BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local and Flexible Procurement Obligations for the 2019 and 2020 Compliance Years.	Rulemaking 17-09-020

COMMENTS ON JOINT MOTION FOR ADOPTION OF SETTLEMENT AGREEMENT OF THE DEPARTMENT OF MARKET MONITORING OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

The Department of Market Monitoring ("DMM") of the California Independent System Operator Corporation ("CAISO") submits these comments on the *Joint Motion for Adoption of a Settlement Agreement for a "Residual" Central Procurement Entity Structure for Resource Adequacy"* ("Settlement Agreement"), filed August 30, 2019 by the "Settling Parties".[1]

I. Overview

The Settlement Agreement proposes to establish a residual central buyer structure that would address the determination made in D.18-06-030 that a central buyer structure for multi-year local RA procurement should be implemented. Under the Settling Parties proposal, CPUC-jurisdictional LSEs would continue to meet individual local, system, and flexible capacity requirements. A new Resource Adequacy-Central Procurement Entity ("RA-CPE") would procure local, system, and flexible RA capacity

[1] The "Settling Parties" include California Community Choice Association, Calpine Corporation, Independent Energy Producers Association, Middle River Power, NRG Energy, Inc., San Diego Gas & Electric Company, Shell Energy North America (US) L.P., and the Western Power Trading Forum.

needed to meet residual three-year forward procurement obligations not collectively met by LSEs. The RA-CPE would only be authorized to procure RA-only capacity products to meet residual needs.[2]

The Settlement Agreement further specifies that "The RA-CPE will conduct least-cost procurement of eligible resources and thus will accept all offers at or below the Soft Offer Cap until the Residual RA Requirement has been met for each month of the delivery period."[3] This establishes CAISO's Capacity Procurement Mechanism (CPM) Soft Offer Cap as a critical aspect of the overall RA-CPE policy proposal. This provision would also further magnify the importance of the CPM Soft Offer Cap in terms of affecting prices and potential market power in California's bilateral capacity market.

DMM has three concerns about use of the CAISO's CPM Soft Offer Cap as a price ceiling at or below which the RA-CPE would be required to accept RA-only offers until residual RA requirements are met for a three-year forward period.

First, DMM notes that the CPM Soft Offer Cap is only one element of the CAISO's backstop procurement authority, which includes a combination of various CPM and Reliability Must Run (RMR) tariff provisions. Both the CPM and RMR provisions are currently subject to significant potential changes through the CAISO's CPM stakeholder process and proposed RMR rule changes pending at FERC. Under the CAISO's current CPM Straw Proposal, in most cases the Soft Offer Cap could be replaced with an entirely different CPM compensation method designed to mitigate potential market power due to the lack of competitiveness in the CAISO's capacity

[2] *Settlement Agreement*, p. 10.
[3] *Settlement Agreement*, p. 11.

procurement process. Since the RA-CPE process would take place before the CAISO's CPM process, any new market power mitigation provisions incorporated in the CPM process could be undermined by a RA-CPE process based on the Soft Offer Cap. Thus, DMM believes it is important that existing concerns with the Soft Offer Cap and overall CPM and RMR backstop procurement framework are addressed before adopting the current Soft Offer Cap as a key part of the central buyer framework.

Second, as explained in DMM's recent comments on the CAISO's stakeholder initiative on the CPM Soft Offer Cap, DMM is concerned that the current Soft Offer Cap may be based on an estimate of the going forward fixed costs of resources in the California market that is several fold greater than actual going forward fixed costs of most resources.[4] These comments and DMM's supporting analysis are included as Attachment A to this filing. As shown in these comments, based on cost estimates of going forward costs from DMM's analysis, the CAISO's Soft Offer Cap would be reduced from $76/kW-year to $40/kW-year.

Third, DMM is concerned about a central buyer structure that requires the central buyer to only procure *RA-only* (i.e. RA capacity only) products based solely or primarily on a capacity price. With this framework, DMM is concerned that an excessive portion of the overall portfolio of RA capacity procured by Load Serving Entities and the central buyer could consist of resources with very limited energy, very high bid prices, and limited availability in the real-time market. Such resources may appear to be the lowest

[4] *Capacity Procurement Mechanism Soft Offer Cap Straw Proposal: Supplemental Comments by Department of Market Monitoring*, September 10, 2019. http://www.caiso.com/Documents/DMMSupplementalComments-CapacityProcurementMechanismSoftOfferCap-StrawProposal.pdf

cost strictly in terms of capacity, but may provide more limited value in terms of actual reliability and energy market competitiveness.

II. DISCUSSION

Concerns with the existing Soft Offer Cap and overall CPM and RMR backstop procurement framework should be addressed before adopting the Soft Offer Cap as a key part of the central buyer framework.

The Settling Parties' proposed RA-CPE framework would precede the CAISO's CPM process with a goal being to "minimize the need for CAISO backstop procurement."[5] The Settlement Agreement would essentially create a procurement framework for residual capacity that is similar to the CAISOs' *existing* CPM process. Thus, the proposed RA-CPE process would continue to possess the same issues that stakeholders have raised with the CAISO CPM design while minimizing the role of CAISO's CPM framework.

Moreover, the CPM Soft Offer Cap is only one element of the CAISO's backstop procurement authority, which includes a combination of various CPM and Reliability Must Run (RMR) tariff provisions. The CAISO's CPM and RMR provisions are both currently subject to significant potential changes through the CAISO's CPM stakeholder process and proposed RMR rule changes pending at FERC.[6] DMM believes it is important that existing concerns with the Soft Offer Cap and overall CPM and RMR

[5] *Settlement Agreement*, p. 2.

[6] In addition to having an ongoing initiative to modify CPM rules, the CAISO also has proposed changes to its Reliability Must-Run (RMR) procurement authority pending at FERC which also relate to the CAISO's overall backstop procurement authority. See *Tariff Amendments to Improve the Reliability Must Run Framework*, California Independent System Operator Corporation, Docket No. ER19-1641, April 22, 2019.

backstop procurement framework are addressed before formally adopting the Soft Offer Cap as a key part of the central buyer framework.

The CAISO is currently considering changes to the CPM framework to address stakeholder concerns that CPM solicitations are not competitive and that compensation for annual CPM designations is too high.[7] There is evidence of a lack of competition in CAISO CPM solicitations to meet system and local requirements, which would appear likely to persist in RA-CPE solicitations. For example, each year DMM publishes residual supply indices for major local capacity areas in the CAISO. This analysis indicates that many local capacity areas are not structurally competitive because there are one or two suppliers that are pivotal and control a significant portion of capacity needed to meet local requirements.[8] CAISO CPM designations have also been made at or close to the Soft Offer Cap since the inception of the current CPM framework in 2015.[9]

Under the CAISO's current CPM Straw Proposal, the CAISO would apply a market power test to annual CPM solicitations. If annual CPM solicitations are identified

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[7] CAISO Capacity Procurement Mechanism Soft Offer Cap initiative page: http://www.caiso.com/informed/Pages/StakeholderProcesses/CapacityProcurementMechanismSoftOfferCap.aspx

[8] *2018 Annual Report on Market Issues and Performance*, *Department of Market Monitoring,* pp. 161-162. http://www.caiso.com/Documents/2018AnnualReportonMarketIssuesandPerformance.pdf

[9] *See DMM Annual Reports on Market Issues and Performance,* 2015-2017:
2017 Annual Report, p. 240:
http://www.caiso.com/Documents/2017AnnualReportonMarketIssuesandPerformance.pdf
2016 Annual Report, p. 239:
http://www.caiso.com/Documents/2016AnnualReportonMarketIssuesandPerformance.pdf
2015 Annual Report, p. 222:
http://www.caiso.com/Documents/2016AnnualReportonMarketIssuesandPerformance.pdf
Also see: DMM Q4 2018 Report on Market Issues and Performance pp.67-68:
http://www.caiso.com/Documents/2018FourthQuarterReportonMarketIssuesandPerformance.pdf

as non-competitive, the CAISO would cap eligible resources' compensation at mitigated values, which are currently proposed to be resources' cost-of-service. Thus, for most resources the Soft Offer Cap could be replaced with an entirely different cost-based form of CPM compensation method designed to mitigate potential market power due to the lack of competitiveness in the CAISO's capacity procurement process.

Using the Soft Offer Cap as a price ceiling could allow resources with market power in RA-CPE solicitations to receive compensation that exceeds levels that would result under competitive capacity market conditions. Since the RA-CPE process would take place before the CAISO's CPM process, any new market power mitigation provisions incorporated in the CPM process could be undermined by a RA-CPE process based on the Soft Offer Cap. Thus, using the Soft Offer Cap as a price ceiling in the proposed RA-CPE framework could undermine changes to the CPM design being considered by the CAISO.

Under the Settlement Agreement, suppliers with market power could continue to seek compensation at the Soft Offer Cap in RA-CPE solicitations (potentially for up to three years forward), despite potential changes to address market power concerns in CAISO's CPM processes. Moreover, resource owners that determine that the cost-based level of compensation proposed by the CAISO in its current CPM straw proposal are more profitable than a capacity payment at the Soft Offer Cap could select the higher cost-based compensation by holding out for compensation under the CAISO's CPM framework.

Thus, the Settling Parties' proposed central buyer structure could allow suppliers with capacity market power to obtain compensation that is well in

excess of levels that would be received under competitive market conditions or the cost-based level of compensation proposed by the CAISO in its current CPM straw proposal. In addition, as discussed below, recent analysis by DMM suggests that the CAISO's current Soft Offer Cap may be based on an estimate of the going forward fixed costs that is significantly greater than actual going forward fixed costs of most resources.

The CAISO's Soft Offer Cap may be based on cost estimates that are significantly greater than actual going forward fixed costs of most resources.

The CAISO intends for the Soft Offer Cap to be based on the going forward fixed costs of a typical new combined cycle unit plus 20%. Units receiving these CPM payments also keep all net revenues earned from operating in the market.

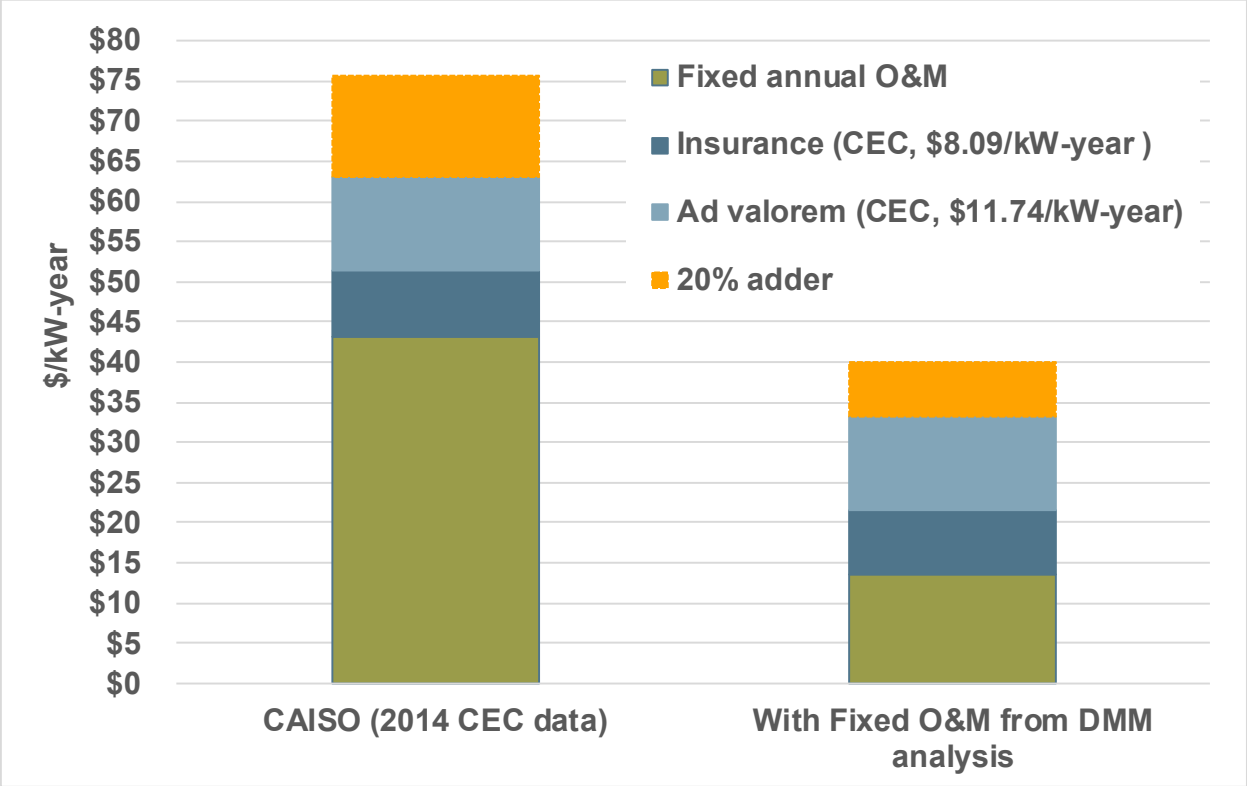
The CAISO currently uses estimates of going forward fixed costs from a report by the California Energy Commission ("CEC") to set the Soft Offer Cap. The CAISO's estimate of going forward fixed costs include three components: (1) fixed annual O&M, (2) insurance and (3) *ad valorum* (taxes).

DMM is concerned that fixed O&M estimates based on the CEC report which the CAISO uses for setting the Soft Offer Cap may significantly overstate the going forward costs of a typical combined cycle resource. DMM has reviewed fixed O&M estimates for combined cycle resources from a range of other publicly available sources. Detailed references and results of DMM's review are provided in recent comments on the CAISO's CPM Soft Offer Cap

Straw Proposal (included as Attachment A to these comments).[10] As shown in Attachment A, the CEC's recent fixed O&M estimates were about three times higher than the higher end of the various estimates found by DMM.

Figure 1 compares the CAISO's calculation of the CPM Soft Offer Cap (based on the CEC data) with a calculation of the CPM Soft Offer Cap based on a lower estimate of fixed annual O&M derived from DMM's review of other data sources.

Figure 1. CPM Soft Offer Cap based on different estimates of fixed annual O&M



[10] *Capacity Procurement Mechanism Soft Offer Cap Straw Proposal: Supplemental Comments by Department of Market Monitoring*, September 10, 2019.

As shown in Figure 1, the current Soft Offer Cap is based on estimated fixed annual O&M costs of about $38/kW-year. The upper range of estimates of fixed annual O&M costs identified by DMM was about $13.50/kW-year. If the Soft Offer Cap was calculated using this lower estimate of fixed annual O&M costs, the Soft Offer Cap would drop from $76/kW-year to $40/kW-year.

As previously explained in these comments, if the Soft Offer Cap is excessive, the Settling Parties' proposed central buyer structure could allow suppliers with RA market power to obtain compensation significantly in excess of compensation under competitive market conditions or the cost-based level of compensation proposed by the CAISO in its current CPM straw proposal.

A central buyer structure that requires procurement of the lowest priced RA-only capacity products may not ensure an overall portfolio of RA capacity that ensures system reliability and energy market competitiveness.

DMM is concerned about a central buyer structure that requires the central buyer to only procure *RA-only* (i.e. RA capacity only) products based solely or primarily on a simple capacity price. With this framework, DMM is concerned that an excessive portion of the overall portfolio of RA capacity procured by Load Serving Entities and the central buyer could consist of resources with very limited energy, very high bid prices, and limited availability in the real-time market. Such resources may tend to be the lowest cost strictly in terms of capacity, but may provide more limited value in terms of actual reliability and energy market competitiveness.

In recent comments in the Integrated Resource Planning Framework proceeding (R.16-02-007), DMM explained its concerns with increased reliance *on energy-limited* or *availability-limited* resources to meet RA requirements in the coming years, as a significant amount of gas and nuclear capacity now providing RA capacity is retired.[11] These energy-limited or availability-limited resources include renewables, RA import capacity, demand-side resources and energy storage. Unlike gas and nuclear capacity, these resource types may have limited availability to meet both peak demand and demand across multiple hours in an operating day. When available, these resources could also be very expensive to dispatch.

If increased reliance is placed on these resources to meet RA requirements, DMM is concerned that the RA fleet could have limited output during hours when net loads – and the potential for uncompetitive supply conditions – are highest. Such energy-limited or availability-limited resources provide limited benefits in terms of mitigating potential system market power in CAISO's markets. Increased reliance on these resources to meet RA requirements is likely to increase the potential for market power in CAISO markets and uncompetitive system market conditions could become more frequent.

The Settlement Agreement seems to require the RA-CPE to procure the resources with the lowest capacity cost offers, even if the resources are

[11] *Reply comments of the Department of Market Monitoring of the California Independent System Operator Corporation* in Assigned Commissioner and Administrative Law Judge's June 20,2019 Ruling Initiating Procurement Track and Seeking Comment on Potential Reliability Issues, R.16-02-007, August 12, 2019.

energy-limited or availability-limited resources that may be very expensive to dispatch and may not satisfy CAISO's reliability requirements. CAISO may still need to regularly procure additional resources to meet the system's actual reliability needs after the RA-CPE fulfills its procurement obligations under this framework. A central buyer design that allows the central buyer to consider CAISO's actual reliability needs and to consider both energy and capacity costs in its procurement decisions could create a much more efficient overall residual/backstop procurement process.

III. CONCLUSION

As summarized in these comments, DMM has three concerns about the Settling Parties' proposal to use the CAISO's CPM Soft Offer Cap as a price ceiling at or below which the RA-CPE would be required to accept RA-only offers until residual RA requirements are met for a three-year forward period.

- The various concerns with the existing Soft Offer Cap and overall CPM and RMR backstop procurement framework should be addressed before adopting the Soft Offer Cap as a key part of the central buyer framework.

- The CAISO's Soft Offer Cap may be based on cost estimates that are significantly greater than the actual going forward fixed costs of most resources.

- A central buyer structure that requires procurement of the lowest priced RA-only capacity products may not ensure an overall portfolio of RA capacity that ensures system reliability and energy market competitiveness.

DMM respectfully requests that the Commission and stakeholders consider these concerns when considering the Settling Parties' proposal and other suggestions for implementing a central buyer structure.

Respectfully submitted,

By: /s/ Eric Hildebrandt

Eric Hildebrandt, Ph.D.
Executive Director, Market Monitoring

Ryan Kurlinski
Manager, Analysis & Mitigation Group

Cristy Sanada
Senior Analyst

Brett Rudder
Senior Analyst

Department of Market Monitoring
California Independent System
Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Tel: 916- 608-7150
rkurlinski@caiso.com

Department of Market Monitoring of the California Independent System Operator Corporation

Dated September 30, 2019

Attachment A

Supplemental Comments by Department of Market Monitoring on the CAISO's Straw Proposal in the Capacity Procurement Mechanism Soft Offer Cap Stakeholder Initiative

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Capacity Procurement Mechanism Soft Offer Cap Straw Proposal: Supplemental Comments by Department of Market Monitoring

September 10, 2019

Overview

In prior comments on the ISO's Capacity Procurement Mechanism Soft Offer Cap Straw Proposal, the Department of Market Monitoring (DMM) expressed concerns about data in the CEC report which the ISO was relying upon to set the CPM soft offer cap. DMM recommended that the ISO perform additional verification and/or an independent assessment of the actual going forward costs (GFFC) of gas-fired generating units.[1]

DMM has performed additional research on this issue, which provides further indications that the CEC report data used by the ISO significantly overestimates the actual going forward costs of gas-fired generating units. These supplemental comments summarize the results and highlight potential implications of DMM's review of this issue.

Background

The ISO intends for the CPM soft offer cap to be "a proxy for the system marginal capacity cost."[2] The ISO proposes to continue to set the soft offer cap "as a subset of the fixed costs, representing going forward fixed costs, for a new resource. These costs include insurance, ad valorem, and fixed operations and maintenance costs, but not capital and financing costs or taxes."[3]

The ISO proposes to set the CPM soft offer cap "based on figures from the 2014 draft CEC report for Estimated Cost of New Renewable and Fossil Generation in California."[4] Specifically, the ISO proposes to add a 20% adder to the CEC report's values for insurance, ad valorem, and fixed operations and maintenance for a hypothetical new advanced combined cycle resource to determine the soft offer cap.

The ISO indicated that the first item in the scope of the current initiative was to "update the soft offer cap for the CPM competitive solicitation process, including selection of the appropriate resource type and size that best reflects the system marginal capacity cost."[5] In DMM's initial comments on the ISO's Straw Proposal, DMM expressed concern that that the CEC report was not designed to provide an estimate of GFFC and was not intended to be used for the kind of

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[1] *Comments on Capacity Procurement Mechanism Soft Offer Cap*, Department of Market Monitoring, August 20, 2019: http://www.caiso.com/Documents/DMMComments-CapacityProcurementMechanismSoftOfferCap-StrawProposal.pdf

[2] *Capacity Procurement Mechanism Soft Offer Cap Straw Proposal*, CAISO, July 24, 2019, p. 6: http://www.caiso.com/Documents/StrawProposal-CapacityProcurementMechanismSoftOfferCap.pdf

[3] The ISO also continues to propose that the reference resource used to determine these costs be a "mid-cost 550 MW advanced combined cycle resource with duct firing capability. *CAISO July 2019 Straw Proposal*, pp. 6-7.

[4] *CAISO July 2019 Straw Proposal*, p. 9.

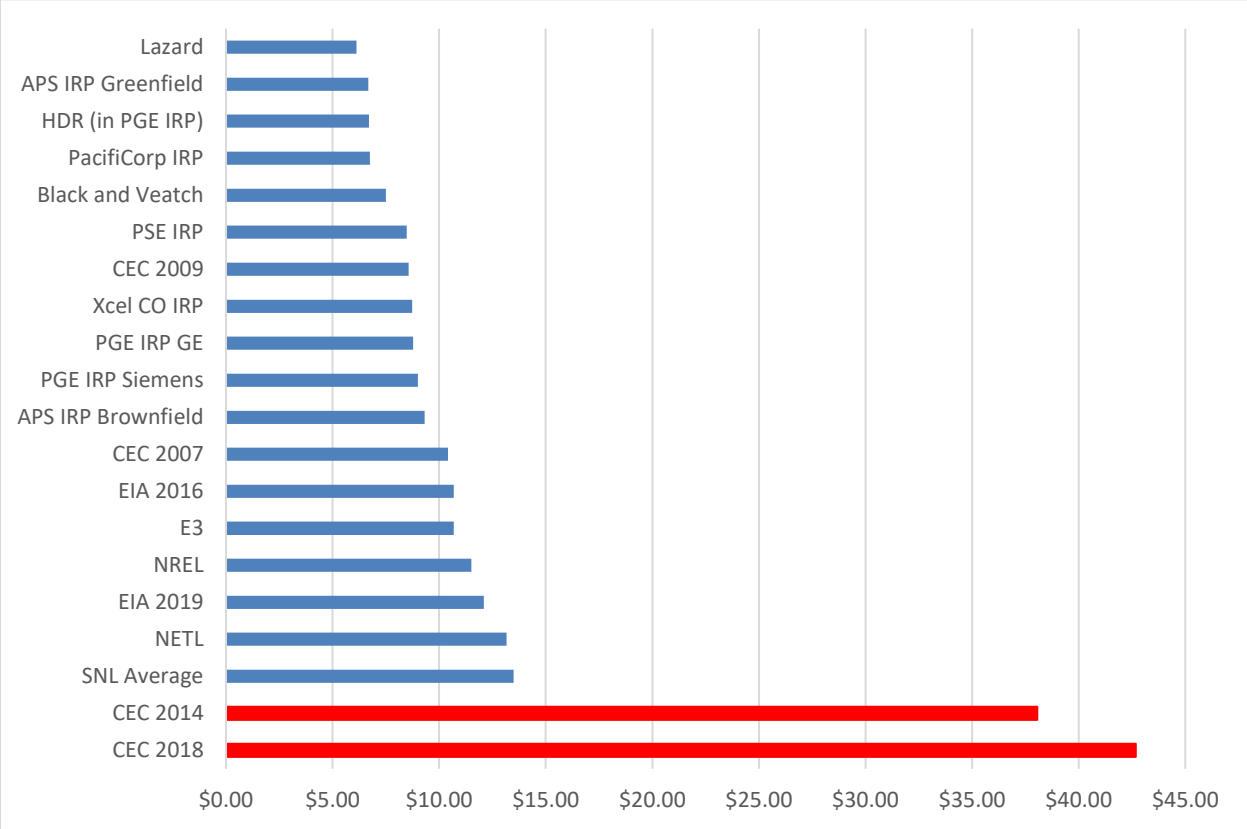
[5] *Capacity Procurement Mechanism Soft Offer Cap Issue Paper*, CAISO, May 30, 2019, p. 6: http://www.caiso.com/Documents/IssuePaper-CapacityProcurementMechanismSoft-OfferCap.pdf

rate-making that occurs when these data are being used for setting the soft cap. Specifically, DMM expressed concern the ISO's estimates of fixed annual O&M derived in the CEC study were unreasonably high.

Review of Cost Studies

DMM has further examined this issue by reviewing estimates of fixed O&M cost estimates for combined cycle units from a range of publicly available sources. These sources include analysis by expert consultants (Lazard, Black and Veatch, HDR, E3), government agencies (EIA, CEC, NREL, NETL), integrated resource plans (PSE, PGE, PacifiCorp, APS, Xcel) and specific generator estimates from SNL. All cost estimates from these various studies were adjusted to 2019 dollars. Figure 1 below compares the fixed O&M estimates from these sources.[6]

Figure 1. Estimates of fixed O&M costs of combined cycle resources ($/kW-year)



As shown in Figure 1, in comparison with the 18 other sources DMM found for estimates of combined cycle fixed O&M costs, the CEC's 2014 and 2018 estimates are clearly extreme outliers. Fixed O&M estimates from the CEC data were $38.06/kW-year for 2014 and $41.77/kW-year in 2018. However, estimates from other sources range from $6.12 to $13.49/kW-year. Thus, the recent CEC estimates are about three times higher than the next highest estimate.

[6] For citations to each source shown in Figure 1, see Appendix I.

Discussion of Results

Figure 2 shows the implications of different estimates of fixed O&M costs in terms of the total annualized costs and potential net market revenues of a relatively new combined cycle unit.

- The dark blue bar in Figure 2 is the estimate of net market revenues for a hypothetical combined cycle generator in SP15 provided in DMM's 2018 annual report ($38.85/kW-year).[8]

- The light blue bar stacked on top of the net market revenue is the ISO's proposed CPM soft offer cap of $75.67/kW-year.

- The sum of these two numbers ($114.52/kW-year) is an estimate of the total net annual revenue of a combined cycle resource being compensated at the ISO's proposed CPM soft offer cap.

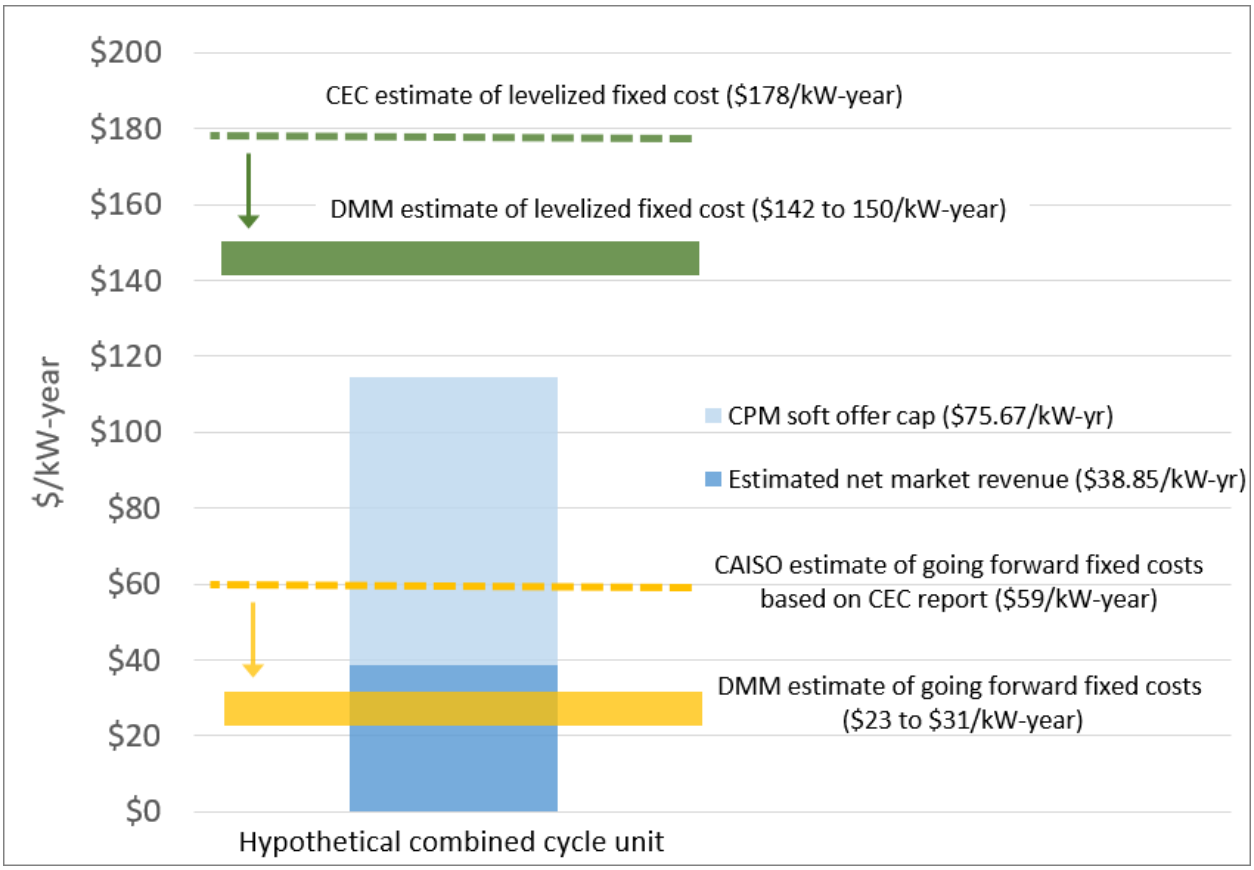
The dotted yellow line in Figure 2 shows the ISO's current estimate of going forward fixed costs (GFFC) derived from CEC data ($59/kW-year). The horizontal yellow band in Figure 2 shows the range of going forward fixed cost estimates based on the fixed O&M estimates in Figure 1 (excluding the two recent CEC outliers). The low end of the GFFC range is $23.25/kW-year and the high end is $30.62/kW-year. These GFFC estimates include the same values for insurance and ad valorem from the ISO's Straw Proposal, which are in turn based on the 2018 CEC study ($7.10/kW-year and $10.03/kW-year, respectively).

The dotted green line in Figure 2 shows the total estimated levelized fixed costs of a new merchant combined cycle unit based on the 2018 CEC report.[9] These costs include the CEC's fixed O&M estimate of $41.77/kW-year. The horizontal green band in Figure 2 shows the range of leveled fixed cost estimates for a merchant unit after replacing the CEC fixed O&M value with the high and low fixed O&M estimates from the other sources displayed in Figure 1.

[8] *2018 Annual Report on Market Issues and Performance*, Department of Market Monitoring, May 2019, p.59: http://www.caiso.com/Documents/2018AnnualReportonMarketIssuesandPerformance.pdf

[9] Neff, Bryan. 2019. Estimated Cost of New Utility-Scale Generation in California: 2018 Update. California Energy Commission. Publication Number: CEC-200-2019-500. https://ww2.energy.ca.gov/2019publications/CEC-200-2019-005/CEC-200-2019-005.pdf

Figure 2. Estimates of Potential Annual Cost and Revenues for Combined Cycle Resources



Appendix I. References with Estimates of Fixed O&M Costs

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