Commission (FERC) capacity costs that exceed this cap.

The overall program (design and penalties) was established to ensure that capacity can be converted to energy to serve the needs of California customers without the need for rotating outages. However, under current conditions, meeting the RA obligations is becoming increasingly difficult due to a number of issues in California and the Western Electricity Coordinating Council interconnection. Thus, planning to comply with this important program is necessary not only for reliability but to also ensure that sufficient resources are available cost-effectively.

A. The Current RA Market is Tight

To demonstrate the difficulty of meeting RA obligations, CalCCA developed an RA stack analysis that compares the demand for system RA for peak months in 2023 to the total supply of RA, including RA from resources in the CAISO footprint and estimated RA imports.

RA supply is primarily derived from the CAISO's net qualifying capacity (NQC) list[4], while RA demand is the forecasted median load in the CAISO[5] plus a planning reserve margin.[6] As shown in Figure 1 below, demand for RA exceeds the available supply of RA by 1,146 MW, even after accounting for imports[7] and resources added throughout the year, in September 2023. Supply is similarly insufficient to meet RA demand in August 2023. The scarcity of supply makes it difficult, if not impossible, for every LSE to meet its RA requirements.

		Jun	Jul	Aug	Sep
1	CAISO 1-in-2 Load	42,354	45,510	46,074	46,829
2	Reserve Margin (16%)	6,777	7,282	7,372	7,493
3	**Total RA Demand**	**49,131**	**52,792**	**53,446**	**54,322**
4	2023 NQC List	47,640	48,308	48,066	48,373
5	Event-Based Demand Response	995	1,045	1,077	1,090
6	Imports	6,000	6,000	6,000	6,000
7	Thermal Plant Derate	(700)	(700)	(700)	(700)
8	Excess IOU Resources In IOU Supply Plans	(1,266)	(507)	(1,269)	(968)
9	Retention for Substitution	(619)	(619)	(619)	(619)
10	**Total RA Supply**	**52,049**	**53,527**	**52,554**	**53,176**
11	Surplus Supply (Deficit)	2,919	735	(892)	(1,146)

Figure 1.
CalCCA RA Stack Analysis for 2023

//////

//////

4 2023 NQC List for CPUC Compliance (August 9, 2023 version) https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/resource-adequacy-compliance-materials/cpuc-final-net-qualifying-capacity-report-for-compliance-year-2023-9aug23.xlsxh.

5 Monthly maximum managed net load forecast for 2023 from the California Energy Demand 2022 Hourly Forecast for CAISO in the Planning Scenario: https://efiling.energy.ca.gov/GetDocument.aspx?tn=248359&DocumentContentId=82768.

6 Planning reserve margin per D.22-06-050, *Decision Adopting Local Capacity Obligations For 2023 - 2025, Flexible Capacity Obligations For 2023, and Reform Track Framework*, Rulemaking (R.) 21-10-002 (June 23, 2022): https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M488/K540/488540633.PDF.

7 Assumed RA imports are from the Joint Reliability Planning Assessment - SB 846 Second Quarterly Report, at Table 4: https://efiling.energy.ca.gov/GetDocument.aspx?tn=250176&DocumentContentId=84899.

Net qualifying capacity is a monthly estimate of a resource's contribution to reliability. For resources with variable output, such as wind and solar, the monthly NQC value is estimated by the CPUC through a study of the effective load carrying capability of those resources. The effective load carrying capability represents the amount of additional load that could be served while maintaining the same level of reliability with the addition of the variable resource. Three rows in this stack warrant further explanation:

- Line 7: Thermal Plant Derate: Many thermal generators cannot produce maximum output at certain temperatures, leading to plant derates. For this reason, resource owners may not sell their full NQC as RA capacity. For thermal plants, whose NQC is listed as equivalent to their Net Dependable Capacity, CalCCA applied a technology-specific thermal derate estimated from historical ambient temperature derates within the CAISO.

- Line 8: Excess IOU Resources in IOU Supply Plans: The CPUC's D.21-12-015[8] authorized the IOUs to procure resources beyond their RA requirements due to emergency reliability conditions. A subset of these additional resources, however, are eligible to meet RA obligations and are shown by the IOU's in their supply plans.[9] This indicates that some of the resources that were otherwise part of the NQC list or RA imports were used by the IOUs and unavailable to other LSEs to meet the RA demand.

- Line 9: Retention for Substitution: IOUs are entitled to retain RA beyond their bundled needs for substitution during planned outages. This line represents an estimate of the retained capacity based on IOU filings from previous years.

The tight RA market conditions are likely to persist through 2026. Extending the stack analysis shows that the challenge of meeting RA requirements is exacerbated by rising load, increasing planning reserve margins, and retirement or removal from the RA market of resources like Diablo Canyon Power Plant (DCPP) and several once-through cooling plants. Deployment

---

8 D.21-12-015, *Phase 2 Decision Directing Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company to Take Actions to Prepare For Potential Extreme Weather in the Summers of 2022 and 2023*, R.20-11-003 (Dec. 2, 2021): https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K821/428821475.PDF.

9 The three IOUs' supply plan excess resources from their portfolios as filed in the IOU 2023 Excess Resources Report available at https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/resource-adequacy-homepage/resource-adequacy-compliance-materials.

of new capacity to meet the CPUC's procurement requirements helps, though projects are likely to be delayed at least in the next few years, as described further in Section III.

The tight RA market observed in the CalCCA stack analysis is generally in line with the Joint Agency Reliability Planning Assessment, issued on February 9, 2023.[10] The assessment shows a very tight supply margin for Hour 19 in September.

Additional details and analysis of the California RA market are in CalCCA's whitepaper entitled "California's Constrained Resource Adequacy Market: Ratepayers Left Standing in a Game of Musical Chairs".[11]

B. RA Prices Are Very High in the Current Market Environment

Section II.A herein describes the thin margins in the current RA market environment. As basic economics would predict, these conditions are ripe to produce exorbitant prices making reliably serving California's electricity customers more expensive. Between August 2019 and August 2021, the weighted average price for RA increased by over 100 percent from $3.97/kW-month to $8.07/kW-month.[12] CalCCA analysis of public capacity transaction data in FERC Electronic Quarterly Reports (EQR) demonstrates that the weighted-average price for capacity delivered to the CAISO system continued to rise in 2022, Figure 2.[13]

---

10 Joint Reliability Planning Assessment https://efiling.energy.ca.gov/GetDocument.aspx?tn=248714&DocumentContentId=83233.

11 Available at: https://cal-cca.org/wp-content/uploads/2023/07/CalCCA-Stack-Analysis-2023-2026-updated-6_23_23.pdf.

12 CPUC 2021 Resource Adequacy Report (p. 29) https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/2021_ra_report_040523.pdf.

13 Southern California Edison (SCE) contracted for capacity from AES Alamitos Energy LLC, AES Huntington Beach Energy LLC, and AES ES Alamitos LLC (collectively, AES) in October 2019 for delivery of 1400 MW of capacity starting January 2021. The contracts are expected to continue through 2040 (see SCE CAM List 2023: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/resource-adequacy-compliance-materials/2023-ya-final-cam-list.xlsx). The weighted average capacity price for deliveries through March 2023 has been $19.2/kW-month with some months transacting over $30/kW-month. Due to the outsized impact of these contracts, we present prices and volumes with and without the 2019 Q4 transactions between SCE and AES.

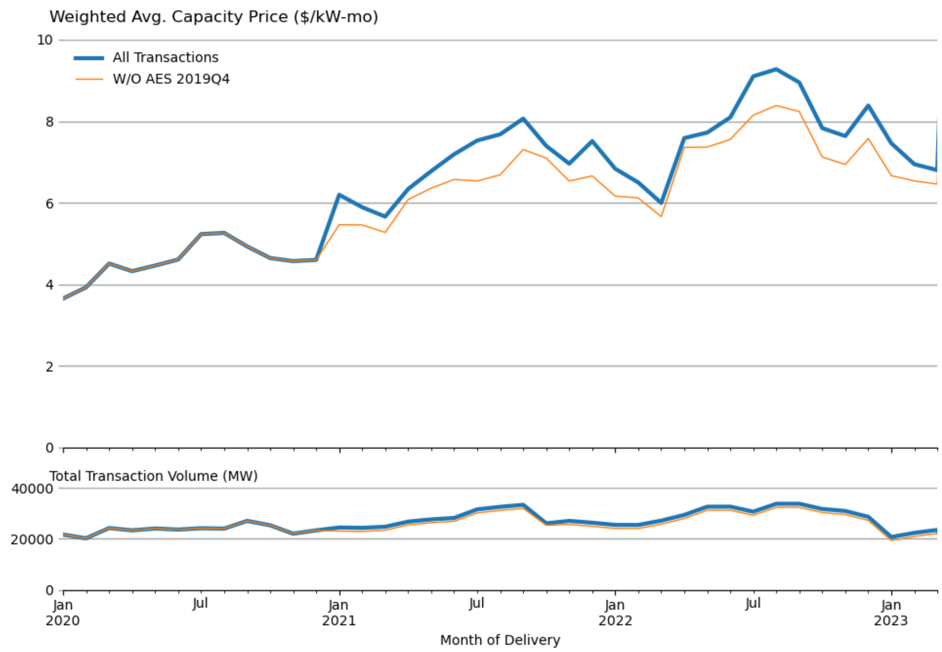


Figure 2.
Weighted Average Price of Capacity Delivered to CAISO

Additionally, the FERC EQR data shows that in 2023, transactions for the highest prices have increased dramatically as shown in Figure 2. The lack of sufficient capacity available to meet RA needs can be seen driving up costs for California electricity customers. Attachments 1 and 2 provide additional information on RA market challenges.

/ / / / / /

/ / / / / /

/ / / / / /

/ / / / / /

/ / / / / /

/ / / / / /

/ / / / /

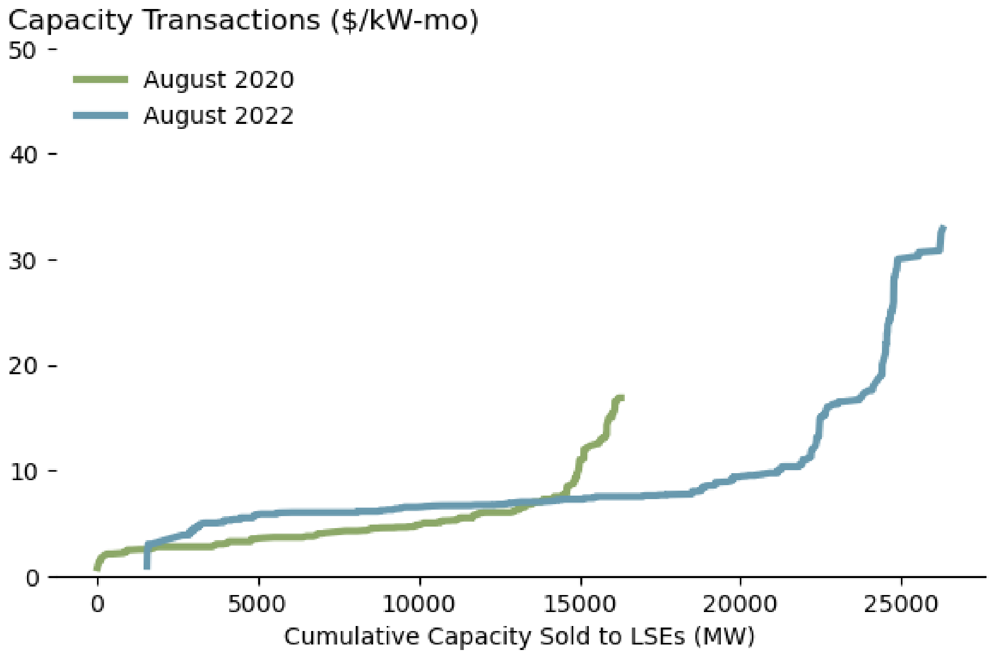


Figure 3.
Comparison of RA Market Transactions During Times with Excess RA Supply (August 2020) and a Deficit in RA Supply (August 2022)

III. NEW RESOURCE BUILD IS OCCURRING BUT FACING CHALLENGES THAT THE IEPR SHOULD EXAMINE

The path to resolving shortages of RA and the resulting high prices includes building new resources. CPUC jurisdictional entities have been under multiple orders to procure significant amounts of new generating capacity in the coming years. CPUC D.19-11-016[14], D.21-06-035,[15] and D.23-02-040[16] will cumulatively require 18,800 MW between 2021 and 2026. Progress toward fulfilling these obligations has been occurring, with the CPUC noting that, "[e]ven though the

---

14 D.19-11-016, *Decision Requiring Electric System Reliability Procurement For 2021-2023*, R.16-02-007 (Nov. 7, 2019): https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M319/K825/319825388.PDF.

15 D.21-06-035, *Decision Requiring Procurement to Address Mid-Term Reliability* (June 30, 2021): https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M389/K603/389603637.PDF.

16 D.23-02-040, *Decision Ordering Supplemental Mid-Term Reliability Procurement (2026-2027) and Transmitting Electric Resource Portfolios to California Independent System Operator For 2023-2024 Transmission Planning Process*, R.20-05-003 (Feb. 28, 2023): https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M502/K956/502956567.PDF.

IOUs did not meet Tranche 1 on time, LSEs were collectively able to meet Tranche 2 on time (and "catch up" on the Tranche 1 requirements) due to excess procurement by the CCAs and ESPs."[17]

LSE Type	Requirement Tranche 1	Online as of 8/1/21	Excess or Shortfall 2021	Requirement Tranche 2	Online as of 8/1/22	Excess or Shortfall 2022	Requirement Tranche 3	Online by 8/1/23	Excess or Shortfall 2023	Adjusted Obligation	Online after 8/1/23	Excess or Shortfall total
CCA	403	423	20	605	1,135	530	807	1,300	493	807	1,307	500
ESP	93	118	25	139	187	48	186	225	39	186	225	39
IOU	1,154	743	(411)	1,731	1,350	(381)	2,308	2,264	(44)	2,308	2,321	13
Grand Total	**1,650**	**1,284**	**(366)**	**2,475**	**2,621**	**146**	**3,301**	**3,739**	**438**	**3,301**	**3,803**	**552**

Figure 4.
Table of Procurement Compliance Toward D.19-11-016 and D.21-06-035 provided by the CPUC.[18]

While the CPUC has not updated this information since its publication in February 2023, CalCCA has obtained and aggregated procurement information from its CCA members indicating that they are continuing to make progress to comply with the two procurement orders through 2028. Figure 5 shows that CCAs expect to meet their 2023 new generation procurement obligation, and that reasonable progress is being made to meet all subsequent years as well.

/ / / / / /

/ / / / / /

/ / / / / /

/ / / / / /

/ / / / / /

/ / / / / /

/ / / / / /

---

17 *Summary of Compliance with Integrated Resource Planning (IRP) Order D.19-11-016 and Progress Toward Mid Term Reliability MTR) D.21-06-035 Procurement* (Feb. 2023), at 24: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/d1911016andd21.pdf.

18 *Id.*

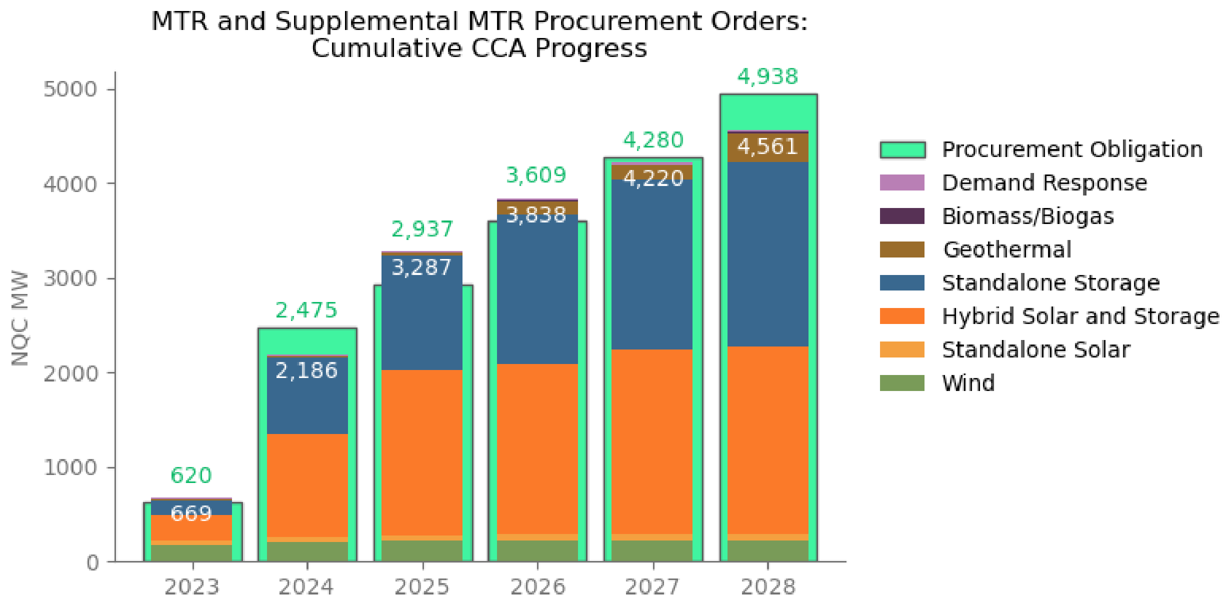


Figure 5.
CCA Progress toward 2023 – 2028 New Generation Procurement Obligations

In addition, CCA progress indicates that they will collectively meet the requirements for long-lead time and firm zero energy (geothermal and biomass) by 2028. However, these statistics represent expectations and assume that project delays do not push commercial operation of the resources beyond their compliance dates.

A. Interconnection, Supply Chain, and Permitting All Play a Critical Role in Bringing New Resources Online

CalCCA members represent that just over half of the contracts with new generators are delayed, representing just under half of the required capacity with an average delay of approximately one year. The largest contributors to these delays are supply chain, interconnection, and permitting issues. Supply chain delays are largely caused by the Department of Commerce investigation into antidumping, the Uyghur Forced Labor Prevention Act,[19] and Withhold Release Orders.[20] Supply chain delays have resulted in lack of delivery of the assets

[19] *Uyghur Forced Labor Prevention Act*, enacted Dec. 23, 2021: https://www.cbp.gov/trade/forced-labor/UFLPA.

[20] *Withhold Release Orders and Findings List*: https://www.cbp.gov/trade/forced-labor/withhold-release-orders-and-findings.

necessary to complete the build out of many contracted new resources. Interconnection delays result from a lack of completing the necessary studies, upgrading the transmission facilities to interconnect the resources, and shortages of equipment and skilled workers necessary to complete the interconnection and network upgrades for the new facility. Finally, while permitting delays have the smallest overall impact of the three types of delays from a project and capacity standpoint, it does represent the longest average delay at just over 20 months.

Since building of new resources is the only way to address the RA needs described in section II, it is critical that these delay issues are addressed and also examined and accounted for in processes like the IEPR so that the outcome of reliable, clean, and affordable electricity can be met for California's electricity customers. More information on the causes and effects of delays as well as the current status of CCA procurement can be found in Attachment 2, pages 2-5.

IV. CONCLUSION

CalCCA looks forward to further collaboration on this topic and the examination and inclusion of all elements of reliability such as RA in the IEPR process, including:

- The evaluation of reliability needs not only from an energy perspective but also from a capacity perspective (*i.e.,* RA), and
- The causes of and likely outcomes of delays in the development of new resources including actions to alleviate these barriers.

Respectfully submitted,

Evelyn Kahl

Evelyn Kahl
General Counsel and Director of Policy
CALIFORNIA COMMUNITY CHOICE ASSOCIATION

September 18, 2023

ATTACHMENT 1
TO
CALIFORNIA COMMUNITY CHOICE ASSOCIATION'S COMMENTS ON THE ON THE SCOPING ORDER FOR THE 2023 INTEGRATED ENERGY POLICY REPORT

CALIFORNIA'S CONSTRAINED RESOURCE ADEQUACY MARKET: RATEPAYERS LEFT STANDING IN A GAME OF MUSICAL CHAIRS

Updated September 15, 2023

CALIFORNIA'S CONSTRAINED RESOURCE ADEQUACY MARKET:
RATEPAYERS LEFT STANDING IN A GAME OF MUSICAL CHAIRS

Updated September 15, 2023

1. Introduction

The Resource Adequacy (RA) supply available within the California Independent System Operator (CAISO) balancing area for 2023 appears, on a forecast basis, inadequate to meet the RA program compliance requirements. The "stack" analysis in Figure 1 below, which compares RA requirements with the available RA supply, demonstrates that the margin is razor thin "on paper."[1] The recent Joint Agency Reliability Planning Assessment by the California Energy Commission (CEC) and California Public Utilities Commission (CPUC), which is based on an hourly analysis of anticipated supply and projected demand, roughly substantiates this conclusion. When the stack analysis is viewed in the context of regulatory dynamics and Western market constraints, the razor-thin margin becomes a material supply deficiency.

A wide range of factors have contributed to these conditions:

- Weather conditions are more extreme, increasing load and reducing generation output.
- Hydro resource availability has declined under drought conditions.
- New resources are delayed due to permitting, interconnection, and supply chain challenges.
- The entire Western region is constrained, reducing the availability of imports to California[2] and risking increased exports of California resources to meet other Western region requirements (*e.g.,* Western Resource Adequacy Program (WRAP)).
- CPUC reduction in effective load carrying capacity values reduced reliance on wind and solar resources to meet RA requirements.
- CPUC's increase in planning margins (PRMs) to 16 percent, with a 20-22.5 percent "effective" PRM for investor-owned utilities (IOUs), increased RA requirements.
- CPUC's definition of "incremental" procurement to meet the effective PRM encouraged IOUs to cannibalize the existing RA resource stack, reducing supply for other LSEs.
- Unnecessarily restrictive requirements for energy imports under the CPUC's RA program reduced the availability of imports to the CPUC-jurisdictional RA market.

[1] The stack analysis focuses on the sufficiency of supply to enable load-serving entities to comply with RA program requirements and does not analyze the likely sufficiency of energy to meet Summer 2023 needs.

[2] Historical RA import data from the CAISO demonstrates that the amount of imports in year-ahead RA showings declined from 5,900 MW in 2020 to 3,600 MW in 2022. RA imports from unspecified declined from 4,300 MW to 1,300 MW over the same period. Historical year-ahead RA data: http://www.caiso.com/Documents/HistoricalYearAheadResourceAdequacyAggregateData.xlsx.

The RA supply deficiency will prevent collective compliance by CAISO load-serving entities (LSEs) despite their best efforts to procure and willingness to pay exorbitant prices. Some LSEs subject to the CPUC's RA program were unable to obtain enough supply to comply with their year-ahead RA compliance requirements despite numerous formal solicitations and substantial bilateral outreach. Recent experience suggests the problem will only grow in the month-ahead RA compliance process absent a substantial increase in hydro output, imports, or expedited deployment of new resources.

Not all LSEs start the game with the same odds. IOUs hold most "legacy" supplies built prior to the recent growth of community choice aggregation (CCA) and the expansion of Direct Access (DA). As CCA or DA load has departed the IOU portfolio, the IOUs have retained for their remaining bundled load the supply previously procured for the departed load. Consequently, as conditions have changed, the burden of finding new supply to meet requirements has shifted largely to CCA and DA customers. The challenges in getting new steel in the ground thus have had a graver effect on these customers.

Under these conditions, RA program compliance has become a game of musical chairs: some chairs are occupied by the IOUs and some have been grabbed by out-of-state entities, leaving some California LSEs without a chair when the music stops. Until more new resources come online, the race to find a chair in the game will have detrimental consequences for all consumers. The RA shortfall has driven up prices paid by consumers. Prices for resources averaged $3.63 kilowatt (kW)-month in 2019;[3] summer 2023 has seen individual transactions at prices over $60 kW-month – the highest for CCAs being $82.94/kW-month -- and resources are increasingly unavailable at any price. Sellers are the only market participants who benefit from this pressure.

RA penalties for LSEs unable to secure supply in a deficient market do nothing to get new resources in the ground; they unnecessarily add to customer costs and indirectly increase the cost of supply. Resource development is properly addressed in the CPUC's Integrated Resource Planning process and procurement mandates.

2. RA Supply/Demand Balance: 2023 RA Stack Analysis

The RA stack analysis in Figure 1 below compares, on a forecast basis, the demand for system RA for peak months in 2023 to the total supply of RA, including RA from resources in the CAISO footprint and estimated RA imports.[4] RA supply is primarily derived from the CPUC's net qualifying capacity list, while RA demand is the forecasted median load in the CAISO plus a planning reserve margin.

As shown in Figure 1 below, demand for RA exceeds the available supply of RA by 1,146 megawatts (MW) , even after accounting for imports and expected addition of resources, in September 2023. Supply is similarly insufficient to meet RA demand in August 2023. The scarcity of supply makes it difficult, if not impossible, for every LSE to meet its RA requirements.

[3] *2019 Resource Adequacy Report*, March 2021: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/2019rareport-1.pdf, at 22.

[4] The data for Figure 1 is current as of September 15, 2023.

Figure 1

		Jun	Jul	Aug	Sep
1	CAISO 1-in-2 Load	42,354	45,510	46,074	46,829
2	Reserve Margin (16%)	6,777	7,282	7,372	7,493
3	**Total RA Demand**	**49,131**	**52,792**	**53,446**	**54,322**
4	2023 NQC List	47,640	48,308	48,066	48,373
5	Event-Based Demand Response	995	1,045	1,077	1,090
6	Imports	6,000	6,000	6,000	6,000
7	Thermal Plant Derate	(700)	(700)	(700)	(700)
8	Excess IOU Resources In IOU Supply Plans	(1,266)	(507)	(1,269)	(968)
9	Retention for Substitution	(619)	(619)	(619)	(619)
10	**Total RA Supply**	**52,049**	**53,527**	**52,554**	**53,176**
11	Surplus Supply (Deficit)	2,919	735	(892)	(1,146)

3. Sources and Explanation of the RA Stack

Figure 1 uses both familiar data in assessing RA supply sufficiency and also integrates information not typically considered in a supply analysis. This information, reflected in rows 8 and 9, stems from regulatory changes implemented by the CPUC that had the effect of eroding supply available to other LSEs. The table below documents the sources of data used in Figure 1.

Row(s)	Source
1	CAISO 1-in-2 Load Forecast. Monthly peak demand forecast for a median (1-in-2) weather year from the CEC's 2022 Integrated Energy Policy Report Planning scenario.[5]
2	Planning Reserve Margin per CPUC D.22-06-050.[6]
4	CPUC 2023 NQC List. The CPUC lists the net qualifying capacity (NQC) for all resources in the CAISO footprint for 2023.[7] CalCCA exclude from the list all resources with a commercial online date later than one month before the applicable RA month. CalCCA found the commercial online date by matching the resource identification number (resource ID) in the NQC list to the resource ID in the CAISO Master Generating List.[8]

[5] Monthly maximum managed net load forecast for 2023 from the California Energy Demand 2022 Hourly Forecast for CAISO in the Planning Scenario: https://efiling.energy.ca.gov/GetDocument.aspx?tn=248359&DocumentContentId=82768.

[6] D.22-06-050, *Decision Adopting Local Capacity Obligations For 2023 - 2025, Flexible Capacity Obligations For 2023, and Reform Track Framework*, R.21-10-002 (June 23, 2022): https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M488/K540/488540633.PDF.

[7] 2023 NQC List for CPUC Compliance (August 9, 2023 version): https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/resource-adequacy-compliance-materials/cpuc-final-net-qualifying-capacity-report-for-compliance-year-2023-9aug23.xlsx.

[8] CAISO Master Control Area Generating Capability List: oasis.caiso.com.

Row(s)	Source
5	Event-Based Demand Response. Demand response quantities are from the CPUC's Resource Adequacy Compliance Materials.[9] Demand response totals include avoided losses and are from event-based programs at PG&E, SCE, and SDG&E.
6	Imports. Imports reflect the CEC's assumed RA imports available to the CAISO market.[10]
7	Thermal Plant Derate. Many thermal generators cannot produce maximum output at certain temperatures, leading to plant derates. For this reason, resource owners may not sell their full NQC as RA capacity. For thermal plants whose NQC is listed as equivalent to their Net Dependable Capacity, we apply a technology-specific thermal derate estimated from historical ambient temperature derates within the CAISO.[11] CalCCA's approach parallels recent CPUC discussions regarding the need to include thermal derates in reliability modeling.[12]
8	D.21-12-015 allowed: "excess resources from an IOU's *existing* portfolios may be used to meet or supplement these procurement targets up to the upper end of its contingency procurement target."[13] D.21-12-015 also authorized the IOUs to "continue their procurement efforts and endeavor to meet and exceed their respective incremental procurement targets to achieve the range of additional procurement authorized in this decision for months of concern… As noted previously, a combination of RA eligible and non-eligible resources will be used to meet the contingency procurement target range."[14] While these resources were intended to be incremental to supply available to LSEs to meet their 16 percent requirement, a significant amount appears to erode existing supply.[15] This erosion occurs because many of the resources are qualified to provide RA and, were it not for the IOU procurement, could provide RA to other LSEs to meet their RA compliance requirements. Line 8 represents the

9 2023-2025 Demand Response Totals: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/resource-adequacy-homepage/resource-adequacy-compliance-materials.

10 Joint Reliability Planning Assessment - SB 846 Second Quarterly Report, at Table 4: https://efiling.energy.ca.gov/GetDocument.aspx?tn=250176&DocumentContentId=84899. The CEC's assumed imports increased from 5,500 MW in the February 2023 assessment to the May 2023 assessment based on agency staff assessments of market conditions.

11 Ambient derate data can be found in the CAISO's daily Curtailed and Non-Operational Generator Prior Trade Date Reports: http://www.caiso.com/market/Pages/OutageManagement/CurtailedandNonOperationalGenerators.aspx.

12 ED Staff Proposal for Derating Thermal Power Plants based on Ambient Temperature: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/r21-10-002/4_ed-proposal-for-phase-3-derates.pdf.

13 D.21-12-015, Phase 2 Decision Directing Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company to Take Actions to Prepare for Potential Extreme Weather in the Summers of 2022 and 2023, R.20-11-003 (Dec. 2, 2021), at 103: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K821/428821475.PDF. .

14 *Id.* at 101-102.

15 The additional resources procured under this authorization are described in the CPUC's RA materials with additional detailed provided in advice letters filed by the IOUs. 2022 IOU Excess Resource reports: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/resource-adequacy-homepage/resource-adequacy-compliance-materials.

Row(s)	Source
	subset of the resources shown on the three IOUs' supply plan as filed in the IOU 2023 Excess Resources Report.[16]
9	Retention for substitution. IOUs are entitled to retain RA beyond their bundled needs for substitution during planned outages. While 2022 data are not yet available, this assessment relies on the 2021 resources retained by IOUs as reported in the 2021 IOU Excess Resource reports.[17]

4. Tight Conditions Are Likely to Persist Through 2026

Extending the RA stack for September through 2026, Figure 2 below shows that the tight market conditions continue. The challenge of meeting RA requirements is exacerbated by rising load, increasing planning reserve margins, and retirement or removal from the RA market of resources like Diablo Canyon Power Plant (DCPP) and several once-through cooling plants. Deployment of new capacity to meet the CPUC's procurement requirements helps, though projects are likely to be delayed at least in the next few years. Though not reflected here, the RA market will undergo a fundamental shift in design, changing to a 24-hour slice of day approach starting in 2025.[18]

The sources and assumptions in this extended stack analysis are similar to the 2023 stack in Figure 1, with the following exceptions:

- The planning reserve margins for 2024-2026 increase to 17 percent;[19]
- In line with the assumptions of the Joint Agency Reliability Planning Assessment, described in the next section, DCPP is retired in 2025 and the remaining once-through-cooling plants are assumed to be procured by DWR;[20]
- Excess IOU procurement for a higher effective PRM continues through 2025;[21] and
- Expected contracts for new-build resources are added to the list of resources built by the beginning of 2023. September new resources build is based on resources online by the end of Q2 in each year.[22]

---

16 Excess Resources Reports from https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/resource-adequacy-homepage/resource-adequacy-compliance-materials.

17 https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/resource-adequacy-homepage/resource-adequacy-compliance-materials.

18 D.22-06-050 at 128.

19 *Id.* at 125 requires a 17 percent PRM for 2024, we assume the same for 2025-26.

20 The capacity of once-through-cooling plants at risk of retirement is based on the CAISO's Announced Retirement and Mothball List: http://www.caiso.com/planning/Pages/ReliabilityRequirements/Default.aspx.

21 Excess procurement of 1,700 MW for 2024 and 2025 is pursuant to a proposed decision in R.21-10-002, representing the minimum targeted procurement defined by the CPUC. IOUs would be authorized to procure as much as 3,200 MW for those same years, potentially increasing the deficits shown in Figure 2.

Figure 2

	September NQC	2023	2024	2025	2026
1	CAISO 1-in-2 Load	46,829	47,475	47,987	48,487
2	Reserve Margin (16% in '23, 17% after)	7,493	8,071	8,158	8,243
3	**Total RA Demand**	**54,322**	**55,546**	**56,145**	**56,730**
4	2023 NQC List	48,373	46,883	46,883	46,883
5	Event-Based Demand Response	1,090	980	955	978
6	Imports	6,000	6,000	6,000	6,000
7	Estimate of Contracted Resources	-	7,297	9,168	9,409
8	Thermal Derates from 2023 NQC List	(700)	(700)	(700)	(700)
9	Remove Diablo from Planning	-	-	(2,280)	(2,280)
10	OTC, Retired or Contracted by DWR	-	(3,692)	(3,692)	(3,692)
11	Excess IOU Procurement for Higher Effective PRM	(968)	(1,700)	(1,700)	-
12	Retention for Substitution	(619)	(619)	(619)	(619)
13	**Total RA Supply**	**53,176**	**54,448**	**54,014**	**55,978**
14	Surplus Supply (Deficit) [Assuming Loss of Diablo]	(1,146)	(1,098)	(2,131)	(752)

5. Results Generally Align with Joint Agency Reliability Assessment.

The Joint Agency Reliability Planning Assessment, issued on February 9, 2023, assessed hourly supply sufficiency across each year between 2023-2032. Here we focus on the Joint Agency results during critical hours in the month of September 2023-2026 using their assumption that new resources are based on ordered procurement with a delay rate of 40 percent. This assessment differs from the CalCCA assessment above because it focuses on hourly supply sufficiency, rather than RA sufficiency for compliance purposes. Consequently, the Joint Agency assessment:

- Projects a higher completion of new resources for September 2023 (1,750 MW vs. 1,579 MW);
- Uses hourly production of wind and solar on peak demand days, resulting in a contribution of 1,819 MW from wind and solar to meeting demand in Hour 19 of September, compared to the 2,401 MW of wind and solar NQC in the RA stack;
- Uses earlier data for the 2023 NQC list and assumptions for imports (5,500 MW vs. the more recent 6,000 MW assumption);
- Uses demand response estimates that may include programs that are not typically used to meet RA requirements;
- Assumes the full contribution of thermal plants are available each hour without accounting for ambient thermal derates associated with high temperatures;
- Does not need to consider the effect of the IOUs' retention of capacity for substitution, since those resources will be available supply unless they are actually substituted for a resource on outage;

- Does not need to consider the effect of the IOUs' incremental "effective" PRM procurement; although the supply may not be available to LSEs to meet their RA requirements, the resources will be a part of the actual supply.

Despite these differences, which tend to present a more positive view of supply, the assessment shows a very tight supply margin, for Hour 19 in September – arguably the most challenging hour to meet. The Joint Agency assessment is summarized below in Figure 3, which was prepared by CalCCA using Joint Agency data.[23]

Figure 3

	Hour 19 Assessment in the Month of September	2023	2024	2025	2026
1	CAISO 1-in-2 Load	46,827	47,472	47,933	48,424
2	Reserve Margin (16% in '23, 17% after)	7,492	8,070	8,149	8,232
3	**Total Hourly Demand**	**54,319**	**55,542**	**56,082**	**56,656**
4	Existing Resources Except Wind and Solar	44,817	44,817	44,817	44,817
5	Supply from Wind	1,810	1,810	1,810	1,810
6	Supply from Solar	9	9	9	9
7	Estimated Completion of CPUC Mandated Procurement	1,750	6,431	10,381	11,755
8	Demand Response	1,274	1,274	1,274	1,274
9	Imports	5,500	5,500	5,500	5,500
10	Remove Diablo from Planning	-	-	(2,280)	(2,280)
11	OTC, Retired or Contracted by DWR	-	(3,757)	(3,757)	(3,757)
12	**Total Hourly Supply**	**55,159**	**56,084**	**57,753**	**59,128**
13	Surplus Supply (Deficit)	840	542	1,672	2,472
14	Incremental Demand with 2020 Equivalent Event	3,044	2,611	2,636	2,663
15	Add'l. Incremental Demand with 2022 Equivalent Event	1,639	1,662	1,678	1,695
16	Surplus Supply (Deficit) with Extreme Weather	(3,843)	(3,731)	(2,642)	(1,887)

6. The Impact of Weather on Capacity

The changes in precipitation levels from 2022 to 2023 have been an extreme that helps to demonstrate the impact of weather on capacity. As of June 14, 2023, the California Department of Water Resources (CDWR) reports that the water content of snowpack for the State is at 333 percent of normal.[24] On the same day in 2022, CDWR reported that the snowpack had already melted leaving the state at zero percent of normal. In addition to the snowpack, rain has helped to fill reservoirs prior to the snow melt placing many of California's reservoirs above their historical average as early as March.[25]

[23] CalCCA created the table from the underlying data used in the Joint Reliability Planning Assessment (https://efiling.energy.ca.gov/GetDocument.aspx?tn=248714&DocumentContentId=83233 consistent with a conversation with CEC staff on Jan. 31, 2023.

[24] https://cdec.water.ca.gov/snowapp/sweq.action.

[25] https://cdec.water.ca.gov/reportapp/javareports?name=STORSUM.202303.

Using data from the CEC from the past 20 years, 2006 had the highest amount of energy production from hydroelectric generating facilities at 48,559 gigawatt hours (GWh). This high was reached on installed capacity of 13,557 MW of large and small hydro in California at the time for a capacity factor of 40.9 percent. This compares with 2022 where the CEC shows energy generation of 17,612 GWh from an installed capacity of 14,035 MW for a capacity factor of 14.3 percent.[26] Simply put, more water yields more energy. Since the amount of installed capacity in 2023 from large and small hydro is at least as much as it was in 2006, given the amount of available water, it is reasonable to expect that the energy production in 2023 will be similar to that in 2006.

The RA program counts capacity from resources based on their capability of providing that level of output in a sufficient number of hours to meet system load needs. The RA program will therefore derate the amount of capacity from hydroelectric facilities to account for water available for use at the facility. In 2022, this amount was at historic lows. In fact, the process for RA had the Year-Ahead showing for 2023 occurring in October 2022. At that point in time, CDWR reported snow-pack levels at zero percent of normal. Without knowing that the 2022-2023 precipitation season would be as good as it turned out, the amount of hydroelectric generation for RA was likely assumed to be at very low levels for the Year-Ahead showing process. These expectations likely had a significant effect on the amount of hydro output offered as RA in the Year-Ahead process.

This issue does not only impact California. Hydroelectric generation is prevalent in the Pacific Northwest and there are significant quantities in the Southwest as well. With uncertainty surrounding the amount of precipitation that either of those areas would receive, entities were unwilling to sell significant amounts of import capacity for the Year-Ahead process.

With conditions better known in June, significant amounts of hydroelectric generation in and out of state are now likely to be available, easing the tight capacity market. High hydro conditions are good news for 2023 for California's Month-Ahead RA process but does little to cure the lack of capacity for the already complete Year-Ahead RA process. Importantly, it further has little bearing on what the hydroelectric conditions will bring for 2024 onward.

7. The Shortage of RA has Capacity Prices at All Time Highs

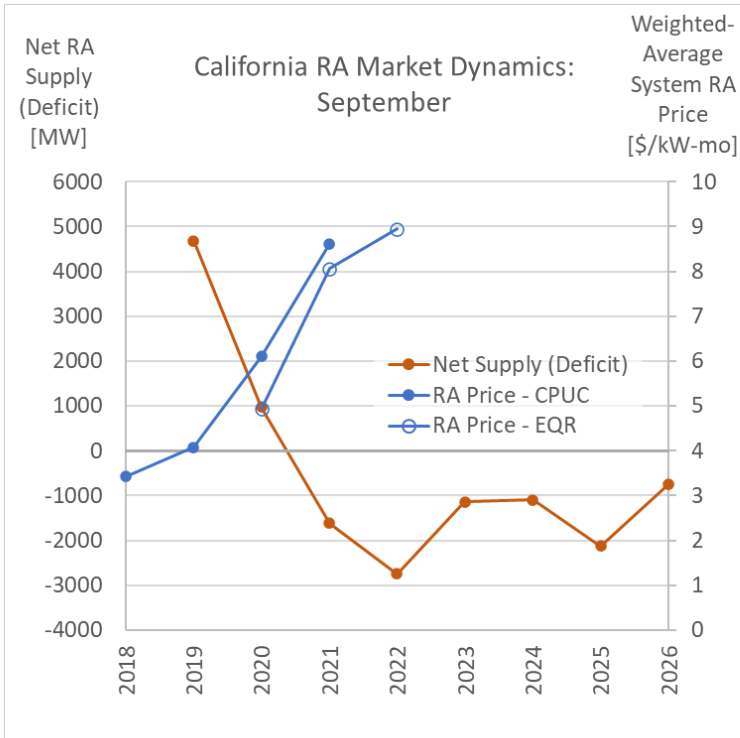
As basic economics would predict, these conditions are ripe to produce exorbitant prices, making reliably serving California's electricity customers more expensive. Between September 2019 and September 2021, the net RA supply decreased by 6 GW[27] while the weighted average price for September RA increased by over 100 percent from $4.08/kW-month to $8.62/kW-month, Figure

[26] https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/electric-generation-capacity-and-energy.

[27] CalCCA estimated the net RA supply in September for 2019-2022 using assumptions similar to the 2023 RA Stack in Section 3. Key differences include the use of a 15 percent PRM, load forecasts from the CED 2019 and CED 2021, NQC lists from the relevant year, event based demand response from the relevant year, historical import RA from the relevant year, and no excess IOU procurement for higher effective PRM.

4.[28] CalCCA analysis of public capacity transaction data in FERC Electronic Quarterly Reports (EQR) shows that the weighted-average price for capacity delivered to the CAISO system continued to rise in 2022

Figure 4



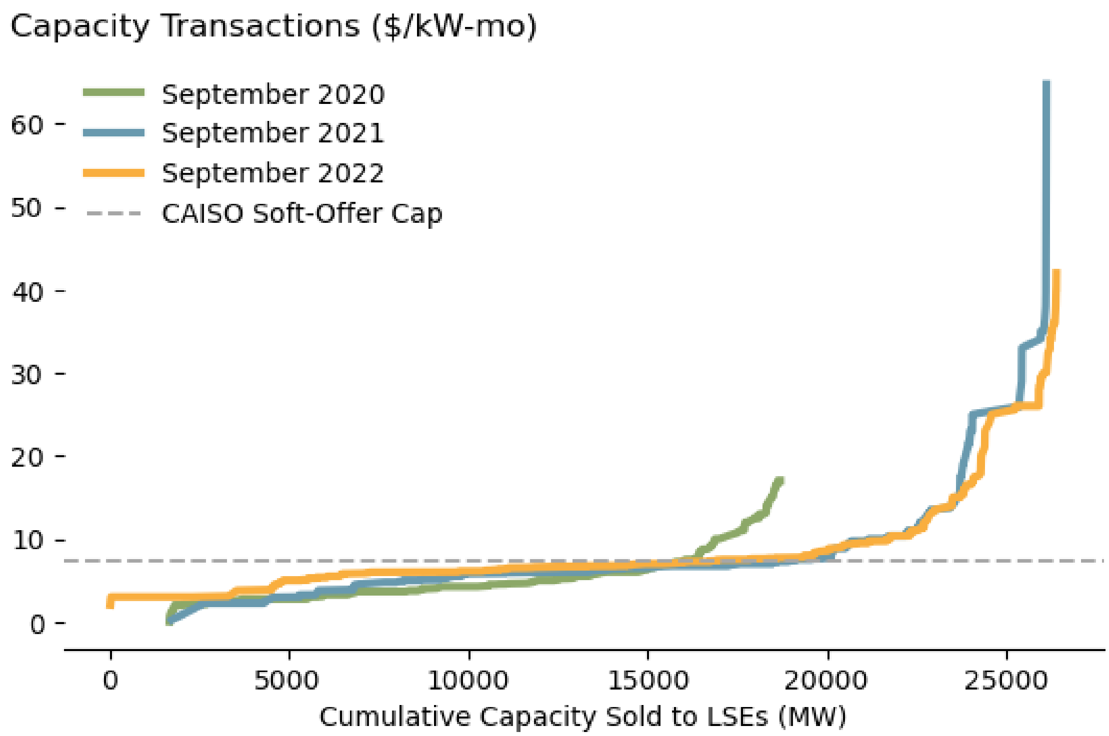
Importantly, detailed transaction level data from the FERC EQRs shows that the rise in average capacity prices is primarily driven by a growing share of transactions at extremely high prices, Figure 5. In September 2020, a time with excess RA supply, around 2,600 MW of RA capacity was purchased by California LSE's at prices above $7.34/kW-mo, the CAISO's recently proposed soft-offer cap for the capacity procurement mechanism (CPM).[29] In contrast, more than 7,100 MW and 9,600 MW were purchased at prices above $7.34/kW-mo in September 2021 and September 2022, times with an RA deficit. The highest observed prices rose from $17/kW-mo in September 2020 to over $60/kW-mo in September 2021 and over $40/kW-mo in September 2022. LSE's faced with a responsibility to meet their RA obligation at any cost are being met with generators only willing to sell at prices five to eight times higher than the CAISO soft-offer cap. The lack of sufficient capacity available to meet RA needs is clearly driving up costs for California electricity customers.

---

[28] 2021 Resource Adequacy Report (Apr. 2023), at 29: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/2021_ra_report_040523.pdf.

[29] *Capacity Procurement Mechanism Enhancements*, Track 2 Straw Proposal (June 30, 2023): http://www.caiso.com/InitiativeDocuments/StrawProposal-CapacityProcurementMechanismEnhancements-Track2.pdf.

Figure 5

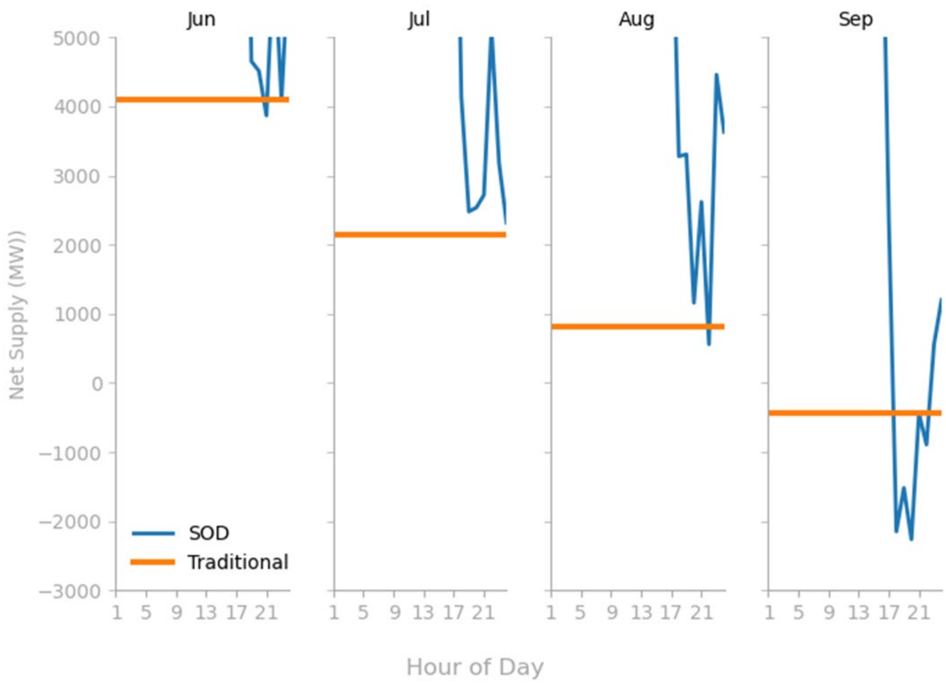


8. The New CPUC Slice of Day RA Mechanism Will Not Address Thin Supply Margins

In the current Resource Adequacy framework, LSEs procure RA resources for each month of the year to meet their allotted share of the monthly peak demand and planning reserve margin. The contribution of a resource toward the RA obligation is based on its net qualifying capacity (NQC), represented by a single value each month. Beginning in 2025, the Resource Adequacy framework will shift to a new "Slice-of-Day" framework in which the monthly RA obligation is defined for each of the 24 hours in a day and the contribution of a resource can similarly vary by hour of the day. To analyze the implications of this new framework CalCCA developed a "Slice of Day" RA stack analysis for 2023 using data and assumptions similar to the RA stack presented in Section 3. The results show that in critical months, the shift to the Slice-of-Day framework will further tighten the resource adequacy market, Figure 6.

The SOD framework will expose existing constraints currently masked by the annual-peak RA requirements measure. Many hours of the day have significant surplus supply, but not in early evening hours after sunset. In the early evening, the net supply in the SOD stack is at its lowest and, as shown in Figure 6, can be lower than the net supply calculated with the traditional RA stack for the same set of resources. Months in which the SOD net supply is lower than the traditional net supply will lead to a tighter RA market and greater challenges for LSEs to meet their RA obligations. For the resources and demand in the 2023 RA stack, the most challenging month is September in both the SOD and traditional approach, with hour ending 20 the most critical hour in September.

Figure 6



The differences between the Slice of Day stack and the traditional RA stack include:

- Demand: For SOD, demand is represented by the 24 hourly values on the day with the highest peak load of each month.[30] For the traditional stack, demand is the single highest peak load of each month. The 16 percent planning reserve margin is applied to all 24 hours in SOD and the highest load hour in the traditional stack.
- Wind and Solar: For SOD, the contribution of wind and solar varies by hour and is calculated from exceedance values with historical data.[31] For the traditional stack, the contribution of wind and solar is based on a monthly estimate of the effective load carrying capability (ELCC).
- Energy Storage: For SOD, the contribution of storage to any hour is constrained based on characteristics of the resource, including the power rating, the maximum sustained discharge energy, the maximum number of daily cycles, and the availability of excess

30 Hourly managed net load forecast for 2023 from the California Energy Demand 2022 Hourly Forecast for CAISO in the Planning Scenario: https://efiling.energy.ca.gov/GetDocument.aspx?tn=248359&DocumentContentId=82768.

31 CPUC Master Resource Database version 3: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/resource-adequacy-compliance-materials/resource-adequacy-history/mrd-draft-2.xlsx. The exceedance profiles for wind and solar vary by technology and location.

capacity to charge the storage.[32] Within these capabilities storage is dispatched to minimize any deficits in net supply, or if none exist, to flatten out the net supply.[33] For the traditional stack, the contribution of storage is based on its full nameplate capacity (or proportionally derated if the maximum discharge duration is less than 4 hours.).

- Imports: For the SOD, imports are assumed to be available between hour ending 7 and hour ending 22 following the common "6X16" contract schedule. In the traditional stack RA import estimates are based on estimated availability during early evening hours.

The primary reason why the SOD net supply in hour ending 20 is lower than the traditional net supply in September is differences in the contribution of solar. In the traditional RA stack, solar resources contribute up to 11 percent of their nameplate capacity toward the RA supply. In the SOD stack, on the other hand, the contribution of solar to supply in hour ending 20 is nearly zero based on the calculated exceedance values.

Design elements of the SOD framework may further exacerbate the challenges relative to the analysis presented above. In the above analysis, all sources of supply and all demand are pooled prior to calculation of the hourly net supply. In practice, the SOD framework will require that each LSE meet its 24-hour obligations only with resources in its portfolio. Unless there are changes to the proposed SOD framework, resources cannot be subdivided hourly to optimize the LSEs' portfolios. Depending on the composition of individual LSE portfolios and the 24-hour shape of their demand profile, the net supply from first pooling all loads and resources, as assumed in this stack, may be greater than the aggregate net supply without pooling, reflecting the constraints on individual LSE showings. Two examples illustrate this challenge:

- An LSE with a net surplus in one hour cannot allocate that surplus to another LSE with a deficit in the same hour unless they transfer all 24-hours of capability from the resource to the other LSE.
- The charging energy for storage must be met by surplus supply within an LSE's own portfolio, any excess charging energy in another LSE's portfolio is not transferable without trading all 24 hours of the capability of an excess resource.

Even achieving the net supply shown in this SOD stack may require modifications to the framework such as adding transactability of LSE load obligations or individual hours of a resource. Nevertheless, even with these enhancements the transition to the Slice of Day framework alone will not address the tight RA market conditions projected through 2026.

9. Challenges With New Resource Uncertainty

New resources bring new challenges. The RA program allows a new resource to count in the Year-Ahead process from the month of its expected on-line date. However, if the resource fails to reach commercial operation at that date, the resource may not be counted in the Month-Ahead process and the LSE must find a different resource to meet their RA needs. The challenge this

---

32 Ibid.

33 LSE's can determine their planned storage dispatch. For this analysis, CalCCA developed a simple optimization model to determine the best way to charge and discharge storage.

presents is that an LSE is unlikely to sell any excess RA in the Year-Ahead process if that excess is contingent on a new resource achieving commercial operation. Why sell off excess resources only to find the new resource did not come on-line and have to buy another resource at potentially a higher price than the excess was sold for? In addition, it is becoming relatively common for entities to offer sales of capacity contingent on the new resource achieving commercial operation. That is, a seller that is long capacity if the new resource comes online will sell the excess contingent on the resource achieving commercial operation and thus move the non-compliance risk to the buyer.

Much like the hydroelectric discussion in section 6, the availability of new build expected to come on-line in a compliance year is likely more constrained than the Month-Ahead process when the commercial operation date is known. To the extent the resource has come on-line, the LSE is now willing to sell excess RA so that their customers get the value of the resource without a risk that it will make them non-compliant with their RA requirements.

The only way to ease the current capacity constraints of the RA market is to continue to build new resources. However, this new build is likely to ease constraints in the Month-Ahead RA market and not in the Year-Ahead market due to the uncertainty of achieving commercial operation from the resource.

10. Conclusion

The supply of Resource Adequacy is insufficient to meet 2023 demand. This insufficiency made it impossible for all LSEs to comply with year-ahead requirements, and the insufficiency likely will carry into month-ahead compliance requirements absent a significant increase in hydro RA availability. The only durable solution is to bring new resources online, yet new resources continue to face supply chain, interconnection, and permitting challenges. Until those challenges are met holistically, RA supply will remain tight and prices paid by consumers will remain high. In addition, the potential variability of RA supply between Year-Ahead and Month-Ahead RA showings creates a new issue that must be recognized in the RA program.

Seven interim actions should be considered.

1) Expressly recognize the RA supply insufficiency and its consequences in the CPUC's next RA decision.
2) Establish a "safety valve," through a discretionary waiver structure for LSEs left deficient in meeting their requirements despite best efforts, to prevent the exercise of market power by suppliers.
3) Consider the potential for waiving Year-Ahead penalties if an LSE meets its obligation in the Month-Ahead showing.
4) Increase the likelihood that California LSEs can secure imports for RA compliance by increasing the CPUC-imposed energy market bid cap on imports – currently set at $0/MWh -- to reduce sellers' risk of financial loss.
5) Prevent erosion of the supply stack available to LSEs to meet their RA requirements by limiting any IOU "effective PRM" procurement to truly incremental, non-RA resources.

6) Increase market transparency by providing aggregated compliance data to reveal (a) trends in the categories of resources (e.g., imports, storage) used for compliance and (b) the extent of California resource exports.
7) Test and evaluate the new Slice of Day RA model to ensure that:
    a. There are sufficient resources to be able to meet the new RA accounting mechanism. If there are not, then the Commission must examine what must be done to obtain a fleet capable of meeting the need before implementing penalties for RA deficiencies if the current fleet is incapable of meeting the reliability need.
    b. Evaluate the need for transactability adjustments in the Slice of Day mechanism. As discussed in section 8, the ability to meet the requirements of the entire system from all resources is just the first step. While necessary, it is not sufficient to ensure effective compliance. To be sufficient, the Slice of Day mechanism must consider effective and efficient mechanism to enable parties to transact to meet individual compliance obligations which will also ensure that the total reliability need is met.

ATTACHMENT 2
TO
CALIFORNIA COMMUNITY CHOICE ASSOCIATION'S COMMENTS ON THE SCOPING ORDER FOR THE 2023 INTEGRATED ENERGY POLICY REPORT

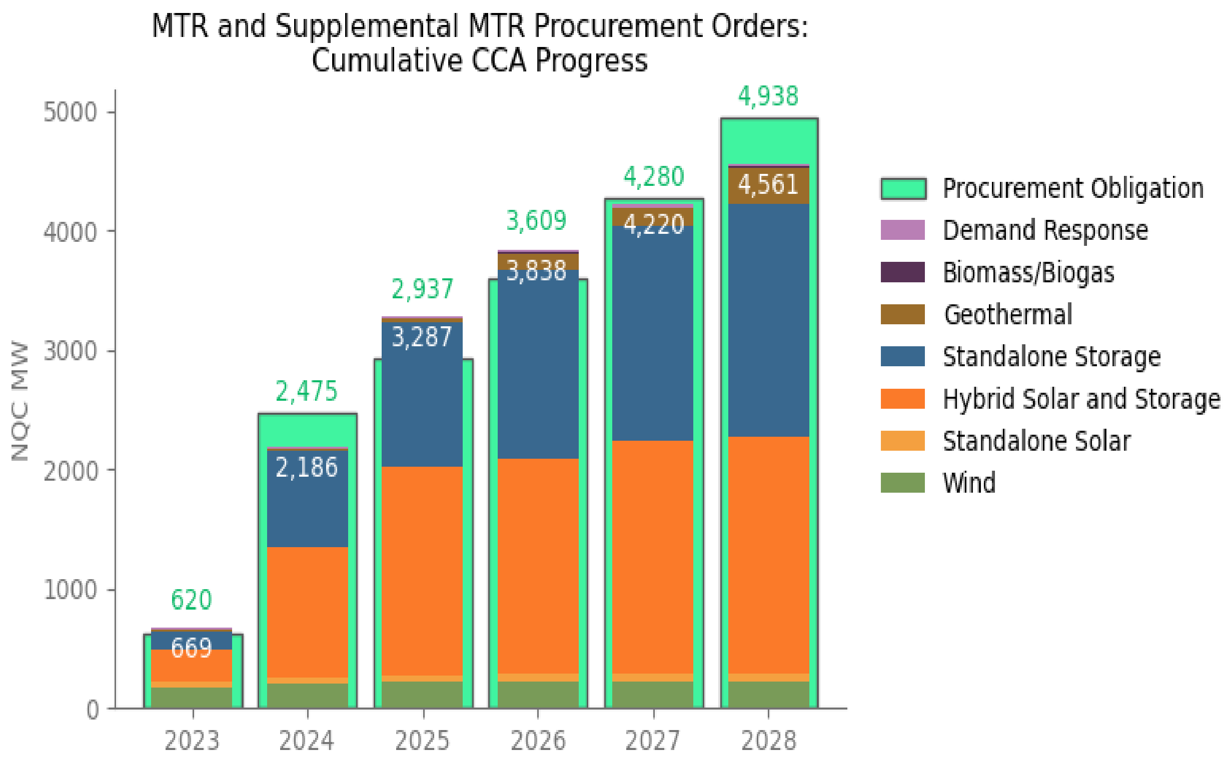
PROCUREMENT ISSUES

Procurement Issues

California Community Choice Association

CCA MTR Procurement on Track but Faces Challenges

- CCAs collectively are on track in 2022 and 2023 in response to CPUC procurement orders
- 2024 brings greater challenge for the <u>same</u> reasons affecting all LSEs: interconnection, supply chain, permitting, infrastructure



Data updated August 2023

CALCCA
ADVANCING LOCAL ENERGY CHOICE

CCA Generating Project Delays

	Number of Delayed Projects	Delayed Capacity (Nameplate MW)	Delayed Capacity (NQC MW)	NQC-weighted Delay (months)
Total	51 [53%]	3,472 [48%]	1,763 [43%]	12.8
Supply Chain	30 [57%]	2,821 [45%]	1,344 [39%]	10.5
Interconnection	25 [56%]	1,579 [49%]	717 [41%]	11.1
Permitting	14 [29%]	587 [44%]	356 [47%]	20.8
Other	16 [56%]	1,123 [51%]	334 [40%]	8.9

Notes:

-- Percentages in brackets [%] are the share of delayed projects with original COD before 8/1/2023

--Total is less than sum of delay reasons because projects can be delayed for multiple reasons

Reasons for Supply Chain Delays

	Number of Delayed Projects	Delayed Capacity (Nameplate MW)	Delayed Capacity (NQC MW)
Supply Chain	30	2,821	1,344
Related to Dept. of Commerce antidumping investigation?	24	2,372	1,135
Related to Uyghur Forced Labor Protection or Withhold Release Orders?	14	1,647	730
Import through California Port?	12	1,506	696

Notes: Supply chain delays caused by issues like the AD/CVD investigation on solar supply, the pandemic, and the Ukraine conflict. Increased demand across the U.S., driven in part by the IRA, is impacting modules, BESS commodities, and EPC. One project also cited a switchgear shortage as a reason for delay.

CALCCA ADVANCING LOCAL ENERGY CHOICE

Reasons for Interconnection Delays

	Number of Delayed Projects	Delayed Capacity (Nameplate MW)	Delayed Capacity (NQC MW)
Interconnection	25	1,579	717
Related to Interconnection Facilities?	20	1,392	537
Related to Upstream T&D Network Upgrades?	11	761	254
Related to Equipment Sourcing?	7	613	304
Related to Skilled Workforce Shortage?	6	283	140
Related to Other Interconnection?	4	150	145

Notes: Descriptions of delays include issues with equipment deliveries, construction of upstream upgrades, and changing requirements; internal resource constraints (engineering, installation, RAS) at SCE and PG&E; and challenges with re-configuration of projects (dropping storage, co-located to hybrid).

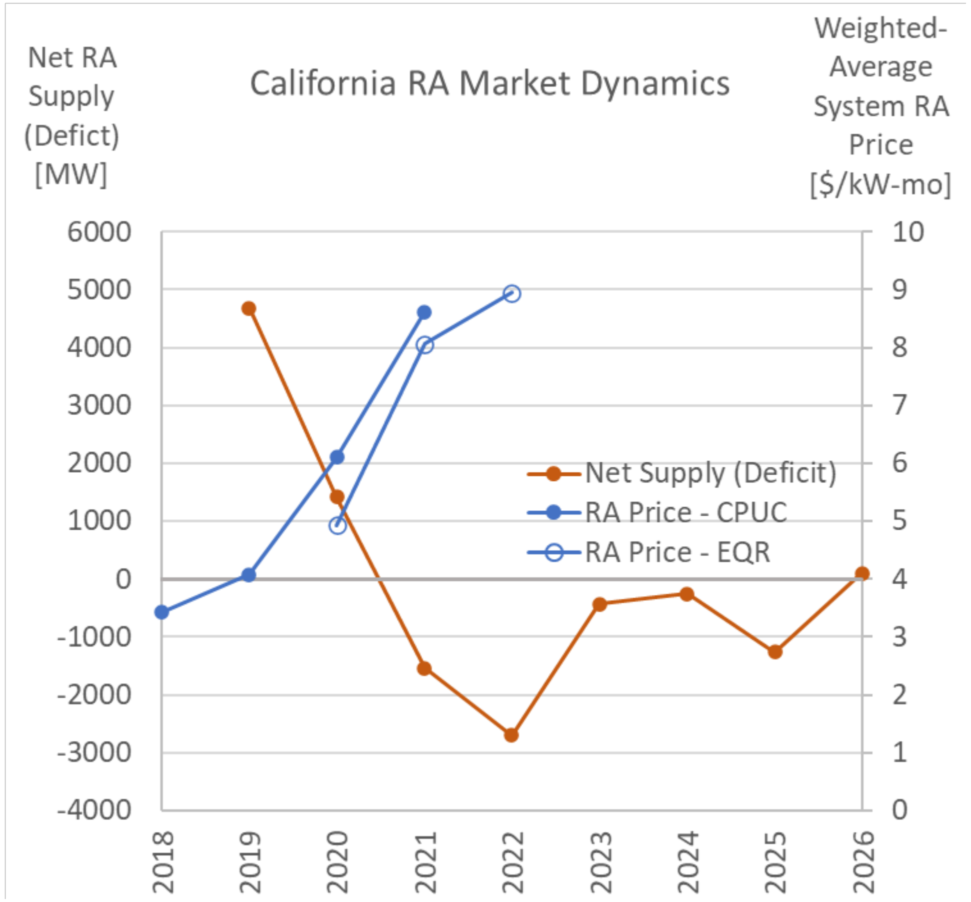
Resource Adequacy Supply Is Extremely Tight

Not All LSEs May Be Able to Meet Their Requirements

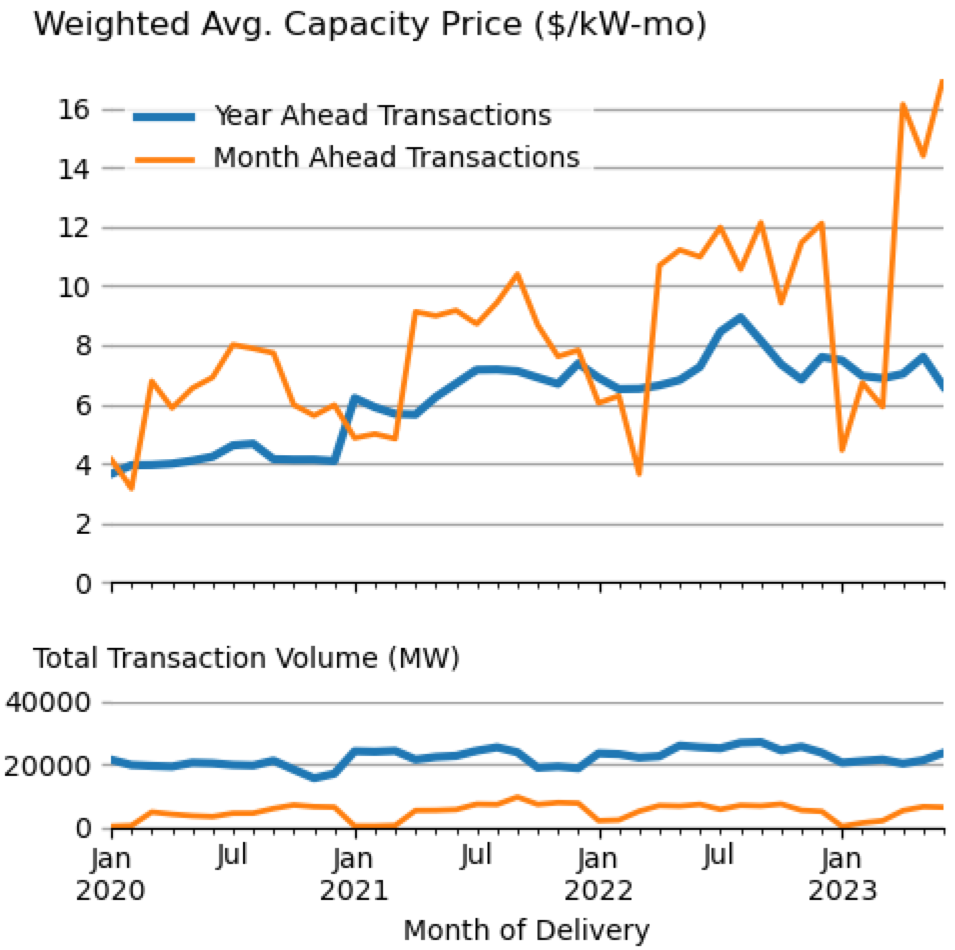
	September NQC	2023	2024	2025	2026
1	CAISO 1-in-2 Load	46,829	47,475	47,987	48,487
2	Reserve Margin (16% in '23, 17% after)	7,493	8,071	8,158	8,243
3	**Total RA Demand**	**54,322**	**55,546**	**56,145**	**56,730**
4	2023 NQC List	47,618	47,618	47,618	47,618
5	Event-Based Demand Response	1,090	1,105	1,111	1,111
6	Imports	6,000	6,000	6,000	6,000
7	Estimate of Contracted Resources	1,849	7,297	9,168	9,409
8	Thermal Derates from 2023 NQC List	(719)	(719)	(719)	(719)
9	Remove Diablo from Planning	-	-	(2,280)	(2,280)
10	OTC, Retired or Contracted by DWR	-	(3,692)	(3,692)	(3,692)
11	Excess IOU Procurement for Higher Effective PRM	(206)	(1,700)	(1,700)	-
12	Supply-Side Emergency Reliability Procure. (D.21-12-015)	(1,125)	-	-	-
13	Retention for Substitution	(619)	(619)	(619)	(619)
14	**Total RA Supply**	**53,888**	**55,290**	**54,886**	**56,827**
15	Surplus Supply (Deficit) [Assuming Loss of Diablo]	(433)	(256)	(1,258)	98

CALCCA
ADVANCING LOCAL ENERGY CHOICE

Tight Market Conditions Lead to High RA Prices



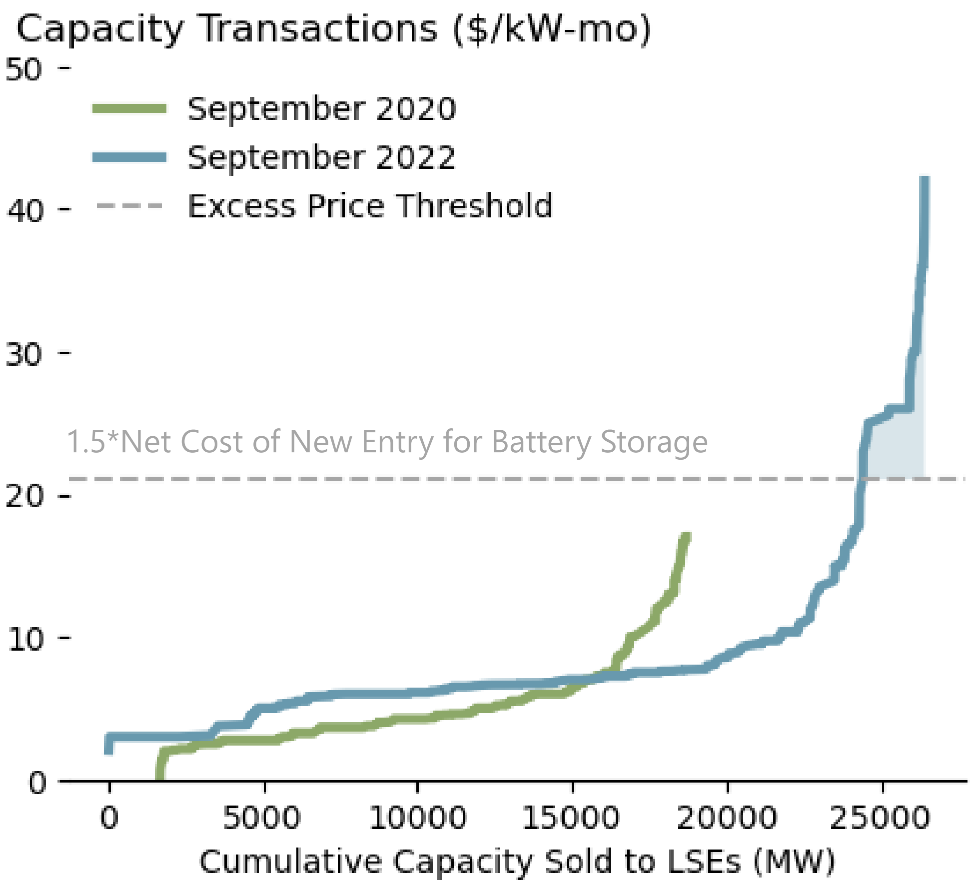
Data Sources: CalCCA RA Stack, CPUC Resource Adequacy Reports, FERC EQRs

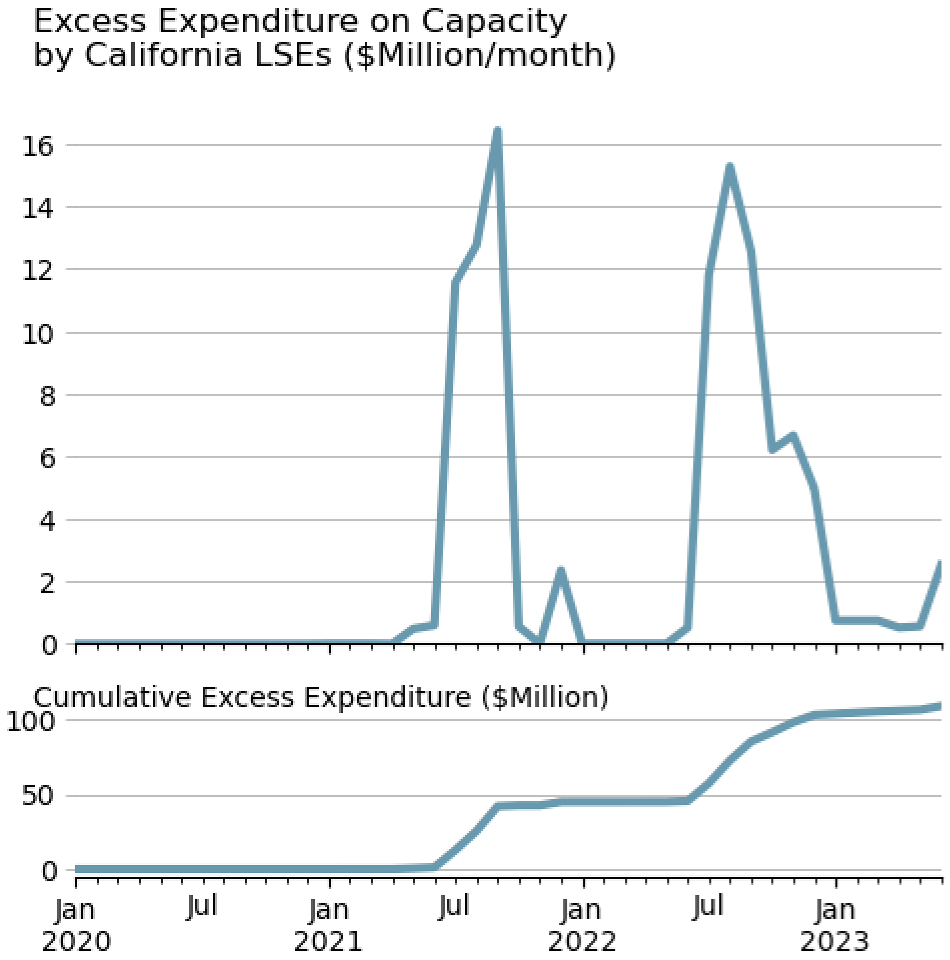


Data Source: FERC EQRs

ADVANCING LOCAL ENERGY CHOICE

Unreasonably High Prices Are Driving Up RA Costs

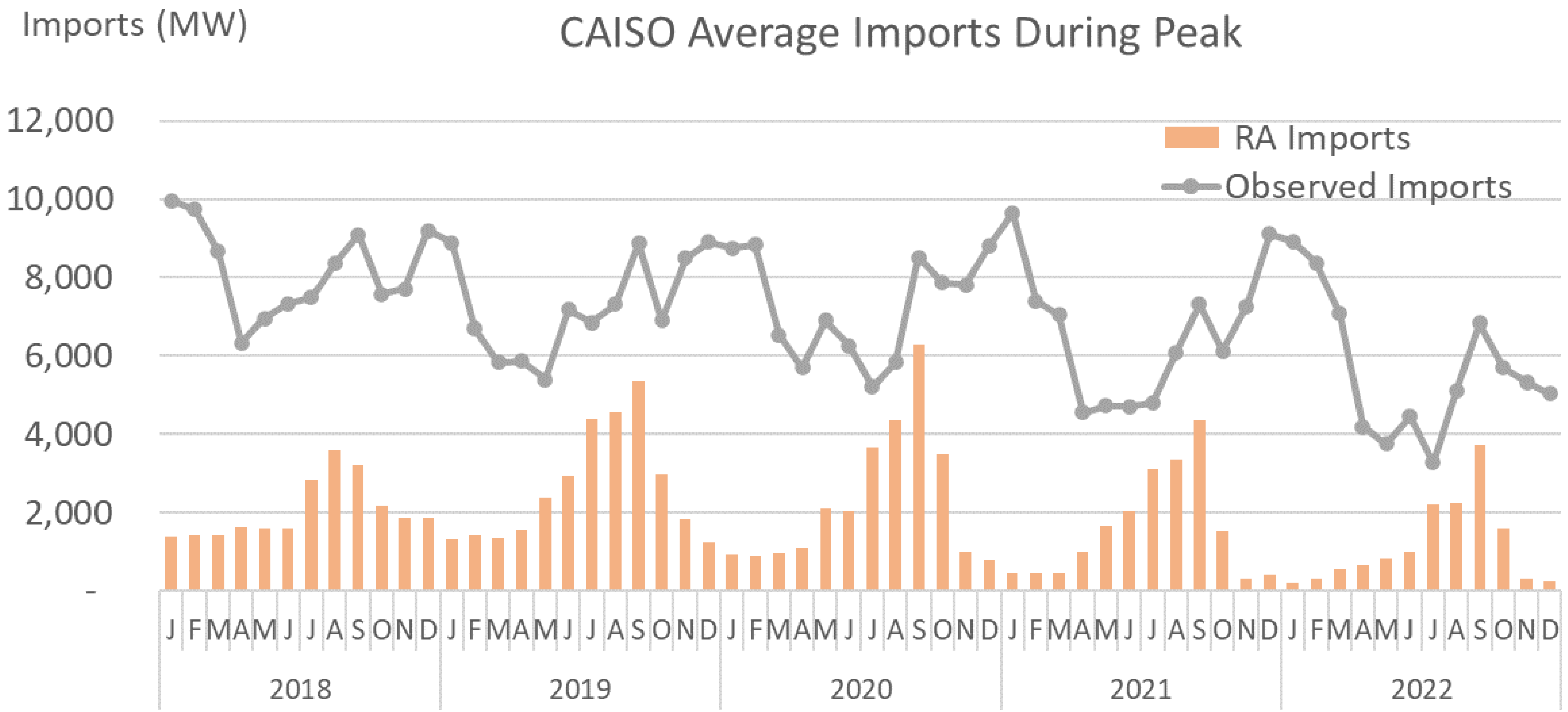




CALCCA
ADVANCING LOCAL ENERGY CHOICE

Data Source: FERC EQRs

Total Energy Imports > Import RA



Data Source: CAISO Market Monitoring Report and CAISO Production and Curtailment data

CALCCA
ADVANCING LOCAL ENERGY CHOICE