Capacity Procurement Mechanism Soft Offer Cap Draft Final Proposal

Comments by Department of Market Monitoring

January 24, 2020

Summary

DMM appreciates this opportunity to comment on the ISO's Capacity Procurement Mechanism (CPM) Soft Offer Cap draft final proposal.[1] Since establishing the CPM soft offer cap in 2014, the ISO's policy has been to set the CPM soft offer cap equal to the going forward fixed costs of a typical new gas-fired unit plus 20%.[2] The ISO set the current soft offer cap using estimates of going forward fixed costs derived from reports by the California Energy Commission (CEC). Units receiving these CPM payments also keep all net revenues earned from operating in the market.

In prior comments in this initiative, DMM requested that the ISO review the accuracy of the cost estimates derived from CEC reports and provided extensive analysis showing that the current soft offer cap may be based on cost estimates that are significantly greater than the actual going forward fixed costs of most gas-fired resources.[3] However, the final draft proposal fails to address or even acknowledge the comments and analysis regarding the current soft cap provided by DMM throughout this year long stakeholder process. DMM's analysis of going forward fixed cost is being resubmitted as Attachment A to these comments.

The final draft proposal includes a review of a more recent CEC report, but calls for leaving the CPM at its current level. Based on analysis submitted by DMM, the final draft proposal will set the soft offer cap substantially above the going forward fixed costs of gas-fired resources, and will therefore allow resources with market power in local areas to exercise that market power in capacity contract negotiations. Furthermore, as DMM has noted in prior comments, the proposal to offer soft offer cap compensation to resources under CPM and to offer cost-of-service compensation to resources under RMR will allow resources with market power to self-select between the two forms of compensation: the CPM soft offer cap or full cost-of-service compensation under Reliability Must Run (RMR) contracts.

To be consistent with the ISO's long-standing policy for determining the soft offer cap, DMM continues to recommend that the ISO reassess the accuracy of cost estimates based on CEC

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[1] *Capacity Procurement Mechanism Soft Offer Cap Draft Final Proposal*, CAISO, January 6, 2020. http://www.caiso.com/InitiativeDocuments/DraftFinalProposal-CapacityProcurementMechanismSoftOfferCap.pdf

[2] *Capacity Procurement Mechanism Replacement Draft Final Settlement Document for ISO Board of Governors*, CAISO, December 15, 2014, p. 15: http://www.caiso.com/Documents/DraftFinalSettlementProposal-CapacityProcurementMechanismReplacement.pdf

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

reports and set the soft offer cap based on a more reliable and accurate estimate of going-forward fixed costs. DMM recommends that the ISO continue this stakeholder initiative to thoroughly review its method for determining the CPM soft offer cap and to give further consideration to the framework described in the ISO's prior proposal to test for and mitigate market power in CPM solicitations.[4]

In the final draft proposal, the ISO also suggests that it is significantly changing its policy for determining the soft offer cap, citing "the cost of building solar and storage as the marginal capacity resources on the system."[5] This is a significant departure from its longstanding Board and FERC approved policy. The ISO's explanation of this policy change is confusing and unsubstantiated. DMM does not believe such a policy change is warranted. But if the ISO seeks such a policy change, it should thoroughly discuss such a change with stakeholders and seek Board and FERC approval for any such policy change.

The CPM soft offer cap is substantially higher than the value prescribed by ISO's established soft offer cap policy.

Since establishing the CPM soft offer cap in 2014, the ISO's policy has been to set the CPM soft offer cap equal to the going forward fixed costs of a typical new gas-fired unit plus 20%. Units receiving CPM payments also keep all net revenues earned from operating in the market.

The ISO set the current soft offer cap using "the CEC's updated estimate for the levelized going-forward fixed costs of a mid-cost 550 MW combined cycle."[6] The CAISO's estimate of going forward fixed costs include three components from the CEC report: (1) fixed annual O&M, (2) insurance and (3) ad valorum (taxes).

In this stakeholder process, DMM has repeatedly expressed concerns that fixed O&M estimates based on the CEC report which the ISO uses for setting the soft offer cap significantly overstate the going forward costs of a typical combined cycle resource. DMM's August 2019 comments on the ISO's straw proposal explained why DMM believed a closer review of the cost estimates used in the CEC reports was needed and recommended that the ISO perform additional review of the cost estimates developed from the CEC reports. [7] As explained in DMM's August 2019 comments:

> DMM has numerous concerns about the cost data in the CEC reports, and recommends that the CAISO perform additional verification and/or an independent assessment of GFFC. The CEC report was not designed to provide an estimate of GFFC and was not intended to be used for the kind of rate-making that occurs when these data are being used for setting the soft cap. DMM understands that the data on costs of generation in the CEC report were

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[4] *Capacity Procurement Mechanism Soft Offer Cap Straw Proposal*, CAISO, July 24, 2019, pp. 11-12: http://www.caiso.com/InitiativeDocuments/StrawProposal-CapacityProcurementMechanismSoftOfferCap.pdf

[5] 2020 Draft Final Proposal, p. 7.

[6] 2014 CPM Draft Final Settlement Document, p. 15.

[7] *Capacity Procurement Mechanism Soft Offer Cap Straw Proposal*, Comments by Department of Market Monitoring, August 20, 2019, pp. 3-5. http://www.caiso.com/Documents/DMMComments-CapacityProcurementMechanismSoftOfferCap-StrawProposal.pdf

initially developed prior to 2014 based on self-reported data collected through a survey. No details of this survey or the components/assumptions underlying the data used to estimated GFFC are provided in the report.

In addition, based on the limited information provided in the CEC report, the report appears to categorize almost all maintenance as being a fixed annual cost, rather than maintenance costs that actually depend on the usage of the unit (e.g. start-ups, run hours and MWh produced). In the ISO market, a significant portion of these maintenance costs are incorporated in maintenance adders applied to startup, minimum load and energy bids used to dispatch units and provide revenue recovery.[8]

The ISO itself has not undertaken any review to assess the accuracy of the CEC data or how it was being applied by the ISO. However, DMM performed extensive analysis of going forward fixed costs based on a wide range of other data sources. Results of this analysis were discussed with ISO staff, and detailed results and supporting documentation were provided in DMM's September 2019 comments.[9] DMM's analysis of going forward fixed costs is being resubmitted as Attachment A to these comments.

DMM's analysis provided further indications that the CEC report data used by the ISO significantly overestimates the actual going forward costs of gas-fired generating units. As shown in Attachment A and Figure 1 below, the CEC's recent fixed O&M estimates are about three times higher than the higher end of the various estimates found by DMM.

Figure 2 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 an estimate of fixed annual O&M derived from DMM's review of other data sources.

As shown in Figure 2, 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.

In its draft final proposal, the ISO does not address or even acknowledge DMM's analysis. Instead, the ISO states that the CEC's 2018 study "indicates that the going forward fixed costs for a new combined cycle resource did not materially change over the past five years."[10]

DMM agrees that the cost number reported by the CEC has not materially changed over the past five years. However, the ISO has ignored the fact that this CEC cost number does not represent the going forward fixed cost that ISO policy has intended to use to determine the soft offer cap.

[8] Ibid, p. 4.

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

[10] 2020 Draft Final Proposal, p. 7.

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

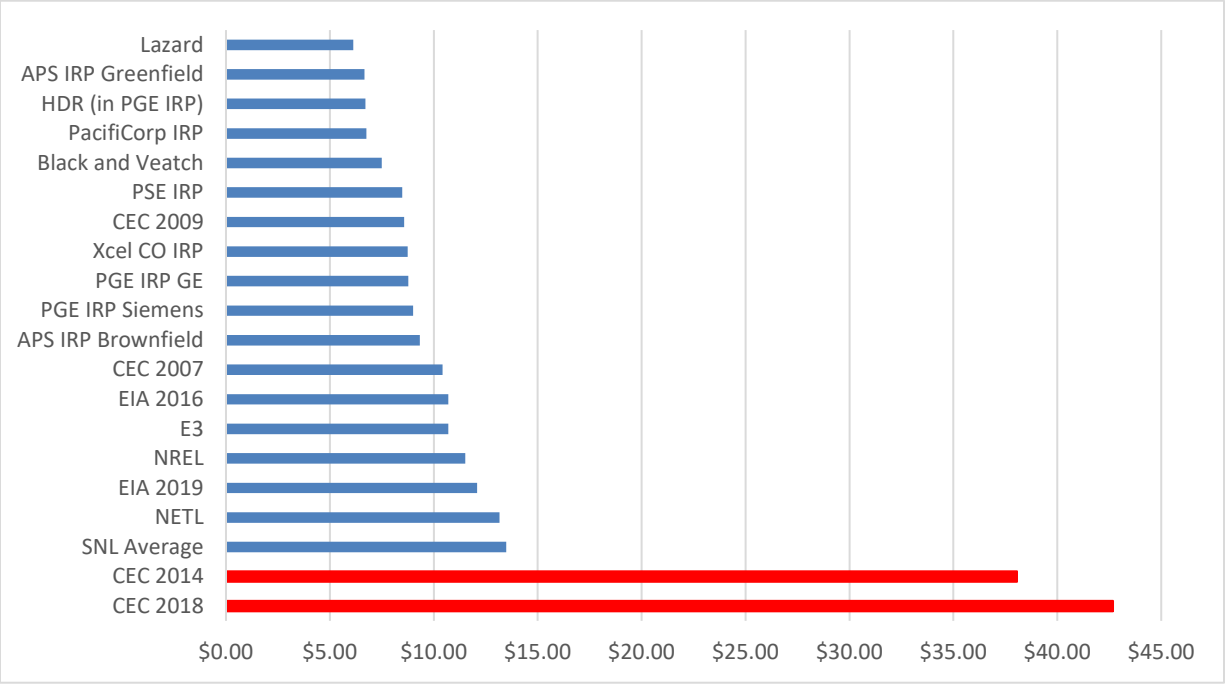
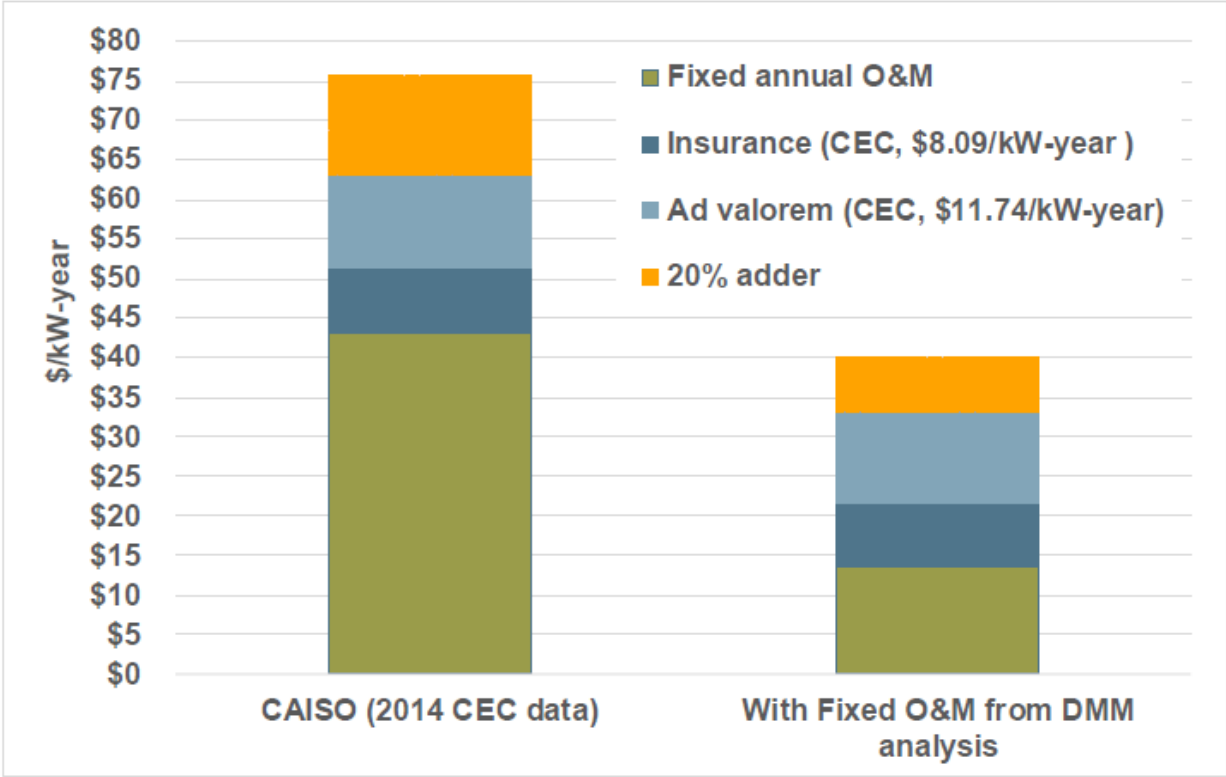


Figure 2. CPM soft offer cap based on different estimates of fixed annual O&M



To be consistent with the ISO's long-standing policy for basing the soft offer cap on going forward fixed costs, DMM recommends that the ISO evaluate the appropriateness of using the CEC's O&M cost estimates, and set the soft offer cap based on a levelized going-forward fixed cost estimate that is more accurate and appropriate for the ISO's purposes.

The draft final proposal suggests the ISO has made a significant change to its policy for determining the soft offer cap. If the ISO seeks such a policy change, it should thoroughly discuss such a change with stakeholders and seek Board and FERC approval for any such policy change.

In its draft final proposal, the ISO cites "significant changes to the grid's resource fleet to meet state goals" as justification for setting the soft offer cap at $75.67, significantly above the going forward fixed cost of a new combined cycle gas unit. "During this transitional period, the ISO proposes to leave the soft offer cap at the current rate of $75.67/kW-Year" because "as early as 2022 the numbers begin to reflect *the cost of building* solar and storage as the marginal capacity resources on the system." [emphasis added][12]

This justification for setting the soft offer cap at $75.67/kW-year (rather than 20% over the going forward fixed cost of a gas unit) suggests the ISO is making a significant change to its established policy for determining the value of the soft offer cap. If the ISO believes the soft offer cap should be based on the cost of *building* new clean resources that are required "to meet state goals to significantly reduce greenhouse gas emissions,"[13] DMM believes the logic behind this major policy change should be vetted with stakeholders, the Market Surveillance Committee, and the Board.

When the ISO developed the Capacity Procurement Mechanism in 2010, the ISO ran a lengthy stakeholder process in which it carefully vetted with stakeholders over numerous straw proposals whether to base the CPM compensation on (1) going forward fixed costs or (2) the cost of building new resources. In its 2010 CPM draft final proposal, the ISO concluded:

> The ISO's proposal to compensate suppliers for CPM designations on the basis of going-forward fixed costs is essentially the same rule that was adopted for the ICPM and approved by FERC…Going forward costs are generally understood as the minimum fixed costs needed to keep a generator available for operation.[14]

Furthermore, the ISO argued "that maintaining the going forward fixed cost pricing approach is also consistent with the criteria to minimize procurement through the backstop mechanism."[15]

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[12] 2020 Draft Final Proposal, p. 7.

[13] 2020 Draft Final Proposal, p. 7.

[14] *Capacity Procurement Mechanism, and Compensation and Bid Mitigation for Exceptional Dispatch Revised Draft Final Proposal*, CAISO, September 15, 2010, p. 35: http://www.caiso.com/Documents/RevisedDraftFinalProposal15-Sep-2010.pdf

[15] 2010 Draft Final Proposal, p. 34.

In other words, "to provide sufficient cost recovery under the voluntary CPM paradigm and not create incentives for load serving entities to forego bilateral RA contracts and instead rely on CPM backstop procurement," CPM compensation based on going forward fixed costs is sufficient.[16]

At the end of its extensive 2010 stakeholder process on this issue, the ISO also explained clearly why it had concluded to not base CPM compensation on the cost of building new capacity:

> In the absence of a well-designed investment mechanism, a CPM based on cost of new entry could in some locations simply raise capacity prices to buyers without encouraging new entry, and be judged not just and reasonable unless other protective mechanisms were established in the presence of barriers to investment.[17]

Other than the CPM soft offer cap, measures to protect against the exercise of market power in the bilateral capacity markets that support CAISO's spot markets have not been established. The current proposal to set the soft offer cap substantially above the going forward fixed costs of resources no longer under contract will allow resources with market power in local areas to exercise that market power and "simply raise capacity prices to buyers without encouraging new entry."

Therefore, DMM recommends that the ISO restart this stakeholder initiative. The decision to base CPM compensation on going forward fixed costs was made through a thorough stakeholder process, Board approval, and FERC decision in 2010. The significant change to this policy suggested in the recent proposal should at least be vetted carefully by stakeholders and the Board through a transparent stakeholder process. When the ISO considers its options for mitigating capacity market power, DMM recommends that the ISO give further consideration to the framework described in the ISO's own recent proposal to test for, and mitigate, market power in CPM solicitations.[18]

[16] 2020 Draft Final Proposal, p. 7.

[17] 2010 Draft Final Proposal, p. 34.

[18] *Capacity Procurement Mechanism Soft Offer Cap Straw Proposal*, CAISO, July 24, 2019, pp. 11-12.

Attachment A

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

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 rate-making that occurs when these data are being used for setting the soft cap. Specifically,

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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.

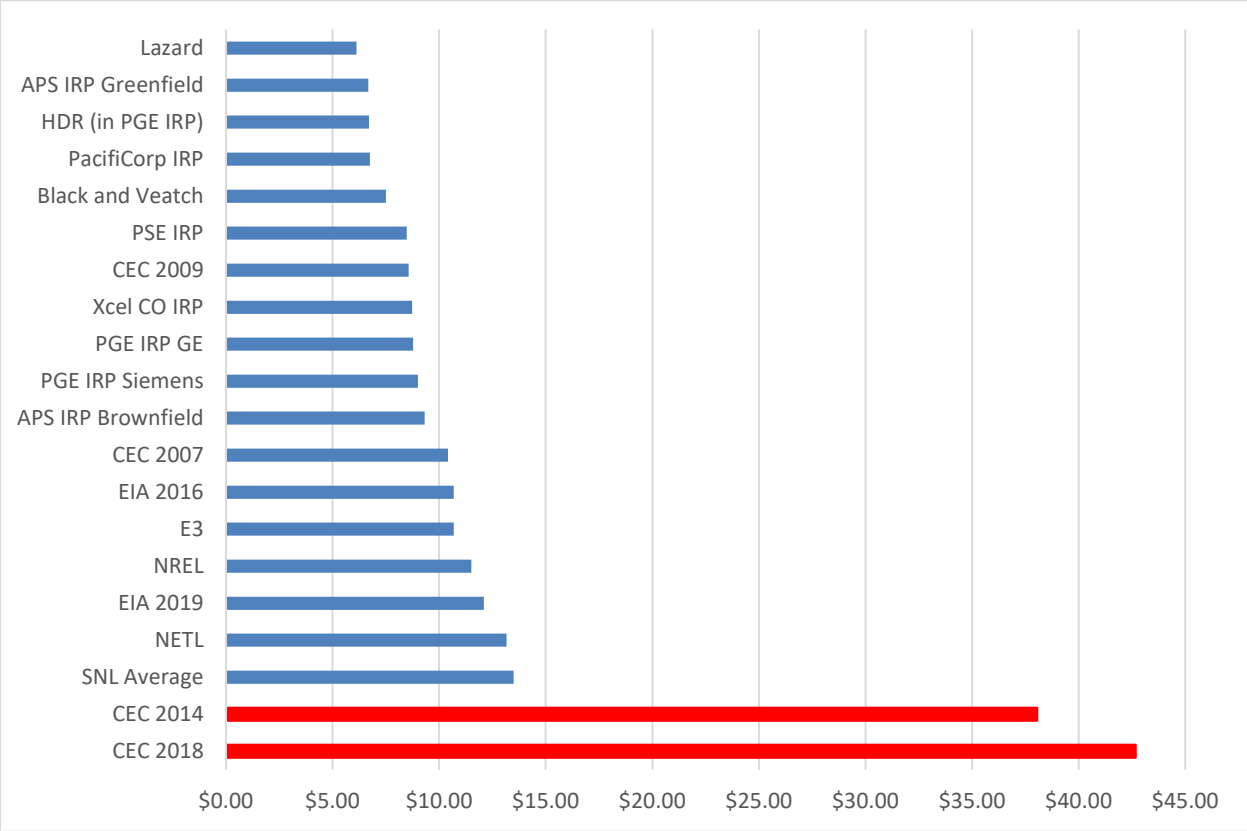
[5] *Capacity Procurement Mechanism Soft Offer Cap Issue Paper*, CAISO, May 30, 2019, p. 6: http://www.caiso.com/Documents/IssuePaper-CapacityProcurementMechanismSoft-OfferCap.pdf

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 2. 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.

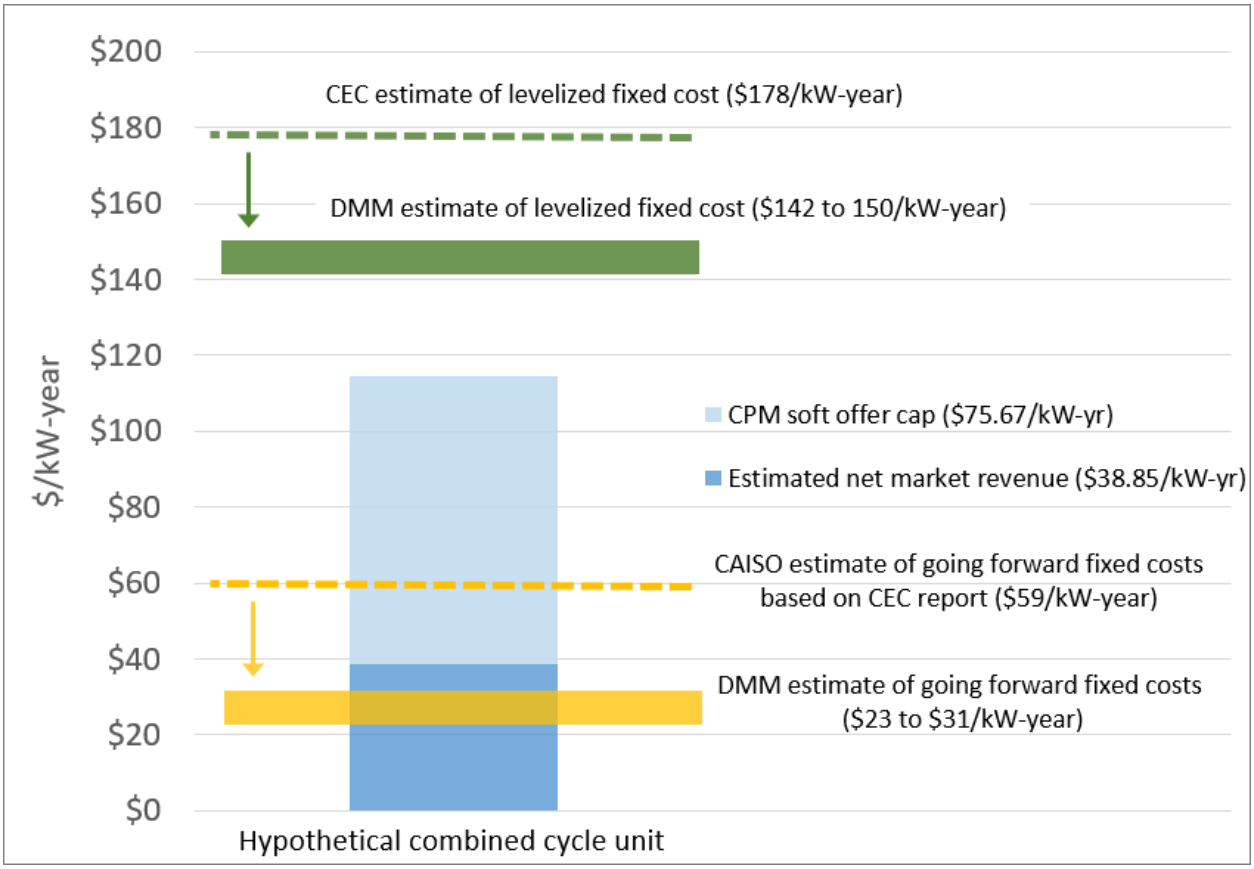
The dotted yellow line in Figure 2 shows the ISO's current estimate of going forward fixed costs (GFFC) derived from CEC data ($59/kW-year). The horizontal yellow band in Figure 2 shows the range of going forward fixed cost estimates based on the fixed O&M estimates in Figure 1 (excluding the two recent 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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https://www.aps.com/library/resource%20alt/2017IntegratedResourcePlan.pdf

APS IRP Brownfield. (2017). *APS Integrated Resource Plan 2017*. Average of greenfield natural gas plants greater than 400 MW taken from generation technologies assumptions table in attachment D3.
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NREL. (2019). *Annual Technology Baseline: Electricity*. Retrieved on 9/4/2019 from the NREL website: https://atb.nrel.gov/electricity/2019/index.html?t=cg

PacifiCorp IRP. (2019). *PacifiCorp Integrated Resource Plan 2019*. Gas Fueled Supply Side Resource Table Update. Average of combined cycle options in table 7-1. https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2019-irp/2019-irp-support-and-studies/Gas-Fueled_Supply_Side_Resource_Table_Update_for_the_2019_Integrated_Resource.pdf

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