

Comments on Hybrid Resources Final Proposal

Department of Market Monitoring

October 30, 2020

Summary

DMM appreciates the opportunity to comment on the ISO's *Hybrid Resources Final Proposal*.¹ DMM recognizes that in addition to the motivation of short-term investment tax credits, a hybrid resource model could improve operational efficiencies when there are significant interactions between resources sited at the same location. DMM views the ISO's proposed hybrid resources model as a reasonable initial framework to incorporate new hybrid resource technologies. DMM supports many elements of the Final Proposal. However, a few remaining elements of the Final Proposal continue to warrant additional consideration.

DMM believes hybrid resources should be subject to local market power mitigation. The ISO has acknowledged the potential for hybrid resources to exercise market power or otherwise play a role in setting market prices under non-competitive conditions. All co-located resources — which are similarly situated to hybrid resources in the CAISO market — will be subject to local market power mitigation.² Although the ISO does not commit to local market power mitigation for hybrid resources in the Final Proposal, DMM supports the ISO's commitment to developing local market power mitigation measures for hybrid resources in the Hybrid Resources Evolution initiative in 2021.³

DMM supports the ISO's changes to outage reporting rules for hybrid resources as outlined in the Final Proposal. While the ISO has clarified outage rules for hybrid resources, the proposed dynamic limit tool still allows significant latitude for hybrid resource operators to reflect a variety of resource limitations. Because of the flexibility afforded by the dynamic limit tool, and the potential to use the dynamic limit to withhold capacity, the requirements for individual hybrid resource components to provide operational capability data are especially important.

DMM supports requirements for hybrid resource operators to submit all data required to fully assess the operational capabilities of the resource, including meteorological and forecast data, storage component state-of-charge data, and the high sustainable limit. These data will provide maximum transparency to dynamic limits submitted by scheduling coordinators. DMM recommends that the ISO consider using these data to automate dynamic limits for hybrid resources as part of the planned Hybrid Resources Evolution initiative.

¹ *Hybrid Resources Final Proposal*, California ISO, October 16, 2020: <http://www.caiso.com/InitiativeDocuments/RevisedFinalProposal-HybridResources.pdf>

² Although battery storage resources are not currently subject to mitigation, these resources will become subject to local market power mitigation when the ISO implements policy developed in the ESDER 4 initiative.

³ *2021 Three-Year Policy Initiative Roadmap and Annual Plan*, pg. 18, Market Infrastructure and Policy, California ISO. September 30, 2020. <http://www.caiso.com/Documents/2021DraftPolicyInitiativesRoadmap.pdf>

Finally, DMM supports the ISO's preference for resources seeking investment tax credits to reflect economic objectives in energy bids rather than seeking to limit grid charging capability.

While DMM supports many elements of the Final Proposal, other elements of the proposal continue to warrant further consideration:

- The ISO should reconsider whether explicitly allowing deviation is needed to achieve the charging of storage resources from excess production of co-located renewable resources.
- The ISO should consider whether the aggregated capability constraint needs to be included in the CRR model.
- DMM supports the ISO's recently approved implementation of the aggregate capability constraint for co-located resources, which depends on physical limitation schemes for compliance. However, should physical limiting schemes prove insufficient to restrict resource output, DMM notes that penalties of the type contemplated by FERC Order 845 applied to both co-located and hybrid resources could be a valuable complement to physical controls.

We offer additional detail in the comments below.

I. DMM supports the ISO's commitment to market power mitigation for hybrid resources

DMM supports the ISO's commitment to develop market power mitigation measures for hybrid resources in the Hybrid Resources Evolution initiative planned for 2021.⁴

In the Final Proposal, the ISO states that significant amounts of hybrid resource capacity are expected to come online over the next few years. The ISO also acknowledges that some of these resource will be well-positioned to exercise market power or otherwise play a role in setting market prices under non-competitive conditions. Additionally, with the implementation of the ISO's ESDER 4 initiative, storage and renewable resources modeled as co-located resources will each be subject to local market power mitigation. These resources are situated similarly to hybrid resources in the CAISO market, and it is not clear why it would be appropriate to mitigate these resources while forgoing mitigation of hybrid resources.

In the Second Revised Straw Proposal stakeholder presentation dated May 7, 2020, the ISO states that it will retain authority to review generator information and that DMM will monitor

⁴ 2021 Three-Year Policy Initiative Roadmap and Annual Plan, pg. 18, Market Infrastructure and Policy, California ISO. September 30, 2020. <http://www.caiso.com/Documents/2021DraftPolicyInitiativesRoadmap.pdf>

for gaming or manipulative behavior.⁵ The ISO states again in the Draft Final Proposal and Final Proposal that it intends to collect forecast data, as well as bid and outage data, which it intends to use to monitor, check, and understand hybrid resource bidding practices. These measures should be viewed as supplements to a robust market power mitigation framework, rather than as a substitute for market power mitigation.

The Final Proposal does not include market power mitigation provisions for hybrid resources, and only states that it will likely include market power mitigation in a future version of the hybrid resources initiative. However, the ISO's 2021 Three-Year Policy Initiatives Roadmap and Annual Plan clarifies that the ISO is committing to develop market power mitigation measures for hybrid resources in the planned Hybrid Resources Evolution initiative. DMM supports this commitment by the ISO to develop market power mitigation rules for hybrid resources on a clear timeline and in a specific future initiative.

II. DMM supports clarified outage rules for hybrid resources, robust data requirements to monitor dynamic limits submitted by scheduling coordinators, and future automation of dynamic limits

DMM supports the ISO's proposed change to limit the use of outages by hybrid resources to reflect physical limitations of the resource. This is the standard applied to other generators, where outages are not permitted to achieve economic objectives or otherwise withhold capacity from the market.

DMM notes that while the ISO has clarified outage rules for hybrid resources, the proposed dynamic limit tool still allows significant latitude for hybrid resource operators to reflect a variety of resource limitations. The degree of flexibility provided by the dynamic limit may be necessary to capture all constraints and operational objectives of hybrid resources, and to ensure their feasible dispatch. However, the flexibility afforded by the dynamic limit tool also creates significant potential for its use to strategically withhold capacity. Because of this, DMM views the requirements to provide operational capability data for individual hybrid resource components as especially important.

In earlier comments, DMM supported the required submission of the hybrid resource renewable generation component forecast and related meteorological data, storage component state-of-charge, and the proposal for the ISO to provide the renewable component forecast for a fee. DMM continues to support the requirement for hybrid resource operators to provide this data, as well as the proposed high-sustainable limit data. Access to this and all

⁵ *Hybrid Resources Second Revised Straw Proposal – Stakeholder Web Conference*, California ISO, May 7, 2020: <http://www.caiso.com/InitiativeDocuments/Presentation-HybridResources-SecondRevisedStrawProposal-May7-2020.pdf>

other data that inform the dynamic limit and resource operation is important to ensure the transparency and integrity of values submitted by resource operators.

The ISO stated in multiple places in the Final Proposal that all of the data described above (including storage component state-of-charge) will be required of all hybrid resources containing renewable and storage components. However, other portions of the Final Proposal suggest that some data (e.g., state-of-charge) would only be required of hybrid resources providing ancillary services. DMM believes it is important for all of the data described above to be required of all hybrid resources containing renewable and storage components. DMM requests that the ISO clarify that this will be the requirement and specifically that state-of-charge will be required of all hybrids containing storage components and not only those offering ancillary services.

As a future enhancement, DMM recommends the ISO consider using the data described above to facilitate automation of the hybrid resource dynamic limit. DMM suggests that the ISO consider this enhancement as part of the planned Hybrid Resources Evolution initiative in 2021. In addition to ensuring that the dynamic limit is not used to strategically withhold capacity, this enhancement could improve the ISO's ability to access hybrid resource capacity through exceptional dispatch when needed.

The dynamic limit, when submitted by scheduling coordinators as proposed, does not distinguish when the limit is a physical limitation or when the limit is in place to facilitate on-site charging. Because of this, operators cannot know when it is feasible to override the dynamic limit through exceptional dispatch. Automation of the dynamic limit coupled with the operational data described above and a flag to indicate when the resource is conducting onsite charging will clarify when hybrid resources could be available for exceptional dispatch beyond the dynamic limit.

III. Resources seeking investment tax credits should reflect full physical capability in the market

The Final Proposal states that entities seeking to charge storage resources exclusively from on-site renewable generation for purposes of investment tax credits may limit their reflected ability to charge from the grid. The ISO notes that this may not be optimal as there is likely a price at which the resource is better off charging from the grid and forgoing some part of the investment tax credit.

DMM supports the ISO's preference for resources seeking investment tax credits to reflect their full physical ability to the grid and to manage economic incentives through energy bids. This is especially important for resources providing resource adequacy capacity. The ability to charge from both on-site generation and the grid maximizes charging opportunities, and as such can maximize the potential availability of resource adequacy capacity that depends on state-of-charge.

IV. Allowing deviation may not be necessary to facilitate storage charging from co-located renewable resources producing over forecast

Some stakeholders have requested that the ISO allow co-located resources to deviate from dispatch in order to charge storage resources with renewable production over forecasted values. The stated need for this rule is to avoid curtailment of renewable output which may occur when the aggregate capability constraint is binding, but the co-located storage resource has un-dispatched charging capacity.

The storage resource presumably has some price below which it is willing to charge, while the renewable resource will have some price below which it is willing to curtail. These values are expected to be reflected in the resource energy bids.

If the co-located resources are the only resources providing flow on the aggregate capability constraint, and the price at which the renewable resource is willing to curtail is below that at which the storage resource is willing to charge, deviation may be unnecessary to achieve the desired outcome. In this scenario, when the aggregate capability constraint is binding, the market dispatch would be expected to charge the storage resource to the extent possible before curtailing the renewable resource.

Given that the relative bids described above align with the indicated scheduling priorities of co-located resource stakeholders, the need to explicitly allow deviation as outlined in the Final Proposal is somewhat unclear. The same outcome could potentially be achieved in a more efficient manner, and without the use of uninstructed deviation, through the use of energy bids and market dispatch.

V. Clarify the need to include the aggregate capability constraint in the congestion revenue rights model

In the Final Proposal, the ISO highlights that the co-located resources aggregate capability constraint will create a modeling discrepancy between the congestion revenue rights (CRR) model and the day-ahead market. While the constraint will be included in both the CRR model and day-ahead market, only the CRR model would reflect the pricing impacts of the constraint.

The ISO has elected to exclude the pricing impacts of the aggregate capability constraint in the day-ahead market, but states that making a similar change to the CRR model would be complicated and costly and as such would be postponed until a broader planned software update in 2022. The expected impact of delaying this change in the CRR model is a pricing inconsistency between the CRR model and day-ahead market that results in a premium in the CRR model.

The ISO has identified a potential issue with including the aggregate capability constraint in the CRR model, but has not stated the potential impacts of excluding the constraint from the CRR

model altogether. Given that no congestion resulting from the aggregate capability constraint would be priced in the day-ahead market, DMM asks the ISO to clarify the need to include this constraint in the CRR model.

VI. Exposing co-located and hybrid resources to penalties for exceeding interconnection rights could complement physical control technologies

The ISO Board of Governors recently approved the ISO's proposed aggregate capability constraint at the point of interconnection (POI) for co-located resources. As DMM understands, this constraint is intended to improve the efficiency of dispatch for co-located resources while ensuring that the collective output of resources behind the same point of interconnection does not exceed the level of interconnection rights. Hybrid resources are similarly bound by interconnection rights limits, but rely on the P_{MAX} of the resource to ensure market dispatch below the interconnection right limit.

FERC Order 845 contemplates the need for physical control technologies to ensure that generating facilities do not exceed interconnection service capacity.⁶ The aggregate capability constraint for co-located resources will be enforced by this type of physical control technology. Hybrid resources will be similarly bound by physical control technologies to prevent output in excess of interconnection limits.

DMM notes that the language of FERC Order 845 also appears to recognize the need for penalties, in addition to control technologies, to ensure that generating facilities do not exceed interconnection service capacity. The ISO has not proposed penalties for co-located or hybrid resources that generate in excess of interconnection limits.

Should physical controls to limit the output of co-located and hybrid resources prove inadequate, DMM believes that penalties of sufficient magnitude could be a valuable complement to physical generation controls. These penalties could provide a further deterrent to exceeding interconnection limits, and could address co-located resources subject to the aggregate capability constraint, as well as hybrid and co-located resources that do not operate under the aggregate capability constraint but choose to operate above P_{MAX}.

⁶ *Reform of Generator Interconnection Procedures and Agreements*, Order No. 845, 163 FERC ¶ 61,043 at PP 367 et seq. (2018)