



City of Palo Alto

(ID # 12254)

Utilities Advisory Commission Staff Report

Report Type: Supplemental Information Meeting Date: 5/12/2021

Summary Title: Hydro Rate Adjuster Update

Title: Informational Report on Non-Activation of the Hydro Rate Adjuster for FY 2022, and Projections for Future Hydrologic Scenarios

From: City Manager

Lead Department: Utilities

Recommendation

This report is for information only. No action is required.

Executive Summary

While California's precipitation has been lower than normal during FY 2021 and hydroelectric generation levels are projected to remain below normal for FY 2022, staff projects the Hydroelectric Stabilization (HS) Reserve level for FY 2022 will remain within Council-adopted guidelines. As such, Staff does not recommend Council activation of the Hydroelectric Rate Adjuster (HRA) for FY 2022.

This background on the City's Electric Hydroelectric Rate Adjuster (Utility Rate Schedule E-HRA), and projections of possible future hydrological scenarios is provided for Council's information, in advance of the City's upcoming budget adoption. In an effort to manage the financial impacts of the annual variability in production of the City's hydroelectric resources, and to allow for the City to maintain a lower target level for its Hydroelectric Stabilization (HS) Reserve, the City adopted a Hydroelectric Rate Adjuster (HRA) mechanism effective July 1, 2018 ([CMR 8962](#), March 19, 2018).

The objective of the HRA is to pass through to customers some portion of the variation in the utility's costs resulting from changing hydroelectric conditions. It does this by temporarily adjusting Electric rates upward or downward in response to hydroelectric conditions and HS Reserve levels, in order to maintain a reasonably stable level of ongoing financial reserves. The HRA, shown on Utility Rate Schedule E-HRA, is activated via Council approval, typically with the adoption of the budget for the upcoming fiscal year. Activation of the HRA ensures cost recovery through a temporary rate adjustment simultaneous with drought conditions, allowing greater transparency and simpler communication about the reason for the rate changes. It avoids the need to resort to larger, more permanent rate changes that occur after the end of

the drought, which is more difficult to explain to the community. This adjustment is only made when extended periods of high or low rainfall lead to depletion of HS reserves or excess accumulation of reserves.

Background

The City of Palo Alto is fortunate to have access to a large amount of relatively low-cost, carbon-free hydroelectric generation to meet a large portion of its electric supply needs. Whereas hydroelectric generation provides about 10% of the overall electric supply for the state as a whole, the City meets about 50% of its electric supply needs with hydroelectric generation in an average year.

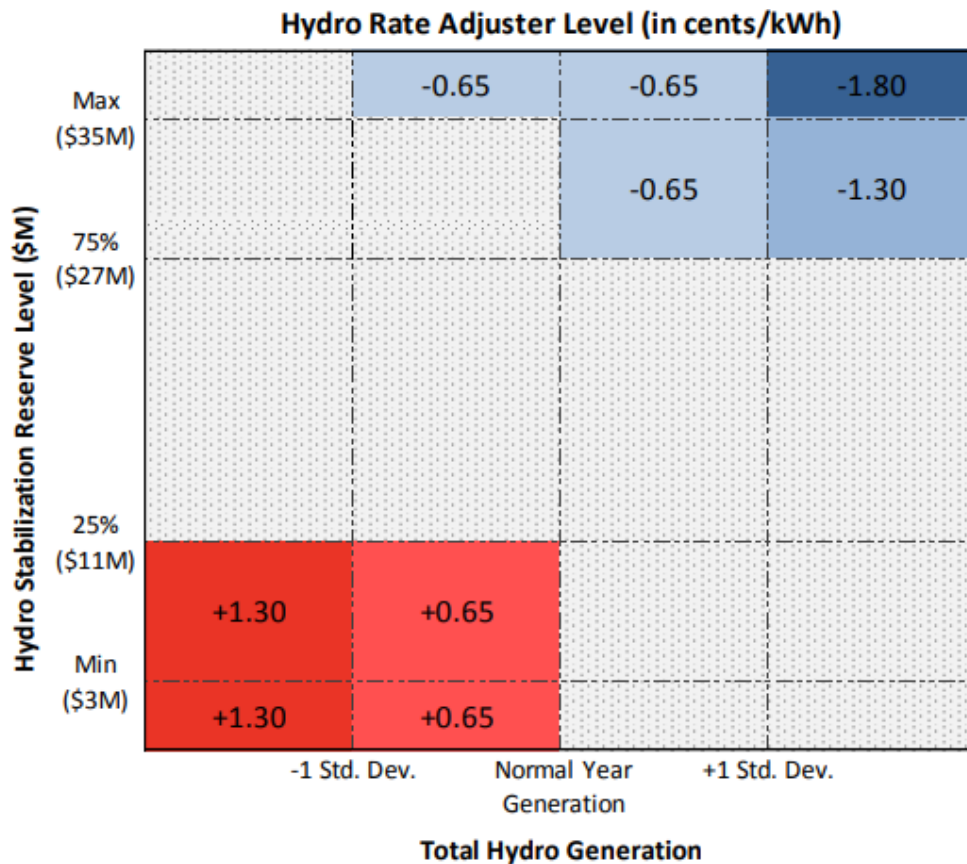
However, maintaining such a heavy reliance on hydroelectric generation means that the output of these resources is highly sensitive to weather conditions. Although the City receives about 50% of its electric supplies from its hydroelectric resources in a “normal” weather year, that amount can fall to as low as 25% in extremely dry years. And unlike many of the City’s supply contracts, where the cost of the resource is proportional to the amount of generation delivered, the City pays a mostly fixed amount every year for the output of its two hydroelectric resources (Western Base Resource and the Calaveras project) regardless of the amount of electricity they produce. This is due mostly to the fixed costs required to operate and maintain the hydroelectric facilities. Meanwhile, the City must also purchase additional supply resources (generic market power and, to comply with the Carbon Neutral Plan, renewable energy certificates, or RECs) to make up for the reduced hydroelectric output in these dry years. Compounding the problem, market power prices are often higher in dry years, when the City must purchase more, because the entire state is experiencing reduced supply conditions.

To mitigate against these dry year, high cost conditions, the City maintains a Hydroelectric Stabilization Reserve (the HS reserve). The City Council approved an Electric Hydroelectric Rate Adjuster (HRA) effective since July 1, 2018 ([CMR 8962](#), March 19, 2018). Since its inception, the HRA has not been activated because every year since adoption either 1) the balance of the HS Reserve has been within target ranges (above \$11 million but below \$27 million) or 2) projected hydroelectric generation has been at or above normal annual output levels.

As designed, a decision on whether or not to recommend activation of the HRA is made in late April or early May each year (at the tail end of the rainy season) and is applied to customers’ electric rates for the duration of the following fiscal year. The determination of whether or not to apply the HRA, and at what adder/discount level, is based on the projected amount of hydroelectric generation for the upcoming fiscal year, relative to the amount expected in a “normal” year, and the expected level of the HS Reserve at the start of the upcoming fiscal year. A graphical depiction of how the HRA mechanism is applied based on varying levels of HS Reserves and hydroelectric conditions is displayed in the chart below.

The HRA can be activated at two different levels to increase revenues, and at three different levels to return excess reserves and revenues to customers. When reserves are projected to be

below \$11 million, the HRA is activated at the \$0.0065/kWh level if hydroelectric generation is below average, and at the \$0.0130/kWh level if very low (less than one standard deviation below average). For reference, the current average annual hydroelectric generation total is 480 Gigawatt-hours (GWh)¹, with one standard deviation below average being 319 GWh, and one standard deviation above average being 642 GWh. The lower HRA level, \$0.0065/kWh, represents a temporary 4% rate increase based on current system average rates, while the higher level, \$0.0130/kWh, represents a temporary 8% rate increase. The chart below represents guidelines for activation, but staff may recommend (and the Council may adopt) a different course of action than is shown in the chart depending on its assessment of current conditions.



Since adoption, and up until the 2020-2021 water year, reserves have been higher than the 25% level (\$11 million), and hydroelectric generation has not been low enough to trigger the HRA.

¹ When Council adopted the HRA rate schedule in 2018, an average year’s total hydro output level was 548 GWh. However, shortly after Council adopted the HRA, Staff, working with the operators of its two hydro facilities, re-evaluated these projects’ historical output levels. This analysis found that, based on changes in climatological conditions and environmental policies in recent years, the average annual generation amount from these facilities had dropped to 480 GWh. Similarly, the +/- 1 standard deviation levels for the two projects had fallen from 364 GWh and 733 GWh, to 319 GWh and 642 GWh. Accordingly, Staff proposes to update the HRA rate schedule to reflect these changes in long-term average hydro generation levels when all rates go to Council in June 2021.

In FY 2020, staff brought the HS Reserve to \$15.4 million in preparation for future dry hydroelectric conditions. The 2020-2021 water year has been significantly lower than average, however, so staff is completing this assessment to evaluate the need for activating the HRA. While staff is not recommending activation of the HRA for FY 2022, staff wants the UAC and Council to be aware of the potential for activation in FY 2023 in the event of a dry 2021-2022 water year.

Projections

Based on current analysis, FY 2021 hydroelectric generation is projected to be 120 GWh lower than normal, which is slightly greater than one standard deviation below average. An early estimate of the additional cost incurred in FY 2021 due to lower hydroelectric generation is \$4.37 million, but this difference has already been accounted for in the FY 2022 Financial Plan, so staff does not recommend removing funds from the HS Reserve to fund this additional expense².

Given the above conditions, the beginning HS Reserve level for FY 2022 is currently projected to be \$15.4 million, which is within the HS Reserve ‘target’ range of \$11 million to \$27 million. As such, the HRA would not need to be activated for FY 2022. However, staff analyzed the potential that the HRA would be needed in FY 2023 in case decisions about the FY 2022 HRA affect the likelihood of needing to activate the HRA at its highest level in FY 2023.

Scenarios:

Staff evaluated three potential hydroelectric and rate impact scenarios for FY 2022 and FY 2023. In each scenario hydroelectric generation is assumed to be one standard deviation below normal for both the 2020-2021 water year (which primarily affects FY 2022) and the 2022-2023 water year (which primarily affects FY 2023). Staff modeled different strategies for activating the HRA and the outcomes resulting from each strategy:

- In Scenario 1, hydroelectric generation is one standard deviation below average (319 GWh) in both years, resulting in higher costs, and no HRA is implemented in either year;
- Scenario 2 assumes the HRA is implemented in FY 2023 at the \$0.0065/kWh level, a temporary approximate 4% rate increase:
 - Scenario 2a assumes hydro conditions are one standard deviation below normal (319 GWh) in both FY 2022 and FY 2023;
 - Scenario 2b assumes an ‘extreme dry’ scenario of 240 GWh in FY 2023. In this scenario, the HS Reserve may only be slightly above the minimum guideline level (\$3 million) at the end of FY 2023.
- Scenario 3 has the same hydroelectric generation and cost assumptions as Scenarios 1 and 2 but assumes the \$0.0065 HRA is implemented in both FY 2022 and FY 2023.

² The mechanics for adding to or withdrawing from the HS Reserve are not outlined in the reserve guidelines. Staff’s practice to date has been to avoid using this reserve unless hydroelectric conditions are outside of the +/- one standard deviation range. Staff intends to review this policy before adoption of the FY 2023 Financial Plan and clarify it in the reserve guidelines.

Staff does not recommend Scenario 3. While staff estimates Scenario 3 will keep HS Reserves within the target range of \$11 million to \$27 million, it would go against the current policy of implementing the HRA if HS Reserves are below the minimum target level (\$11 million). If HS Reserves do fall below the \$11 million level at the end of FY 2022, staff would make a recommendation on the HRA level for FY 2023 in May of 2022.

Based on the current guidelines, staff is not recommending the HRA be implemented for FY 2022 given current HS Reserve levels. However, it is possible that staff may need to transfer more than \$7.6 million from the HRA in FY 2022, should hydro conditions be lower than one standard deviation from normal, and the City may enter FY 2023 with reserves lower than \$7.78 million. If combined with very low precipitation in the 2021-2022 water year, it could lead to as much as an 8% temporary increase in rates if the City needs to activate the HRA at its highest level to recover increased drought-related supply costs. This is only one scenario, but it is worth noting due to the possibility of this outcome in FY 2023. If it were unacceptable to the community to activate the HRA at that level, alternatives could include a loan from the ESP Reserve, assuming funds are available.

Scenario 1	Scenario 2a	Scenario 2b	Scenario 3
No HRA	HRA in FY 2023	HRA in FY 2023	HRA in FY 2022 and FY 2023
FY 2022 Beginning Reserve Balance	\$ 15,400,000	\$ 15,400,000	\$ 15,400,000
Cost increase at 319 GWh	\$ (7,620,000)	\$ (7,620,000)	\$ (7,620,000)
HRA at \$0.0065/kwh			\$ 5,283,135
FY 2023 Beginning Reserve Balance	\$ 7,780,000	\$ 7,780,000	\$ 13,063,135
Cost increase at 319 GWh	\$ (6,530,000)	\$ (6,530,000)	\$ (6,530,000)
Cost increase at 240 GWh			\$ (10,520,000)
HRA at \$0.0065/kwh		\$ 5,505,279	\$ 5,505,279
FY 2024 Beginning Reserve Balance	\$ 1,250,000	\$ 6,755,279	\$ 2,765,279
			\$ 12,038,414