Final Flexible Capacity Needs Assessment for 2027

Version # V1.0

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1.0 INTRODUCTION

Each year, the California Independent System Operator (ISO) conducts an annual technical study to determine the flexible capacity needs of its balancing authority area (BAA) for up to three years. This helps ensure that the ISO maintains system reliability as specified in its Tariff, section 40.10.1 [1]. The ISO developed and evolved the study process in its Flexible Resource Adequacy Criteria and Must-Offer Obligation (FRAC-MOO) stakeholder initiative and in conjunction with the California Public Utility Commission's (CPUC) annual Resource Adequacy (RA) proceeding (R.11-10-023[2]).

This report presents the ISO's flexible capacity needs assessment, specifying the ISO's forecast monthly flexible capacity needs for binding year 2027, and advisory years 2028-2029.

The ISO calculates the overall flexible capacity need of the CAISO BAA system and the relative contributions needed from load serving entities (LSEs) under each local regulatory authority (LRA). This report details the system-level flexible capacity needs and the aggregate flexible capacity needs attributable to CPUC-jurisdictional LSEs. This report does not break out the flexible capacity needs by LSE attributable to individual LRAs other than the CPUC.

The ISO will use the results from the study to allocate shares of the system flexible capacity needs to each LRA that oversees LSEs responsible for load in the CAISO BAA consistent with the allocation methodology described in the ISO's Tariff section 40.10.2. Based on that allocation, the ISO will advise each LRA of its share of the ISO's flexible capacity needs.

Also, as a part of the annual flexible RA process, the ISO calculates the annual availability assessment hours (AAH). The AAH are used to determine the hours of greatest need to maximize the effectiveness of the RA Availability Incentive Mechanism (RAAIM), rewarding resources for being available during these hours. The AAH are updated annually and published in the ISO's Business Practice Manual for Reliability Requirements

2.0 SUMMARY OF OVERALL PROCESS

The ISO determines the quantity of flexible capacity needed each month to reliably address its flexibility and ramping needs for the upcoming resource adequacy year and publishes its findings in this flexible capacity needs assessment. The ISO calculates flexible capacity needs using the method codified in the ISO Tariff. This methodology includes calculating the seasonal

[1] The California Public Utility Commission's (CPUC) annual Resource Adequacy (RA) proceeding (R.11-10-023[1]). https://www.caiso.com/documents/section-40-resource-adequacy-demonstration-for-scheduling-coordinators-in-the-caiso-balancing-authority-area-as-of-nov-19-2025.pdf
[2] The California Public Utility Commission's (CPUC) annual Resource Adequacy (RA) proceeding (R.11-10-023[2]).

amounts of three flexible capacity categories and determining seasonal must-offer obligations for two of these flexible capacity categories.

The key results of the ISO's flexible capacity needs assessment for 2027 are based on the California Energy Commission's 1-in-2 hourly Integrated Energy Policy Report (IEPR) forecast of Managed Total Energy for Load[3], excluding the unknown-load scenario, which considers the following components provided by the Energy Commission for 2027:

[4] Baseline Consumption Load

- Unadjusted consumption
- Data center
- Agricultural and water pumping
- Electric vehicle (EV) charging
- Behind the meter (BTM) photo voltaic (PV)
- BTM storage residential (RES) and non-residential (NONRES)
- Additional achievable (Varying Scenarios)
- Energy efficiency (AAEE)
- Transportation electrification
- Fuel substitution

The CEC Demand Forecast does not contain battery charging load for market and in front of the meter battery resources.

In addition to the flexible capacity and ramping needs, the calculation of the AAH is also completed as a part of the Flex RA study process using the IEPR data described above, as well as the most recent year of actual load historical data.

2.1 Summary of Overall Results

1. The expected system-wide flexible capacity needs for 2027 are greatest in March at 30,378 MW and lowest in December at 25,060 MW.

[3] https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=25-IEPR-03

[5] Reliability Requirements Business practice manual Section 10. Available at https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Reliability%20Requirements

2. The calculated flexible capacity needed from the "base flexibility" category is 42% of the total amount of installed or available flexible capacity in the summer months (May-September) and 27% of the total amount of flexible capacity for the non-summer months (October-April). See Section 6 for a detailed description of the method used.
3. The "peak flexibility" categories are stable for both seasons, with summer 2027 at 53% and winter at 68% of total flexibility, respectively
4. The ISO established in this year's assessment for 2027 the time period of the must-offer obligation for resources counted in the "peak" and "super-peak" flexible capacity categories, defined in the ISO Tariff, section 40.4.10, as the five-hour periods of hours ending HE15 to HE19 for October through February and HE17 to HE21 for May through August, and HE16 to HE20 for the shoulder months of March, April, and September. Section 8.0 discusses the monthly pattern of the must-offer obligation hours in 2027.
5. The ISO also published advisory requirements for two additional years, 2028 and 2029, following the upcoming 2027 resource-adequacy year at the ISO system total levels, as shown in Figure 2.
6. The determined final AAH for 2027 are HE17 to HE21 for the summer months (June-October), HE18 to HE22 for the winter months (January-February, and November-December), and HE18 to HE22 for the spring months (March-May).

3.0 CALCULATION OF THE ISO SYSTEM-WIDE FLEXIBILITY CAPACITY NEED

Based on the methodology described in the ISO's Tariff and the business practice manual[5], the ISO calculated the ISO system-wide flexible capacity needs as follows:

$$Flexibility\ Need_{MTH_y} = Max\left[\left(3RR_{HR_x}\right)_{MTH_y}\right] + Max\left(MSSC, 3.5\% * E\left(PL_{MTH_y}\right)\right) + \varepsilon$$

Where:

$Max\ [3RR_{HRx})\ _{MTHy}]$ = Largest three hour contiguous ramp starting in hour x for month y
E (PL) = Expected peak load
MTHy = Month y
MSSC = Most Severe Single Contingency[6]

[5] Reliability Requirements Business practice manual Section 10. Available at https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Reliability%20Requirements
[6] For the 2027 flex assessment, the ISO assumed its MSSC is the loss of one Diablo Unit, which is consistent with what was done in past assessments. Also, for this analysis the ISO continues to use 3.5% of its peak monthly load forecast to estimate the spinning reserve requirement of its contingency reserve obligation.

ε = Annually adjustable error term to account for load forecast errors and variability methodology

For the 2027 RA compliance year, the ISO will continue to set epsilon (ε) equal to zero.

To determine the flexible capacity needs, including the quantities needed in each of the defined flexible capacity categories, the ISO conducted a six-step assessment process:

1. Generated 1 minute net load forecast for years 2027 through 2029 using all expected[7] and existing grid connected wind and solar resources and the CEC's (CEC 2027 Hourly Forecast for CAISO Planning Scenario) hourly IEPR load forecast. The ISO used data from the most recent year (2025) of 1 minute actual load without batteries charging to formulate a shaped and smoothed 1 minute 2027-2029 load forecast. [8]
2. Calculated monthly system-level three-hour upward net-load ramp plus either the greater of the most severe single contingency or approximately 50% of the contingency reserves requirement of the system. Further, classified the monthly three-hour upward net-load ramp into three categories and then calculated the percents of each category relative to the three-hour upward net-load ramp in each month. For the definition of each of the three categories and the relevant percent, please refer to Section 6.0 below.
3. Applied the calculated percentages in Step 2 to the contingency reserve requirements for each month, so that each category has the appropriate amount of contingency reserve as well as the three-hour net-load ramp component. For each category, the ISO uses the sum of these two quantities as the monthly flexible capacity need.
4. Analyzed the distributions of both the largest three-hour net-load ramps for the primary and secondary net-load ramps to determine the appropriate seasonal demarcations[9].
5. Calculated a simple average of the percent of base flexibility needs for all months within a season.

[7] Expected wind and solar resources also included monthly incremental renewable resources that are dynamically scheduled into the ISO.

[8] See the Draft 2027 Flexible Capacity Needs Assessment at https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/Flexible-capacity-needs-assessment-2027 for more information on the shifting and smoothing methodology

[9] The three-hour primary ramp in each day is the largest three-hour ramp in that day, while the secondary three-hour ramp is the largest three-hour ramp outside the range of the primary three-hour ramp.

6. Determined each LRA's contribution to the flexible capacity need.

4.0 FORECASTING 1 MINUTE NET LOAD

The first step in developing the flexible capacity needs assessment was to forecast the net load. To produce this forecast, the ISO collected, through surveys, the requisite information regarding the existing build-out in 2025 and the expected build-out in 2027 through 2028 of the grid-connected wind and solar resources. After obtaining this data from all LSEs, the ISO constructed the forecast of 1 minute load, grid connected solar and wind resources before calculating the net load curves for 2027 through 2029.

4.1 Building the Forecasted Variable Energy Resource Portfolio

To collect the necessary data, the ISO sent a request in December 2025 to the scheduling coordinators for all LSEs representing load within the ISO balancing area.[10] To assist with common questions regarding the survey, the ISO updated the FAQ document, which is available on the stakeholder page.[11] The deadline for submitting the data request was January 15, 2026. At the time of the stakeholder call in February, the ISO had received data from all LSEs. The data request asked for information on each grid-connected wind and solar resource in the ISO's footprint, in whole or in part, plus external wind and solar resources that are under contractual commitment to an LSE for all or a portion of its capacity that is expected to be dynamically imported into the ISO. Since the CEC's load forecast accounted for the expected behind-the-meter production, there was no need for the ISO to include the behind-the-meter production in the net load calculation.

The ISO also requested LSEs to provide data on existing and expected hybrid and co-Located resources to quantify the contribution of the renewable component. The co-located resource type went live in December 2021 as part of Phase 1 of the hybrid resources initiative.[12] Phase 2 went live on February 1, 2023, and included the addition of the new hybrid fuel type and the ability to identify hybrid components by fuel type within the ISO's Master File. The submittals showed a total of about 9,361 MW of existing and expected co-located renewable resources (excluding storage) in the 2027 timeframe, which were factored into the flexible needs assessment. The survey submittals of hybrid resources showed a total of 1,488 MW of expected renewable hybrid components in 2027. In the Flexible RA study, co-located renewables and renewable components of hybrid resources were also included in calculating the flexible

[10] A reminder notice was also sent out in early January 2025

[11] http://www.caiso.com/InitiativeDocuments/Flexible-Capacity-Requirement-Assessment-Survey-FAQ.pdf

[12] https://stakeholdercenter.caiso.com/StakeholderInitiatives/Hybrid-resources

capacity needs.

The ISO anticipates a large increase in hybrid and co-located resources with renewable components on the system throughout 2025-2029. Co-located resources can produce as capable and nearly identical to those of a traditional variable energy resource (VER). In regard to hybrid resources, although the hybrid resources as a whole are expected to follow their dispatch operating targets (DOTs), the individual renewable components will contribute to the three-hour net-load ramp. Renewable components of hybrid resources must be considered in the flexible needs assessment because all variable resources contribute to the three-hour ramp. Variable resources, whether standalone, co-located, or the variable component of a hybrid resource, contribute to the flexibility requirement of the system, so the ISO incorporates forecasts to estimate the flexible needs associated with these resources. The ISO allows the storage component for co-located and hybrid resources to count towards flexible capacity requirements.

As part of the data request, the ISO also asked for behind-the-meter-solar existing and expected capacity within each LSEs portfolio. For resources that are external to the ISO, the ISO requested additional information about whether the resource would be fixed or dynamically scheduled into the ISO. The ISO only included incremental external resources in the flexible capacity requirements assessment if they were identified as dynamically scheduled to the ISO.

Using the LSE's submitted renewable resources data and the CEC's hourly load forecast, the ISO simulated the net load[13] output for 2027 to 2029 using actual 1-minute load, wind, and solar data for 2025. A breakdown of the LSEs submittal is shown in Table 1. The ISO is comparing the data submitted by the LSEs below to data in the interconnection queue and current capacity to ensure alignment.

[13] Net load is defined as load minus wind production minus solar production.

Table 1: Total ISO System Variable Energy Resource Capacity for Year End Based on LSE Survey Data (Net Dependable Capacity-MW)[14]

Resource Type	Existing 2025	Expected 2026	Expected 2027
Standard Alone Solar	12,717	12,941	14,007
Co-Located Solar	6,939	8,499	9,402
Hybrid Solar	1,120	1,517	2,720
Stand Alone Wind	5,088	5,957	5,957
Co-Located Wind	128	128	128
Hybrid Wind	0	0	0
Total Variable Energy Resource Capacity within the ISO	***25,992***	***29,041***	***32,214***
Non ISO Wind/Solar Resources that's Dynamically Scheduled into the ISO	1,850	2,476	2,481
Total Internal and Dynamically Scheduled VERs in Flexible Capacity Needs Assessment	***27,842***	***31,517***	***34,694***
VERs Additions over 2025		***3,675***	***6,852***
Cumulative behind-the-meter Solar PV Capacity reported by LSEs	18,682	19,951	21,185

Table 1 aggregates the system-wide variable energy resources output by year. Additionally, for existing solar and wind resources, the ISO used the most recent full year of actual solar output data available, which was 2025.

Figures 1a, 1b, and 1c below show the expected buildout by month and year for hybrid and co-located, standalone resources with renewable components, broken down by fuel type, respectively. For this study, both co-located renewables and the renewable components of hybrid resources were considered. Figure 1d displays expected buildout of total renewable Resources for 2025 through 2029.

Figure 1a: Expected buildout of Hybrid Resources for 2025 through 2029

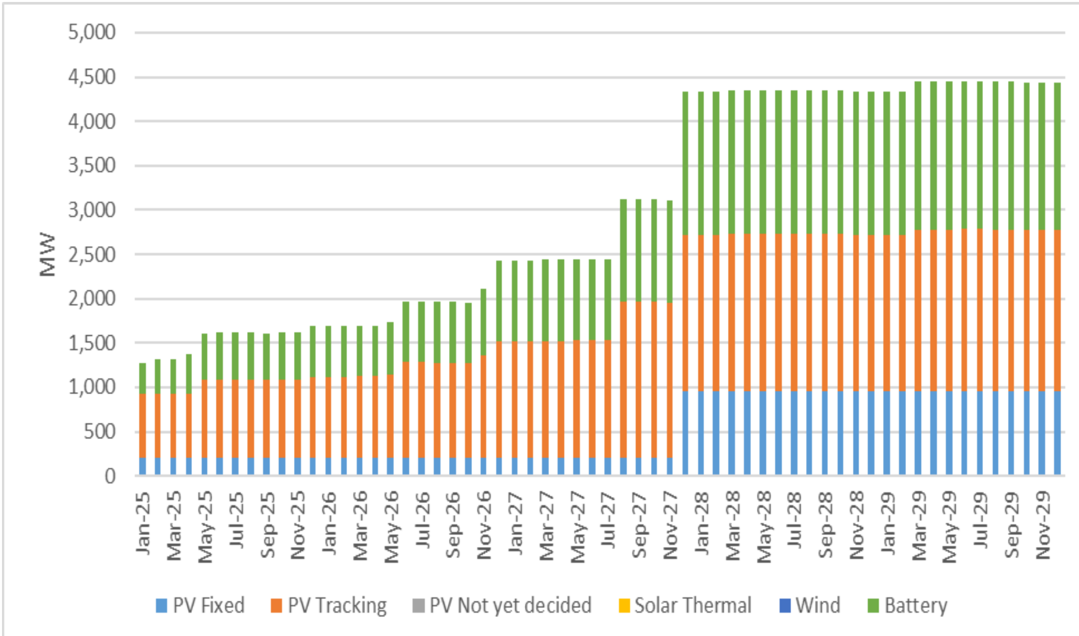


Figure 1b: Expected buildout of Co-Located Resources for 2025 through 2029

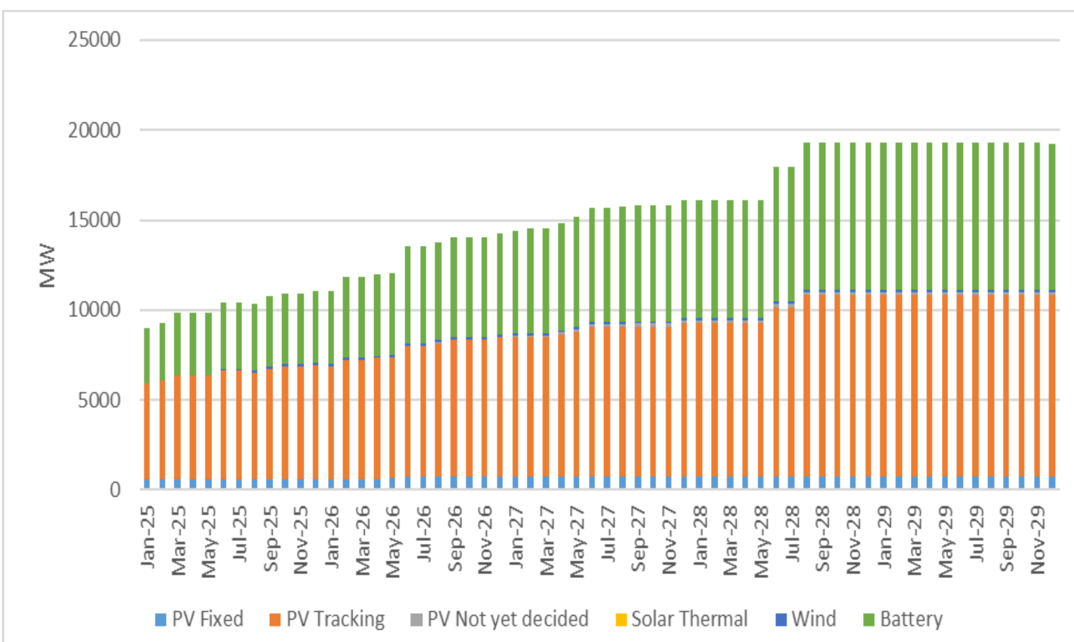


Figure 1c: Expected buildout of Stand-alone Resources for 2025 through 2029

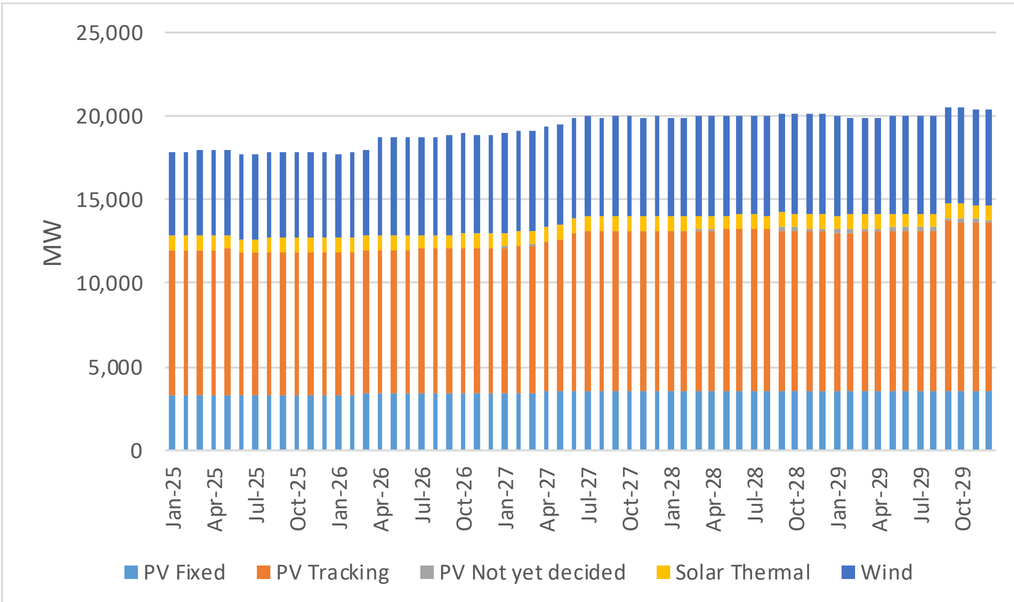
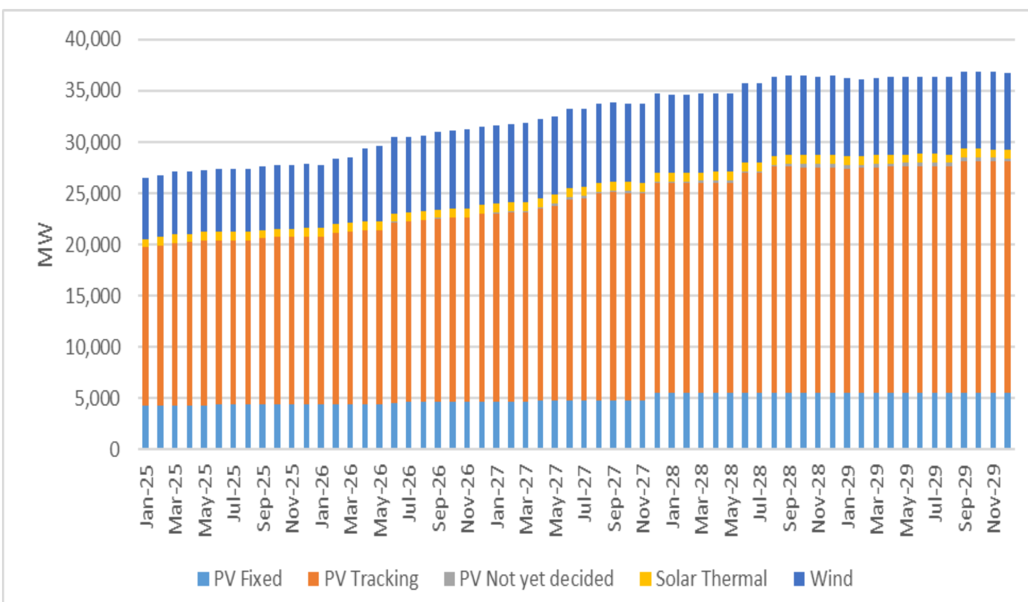


Figure 1d: Expected buildout of Renewable Resources for 2025 through 2029



For future wind resources, the ISO scaled 1 minute wind production for each month of the most recent year by the expected future capacity divided by the installed wind capacity for the same month of the most recent year. Specifically, to develop the 1 minute wind profiles for 2027, the ISO used the actual 1 minute wind profile for 2025 using the following formula:

$$2027W_{Mth\_Sim\_1min} = 2025W_{Act\_1min} * \frac{2027W_{Mth\ Capacity}}{2025W_{Mth\ Capacity}}$$

Similarly, to develop 1 minute transmission connected solar profiles for 2025, the ISO used the actual 1 minute solar profiles for 2023 using the following formula:

$$2027S_{Mth\_Sim\_1min} = 2025S_{Act\_1min} * \frac{2027S_{Mth\ Capacity}}{2025S_{Mth\ Capacity}}$$

Given the amount of incremental wind and solar resources expected to come online, this approach simply scales the 1 minute production with respect to capacity.

4.2 Building 1 minute Load Profile

The ISO used the CEC 2025 Integrated Energy Policy Report (IEPR) 1-in-2 hourly managed net load forecast (CEC 2025 Hourly Forecast – CAISO – Planning Scenario) to develop 1 minute load forecasts for each month[15]. The ISO first adjusted the actual load for each minute of each hour of 2025 using an expected CEC's forecast for the corresponding hour.

$$2027L_{Mth,Day,Hour\_Sim\_1min} = 2025L_{Mth,Day,Hour\_Act\_1min} + X$$

$$X = Interpolated\ 1\ \text{min}\ profile\ from\ the\ difference$$

4.3 Building 1 minute Net Load Profile

Using this load forecast and the expected wind and solar profiles developed in Sections 4.1 and 4.2, the ISO then developed the 1 minute net load profiles for subsequent years by adding the load, wind, and solar components as net load equals to load minus wind minus solar.

5.0 CALCULATING THE MONTHLY MAXIMUM THREE-HOUR NET-LOAD RAMPS PLUS RESERVE

5.1 CEC IEPR Demand Forecast

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[15] https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=25-IEPR-03
Title of the File: CED 2025 Hourly Forecast - CAISO - Planning Scenario (1)

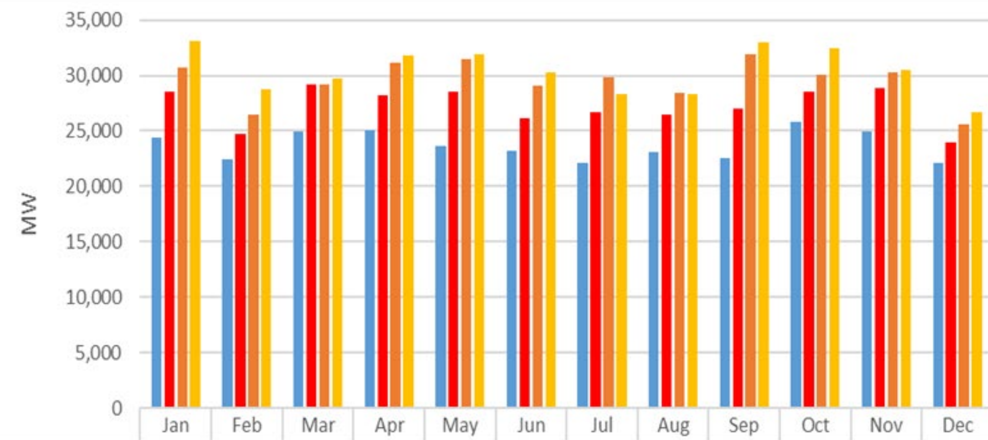
The ISO utilized the CEC hourly 1-in-2 IEPR forecast in developing the demand forecast for the 2027–2029 period. Overall, load ramps derived from the CEC forecast and CAISO actuals exhibit similar general patterns. One notable area of divergence, however, appears in morning load behavior. As discussed further in the AAH section of this paper, ISO actual demand shows more pronounced morning loads, particularly in January and February, compared to the CEC IEPR forecast. These elevated morning loads are not reflected in the CEC 2025 forecast. While the CEC forecast and the ISO's 2025 actual load display broadly consistent patterns, the ISO will continue to closely monitor the potential impact of these morning load differences on AAH in future years.

Another important element to highlight from previous Flex RA studies is how battery charging load is treated. The CEC IEPR demand forecast does not include the impact of grid-scale battery charging in its hourly forecast out to 2040. Before 2025, the ISO utilized a load-actual tag that contains grid-scale battery charging and discretionary pumps. Since 2025, the ISO leveraged an actual demand tag that excludes grid-scale battery charging and discretionary pumps for the purpose of (1) performing a shifting and smoothing operation to develop 1 minute profile of 2027-29 demand and (2) to measure the accuracy of the binding forecast. This change was made due to better align the actual utilized with the CEC IEPR Demand Forecast as well as due to battery resources receiving Effecitve Flexible Capacity (EFC) for the charge and discharge ranges.

5.2 CAISO Actual and Predicted Three-Hour Ramp

For 2027, the maximum three-hour upward ramp is expected to be approximately 29,228 MW in March and the minimum three-hour upward ramp of approximately 23,910 MW is expected to occur in December (Figure 2a). This is consistent with actual ramps observed in 2025, the largest observed three-hour ramp occurred in March with a change of 24,896 MW over three hours, and the smallest ramp in December 22,077 MW. When considering the reserve criteria, the max flex capacity requirement for 2027 is 30,378 MW occuring in March (Figure 2b).

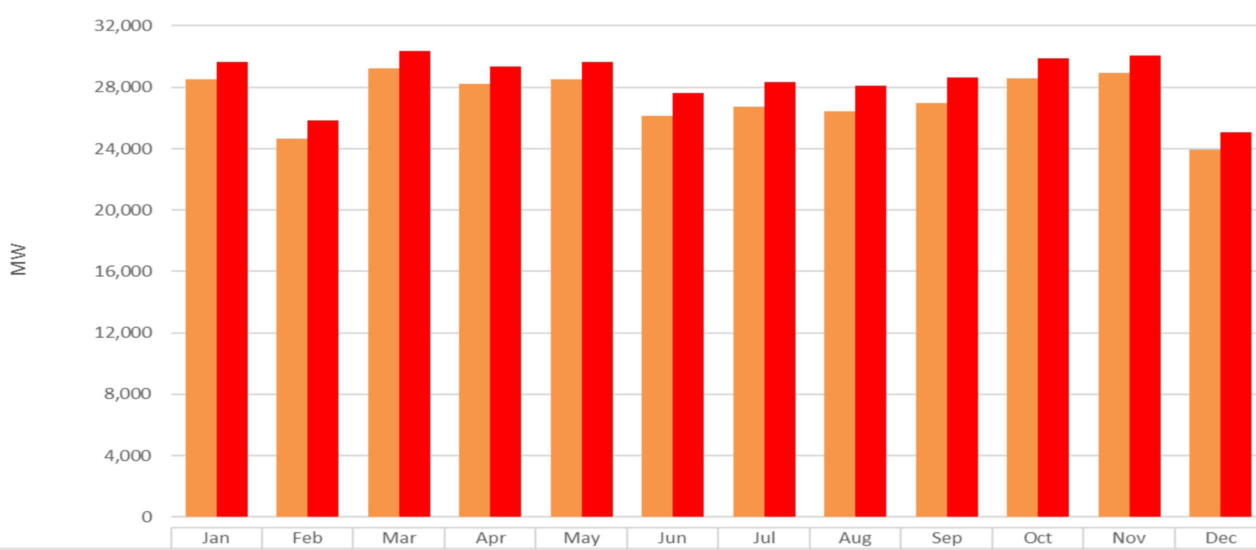
Figure 2a: Actual Ramp 2025, Forecasted Ramps 2027-2029



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2025 actual no battery and no pump	24,354	22,386	24,896	25,059	23,586	23,246	22,143	23,053	22,563	25,794	24,901	22,077
2027 binding	28,510	24,680	29,228	28,213	28,515	26,129	26,714	26,447	26,958	28,549	28,908	23,910
2028 advisory	30,723	26,474	29,204	31,168	31,487	29,091	29,832	28,425	31,873	30,068	30,288	25,592
2029 advisory	33,083	28,800	29,693	31,752	31,953	30,228	28,366	28,301	33,005	32,454	30,547	26,707

2025 actual no battery and no pump   2027 binding   2028 advisory   2029 advisory

Figure 2b: Flex Ramp and Flex Capacity Need 2027



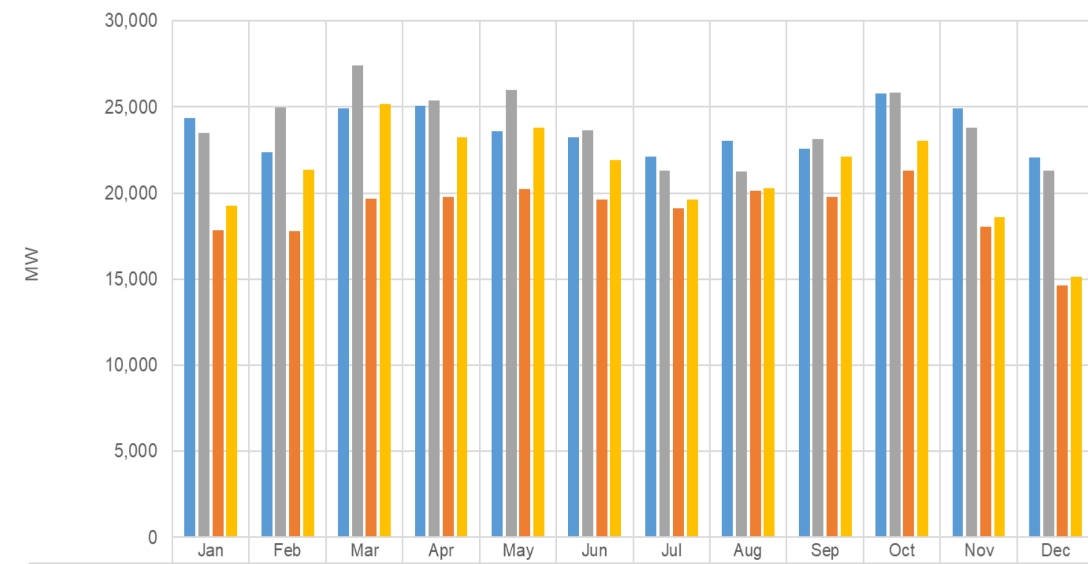
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2027 Netload Ramp	28,510	24,680	29,228	28,213	28,515	26,129	26,714	26,447	26,958	28,549	28,908	23,910
2027 Flexneed	29,660	25,830	30,378	29,363	29,665	27,621	28,362	28,078	28,632	29,911	30,058	25,060

*Flexibility Requirement$_{MTHy}$ = $Max[(3RR_{HRx})_{MTHy}] + Max(MSSC, 3.5\%*E(PL_{MTHy})) + \varepsilon$

5.3 Battery and Curtailments Impact on the ISO's Actual Three Hour Ramp

Curtailments have increased in the last 5 years and therefore have played an increasing role in the actual ramps. Depending on the time of day the curtailments occur, they tend to reduce the three-hour ramps by raising the midday net load. The impact of curtailments on the three-hour ramp is shown more clearly when curtailments are added back into the wind and solar actuals, respectively (Figure 3). The impact of curtailments is highly seasonal. Specifically, the impact on the ramps is most pronounced from March to June, correlating to when curtailment activity typically peaks.

Figure 3: Expected ISO System Maximum Monthly Three-Hour Net-load ramps with Varying Inputs



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
No battery	24,354	22,386	24,896	25,059	23,586	23,246	22,143	23,053	22,563	25,794	24,901	22,077
No battery + curt	23,469	24,983	27,390	25,363	25,991	23,668	21,324	21,238	23,123	25,824	23,819	21,296
Battery	17,830	17,780	19,671	19,763	20,228	19,625	19,140	20,151	19,783	21,300	18,059	14,632
Battery + Curt	19,257	21,357	25,157	23,240	23,808	21,900	19,635	20,269	22,095	23,055	18,628	15,124

No battery   No battery + curt   Battery   Battery + Curt

6.0 CALCULATING THE SEASONAL PERCENTS NEEDED IN EACH CATEGORY

As described in the ISO Tariff sections 40.10.3.2 and 40.10.3.3, the ISO divided its flexible capacity needs into various categories based on the system's operational needs. These categories are based on the characteristics of the system's net-load ramps and the mix of resources that can be used to meet the system's flexible capacity needs. Certain use-limited resources may not qualify to be counted towards the flexible capacity needs under the base flexibility category and may only be counted under the peak flexibility or super-peak flexibility categories, depending on their characteristics. Although there is no limit to the amount of flexible capacity that can come from resources meeting the base flexibility criteria, there is a maximum amount of flexible capacity that can come from resources that only meet the criteria to be counted under the peak flexibility or super-peak flexibility categories.

The ISO structured the flexible capacity categories to meet the following needs:

Base Flexibility: Operational needs determined by the magnitude of the largest three-hour secondary net load[16] ramp.
Peak Flexibility: Operational need determined by the difference between 95% of the maximum three-hour net-load ramp and the largest three-hour secondary net-load ramp.
Super-Peak Flexibility: Operational need determined by 5% of the maximum three-hour net-load ramp of the month.

These categories include different minimum flexible capacity operating characteristics and different limits on the total quantity of flexible capacity within each category. To calculate the quantities needed in each flexible capacity category, the ISO conducted a three-step assessment process as follows:

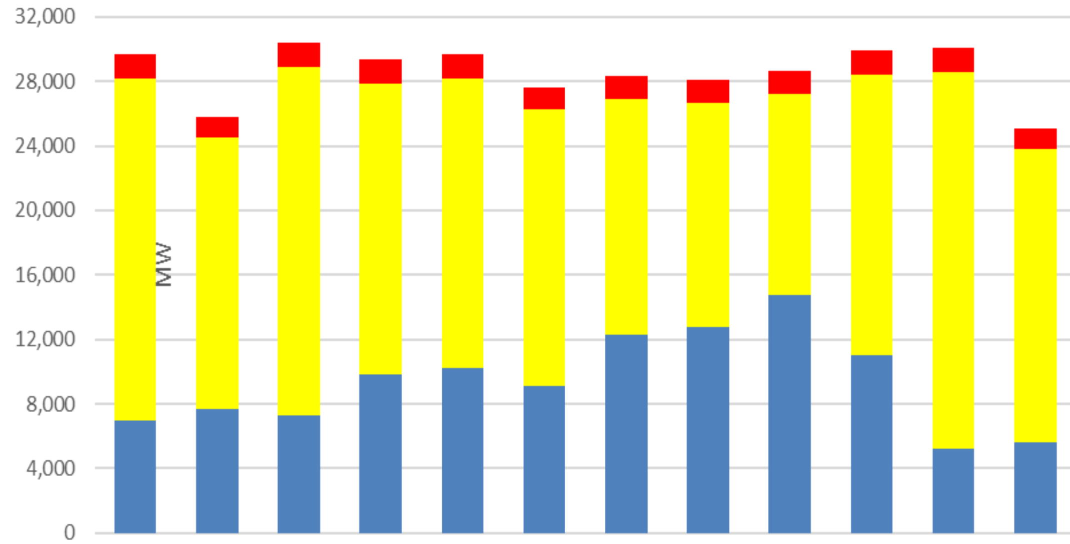
1. Calculated the forecast percents needed in each category for each month.
2. Analyzed the distributions of both the largest three-hour net-load ramps for the primary and secondary net-load ramps to determine appropriate seasonal demarcations.
3. Calculated a simple average of the percent of base flexibility needs from all months within a season.

6.1 Calculating the Forecast percents Needed in Each Category in Each Month

Based on the categories defined above, the system level needs for 2027 were calculated based only on the maximum monthly three-hour net load calculation. Then the quantity needed in each category in each month was calculated based on the above descriptions. The secondary net-load ramps were then calculated to eliminate the possibility of over-lapping time intervals between the primary and secondary net-load ramps. Finally, the contingency reserve requirements were added to the different categories proportional to the percents established by the maximum three-hour net-load ramp. The calculation of flexible capacity needs for each category for 2027 is shown in Figure 4.

[16] The largest daily secondary three-hour net load ramp is calculated as the largest net load ramp that does not correspond with the daily maximum net load ramp. For example, if the daily maximum three-hour net load ramp occurs between 5:00 p.m. and 8:00 p.m., then the largest secondary ramp would not overlap with the 5:00 p.m. - 8:00 p.m. period

Figure 4: ISO System-Wide Flexible Capacity Monthly Calculation by Category for 2027



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Super-Peak	1,483	1,291	1,519	1,468	1,483	1,381	1,418	1,404	1,432	1,496	1,503	1,253
Peak	21,177	16,843	21,607	18,090	17,953	17,148	14,615	13,886	12,437	17,432	23,333	18,190
Base	7,000	7,695	7,252	9,805	10,229	9,092	12,328	12,788	14,763	10,984	5,223	5,618

6.2 Analyzing Ramp Distributions to Determine Appropriate Seasonal Demarcations

To determine the seasonal percents for each flexible capacity category, the ISO analyzed the distributions of the largest three-hour net-load ramps for the primary and secondary net-load ramps to determine appropriate seasonal demarcations for the base flexibility category. The secondary net-load ramps provide the ISO with the frequency and magnitude of secondary net-load ramps. Assessing these distributions helps the ISO identify seasonal differences that are needed for the final determination of percentage of each category of flexible capacity. The primary and secondary net-load ramp distributions are shown for each month in Figure 5 and Figure 6, respectively.

Figure 5: percent Distribution of Daily Primary Three-hour Net-load ramps for 2027

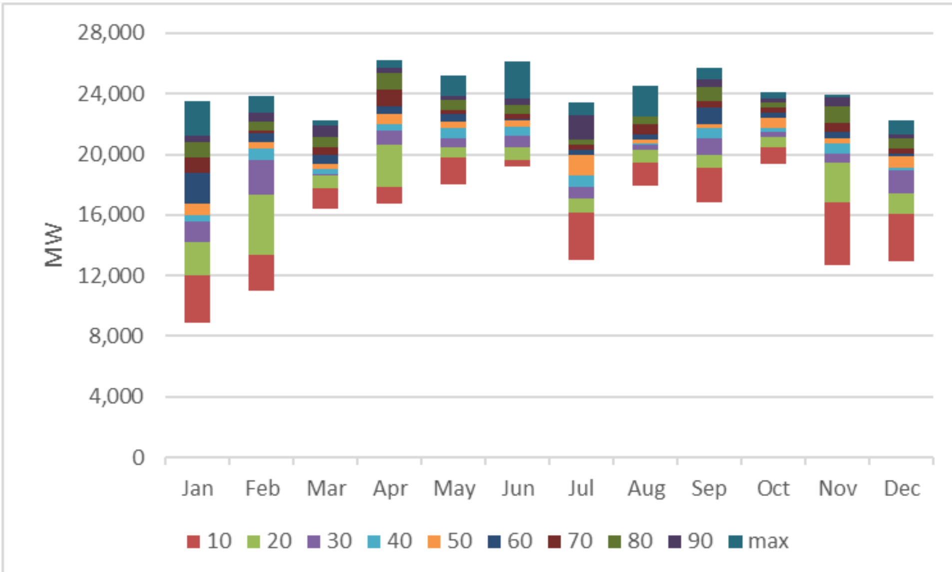
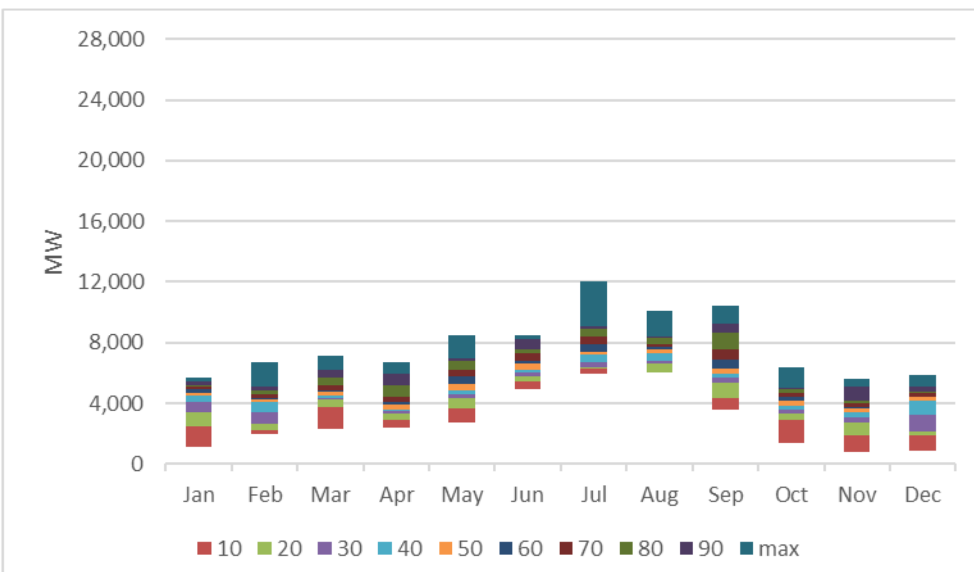


Figure 6: percent Distribution of Secondary Three-hour Net Load Ramps for 2027



As shown in figures 5 and 6, there are certain variations for the primary and the secondary ramps over the months. These variations may have some impact on the ratios of maximum secondary ramp to maximum primary ramp in each month. To reduce the potential impact of these ratios, which define the value of each base category in the flexible requirement, the ISO substitutes the seasonal averages of the ratios into the ratio in each month. Here, summer is May through September, and winter is October to February. Table 2 shows the unadjusted and adjusted percents used in calculating the base category over the months.

Table 2: Unadjusted Monthly Ratio and Adjusted Seasonal Ratio

	Actual Contributions			Seasonal Contribution		
	Unadjusted			Adjusted		
Month	Base Flexibility	Peak Flexibility	Super-Peak Flexibility	Base Flexibility	Peak Flexibility	Super-Peak Flexibility
January	24%	71%	5%	27%	68%	5%
February	30%	65%	5%	27%	68%	5%
March	24%	71%	5%	27%	68%	5%
April	33%	62%	5%	27%	68%	5%
May	34%	61%	5%	42%	53%	5%
June	33%	62%	5%	42%	53%	5%
July	43%	52%	5%	42%	53%	5%
August	46%	49%	5%	42%	53%	5%
September	52%	43%	5%	42%	53%	5%
October	37%	58%	5%	27%	68%	5%
November	17%	78%	5%	27%	68%	5%
December	22%	73%	5%	27%	68%	5%

As shown in Figure 5, the height of the distribution for each month of the maximum three-hour net-load ramps is smaller during the summer months. The base flexibility resources were designed to address days with two separate net-load ramps. The distributions of these secondary net-load ramps indicate that the ISO does not need to set seasonal percentages in the base flexibility category at the percent of the higher month within that season. Accordingly, the ISO must ensure there is sufficient base ramping for all days of the month. Furthermore, particularly for summer months, the ISO did not identify two distinct ramps each day. Instead, the secondary net-load ramp may be a part of single long net-load ramp.

The distributions of the primary and secondary ramps provide additional support for the summer/non-summer split. Accordingly, the ISO proposes to maintain two flexible capacity needs seasons that mirror the existing summer season (May through September) and non-summer season (January through April and October through December) used for resource adequacy. This approach has two benefits.

First, it mitigates the impact that variations in the net-load ramp in any given month can have on determining the amounts for the various flexible capacity categories for a given season. For example, a month may have either very high or low secondary ramps that are simply the result of the weather in the year. However, because differences in the characteristics of net-load ramps are largely due to variations in the output of variable energy resources, and these variations are predominantly due to weather and seasonal conditions, it is reasonable to break out the flexibility categories by season. Because the main differences in weather in the ISO system are between summer and non-summer months, the ISO proposes to use this as the basis for the seasonal breakout of the needs for the flexible capacity categories.

Second, adding flexible capacity procurement to the RA program will increase the process and information requirements. Maintaining a seasonal demarcation that is consistent with the current RA program will reduce the potential for errors in resource adequacy showings.

With more penetration of renewable energy in the ISO market, the daily net load shape shows gradual dominance of primary ramp over the years. (See Table 3.) The ISO continues to show an increase in the need of peak category resources, due to the increasing growth of the primary ramp during sunset. In 2027, the percents of peak category varied from their counterparts in 2026, from 68.42% to 68.26% in winter and from 55.05% to 53.41% in summer.

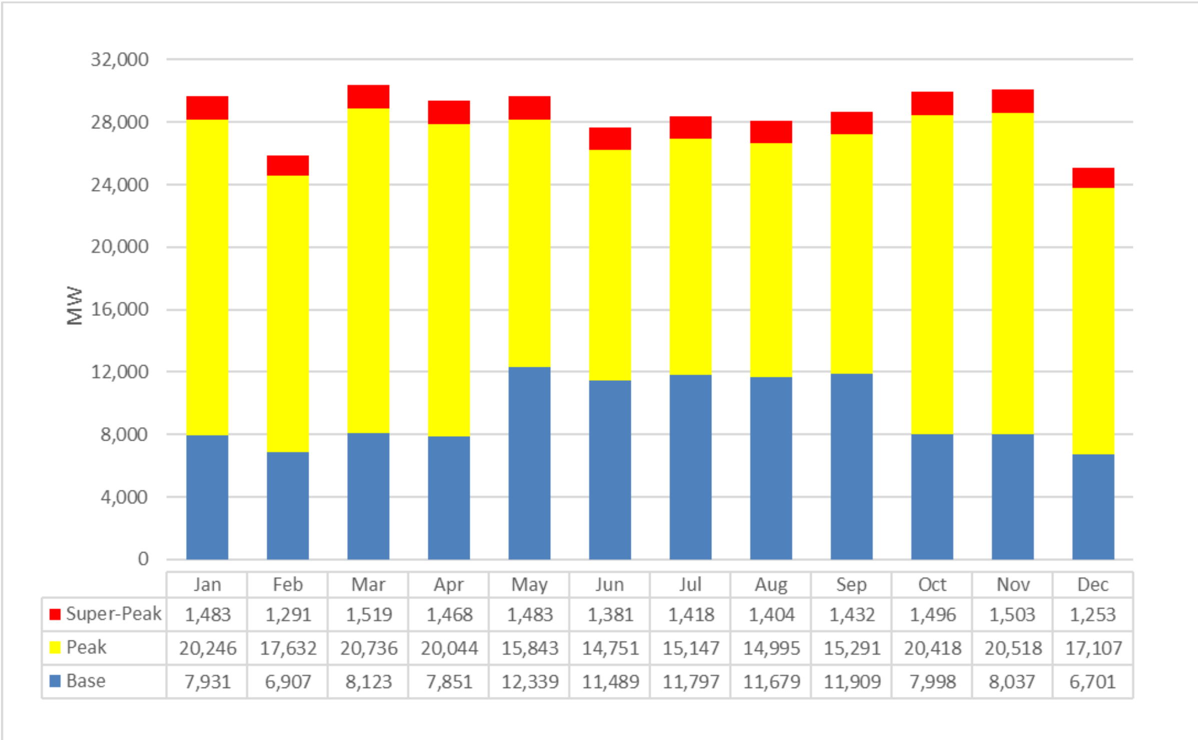
Table 3: Change in peak category weighting over the past four years

Month	2021	2022	2023	2024	2025	2026	2027
January	57.30%	55.06%	62.74%	68.11%	66.43%	68.42%	68.26%
February	57.30%	55.06%	62.74%	68.11%	66.43%	68.42%	68.26%
March	57.30%	55.06%	62.74%	68.11%	66.43%	68.42%	68.26%
April	57.30%	55.06%	62.74%	68.11%	66.43%	68.42%	68.26%
May	45.62%	45.39%	49.28%	57.75%	54.29%	55.04%	53.41%
June	45.62%	45.39%	49.28%	57.75%	54.29%	55.04%	53.41%
July	45.62%	45.39%	49.28%	57.75%	54.29%	55.04%	53.41%
August	45.62%	45.39%	49.28%	57.75%	54.29%	55.04%	53.41%
September	45.62%	45.39%	49.28%	57.75%	54.29%	55.04%	53.41%
October	57.30%	55.06%	62.74%	68.11%	66.43%	68.42%	68.26%
November	57.30%	55.06%	62.74%	68.11%	66.43%	68.42%	68.26%
December	57.30%	55.06%	62.74%	68.11%	66.43%	68.42%	68.26%

6.3 Calculate a Simple Average of the Percent of Base Flexibility Needs

The ISO calculated the percentage of base flexibility needed using a simple average of the percent of base flexibility needs from all months within a season. Based on that calculation, the ISO proposes that flexible capacity to meet the base-flexibility category criteria comprise 27% of the ISO system flexible capacity need for the non-summer months and 42% for the summer months. Peak flexible capacity resources could be used to fulfill 68% of non-summer flexibility needs and 53% of summer flexible capacity needs. The super-peak flexibility category is fixed at a maximum 5% across the year. We have observed over the years that the base flexibility category percents continue to be lower whereas the peak flexible capacity percents continue to rise. As with the increase in the flexible capacity needs, the change is largely attributable to the continued growth of both grid-connected and behind-the-meter solar. As grid-connected solar and incremental behind-the-meter solar continue to grow, we see an increase in the down-ramp associated with sunrise, especially during the shoulder months where there is minimal heating or cooling load. The ISO's proposed system-wide flexible capacity categories are provided in Figure 7.

Figure 7: System-wide Flexible Capacity Need in Each Category for 2027 -Adjusted.



7.0 ALLOCATING THE FLEXIBLE CAPACITY NEEDS TO LOCAL REGULATORY AUTHORITIES

The ISO's allocation methodology is based on the contribution of a local regulatory authority's LSEs to the maximum three-hour net-load ramp. Specifically, the ISO calculated the LSEs under each local regulatory authority's contribution to the flexible capacity needs using the following inputs:

1) The maximum of the most severe single contingency or 3.5% of forecasted peak load for each LRA based on its jurisdictional LSEs' peak load ratio share.

2) Δ Load – LRA's average contribution to load change during the top five daily maximum three-hour net-load ramps within a given month from the previous year times total change in ISO load.

3) Δ Wind Output – LRA's average % contribution to changes in wind output during the five greatest forecasted three-hour net load changes times ISO total change in wind output during the largest three-hour net load change.

4) Δ Solar PV – LRA's average % contribution to changes in solar PV output during the five greatest forecasted three-hour net load changes times total change in solar PV output during the largest three-hour net load change.

These amounts are combined using the equation below to determine the contribution of each LRA, including the CPUC and its jurisdictional load serving entities, to the flexible capacity need.

Flexible Capacity Need = Δ Load – Δ Wind Output – Δ Solar PV +

*Max (MSSC, 3.5% * Expected Peak * Peak Load Ratio Share)*

The above equation can be simply expressed as

$$\text{Flex Requirement} = \Delta NL_{2027} + R_{2027}$$

$$= \Delta L_{2027} - \Delta W_{2027} - \Delta S_{2027} + R_{2027}$$

The ISO uses the following symbols to illustrate the evolution of allocation formula:

*L (load), W (wind), S (solar), and NL (net load), R (reserve) = max (MSCC, 3.5*peak load),*

NL = L – W – S,

ΔNL = ΔL – ΔW – ΔS,

Where

Δ Is denoted as ramp*,*

ΔNL_{2027} Net-load ramp requirement in 2027,

$\Delta NL_{sc,2027}$ Net-load ramp allocation for LSC in 2027,

pl_r_{lsc} CEC peak load ratio, and finally,

Σ The summation of all LSC. In 2023, the ISO has forecasts from CEC L_{2027} , where survey results from $W_{2027} = \Sigma W_{lsc,2027}$, $S_{2027} = \Sigma S_{lsc,2027}$, and all the estimated ramps are ΔL_{2027}, ΔW_{2027}, ΔS_{2027}, plus R_{2027}. Moreover, the ISO has the peak load ratio list from CEC which totals to 100 %, $\Sigma pl\_r_{lsc} = 1$.

Based the above information, the allocation for wind, solar, and reserve portion of flexible need is straight forward as follows.

$$\textit{Flex Need} = \Delta NL_{2027} \; + \Sigma pl\_r_{lsc} * R_{2027}$$

$$= \Delta L_{2027} - \frac{\Sigma W_{lsc,\,2027}}{W_{2027}} * \Delta W_{2027} - \frac{\Sigma S_{lsc,2027}}{S_{2027}} * \Delta S_{2027} + \Sigma pl\_r_{lsc} * R_{2027}$$

Since the ISO has no pre-knowledge of, $\Delta L_{lsc,y+2}$, the load ramp at LSE level in future year $y+2$ at the current year $y = 2025$, the allocation of ΔL_{2027} to SC has been more challenging. Over the years, the ISO has used different approaches to meet the challenge.

In year 2014-2016, the ISO used an intuitive formula as

$$\frac{\Delta L_{lsc,\,y}}{\Delta L_y} \Delta L_{y+2},$$

Where $\Delta L_y = \Sigma \Delta L_{lsc,\,y}$ is the summation of metered load ramp available at LSC level in year y. Later, the ISO realized this approach had a risk to unstable allocation, since the divider ΔL_y , the system load ramp can be zero or negative.

In year 2017-2018, the ISO employed the following formula.

$$\Delta L_{lsc,y+2} = L^E_{lsc,y}\left(\frac{L^E_{y+2}}{L^E_y}\right) - L^S_{lsc,y}\left(\frac{L^S_{y+2}}{L^S_y}\right),$$

Where $S =$ ramping start time, $E =$ramping end time.

The above seemingly a bit more complicated formula carefully avoided the potential zero dividerΔL_y, but later the ISO found out that it had a material drawback. Unlike the original formula used in 2014-2016, the revised formula carried little scalability for each SC, that is, the historical load ramp $\Delta L_{lsc,\,y}$ has no explicit impact on future $y+2$ allocation $\Delta L_{lsc,\,y+2}$.

Starting from year 2019, the ISO proposed a new formula which best utilizes $\Delta L_{sc,\,y}$ while the system ΔL_y is not in the denominator,

$$\Delta L_{y+2} = \Delta L_y + \left(\Delta L_{y+2} - \Delta L_y\right)$$

$$= \Sigma \Delta L_{lsc,\,y} + \frac{\Sigma L^M_{lsc,\,y}}{L^M_y} * \left(\Delta L_{y+2} - \Delta L_y\right),$$

where ΔL_y is the average load portion of top 5 maximum y=2025 three-hour ramps and L^M_y is the average load at beginning and the end of points during those top 5 ramps. In y+2 = 2027, each LSC will receive:

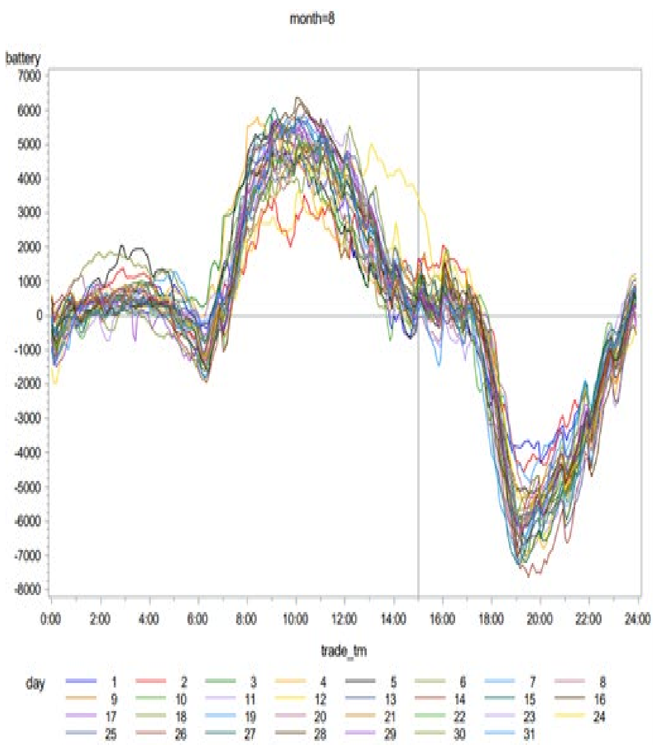
$$\Delta L_{lsc,y} + \frac{L^{M}_{lsc,y}}{L^{M}_{y}} * \left(\Delta L_{y+2} - \Delta L_{y}\right)$$

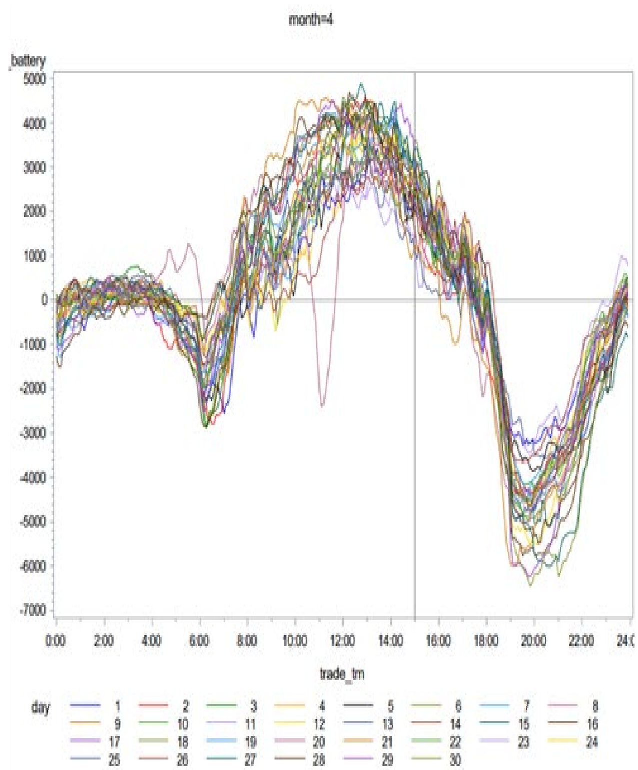
Therefore, each LSC's contribution $\Delta L_{lsc,y}$ will be explicitly projected into future year 2027, and any additional increase of differences of average load portions $\left(\Delta L_{y+2} - \Delta L_{y}\right)$ will be allocated by a load ratio share. The new calculation provides stable allocation for the load proportion.

Any LRA with a negative contribution to the flexible capacity need is limited to a zero-megawatt allocation, not a negative contribution. As such, the total allocable share of all LRAs may sum to a number that is slightly larger than the flexible capacity need. The ISO does not currently have a process by which a negative contribution could be reallocated or used as a credit for another LRA or LSE.

As observed in section 5 of the paper, as battery capacities increase it plays a significant role in the load ramp. Battery resources receive Effective Flexible Capacity (EFC) accreditation from Pmin to Pmax, so it is important to consider when looking at the formulation of the requirement in addition to the allocation. In the ISO's flexible three-hour ramp hours, batteries generally transition from charging to discharging as shown in the following graphs. In Figure 8, positive values indicate battery charging, as this is a representation of load, and negative values indicated battery discharging. For most months outside spring, battery resources are typically in transition from charging to discharging, in the flexible three-hour ramp hours, therefore, battery charging in EFC may be over-credited.

Figure 8: Battery Charging Profile for April and August





For this year's allocation, the ISO will not change the allocation formula to remove battery charging due to the need for further information from LRAs on battery resource mapping.

The ISO makes available all non-confidential working papers and data that the ISO relied on for the Final Flexible Capacity Needs Assessment for 2027. Specifically, the ISO posts materials and data used to determine the monthly flexible capacity needs, the contribution of CPUC jurisdictional load serving entities to the change in load, and seasonal needs for each flexible capacity category. This data is available for download as a large Excel file named "2027 Flexible Capacity Needs Assessment –Net Load Data"

https://stakeholdercenter.caiso.com/InitiativeDocuments/2027-Flexible-Capacity-Needs-Assessment-Net-Load-Data.xlsx

The file above is the 1-minute forecast. Table 4 shows the final calculations of the individual contributions of each of the inputs to the calculation of the maximum three-hour continuous net-load ramp at a system level.

Table 4: Individual Contributions of each Input into the Net Load

Month	Load contribution 2027	Wind contribution 2027	Solar contribution 2027	Total percent 2027
January	24.87%	-11.70%	-63.42%	100%
February	31.53%	0.08%	-68.56%	100%
March	30.59%	0.94%	-70.35%	100%
April	28.73%	2.95%	-74.22%	100%
May	26.10%	1.47%	-75.37%	100%
June	22.25%	1.96%	-79.71%	100%
July	20.20%	-0.20%	-79.60%	100%
August	15.58%	-0.24%	-84.18%	100%
September	20.82%	4.09%	-83.28%	100%
October	18.52%	-0.86%	-80.62%	100%
November	24.89%	-0.08%	-75.03%	100%
December	24.62%	-3.98%	-71.40%	100%

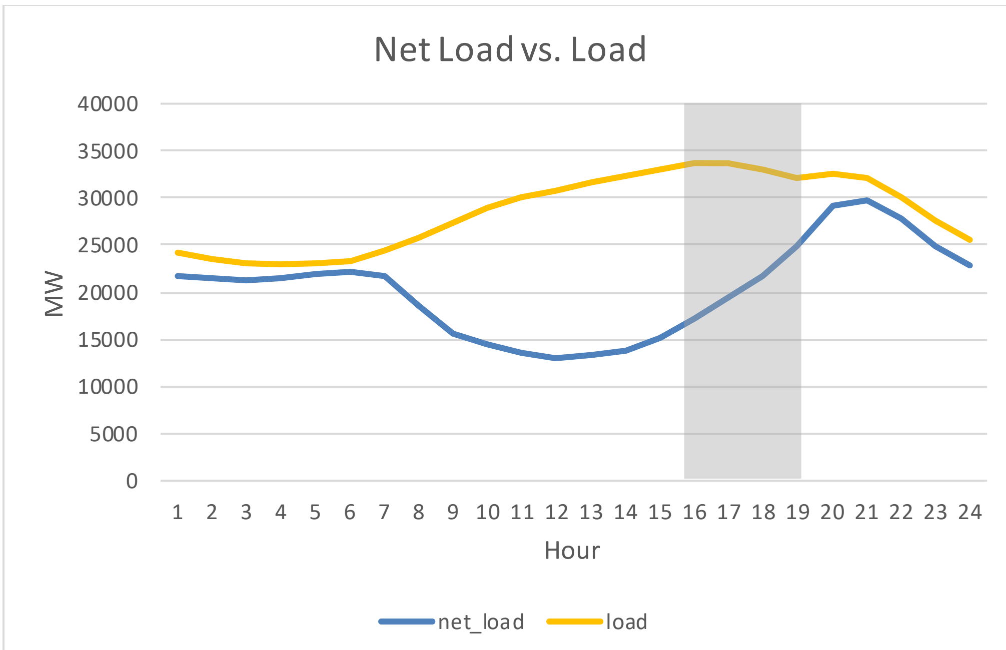
When looking at the contribution to the maximum three-hour continuous net-load ramp shown in Table 4, the above total percent is calculated as Load – Wind – Solar. For example, when looking at July 100% contribution is determined by:

Total Contribution = 20.20% -(-0.20%) – (-79.60%) = 100%

As Table 4 shows, the solar resources are leading to maximum three-hour net-load ramps in every month. This implies that the maximum three-hour net-load ramp typically occurs during sunset. The contribution of solar photovoltaic resources has increased relative to last year's study and remains a significant driver of the three-hour network ramps. Since the CEC has behind-the-meter solar embedded in its 2027 hourly load forecast, the interplay between load and solar contributions will depend on the scales of future expansion of utility base solar PV and future installation of behind meter solar panels. The ISO anticipates more solar dominance in the ISO flexible needs in the coming years.

Figure9 illustrates the behavior of load, wind, and solar when the net load reaches its maximum. In this example, the load ramp has a negative contribution to the net-load ramp.

Figure 9: Examples of Load Contribution to Net-load ramp



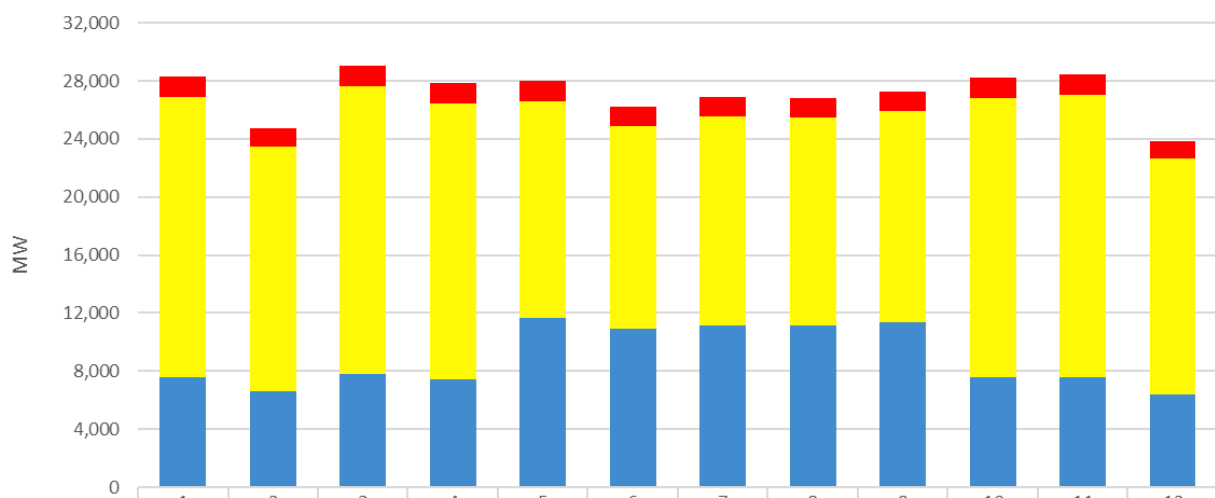
The CPUC allocations are shown in Table 5 and Figure 10. The contributions calculated for other LRAs will only be provided to show the contribution of its jurisdictional LRA as per section 40.10.2.1 of the ISO tariff.

Table 5: CPUC Jurisdictional LSEs' Contribution to Flexible Capacity Needs

Month	Load	Wind	Solar	reserve	Total Allocation
January	7,053	-3,021	-17,160	1,040	28,275
February	7,618	18	-16,059	1,040	24,699
March	8,791	249	-19,481	1,040	29,064
April	7,708	751	-19,844	1,040	27,841
May	6,989	378	-20,366	1,040	28,017
June	5,579	461	-19,752	1,349	26,219
July	5,156	-49	-20,180	1,490	26,875
August	4,139	-57	-21,154	1,475	26,825
September	5,457	998	-21,280	1,513	27,252
October	4,956	-222	-21,851	1,232	28,261
November	6,759	-22	-20,627	1,040	28,448
December	5,690	-862	-16,233	1,040	23,824

Finally, the ISO applied the seasonal percentage established in Section 6 to the contribution of CPUC jurisdictional load serving entities to determine the expected flexible capacity needed in each flexible capacity category. These results are detailed in Figure 10.

Figure 10: CPUC Flexible Capacity Need in Each Category for 2027



	1	2	3	4	5	6	7	8	9	10	11	12
Super-Peak	1,414	1,235	1,453	1,392	1,401	1,311	1,344	1,341	1,363	1,413	1,422	1,191
Peak	19,300	16,859	19,839	19,005	14,963	14,002	14,353	14,326	14,554	19,291	19,419	16,263
Base	7,560	6,604	7,771	7,445	11,654	10,906	11,179	11,158	11,335	7,557	7,607	6,370

8.0 DETERMINING THE SEASONAL MUST-OFFER OBLIGATION PERIOD

Under ISO Tariff Sections 40.10.3.3 and 40.10.3.4, the ISO establishes the specific five-hour period during which flexible capacity counted in the peak and super-peak categories will be required to submit economic energy bids into the ISO's market (*i.e.*, have an economic bid must-offer obligation). The average net load curves for each month provide the most reliable assessment of whether a flexible capacity resource would provide the greatest benefit. The ISO analyzes the starting time of the calculated daily net-load ramp to ensure the must-offer obligation hours line up with daily maximum three-hour net-load ramp and support the continuous net load need thereafter, which is typically correlated to the solar ramp down during sunset. Table 6 shows the frequency of the forecasted starting hour for the three-hour net-load ramp. The starting hours follow a stable trend over the years because solar is the largest contributor to three-hour net-load ramps.

Table 6: Frequency of forecasted Starting Hour of the Maximum Three-Hour Net-load ramp for 2027

	Three Hour Net Load Ramp Start Hour (Hour Ending)				
Month	14:00	15:00	16:00	17:00	18:00
January	4	27			
February	1	25	2		
March		8	15	8	
April			7	23	
May			1	30	
June				28	2
July				31	
August		1	1	29	
September	1		21	8	
October		10	21		
November	16	12	2		
December	12	19			

Table 7 below shows an early (HE15), start of the three-hour ramp pattern for October through February. For the months of May through August, most days likely have a HE17 starting time of the three-hour net-load ramp. The shoulder months of March, April, and September have the starting time concentrated on HE16.

Table 7: Summary of MOO Hours Proposed by the ISO for 2027

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HE15-HE19	x	x								x	x	x
HE16-HE20			x	x					x			
HE17-HE21					x	x	x	x				

In summary, based on the data for all daily maximum three-hour net-load ramps, the ISO believes that the appropriate flexible capacity must-offer obligation for peak and super-peak flexible capacity categories is HE15 through HE19 for January and February and October through December; HE16 to HE20 for March, April, and September; and HE17 through HE21 for May through August.

The ISO reviewed the timing of the top five net-load ramps to confirm that the intervals captured the largest net-load ramps. As shown above, the proposed intervals do, in fact, capture the intervals of the largest ramps. Both changes are consistent with continued solar growth and reflect the fact that the initial solar drop-off is a primary driver of the three-hour net-load ramp. This is further supported by the contributing factors shown in Table 2, above.

9.0 AVAILABILITY ASSESSMENT HOURS

The availability assessment hours (AAH) were originally developed as part of the ISO standard capacity product and are maintained as part of the Reliability Service Initiative. This includes the RA Availability Incentive Mechanism (RAAIM). The goal of calculating the AAH is to determine the hours of greatest need to maximize the effectiveness of RAAIM by rewarding resources for being available during hours of greatest need.

To calculate the AAH, the ISO does the following:

- Uses the CEC hourly IEPR forecast.
- Calculates the hourly average load by hour for each month for years 2027-2028.

- Calculates the top 5% of load hours within each month using the hourly load distribution in above step.

For this annual study, the final binding recommendation for 2027 will be published as well as the advisory for years 2028 and 2029.

The ISO continues to have three seasons for the formulation of AAH. As solar penetration grows on the system, we see top load hours move outside of sunshine hours. For the 2027 forecast, alignment between the hours within the spring and winter season is observed. The ISO will continue to monitor these seasons especially the morning peaking time period for future years.

The 2027 final recommendation for AAH is HE18 through HE22 for January through February, March through May, and November through December, and HE17 to HE21 for June through October.

Historical actuals and trends in the IEPR to support this proposal which can be found in Table 8 below. Table 8a shows the number of times each hour is within the top 5% of load hours using the 2025 actual ISO load, while Table 8b shows the CEC IEPR forecast for 2027.

Table 8a: Count of the number of times each hour is in the top 5% of load hours for each month of the 2025 ISO actual load

2025 ISO Actual Load

	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Season
Jan	11										**3**	**13**	**5**	**4**	**1**		**Winter**
Feb	2	1	1	1	1	1				1	**5**	**8**	**8**	**3**	**1**		**Winter**
Mar	4	2	1	1								**6**	**11**	**9**	**3**		**Spring**
Apr												**3**	**12**	**14**	**7**		**Spring**
May									2	2	**4**	**6**	**7**	**8**	**6**	2	**Spring**
Jun										**2**	**6**	**8**	**8**	**7**	5		**Summer**
Jul										**2**	**4**	**10**	**11**	**7**	3		**Summer**
Aug									2	**3**	**8**	**13**	**7**	**3**	1		**Summer**
Sep									4	**7**	**8**	**7**	**6**	**3**	1		**Summer**
Oct										**2**	**9**	**11**	**8**	**5**	2		**Summer**
Nov									1	5	**15**	**11**	**3**	**1**			**Winter**
Dec										1	**14**	**11**	**8**	**3**			**Winter**

Table 8b: Count of the number of times each hour is in the top 5% of load hours for each month of CEC 2027 forecasted load

CEC 2027 Forecasted Load

	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Season
Jan											8	19	9	1			Winter
Feb											2	18	13				Winter
Mar											1	18	14	4			Spring
Apr											2	4	8	12	7	2	Spring
May												4	10	14	9		Spring
Jun								1	2	3	5	7	7	6	4	1	Summer
Jul								1	3	5	7	8	7	4	2		Summer
Aug									2	6	10	12	6	1			Summer
Sep								2	4	5	7	7	5	4	2		Summer
Oct								1	3	5	7	8	7	4	2		Summer
Nov										1	4	15	11	4	1		Winter
Dec												15	14	8			Winter

Table 8b, and Figure 10 look at the distribution of the top 5% of load hours by month for the 2027 forecast which is used to form the final AAH. Figure 13 is a graphic display of the Table 8b and illustrates the highest frequency of the top 5% of forecasted load hours for all months in 2027.

In the CEC IEPR forecast for 2027 and 2028, the morning ramps do not show up in the morning top 5% of load hours in 2027 and 2028. The ISO continues to monitor the morning time period with potential AAH changes coming in future years.

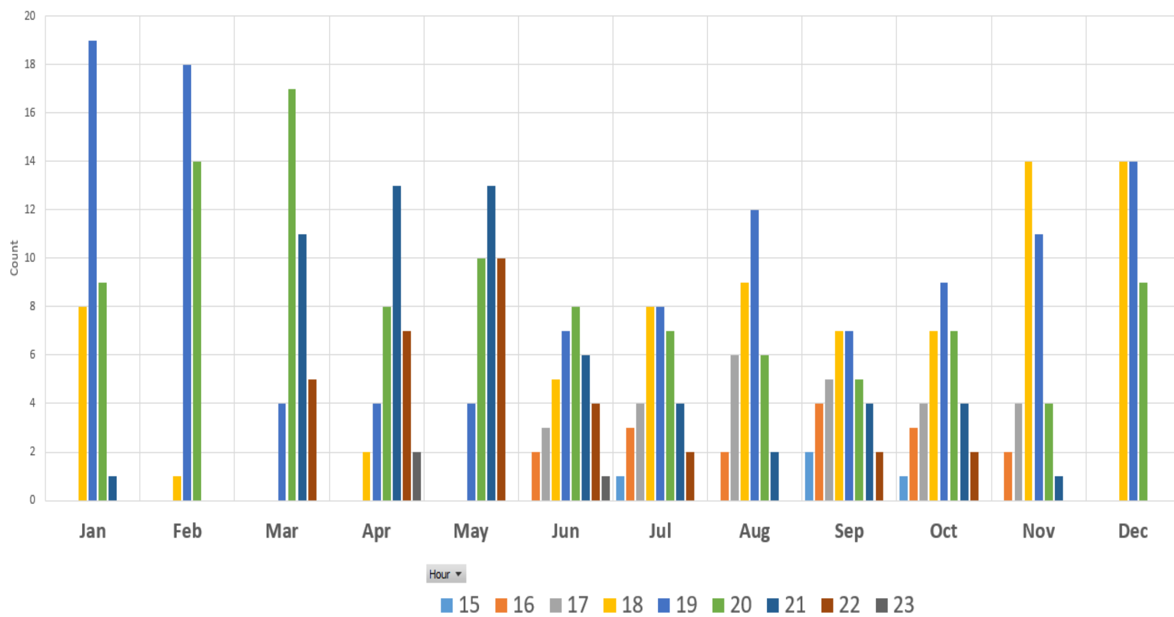
Table 8c: Count of the number of times each hour is in the top 5% of load hours for each month of CEC 2027 forecasted load

	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Season
Jan											8	19	9	1			Winter
Feb											2	18	13				Winter
Mar											1	18	14	4			Spring
Apr											2	4	8	12	7	2	Spring
May												4	10	14	9		Spring
Jun								1	2	3	5	7	7	6	4	1	Summer
Jul								1	3	5	7	8	7	4	2		Summer
Aug									2	6	10	12	6	1			Summer
Sep								2	4	5	7	7	5	4	2		Summer
Oct								1	3	5	7	8	7	4	2		Summer
Nov										1	4	15	11	4	1		Winter
Dec												15	14	8			Winter

Table 8d: Count of the number of times each hour is in the top 5% of load hours for each month of CEC 2028 forecasted load

	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Season
Jan											8	19	9	1			Winter
Feb											1	18	14				Winter
Mar												5	16	11	5		Spring
Apr											2	4	8	12	8	2	Spring
May												4	10	13	10		Spring
Jun								1	2	3	5	7	7	6	4	1	Summer
Jul								1	3	5	7	8	7	4	2		Summer
Aug									1	6	9	13	7	1			Summer
Sep							1	2	4	5	7	7	5	4	2		Summer
Oct								1	3	5	7	8	7	4	2		Summer
Nov										2	4	14	11	4	1		Winter
Dec												14	14	9			Winter

Figure 10: The frequency of the top 5% of load hours for the 2027 forecast



When analyzing the AAH, it is also beneficial to view the maximum observed and forecasted load for each month to visualize the forecasted load shape compared to recent actuals. The timing and shape of the load peak, as well as the magnitude and timing of the ramps into and out of load peak, can all be impacted by weather events such as extreme heat for the given month or heavy rainfall. The most recent three years of actuals along with the CEC forecast for 2027 and 2028 are shown in Figure 10 and show how much the load actuals can vary by year for selected months. The rest of the months are included in the final allocation presentation on the 2025 Flex RA stakeholder page.[17]

[17] https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/Flexible-capacity-needs-assessment-2025

Table 9 below shows the final recommendation for the winter and summer seasons.

Table 9: The AAH final recommendation

Spring and Winter Recommendation

January - May, November, December

Year	Start	End
*2026	HE 18	HE 22
2027	HE 18	HE 22
2028	HE 18	HE 22
2029	HE 18	HE 22

2026 is last year's recommendation

Summer Recommendation

June - October

Year	Start	End
*2026	HE 17	HE 21
2027	HE 17	HE 21
2028	HE 17	HE 21
2029	HE 17	HE 21

2026 is last year's recommendation

Taking the above information into account, the ISO final recommendation for the 2027 AAH is to align winter and spring with HE18-22. In addition, the summer season will continue to be HE17-HE21 with October remaining in the summer season. The ISO understands this is a change in AAH for the winter season and welcomes stakeholder feedback during the comment period prior to the final publication.

10.0 NEXT STEPS

The ISO has also established an internal RA working group which is evaluating potential changes to the Flex RA process. As a part of the ISO's Resource Adequacy Working group process, the ISO and stakeholders have identified the need to reexamine Flexible RA. Particularly, as the resource fleet has evolved, we will evaluate the overall need for a Flex RA product, including whether the currently designed Flexible RA provides reliability benefits commensurate with the administrative burden on stakeholders and the ISO. Additionally, we will look at potential enhancements to the Flex RA design, where the processes may need to be altered to better obtain our reliability objectives.