

WHITEPAPER: RESERVE FUND ANALYSIS IN PERIODS OF DROUGHT

Releasing a parachute requires planning and precision. Pulling immediately after jumping reduces a jumper's accuracy, leaving them more susceptible to wind and pushing them off course from their intended target. Pulling too close to the ground gives a short runway and minimal chances for success. In short, a parachute provides a measure of safety that must be deployed with the right timing.



Many agencies across California rely on drought surcharge rates as a parachute during water emergencies. Sustained reductions in water sales create revenue instability, causing many water utilities to use reserves to mitigate revenue shortfalls. Drought surcharge rates provide additional revenues in atypical circumstances to help maintain a reasonable level of reserves that would be susceptible to plummeting. However, like a parachute, the timing of when to deploy this politically sensitive measure must be carefully considered. Stabilizing water sales revenues must be weighed against the negative reception to customer rate increases.

This memorandum examines how utilities can assess the necessity to enact approved drought surcharge rates to stabilize water sales revenue in times of drought.

Facing Decreasing Water Sales Revenue in Times of Drought?

Sustained droughts create a multifaceted problem for water utilities. First, a utility must conserve water to achieve any voluntary or mandated cutbacks. Utilities rely on customer outreach and education programs to promote conservation. Responsible conservation leads to reduced water sales revenue. Unfortunately, reduced water sales do not result in proportionate reductions to a utility's level of expenses. As a result, a lack of revenue from water sales leads to reliance on reserves and can strain reserves.

Water rates are comprised of both a fixed service charge and a variable charge reflecting a customer's water demand. Typically, to achieve equity among customers and customer classes, the percentage of revenue collected from fixed service charges does not match the portion of fixed expenses a utility incurs in its operations. Commonly, water rates are structured to generate more revenue from the variable charges, despite a majority of costs being unaffected by customer demand. Thus, a portion of fixed expenses are incorporated into the calculation of variable charges. Although reduced consumption leads to some savings on variable types of expenses – pumping costs, wholesale water supply – a utility relies on revenues from variable charges to fund fixed overhead, operations, and maintenance costs, as well. During periods of drought, the savings from reduced consumption are not sufficiently offset by the collection of fixed service charges and result in lower water sales revenue.

Fortunately, water agencies can enact drought surcharges to adjust rates to compensate for reduced water sales. Drought surcharges are implemented on a temporary basis to support drought restrictions.

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Surcharge revenues help offset the decline in revenue and consumption.¹ Drought surcharges, known by many names including, stage rates, revenue stabilization rates, and drought rates, come in many different forms of collection, all designed with the intention to address reduced water sales revenue. Surcharge rates are intended to maintain revenue neutrality such that customers achieving the desired level of reduced consumption would see their bill remain roughly equal to what they pay under normal water conditions.

Increasing Rates When Customers Are Asked to Cutback can Confuse Customers

While drought surcharges help a utility to manage revenue shortfalls, these temporary rate increases are not a popular choice among ratepayers. As the authors of the AWWA M1 Manual remind us, “Customers naturally expect their water reduction efforts during a drought to be recognized and perhaps rewarded, not penalized.” Utility customers who are asked to conserve receive mixed signals when their successful reductions in water use are met with rate increases. Regardless of whether customer bills remain the same with appropriately structured surcharges, the public will recognize the mandate to pay more for less. When funding allows, a utility can build goodwill among its customers by delaying surcharges. Customers will appreciate the prudent use of a utility’s reserves before resorting to drought surcharges. However, the question remains, where is the tipping point when a utility must enact drought surcharges?

When is the “Right” Time to Employ Drought Surcharges?

HF&H supports our clients in addressing this very question. Through modeling of current reserves and short-term cash flow analysis, our clients gain a better understanding of when they can expect to implement drought surcharge rates. The first step relies on understanding the fiscal health of the utility and the flow of expenses. We begin with the current utility fund balance, creating a cash flow model of annual expenses, broken out by month. We model scenarios of monthly water sales revenues using

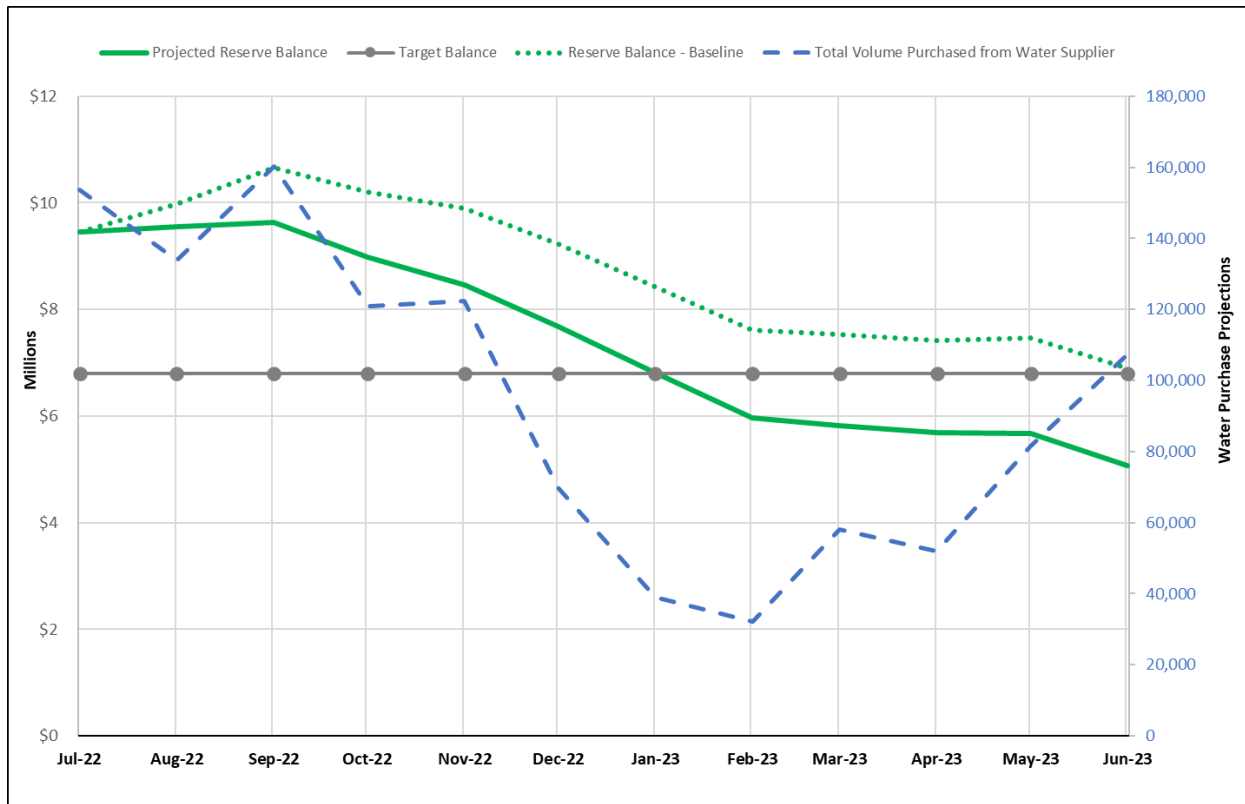


recent water use patterns by customer class, adjusting for assumed reductions. The baseline scenario includes a monthly plot of the utility’s reserve fund balance, which accounts for both the fixed service charge revenues and water sales revenue. **Figure 1** plots the reserve fund balance (dotted green line) over time.

Figure 1. Projected Month-End Reserve Fund Balance – At Projected Water Use Cutbacks

¹ Drought and Surcharge Rates. M1 Manual Principles of Water Rates, Fees, and Charges. 7th Edition. 2017.

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In addition to the reserve fund balance, the utility’s target reserve balance (solid grey line) and water purchase projections (dashed blue line) are shown on the summary plot. The target reserve reflects the utility’s individual reserve policy goals. Water purchase projections plotted on a secondary axis add context to the decline of reserves. For example, the decline of reserves coincides with a projection of decreased water purchases from September through February. The baseline scenario provides an overview of the reserve drawdown pattern, without enacting a drought surcharge.

The tipping point when a utility decides to enact rate increases or drought surcharges is unique. For some, the time to act may occur once the reserve balance dips below the targeted level of operating expenses and cash-funded capital. Other agencies may be less conservative, choosing to use reserves intended for emergencies or set aside for cash-funded capital. The level of severity of the water shortage may also affect the urgency with which a utility acts. At a minimum, we advise utilities to always maintain adequate reserves to fully fund their operating reserve balance to avoid cash flow concerns. We recommend that utilities engage their governing body to reach agreement on the appropriate reserve position tipping point. The specific reserve position is included in the plot of reserves as the target balance. The point at which a projected reserve balance crosses the target balance signals the point to enact drought surcharges. Knowing when reserve projections will dip below the established minimum level creates an estimated runway. Utility stakeholders have a sense of how long reserves can suppress the need for rate increases.

Projections rarely stay the same. We are not water system planners, nor meteorologists. What the data suggests is initially viable, may not occur. As such, the baseline scenario should be revisited with the same

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frequency as an agency bills. Recorded expenses and water sales can be updated in the model and compared to the baseline to assess progress against the plan. Similarly, projections of future increases throughout the year can be revisited and revised, especially in the context of water demand. If a utility continues to fall short of its conservation goals, more drastic measures may be deployed, triggering an impactful reduction to revenue and shortening the period before surcharges are necessary. Conversely, a strong customer conservation response may allow for easing of restrictions sooner, creating the potential for additional demand and supplemental revenue. The solid green line charts revised projections in light of new information.

In **Figure 1**, revised projections (solid green line) are falling short of the original projections. The change is noticeable. The revised projections point to five less months of reserves sustaining the utility. Instead of reserves supporting the utility through June, revised projections show reserves will only last through January before falling below the target balance. Fall and winter months ahead could further reduce water sales and lead to a quicker decline in the reserve balance. If revised projections hold or worsen, drought surcharges will need to be employed sooner than initially planned.

This exercise provides staff and governing bodies with a quick check of the fiscal health of the agency over time. The record of revisions provides evidence of a utility's attempts to use reserves before asking customers to endure another rate increase even as they comply with the request to reduce water use. A utility can present a monthly or quarterly report of such results to its governing body to educate stakeholders and record progress.

Coupled with customer outreach messaging, a utility's reserve fund analysis and reporting can demonstrate a resourceful use of reserves to its customer base ahead of implementing temporary rate increases. While the public may not follow the progress reports of reserves being spent, customer outreach can point to a utility's overall use of reserves to combat the current problem as a show of good faith. Customers should appreciate a utility's willingness to take on the financial burden of a water shortage before being called upon to contribute further through rate increases. In this way, there is concrete evidence to support pulling of the "parachute" to provide financial support.

Continue Monitoring to Ensure Drought Surcharges are Removed When Prudent

Once drought rate surcharges are implemented, analysis of reserves should continue. A utility should monitor revenues with rate increases and changes to water use patterns to adapt as necessary. Customers will appreciate the least financial impact possible. If projections support removal of the drought rate surcharges, a utility should act accordingly.

It is easy for a utility to enact drought surcharges once permitted, but is it the most prudent measure? First, we recommend utilities examine their fiscal health before enacting drought surcharges to stabilize revenues. The approach follows the logic of judicious ratemaking. A governing body may adopt a five-year schedule of rates, but future discretion is required. Implementation of each rate increase should be judged according to whether it is still necessary at the time it would go into effect. Similarly, if a utility has available financial resources to hold off on implementing drought surcharges, it should use them.

Revenue stability concerns brought on by drought can be alleviated through rate surcharges. Yet, the authorization to implement these surcharges does not mean an agency must choose to act immediately.

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If reserves are sufficient, a utility can garner support from ratepayers by delaying surcharges during times of drought. Agencies can monitor their reserves, expenses, and forecasted future supply demands to determine how long reserves can offset decreased water sales revenues. No customer enjoys paying more while being asked to use less. Nevertheless, ratepayers and politicians may provide more cooperation when given proof that all other options were previously exhausted before the “parachute” was deployed.

HF&H Consultants develops custom financial models of water shortage scenarios for utilities. If you are interested in a custom model for your utility, please contact us via our website.