

WATER UTILITY AUDITING: HOW DO YOU GAUGE PERFORMANCE AND ARE RATEPAYERS TREATED FAIRLY?

By Troy Shimasaki



Ka Wai Ola. That is Honolulu's Board of Water Supply motto (BWS), which, in Hawaiian, means "water is life." This is an appropriate concept considering O`ahu is an island in the middle of the Pacific Ocean and must rely on a safe, sustainable water supply to meet the needs of visitors and the nearly one million residents that call Honolulu home. Unlike jurisdictions from around the mainland U.S., there is no diverting water from across state lines or trucking in water from a nearby county. Simply put, Honolulu's water collection, distribution, and management systems are critical to our island way of life.

AUDIT ASSIGNMENT

In 2013, the Honolulu City Council adopted a resolution requesting a comprehensive management and performance audit of the BWS. While the resolution asked our office to examine several issues of concern, this article focuses on two important areas that we believe should be incorporated in any utility audit:

- What performance measurements are used to adequately gauge the effectiveness and efficiency of operations; and
- Whether the rate structure is fair to all customers when comparing rates, water costs, and operational costs with similar water providers.

Living in Hawai'i, we are fortunate to have some of the best water quality in the world. Thus, we did not audit the seemingly obvious choices such as assessing water quality, testing compliance, or validating reports. Since the BWS is heavily regulated by state and federal oversight agencies that consistently report on Honolulu's safe, high-quality water, we focused our audit efforts on higher risk areas that might otherwise be dismissed in a traditional risk assessment.

Effective Utility Management (EUM): A Primer for Water and Wastewater Utilities is an excellent source of criteria for auditing water utilities.

WATER UTILITY PERFORMANCE CRITERIA IS READILY AVAILABLE

Finding valid and appropriate criteria to evaluate government programs, services, and operations is always a challenge. Fortunately, there is an excellent resource for evaluating water utilities. For our audit, we used the Effective Utility Management (EUM): A Primer for Water and Wastewater Utilities.¹ The guide consists of inputs from the U.S. Environmental Protection Agency, American Water Works Association, and local water agencies from around the country, and it identifies 10 attributes of effectively managed utilities:

1. Product Quality
2. Customer Satisfaction
3. Employee and Leadership Development
4. Operational Optimization
5. Financial Viability
6. Infrastructure Stability
7. Operational Resiliency
8. Community Sustainability
9. Water Resource Adequacy
10. Stakeholder Understanding and Support

In addition to identifying 10 attributes, the guide also provides a five-step assessment tool to gauge current performance, and it establishes a quantifiable baseline from which to measure progress. These include:

1. Assess current conditions
2. Rank the importance of each attribute for your utility
3. Chart the results
4. Choose one or more attributes to focus on
5. Develop and implement an improvement plan

The EUM also provides examples of specific measures that can be used to evaluate a water utility using the 10 attributes. A sample of suggested evaluation measures include:

- For **Product Quality**, the EUM provided a formula to evaluate the *drinking water compliance rate* (percent): $100 \times (\text{number of days in full compliance for the year} \div 365 \text{ days})$.
- For **Employee and Leadership Development**, the guide suggested a formula to assess *key position internal/external recruitment* (percent): $100 \times (\text{number of critical-skill positions that are filled internally (through promotion, and transfer rather than outside recruitment) versus filled through outside recruitment} \div \text{total number of position filled per year})$. This helps the utility understand if internal workforce development is covering long-term succession needs.

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- For **Operational Optimization**, the EUM provided guidance on evaluating *distribution system water loss* (percent): $100 \times [\text{volume of water distributed} - (\text{volume of water billed} + \text{volume of unbilled authorized water}) \div \text{total volume of water distributed}]$. This quantifies the percentage of produced water that fails to reach customers and cannot otherwise be accounted for through authorized usage.
- For **Infrastructure Stability**, the guide suggests calculating the *Asset (system) renewal/replacement rate*: $100 \times (\text{total actual expenditures or total amount of funds reserved for renewal and replacement for each asset group} \div \text{total present worth for renewal and replacement needs for each asset group})$. This identifies asset renewal/replacement rates over time. For example, a utility may decide to run certain assets to failure based on benefit-cost analysis.
- For **Community Sustainability**, the EUM suggests assessing *bill affordability* (percent): $100 \times (\text{number of household served for which average water bill is} > \text{"X" percent (often 2-2.5\% of median household income} \div \text{total number of households served})$. This calculation identifies the number of households for which rates may represent an unaffordable level.

METHODOLOGY: APPLYING THE MODEL

For our audit we selected 29 best practices from the EUM and compared them to the operations and performance measures established by the Board of Water Supply. We found that the BWS did not comply with 6 of 29 best practices. The six best practices that the agency did not meet were in the areas of Customer Satisfaction, Operational Resiliency, Community Sustainability, and Stakeholder Understanding and Support. We provided recommendations to address the high risk areas of the BWS's operations.

ASSESSING THE RATE STRUCTURE IS ANOTHER KEY COMPONENT OF UTILITY AUDITING

One of the issues raised in the city council resolution was reports that the recent change from a bi-monthly to monthly billing system may have resulted in the doubling of a service fee that ratepayers expected to be halved. To examine this issue, we determined if the overall rate structure was fair and that water charges and fees were properly calculated. In other words, is the BWS able to justify its rate structure?

To conduct our analysis, we asked BWS administrators to provide us with the following information:

- The formula, calculations, projections, and assumptions used to establish the current seven-year water rate schedule; and
- Projected and actual revenues, expenses, and allocations for a three-year time period

The agency maintains its position that its current rates are justified, despite the inability to provide supporting financial information.

The BWS was unable to provide sufficient data to conduct this analysis. Administrators noted that a consultant was used to calculate the water rate schedule and, therefore, the rates are justified. BWS administrators also commented that providing financial data in a form that we were requesting would take a significant amount of time and resources. Needless to say, we were surprised that an agency would charge customers millions of dollars for water, but was unable to show that those charges were justified and part of a financial plan.

LACK OF TRANSPARENCY IN RATEMAKING IS NOT UNCOMMON

According to the American Water Works Association, water rate development, like most utility decision-making, historically has been a relatively closed process. Typically, utility staff or consultants conduct all major steps of the rate development process—projection of usage characteristics, estimation of revenue requirements, allocation of costs to customer classes, and rate design—with limited or no input or review from the public.² This was the case with the BWS.

AUDIT RESULTS

We made 22 audit recommendations covering a variety of issues. We recommended that the BWS should: 1) justify the monthly billing and water rate charges. If the charges cannot be substantiated, the BWS should refund appropriate amounts; and 2) adopt best practices and conform to EUM recommended practices. The BWS generally agreed with the findings and recommendations, except for those related to justifying the monthly billing fee.

Since the audit's release, the BWS has hired an outside consultant to review our audit recommendations and draft a plan for implementation. Administrators are reviewing various systems to sufficiently track and report financial data that customers can rely on and understand. The agency has also committed to provide transparency in future rate-making decisions. The agency, however, maintains its position that its current rates are justified, despite the inability to provide supporting financial information.

TAKEAWAYS

- Water quality, safety, distribution, administration, and sustainability are critical to municipalities and should be audited;
- There is sufficient criteria available to effectively audit and evaluate water utility performance, operations, and administration; and
- When auditing a utility, ensure that rate-making is transparent and that water utilities are able to justify their rates. This is a potentially high-risk area that might be overlooked.

- Auditing a water utility allows you to get out of the office and see cool stuff like this:



The Nu`uanu Reservoir on the island of O`ahu is one of 170 potable water reservoirs operated by the Honolulu Board of Water Supply.

NOTES

¹ Effective Utility Management: A Primer for Water and Wastewater Utilities, Association of Metropolitan Water Agencies, American Water Works Association, American Public Works Association, et al., June 2008

² Principles of Water Rates, Fees, and Charges, American Water Works Association, Sixth Edition.

ABOUT THE AUTHOR

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