

APPENDIX "H"

"EGWD 2013 Water Rate Study Report."

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Elk Grove Water District

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2013 Water Rate Study Report



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Table of Contents

Executive Summary..... E-1

Introduction 1

 Overview of the Water Rate Study Process 2

Rate Setting Principles 3

 Financial Management, Policies, and Rates..... 3

 Overview of Rate Setting Environment, Objectives, Process 4

 Considerations in Setting Revenue Requirements 4

 Capital Budgeting and Financing..... 4

 Capital Funding: Debt vs. PAYGO 4

 Revenue Requirements..... 4

 Financial Planning 5

 Rate Setting Principles Summary 6

 Rate Design 6

Water Rate Analysis 7

 Water Consumption and User Characteristics..... 7

 Revenue Requirements Analysis..... 7

 Existing Water Revenues 8

 Existing Water Expenditures 8

 Recommended Revenue Requirements 10

 Cost of Service Analysis..... 12

 Cost Allocation by Function 13

 Rate Design Analysis 16

 Criteria and Considerations 16

 Existing Rate Structure..... 16

 Proposed Rate Structure..... 17

Recommended Water Charges 18

 Fixed Charge..... 18

 Commodity Charge 20

 Commodity Charge Rate Design 21

Customer Impacts 23

Appendix A A-1

Appendix B B-1

Table of Figures

Introduction	1
Rate Setting Principles	3
Figure 1-1: Overview of the “Cash Basis” Design.....	5
Water Rate Analysis	7
Figure 2-1: Water Consumption Characteristics.....	7
Figure 2-2: Water Fund - Cost Distribution by Expenditure Classification	8
Figure 2-3: Water Fund - Baseline Financial Scenario.....	10
Figure 2-4: Water - Revenue Requirements Analysis	11
Figure 2-5: Water - Recommended Financial Plan	12
Figure 2-6: Distribution of Expenditures by Function	14
Figure 2-7: Distribution of Annual Expenditures by Function.....	15
Recommended Water Charges	18
Figure 3-1: Total Charge per Account	18
Figure 3-2: Total Charge per Meter	19
Figure 3-3: Fixed Charge	19
Figure 3-4: Base Variable Cost	20
Figure 3-5: Peak Variable Cost	20
Figure 3-6: Total Variable Cost by Customer Class	20
Figure 3-7: Variable Costs by Tier	21
Figure 3-8: Recommended Water Commodity Rate.....	22
Customer Impacts	23
Figure 3-9: Single-Family Monthly Bill Comparison	23

Executive Summary

The Elk Grove Water District (EGWD) is a department of the broader Florin Resource Conservation District (FRCD). EGWD was originally known as Elk Grove Water Works was established to ensure more local control over groundwater resources and to ensure safe, clean water to its customers. Since inception of the EGWD in 1999, EGWD has completed one independent review of its water rates. EGWD's last comprehensive water rate study was conducted back in 2007 and outlined phased rate increases over a five-year period through 2012. It is common industry practice and highly recommended for water agencies to have an independent review of its long-term financial plan and water rates at least every five years.

EGWD has two separate bond covenants. The first bond covenant requires 125% coverage on the annual debt service of revenue bonds (including a debt service reserve of \$971,782), and the second requires 115% coverage on the annual debt service payment (without the debt service reserve) of EGWD. Prior to the last study, EGWD was not meeting its bond covenants and required a high rate increase to achieve appropriate coverage. As such, the revenue adjustments proposed from FY 2007-08 through FY 2011-12 were 32%, 20%, 15%, 3%, and 3%, respectively. After the first two revenue adjustments, EGWD was able to reduce the third-year revenue adjustment down to 12% and eliminated the need for the last two recommended revenue adjustments of 3% each year. The applied revenue adjustments were as follows: 32%, 20%, 12%, 0%, and 0%.

Although, EGWD is currently in compliance with each of the bond covenants, the bonds were structured with escalating debt service, and this is a primary driver for necessary revenue adjustments in future years. While revenue adjustments and corresponding rate increases are never desired, the 10-year financial plan developed herein ensures that the appropriate minimum debt service coverage is maintained for its bond covenant.

As part of this study, refinancing options were considered and modeled at current market rates providing slight savings while leveling the debt service amortization schedule. This report does not assume debt refinancing; however, if current rates remain low after these proceedings, EGWD should consider refinancing opportunities to mitigate rate increases in the future.

The financial plan, cost of service analysis, and rate design was comprised of several components and these were presented to a Citizen's Advisory Committee, EGWD's Finance Committee, and the Board of Directors through a total of approximately 14 publicly noticed meetings. These presentations included educational background on rate design, EGWD reserve policies, growth projections, consumption projections with consideration of EGWD's intensive meter replacement program, fire protection services, the percentage split between fixed revenue versus variable revenue, creation of customer classes, residential tiering analysis, illustration of seasonal consumption patterns, and monthly bill calculators for different usage levels.

Introduction

In 2012, EGWD selected Willdan Financial Services to perform a water rate analysis and financial plan. This analysis provides financial recommendations that focus on a number of key objectives, including: short and long-term financial health; bond covenant compliance; policy objectives; and equitable cost-of-service rates.

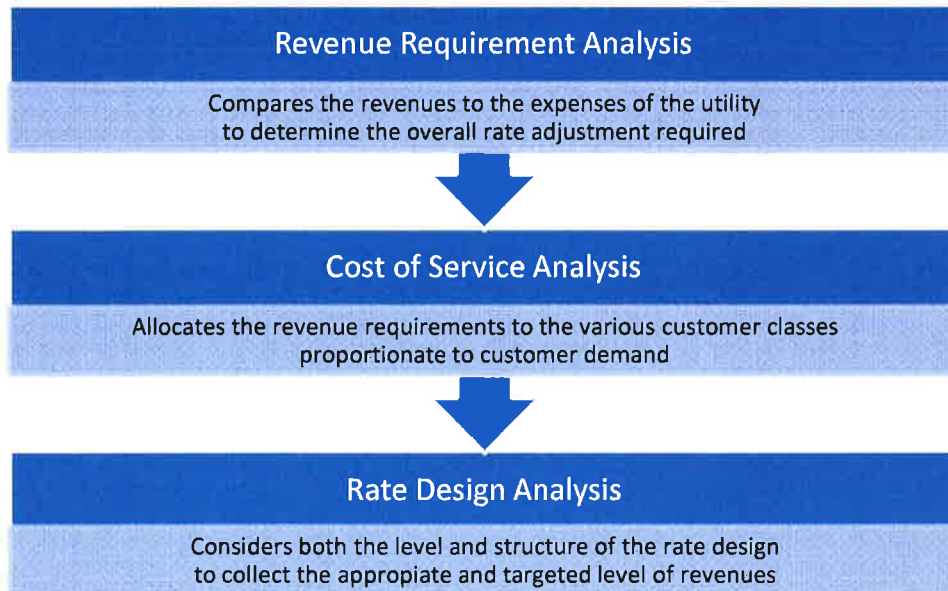
The EGWD service area covers a triangular shaped area of approximately 13 square miles and is generally bounded: to the north by Sheldon Road, to the east by Grant Line Road, to the south by Union Industrial Park, and to the west by State Route 99. EGWD's entire service area is comprised of approximately 12,100 connections and encompasses roughly 8,000 acres. EGWD's water supplies include local groundwater as well as water from Sacramento County Water Agency. EGWD owns and operates a water treatment plant site that receives water from wells. This treatment plant also includes a pump station and two 2.0 million gallon aboveground water storage tanks. EGWD, with 9 active groundwater wells and roughly 124 miles of water mains, produces approximately 5,600 Acre Feet of water annually to serve its roughly 12,100 customers. As stated in the 2010 Urban Water Management Plan, due to the relatively minor variations in ground elevation throughout the Urban Development Boundary (UDB), EGWD's water distribution system consists of only one pressure zone.

Based on discussions with District staff and guidance and direction from the Finance Committee, Community Advisory Committee, and the Board of Directors, this report presents the recommended revenue adjustments and the corresponding rates to recover EGWD's costs of providing water service.

Overview of the Water Rate Study Process

The scope of this study included the development of cost-based water user charges through a comprehensive cost of service and rate design analysis. Utility rates must be set at a level where a utility’s operating and capital expenses are met with the revenues received from customers. This rate study consists of the following three interrelated analyses:

- I. **Financial Planning/Revenue Requirement Analysis:** A ten-year plan was created to support an orderly, efficient program of on-going maintenance and operating costs, capital improvement and replacement activities, debt financing, and retirement of any outstanding debt. This long-term plan was designed to fund and maintain reserve balances to adequate levels based on industry standards and EGWD’s fiscal policies.
- II. **Cost of Service Analysis:** Annual revenue requirements were identified and apportioned to distinct customer classes based on the demand placed on the utility system.
- III. **Rate Design:** An equitable and proportional fixed/variable schedule of rates for each customer class was developed to recover the costs attributable to that specific customer class and corresponding accounts. This is also where other policy objectives can be achieved, such as promoting the efficient use of water. The policy objectives were harmonized with cost of service objectives to achieve the delicate balance between customer equity, financial stability and resource conservation goals.



Rate Setting Principles

The primary objective when conducting a comprehensive rate and financial analysis is to determine the adequacy of the existing rates (pricing, structure, and revenue sufficiency) and provide the basis for any necessary adjustments to meet EGWD’s operating and capital needs as well as policy objectives. EGWD desires a rate structure that not only fully funds operations, maintenance, and capital costs but also provides long term funding of reserves and debt service coverage. Furthermore, EGWD would like to adjust its existing rate structure to one that appropriately reflects and recovers costs based on customer demand. Similar to the existing rate structure, EGWD’s revenue requirements would be recovered through a monthly fixed charge and a variable charge (based on the amount of water used).

Financial Management, Policies, and Rates

A financial plan revolves around the development of a proper long and short-term balance of revenues and expenditures. The following provides an outline of EGWD’s financial targets and policies, and the financial foundation of the cost of service and rate analysis. This section of the report provides a general background of the methodology and guidelines used for setting cost based utility rates in order to establish a higher-level understanding of the rate setting approach detailed later in this report.

The American Water Works Association (AWWA) establishes a general set of principles in the M1 Manual – *Principles of Water Rates, Fees and Charges*. These guiding principles help ensure there is a consistent global approach employed by all water utilities in developing their rates (water and water-related utilities, including sewer and reclaimed water). Below is a summary listing the established AWWA guidelines which public utilities should consider when setting their rates. These closely reflect EGWD’s specified objectives.

Rates should be cost-based, equitable, and set at a level such that they provide revenue sufficiency			
Rates and process of allocating costs should conform to generally accepted rate setting techniques	Rates should provide reliable, stable and adequate revenue to meet the utility’s financial, operational, and regulatory requirements	Rate levels should be stable from year to year - minimize “rate shock” -	Rates should be easy to understand and administer

These guidelines, along with EGWD’s objectives, are used within this study as a framework to develop utility rates that are cost-based and equitable.

Overview of Rate Setting Environment, Objectives, Process

Rate analyses are typically performed every few years to ensure that revenues from rates are adequately funding utility operations, maintenance, and future capital needs. In California, rate analyses also require compliance with the cost-of-service principles imposed by California Constitution Article XIII D, Section 6 (Article XIII D, Section 6) to ensure that rates correlate to how costs are incurred. The proposed rate structure for single-family residential customers is a two-tiered rate structure similar to EGWD’s existing rate structure. This proposed rate structure will provide customers with an incentive to use water efficiently by recalibrating the allocation of base and max day (peak) variable cost components from what exists in the current rate structure. New rates derived from this study are subject to the requirements for Article XIII D, Section 6 and must be approved by EGWD’s Board of Directors.

Considerations in Setting Revenue Requirements

There are a multitude of considerations, ranging from financial to political to legal that must be analyzed or discussed during the revenue requirements process of a rate analysis. This section, along with the graphic beside, provides an overview of the considerations that are reviewed during this process.



Capital Budgeting and Financing

Capital needs are defined by EGWD’s Water Capital Improvement Plan. As part of its budget and planning process, EGWD identifies capital improvements that are necessary for the continued delivery of clean, safe, drinking water. The Capital Improvement Plan is funded by a variety of sources including water rates, capacity fees, and capital reserves.

Capital Funding: Debt vs. PAYGO

The selection of the most appropriate funding strategy for capital projects is primarily a policy decision between use of cash (“Pay-as-you-go financing” or PAYGO), the issuance of debt (bonding), or a combination of the two. PAYGO is the use or build-up of cash to fund capital improvements. With debt financing, capital improvements are funded with borrowed funds (usually through the issuance of bonds) with the obligation of repayment, typically with interest, in future years. Development of an optimal capital financial plan depends on the definition of optimal. Each funding mechanism has a different impact on water rates in the short and long run, different net present values, risks, and legal obligations. Due to the borrowing costs associated with debt, cash funding can be cheaper in the end; however, debt typically ensures greater generational equity for larger and longer lasting capital projects.

Revenue Requirements

The method used by most public utilities to establish their revenue requirements is called the “cash basis” approach of setting rates. As the name implies, a public utility combines its cash expenditures over a time period to determine their required revenues from rates and other forms of income. The figure below presents the “cash basis” methodology.

Figure 1-1: Overview of the “Cash Basis” Design

+ Operation and Maintenance Expenses
+ Reserves
+ Capital Additions Financed with Rate Revenue
+ Debt Service (Principal and Interest)
= Total Revenue Requirements

To ensure that existing ratepayers are investing in the infrastructure of the utility, a capital replacement expense (depreciation) has been included in the cash basis approach to stabilize annual required revenue requirements by spreading the replacement costs of a depreciated asset over the expected life of the asset.

Based on the revenue requirement analysis, the utility can determine the overall level of rate adjustments needed in order for the utility to meet its overall expenditures.

Financial Planning

In the development of the revenue requirements, certain parameters are used to project future expenditures, growth in customers and consumption, and necessary revenue adjustments. EGWD’s budget documents are used as the baseline, which are then projected over a ten-year planning horizon to account for fluctuations in costs from year to year as well as any adjustments to debt service payments. Appendix A lists assumptions used within our analysis, separated into two categories: Financial Policies and Modeling Assumptions.

Conservative growth assumptions and prudent financial planning are fundamental in ensuring adequate rate revenue to promote financial stability. The developed financial model considers EGWD’s existing debt service coverage ratio and operating cash balances (cash on hand). The cost of depreciated infrastructure is collected and used to fund annual repair and replacement. As existing debt is redeemed, additional bonds may be issued to fund additional capital improvements required due to aging infrastructure.

Rate Setting Principles Summary

In meeting the overall objectives of EGWD, the rate design must also conform to the State Constitution and the State's Water Code. Article XIII D, Section 6 requires that property related fees and charges, such as water service fees (as affirmed in *Bighorn-Desert View Water Agency v. Verjil*), must not exceed the reasonable cost of providing the service associated with the fee or charge, and shall also not exceed the proportional cost of the service attributable to the parcel that is subject to the fee or charge.

In conjunction with Article XIII D, Section 6, California Constitution Article X, Section 2 of the State Constitution states it is the policy of the State to preserve the State's water supplies and discourage the wasteful or unreasonable use of water by encouraging conservation. Article X, Section 2 is broad in its declarations; however, the Water Code provides guidance to its application for developing water rates. Section 106 declares that the highest use of water is for domestic purposes, and irrigation is secondary. In connection with meeting the objectives of Article X, Water Code Sections 370 (AB2882) and 375 authorize a water purveyor to utilize its water rate design to incentivize the efficient use of water.

Although incentives to conserve water could be provided by implementing a higher rate for water as consumption increases, a nexus between rates and costs incurred to provide water at those rates must be developed to achieve compliance with Article XIII D, Section 6. For this analysis, the consumption and peaking characteristics of customers were analyzed within each defined tier to determine the proportional share of costs incurred by such tier, which was then divided by consumption to derive a rate per unit of water per tier. This approach harmonizes the constitutional mandates of Article X, Section 2 and Article XIII D, Section 6 in developing a cost of service tiered rate structure.

Rate Design

The final element of the rate design process applies the results from the revenue requirements to the cost of service analysis to develop rates that achieve the objectives of EGWD and compliance with legal requirements. These objectives were achieved through the development of cost-based rates and accounted for adjustments to expenditures and cash reserves to balance rate impacts, continuity of past rate philosophy, conservation objectives, ease of administration, and legal requirements. This section of the report incorporates the general principles, techniques, and economic theory used to set utility rates. These principles were the starting point for this rate study and the groundwork used to meet EGWD's key objectives in analyzing and redesigning their utility rates.

This utility rate study was performed to allocate the costs of providing service to users in order to ensure that rates are equitable and in compliance with Article XIII D, Section 6 requirements. The total cost of serving each customer class was determined by distributing each of the utility cost components among the user classes based upon the respective service requirements of each customer class. Therefore, a cost of service rate study will enable the EGWD to adopt rates based on the costs attributable to each customer class and corresponding accounts. The purposes of this water utility cost of service study include defining the proportional allocation of the costs of service to users and deriving unit costs to support the development of rates for EGWD's water service fees.

Water Rate Analysis

This Water Rate Study focused on two main principles. First, the study developed rates that provide sufficient revenues to fund expenditures related to operations, maintenance, capital, and funding of reserves. Second, within the cost of service principles of Article XIII D, Section 6, the study designed water rates that promote efficient use of water and reflect the varying costs of demand to each customer class. This section of the report details the analysis and the approach to developing the recommendations.

Water Consumption and User Characteristics

Two fiscal years of billing data were examined from EGWD's new software system known as TruPoint. Three to five years of billing data is typically preferred; however, EGWD's previous billing software could not provide the same level of detail as the current system. EGWD is also advancing the meter replacement program that has converted over 1,500 non-metered customers to metered accounts during this study period. Therefore, even with additional billing data readily available, the last two fiscal years provides the most viable information for this analysis. Billing data was also analyzed to determine seasonal demand patterns and overall consumption characteristics. As the projected volume of water consumption is a key component in revenue generation, it is critical that appropriate adjustments and trends are rationalized. Figure 2-1 provides a summary of EGWD's water consumption characteristics of approximately 12,035 accounts.

Figure 2-1: Water Consumption Characteristics and Projections

Category Description	2012/13 Accounts	Average Month (HCF)	Peak Month (HCF)	2012/13 Consumption (HCF)
Residential Metered Water	10,316	178,172	273,323	2,454,039
Non-Residential	383	41,126	76,431	471,360
Irrigation	22	9,151	20,175	100,603
Residential Flat Water	1,314	-	-	111,176
Total	12,035	NA	NA	3,137,178

* Water Consumption is in hundred cubic feet

** These records were compiled by reviewing EGWD's billing records.

Revenue Requirements Analysis

The first step in a rate analysis is a review of EGWD's revenue requirements. The result is a picture of EGWD's existing financial health, which is necessary to determine the current and future revenue needs. To ensure that both short and long term financial health were considered in our forecast, a 10-year financial outlook was performed. However, for the purposes of this study, rates and financial projections will be limited to 5 years. Expenditures (operation and maintenance (O&M), capital, and reserve requirements) were reviewed against revenues (rate revenue, capacity fee revenues, etc). EGWD's historic and current financial statements were analyzed, along with two fiscal years of water consumption records, capital improvement plans and programs, reserve policies, and future expected expenditures through discussion with EGWD staff.

Existing Water Revenues

EGWD derives revenue from a variety of sources. Annually, 99% of the Water Fund’s revenue originated from rate revenues (monthly rates). In Fiscal Year 2012-2013, EGWD budgeted approximately \$13.65 million in operating rate revenue, compared with \$128,000 in non-operating revenue, such as interest income and capacity charges.

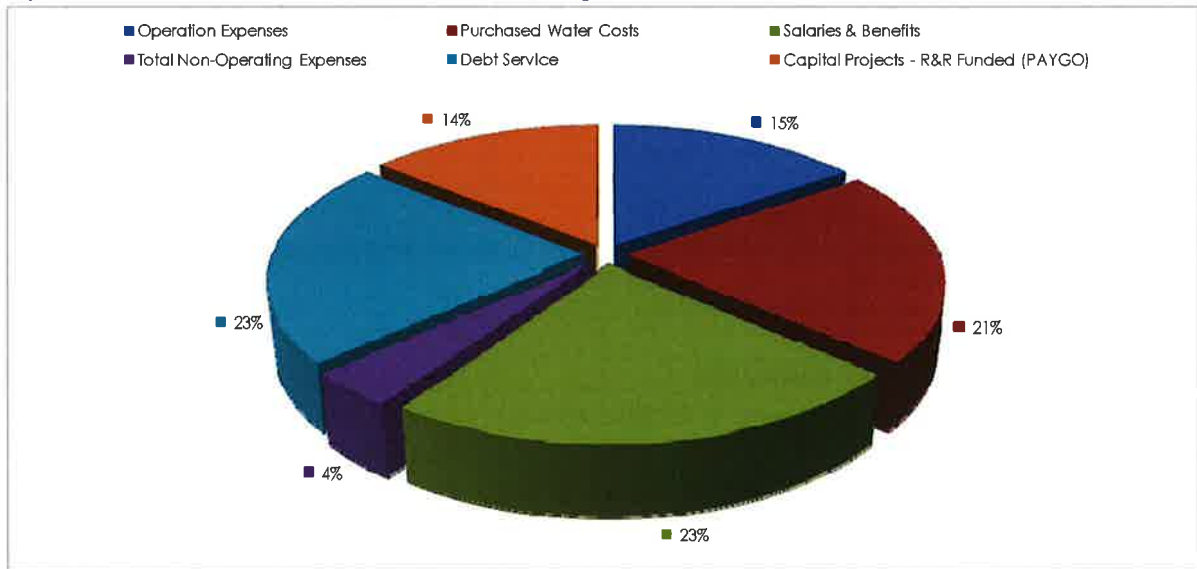
Description	2012/13 Revenue	Percent of Revenue
Revenue from Rates	\$ 13,645,293	99.1%
Total Non-Operating Revenue	128,182	0.9%
Total Revenue	\$ 13,773,475	100.0%

Existing Water Expenditures

To achieve long-term financial health, EGWD revenues must be sufficient to meet total expenditures or cash obligations. This “required revenue” includes all incurred costs related to operation and maintenance, capital improvement programs, and principal and interest payments on existing or proposed debt.

As demonstrated by Figure 2-2, water fund expenditures were categorized into one of six classifications: (1) Operation Expenses; (2) Purchased Water Costs; (3) Salaries & Benefits; (4) Non-Operating Expenses; (5) Debt Service; and (6) Capital Projects. The pie chart below demonstrates the relative size of the various expense categories over the study period.

Figure 2-2: Water Fund - Cost Distribution by Expenditure Classification



Approximately 38% of the utility’s expenditures are related to operation costs, including purchased water costs, and the remaining 62% of EGWD’s expenditures are related to debt service (22%), capital improvement projects (14%), non-operating expenses (4%), and salaries & benefits (23%).

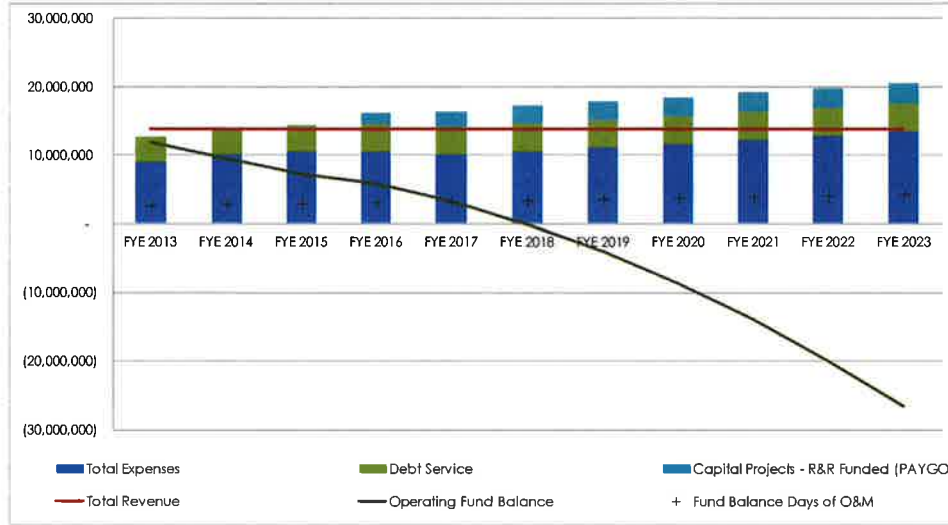
EGWD prepares a list of capital improvements to address current and future water system needs. As previously mentioned, EGWD is almost finished with a meter replacement program and will have all non-metered customers converted to metered accounts by the summer of 2014. This analysis reflects new metered accounts in Fiscal Year 2013-14 based on the conversion rate of meters that EGWD has realized over the past 12 months. It's important to note that total consumption is not increasing as a result of these new metered accounts because they are conversions from previous non-metered accounts.

Through the study period, debt service costs, related to principal and interest on the existing debt service, account for approximately 22% percent of the water fund's expenditures. Revenues must be targeted to ensure the water utility meets its debt service coverage requirements for Covenants 1 and 2 of 125% and 115%, respectively, on its existing debt service.

In addition, to maintain financial flexibility, EGWD has adopted new reserve policies that established separate reserve accounts for specific uses. The reserve accounts include: Operating Reserve, Capital Improvement Reserve, Capital Replacement Reserve, Special Study Reserve, Future Capital Improvement Reserve, and Future Capital Replacement Reserve. Before this new reserve policy was adopted, EGWD had one unrestricted reserve account that was used to fund all the functions, programs, and improvements listed above. The new reserve policies provide more transparency through a detailed "flow of funds" between accounts and better accountability for monitoring annual expenditures. All of the reserve accounts, other than the Operation & Maintenance Reserve Account and the Repair & Replacement Reserve Account, are funded and expended annually or over a short time period. Through the new reserve policies and as part of this study, financial thresholds were established for the reserve accounts to ensure sufficient funding and best management practices for operations and capital costs. Consistent with industry standards recommended by the AWWA, an Operating Reserve of 120 days (approximately \$3 million of cash on hand) is recommended as opposed to 180 days. This will provide the water utility sufficient working capital to fund day-to-day operations and cash outlays. Additionally, a Repair and Replacement Reserve (R&R) Account, primarily funded through the realized depreciation expense or with excess Operating Reserve funds, was established. In total, the sum of all reserves reflects at least 180 days of operation expenses.

Figure 2-3 demonstrates the Baseline Scenario for the Water Funds. This represents current and projected financial conditions of EGWD absent any revenue adjustment (increases) over the next 5 years. As the figure illustrates, without any revenue adjustment or significant cuts in expenses, which may not be possible, reserves would need to be used to cover the shortfall in revenues over the next five years; thereby depleting reserves by Fiscal Year 2018-19. However, prior to depleting reserves, EGWD would not meet its bond covenants by as soon as FY 2014-15.

Figure 2-3: Water Fund - Baseline Financial Scenario



* FYE = for Fiscal Year End

Recommended Revenue Requirements

The 10-year financial plan developed as part of this study reviews EGWD’s future financial outlook collectively as a whole and not on an annual basis that is independent from one another. As an example, EGWD’s debt service payments escalate through the years, growing from a current \$3.7 payment to over \$4 million within five years. As such, the financial plan recommends smaller revenue adjustments in the first few years to slowly build up funds in anticipation of the increased debt service payments; although EGWD could postpone on revenue adjustments for two more years. Doing so would be considered a reactive approach and not prudent financial planning. It would also cause higher increases by the third year, which may cause a “rate shock” to existing customers.

As such, a financial plan and rate structure was developed with gradual adjustments to provide continued financial stability throughout the study period. A number of financial scenarios were analyzed and presented over the course of the 9-month study. The results and recommendations provided in the analysis were broken down into discrete components and presented to EGWD’s Citizen’s Advisory Committee, Finance Committee, and Board of Directors through a total of approximately 14 publicly noticed meetings. These presentations included educational background on rate design, EGWD reserve policies, growth projections, consumption projections with consideration of EGWD intensive meter replacement program, fire protection services, percentage split between fixed revenue versus variable revenue, the creation of customer classes, residential tiering analysis, illustration of seasonal consumption patterns, and monthly bill calculators for different usage levels. The recommended financial plan was forecasted and analyzed to achieve a 120-day operations reserve within the five-year study period and to maintain compliance with EGWD’s Debt Coverage Ratio.

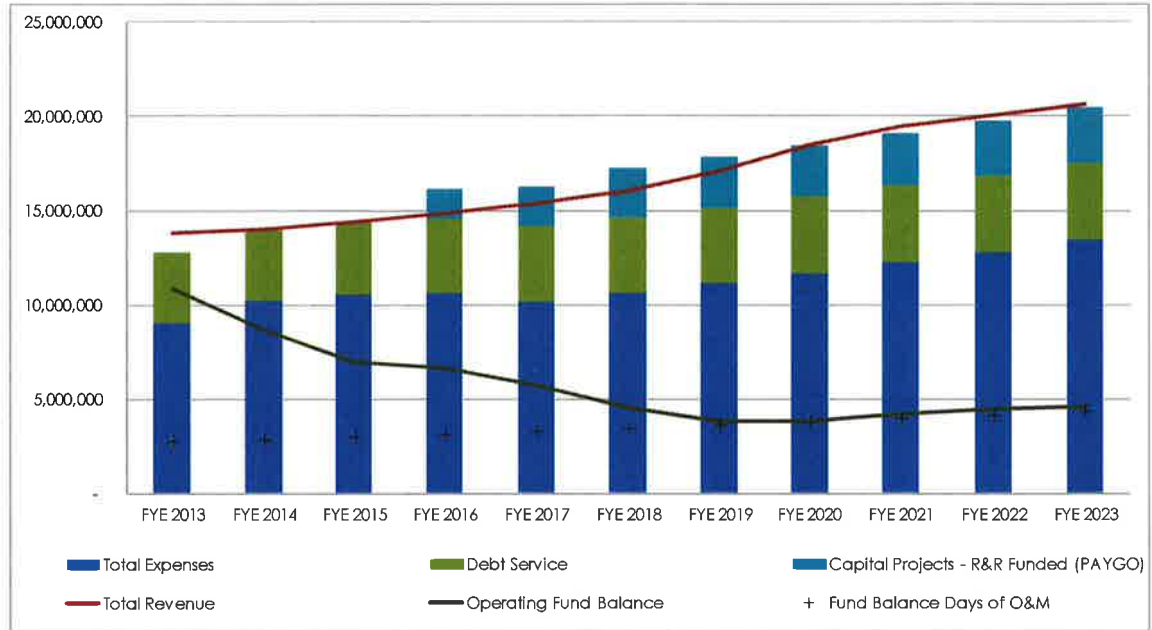
To achieve these results in the Water Fund, the recommended revenue adjustments are three percent (3%) for the first three years, increasing to four percent (4%) in year four, and five percent (5%) in year five. These adjustments would occur each January with the first 3% on January 1, 2014. Figure 2-4 details the existing and projected expenditures of the water fund and the corresponding impact of the revenue adjustments on the fund’s financial health.

Figure 2-4: Water - Revenue Requirements Analysis

Description	Escalation Code	Account #	Fiscal Year					
			FYE 2013	FYE 2014	FYE 2015	FYE 2016	FYE 2017	FYE 2018
Revenue from Rates								
Water Payment Revenues - Residential	GrowthSF	4100						
Water Payment Revenues - Commercial	GrowthNonRes	4110						
Water Payment Revenues - Fire Service	NoGrowth	4120						
Meter Fees/Plan Check/Water Capacity	NoGrowth	4200						
			Current Year	Projected				
			\$ 11,324,092	\$ 11,324,092	\$ 11,324,092	\$ 11,324,092	\$ 11,324,092	
			\$ 1,826,153	\$ 1,826,153	\$ 1,826,153	\$ 1,826,153	\$ 1,826,153	
			\$ 404,272	\$ 404,272	\$ 404,272	\$ 404,272	\$ 404,272	
			\$ 90,776	\$ 90,776	\$ 90,776	\$ 90,776	\$ 90,776	
Total Operating Revenue			\$ 13,645,293	\$ 13,645,293	\$ 13,645,293	\$ 13,645,293	\$ 13,645,293	
Additional Rate Revenue Required								
	Revenue Increase	Months Effective						
	Fiscal Year							
	FYE 2014	3.0%						
	FYE 2015	3.0%						
	FYE 2016	3.0%						
	FYE 2017	4.0%						
	FYE 2018	5.0%						
			\$ 204,700	\$ 409,400	\$ 409,400	\$ 409,400	\$ 409,400	
				\$ 210,800	\$ 421,600	\$ 421,600	\$ 421,600	
				\$ 217,100	\$ 434,300	\$ 434,300	\$ 434,300	
					\$ 298,200	\$ 596,400	\$ 596,400	
						\$ 387,700	\$ 387,700	
Total Additional Rate Revenue			\$ -	\$ 204,700	\$ 620,200	\$ 1,048,100	\$ 1,563,500	
Total Revenue			\$ 13,645,293	\$ 13,849,993	\$ 14,265,493	\$ 14,693,393	\$ 15,208,793	
Operation Expenses								
Total Salaries & Benefits			3,050,420	3,224,482	3,408,629	3,603,452	3,809,576	
Total Seminars, Conventions and Travel			32,260	33,013	33,789	34,588	35,412	
Total Office & Operational			3,934,111	4,110,044	4,294,150	4,486,820	4,688,462	
Total Outside Services			767,025	790,066	813,800	838,247	863,430	
Total Equipment Rent, Taxes and Utilities			430,350	452,233	475,258	499,487	524,985	
Total Operating Expenses			\$ 8,214,166	\$ 8,609,838	\$ 9,025,626	\$ 9,462,595	\$ 9,921,866	
Operating Income			\$ 5,431,127	\$ 5,240,155	\$ 5,239,867	\$ 5,230,798	\$ 5,286,927	
Total Non-Operating Revenue			124,449	128,182	132,028	135,989	140,068	
Total Non-Operating Expenses			\$ 819,787	\$ 1,597,982	\$ 1,501,862	\$ 1,138,828	\$ 219,884	
Total Debt Service			\$ 3,718,678	\$ 3,770,984	\$ 3,836,826	\$ 3,921,219	\$ 3,984,613	
Targeted Debt Coverage Ratio			125%	125%	125%	125%	125%	
Debt Service Coverage Covenant 1 (125%)			169%	162%	159%	155%	158%	
Debt Service Coverage Covenant 2 (115%)			139%	132%	130%	127%	126%	
Net Income			\$ 1,017,111	\$ (628)	\$ 33,207	\$ 306,740	\$ 1,222,499	

Similar to Figure 2-3 - Baseline Scenario, Figure 2-5, forecasts the financial health of the water fund; however, as opposed to the baseline scenario, the revenue adjustments provide a more positive outlook and allow for a funding of capital projects, while maintaining appropriate reserves.

Figure 2-5: Water - Recommended Financial Plan



* FYE = Fiscal Year End

Cost of Service Analysis

Following the consumption and revenue requirement analysis, the next stage was to distribute costs (revenue requirements) to functional components, and ultimately, to each customer class. The cost of service analysis is a systematic process by which revenue requirements are allocated by function to generate a classification of fair and equitable costs in proportion to the service received for each user class. The cost of services analysis combined the water consumption and usage characteristics analyses with the revenue requirements and expenditure analysis. This section of the report discusses the methodology of allocating expenditures to the functional cost components to best project each customer classification's burdens on the system.

Cost Allocation by Function

To equitably allocate the cost of service among the different user classes in proportion to their usage and peaking demands, costs were initially allocated to functional cost components. Figures 2-6 provides a breakdown of EGWD's revenue requirements by functional cost components, using a 10-year annual average to account for how costs are incurred over time, and Figure 2-7 shows a summary of EGWD's revenue requirements by function for each year of the study period. To generate this data, EGWD's budget was analyzed line-item by line-item and expenditures were distributed based on a variety of demand factors: average day (base), maximum day (peak) usage, meters and services, and customer accounts.

Base: Variable operating and capital costs incurred by the water system on all units of water that are associated with servicing all customers, irrespective of customer class or peak demand.

Max Day: Variable costs incurred to meet customer peak demands for water in excess of average day demand. This cost also includes capital costs related to providing excess capacity.

Fixed Costs include customer accounts, and meter service costs. Customer account costs are uniform to all customers and include such costs as meter reading, billing, accounting, and administration. Meter service costs include maintenance and capital costs associated with meters and services.

Figure 2-6: Distribution of Expenditures by Function

Description	Total Water Expenses	Total Consumption	Peak Demand	Customer Account	Meters & Services	Fire Protection	
	% Allocation	16.94%	18.50%	36.59%	21.99%	5.97%	
	Total Allocation	16,115,379	2,730,351	2,981,883	5,897,067	3,543,231	962,847
Salaries & Benefits							
Executive Salary	186,502	-	-	177,470	-	9,032	
Exempt Salaries	480,701	-	-	457,422	-	23,280	
Non-Exempt Salaries	1,300,127	-	-	581,189	625,211	93,728	
Overtime Compensation	81,778	-	-	37,489	40,329	3,960	
On Call Pay	39,975	-	-	18,325	19,714	1,936	
Holiday Pay	-	-	-	-	-	-	
Vacation Pay	69,314	-	-	65,957	-	3,357	
Personal Time Pay	43,022	-	-	40,939	-	2,084	
Internship Program	-	-	-	-	-	-	
Medical Benefits	603,360	-	-	574,140	-	29,220	
EAP	1,545	-	-	1,470	-	75	
Dental/Vision/Life Insurance	65,789	-	-	62,603	-	3,186	
Retirement Benefits	393,939	-	-	374,861	-	19,078	
Retirement Benefits - Post Employment	110,970	-	-	105,596	-	5,374	
Medical Tax and SUI	75,917	-	-	72,240	-	3,677	
Worker's Compensation Insurance	78,304	-	-	74,512	-	3,792	
Education Assistance	16,731	-	-	15,921	-	810	
Employee Training	61,074	-	-	58,116	-	2,958	
Employee Recognition	2,056	-	-	1,956	-	100	
Meetings	3,657	-	-	3,480	-	177	
Seminars, Conventions and Travel							
Airfare	2,844	-	-	2,844	-	-	
Hotels	7,150	-	-	7,150	-	-	
Meals	4,156	-	-	4,156	-	-	
Auto Rental	875	-	-	875	-	-	
Seminars & Conferences	7,875	-	-	7,875	-	-	
Seminars & Conferences - Board	5,468	-	-	5,468	-	-	
Mileage Reimbursement, Parking, Tolls	995	-	-	995	-	-	
Auto Allowance	5,250	-	-	5,250	-	-	
Office & Operational							
Advertising	4,375	-	-	4,375	-	-	
Association Dues	54,465	-	-	54,465	-	-	
Insurance	91,869	-	-	91,869	-	-	
Licenses, Certifications, Fees	4,758	-	-	4,758	-	-	
Repairs & Maintenance - Automotive	24,498	-	-	24,498	-	-	
Repairs & Maintenance - Building	25,155	-	-	25,155	-	-	
Repairs & Maintenance - Computers	26,248	-	-	26,248	-	-	
Repairs & Maintenance - Equipment	95,205	95,205	-	-	-	-	
Fuel	74,195	74,195	-	-	-	-	
Materials	363,695	278,983	-	-	-	84,712	
Chemicals	29,529	22,651	-	-	-	6,878	
Mefer Repairs	9,078	-	-	-	9,078	-	
Permits	27,889	-	-	26,601	-	1,288	
Postage	60,809	-	-	58,000	-	2,809	
Printing	18,593	-	-	17,734	-	859	
Safety Equipment	6,562	6,562	-	-	-	-	
Software Programs & Updates	95,648	-	-	91,230	-	4,418	
Supplies	49,420	49,420	-	-	-	-	
Telephone	47,144	-	-	44,967	-	2,178	
Tools	14,218	14,218	-	-	-	-	
Clothing Allowance	12,577	-	-	11,996	-	581	
Purchased Water	3,359,866	1,283,593	2,076,273	-	-	-	

Figure 2-6: Distribution of Expenditures by Function - Continued

Description	Total Water Expenses	Total Consumption	Peak Demand	Customer Account	Meters & Services	Fire Protection	
	<i>% Allocation</i>	16.94%	18.50%	36.59%	21.99%	5.97%	
	<i>Total Allocation</i>	16,115,379	2,730,351	2,981,883	5,897,067	3,543,231	962,847
Outside Services							
Administration Services	1,449	-	-	1,449	-	-	
Bank Charges	47,575	-	-	47,575	-	-	
Billing Services	28,436	-	-	27,122	-	1,313	
Contracted Services	163,943	-	-	156,370	-	7,573	
Accounting Services	95,150	-	-	90,755	-	4,395	
Engineering	54,684	54,684	-	-	-	-	
Legal Services	289,826	-	-	139,625	150,201	-	
Financial Consultants	32,810	-	-	32,810	-	-	
Community Relations	6,125	-	-	6,125	-	-	
Misc. Medical	1,195	-	-	1,195	-	-	
Pre-employment	10,937	-	-	10,937	-	-	
Janitorial	5,687	-	-	5,687	-	-	
Bond Administration	9,843	-	-	9,843	-	-	
Security	59,606	-	-	59,606	-	-	
Sampling	28,436	28,436	-	-	-	-	
Board Secretary/Treasurer	3,281	-	-	3,281	-	-	
Equipment Rent, Taxes and Utilities							
Occupancy	-	-	-	-	-	-	
Equipment Rental	29,145	22,357	-	-	-	6,789	
Property Taxes	2,534	-	-	2,534	-	-	
Water	-	-	-	-	-	-	
Electricity	447,444	170,940	276,504	-	-	-	
Natural Gas	580	-	-	580	-	-	
Sewer & Garbage	21,053	-	-	21,053	-	-	
Non-Operating Expenses							
Depreciation funded above CIP	719,400	183,945	183,945	-	183,945	167,564	
Offering Expense - Deferred Charges	-	-	-	-	-	-	
Interest Paid on Elk Grove Blvd. Note	43,987	-	-	43,987	-	-	
9257 Elk Grove Blvd. Note	70,999	-	-	70,999	-	-	
Other Expenses (Toilet Program Costs, Other Income)	-	-	-	-	-	-	
Election Costs	-	-	-	-	-	-	
Capital Equipment & Expenditures	41,779	-	-	20,889	20,889	-	
Non-Project Capital Expenses	60,153	-	-	-	-	60,153	
New Depreciation, based on CIP	-	-	-	-	-	-	
Debt Service							
2002 A	1,677,863	-	-	808,318	869,545	-	
2002 B	698,591	-	-	336,549	362,041	-	
2003 A	840,086	-	-	404,715	435,371	-	
2005 A	736,613	-	-	354,867	381,746	-	
Potential New Debt Issue #1	-	-	-	-	-	-	
Potential New Debt Issue #2	-	-	-	-	-	-	
Capital Projects - R&R Funded (PAYGO)	1,741,000	445,161	445,161	-	445,161	405,516	

Figure 2-7: Distribution of Annual Expenditures by Function

Rate Revenue Required	Total Consumption	Peak Demand	Customer Account	Meters & Services	Fire Protection	
Percent Allocation	100%	16.94%	18.50%	36.59%	21.99%	5.97%
Fiscal Year Ending	~35%		~65%			
FYE 2014	\$ 13,849,993	\$ 2,346,537	\$ 2,562,711	\$ 5,068,099	\$ 3,046,149	\$ 827,497
FYE 2015	\$ 14,265,493	2,416,934	2,639,592	5,220,142	3,136,503	852,322
FYE 2016	\$ 14,693,393	2,489,431	2,718,768	5,376,722	3,230,584	877,888
FYE 2017	\$ 15,208,793	2,576,752	2,814,134	5,565,322	3,343,903	908,681
FYE 2018	\$ 15,894,693	2,692,961	2,941,049	5,816,312	3,494,710	949,662
FYE 2019	\$ 16,770,793	2,841,395	3,103,156	6,136,901	3,687,335	1,002,006
FYE 2020	\$ 17,863,293	3,026,492	3,305,305	6,536,677	3,927,539	1,067,280
FYE 2021	\$ 18,836,593	3,191,393	3,485,398	6,892,835	4,141,535	1,125,432
FYE 2022	\$ 19,590,093	3,319,055	3,624,821	7,168,562	4,307,204	1,170,451
FYE 2023	\$ 20,473,593	3,468,742	3,788,298	7,491,859	4,501,466	1,223,238

Rate Design Analysis

Rate design is the process of analysis that determines how the revenue requirements are allocated to each customer class through water rates. In the cost allocation section of this Report, horizontal equity (equity and proportionate share among customer classes) was considered in the rate design process, and vertical equity (equity among accounts within each class), was also considered to ensure each account is paying its fair and proportionate share.

Criteria and Considerations

In determining the appropriate rate level and structure, various financial scenarios were analyzed relative to the proposed adjustments and the implications of those decisions.

A simplified list of some of the rate design considerations that were reviewed is listed:

- Clear and understandable
- Easily administered
- Cost of service principles (fair and equitable)
- Revenue stability (month to month and year to year)
- Prudent financial planning
- Capital Improvement Program financing (improving the existing system)
- Minimize rate increases
- Comply with legal and regulatory requirements

Every consideration has merit and plays an important role in a comprehensive rate study. When developing EGWD’s proposed water rates, all of the aforementioned criteria were taken into consideration. Determining the appropriate balance is crucial as certain criteria may conflict with one another.

Existing Rate Structure

The existing rate structure is a two-tiered rate structure for all classes. The structure is comprised of the following two cost components.

Meter Charge: This component of the water rate reflects the cost of metering support, customer service, maintaining accounts and provides a certain allotment of water based on meter size. This charge is assessed monthly and is based on having an account and the size of water meter serving a property.

Commodity Charge: This component supports the variable cost of the system that brings the water to homes or businesses. This charge is presently \$1.46 per hundred cubic feet (HCF) for the first 30 units of water and \$1.80 for each additional unit (HCF) above 30 HCF.

Proposed Rate Structure

It is recommended that the existing single class rate structure be expanded into unique and equitable class-based structures. Based on a detailed multi-year consumption analysis and detailed billing records, it is recommended that customers be grouped based on user classifications and peaking factors to create an appropriate and equitable rate design.

As the consumption analysis confirmed, different customer types use water differently and thus have different consumption patterns and service demands on the utility. As necessary data was available, the proposed rate structures were customized to provide additional horizontal equity (equity among different customer classes) and vertical equity (equity among users in that class) over the existing structure.

Beyond changing the rate structure, some components of the rate structure were modified to reflect the current review and allocation of the costs incurred. Below are the proposed components of the recommended rate structure – while each customer class rate(s) is comprised of these charges, the specific rates may differ based on demand.

Fixed Charge: Charge is per month and based on total accounts and the size of water meter serving a property. This component of the water rate recovers the fixed costs as previously defined under the section entitled “Cost Allocation by Function.”

Commodity Charge: Charge is applied to all units of water used per month and split between two tiers for Single-Family Residential customers, and a uniform rate for Non-Residential and Irrigation customers. Starting in January 2014, Single-Family residential customers will be charged \$1.39 per HCF for the first 30 HCF and \$2.77 per HCF for each additional unit above 30 HCF.

Recommended Water Charges

The proposed revenue adjustments as a percentage do not equal or necessarily correlate to an equivalent percentage increase to rates or monthly bills. The results of the cost-of-service analysis and rate redesign will affect users differently, at both the customer class and account level.

The cost of service analysis created two notable rate impacts related to rate design: (1), the recalibration between fixed and variable charges; and, (2), the increased focus of a cost of service nexus and ensuring proper cost recognition and recovery from the different customer classes.

The cost components that appear at the top of Figure 2-7 are utilized to allocate system expenditures among the customer classes based on each class’ demand on the system. The cost of service allocation completed in this study is established on the base-extra capacity method endorsed by the American Water Works Association (AWWA). Under the base-extra capacity method, revenue requirements are allocated to the different user classes proportionate to their demand on the water system. Allocations are established on average day (base) usage, maximum day (peak) usage, meters and services, and billing and collection. Use of this methodology results in an AWWA-accepted cost distribution among customer classes and a means of calculating and designing rates to proportionately recover those costs.

Fixed Charge

There are two components to the proposed fixed charge: Customer Account costs; and Meters and Services. Per Figure 3-1, roughly \$5,068,099 of required revenue is allocated to Customer Accounts. These costs are distributed to each account evenly, as each account benefits equally from those expenditure functions. Therefore, regardless of meter size, each customer account is charged a minimum of \$35.09 per month.

Figure 3-1: Total Charge per Account

	FYE 2014	FYE 2015	FYE 2016	FYE 2017	FYE 2018
Total Customer Accounts Cost	\$ 5,068,099	\$ 5,220,142	\$ 5,376,722	\$ 5,565,322	\$ 5,816,312
Total CA and PFP Costs	\$ 5,068,099	\$ 5,220,142	\$ 5,376,722	\$ 5,565,322	\$ 5,816,312
Number of Accounts	12,035	12,035	12,035	12,035	12,035
Monthly Charge per Account	\$ 35.09	\$ 36.15	\$ 37.23	\$ 38.54	\$ 40.27

Costs related to Meters and Services are distributed on an equivalent meter factor, as endorsed by the AWWA. Larger meters require greater level of investment, depending on consideration such as size of pipe, type of materials, and other local characteristics for various size meters, which in turn cause higher maintenance costs. Figure 3-2, shows the determined meter equivalency factor based on investment. This factor ensures meter costs are proportionate to the investment cost incurred by the utility.

Figure 3-2: Total Charge per Meter

	FYE 2014	FYE 2015	FYE 2016	FYE 2017	FYE 2018
Total Meters and Services Cost	\$ 3,045,149	\$ 3,136,503	\$ 3,230,584	\$ 3,343,903	\$ 3,494,710
Total Public Fire Protection Cost	\$ 705,227	726,384	748,172	774,416	809,341
Subtotal	\$ 3,750,376	\$ 3,862,887	\$ 3,978,756	\$ 4,118,319	\$ 4,304,051
Number of Equivalent Meters	12,947	12,947	12,947	12,947	12,947
Monthly Meter Charge per 1" Meter	\$ 24.14	\$ 24.86	\$ 25.61	\$ 26.51	\$ 27.70

Meter Size	GPM	Eq Meter Factor	Monthly Meters and Services Charge				
1"	50	1.00	24.14	24.86	25.61	26.51	27.70
1.5"	100	2.00	48.28	49.73	51.22	53.02	55.41
2"	160	3.20	77.25	79.57	81.95	84.83	88.65
3"	300	6.00	144.84	149.19	153.66	159.05	166.22
4"	500	10.00	241.40	248.64	256.10	265.08	277.04
6"	1000	20.00	482.80	497.28	512.20	530.17	554.08
8"	1600	32.00	772.48	795.66	819.52	848.27	886.52
10"	2300	46.00	1,110.44	1,143.75	1,178.06	1,219.38	1,274.38

- 1) The equivalent meter factor, based on the meter's flow rating (in gallons per minute), is used to convert a standard 1" meter charge for larger meter sizes, as recommended by AWWA.

The following figure (Figure 3-3) outlines the recommended fixed charge, which is the sum of the per account charge listed in Figure 3-1 and the meter charge listed in Figure 3-2. These costs are classified as "fixed" as they are incurred by the utility regardless of consumption. This influences all users, regardless of water use and efficiency.

Figure 3-3: Fixed Charge

Meter Charge *	January 1, 2014	January 1, 2015	January 1, 2016	January 1, 2017	January 1, 2018
1"	59.23	61.01	62.84	65.04	67.98
1.5"	83.37	85.87	88.45	91.55	95.68
2"	112.34	115.71	119.18	123.36	128.93
3"	179.93	185.33	190.89	197.59	206.50
4"	276.49	284.79	293.33	303.62	317.31
6"	517.89	533.43	549.43	568.70	594.35
8"	807.57	831.80	856.75	886.80	926.80
10"	1,145.53	1,179.90	1,215.29	1,257.92	1,314.65

Commodity Charge

Similar to the existing rate structure, remaining expenditures (approximately 35% of the utility’s revenue requirements) not recovered from the fixed charge, will be collected by means of a variable charge.

Variable costs are first apportioned to each defined customer class based on their consumption characteristics (total water used and peaking factor). Peaking factors are analyzed to create an appropriate and equitable rate design to ensure that those generating a greater demand on the system are paying a fair share amount based on that demand. Doing so also ensures that the accounts within each customer class will only recover the costs allocated to their respective customer class and no account is subsidizing any other account. Figures 3-4 through Figure 3-6 take the variable costs for Fiscal Year 2013-2014 identified in Figure 2-7 and steps through how those costs are allocated among the distinct customer classes. Once the variable costs are allocated to each customer class, the next step is to design the most equitable and appropriate rate structure to proportionately recover such costs.

Figure 3-4: Base Variable Cost

Category Description	2013/14 Consumption (HCF)	% of Consumption	Water Consumption Base Cost	Cost per unit of Water
Residential Metered Water	2,454,039	78.22%	\$ 1,835,565	\$ 0.75
Non-Residential	471,360	15.02%	\$ 352,567	\$ 0.75
Irrigation	100,603	3.21%	\$ 75,249	\$ 0.75
Residential Flat Water	111,176	3.54%	\$ 83,157	\$ 0.75
Total			\$ 2,346,537	

Figure 3-5: Peak Variable Cost

Category Description	Peaking Factor	Weighted Peak Factor	% of Peak	Peak Variable Cost
Residential Metered Water	1.78	4,368,189	77.59%	\$ 1,988,524
Non-Residential	1.81	853,162	15.16%	\$ 388,384
Irrigation	2.09	210,260	3.73%	\$ 95,716
Residential Flat Water	1.78	197,893	3.52%	\$ 90,086
Total				\$2,562,711

- 1) Peak factors were derived using consumption data by comparing each customer class’ average usage per account versus peak use per account.

Figure 3-6: Total Variable Cost by Customer Class

Category Description	Total Variable Cost	% of Variable Cost
Residential Metered Water	\$ 3,824,089	77.9%
Non-Residential	\$ 740,951	15.1%
Irrigation	\$ 170,965	3.5%
Residential Flat Water	\$ 173,243	3.5%
Total	\$4,909,248	100.0%

Commodity Charge Rate Design

The *Residential rate structure* is designed to reflect the additional costs associated with greater service demand. Each tier of the proposed two-tiered rate structure mirrors how additional costs are incurred by the utility with increasing levels of demand.

Tier Design- Similar to the EGWD’s current rates, a two-tiered rate structure reflects the proportionate increase in costs associated with the additional demand placed on the utility by different single-family customers. In keeping with the cost-of-service requirements of Article XIII D, Section 6 – the proposed rate structure reflects the higher cost of providing water, and the proportional costs of each tier based on each tier’s peak demand when compared to customers that remain in Tier 1 (base).

The *Tier 1* water allotment provides the typical single family residence with sufficient water for indoor needs as well as a suitable amount for outdoor needs based on the average irrigable area (landscape) of a single family home within EGWD’s boundaries. Using GIS and parcel data, the average residential lot size and home square footage was calculated to determine the outdoor needs of a typical single-family residence. Collectively, the two components were used for determining the water allotment of Tier 1. Indoor needs were determined by evaluating the usage characteristics of single-family residences during the winter-quarter average and achieving 85 gallons per day per capita. Outdoor needs were derived by providing sufficient water for the average irrigable area assuming the water needs of turf (8 gallons per day per 100 sq ft). The combined total of indoor and outdoor usage equals an allotment of approximately 27 HCF per month per account. However, usage varies on a monthly basis; therefore, the break point was set at 30 HCF.

Tier 2 allots water for all usage above Tier 1.

Costs related to the base variable rate component are allocated to each tier distributed by the overall consumption and calculated peak in that tier. This design reflects how the utility incurs higher costs to meet additional demand and increased peaking among accounts within the residential customer class.

Figure 3-7: Residential Variable Cost Tier Analysis

Residential Cost Allocation			
	Total	% of Base	Residential Cost
Base Cost	\$ 2,346,537	78.22%	\$ 1,835,565
Peak Costs	\$ 2,562,711	77.59%	\$ 1,988,524
Total	\$ 4,909,248		\$ 3,824,089

Residential Consumption Characteristics					
	FY 2013-14 Projected Consumption	Percent of Consumption (Base)	Peak Factor per Account	Weighted Peak by Consumption	Percentage of Peak (Max Day)
Tier 1	2,160,305	88.03%	1.00	2,160,305	70.22%
Tier 2	293,733	11.97%	3.12	916,235	29.78%
Total	2,454,039	100.00%		3,076,540	100.0%

Base Cost Allocation to Tiers			
	Base Allocation	Max Day Allocation	Total
Tier 1	88.03%	70.22%	\$ 3,012,174
Tier 2	11.97%	29.78%	811,915
Total	100.0%	100.0%	\$ 3,824,089

Non-Residential and Irrigation's rate structure are uniform rate structures (i.e., all units of water charged a single rate) rather than the tiered rate structure designed for residential. Customers within these customer classes vary considerably in size, use profile and needs, which makes it impractical and inequitable to place them in a "one size fits all" tiered rate structure without additional detailed data and analysis. At this point, EGWD is still converting non-metered customers to metered accounts and will also be looking into Automated Meter Reading in the future. Once these project/programs are completed, additional data can be compiled to customize the rate design on a per account basis. However, despite not being tiered, the uniform rate structure is built on the same cost components, and is derived based on the demand caused by these types of customers, as those used for residential customers, and ensures that these customer classes are paying for their proportionate share of incurred costs. Although presented together, Non-residential and Irrigation rates vary due to the different peaking factors associated with each class.

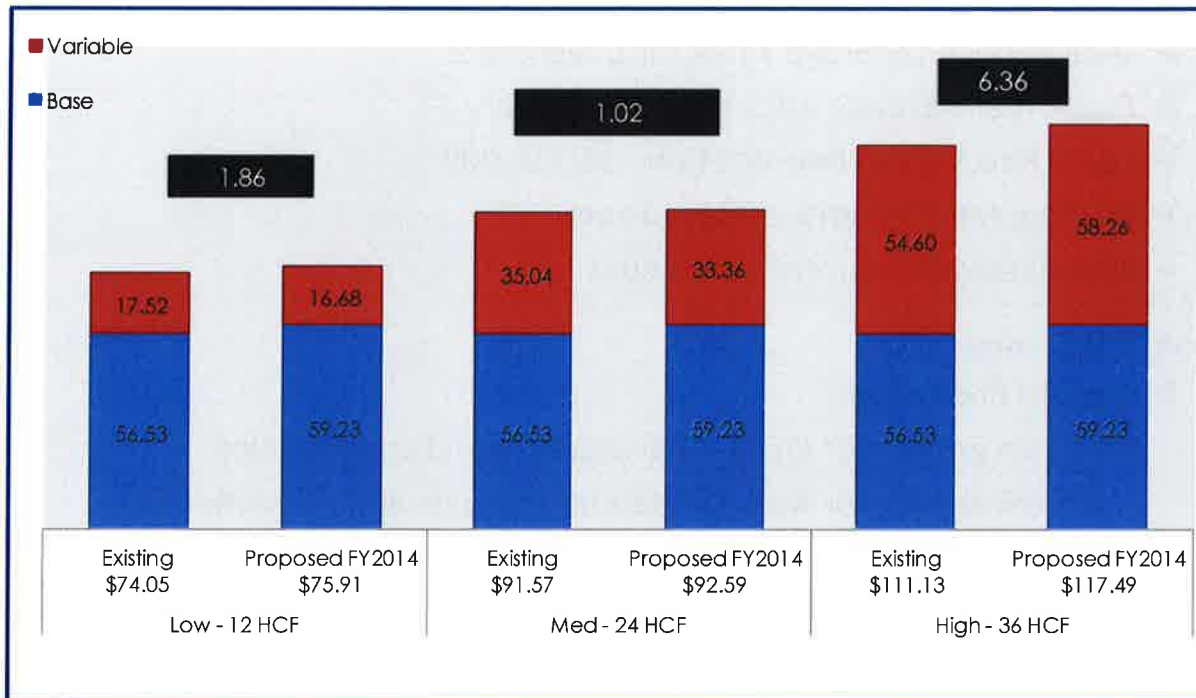
Figure 3-8: Recommended Water Commodity Rate (\$/HCF)

Commodity Charge		January 1, 2014	January 1, 2015	January 1, 2016	January 1, 2017	January 1, 2018
Residential Metered						
Tiered	Tier (HCF)					
Tier 1	0 - 30	\$ 1.39	\$ 1.44	\$ 1.48	\$ 1.53	\$ 1.60
Tier 2	30.01	2.76	2.85	2.93	3.04	3.17
Non-Residential						
Uniform		1.57	1.62	1.67	1.73	1.80
Irrigation						
Uniform		1.70	1.75	1.80	1.87	1.95
Residential Flat						
Monthly Charge		70.22	72.00	73.83	76.03	78.96

Customer Impacts

The recommended rates will provide EGWD with the necessary revenue to provide continued quality service without a significant impact on the average ratepayer. The figure below provides a sample water bill for a variety of single-family consumption levels. Appendix B provides seasonal usage characteristics of single-family residential accounts.

Figure 3-9: Single-Family Monthly Bill Comparison



Appendix A

District Financial Policies and Modeling Assumptions used in the Water Rate Analysis

District Financial Policies

- Operating Fund Balance target of 120 days
- Debt Service Coverage 125% for Covenant 1
- Debt Service Coverage 115% for Covenant 2
- Fiscal Year Revenue Adjustments – January 1st
- 100% Recovery of Depreciation - \$1,710,000
- Reserve requirements achieved each year
- No refinance of current debt issues

Modeling Assumptions

- Growth Projections
 - ✓ 0% growth for Residential accounts and consumption
 - ✓ 0% growth for Non-Residential accounts and consumption
- Inflation / Escalation Factors
 - ✓ Materials and Supplies - 3%
 - ✓ Treatment - 3%
 - ✓ Purchased Power – 5%
 - ✓ Salaries and Benefits - 6%
 - ✓ Pension Costs – 4%
 - ✓ Purchased Water – 5%
 - ✓ Other Production – 3%
 - ✓ Administration & General – 3%
 - ✓ Miscellaneous – 5%
 - ✓ Capital Expense – 3%
- Capital Improvement Costs funded through Rates and Reserves

Appendix A (cont.)

- Fixed/Variable Revenue Split
 - ✓ 65/35 – Two-Tiered Residential Rate Structure
 - i. Breakpoint between T1 and T2 = 30 HCF
- American Water Works Association Capacity (AWWA) ratios used to determine equivalent meters

Water Meter Equivalents			
Meter Size	GPM	Capacity Meter Ratio	Meter Count
1"	50	1.00	11,689
1.5"	100	2.00	78
2"	160	3.20	233
3"	300	6.00	14
4"	500	10.00	16
6"	1,000	20.00	4
8"	1,600	32.00	1
10"	2,300	46.00	-
Total			12,035

- Fire Protection Costs
 - ✓ Demand factors based on nominal size of connection raised to the 2.63 power per AWWA guidelines.

FIRE FLOW DEMAND	Number in Service	Demand Factor
Public Fire Service		
Total Public Hydrants	1,206	111.31
Private Fire Service (Connection Size, inches)		
2"	1	6.19
3"	4	17.98
4"	26	38.32
6"	146	111.31
8"	16	237.21
9"	-	323.34
10"	2	426.58
11"	-	548.10
12"	2	689.04
Total	197	

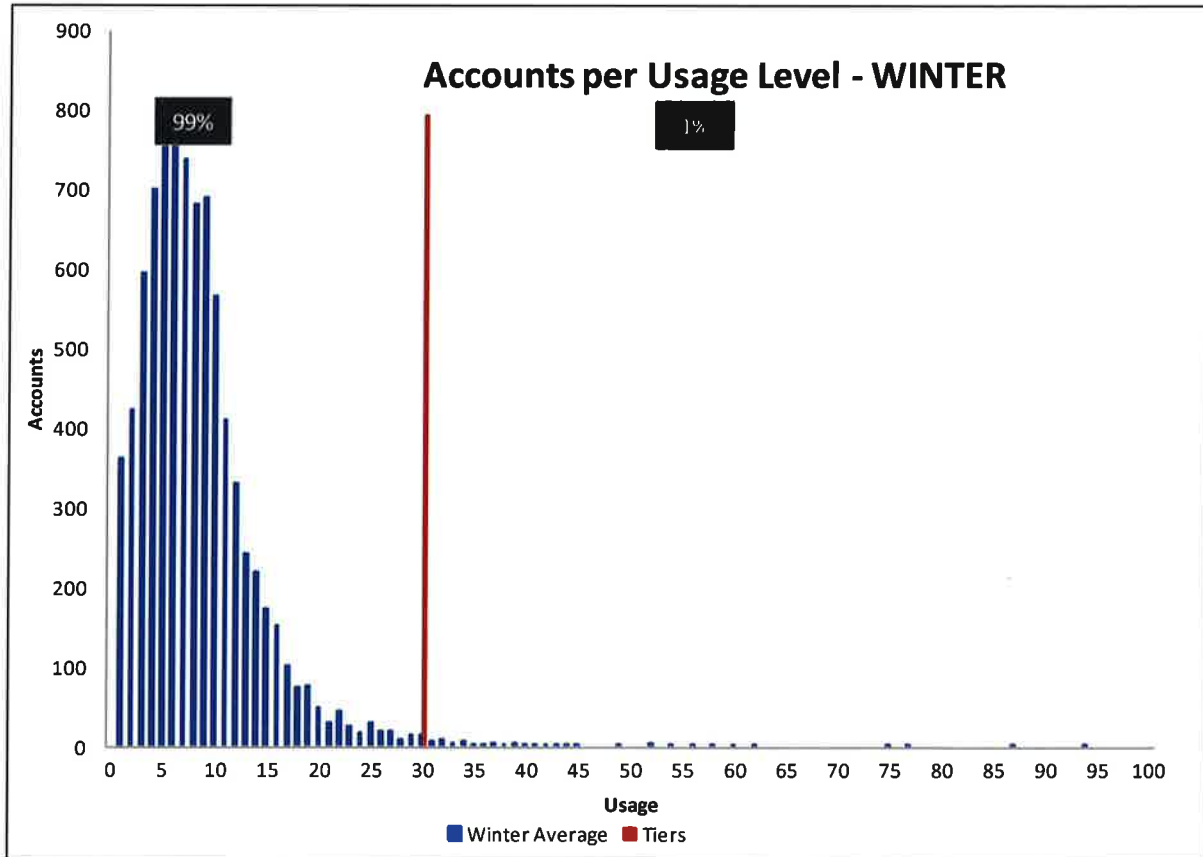
- ✓ Demand factor times number of service connections equals equivalent connections.

Appendix A (cont.)

FIRE FLOW DEMAND	Number in Service	Demand Factor	Fire Service Equivalent Connections	% of Total Fire Protection Costs
Public Fire Service				
Total Public Hydrants	1,208	111.31	134,241	85.2%
Private Fire Service (Connection Size, inches)				
2"	1	6.19	6	
3"	4	17.98	72	
4"	26	38.32	996	
6"	146	111.31	16,251	
8"	16	237.21	3,795	
9"	-	323.34	-	
10"	2	426.58	853	
11"	-	548.10	-	
12"	2	689.04	1,378	
Total	197		23,274	14.8%
Totals	1,403		157,515	100.0%

- ✓ Expected remaining non-metered accounts by July 1, 2013 equal to 1,314.

Appendix B



Appendix B (Cont.)

