Capacity Procurement Mechanism Enhancements

Track 2 Final Proposal

August 17, 2023

Market Design & Analysis

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1. Executive Summary

The California Independent System Operator (ISO) uses its capacity procurement mechanism (CPM) to address resource adequacy (RA) deficiencies and other potential reliability concerns. The ISO can use its CPM authority to address specific needs defined by the following six CPM designation types:[1]

1. Insufficient local capacity area resources in an annual or monthly RA plan
2. A collective deficiency in local capacity area resources
3. Insufficient RA resources in a load-serving entity's annual or monthly RA plan
4. A CPM significant event
5. A reliability or operational need for an exceptional dispatch CPM
6. A cumulative deficiency in the total flexible RA capacity included in the annual or monthly flexible RA capacity plans, or in a flexible capacity category in the monthly flexible RA capacity plans

When the ISO makes CPM designations, it relies on capacity willingly offered to the ISO by resource scheduling coordinators.[2] To attract such capacity, the ISO conducts annual, monthly and intra-monthly competitive solicitation processes, into which resource scheduling coordinators may offer their capacity to the ISO at prices up to a soft offer cap, currently set at $6.31/kw-month.[3] Any offers above the soft offer cap must be cost-justified at FERC to recover up to a resource-specific cost of service rate.[4]

The CPM Enhancements stakeholder initiative consists of at least two tracks. Track 1 addressed CPM operational improvements, including changes to help the ISO take greater advantage of uncontracted capacity in a specific calendar month. The ISO Board of Governors approved the track 1 enhancements in March 2023.[5] In track 2, ISO staff propose to increase the CPM soft offer cap from $6.31/kw-month to $7.34/kw-month. This proposed increase is based on the following three justifications: (1) $7.34/kw-month is a figure based on the ISO tariff-defined methodology for deriving the soft offer cap, using updated CEC-provided combined cycle going-forward fixed costs; (2) the ISO tariff-defined methodology for deriving the CPM soft offer cap is still reasonable and relevant until a broader relook of the ISO's RA processes can be completed; (3) the proposed increase to the soft offer cap accounts for recent inflation and is directionally appropriate, given the increase in bilateral capacity prices over recent years. ISO staff plan to bring track 2 to the ISO Board of Governors for a decision in September 2023. As part of a

[1] ISO tariff section 43A.2
http://www.caiso.com/Documents/Section43A-CapacityProcurementMechanism-asof-Apr22-2022.pdf

[2] For more detail, please refer to ISO tariff section 43A.4.2 and section 5 of the Reliability Requirements business practice manual.

[3] ISO tariff section 43A.4.1.1
http://www.caiso.com/Documents/Section43A-CapacityProcurementMechanism-asof-Apr22-2022.pdf

[4] ISO tariff section 43A.4.1.1.1
http://www.caiso.com/Documents/Section43A-CapacityProcurementMechanism-asof-Apr22-2022.pdf

[5] ISO Board of Governors General Session: Decision on CPM Enhancements – Track 1 (3/23/23)
DecisiononCapacityProcurementMechanismEnhancements-Track1-BoardMotion-Mar2023.pdf (caiso.com)

broader RA initiative, ISO staff will work with stakeholders on identifying potential reforms to the ISO's backstop RA processes, including potential changes to the structure of the soft offer cap and/or soft offer cap derivation methodology. The timing of this future CPM policy work will be decided in concert with stakeholder input in RA working groups, which are anticipated to meet later in 2023.

2. Stakeholder Initiative Schedule

The CAISO has adopted the following schedule for track 2 of the CPM enhancements stakeholder initiative:

Table 1: *CPM Enhancements Track 2 Stakeholder Initiative Schedule*

Date	Track 1 Milestone
April 27, 2023	CPM enhancements track 2 announced via market notice
May 11, 2023	Stakeholder workshop
June 1, 2023	Due date for stakeholder comments on workshop
June 30, 2023	Publish straw proposal
July 10, 2023	Stakeholder call on straw proposal
July 24, 2023	Due date for stakeholder comments on straw proposal
August 17, 2023	Publish final proposal and draft tariff language
August 31, 2023	Due date for stakeholder comments on draft tariff language
September 21, 2023	Board of Governors presentation

3. Background on CPM

The ISO uses its CPM authority to address RA deficiencies and other potential reliability concerns. The ISO's use of its CPM authority is often referred to as "backstop" procurement. The ISO's backstop procurement authority also includes reliability must-run (RMR) contracts, which the ISO uses to retain resources that would otherwise retire but the ISO determines are needed to maintain reliable grid operations based on the results of technical studies and analyses.[6] The ISO can use its CPM authority to procure capacity that is not committed RA capacity or RMR capacity to address specific needs defined by the six CPM designation types listed in Table 2. The ISO does not use RMR authority to backstop RA deficiencies.

[6] ISO tariff section 41
http://www.caiso.com/Documents/Section41-Procurement-RMRResources-asof-Sep28-2019.pdf

Table 2: *CPM Designation Types*[7]

#	CPM Designation Type
1	Insufficient local capacity area resources in an annual or monthly RA plan
2	A collective deficiency in local capacity area resources
3	Insufficient RA resources in an LSE's annual or monthly RA plan
4	A CPM significant event
5	A reliability or operational need for an exceptional dispatch CPM
6	A cumulative deficiency in the total flexible RA capacity included in the annual or monthly flexible RA capacity plans, or in a flexible capacity category in the monthly flexible RA capacity plans

When the ISO needs to make CPM designations, it relies on capacity voluntarily offered to the ISO by resource scheduling coordinators.[8] The ISO conducts annual, monthly and intra-monthly competitive solicitation processes, in which resource scheduling coordinators may offer their capacity to the ISO at prices up to a soft offer cap, currently set at $6.31/kw-month.[9] Any offers above the soft offer cap must be cost-justified at FERC to recover up to a resource-specific cost of service rate.[10]

Resource scheduling coordinators submit offers through the ISO's customer interface for resource adequacy (CIRA) application. The ISO's submission window requires offers to be submitted prior to any announcement of whether capacity might be needed by the ISO for a CPM designation. After offers are submitted and the adjustment window is closed, the ISO validates the offers to ensure the capacity is not shown as RA in CIRA. If there is a CPM need, the ISO will then select resources that meet the designation criteria at the lowest total cost. If there are insufficient offers, the ISO can offer CPM designations at the soft offer cap to capacity not offered into the competitive solicitation process. CPM resources have a must offer obligation and are subject to the RA Availability Incentive Mechanism (RAAIM).[11]

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[7] ISO tariff section 43A.2
http://www.caiso.com/Documents/Section43A-CapacityProcurementMechanism-asof-Apr22-2022.pdf

[8] For more detail, please refer to ISO tariff section 43A.4.2 and section 5 of the Reliability Requirements business practice manual

[9] ISO tariff section 43A.4.1.1
http://www.caiso.com/Documents/Section43A-CapacityProcurementMechanism-asof-Apr22-2022.pdf

[10] ISO tariff section 43A.4.1.1.1
http://www.caiso.com/Documents/Section43A-CapacityProcurementMechanism-asof-Apr22-2022.pdf

[11] It is also worth noting that the calculation of RAAIM non-availability charges is dependent on the CPM soft offer cap. More specifically, the RAAIM price is equal to 60% of the CPM soft offer cap.

ISO tariff section 40.9
http://www.caiso.com/Documents/Section40-RADemonstration-for-SchedulingCoordinatorsintheCAISOBalancingAuthorityArea-asof-May28-2023.pdf

The ISO set the existing soft offer cap of $6.31/kw-month during its capacity procurement mechanism replacement stakeholder initiative, which was conducted in 2014-2015.[12] The $6.31/kw-month soft offer cap equals 120% x the levelized going-forward fixed costs of a of a merchant constructed, mid-cost, 550 MW combined cycle unit with duct firing, as published by the California Energy Commission (CEC) in March 2015.[13] The levelized going-forward fixed costs were comprised of three elements: (1) fixed operations and maintenance costs; (2) ad valorem taxes; (3) insurance.

The ISO has a tariff obligation to open a stakeholder initiative every four years (at the latest) to examine the soft offer cap and consider whether it needs to be changed. The ISO tariff requires the stakeholder process to consider whether the soft offer cap adequately reflects 120% of the levelized going-forward fixed costs of the reference resource, where the reference resource is defined as a merchant-constructed mid-cost 550 MW combined cycle with duct firing or similar advanced combined cycle resource.[14] In its capacity procurement mechanism soft offer cap stakeholder initiative, the ISO met that tariff obligation by considering updated combined cycle fixed costs published by the CEC in May 2019.[15] In track 2 of this CPM enhancements stakeholder initiative and in accordance with its tariff obligation, the ISO is re-examining the soft offer cap and considering whether an update needs to be made.

As mentioned above, resource scheduling coordinators may offer their capacity to the ISO at prices above the soft offer cap, but they must cost-justify such offers at FERC based on resource-specific going forward fixed costs, *i.e.,* fixed operation and maintenance costs, ad valorem taxes and insurance. There are two important differences between the calculation of the above-cap cost of service rate and derivation of the soft offer cap: a.) the cost of service rate is based on resource-specific inputs, whereas the soft offer cap is based on a generic 550 MW advanced combined cycle resource with duct firing; and b.) the cost of service rate calculation does not include a 20% adder, whereas the soft offer cap derivation does include a 20% adder. These differences were reflected in a May 2022 compliance filing that the ISO submitted to FERC, finalizing the above-cap cost of service rate calculation methodology.[16]

[12] ISO's Capacity Procurement Mechanism Replacement stakeholder initiative: http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=bfe609ff-a9a1-4828-bf01-51a495bef7e2

[13] Estimated Cost of New Renewable and Fossil Generation in California, CEC, March 2015 https://web.archive.org/web/20190601182649/https://www.energy.ca.gov/2014publications/CEC-200-2014-003/index.html

[14] ISO tariff section 43A.4.1.1.2 http://www.caiso.com/Documents/Section43A-CapacityProcurementMechanism-asof-Apr22-2022.pdf

[15] ISO's Capacity Procurement Mechanism Soft Offer Cap stakeholder initiative: https://stakeholdercenter.caiso.com/StakeholderInitiatives/Capacity-procurement-mechanism-soft-offer-cap

Estimated Cost of New Utility-Scale Generation in California: 2018 Update, CEC, May 2019 https://www.energy.ca.gov/sites/default/files/2021-06/CEC-200-2019-005.pdf

[16] Docket ER20-1075, ISO compliance filing to FERC, 5/23/22 https://www.caiso.com/Documents/May23-2022-ComplianceFiling-CapacityProcurementMechanism-CPM-above-SoftOfferCap-ER20-1075.pdf

4. CEC Cost of Generation Model: May 2023 Update

At the CPM enhancements track 2 stakeholder workshop hosted by the ISO in May 2023, the CEC presented updated combined cycle going-forward fixed costs. More specifically, the CEC provided updates to its 2018/2019 levelized going-forward fixed costs for a 550 MW combined cycle with duct firing. As instructed by the ISO tariff, the CEC provided updates to the three specific going-forward fixed cost components that are needed to derive the ISO's CPM soft offer cap: (1) insurance; (2) ad valorem taxes; (3) fixed operations and maintenance (O&M). In order to update these three going-forward fixed cost components, the CEC incorporated a 2023 start year into its cost of generation model and accounted for updated labor rates and inflation figures. The May 2023 CEC-provided going-forward fixed costs are shown below in table 3. As shown in table 3, the levelized going-forward fixed costs for a 550 MW combined cycle with duct firing is equal to $73.41/kw-year.

Table 3: *Combined Cycle Levelized Going-Forward Fixed Costs, CEC, May 2023 Update*[17]

Version (Start Year)	Capacity	Insurance	Ad Valorem Taxes	Fixed O&M	Total
2018 (2023)	550 MW	$9.32/kw-year	$13.14/kw-year	$50.95/kw-year	$73.41/kw-year

Based on the CEC's May 2023 update, the levelized going-forward fixed costs for a 550 MW combined cycle with duct firing equals $73.41/kw-year. Under the ISO tariff, the derivation of the soft offer cap requires this figure to be multiplied by 120%. The result is $88.09/kw-year, or $7.34/kw-month.

5. Stakeholder Comments

ISO staff appreciate the diversity of perspectives provided by stakeholders over the past few months, and most recently in comments submitted on July 24, 2023. From these verbal and written comments, ISO staff have identified two key themes:

1. Questions about the CEC's 2023 update to combined cycle going-forward fixed costs

   In their comments, several stakeholders asked the ISO and CEC to provide more information about the CEC's May 2023 update to the combined cycle going-forward fixed costs. In response to these stakeholder requests, the CEC provided an updated presentation. The updated CEC presentation, which is embedded within the ISO's stakeholder workshop presentation, now includes information about specific aspects of the combined cycle going-forward fixed costs that the CEC updated in 2023 and the data sources for those updates.[18] The CEC presentation

[17] CEC Cost of Generation Model: Fixed Costs Study for CAISO's CPM Soft Offer Cap, May 2023 Presentation-Capacity-Procurement-Mechanism-Enhancements-May112023.pdf (caiso.com)

[18] CEC Cost of Generation Model: Fixed Costs Study for CAISO's CPM Soft Offer Cap, May 2023 Presentation-Capacity-Procurement-Mechanism-Enhancements-May112023.pdf (caiso.com)

also includes information about the specific aspects of the combined cycle going-forward fixed costs that have not been updated. For example, the non-labor portion of fixed O&M costs was held constant in real dollars (inflation still applied), which is a reasonable approach given the mature nature of combined cycle technology. For more detail on the CEC's underlying cost of generation model, stakeholders should refer to the CEC's full report on the estimated cost of generation, published in May 2019.[19]

2. Ideas for the next phase of CPM-related policy work

In their comments, several stakeholders asked the ISO to explore changes to the derivation and/or structure of the soft offer cap. For example, stakeholders asked the ISO to consider deriving the soft offer cap using costs from resources other than combined cycles. More specifically, stakeholders suggested examining the costs of energy storage resources, geothermal resources, gas peakers and imports. Furthermore, stakeholders have requested that the ISO facilitate a discussion on the merits of using a net cost of new entry (net CONE) instead of using going-forward fixed costs. On a related note, stakeholders have requested a discussion on whether the reference resource should be a marginal new resource or a marginal existing resource. In addition, stakeholders asked the ISO to consider incorporating opportunity costs into the soft offer cap, which would likely result in a dynamic soft offer cap. Stakeholders also asked the ISO to explore whether the soft offer cap could be differentiated by month or season, instead of a flat soft offer cap that applies equally across all months.

Beyond changes to the derivation and/or structure of the soft offer cap, stakeholders have requested that the ISO explore and/or discuss the following: (1) changes to the FERC formula rate for a cost recovery filing above the soft offer cap as detailed in ISO tariff section 43A.4.1.1.1; (2) making CPM designations mandatory instead of discretionary; (3) CPM designations if ISO load-serving entities, collectively or individually, do not procure sufficient capacity to satisfy RA needs in all hours of the day, once the California Public Utilities Commission RA program transitions to its slice-of-day framework.

ISO staff are encouraged by these ideas to enhance the derivation and/or structure of the soft offer cap and explore CPM-related changes beyond the soft offer cap. As mentioned during the May 11, 2023 stakeholder workshop and again during the July 10, 20223 stakeholder call, the scope of this CPM enhancements track 2 is limited and cannot accommodate changes beyond a straight-forward tariff-driven update to the soft offer cap. However, ISO staff is committed to working with stakeholders on broader reforms to the ISO's CPM, including potential changes to the structure of the soft offer cap and/or soft offer cap derivation methodology. This future

[19] Estimated Cost of New Utility-Scale Generation in California: 2018 Update, CEC, May 2019 https://www.energy.ca.gov/sites/default/files/2021-06/CEC-200-2019-005.pdf

phase of CPM policy work will begin in 2024 – either as CPM enhancements track 3, or as part of the upcoming RA enhancements initiative.

6. Straw Proposal

In this CPM enhancements track 2 initiative, ISO staff propose a straight-forward, ISO tariff-driven increase to the CPM soft offer cap using the CEC's 2023 calculation of the levelized going-forward fixed costs of a 550 MW combined cycle with duct firing. More specifically, ISO staff propose to increase the CPM soft offer cap from $6.31/kw-month to **$7.34/kw-month**. Table 4 below shows the CEC's 2023 calculation of the soft offer cap, and how the inputs compare to previous CEC calculations over the past 10 years.

Table 4: *Combined Cycle Levelized Going-Forward Fixed Costs, Summary of CEC Analyses*[20]

Soft Offer Cap Derivation	**2014**	**2018**	**2023**
Technology	CCGT	CCGT	CCGT
Capacity	550 MW	700 MW	550 MW
A. Insurance ($/kw-year)	$8.09	$7.10	$9.32
B. Ad Valorem ($/kw-year)	$11.74	$10.03	$13.14
C. Fixed O&M ($/kw-year)	$43.23	$41.77	$50.95
Sum (A,B,C)	$63.06	$58.90	$73.41
Multiplier	120%	120%	120%
Soft Offer Cap ($/kw-year)	$75.67	$70.68	$88.09
Soft Offer Cap ($/kw-month)	**$6.31**	**$5.89**	**$7.34**

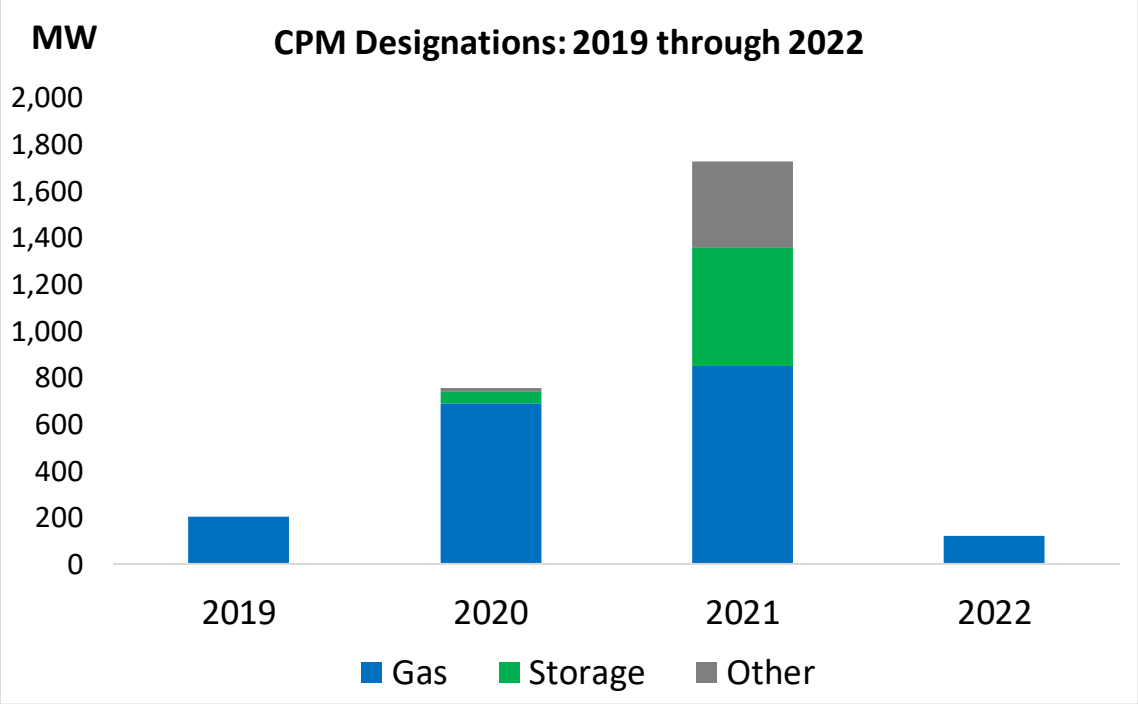
As explained in the background section above, the ISO has a tariff obligation to examine the soft offer cap every four years (at the latest) and consider whether the soft offer cap adequately reflects 120% of the levelized going-forward fixed costs of a merchant-constructed mid-cost 550 MW combined cycle with duct firing or similar advanced combined cycle resource. As shown in table 4 above, the current soft offer cap of $6.31/kw-month does not adequately reflect 120% of the current levelized going-forward fixed costs of a 550 MW combined cycle with duct firing. As shown in table 4, the soft offer cap should be increased to 120% x 73.41/kw-year = $88.09/kw-year = $7.34/kw-month. This would be approximately a 16% increase in the level of the soft offer cap. Increasing the soft-offer cap is directionally consistent with the increase in bilateral capacity prices in recent years, and it recognizes the effects of recent inflation.

[20] CEC Cost of Generation Model: Fixed Costs Study for CAISO's CPM Soft Offer Cap, May 2023 Presentation-Capacity-Procurement-Mechanism-Enhancements-May112023.pdf (caiso.com)

The ISO believes the tariff-defined methodology for deriving the CPM soft offer cap is still reasonable and relevant:

- The tariff-defined methodology uses going-forward fixed costs and a 120% multiplier and thus provides meaningful contributions to fixed cost recovery for resources
- Using a gas-fired reference resource is still appropriate. As shown in figure 1 below, the ISO has made a total of 2,803 MW of CPM designations over the last four years. Of this 2,803 MW total, 1,857 MW (66%) have been for gas-fired resources. Of the 1,857 MW of CPM designations for gas-fired resources, 69% were specifically for combined cycle resources, and the remaining 31% were for frame combustion turbines, aeroderivative combustion turbines and reciprocating engines.

Figure 1: *ISO CPM Designations: 2019 - 2022*



7. EIM Governing Body Role

CAISO staff believe that the WEIM Governing Body does not have a role in the decision about this initiative. The Board and the WEIM Governing Body have joint authority over any proposal to change or establish any CAISO tariff rule(s) applicable to the EIM Entity balancing authority areas, EIM Entities, or other market participants within the EIM Entity balancing authority areas, in their capacity as participants in EIM. This scope excludes from joint authority, without limitation, any proposals to change or establish tariff rule(s) applicable only to the CAISO balancing authority area or to the CAISO-controlled grid. Charter for EIM Governance § 2.2.1. None of the tariff rule changes currently contemplated in this initiative would be "applicable to EIM Entity balancing authority areas, EIM Entities, or other market participants within EIM Entity balancing authority areas, in their capacity as participants in EIM." Rather, the proposed tariff rules would be applicable "only to the CAISO balancing authority area or to the CAISO-controlled grid." Accordingly, the matters scheduled for decision fall outside the scope of joint authority.

Although the "EIM Governing Body may provide advisory input over proposals to change or establish tariff rules that would apply to the real-time market but are not within the scope of joint authority," no aspects of this initiative would apply to the real time market. Accordingly, this initiative falls outside of the WEIM Governing Body's advisory role as well.

Stakeholders are encouraged to submit a response in their written comments to the proposed classification of as described above, particularly if they have concerns or questions.

8. Next Steps

Please refer to the draft tariff language, which has been included below within this pdf file. Written stakeholder comments on the draft tariff language are due by 5pm (PST) on August 31, 2023.