



# Memorandum

**To:** ISO Board of Governors

**From:** Mark Rothleder, Vice President, Market Policy and Performance

**Date:** March 18, 2019

**Re:** **Decision on Commitment Cost Enhancements**

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*This memorandum requires Board action.*

## EXECUTIVE SUMMARY

In 2015 and 2016, the ISO adopted market enhancements to provide for increased availability and participation of resource adequacy resources in the ISO market. In 2015, the Board approved a number of enhancements developed through the reliability services initiative. One of the major provisions added was the resource adequacy availability incentive mechanism (RAAIM). RAAIM incentivizes resource adequacy resources to participate in the CAISO market consistent with their must-offer obligations. It also motivates scheduling coordinators to take actions to reduce forced outages, or when unavoidable, mitigate their impact by allowing scheduling coordinators for resource adequacy resources to provide substitute capacity.

In 2016, the Board approved additional market enhancements targeted at better utilization of use-limited resources. The enhancements adopted under the commitment costs enhancements-phase 3 (CCE3) initiative revised the standards for a resource to qualify as a use-limited resource. The initiative also included provisions to allow use-limited resources to reflect their opportunity costs for future production outside of the market optimization horizon. The use of opportunity costs works to ensure use-limited resources are available and dispatched when most valuable to the system. Rationing the dispatch of a use-limited resource using opportunity costs enables resource adequacy resources to meet their 24x7 must-offer obligation.

During the CCE3 tariff development process, an issue was raised regarding how resource adequacy resources with regulatory or operational limits that do not qualify for use-limited status can meet the 24x7 must-offer obligation. For example, a gas generation unit that is prohibited from operating after 10:00 p.m. due to noise abatement restrictions is simply unavailable for dispatch after that time; its use cannot be rationed in these instances. To allow such conditionally available resources to provide resource adequacy capacity, the ISO developed a conditionally available resource definition,

which exempted such resources from the 24x7 resource adequacy must offer obligation.

Since the adoption of the CCE3 tariff provisions, stakeholders have questioned how RAAIM applies to conditionally available resources. Additionally, stakeholders questioned how the conditionally available resource definition applies to hydro resources. To address these issues, Management proposes tariff clarifications that state conditionally available resources are not exempt from the RAAIM.<sup>1</sup> Management believes applying RAAIM to conditionally available resources is aligned with the policy adopted under the reliability services initiatives and appropriately rewards resources based on their availability to the ISO. This tariff clarification provides an important incentive for resource owners to provide substitute capacity when their conditionally available resource is unavailable. Additionally, exposure to RAAIM provides an appropriate signal for resource owners and load-serving entities to not sell or show unavailable and unrealistic resource adequacy capacity quantities from conditionally available resources, which is essential for the ISO to meet its operational needs. Finally, Management also proposes to establish a definition for run-of-river resources and include tariff provisions that treat these run-of-river resources similar to variable energy resources.<sup>2</sup> All of the above clarifications stem from the commitment cost enhancements initiative tariff amendments approved and implemented by the Board in 2016.

Stakeholders raised certain concerns about these clarifications. Pacific Gas and Electric and Southern California Edison raised concerns about how these clarifications impact hydro resources with limited storage capability. Under the existing CPUC hydro counting rules for resource adequacy, dispatchable hydro resources are qualified to show or sell resource adequacy capacity up to their full nameplate capability, regardless of hydro conditions. Realistically, due to low hydro conditions or regulatory water obligations, there are many periods, seasons, and regulatory reasons when such resources are unable to produce at their full nameplate capacity. Moreover, due to the nature of these hydro limitations, these resources are unable to manage their use limitations under the ISO's existing commitment cost enhancements framework given certain use limitations cannot be rationalized through an opportunity cost. Pacific Gas and Electric and Southern California Edison argue that they are expected to make all of their capacity available, either through their own showings or sales to other market

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1 Today conditionally available resources have access to an outage card that is exempt from RAAIM. This was clarified, through the BPM change process, as permissible shortly after the CCE3 policy was implemented. Also shortly after implementation of the CCE3 policy, the ISO clarified that these BPM changes were only temporary and would be replaced after implementation of tariff changes that would clarify that conditionally available resources will be subject to RAAIM. The policy outlined in this memorandum are the proposed tariff changes that conveyed to market participants shortly after implementation of CCE3.

2 Management is not proposing that run-of-river hydro resources be treated as variable energy resources specifically, but rather that run-of-river resources be treated similar to variable energy resources. Like variable energy resources, run-of-river resources are generally price takers and produce energy when water is available. The ISO does not have facilities to forecast the output for run-of-river resources and, therefore, the ISO will not be generating forecast data or using forecast data for market dispatch in a similar manner to the treatment applied to variable energy resources today.

participants, so that it is fully available and accounted for in the resource adequacy process. They argue that once this full capacity is shown, they will be exposed to RAIM charges since they cannot realistically bid the full output of their hydro resources because of regulatory or hydro conditions, such as a dry hydro year. Showing unrealistic resource adequacy resource capacity from the hydro fleet is very concerning to the ISO given the potential reliability impacts, and since the ISO is knowingly relying on unavailable resource adequacy capacity.

To address this concern, the ISO agreed to work with the utilities within the CPUC's resource adequacy track 2 process to develop an alternate qualifying capacity counting rule that would apply to hydro resources with limited storage. This alternate counting process would discount the amount of resource adequacy capacity attributed to a hydro resource based on the resource's historical production and, in particular, to account for potential low hydro conditions. If the CPUC adopts a new resource adequacy qualifying capacity counting methodology that properly discounts for seasonal hydro conditions, then the ISO could forego applying RAIM to these resources based on hydro conditions. Therefore, if the CPUC adopts a new capacity-counting rule for hydro resources with storage that is discounted to reflect low hydro conditions, Management proposes to amend the ISO tariff to forego applying RAIM to these resources based on hydro conditions.<sup>3</sup>

Management proposes the following motion:

***Moved, that the ISO Board of Governors approves the commitment cost enhancements proposal described in the memorandum dated March 18, 2020; and***

***Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposal described in the memorandum, including any filings that implement the overarching initiative policy but contain discrete revisions to incorporate Commission guidance in any ruling on the proposed tariff amendment.***

## **BACKGROUND**

The ISO worked extensively with stakeholders through the commitment cost enhancements-phase 3 (CCE3) policy initiative to define what constitutes a use-limited resource, the application of a use-limited resource opportunity cost adder in the ISO generated default energy bids, and the rules for how this adder would be calculated and updated for specific use-limited resources. In the CCE3 initiative, Management

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<sup>3</sup> Management and the utilities generally agree that these resources would not be strictly exempt from all potential RAIM charges. They would be exempt for any RAIM charges for outages or derates related to the conditional availability of water for electricity generation. These resources would continue to be subject to RAIM for mechanical issues.

formulated a new definition for use-limited resources that can be applied to most resources operating with specific use limitations. Use-limited resources are defined as resources that cannot start repeatedly or run indefinitely. Such limitations result from restrictions on their use due to regulatory restrictions or facility design limitations. For example, a gas resource may have an air permit that only allows the resource to start a set number of times per year, or a hydroelectric resource that has a certain amount of water stored and can only produce a certain amount of energy with the limited amount of water available. The new use-limited definition allows use-limited resources to include an ISO calculated opportunity cost adder in their commitment cost and energy bids to preserve their use for when they are needed most.

The CCE3 policy adopting opportunity cost adders had implications for use-limited resources providing resource adequacy capacity. Units providing resource adequacy capacity generally have a 24x7 must offer obligation. Prior to CCE3, use-limited resources providing resource adequacy capacity were only required to submit bids for periods when their use limitations allowed them to operate. This was problematic because use-limited resources were and are a growing percentage of the resource adequacy fleet and were not strictly required to be available to meet ISO reliability needs when and where needed.

During the CCE3 tariff development process and prior to implementation, Management became aware of unique “conditionally available” resources that have special and unique constraints that restrict their availability (e.g. noise abatement restrictions, regulatory controls/limits, etc.). Such restrictions, which are availability limitations and not use-limitations, cannot be rationed through an opportunity cost. Therefore, these “availability-limited” resources do not qualify for use-limited status under the new use-limited resource definition. Identification and treatment of conditionally available resources was addressed through the tariff drafting stakeholder process. Management introduced the “Conditionally Available Resource” in the tariff language to accommodate these unique resources; however, the tariff language did not directly address how conditionally available resources are to be treated under the resource adequacy availability incentive mechanism (RAAIM). In response to stakeholder inquiries, Management implemented a temporary exemption to conditionally available resources for RAAIM exposure.<sup>4</sup> This temporary exemption was implemented as a stop-gap until these proposed clarifications could be addressed in the tariff and implemented. The ISO formally proposed a set of changes that would address the issues and put permanent solutions in place on October 10, 2019. Following that proposal, stakeholders requested that the ISO open a stakeholder process to evaluate the changes outlined by the ISO. The stakeholder process was subsequently opened and several incremental improvements have been made to the original proposal, as the ISO received and considered feedback from stakeholders.

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<sup>4</sup> Management did not exempt conditionally available resources from RAAIM explicitly, but rather allowed conditionally available resources access to an outage card that is RAAIM exempt. These outage cards were to be used when an outage was the result of conditional availability.

## PROPOSAL

Management proposes to clarify the treatment of conditionally available resources and run-of-river hydro resources.

Management proposes that when a conditionally available resource is unable to offer into the market because of conditionally available limitations, the resource's scheduling coordinator will reflect reduced availability through outage tickets submitted to the ISO through the outage management system. This obligation to report reductions in maximum output capability is a generally applicable requirement for all resources in the ISO market.

When the initial tariff language for conditionally available resources was developed, management did not intend any unique RAIM treatment or exemption for conditionally available resources. The intent was that these resources would be assessed RAIM based on their resource adequacy capacity obligation – not their conditionally available capacity – during the availability assessment hours. Management clarifies in this initiative that outage cards related to conditionally available scenarios will be subject to RAIM application, which is consistent with the policy developed in the 2015 reliability services initiative.<sup>5</sup>

Management also proposes to clarify that a resource can potentially be both a use-limited resource and a conditionally available resource. Resources with both designations will be permitted to submit outage cards available for both designation types. As with any outage card submitted to the ISO, a card for any specific outage must reflect the nature of the outage at the facility.

Finally, Management proposes that run-of-river hydroelectric resources be treated similar to variable energy resources, which generally produce to their forecast output and are price-takers in the market. Like wind and solar resources, run-of-river hydroelectric resources do not have control over their fuel supply and generate energy when water is available, at output levels corresponding to current hydro conditions. Also like wind and solar resources, run-of-river resources' resource adequacy capacity values are based on formulations related to historical output, not design capabilities. This provides incentives for them to generate as much energy as possible, whenever possible. Moreover, when these resources generate, they generally provide energy and take the prevailing market price, although many variable energy resources have the ability to generate less energy than their forecast amount. Therefore, Management proposes the following definition for run-of-river resources:

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<sup>5</sup> Should the CPUC adopt a new qualifying capacity counting rule for hydro resources with storage that is discounted for dry hydro years, the ISO will file to exempt these resources from RAIM for hydro conditions, but not plant-related mechanical issues or failures.

*A hydroelectric generating unit that has no physical ability to control or store its fuel source for generation beyond whatever pondage is necessary to maintain sufficient water pressure to operate the generating unit*

Management proposes that these resources continue to offer into the market at their forecast output, and that these resources not be subject to the RAAIM, similar to other variable energy resources.

## **STAKEHOLDER POSITIONS**

Pacific Gas and Electric and Southern California Edison are generally not supportive of exposing conditionally available resources to RAAIM. Management acknowledges that addressing this gap and applying RAAIM to conditionally available resources could make certain resources, particularly hydroelectric resources with limited storage, incur availability charges if they are subject to the RAAIM. Exposing conditionally available resources to the RAAIM should incent load-serving entities to be diligent about determining and not over-showing how much resource adequacy capacity they can reasonably expect to deliver from their hydro resources during the resource adequacy availability assessment hours. If hydro resource operators do show and sell unrealistic and unavailable resource adequacy capacity from their hydro resources, then high RAAIM charges should be expected and warranted.

Management contends that the value of a resource with conditional availability during the availability assessment hours is less than a resource that is available during all the resource adequacy availability assessment hours. RAAIM works to ensure this treatment is applied fairly and equally to all resource adequacy resources. The RAAIM appropriately charges those resources that are unavailable and rewards those resources that are available during the availability assessment hours. Charges for RAAIM are also in place so that load-serving entities are incentivized to show alternate resources in lieu of resources that may not be available, or provide substitute resources when a shown resource is unavailable. This helps to ensure that resource adequacy resources are available to meet the ISO's operational needs.

Under the current market rules, there are several possible measures that can be taken to mitigate a resource scheduler's exposure to RAAIM charges when a resource is unable to meet its resource adequacy obligation. First, they can provide substitute capacity when a resource adequacy resource is unable to meet its obligation. This helps to ensure that the ISO has access to the amount of capacity shown in the resource adequacy process. Second, they may submit planned outages to the ISO for approval. These planned outages may be applied to periods in the off-peak shoulder months when loads are relatively mild and hydro resources may not be needed for reliably operating the grid. Approved planned outages are not subject to RAAIM. Third, they can obligate less capacity into the resource adequacy showing process, and thereby reduce potential RAAIM exposure.

The policy implemented from the commitment cost enhancements initiative was discussed at length in the 2015 and 2016 policy initiatives. These clarifications align the tariff language with the intent of what was discussed in that policy.

In an effort to further address stakeholder concerns regarding hydroelectric resources, the ISO agreed to participate and co-chair a public workshop on resource adequacy counting rules for hydroelectric resources. This workshop was held on February 12, 2020 at the CPUC, with the intention of discussing concerns about RAIM exposure for hydroelectric resources with storage capability. At that workshop the ISO, Pacific Gas and Electric, and Southern California Edison presented. Parties attending the meeting generally agreed on the need for a new counting approach for hydroelectric resources, and two relatively similar potential proposals were discussed as alternate valuation approaches to valuing hydroelectric capacity. Parties attending this workshop are currently trying to build consensus around a counting approach to be recommended to the CPUC for a final decision. If the CPUC adopts a methodology that discounts hydro qualifying capacity values to account for dry hydro conditions, then Management will pursue a tariff change to exempt these hydro resources from RAIM.

The ISO also advocated that resources not be required to adopt this alternate counting methodology, and that they could retain the existing counting methodology and RAIM treatment if they choose to do so. However, in the event that the CPUC adopts a new counting methodology for hydro resources that provides increased certainty on their ability to meet their resource adequacy capacity obligations, Management proposes and requests Board of Governors approval to make appropriate updates to the ISO tariff at that time to allow necessary changes within the ISO market.

## **CONCLUSION**

Management requests the Board of Governors approve these enhancements, and that they do so such that they are effective on June 1, 2020. These changes are fully aligned and supportive of the original policy intent of the reliability services and commitment cost enhancements initiatives.