

SCE Straw Proposal for Hydro RA Counting Methodology

1. Introduction

SCE would like to thank the CAISO for providing the opportunity to present this proposal on Hydro RA Counting methodology, the need for a RAAIM exemption, and a definition for Run of River resources. Hydro resources have been an important part of California's generation fleet for over a hundred years and they will be a key part of California's Clean Energy Future. The intent of this proposal is to try and strike a balance between the reliability and capacity certainty without introducing phantom capacity. SCE would like to see a counting methodology for RA that:

1. Accounts for seasonality and uncertainty of hydro resources in the Local RA framework
2. Minimizes over-procurement by balancing reliability and certainty
3. Provides as much transparency as possible to all stakeholders
4. Applies an appropriate incentive mechanism that recognizes that there are environmental and regulatory constraints that are out of the control of the resource

2. Background

While the CAISO's redefinition of Use Limited Resources provides a reasonable solution for conventional gas-fired generation, it falls short of addressing the complexities posed by in-state hydro generation. California's in-state hydro fleet is largely dependent on precipitation in the form of snowpack, most of which comes during the off-peak months from November to April. Since the Year-Ahead Local RA filing is submitted in October for the following three years, that means that generator owners will have no real basis to determine the RA capacity for the upcoming year and must rely on historic output. This YA showing creates a Must Offer Obligation that creates a significant RAAIM risk for the generator. This risk also prevents the generator from being able to transparently transact on that capacity, effectively reducing the local capacity available to the market. In addition, hydro generation is seasonally shaped, with the highest capacities available in the summer after the snow has melted and tapering off in October. Since Local RA (and the MOO/RAAIM it creates) is based on August capacity, there will always be a delta between the summer and winter capacities which creates additional need for substitution.

SCE would like to propose a methodology to calculate the capacity of hydro resources to increase transparency around hydro capacity and resolve the issues around the seasonal MOO/RAAIM risk by appropriately discounting the NQC for hydro resources without resorting to over-procurement of Local capacity.

3. Proposal

Run of River and Hydro with Storage Definition

SCE supports the CAISO's proposal to treat run of river resources like VERs and use a historic output methodology to calculate capacity values. Run of river resources cannot influence their output and should not be subject to RAAIM.

SCE proposes it is not necessary to distinguish between run of river and hydro with storage, and that all in-state hydro be treated equally using historic output to calculate capacity values and not be subject to RAAIM for water availability. In-state hydro resources can be very complex; they connect multiple reservoirs and powerhouses that are interdependent and have regulatory requirements that govern water flows and lake levels. Given the complexity of these systems and their reliance on annual precipitation for their generation, SCE believes that trying to distinguish between different types of storage would result in overly complex rulemaking for no additional value. The limitations of hydro resources cannot be changed by applying financial incentives. SCE prefers a simpler approach that can be implemented across all hydro resources.

The CAISO has previously asked what would then incentivize offers from these resources. What the CAISO has stated for run of river can apply to all hydro resources: poor performance in the past will reduce its QC value in the future. This creates an incentive, independent of RAAIM, for all hydro resources to maximize their performance. In addition, in-state hydro does not have multi-year storage capacity, so inflows from snowpack runoff will force water flows at the risk of flooding and overtopping dams. Essentially, hydro with storage will always have a physical or regulatory flow requirement that provides the incentive to generate.

Option 1 (UCAP-like)

SCE proposes to use a historic output methodology to calculate capacity values for hydro with storage. Although storage reservoirs allow for some control over output, by their nature all hydro resources are subject to precipitation, environmental, and regulatory conditions that are outside of the resource owner's control. In its RA Enhancements initiative, the CAISO proposed a methodology for capacity counting (UCAP) that uses the weighted average (50%/30%/20%) of the past three years of forced outage rates to derate the capacity of the resource. A similar methodology could be used to appropriately derate the hydro resource to establish a standard capacity counting. SCE recognizes that low hydro years should be accounted for to reduce the chance of overstating the capacity, so a low hydro year could be used instead using historic outages for the third year.

Since the resource has been appropriately derated, RAAIM should continue to apply for mechanical plant trouble or ambient temperature outages. However the RAAIM exemption for hydro should be preserved for capacity derates for water availability since they have already been accounted for. This methodology is intended to bridge the gap until RA Enhancements is implemented, and preserves the RAAIM incentives for mechanical issues that are in the resource operator's control.

Option 2 (Exceedance)

An alternate option uses an exceedance methodology based on a 1 in 10 low hydro year. This methodology uses forecasted inflows from a drought year to determine expected energy generation for each month. Then the minimum flow requirements are subtracted from the energy forecast. Finally, the remaining energy is used to determine the maximum possible capacity using a four hour deliverability for each day of the month.

Although Option 2 is forward looking, SCE prefers Option 1 (UCAP-like) because it is simpler to apply and provides more transparency for all stakeholders.

Rationale for RAAIM Exemption

In-state hydro resources have limited storage capacity and are dependent on winter precipitation to provide generation capacity. SCE utilizes opportunity costs established for Use Limited Resources to manage lake levels. However hydro systems can be complex, with interdependencies between multiple streams, reservoirs, and powerhouses of varying sizes. Safety is a primary consideration, some lake levels that are too high can flood campgrounds and recreational areas.

When lake levels are too low, capacity must be taken offline to meet regulatory requirements for stream flows or lake levels. These flow and lake level requirements are set by the FERC license and agreement with the US Bureau of Reclamation. No amount of financial incentive will change this. SCE requires a valid nature of work to report these conditions, which will typically take the form of a partial derate since different lakes reach these regulatory requirements at different times.

The other reason a RAAIM exemption should be maintained is the Must Offer Obligation that is created by the year ahead Local RA showing. As discussed earlier, hydro resources typically have a seasonal shape with higher capacities in the summer. The August capacity sets a high year-round requirement that is very difficult to meet in the winter and may also not be needed due to lower loads.

Monthly True Up to Year Ahead Filing for Local RA

The use of a single month's (August) NQC for local RA makes accounting for the seasonality of hydro capacity challenging. SCE proposes that the Local RA obligation be set at 90% of the requirement, with a monthly filing similar to system and flex. This would allow hydro resources to file make RA filings that more accurately reflect conditions.

SCE is also concerned that LCR studies may have been overstating the contribution from hydro resources. LCR studies should use the appropriately derated capacities. The Option 1 capacity values could be used in the LCR studies to improve the quality of the study and provide the proper incentive for local generation.