EXHIBIT A

Seattle Public Utilities
2022-2023 Water Rate Study

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PREFACE – STRATEGIC BUSINESS PLAN COMPARISON

The 2021-2026 Strategic Business Plan Update sets a non-binding six-year rate and service path for Seattle Public Utilities, with a built-in three-year review and update. The SBP rate path was proposed nearly a year before this rate study. In the intervening time, several major assumptions were updated that create a variance between the SBP and the water rate proposal.

The two most impactful assumptions to be updated were wholesale revenue and the capital financing plan. Wholesale revenue was increased from the SBP after a decision to delay the wholesale rate study. Wholesale revenue is now expected to remain similar to levels in recent years. In the SBP, wholesale revenues were expected to decrease as overpayments in previous years were returned through lower rates in the SBP period. Delaying the wholesale rate study and increasing wholesale revenue reduces the revenue required from retail, lowering rate increases.

The capital financing plan also changed dramatically in the year between the SBP submittal and this rate study. Cash balances are at an all-time high for the Water Fund. Interest rates are also near all-time lows. To take advantage of those two factors, the Fund is planning to use approximately $79 million in operating and Revenue Stabilization Fund cash to defease existing high-interest debt. The 2021 new-money bond issue will have debt service be structured similarly to the defeased bonds so the overall debt structure will not change. After defeasance, debt service payments through 2034 are expected to be lower than they are currently. In addition, the Fund is planning to refund 2010B bonds as part of the 2021 issue, saving approximately $400 thousand per year through 2027, except 2022 where savings are expected to be almost $1.5 million.

The Strategic Business Plan Update was adopted by Council on May 10, 2021 with the passage of Resolution 32000. The plan was submitted mid-2020 but delayed by the COVID-19 pandemic.

Table P-1 compares the rate paths of the approved SBP, and the rate study proposal.

Table P-1
Comparison of Proposed and Adopted Retail Water Rates

	2021	2022	2023
Adopted Strategic Business Plan Update	0.0%	2.7%	4.7%
Proposed Water Rate Study	0.0%	2.6%	3.6%

1. EXECUTIVE SUMMARY

The water system is financed through an enterprise fund of the City of Seattle that is wholly supported by rate and fee revenues related to water service. In any given year, these rates and fees must be sufficient to pay the total costs of the water system and meet financial targets. This total cost is known as the **water system revenue requirement**. The majority of the water system's revenues are from direct service ("rates") revenues from wholesale and retail customers. Wholesale contracts determine the amount SPU charges for wholesale service in a given year. Thus, retail water rates and other revenues are the "balancing entries" that generate the difference between each year's total water system revenue requirement and wholesale revenues.

This study focuses on proposed retail water rates. **Chapter 1** provides an overview of proposed changes to the revenue requirement and their drivers, bill impacts, and projected financial performance. **Chapter 2** gives an overview of financial policy targets used in the development of the revenue requirement. **Chapter 3** provides additional detail on the various components of the proposed revenue requirement, including a discussion of demand and the low-income rate assistance program. **Chapter 4** discusses how the proposed revenue requirement is allocated between different customer classes. **Chapter 5** presents proposed rates by customer class, as well as an overview of the rate design, or rate structure, for each class. The **Appendices** present additional supporting data.

The combination of stable consumption and decisions on operational and capital spending by SPU management allowed for no rate increase in 2021 as rates set for 2020 were sufficient to meet financial targets for both years. Because rates were set for 2020, not 2021, references to prior years will be based on assumptions in the 2020 rate study. The proposed retail rates support increases to the **retail rate revenue requirement** of $7.8 million in 2022 and $7.9 million in 2023, for a combined $15.6 million over the two-year period. **Table 1-1** presents the change in the retail revenue requirement and the monthly impact of proposed rate increases on typical residential customers and a sampling of general service customers. The proposed rates will affect customer bills to varying degrees depending on the volume of water used.

Table 1-1
Proposed Water System Revenue Requirement and Bill Impacts

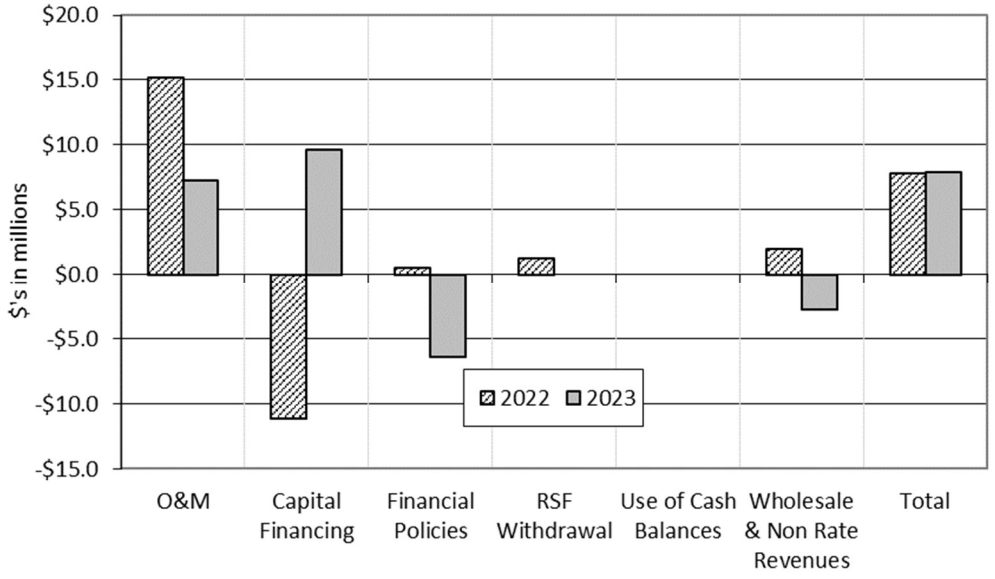
	2020*	2022		2023	
	Adopted	Proposed	Change from 2020	Proposed	Change from 2022
Retail Rate Revenue Requirement	$215,064,225	$222,846,494	$7,782,269	$230,692,928	$7,846,434
Typical Monthly Water Bills					
Residential	$45.69	$47.04	$1.35	$48.66	$1.62
Convenience Store	$107.30	$109.70	$2.40	$113.70	$4.00
Small Office Building	$342	$350	$8	$362	$13
Apartment Building (90 units)	$1,291	$1,320	$28	$1,368	$48
Medium Hotel	$8,026	$8,203	$177	$8,504	$300
Large Industrial	$19,387	$19,815	$428	$20,538	$723

*2020 amounts are based on the 2018-2020 rate study
Calculations may not total due to rounding

The overall water system expenditure is expected to increase $15.2 million between 2020 (the final year of the most recent rate study) and 2023. Proposed O&M spending increases of $22.5 million account for the entire spending increase. Offsetting proposed O&M increases, spending on capital financing (debt service and cash financing) and other financial policy requirements decreases by $7.3 million during the study period.

Retail rate revenue requirement changes are comprised of multiple drivers. **Figure 1-1** breaks down the change in each retail revenue requirement driver by year. The drivers of a new rate are based on the change in each underlying assumption used to create the previous rate. Therefore, assumptions for 2022 are compared to assumptions used for 2020 rates in the 2018-2020 rate study, and 2023 assumptions are compared to 2022. See Chapter 3 for more detail.

Figure 1-1
Change in Water Fund Retail Revenue Requirement Drivers by Year



The following section provides further description of the drivers presented in Figure 1-1. See Chapter 3 for further detail.

O&M (and Taxes)
Branch O&M has increased $13.1 million between the 2020 rate study and 2022 due to updated growth assumptions in labor costs, city central costs, and investments identified in the SBP. Taxes increased $2.1 million from the 2020 rate study amount.

Capital Financing
Figure 1-1 shows the combined impact of *cash* and *debt financing* of the capital program on the revenue requirement for 2022-2023. Capital financing is significantly less in 2022 than planned in the 2020 rate study due to reduced capital spending and borrowing during the prior rate study period. Capital spending is expected to increase in 2023 due to an increase in both debt service and cash financing.

Financial Policies
The Water Fund has four primary financial targets. Typically, rates are set to just meet all financial policies in each year. For this rate study, however, rates in 2022 are set to smooth rate increases over the study period. As a result, additional revenue is generated in 2022 which is then used to increase the cash balance and financing of the capital program. Debt service coverage is the binding policy target in 2023. See Chapter 2 for more detail on binding policy targets.

Revenue Stabilization Fund (RSF) Withdrawal
In this rate study, SPU is not proposing any withdrawals. Withdrawals from the RSF can be used to increase cash contributions to CIP or reduce retail rate revenue requirements. The 2020 rate study used a $1.2 million RSF withdrawal as a funding source. With no proposed withdrawal in 2022 rates must increase by $1.2 million to replace the one-time funding source.

Use of Cash Balances

After a review of financial policies and assessment of current finances, SPU is proposing to keep cash balances higher than the formal policy target. The long-term policy goal is to keep 120 days of operating expense, including taxes, in operating cash. In 2022, proposed operating cash is $85 million; the target is $63.7 million. Because cash balances are higher than the target, the current proposal is to allow the requirement to increase until it meets the cash balance.

The proposal to not draw down cash is based on Strategic Business Plan spending projections. Drawing cash down to the new target would allow the fund to increase cash funding of capital in the near term, but future rate periods would be negatively affected as cash would become the binding constraint and create a volatile rate path. In the projection period of 2024-2026, which falls outside this rate study, both O&M spending and CIP, and therefore cash financing, are increasing at such a pace that rates would have to increase rapidly. Keeping the proposed cash balances at $85 million actually lowers rates and bills from 2024-2026.

Wholesale & Non-Rate Revenues
Non-Rate Revenues are projected to be stable during the rate study period. Changes in projected wholesale revenue account for nearly all funding changes in this category. Wholesale revenues in 2022 are expected to be less than projected in the 2020 rate study, putting upward pressure on retail rates. An increase in 2023 wholesale revenue is projected to have the opposite effect.

Effects of Changes in Demand and Utility Discount Program (UDP)

While generally not a *revenue requirement* driver, changing demand for water is a significant *rate* driver. **Table 1-2** shows the impact of demand and UDP changes on the overall average rate increase. Projected demand in 2022 and 2023 is similar to demand assumed for 2020. A 2 percent increase in system connections allows for the revenue requirement to be spread among more customers, lowering rates for all customers. UDP growth continues to be a rate driver as the program continues to expand. Program enrollment increased dramatically during the COVID-19 pandemic. Enrollment is expected to grow as program awareness increases and the economic impacts of the pandemic continue.

Table 1-2
Impacts of Demand and UDP on Rate Increase

	2022	2023
Revenue Requirement Increase	3.6%	3.5%
Demand/Connections Impact	-1.3%	-0.2%
Utility Discount Program Impact	0.2%	0.3%
Average Rate Increase*	2.6%	3.6%

*Rates may not total due to rounding.

Financial Performance

The 2022-2023 rate study meets or exceeds all water system financial policy targets during the rate period as shown in **Table 1-3**. See Chapter 2 for further discussion of financial policy targets and their impact on rate setting.

Table 1-3
Water Fund Projected Financial Performance

($ in 1,000's)	Target	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025	Projected 2026
Net Income	positive	$43,923	$26,524	$26,523	$30,087	$22,617	$20,195
Debt Service Coverage	1.7x	2.00	1.80	1.72	1.88	1.72	1.72
Cash Financing of the Capital Program	20%*	19.9%	23.3%	21.4%	23.4%	20.6%	20.6%
from Contributions in Aid of Construction		7.3%	6.6%	5.7%	4.8%	5.8%	6.7%
from Rate Revenues		12.6%	16.7%	15.7%	18.6%	14.8%	13.9%
Year-End Operating Cash	varies**	$80,000	$85,000	$85,000	$85,000	$82,000	$82,000
Days of Operating Cash		158	160	154	147	134	128

* Current revenues should be used to finance no less than 15% of the CIP in any one year, and average not less than 20% over each rate proposal period.
** Planning target for year-end operating cash is 120 days of operating expense, or $63.7 million in 2021.

2. FINANCIAL POLICY OVERVIEW

Financial policies provide a guiding framework for the finances of the water utility. They represent a balance between the competing goals of fiscal conservatism through higher rates today and minimizing these same rates by spreading costs over time to future ratepayers. The direct effect of the policies is to determine the level at which water rates shall be set, given estimated costs and demand, and to define how the capital improvement program is to be financed.

The indirect effects of the policies are to:

- Shape the financial profile the utility presents to the financial community;
- Establish the utility's exposure to financial risk; and
- Allocate the utility's costs between current and future ratepayers.

In 2005, City Council passed Resolution 30742, which adopted new water system financial policies that reflect changes and additions to the financial policies initially adopted in 1992. This rate proposal is based on the 2005 policies which are as follows:

1. **Maintenance of Capital Assets.** For the benefit of both current and future ratepayers, the municipal water system will seek to maintain its assets in sound working condition. Future revenue requirement analyses will include provision for maintenance and rehabilitation of facilities at a level intended to minimize total cost while continuing to provide reliable, high quality service.

2. **Debt Service Coverage.** Debt service coverage on first-lien debt should be at least 1.7 times debt service cost in each year on a planning basis.

3. **Net Income.** Net income should generally be positive.

4. **Cash Funding of the Capital Improvement Program.** Current revenues should be used to finance no less than 15 percent of the municipal water system's adopted CIP in any year, and not less than 20 percent of the CIP over the period of each rate proposal. Cash in excess of working capital requirements may be used to help fund the CIP.

5. **Eligibility for Debt Financing.** Unless otherwise authorized by Council, the following criteria must be met before project expenditures are eligible for debt financing:
   i) Project is included in the CIP.
   ii) Total project cost exceeds $50,000.
   iii) Project has expected useful life of more than two years (more than five years for information technology projects).
   iv) Resulting asset will be owned or controlled by Seattle Public Utilities (SPU), is part of the regional utility infrastructure, or represents a long-term investment for water conservation.
   v) Consistent with generally accepted accounting practices, project costs include those indirect costs, such as administrative overhead and program management, that can be reasonably attributed to the individual CIP project.

6. **Revenue Stabilization Fund (RSF).** Ordinance 121761 requires that a target balance of $9 million be maintained in the RSF, except when withdrawals below this level are needed to offset shortfalls in metered water sales revenues, or to meet financial policy requirements. Withdrawals of funds in excess of the minimum balance will be used to meet operating expenses, to pay CIP expenditures, or

to meet financial policy requirements. Withdrawals from the RSF must be authorized by ordinance, except that Bonneville Power Administration (BPA) Account funds may be withdrawn based on BPA spending.

The Water Fund must deposit revenues in excess of planned metered water sales to the RSF in years where all financial policy targets are exceeded.

SPU may also make discretionary deposits to the RSF, provided that these discretionary deposits are in excess of the amounts required to meet the financial policy requirements. Should the RSF balance fall below the target balance, SPU will submit a water rate proposal that rebuilds the balance in the RSF within one year.

7. **Cash Target.** The adopted target for the year-end operating fund cash balance is one-twelfth of the current year's operating expenditures. SPU plans and targets a higher level of liquidity than the adopted policy in order to be responsive to changing market expectations from bond holders and rating agencies. The planning target is 120 days of operating expense including taxes. For this rate study SPU has modeled year-end cash in excess of the planning target. Keeping cash above the planning target eases cash demands during the second half of the strategic business plan. Keeping cash above the planning target prevents a situation where cash balances are required to increase along with increasing capital funding requirements.

8. **Variable Rate Debt.** Variable rate debt should not exceed 15 percent of total outstanding debt. Annual principal payments shall be made on variable rate debt in a manner consistent with fixed rate debt.

In any future year, the minimum revenue requirement is the lowest amount of money necessary to simultaneously satisfy all financial policies in that year. At this level of revenues, some financial policies may be exceeded, but none will be missed – the financial target that is exactly met is known as the binding constraint. For this rate study, however, rates were not set to just meet financial targets. As part of the Strategic Business Plan Update, rates were set to meet *rate* increase targets (a process commonly called rate "smoothing"). Proposed rates in both years will meet or exceed all financial policy targets.

3. RETAIL WATER REVENUE REQUIREMENT

The **water system revenue requirement** is the minimum amount of operating revenue required to fund the water system operating budget and meet financial policy targets for net income, cash balances, cash financing of the CIP, Revenue Stabilization Fund balances, and debt service coverage. The component requiring the greatest amount of revenue generation (budgetary expenses or one of the financial policy requirements) is termed the "binding constraint." The **retail water revenue requirement** is equal to the water system revenue requirement, less funding from sources other than retail rates including wholesale revenues, drawdowns of cash balances, withdrawals from the Revenue Stabilization Fund, and other operating/non-operating revenues.

Rate increases are required to fund increases in the revenue requirement from one rate setting period to the next. Where demand is constant, the average rate increase will equal the increase in the revenue requirement. Increasing demand (i.e., customers buying more units of water or more customer meters) will reduce the required rate increase and declining demand will increase the rate increase relative to the change in the revenue requirement. In addition, changes in participation in the utility discount program affect rate changes. Increased participation in the program reduces revenues as more households are paying a discounted rate. The reduction in revenue must be made up through an increase in standard rates.

Table 3-1 summarizes the components of the change in the retail water revenue requirement during the proposed rate period. Current (2020) rates were set in 2017 based on planned expenditures, demand, and other funding sources for the prior rate setting period (2018-2020). The change in the 2022 revenue requirement in Table 3-1, and throughout this section, is relative to the 2020 plan assumed in the 2018-2020 rate study. Likewise, the 2023 changes are relative to planned spending/income in 2022.

Table 3-1
Components of the Change in the Retail Water Revenue Requirement

($1,000's)	2020 Rate Study	2022	$ Change in Rev Req	% Change in Total Rev Req	2023	$ Change in Rev Req
Expenditure						
Operations and Maintenance Expense (O&M)						
Branch O&M	133,177	146,283	13,107	6.1%	151,902	5,619
Taxes	46,107	48,199	2,092	1.0%	49,861	1,662
Total	**179,284**	**194,482**	**15,198**	**7.1%**	**201,764**	**7,282**
Capital Financing						
Cash financing (target)	17,992	17,494	(499)	-0.2%	20,763	3,269
Debt Service	91,542	80,880	(10,662)	-5.0%	87,271	6,390
Total	**109,534**	**98,374**	**(11,160)**	**-5.2%**	**108,034**	**9,660**
Other Financial Policy Requirements						
Increase Cash Balance	1,000	5,000	4,000	1.9%	-	(5,000)
Additional Capital Program Funding	6,294	2,844	(3,451)	-1.6%	1,481	(1,363)
Total	**7,294**	**7,844**	**549**	**0.3%**	**1,481**	**(6,363)**
Total Expenditure	**296,112**	**300,699**	**4,588**	**2.1%**	**311,278**	**10,579**
Other Funding Sources						
Wholesale Revenues	(58,815)	(55,242)	3,573	1.7%	(57,580)	(2,338)
Non-rate revenues	(21,035)	(22,611)	(1,576)	-0.7%	(23,005)	(394)
RSF withdrawal	(1,200)	-	1,200	0.6%	-	-
Total Other Funding Sources	**(81,050)**	**(77,853)**	**3,197**	**1.5%**	**(80,585)**	**(2,732)**
Net Retail Rates Revenue Requirement	**215,062**	**222,846**	**7,785**	**3.6%**	**230,693**	**7,846**
Impact of Demand/Connections				-1.3%		
Change in Utility Discount Program	5,820	6,272	452	0.2%	6,882	610
Effective Increase in Retail Rates				**2.6%**		

Calculations may not total due to rounding

The **Expenditure** section of Table 3-1 presents the operating fund cash spending components that make up the water system revenue requirement. The **Other Funding Sources** section presents other sources of funding which reduce the amount of expenditure that must be recovered through retail rates. The final section of the table presents two items, "***Demand***" and "***Utility Discount Program,***" that do not affect the revenue requirement but do affect rates. For example, total expenditure increases the total revenue requirement by 4.7 percent from 2022 to 2023. However, increases in other funding sources (wholesale revenues and non-rate revenues) decrease the retail revenue requirement by 1.2 percent, resulting in a net increase of 3.5 percent in the 2023 retail rates revenue requirement. The actual average rate increase of 3.6 percent is higher than the revenue requirement increase due to a projected increase in utility discount utilization, which is partially offset by an increase in connections.

The following sections include more detailed descriptions of the components of change in the revenue requirement.

3.1. Operations and Maintenance Expense (O&M)

The water system O&M expenditure requirement includes costs attributable to water operations, as well as a portion of administrative expenses that water shares with other SPU funds (e.g., finance, customer service, etc.). For rate study purposes, O&M includes taxes but does not include debt service, which is discussed under capital financing. O&M is broken into two categories: Branch O&M and taxes.

Branch O&M equals the spending required to support operations and maintenance functions of the water utility. Under this proposal, 2022 Branch O&M increases $13.1 million from the 2020 amount as projected in the 2018-2020 rate study due to cost changes associated with updated growth assumptions in city central costs, pensions, and other labor costs. The proposal assumes an increase in Branch O&M of $5.6 million in 2023.

SPU pays three primary taxes, the City of Seattle Water Utility Tax, Washington State Utility Tax and the Washington State B&O Tax. While all three taxes are not applicable to all revenue sources, they all are revenue based taxes. As such, as revenue increases, tax expense increases. Taxes increase $2.0 million in 2022 and $1.7 million in 2023 due to a higher projected tax revenue base.

3.2. Capital Financing Expense

Financing of the capital program will decrease the expenditure requirement by 5.2 percent in 2022 and increase the requirement by 4.3 percent in 2023, as presented in Table 3-1.

Major water capital programs to be funded during this period include:

- Distribution System Improvements
- Transmission System Rehabilitation
- ‘Move Seattle’ Utility Relocation Projects
- Dam Safety Improvements
- Service Renewals and Retirements

SPU funds water system capital projects through a combination of cash (from direct service and non-rates revenue) and debt financing (revenue bonds and low-interest loans serviced by rates revenue). As discussed in Section 3.2.2, SPU will be issuing bonds in each year of the rate study. This rate study forecasts CIP cash financing that will exceed the financial target of 20 percent of CIP over the three-year rate period. The remaining CIP will be funded with revenue bond proceeds. **Table 3-2** presents CIP spending and financing assumptions during the rate period.

Table 3-2
Capital Spending and Financing Assumptions

($1,000's)	2022	2023	Rate Study Average
CIP Spending Assumption	87,469	103,816	
CIP Financing Breakdown			
Cash Financed	20,337	22,244	
Debt Financing			
Low Interest Loan	0	0	
Bond Financing	67,132	81,572	
Cash Financed Percentage	23.3%	21.4%	22.3%
Debt Financed Percentage	76.7%	78.6%	77.7%

3.2.1. Cash Financing (Target Only)

Water system financial policies require that a minimum of 20 percent of the CIP be financed with current cash revenues (as opposed to debt proceeds) over the rate period. The sources of cash that assist in meeting this 20 percent target are operating revenues, cash on hand, and contributions in aid of construction[1].

Although CIP cash financing is projected to exceed the financial policy target, this section discusses only the cash necessary to just meet the 20 percent cash financing target. The additional capital funding, over and above the cash financing target, is discussed in Section 3.3 and Section 3.4.

As presented in **Table 3-3**, targeted cash financing of the CIP decreases $0.5 million in 2022 and increases $3.3 million in 2023.

Table 3-3
Change in Target Cash Financing

($1,000's)	2020*	2022	$ Change	2023	$ Change
Cash Financed (Target)	17,992	17,494	(498)	20,763	3,269

* 2020 assumptions used in 2018-2020 Rate Study

[1] Customers often pay for water facilities when they connect to the water system or cause the relocation of water facilities. For example, a developer pays for installation of a water meter and service line when building a new house.

3.2.2. Debt Service

Table 3-4 presents projected Water Fund debt service, by source, during the rate period.

Table 3-4
Change in Water Fund Debt Service

($1,000's)	2020*	2022	$ Change	2023	$ Change
Debt Service Details					
Debt service for existing bond issues	89,296	78,509	(10,787)	79,244	734
2022 bond debt service**		-	-	5,685	5,685
2023 bond debt service**		-	-	-	-
Low interest loan debt service	2,246	2,371	125	2,342	(29)
Total Debt Service	91,542	80,880	(10,662)	87,271	6,390

* 2020 assumptions used in 2018-2020 Rate Study
** Bond principal and interest payments are assumed to begin in the year following issue
Calculations may not total due to rounding

In the third quarter of 2022, SPU expects to issue approximately $87.4 million in new revenue bonds. An additional $95.8 million of new money bonds are expected to be issued in the third quarter of 2023. SPU is proposing to issue bonds that are expected to fund roughly one year of CIP needs.

3.3. Other Financial Policy Requirements

As discussed in Chapter 2, proposed rates for 2022 and 2023 are not based on financial policy targets, but rather rate path targets designed to smooth the Strategic Business Plan rate path. Because revenues in these years are not set to just meet a binding financial target, all policy targets are exceeded.

In the approved SBP, capital spending and O&M are projected to increase substantially in 2024 and 2025, requiring increasing cash from rates. To help mitigate those increased demands for cash, this rate proposal creates a small cushion of additional cash balance. From a rate setting perspective, increasing cash balances act as a rate driver. Cash balance increases represent revenue that is raised above what is spent, increasing the Fund's revenue requirement.

Proposed rates will be used to increase the operating cash balance by $5 million in 2022. This will allow a small draw down of cash in future years to fund the cash-to-CIP requirement while remaining above the 120 days of cash target. Some additional rates revenue is proposed to also increase cash-to-CIP above the minimum 20% required during this rate period.

Table 3-5 presents how SPU proposes to spend revenues generated from financial policies over the three-year rate period.

Table 3-5
Impacts of Changes to Financial Policy

($1,000's)	2020*	2022	$ Change	2023	$ Change
Increase Cash Balance	1,000	5,000	4,000	-	(5,000)
Additional Capital Program Funding	6,294	2,844	(3,451)	1,481	(1,363)
Financial Polices	7,294	7,844	549	1,481	(6,363)

* 2020 assumptions used in 2018-2020 Rate Study
Calculations may not total due to rounding

3.4. Other Funding Sources

A significant portion of the total water system expenditure requirement is funded through wholesale revenues, capital contributions, asset sales, and other operating and non-operating revenues. These other funding sources reduce the amount to be recovered through retail rates and therefore are reflected as reductions to the retail revenue requirement in each year. Other funding sources, primarily wholesale and non-rate revenues, are projected to decrease from 2020 projections by $3.2 million in 2022.

3.4.1. Wholesale Revenues

Revenues from wholesale customers, as presented in **Table 3-6,** are expected to be decrease $3.6 million in 2022 from the assumed amount in the 2020 rate study.

Table 3-6
Change in Wholesale Revenues

($1,000's)	2020*	2022	$ Change	2023	$ Change
Full & Partial Revenue**	28,604	30,199	1,594	30,202	3
Cascade Block Revenue	24,081	19,702	(4,380)	21,867	2,165
Northshore Block Revenue	6,129	5,341	(788)	5,511	170
Total	**58,815**	**55,242**	**(3,573)**	**57,580**	**2,338**

* 2020 assumptions used in 2018-2020 Rate Study
** Includes facilities charge revenues and Renton conservation payment.

Rates for wholesale customers have not yet been approved for 2022-2023, but will be proposed in accordance with wholesale contracts. These contracts define cost of service methodologies that determine how much the water system charges for wholesale service. Wholesale rate studies apply these methodologies based on expenditure projections (budget). Wholesale rates may be affected by actions that raise or lower the water system O&M or CIP budget. Outside of budget changes, there is very little flexibility to alter wholesale rates and revenues.

3.4.2. Non-rate Revenues

As presented in **Table 3-7**, other non-rate revenue (unmetered revenue) is projected to increase from $21.0 million assumed for 2020 to $22.6 million and $23.0 million in 2022 and 2023, respectively.

Table 3-7
Change in Non-Rate Revenues

($1,000's)	2020*	2022	$ Change	2023	$ Change
Unmetered Revenues					
Capital Contributions & Tap Fees	14,756	13,838	240	14,083	245
Operating Fund Interest Income	93	333	(283)	342	9
Charges for Miscellaneous Services	2,569	4,357	106	4,466	109
Rentals & Others	3,325	1,414	27	1,442	28
Build America Bonds Reimbursement	2,080	1,571	(48)	1,520	(51)
Billing leads & lags	(1,789)	1,097	687	1,152	55
Total Unmetered Revenues	21,035	22,611	729	23,005	394

* 2020 assumptions used in 2018-2020 Rate Study

The largest category of other non-rate revenues is capital contributions and tap fees, which are projected to be modestly lower during the rate period. Construction and development in Seattle have

sustained a torrid pace since 2013, and the projection reflects a modest regression in development activity partially offset by increased prices for new services.

Billing leads and lags are year-end cash effects that adjust for differences in when an expense (or revenue) is recorded in SPU financial systems[2] versus when the associated cash is paid (or received). These lags/leads result in an impact on rates when their sum dollar amount changes from year to year. The leads/lags presented in Table 3-8 are primarily associated with changes in the timing of CIP billed to SPU from year to year.

3.4.3. Revenue Stabilization Fund Withdrawals

As discussed in Chapter 2, the minimum balance in the RSF is $9 million. From a rates perspective, withdrawals from the RSF are part of the other funding sources pool. Increases in withdrawal size add to this pool and therefore reduce the retail rate revenue requirement. Decreases in withdrawal size reduce the size of this alternative funding pool and increase the direct service funding requirement.

At the end of 2020 the RSF balance was $60.1 million. A $19.0 million withdrawal is planned in 2021 to defease high-interest rate debt. The projected beginning balance for 2022 is $41.7 million. In this rate proposal, SPU does not propose any withdrawals from the RSF.

Table 3-8 presents projected RSF balances.

Table 3-8
Projected Water Revenue Stabilization Fund Balances

($1,000's)	2020*	2022	2023
Beginning RSF Cash Balance	28,419	41,697	42,114
Interest	284	417	421
Deposit (Withdrawal)	(8,300)	0	0
Ending RSF Cash Balance	**20,403**	**42,114**	**42,535**

* 2020 assumptions used in 2018-2020 Rate Study

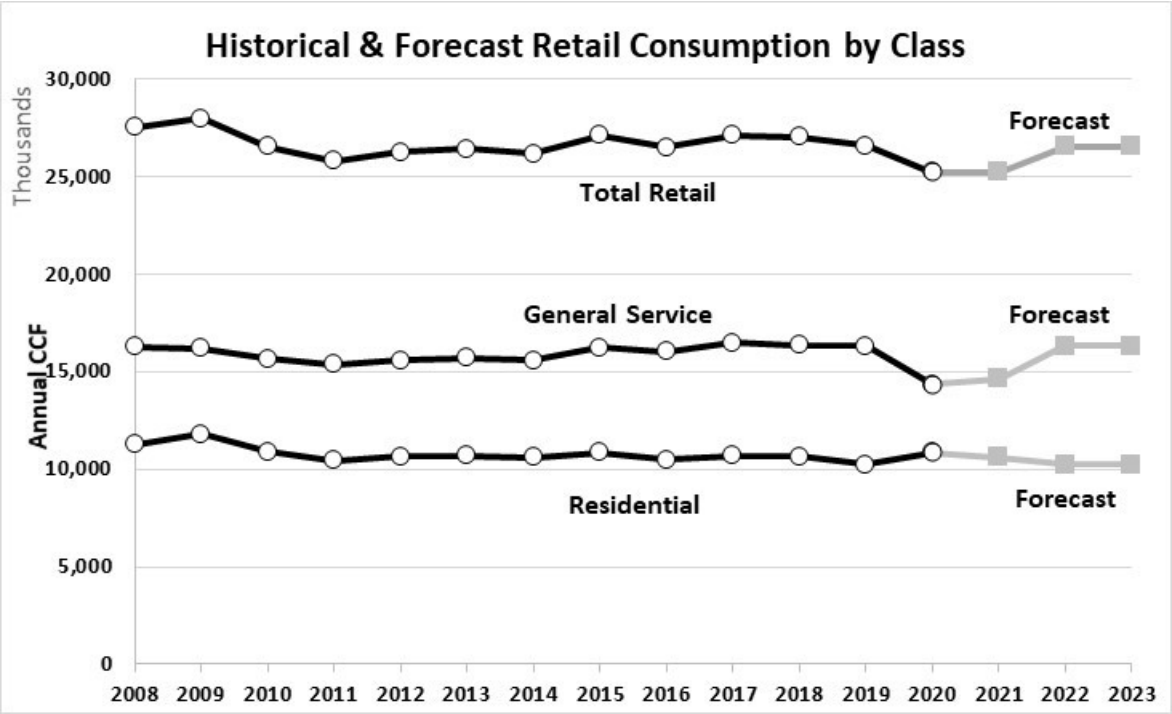
3.5. Effect of Demand (Rate Adjustment)

The volume of water sold to retail customers is projected to remain flat over the forecast period. For the rate study period, total retail consumption is expected to be 26.6 million CCF per year. Consumption is expected to remain the same in both residential and general service customer classes.

Despite generally growing population and employment, water consumption through the 1990s and 2000s trended downwards due to various forms of conservation (programs, efficiency codes and standards, rising water and sewer rates, etc.). With the end of the 1% Conservation program in 2011 and a rebound in employment after the Great Recession, water consumption appears to level off until 2020 when the COVID-19 pandemic disrupted regular activity. As shown in **Figure 3-1**, consumption is expected to remain at 2020 levels in 2021, before returning to levels of the previous decade**.** The effects of growth and conservation are forecasted to largely offset each other once pandemic restrictions are lifted.

[2] In general, revenues are recorded when billed and expenses when invoiced.

Figure 3-1



"Weather adjusted" consumption normalizes consumption to average historical summer weather.

Consumption levels for the rate study period are expected to be similar to the average consumption from 2012 through 2019. The COVID-19 pandemic, and the public health response, dramatically altered water consumption patterns in 2020. State-mandated shutdowns of non-essential businesses, along with capacity limits on indoor spaces, dramatically reduced water consumption for the General Service class. Conversely, water consumption for the Residential class increased as many people spent more time at home, including work from home.

While there will be residual effects from the pandemic, for this rate study consumption is forecast to return to pre-pandemic levels for each customer class. Consumption changes will continue to be studied and known effects will be incorporated in the next rate setting period. Rate Study water demand is shown in Figure 3-1 and in **Table 3-9**.

Table 3-9
Short Term Water Consumption Forecasts (Annual ccf)

	Residential		General Service		Total	
	Consumption (CCF)	Percent Change	Consumption (CCF)	Percent Change	Consumption (CCF)	Percent Change
Actual						
2019	10,258,052		16,311,787		26,569,839	
2020	10,865,609	5.9%	14,363,941	-11.9%	25,229,550	-5.0%
Projected						
2021	10,600,000	-2.4%	14,650,000	2.0%	25,250,000	0.1%
2022	10,245,000	-3.3%	16,312,000	11.3%	26,557,000	5.2%
2023	10,245,000	0.0%	16,312,000	0.0%	26,557,000	0.0%

In terms of the impact of demand on water rates, increases in consumption and the number of water meters partially offset increases in the retail revenue requirement. Water rates are made up of a fixed base service charge as well as a consumption charge. Water consumption is the unit of demand for the consumption charge while number of customers (measured by the number of meters) is the unit of demand for the base meter charge. When the number of meters increases, the customer base broadens. Residential meters are projected to increase 0.6 percent annually, and commercial meters are projected to increase by a smaller amount during the 2022-2023 rate period.

As mentioned above, these combined changes in consumption and meters are a portion of the difference between the increase in revenue requirement and the increase in the rate. The impact of these rate drivers is shown in **Table 3-10**. Increased consumption in 2022 compared to 2020 slows rate growth. Similarly, increased meters in 2022 and 2023 also slow rate growth compared to prior years. Because revenue from consumption is significantly higher than from meters, volumetric changes are more impactful to rates than meter growth.

Table 3-10
Effect of Demand on Rate Increase

	2020*	2022	$ Change	2023	$ Change
Total Consumption (thousand ccf)	26,480	26,557	77	26,557	0
Total Retail Meters	197,498	201,005	3,507	202,156	1,151
Effect on Rate Increase			-1.3%		-0.2%

* 2020 assumptions used in 2018-2020 Rate Study

3.6. Effect of Changes in the Utility Discount Program (Rate Adjustment)

Similar to demand, changes in customer participation in the UDP do not affect the Water Fund revenue requirement but do affect the rate increase. Increased participation in the program reduces revenues as more households are paying a discounted rate. The reduction in revenue must be made up through an increase in standard rates. Enrollment in the program has increased steadily since the mid-2010s, with a spike in 2020 due to the COVID-19 pandemic and subsequent economic disruption. Enrollment and revenue reductions are projected to continue rising during the rate study period. The effect on rates is shown in **Table 3-11**.

Table 3-11
Effect of Changes to Utility Discount Program on Rate Increase

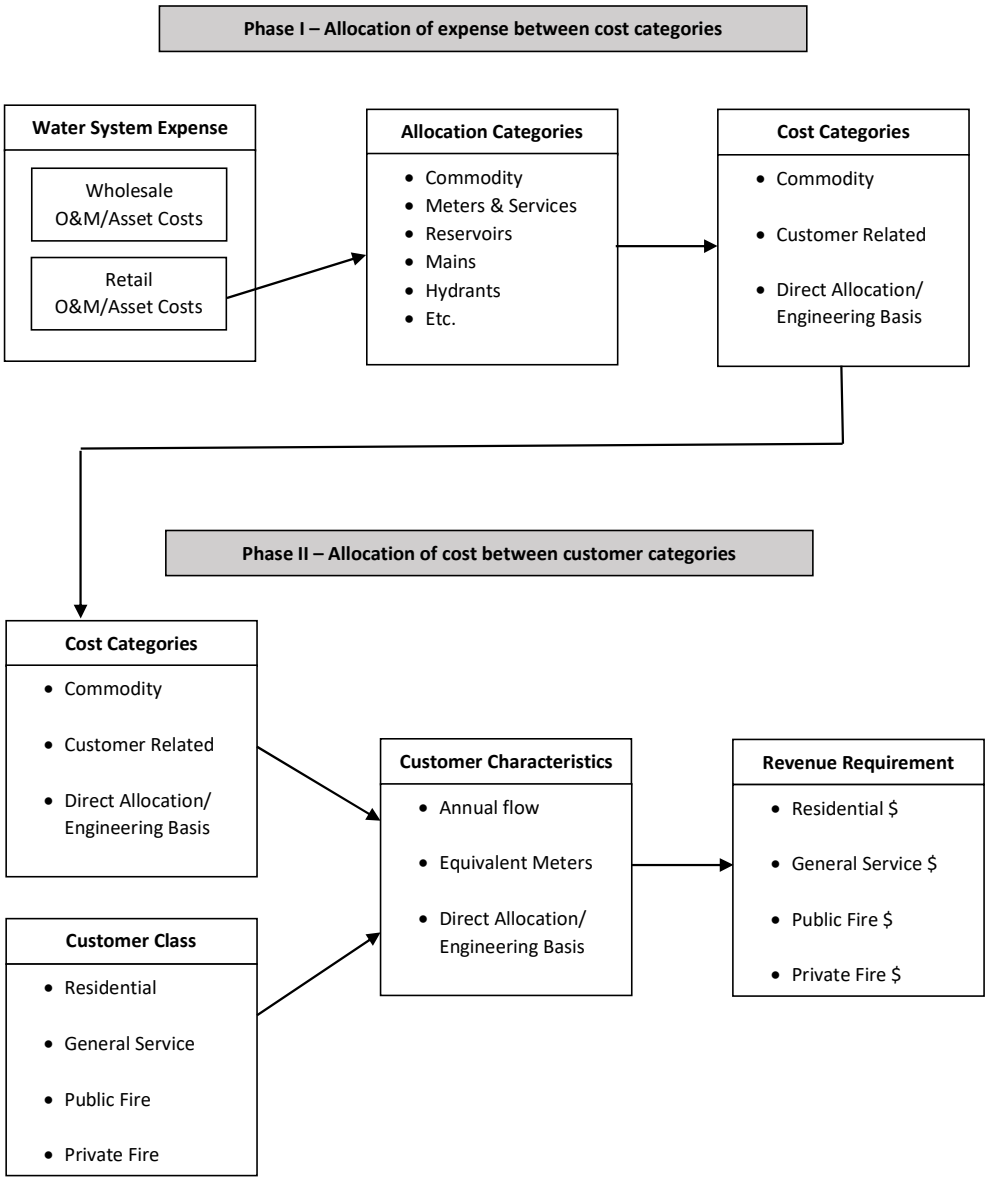
($1,000's)	2020*	2022	$ Change	2023	$ Change
Total Discount	5,820	6,272	452	6,882	610
Effect on Rate Increase			0.2%		0.3%

* 2020 assumptions used in 2018-2020 Rate Study

4. COST ALLOCATION

Once the **retail revenue requirement** is set, it must be assigned to different customer classes. A customer class is a group of customers that places a unique cost on the utility or is administratively easier to serve as a group. **Figure 4-1** presents the multiple steps (divided into two phases) required to allocate water expense to individual customer classes. In the first phase, the retail component of water system expense is allocated between cost categories, or groupings of cost items, that are driven by similar factors. In the second phase, the cost assigned to each cost category is allocated between customer classes based on defined customer characteristics.

Figure 4-1
Cost Allocation Process



The cost allocation process presented above recognizes differences in the costs of providing service to different types of customers. For example, a customer class with higher consumption requires increased

use of the water treatment plants, whereas a customer class with more accounts requires increased use of the customer billing system.

This chapter provides a general framework for **Phase I** of the cost allocation process, with complete details provided in Appendix A. This chapter then focuses on **Phase II** of the cost allocation process, organized as follows:

- Overview - cost categories
- Framework for allocation of retail water expense between cost categories (Phase I)
- Identification of customer classes and quantification of cost allocation characteristics (Phase II)
- Calculation of total cost of service, or revenue requirement, for each customer class (Phase II)

The current rate study does not propose any fundamental changes to the cost allocation methodology used in prior rate studies. While the cost category of capacity was eliminated from the 2016-2017 rate study, the effect on final allocations is negligible. The change was made for two reasons:

1) Due to falling demand, the current system is oversized from a cost allocation standpoint so very few assets were allocated using the capacity allocator, and
2) The difference in peaking characteristics of residential and general service has diminished as demand has fallen, so the allocator does not provide much distinction between customer classes.

4.1. Overview – Cost Categories

Retail water system costs are grouped into three main cost categories which can be allocated among customer classes based on customer characteristics: commodity, customer-related, and directly assigned. The costs assigned to the first two categories are shared among different customer classes based on characteristics such as total annual water volume and number of accounts. Costs included in the directly assigned category are assigned in their entirety to the applicable customer classes.

Commodity Costs. Commodity costs vary proportionately with the amount of water provided under average consumption conditions. These costs include items such as the Cedar and Tolt treatment plants, and chlorination at in-town reservoirs. They also include the cost of activities and assets that are shared with wholesale customers since the allocation between wholesale and retail is based on annual flow.

Customer-Related Costs. Customer-related costs encompass an umbrella of expenses associated with serving customers independent of the amount of water they use. These include the cost of meter maintenance and repair, meter reading, billing, customer accounting, and the call center.

Directly Assigned Costs. These are costs that are directly allocable to a single customer class. For this rate study, directly assigned costs are primarily fire hydrant asset and repair costs.

4.2. Framework for Allocation of Retail Expense to Cost Categories (Phase I)

The cost allocation framework for retail water rates uses the distribution of embedded or average costs from a prior period (“test year”) to allocate future revenue requirements between different cost categories. Therefore, the 2022-2023 retail water system revenue requirements are assigned to customer classes based on the actual distribution of expense between those categories in 2019 (the test year). The test year expense is defined according to a “utility basis” which is the sum of the following elements:

- Annual operations and maintenance (O&M) costs;

- Depreciation expenses on assets paid for by rates; and
- A return on assets calculated on infrastructure in service.

Phase I of the cost allocation involves the distribution of prior year expense between cost categories, as further described in Appendix A, Sections A1.2 and A1.3. Additional information on the "utility-basis" costing framework can be found in Appendix A, Section A1.1 to this study.

Table 4-1 presents the breakdown of 2019 retail water system expense by cost component (see **Appendix A** for the detail behind this data). As noted below, over two-thirds of retail water system expense is driven by annual water flow (usage).

Table 4-1
Water Cost Category Summary

Component Cost Category	2019 Revenue	% of Total
Annual Flow	110,547,969	69.5%
Equivalent Meters	39,871,181	25.1%
Direct/Engineering Basis*	8,680,081	5.5%
Total	**159,099,231**	**100.0%**

*Public Fire

4.3. Retail Customer Classes and Characteristics

Retail water customers are divided into four customer classes.

- **Residential.** Customers living in single family or duplex residences.
- **General Service.** Commercial, governmental, and industrial customers as well as multi-family residential structures.
- **Private Fire.** The separately metered connections for fire-protection sprinkler systems installed on the customer's property. These customers pay a separate rate for these services in addition to their General Service or Residential rates for their domestic services.
- **Public Fire.** The governmental agencies responsible for providing public fire protection (hydrants).

Costs are assigned to these customer classes based on how the characteristics of each class drive water system costs. **Table 4-2** summarizes the allocator (customer characteristics) used to assign cost to each component cost category.

Table 4-2
Allocators by Cost Category

Allocation Category	Customer Characteristics	Comments
Commodity Costs	Annual flow	Actual 2015 total water consumption in hundreds of cubic feet (ccf).
Customer-Related Costs	Equivalent Meters	Equivalent Meters is a weighted count of different sized meters by class (See Appendix A1.5 for calculation details).
Direct Assignment	Class specific expense assigned directly to applicable class	These are costs for activities or assets that are dedicated to one customer class only.

Table 4-3 quantifies the key characteristics (by class) that are used to allocate commodity and customer-related costs in the current rate study.

Table 4-3
Key Customer Characteristics

Customer Class	Annual Flow	Equivalent Meters
Residential	38.5%	73.3%
General Service	61.2%	21.8%
Private Fire	0.1%	4.9%
Public Fire	0.3%	0.0%
Total	**100.0%**	**100.0%**

As shown in the table, the residential class accounts for the majority of equivalent meters while the general service class accounts for the majority of annual water usage. Although public fire water use is not directly measured, the annual flow used is consistent with the estimate used for state non-revenue water reporting.

4.4. Cost of Service and Revenue Requirement by Customer Class

The customer characteristic percentages in Table 4-3 are applied to the appropriate 2019 allocation categories in Table 4-1 to determine each customer class' actual 2019 cost of service. **Table 4-4** summarizes the results of this allocation process.

Table 4-4
Retail Water Cost of Service Based on 2019 Actual Financial Data

Customer Class	Annual Flow	Equivalent Meters	Direct/ Engineering Basis	Total	% of Total
Residential	42,530,308	29,215,916	-	71,746,224	45.1%
General Service	67,629,343	8,696,085	-	76,325,429	48.0%
Private Fire	80,703	1,959,180	-	2,039,883	1.3%
Public Fire	307,616	-	8,680,081	8,987,696	5.6%
Total	**110,547,969**	**39,871,181**	**8,680,081**	**159,099,231**	**100.0%**

Allocations to the general service and residential customer classes account for the bulk (93.1 percent) of the retail water cost of service. Public and private fire represents only about seven percent of the total. The general service class is allocated the largest single share (48.0 percent). This class accounts for 61.2 percent of annual flows, which is applied to the largest portion of the water system revenue requirement.

The rate revenue requirements for each rate class are calculated by applying each class' percent of total 2019 cost to the 2022-2023 retail rates revenue requirements, with results as presented in **Table 4-5**.

Table 4-5
2022-2023 Retail Revenue Requirement By Customer Class

Customer Class	2022	2023	Cost of Service Percentage
Residential	100,493,310	104,031,684	45.1%
General Service	106,907,112	110,671,316	48.0%
Private Fire	2,857,220	2,957,823	1.3%
Public Fire	12,591,998	13,035,363	5.6%
Total	**222,849,640**	**230,696,185**	**100.0%**

Using the same general allocation framework as the 2018-2020 rate proposal, there is little movement in the cost shares by customer class. **Table 4-6** illustrates the small changes for the 2022-2023 rate study relative to the 2018-2020 rate study. See Appendix A for more information.

Table 4-6
Cost Shares by Customer Class

Customer Class	2018-2020 Rate Study	2022-2023 Rate Study
Residential	45.0%	45.1%
General Service	47.9%	48.0%
Private Fire	2.2%	1.3%
Public Fire	5.0%	5.6%
Total	**100.0%**	**100.0%**

5. RATE DESIGN

Rate design is the last element of the rate study. Chapter 3 presented the amount of retail water revenue required to fund proposed 2022-2023 O&M and capital programs while meeting financial targets. Chapter 4 discussed the allocation of the revenue requirement between customer classes. This chapter identifies the rate structure and the proposed 2022-2023 rates, which will satisfy the retail revenue requirement and meet established rate design policy objectives.

The current rate study keeps the same rate structure as previous studies. However, some design practices are changed. In past studies, meter and commodity charges were the same for residential and general service customers. This study breaks that rate parity[3] and has meter and commodity rates for each class move independently. In this study, meter charges and commodity charges increase at the same rate within a customer class, a change from previous practice. The practice of changing meter and commodity charges at the same rate within a customer class balances rate increases equally among all customers within that class.

Continuing practice from previous rate studies, meter charges utilize the meter cost analysis from the 2009-2011 rate study in determining the differential (or progression) between charges for different size meters. No changes are proposed to some rates (larger meter charges), which are higher than their cost of service at current levels. Holding these rates constant rather than decreasing them somewhat mitigates the impact of the revenue requirement increase on the residential and general service commodity rate and provides rate stability.

The proposed rates increase the typical monthly residential bill by $1.35 in 2022 and $1.62 in 2023. The total increase over the two-year period is $2.97. Typical residential consumption has remained at 5.0 ccf per month in the 2022-2023 rate proposal. The exact increase in general service bills varies based on consumption and meter size. A typical convenience store would see increases of $2.40 and $4.00 per month for 2022 and 2023, respectively. Likewise, a typical 90-unit apartment building would see increases of $28 and $48 per month. Rates for public fire on larger mains increase 15.6 percent and 3.0 percent in 2022 and 2023, respectively**.** Private fire meter rates and consumption rates do not increase in this rate study as current revenue meets revenue requirements for the study period.

5.1. Rate Design Overview

A utility rate structure, or rate design, typically considers three elements: classification of customers served, billing frequency, and schedule of charges for each customer class. The schedule of charges, or "rates," is designed to recover the utility's costs, given projected customer demand[4]. In addition to cost recovery, a rate structure should support and optimize a blend of various utility objectives and should work as a public information tool in communicating these objectives to customers.

[3] Rate parity began in 2008 when costs of service, consumption, and meter counts aligned to make it possible for rates to be equal between residential and general service classes. Over time, to keep rate parity, base service rates had to increase faster than commodity rates. This disparity led bill increases to be weighted to lower-volume customers within each customer class.

[4] Section 3.5 discusses projected customer demand and its influence on rates during the rate period.

5.1.1. Retail Water Rate Structure

Seattle's retail water customers are grouped into four broad customer classifications: Residential, General Service, Private Fire (e.g., building sprinklers), and Public Fire (municipal hydrants). SPU has developed rate structures for each of these customer classes which reflect the classes' cost of service structure, demand patterns, and policy objectives. A given rate class may be further divided into sub-classes. While the rate structure for each sub-class (under the same primary class) will be similar or identical, the actual rate assigned to each sub-class will vary based on actual differences in cost of service or historical contractual requirements. **Table 5-1** provides a summary of Seattle's retail water rate classes, subclasses, and associated rate structures.

Table 5-1
Retail Water Rate Structure Summary

Class	Sub-class	Rate Structure
Residential	• In-City • Out-of-City • Shoreline Franchise • Lake Forest Park Franchise • Burien • Master-Metered Developments*	• Base Service Charge (meter-size based) • Single Off-Peak Commodity Rate • Tiered Peak Commodity Rate • Low-Income Rates
General Service	• In-City • Out-of-City • Shoreline Franchise • Lake Forest Park Franchise • Burien • Mercer Island	• Base Service Charge (meter-size based) • Single Off-Peak Commodity Rate • Single Peak Commodity Rate
Private Fire	• In-City • Out-of-City • Shoreline Franchise • Lake Forest Park Franchise	• Base Service Charge (meter-size based) • Commodity Penalty Rate
Public Fire (hydrants)	• In-City/Out -of-City • Burien	• Charge for 4-inch mains • Charge for larger mains

*****For rate setting purposes, there are two kinds of Master Metered Residential Developments (MMRDs). MMRDs are eligible to be classified as water systems by the State of Washington. Customers that have achieved that designation, and pay State Public Utility Tax on their revenue, are eligible for a lower rate from SPU. SPU does not pay State Public Utility Tax on revenues from those customers. MMRDs that do not pay State Public Utility Tax are subject to regular rates.

Section 5.1.2 discusses the objectives that have been considered in the development of the rate structures outlined above. Sections 5.2 through 5.5 provide additional detail on the rate structures by customer class and subclass. **Appendix C** lists all 2022-2023 rate schedules by class and sub-class.

5.1.2. Rate Objectives

SPU staff, with input from past Rate Advisory Committees, have identified the following policy objectives for the retail water rate design:

- Provide financial soundness;
- Advance economic efficiency;
- Promote customer equity;
- Encourage customer conservation;
- Contribute to transparency and customer understanding; and
- Reduce impacts on low-income customers.

Some of these objectives imply different directions in rate design than others. An appropriate rate design must strike the best overall balance among conflicting objectives. The first objective of financial soundness is overriding and should be met by all rate designs considered. The final objective of reducing impacts on low-income customers is partly met by a citywide program, in which SPU participates, to provide discounts to low-income and disabled customers. The remaining objectives are met to varying degrees by the individual rate structures, as further discussed in Sections 5.2 through 5.5.

5.2. Residential Rate Design

Residential accounts represent about 87 percent of total SPU retail water accounts. Residential customers are further broken into five subclasses: in-city customers, City of Shoreline/City of Lake Forest Park customers, Burien customers, other out-of-city customers, and master-metered customers. Low-income customers in any of these residential subclasses may qualify for a discount off their water utility bill. This section provides additional detail on the components of the residential rate design, the residential rate changes, residential rate subclasses and the UDP.

Under the proposed rates, a typical (median) single family residential bill will increase by **$1.35** per month in 2022 and **$1.62** per month in 2023 (given constant consumption). The impact for different residential customers can vary based on the amount of water used, as presented in **Table 5-2**.

Table 5-2
Monthly Residential Bills at Proposed Rates

Customer Type	Monthly Consumption		2020 Adopted	2022 Proposed	Change from 2020	2023 Proposed	Change from 2022
Low Volume	Winter	2.9	$34.11	$35.12	$1.01	$36.30	$1.18
User	Summer	3.8	$39.54	$40.70	$1.16	$42.10	$1.40
(30th %tile)	**Average**	**3.2**	**$35.92**	**$36.98**	**$1.06**	**$38.23**	**$1.25**
Median	Winter	4.7	$43.83	$45.13	$1.30	$46.67	$1.54
User	Summer	5.5	$49.42	$50.87	$1.44	$52.64	$1.77
(50th %tile)	**Average**	**5.0**	**$45.69**	**$47.04**	**$1.35**	**$48.66**	**$1.62**
High Volume	Winter	9.8	$71.37	$73.49	$2.12	$76.05	$2.56
User	Summer	13.4	$103.82	$106.85	$3.03	$110.69	$3.84
	Average	**11.0**	**$82.19**	**$84.61**	**$2.42**	**$87.59**	**$2.98**
Typical 3rd Tier	Winter	6.7	$54.63	$56.25	$1.62	$58.19	$1.94
User	Summer	23.5	$200.28	$204.23	$3.95	$209.26	$5.03
	Average	**12.3**	**$103.18**	**$105.58**	**$2.40**	**$108.55**	**$2.97**

Calculations may not total due to rounding

Note: All bill impacts are for in-city customers and assume a ¾" meter.

5.2.1. Residential Rate Structure

Residential customers pay a fixed base service charge plus a commodity rate. The commodity rate is a single rate in the off-peak season (September 16 – May 15) and a three-tiered rate structure in the peak season (May 16 – September 15).

Base Service Charge

The base service charge is a fixed monthly fee which varies by water meter size. This charge is structured to reflect that some costs are not related to the volume of water used. The cost differential, or progression, between different meter sizes is based on 1) annualized costs, by meter size, for meter maintenance, testing, repair, replacement and service renewal; and 2) annual customer service costs. The progression used in this proposal is based on data from the 2009-2011 rate study.

Commodity Rate

Residential commodity rates are seasonal, with tiered peak (May 16 – September 15) rates and uniform off-peak (September 16 – May 15) rates. Peak season rates are higher than off-peak rates and tiered for residential customers to provide a disincentive for wasteful summer water usage.

Peak residential commodity rates consist of three tiers associated with differing usage volumes: 1) the lowest rate is charged on consumption up to five ccf/month; 2) the next 13 ccf/month (six to 18 ccf) is charged a higher rate; and 3) the highest rate is charged on consumption above 18 ccf/month. Historically, one out of fifteen residential customers has some consumption at the third-tier level each year. In the past, the City has implemented a third-tier on a temporary basis to discourage water use under drought conditions. This tier became a permanent feature of the water rate structure in 2002 in

response to the legal requirement of initiative I-63[5]. This rate study holds constant third-tier rates through 2023.

5.2.2. Residential Increase

This study includes increases in residential commodity rates and meter base service charges. The residential rate schedule for inside city customers is presented in **Table 5-3.**

Table 5-3
Proposed Residential Rates

	Current Rate	2022 Rate	2023 Rate
Commodity			
Off-Peak ($/ccf)	$5.40	$5.56	$5.76
Peak ($/ccf)			
Up to 5 ccf/mo	$5.55	$5.71	$5.92
Next 12 ccf/mo	$6.86	$7.06	$7.32
Above 18 ccf/mo	$11.80	$11.80	$11.80
Base Service Charge			
3/4 inch	$18.45	$19.00	$19.60
1 inch	$19.00	$19.60	$20.20
1 1/2 inch	$29.35	$30.20	$31.15
2 inch	$32.50	$33.45	$34.50
3 inch	$120.30	$123.90	$127.80
4 inch	$172.35	$177.45	$183.05

Note: All rates above are in-city.

In 2022 and 2023, residential meter charges will go up **3.0** percent and **3.2** percent, respectively, per year. Currently, rates are aligned in a cost progression based on meter size, with the exception of the three-inch meter. The current three-inch charge is below the cost progression; however, the percentage increases are matched to that of the three-quarter inch meter for this rate period in order to limit customer impact.

Commodity rates are increasing at a similar pace as meter rates. Off-peak consumption rates are proposed to increase **3.0** percent and **3.6** percent in 2022 and 2023, respectively. Peak rates are increasing similar percentages each year, with the exception that the third tier is not increasing in any year.

5.2.3. Residential Sub-Classes

The majority of Seattle Public Utilities' residential customers live within City limits (about 156,500 accounts). However, SPU also directly provides water service to about 10,750 residential customers in

[5] In October 2001, the Mayor and City Council adopted City of Seattle Ordinance No. 120532, otherwise known as I-63 Settlement Ordinance (I-63 SO). This ordinance established various measures designed to promote water conservation, including the creation of the "Everyone Can Conserve" program to fund water conservation in low-income housing. This ordinance also established the requirement for a residential summer peak use third block to be charged on residents and businesses that use extraordinary amounts of water.
.

the City of Shoreline and City of Lake Forest Park, 1,800 residential customers in the City of Burien, and 3,100 other residential customers who reside outside of City of Seattle boundaries. Each of these residential customer groups, or sub-classes, pays a different rate due to differences in cost of service and/or historic agreements governing these relationships. In addition, master metered residential developments (MMRD) comprise another residential sub-class with its own distinct rates.

Outside City Residential Rates (except Shoreline, Lake Forest Park, and Burien)

SPU sets the base meter and commodity rates for SPU customers residing outside of Seattle City Limits at 14 percent greater than in-city rates. Certain characteristics of these areas increase the cost of service, including lower-density development and topography which limits the use of gravity fed systems. Both factors cause higher capital and operating costs (longer water mains, more pumping) per unit of water delivered. In addition, field crews, meter readers, inspectors, and other employees, along with vehicles and equipment, must travel farther to work on parts of the system that serve outside city customers.

Outside-City residential rates are found in **Appendix C**.

City of Shoreline/City of Lake Forest Park Residential Rates

SPU sets the base meter and commodity rates for SPU customers residing in Shoreline and Lake Forest Park approximately 21 percent[6] higher than in-city rates. This rate surcharge is based on the 14 percent out-of-city surcharge (discussed above) plus an additional six percent to cover City of Shoreline and City of Lake Forest Park franchise fees.

The Cities of Shoreline and Lake Forest Park charge SPU franchise fees on the water service SPU provides within their boundaries. Each city's franchise fee is set at six percent of revenue. All the revenues from this franchise fee are paid to the City of Shoreline and City of Lake Forest Park, and neither Seattle nor any water customer outside Shoreline and Lake Forest Park receives a benefit from the associated revenues.

The Shoreline franchise fee was enacted in 1999. The Lake Forest Park franchise agreement has been in effect since November 2009.

Shoreline and Lake Forest Park residential rates are found in **Appendix C.**

City of Burien Residential Rates

In January 2021, the City of Burien began collecting an eight percent utility tax on all SPU revenue in Burien. As a result, SPU will set base meter and commodity rates for customers residing in Burien approximately 24 percent higher than in-city rates beginning in 2022. This rate surcharge is based on the

[6] Franchise fees and revenue taxes are compounding by their nature. Because they are based on SPU revenue, SPU must increase charges more than the statutory rate to ensure after-tax/franchise fee charges are consistent. Ex: SPU charges $10 for a service. A 10% revenue tax rate is applied. If SPU simply added 10% to the charge, the new price would be $11. In that case revenue would be $11, and the 10% revenue tax would be $1.10. SPU would receive $9.90 after payment of the tax. This is less than before the tax is applied. To account for this compounding effect, charges are increased slightly more than the statutory rate to equalize pre-tax and post-tax SPU receipts. In this example, the after-tax charge would be $11.11. The 10% revenue tax would generate $1.11, and SPU would receive $10.00 after tax.

14 percent out-of-city surcharge (discussed above) plus an additional eight percent to cover City of Burien Utility Tax costs.

All revenues from this utility tax are paid to the City of Burien, and neither Seattle nor any water customer outside Burien receives a benefit from the associated revenue.

Rates for residential customers in Burien will rise in 2022 more than other residential customers due to incorporation of this new tax. Residential meter charges will rise 11.9 percent and commodity charges will rise 11.7 percent, compared to 3.0 percent for all other residential customers.

As stated earlier the City of Burien began collecting tax revenue in 2021, before SPU incorporated the additional cost into rates. The tax is being paid for by all customers. To reimburse other SPU rate payers, Burien residential charges in 2023 will incorporate an additional charge of $0.55 per month for small meters and $0.19 per ccf. This delay has been incorporated to not exacerbate the increases already imposed by the new tax in 2022.

Burien residential rates are found in **Appendix C.**

Master-Metered Residential Development Rates

These rates apply to residential developments with master meters of one and a half-inch or larger which operate and maintain their own distribution systems on private property. The water service to these developments primarily serves single-family detached residences on at least two separate legal parcels.

A separate rate structure was established for MMRD customers in 1995, with residential rates applying in the peak season and an escalated general service rate applying in the off-peak season. This rate structure recognizes the fact that MMRDs, although considered general service habitations, experience peak irrigation demands similar to those of residential customers. At present, all MMRD customers reside in Shoreline and pay Shoreline residential rates.

Certain Master-Metered Residential Developments are eligible to classify as water systems by the State of Washington. Those that have achieved that designation, and pay State Public Utility Tax on their revenue are eligible for a lower rate from SPU. SPU does not pay State Public Utility Tax on revenues from those customers.

MMRD rates are found in **Appendix C.**

5.2.4. Utility Discount Program

The City assists qualified low-income customers with their water bills by providing a 50 percent credit on their utility bills, one of the most generous assistance policies in the nation. Income guidelines vary based on the number of people in the household, monthly income, and annual income. Income limits are updated every January and are based on 70 percent of the state median income. In an effort to ensure utilization by eligible residents, Seattle Housing Authority auto-enrolls its eligible customers in SPU's discount program.

Currently, about 30,000 water customers receive a utility discount. About one-third of these low-income assistance customers receive their credit on their SPU combined utility bill while the other two-thirds receives a credit through their Seattle City Light bill. For customers billed by SPU, the discount cuts their water bill in half. The City Light bill is used as the credit mechanism for customers who do not directly receive an SPU bill, such as customers living in apartment complexes, who typically receive a City Light bill but have utility costs for water, sewer and solid waste included in their rent. These customers receive a fixed dollar credit via their Seattle City Light bill, which approximates the 50 percent discount.

Table 5-4 presents the discounts for 2020, 2022, and 2023.

Table 5-4
Rate Assistance Discounts

Customer-type	Adopted 2020	Proposed 2022	Proposed 2023
SPU-billed customers	50% Discount	50% Discount	50% Discount
Non-SPU-billed customers			
Single-family (Residential)	$22.85/month	$23.52/month	$24.33/month
Multi-family (Gen. Serv.)	$12.50/month	$12.78/month	$13.25/month

5.3. General Service Rate Design

General service accounts represent about 12 percent of total SPU retail water accounts. General Service customers are also broken into five subclasses: in-city customers, Shoreline/Lake Forest Park customers, Burien customers, Mercer Island customers, and other outside-City customers. This section provides additional detail on the components of the general service rate design, the general service rate increase and general service rate subclasses.

The proposed rates will affect general service customer bills to varying degrees depending on the volume of water used. **Table 5-5** presents projected bill impacts for a sampling of general service customer types.

Table 5-5
Monthly General Service Bills at Proposed Rates

Customer Type	Monthly Consumption		2020 Adopted	2022 Proposed	Change from 2020	2023 Proposed	Change from 2022
Convenience	Winter	15.0	$100.00	$102.25	$2.25	$105.95	$3.70
Store	Summer	15.0	$121.90	$124.60	$2.70	$129.20	$4.60
(1" meter)	**Average**	**15.0**	**$107.30**	**$109.70**	**$2.40**	**$113.70**	**$4.00**
Small Office	Winter	49.9	$302	$309	$7	$320	$11
Building	Summer	56.8	$422	$432	$9	$448	$16
(2" meter)	**Average**	**52.2**	**$342**	**$350**	**$8**	**$362**	**$13**
Apartment	Winter	168.3	$1,029	$1,052	$23	$1,090	$38
Bldg (90 units)	Summer	247.3	$1,816	$1,856	$40	$1,925	$69
(3" meter)	**Average**	**194.6**	**$1,291**	**$1,320**	**$28**	**$1,368**	**$48**
Medium	Winter	1,180	$6,586	$6,733	$147	$6,977	$244
Hotel	Summer	1,559	$10,906	$11,145	$239	$11,558	$413
(6" meter)	**Average**	**1,307**	**$8,026**	**$8,203**	**$177**	**$8,504**	**$300**
Large	Winter	3,785	$20,689	$21,148	$459	$21,914	$766
Industrial	Summer	2,410	$16,783	$17,149	$366	$17,785	$636
(8" meter)	**Average**	**3,327**	**$19,387**	**$19,815**	**$428**	**$20,538**	**$723**

Calculations may not total due to rounding

Note: All bill impacts are for in-city customers.

5.3.1. General Service Rate Structure

The general service rate structure is nearly identical to that for residential customers with a base service charge that varies by meter size and peak and off-peak commodity rates. In general, the discussion in Section 5.2.1 on these two rate components is applicable to general service rates.

The primary difference between the two rate structures is that general service customers do not have tiered peak rates[7]; all peak consumption is charged at a single rate. In addition, the general service base service charge progression includes several larger meter rates which are not applicable to residential customers.

In this rate proposal rate parity between residential and general service customer classes is ended. Proposed 2022-2023 commodity and base service charges increase at approximately the same rate within each class.

5.3.2. General Service Increase

This rate proposal breaks the parity between general service and residential rates that has existed for over a decade. This proposal increases meter charges and commodity charges at approximately the same rate within each customer class. Adjusting meter and commodity charges at the same rate impacts all customers within a class the same way, rather than in a disparate manner based on meter size and consumption level. With respect to larger meter rates not applicable to residential customers, rates for 16-inch meters will remain at 2020 levels for the first year of the proposal, only increasing in 2023. Meters larger than 16-inches will remain at 2020 rate levels for both years of the proposal. These larger meter rates are proposed to remain constant to recognize that charges are already high relative to smaller meter rates based on a cost analysis.

General service rates are shown in **Table 5-6**:

[7] The residential first tier peak rate is intended as a “lifeline” rate and as such does not apply to general service. The third tier peak rate is intended to capture “excessive” or “wasteful” water consumption. Because each general service customer has a different level of consumption, SPU would not be able to set a threshold amount above which consumption is considered excessive.

Table 5-6
Proposed General Service Rates

	Current Rate	2022 Rate	2023 Rate
Commodity			
Off-Peak ($/ccf)	$5.40	$5.52	$5.72
Peak ($/ccf)	$6.86	$7.01	$7.27
Base Service Charge			
3/4 inch	$18.45	$18.85	$19.55
1 inch	$19.00	$19.45	$20.15
1 1/2 inch	$29.35	$29.95	$31.10
2 inch	$32.50	$33.20	$34.40
3 inch	$120.30	$122.90	$127.45
4 inch	$172.35	$176.05	$182.60
6 inch	$212.00	$217.00	$225.00
8 inch	$250.00	$255.00	$264.00
10 inch	$305.00	$312.00	$323.00
12 inch	$412.00	$421.00	$436.00
16 inch	$477.00	$477.00	$490.00
20 inch	$614.00	$614.00	$614.00
24 inch	$771.00	$771.00	$771.00

Note: All rates above are in-city.

5.3.3. General Service Sub-Classes

As with residential accounts, the majority of Seattle Public Utilities' general service customers are located within City limits (about 21,500 accounts). In addition, SPU directly provides water service to 600 general service customers in the City of Shoreline and City of Lake Forest Park, 35 general service customers in Burien, one general service customer in Mercer Island, and 370 other general service customers outside of City boundaries. Similar to residential accounts, Shoreline and Lake Forest Park general service customers pay a 21 percent surcharge over the in-city general service meter and commodity rates, Burien customers pay a 24 percent surcharge, and other outside-City customers pay a 14 percent surcharge. One Mercer Island general service customer pays a 20 percent surcharge based on a 5.3 percent utility tax on SPU revenue. For further details, see Section 5.2.3.

5.4. Private Fire Rate Design

Private fire rates are charged for water service to fire sprinkler systems located on a customer's property. Private fire service customers pay a **flat monthly meter base charge** which varies with meter size. This base fee includes an allowance for water consumption for testing and pump cooling. The monthly allowance is five ccf for meters up to six inches and 10 ccf for meters eight inches and larger. A **penalty charge** ($20.00/ccf) is assessed on non-fire related consumption in excess of the allowed amounts.

Fire service rates are not proposed to change in this study as current revenue is enough to meet the revenue requirement for the class. Fire service rates for inside city customers are presented in **Table 5-7** below.

Table 5-7
Proposed Private Fire Rates

	Current Rate	2022 Rate	2023 Rate
Commodity			
Penalty Charge ($/ccf)	$20.00	$20.00	$20.00
Base Service Charge			
2 inch	$17.75	$17.75	$17.75
3 inch	$23.00	$23.00	$23.00
4 inch	$43.00	$43.00	$43.00
6 inch	$73.00	$73.00	$73.00
8 inch	$115.00	$115.00	$115.00
10 inch	$166.00	$166.00	$166.00
12 inch	$242.00	$242.00	$242.00

Note: All rates above are in-city.

Private fire service rate schedules by subclass are found in **Appendix C** of this study.

Like other retail customers, Shoreline and Lake Forest Park private fire customers pay a 21 percent differential over the in-city private fire rates, Burien customers pay a 24 percent surcharge, and other outside-city customers pay a 14 percent differential. For further details, see Section 5.2.3.

5.5. Public Fire Rate Design (Hydrants)

Fire hydrants provide water used by public fire departments to fight fires. Most fire hydrants owned by SPU are located within the City of Seattle. The majority of other hydrants are in retail service areas just north or south of the city limits. In order to more closely associate the cost of providing water for firefighting with the customers that use this water, SPU directly charges local governments an annual fee for public fire service. Charging local governments for the public fire service within their jurisdiction ensures that this portion of revenue requirement is not borne by Seattle's retail customers.

5.5.1. Rate Structure

Public fire customers are charged ***a flat annual fee*** which varies based on the size of main attached to the hydrant and jurisdiction where located. SPU has established two different flat rates for fire service to reflect both service level and cost differences between four-inch and larger mains[8]. Four-inch mains provide substantially lower fire flows than larger mains. In addition, four-inch mains, while sufficient for domestic service, generally do not meet current state installation standards for mains supporting hydrants. Consequently, all of the cost of over-sizing water mains to provide fire flow, about half of total hydrant service cost, is assigned to larger mains. The remaining costs are shared between two rates based on the number of units, or hydrants. Hydrants connected to larger mains currently account for

[8] State requirements for hydrant service have become progressively more stringent over the last century. Four-inch mains were considered sufficient to provide fire flows when originally installed. Now, a minimum of six inches is required. Most areas with both domestic and fire flow demands require a minimum of eight-inch mains.

about 99 percent of all units within the SPU service area. Hydrants in Burien are charged a higher fee to recover the cost of utility taxes in the city.

5.5.2. Public Fire Rate Increase

This study proposes increases in each year of the rate study. The rate increase for large-main hydrants is less than the increase for the 4-inch main rate in 2022. The rates increase evenly in 2023. **Table 5-8** presents the calculation for proposed 2022 and 2023 public fire rates.

Table 5-8
Calculation of Proposed Public Fire Rates

	2020*		2022		2023	
	4-Inch	Larger Mains	4-Inch	Larger Mains	4-Inch	Larger Mains
Revenue Requirement	$69,057	$10,716,199	$104,822	$12,487,176	$108,513	$12,926,850
Meter Count	215	18,523	208	18,613	208	18,613
Meter Rate	$321.20	$578.53	$503.95	$670.88	$521.70	$694.51

* 2020 assumptions used in 2018-2020 Rate Study
Rates do not apply in Burien

The large 2022 increase is primarily due to an increase in costs associated with maintaining hydrants and mains sized for fire protection throughout the water system. See Table 4-6 for information on the change in cost share for the public fire class.

All public fire hydrants within the SPU retail service area are used to calculate and set hydrant rates. However, due to indemnification language in their franchise agreements, SPU does not charge King County, Shoreline, and Lake Forest Park for hydrant service. Per *Lane v Seattle*, the costs of providing, maintaining, and operating these hydrants are considered a “cost of doing business” in these areas.

Table 5-9 presents projected annual bills for public fire customers at proposed rates.

Table 5-9
Annual Public Fire Bills at Proposed Rates

	Hydrant Count			2020	2022	2023
	4-Inch Mains	Larger Mains	Total	Bill	Bill	Bill
Seattle	117	17,209	17,326	$9,993,584	$11,604,216	$12,012,801
Burien	41	122	163	$83,750	$111,424	$115,347

APPENDIX A: COST ALLOCATION DETAILS

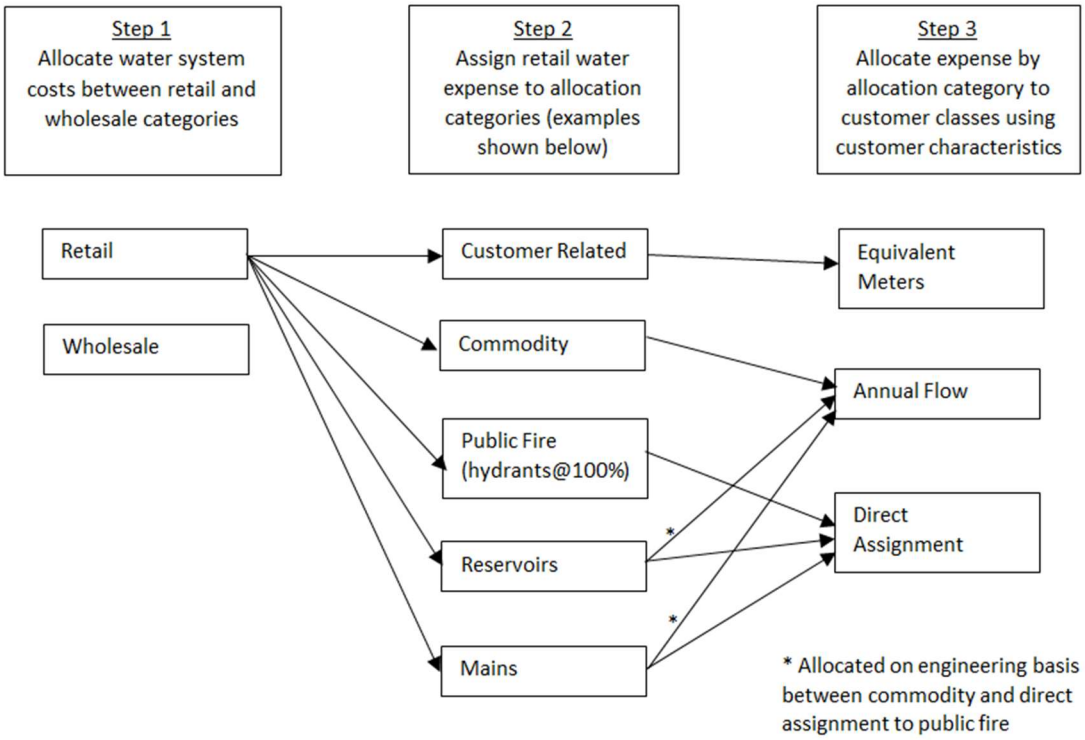
Chapter 4 contained an overview of how the 2022-2023 water revenue requirements were allocated to each cost category. This Appendix provides the detail behind those allocations.

SPU uses embedded, or historical cost of service from a test year (2019 for this rate study), to determine the percentage of revenue to be assigned to each customer class in the rate-setting period. The costs from the test year are broken into service-based allocation categories that are then allocated to cost categories based on defined customer characteristics. The resulting percentages from the test year are then applied to the 2022-2023 revenue requirements.

Three steps are required to determine the revenue split between test year cost component categories:

1. Allocation of water system expense into retail and wholesale buckets.
2. Allocation of retail water expense between different allocation categories.
3. Allocation of the cost assigned to each allocation category between cost categories.

Figure A1-1
Assignment of Water System Expense to Cost Component Categories
Allocation Steps



Prior to launching into the details of the separate steps, however, it is important to provide some context.

A1.1. Cost Allocation Context

The test year cost of service is calculated using a utility-based cost method whereby test year revenue (or total cost) is the sum of three components: O&M expense, depreciation expense, and a return on plant in service. The cost allocation steps described in Sections A1.2 through A1.4 are applied separately to each of the three cost components. Below is a description of each of these components within the context of the current rate study.

O&M. Total O&M spending is equal to O&M presented in the test year (2019) Water Fund audited financial statements, excluding debt service, depreciation, and certain accrued expenses.

Depreciation (use of capital assets). Total depreciation is equal to the amount presented in the 2019 Water Fund audited financial statements, excluding depreciation on contributed assets (those assets, such as water meters, whose installation was paid for directly by individual customers).

Return on Assets. This is the result of applying an "interest rate" (rate-of-return or ROR) to the net book value of plant in service. Plant in service is equal to the amount presented in the 2019 audited financial statements, excluding contributed assets. Two rates of return are used in this cost allocation. "Regional" assets (assets that are shared with the wholesale customers and whose costs are allocated to wholesale – primarily watersheds and transmission assets) use the rate-of-return as defined in the wholesale contracts (5.9 percent in 2019). The rate-of-return on retail assets (i.e., everything that is not regional) is adjusted so that the total rate-of-return is equal to the difference between the adjusted retail service revenue[9] and the sum of O&M and depreciation in the test year. Therefore,

(Retail portion of Regional Assets*Regional ROR)
+ (Retail assets*Retail ROR)
+ Retail portion of Depreciation
+ Retail portion of O&M
= Adjusted Retail Revenue

where all values are for the 2019 test year.

The rate-of-return on only retail assets for 2019 is 4.5 percent.

A1.2. Step One: Water System Expense Allocation

The first step is to allocate test year expenses between wholesale and retail. This is similar to the split that is done to determine the wholesale revenue requirement for each year of the rate study.

Both wholesale customers (suburban municipalities and water districts) and Seattle's direct service retail customers share the cost of the "regional" portion of Seattle's water system, including facilities such as the watersheds and transmission pipelines. In addition, the system includes certain "subregional" assets, such as the West Seattle and Des Moines pipelines, which serve both Seattle retail customers and wholesale customers in the applicable subregions.

[9] Industry standards allow for adjustments to test periods for known and quantifiable changes. Revenue in 2019, the test year, was significantly above the level necessary to meet all financial policies. The adjustment to 2019 revenue, $22.5 million, reduced revenue to the level that just met all financial policy targets.

This step begins by assigning O&M and asset costs (depreciation and return on plant) to regional, subregional, and retail buckets. The regional O&M costs are then "grossed up" using various multipliers specified in the contracts to reimburse the Water Fund for additional general and administrative overhead costs not directly included in the regional bucket. The mechanics of this are similar to the G&A allocation used for CIP, including the need to create a corresponding regional credit to avoid counting expenses twice.

The resulting regional costs, subregional costs, and regional credit are then split by annual flows (as per contracts) between wholesale and retail customers. For 2019, 52 percent of regional costs went to wholesale and 48 percent to retail. The 2019 split of all subregional costs was 14 percent to wholesale and 86 percent to retail. The portion of the regional credit that retail receives is the amount it would pay under the contracts as a wholesale customer, so it is 48 percent.

Table **A1-1** presents Seattle's share of combined O&M, depreciation, and return on asset expense in the 2019 test year.

Table A1-1
Seattle's Share of Water System Utility-based Expense (2019)

	System Expense	Retail Share	
Regional Expense	87,748,518	48.3%	42,351,959
Regional Credit	(14,306,789)	48.3%	(6,905,194)
Sub-regional Expense	3,899,719	85.9%	3,349,335
Retail Expense	120,303,131	100.0%	120,303,131
Total	**197,644,578**		**159,099,231**

A1.3. Step Two: Allocation of Retail Expense to Allocation Categories

In Step Two, the retail share of each O&M activity and water asset (for depreciation and return on plant allocation) during the test year is assigned to one of seven allocation categories. This is an intermediate step which groups assets and services to then be allocated using customer characteristics (described in section A1.4). **Table A1-2** presents the distribution of actual 2019 retail expense between the various allocation categories.

Table A1-2
2019 Retail Water Expense by Allocation Category

Allocation Categories	O&M	Depreciation	Return on Plant	Total Retail Expense
Commodity	27,550,658	13,003,490	18,070,447	58,624,595
Accounts	9,669,608	8,761,919	7,024,165	25,455,692
Public Fire	1,717,601	125,729	202,225	2,045,555
Reservoirs	1,436,660	2,328,583	3,899,114	7,664,357
Mains	3,570,688	1,571,684	3,730,524	8,872,896
Asset Composite	18,111,364	-	-	18,111,364
Overall Composite	25,796,664	5,923,666	6,604,443	38,324,772
Total	**87,853,242**	**31,715,071**	**39,530,918**	**159,099,231**

A1.4. Step Three: Allocation of Expense by Allocation Category to Cost Component Categories

In Step Three, each allocation category from Step Two is distributed between the cost component categories. Some of these are fairly straightforward (e.g., commodity is allocated by annual flow) and some are a little more complicated. The details of each assignment follow in **Table A1-3.**

Table A1-3
Allocation Factors for Assignment of Retail Expense
To Cost Component Categories

Allocation Categories	Annual Flow	Equivalent Meters	Direct/ Engineering Basis
Commodity	100.0%		
Accounts		100.0%	
Public Fire			100.0%
Reservoirs	99.7%		0.3%
Mains	58.3%		41.7%
Asset Composite	68.9%	26.6%	4.5%
Overall Composite	69.5%	25.1%	5.5%

Commodity. This category is primarily made up of the regional and subregional costs identified in Step One. These costs are assigned to the commodity category because annual flow is what determines the split of costs between wholesale and retail customers.

Accounts. This category contains costs such as service replacements and meter testing and repair, which vary by meter size. It also includes customer related expenses which do not vary significantly with water usage or meter size, such as the Water Fund's share of the CCB billing system, communication equipment (Interactive Voice Response) and other IT investments. Costs are allocated using a factor called "equivalent meters" that assigns a higher weight to larger meters. Additional details on equivalent meters are in Section A1.5.

Public Fire. These categories include expenses which are directly attributable to public fire service, such as hydrant repair and flow testing.

Reservoirs. Reservoirs provide a source of water during fires as well as water for domestic purposes.

Their cost is allocated to these uses based on an engineering analysis of the proportion of capacity devoted to each use. Further information on this allocator is in Section A1.6.

Mains. Watermains are sized to meet fire flow requirements and domestic demands for water. The cost for this allocation category is split between public fire and annual flow categories based on the proportional share of total installed main cost attributed to fire uses and to domestic uses. Section A1.7 contains a detailed description of this calculation.

Asset Composite. This category includes items that support the Water Fund's asset base, such as Maximo and the stage gate process. The allocation among customer characteristics is the average allocation of all previously assigned asset costs.

Overall Composite. This category includes costs that support the overall Water Fund, such as Finance and the General Manager/CEO's Office. The allocation among customer characteristics is the average allocation of all costs.

The application of the allocation factors identified in Table A1-2 to the test year (2019) expense by allocation category in Table A1-3 gives us the distribution of actual test year costs between cost component categories, as presented in **Table A1-4** below.

Table A1-4
Retail Component Cost Allocation
2019 Cost of Service (O&M + Depreciation + Rate-of-Return)

Allocation Categories	Total Retail Expense	Annual Flow	Equivalent Meters	Direct/ Engineering Basis
Commodity	58,624,595	58,624,595		
Accounts	25,455,692		25,455,692	
Public Fire	2,045,555			2,045,555
Reservoirs	7,664,357	7,641,364		22,993
Mains	8,872,896	5,175,770		3,697,127
Asset Composite	18,111,364	12,476,787	4,811,081	823,496
Overall Composite	38,324,772	26,629,454	9,604,408	2,090,910
Total	**159,099,231**	**110,547,969**	**39,871,181**	**8,680,081**

These costs are then divided among customer classes based on the characteristics of each customer class. This step is discussed in detail in Sections 4.1 and 4.2.

A1.5. Calculation of Equivalent Meters Allocator

Section 4.3 in Chapter 4 discusses the use of the equivalent meters allocator to assign certain customer-service related expense between customer classes.

For customer related expenses, a hybrid allocator was used to reflect that some costs vary with meter size (e.g., meter repair), and some do not (e.g., customer billing). The first step was to calculate the percentage of meters by customer class, with private fire discounted 50% to reflect that these meters are typically secondary meters on a domestic account.

Table A1-5
Step 1 of Equivalent Meters Calculation - Meters by Customer Class

	0.75	1	1.5	2	3	4	6	8	10	12	16	20	24	Total	Percentage
Residential	150,313	17,822	1,413	515	1	1	1	1	-	-	-	-	-	170,067	87%
General Service	6,648	5,080	3,765	4,925	477	1,079	400	133	34	9	-	2	-	22,552	12%
Private Fire @50%	466	1	4	301	11	753	618	329	12	3	-	-	-	2,497	1%
Total	**157,427**	**22,903**	**5,182**	**5,741**	**489**	**1,833**	**1,019**	**463**	**46**	**12**	**-**	**2**	**-**	**195,116**	**100%**

Step two is to calculate the percentage of meters per customer class after weighting the meter counts using standard American Water Works Association (AWWA) meter progression ratios by meter size. Similar to step one, the private fire ratios were discounted 75% to reflect that these meters are typically secondary meters on a domestic account and typically use very little water.

Table A1-6
Step 2 of Equivalent Meters Calculation – Weighted Meter Counts by Customer Class

	0.75	1	1.5	2	3	4	6	8	10	12	16	20	24	Total
Residential Count	150,313	17,822	1,413	515	1	1	1	1	-	-	-	-	-	
Weighting Factor	1.0	1.7	3.3	5.3	10.0	16.7	33.3	53.3	76.7	143.3	250.0	325.0	420.0	
Residential Weighted Count	**150,313**	**30,297**	**4,663**	**2,730**	**10**	**17**	**33**	**53**	**-**	**-**	**-**	**-**	**-**	**188,116**

	0.75	1	1.5	2	3	4	6	8	10	12	16	20	24	Total
General Service Count	6,648	5,080	3,765	4,925	477	1,079	400	133	34	9	-	2	-	
Weighting Factor	1.0	1.7	3.3	5.3	10.0	16.7	33.3	53.3	76.7	143.3	250.0	325.0	420.0	
Gen Svc Weighted Count	**6,648**	**8,636**	**12,425**	**26,103**	**4,770**	**18,019**	**13,320**	**7,089**	**2,608**	**1,290**	**-**	**650**	**-**	**101,557**

	0.75	1	1.5	2	3	4	6	8	10	12	16	20	24	Total
Private Fire Count	932	2	8	602	21	1,506	1,236	658	24	5	-	-	-	
Weighting Factor @25%	0.3	0.4	0.8	1.3	2.5	4.2	8.3	13.3	19.2	35.8	62.5	81.3	105.0	
Private Fire Weighted Count	**233**	**1**	**7**	**798**	**53**	**6,288**	**10,290**	**8,768**	**460**	**179**	**-**	**-**	**-**	**27,075**

Table A1-7
Step 2 of Equivalent Meters Calculation – Weighted Meter Percentages

	Total	Percentage
Residential Weighted Count	188,116	59.4%
Gen Svc Weighted Count	101,557	32.1%
Private Fire Weighted Count	27,075	8.5%
Total	**316,748**	**100%**

The last step is to average the results of step one and step two. The hybrid allocator produced is used to allocate customer related expenses between customer classes.

Table A1-8
Equivalent Meters Allocation Percentage Basis

	Allocation on Meter Count Basis	Allocation on Weighted Basis	Hybrid Allocation
Residential	87.7%	59.4%	**73.6%**
General Service	11.6%	32.1%	**21.8%**
Private Fire	0.6%	8.5%	**4.6%**

A1.6. Allocation of Reservoirs to Public Fire

The allocation of reservoirs to public fire was updated for the previous rate study since the reservoir covering projects are nearly complete. (Note that for the rate study, "reservoirs" includes reservoirs, tanks, and standpipes.) From an allocation perspective, there are two types of reservoirs: regional/subregional reservoirs whose costs are shared with wholesale customers and those that are retail only. As discussed in Section 4, the retail portions of regional and subregional assets are considered commodity assets since the wholesale/retail split is determined by consumption. In other words, if a particular retail customer class uses more water, they will cause a higher portion of costs to be allocated to retail customers. Therefore, costs are caused by commodity regardless of the nature of the underlying asset.

For retail only reservoirs, detailed reservoir sizing is used to develop an overall allocation between public fire and commodity. For most reservoirs there is no dedicated fire storage, since water is available to the reservoir under gravity flow. It is only reservoirs that rely on pumped water for refill that have a dedicated amount of storage for public fire. That amount of dedicated storage is determined as 8,000 gpm for 15 minutes (equal to 0.12 MG), which is the response time needed to restore water flow to each of the non-gravity supplied reservoirs by remote start of a diesel pump or by activating a turbine driven pump. **Table A1-9** is based on reservoir data from SPU's 2013 Water System Plan.

Table A1-9
Reservoir Capacities

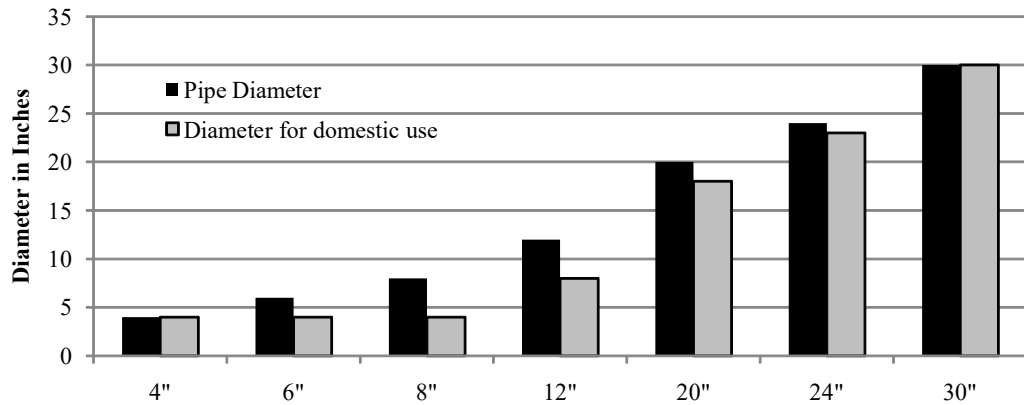
Millions of Gallons (MG)	**Capacity**	**Storage Required**
Retail Reservoirs		
Bitter Lake	21.30	N/A
Beacon	50.00	N/A
Lincoln	12.70	N/A
Magnolia	5.50	0.12
Myrtle	5.00	0.12
View Ridge	2.50	N/A
Roosevelt	50.30	N/A
Volunteer	20.50	N/A
Retail Tanks		
Charlestown	1.30	0.12
Queen Anne	1.90	0.12
North Trenton	1.20	N/A
South Trenton	1.20	N/A
Volunteer Park	0.90	0.12
Magnolia Bluff	1.00	N/A
Total	175.30	0.60
Percentage allocated to Public Fire		**0.3%**

A1.7. Calculation of Watermains Allocator

Watermains are sized to meet fire flow requirements and domestic demands for water. In sizing the watermain, the pipe must have sufficient capacity to meet two separate criteria: (i) peak hour domestic demand and (ii) peak day domestic demand + fire flow requirements. For medium and small-size pipes (8 inch diameter or less) the second criteria will be the binding constraint. For larger size pipe (i.e., pipes that are serving very large areas or areas with very dense developments), the first criteria (peak hour demand) will be the binding constraint.

The most common size pipe in Seattle's system is, by far, an 8 inch diameter pipe. In areas served by 8 inch mains, domestic peak hour flows, i.e., the first criteria, can typically be met with 4 inch mains. The oversizing from 4 inch to 8 inch is needed to meet the second criteria. Taking into account that hydraulic capacity grows exponentially with the diameter of the pipe, this means about 25 percent of the 8 inch pipe is serving domestic flows and 75 percent is providing fire protection. Pipes smaller than 8 inch were installed on the system when the fire flow requirements were lower than they are today. For this allocation exercise, the cost of 4 inch mains were assigned to domestic service and the cost of 6 inch mains were assigned to public fire protection. For pipes larger than 8 inch, the share of capacity needed for fire flows shrinks until we reach pipes with diameters of 30 inches or more. The graph below shows the relationship between pipe size and fire flow requirements expressed in diameters.

Figure A1-2
Actual Pipe Diameters Versus Diameter Required for Domestic Use



Pipe Diameter	4	6	8	12	20	24	30
Diameter for domestic use	4	4	4	8	18	23	30
Capacity for domestic use	100%	44%	25%	44%	81%	92%	100%

The cost of watermains is split between fire protection and domestic uses based on each group's proportionate share of total watermain asset value. The calculation of this asset value takes into account the shares of hydraulic capacity discussed above. The steps to determining the appropriate allocation for watermain assets are as follows:

1. Estimate net book value by pipe size for all the mains in the system. SPU financial systems track net book value for total water mains, but not by pipe size. For the purposes of this allocation, net book value by pipe size is estimated by applying estimated accumulated depreciation to estimated replacement cost by pipe size. An adjustment factor is then applied in order to adjust

each pipe size so that the total estimated net book value equals actual total watermains net book value as of 12/31/19. Estimated replacement cost by pipe size is determined as follows:

Estimated Replacement Cost = ($Cost/ LF_d) x (LF_d)

Where $Cost/ LF_d = the replacement cost per lineal feet of a pipe of diameter 'd,' and LF_d = the number of lineal feet in the system of pipe of diameter 'd' as of 2019.

Using cost indices by year installed, the replacement cost net book value is converted to an estimated original net book value by year installed.

2. <u>Determine cost associated with fire protection service</u>.

   Fire Protection Net Book Value =

   $\sum$ (Hydraulic Capacity for $Fire_d$) ÷ (Hydraulic Capacity of $Pipe_d$) x (Net Book Value by Pipe Length)

3. <u>Determine the proportion of the watermain net book value devoted to fire protection</u>.

   Proportion of costs for fire protection =
   (Fire Protection Net Book Value) ÷ (Total Net Book Value)

The percentage share determined in Step Three is then used to assign watermain costs to fire protection. Using the above methodology, the cost share assigned to fire protection for this rate period is 42 percent.

APPENDIX B: INFORMATIONAL TABLES

B1.1. Residential Rate History

Effective Date:	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20
Residential - Inside Seattle									
Commodity Rate (per ccf)									
Off-Peak	$3.62	$4.04	$4.50	$4.99	$5.06	$5.15	$5.20	$5.27	$5.40
Peak 1st Block	$3.98	$4.34	$4.73	$5.13	$5.20	$5.29	$5.33	$5.41	$5.55
Peak 2nd Block	$4.63	$5.15	$5.72	$6.34	$6.43	$6.54	$6.59	$6.69	$6.86
Peak 3rd Block	$11.80	$11.80	$11.80	$11.80	$11.80	$11.80	$11.80	$11.80	$11.80
Meter Charge ($s/mtr/mo)									
3/4 inch	$13.00	$13.25	$13.50	$13.75	$14.15	$15.15	$16.10	$17.15	$18.45
1 inch	$13.40	$13.65	$13.90	$14.20	$14.60	$15.60	$16.60	$17.70	$19.00
1 1/2 inch	$20.70	$21.05	$21.45	$21.85	$22.50	$24.10	$25.60	$27.25	$29.35
2 inch	$22.90	$23.35	$23.75	$24.20	$24.90	$26.65	$28.35	$30.20	$32.50
3 inch	$84.70	$86.35	$88.00	$89.65	$92.25	$98.80	$104.95	$111.80	$120.30
4 inch	$121.40	$123.75	$126.10	$128.45	$132.15	$141.50	$150.40	$160.20	$172.35
Utility Credit									
Fixed Credit (per month)	$17.02	$16.97	$18.19	$19.46	$19.84	$20.56	$21.15	$12.86	$22.85
Commodity Rate (per ccf)									
Off-Peak	$1.81	$2.02	$2.25	$2.50	$2.53	$2.58	$2.60	$2.64	$2.70
Peak 1st Block	$1.99	$2.17	$2.37	$2.57	$2.60	$2.65	$2.67	$2.71	$2.78
Peak 2nd Block	$2.32	$2.58	$2.86	$3.17	$3.22	$3.27	$3.30	$3.35	$3.43
Peak 3rd Block	$5.90	$5.90	$5.90	$5.90	$5.90	$5.90	$5.90	$5.90	$5.90
Meter Charges (Discount)	50%	50%	50%	50%	50%	50%	50%	50%	50%

Effective Date:	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20
Residential - Outside Seattle									
Commodity Rate (per ccf)									
Off-Peak	$4.13	$4.61	$5.13	$5.69	$5.77	$5.87	$5.93	$6.01	$6.16
Peak 1st Block	$4.54	$4.95	$5.39	$5.85	$5.93	$6.03	$6.08	$6.17	$6.33
Peak 2nd Block	$5.28	$5.87	$6.52	$7.23	$7.33	$7.46	$7.51	$7.63	$7.82
Peak 3rd Block	$13.45	$13.45	$13.45	$13.45	$13.45	$13.45	$13.45	$13.45	$13.45
Meter Charge ($s/mtr/mo)									
3/4 inch	$14.80	$15.10	$15.40	$15.70	$16.15	$17.25	$18.35	$19.55	$21.05
1 inch	$15.30	$15.55	$15.85	$16.20	$16.65	$17.80	$18.90	$20.20	$21.65
1 1/2 inch	$23.60	$24.00	$24.45	$24.90	$25.65	$27.45	$29.20	$31.05	$33.45
2 inch	$26.10	$26.60	$27.10	$27.60	$28.40	$30.40	$32.30	$34.45	$37.05
3 inch	$96.60	$98.45	$100.30	$102.20	$105.15	$112.65	$119.65	$127.45	$137.15
4 inch	$138.40	$141.10	$143.75	$146.45	$150.65	$161.30	$171.45	$182.65	$196.50
Utility Credit									
Fixed Credit (per month)	$17.02	$16.97	$18.19	$19.46	$19.84	$20.56	$21.15	$12.86	$22.85
Commodity Rate (per ccf)									
Off-Peak	$2.07	$2.31	$2.57	$2.85	$2.89	$2.94	$2.97	$3.01	$3.08
Peak 1st Block	$2.27	$2.48	$2.70	$2.93	$2.97	$3.02	$3.04	$3.09	$3.17
Peak 2nd Block	$2.64	$2.94	$3.26	$3.62	$3.67	$3.73	$3.76	$3.82	$3.91
Peak 3rd Block	$6.73	$6.73	$6.73	$6.73	$6.73	$6.73	$6.73	$6.73	$6.73
Meter Charges (Discount)	50%	50%	50%	50%	50%	50%	50%	50%	50%

Effective Date:	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20
Residential - Shoreline, Lake Forest Park									
Commodity Rate (per ccf)									
Off-Peak	$4.39	$4.90	$5.46	$6.05	$6.14	$6.25	$6.31	$6.39	$6.55
Peak 1st Block	$4.83	$5.26	$5.74	$6.22	$6.31	$6.42	$6.46	$6.56	$6.73
Peak 2nd Block	$5.62	$6.25	$6.94	$7.69	$7.80	$7.93	$7.99	$8.11	$8.32
Peak 3rd Block	$14.31	$14.31	$14.31	$14.31	$14.31	$14.31	$14.31	$14.31	$14.31
Franchise Charge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Meter Charge ($s/mtr/mo)									
3/4 inch	$15.80	$16.05	$16.35	$16.70	$17.15	$18.35	$19.55	$20.80	$22.40
1 inch	$16.30	$16.55	$16.85	$17.20	$17.70	$18.90	$20.15	$21.45	$23.05
1 1/2 inch	$25.10	$25.55	$26.00	$26.50	$27.30	$29.25	$31.05	$33.05	$35.60
2 inch	$27.80	$28.30	$28.80	$29.35	$30.20	$32.30	$34.40	$36.65	$39.40
3 inch	$102.70	$104.70	$106.70	$108.70	$111.90	$119.80	$127.30	$135.60	$145.90
4 inch	$147.20	$150.10	$152.95	$155.80	$160.25	$171.60	$182.40	$194.30	$209.00
Utility Credit									
Fixed Credit (per month)	$17.02	$16.97	$18.19	$19.46	$19.84	$20.56	$21.15	$21.86	$22.85
Commodity Rate (per ccf)									
Off-Peak	$2.20	$2.45	$2.73	$3.03	$3.07	$3.13	$3.16	$3.20	$3.28
Peak 1st Block	$2.42	$2.63	$2.87	$3.11	$3.16	$3.21	$3.23	$3.28	$3.37
Peak 2nd Block	$2.81	$3.13	$3.47	$3.85	$3.90	$3.97	$4.00	$4.06	$4.16
Peak 3rd Block	$7.16	$7.16	$7.16	$7.16	$7.16	$7.16	$7.16	$7.16	$7.16
Meter Charges (Discount)	50%	50%	50%	50%	50%	50%	50%	50%	50%
Master Metered Residential Development									
Commodity Rate (per ccf)									
Off-Peak	$4.39	$4.90	$5.46	$6.05	$6.14	$6.25	$6.31	$6.39	$6.55
Peak 1st Block	$4.83	$5.26	$5.74	$6.22	$6.31	$6.42	$6.46	$6.56	$6.73
Peak 2nd Block	$5.62	$6.25	$6.94	$7.69	$7.80	$7.93	$7.99	$8.11	$8.32
Peak 3rd Block	$14.31	$14.31	$14.31	$14.31	$14.31	$14.31	$14.31	$14.31	$14.31
Meter Charges (See above)									

B1.2. General Service Rate History

Effective Date:	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20
General Service - Inside Seattle									
Commodity Rate (per ccf)									
Off-Peak	$3.62	$4.04	$4.50	$4.99	$5.06	$5.15	$5.20	$5.27	$5.40
Peak	$4.63	$5.15	$5.72	$6.34	$6.43	$6.54	$6.59	$6.69	$6.86
Meter Charge ($s/mtr/mo)									
3/4 inch	$13.00	$13.25	$13.50	$13.75	$14.15	$15.15	$16.10	$17.15	$18.45
1 inch	$13.40	$13.65	$13.90	$14.20	$14.60	$15.60	$16.60	$17.70	$19.00
1 1/2 inch	$20.70	$21.05	$21.45	$21.85	$22.50	$24.10	$25.60	$27.25	$29.35
2 inch	$22.90	$23.35	$23.75	$24.20	$24.90	$26.65	$28.35	$30.20	$32.50
3 inch	$84.70	$86.35	$88.00	$89.65	$92.25	$98.80	$104.95	$111.80	$120.30
4 inch	$121.40	$123.75	$126.10	$128.45	$132.15	$141.50	$150.40	$160.20	$172.35
6 inch	$149.40	$152.30	$155.15	$158.05	$162.65	$174.10	$185.05	$197.10	$212.00
8 inch	$199.00	$199.00	$199.00	$199.00	$199.00	$205.00	$218.00	$232.00	$250.00
10 inch	$297.00	$297.00	$297.00	$297.00	$297.00	$297.00	$297.00	$297.00	$305.00
12 inch	$402.00	$402.00	$402.00	$402.00	$402.00	$402.00	$402.00	$402.00	$412.00
16 inch	$477.00	$477.00	$477.00	$477.00	$477.00	$477.00	$477.00	$477.00	$477.00
20 inch	$614.00	$614.00	$614.00	$614.00	$614.00	$614.00	$614.00	$614.00	$614.00
24 inch	$771.00	$771.00	$771.00	$771.00	$771.00	$771.00	$771.00	$771.00	$771.00
Utility Credit - Inside & Outside (Fixed Credit per month)									
Commercial (Multifamily)	$9.32	$10.14	$11.22	$12.38	$12.38	$12.38	$12.38	$12.38	$12.50

Effective Date:	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20
General Service - Outside Seattle									
Commodity Rate (per ccf)									
Off-Peak	$4.13	$4.61	$5.13	$5.69	$5.77	$5.87	$5.93	$6.01	$6.16
Peak	$5.28	$5.87	$6.52	$7.23	$7.33	$7.46	$7.51	$7.63	$7.82
Meter Charge ($s/mtr/mo)									
3/4 inch	$14.80	$15.10	$15.40	$15.70	$16.15	$17.25	$18.35	$19.55	$21.05
1 inch	$15.30	$15.55	$15.85	$16.20	$16.65	$17.80	$18.90	$20.20	$21.65
1 1/2 inch	$23.60	$24.00	$24.45	$24.90	$25.65	$27.45	$29.20	$31.05	$33.45
2 inch	$26.10	$26.60	$27.10	$27.60	$28.40	$30.40	$32.30	$34.45	$37.05
3 inch	$96.60	$98.45	$100.30	$102.20	$105.15	$112.65	$119.65	$127.45	$137.15
4 inch	$138.40	$141.10	$143.75	$146.45	$150.65	$161.30	$171.45	$182.65	$196.50
6 inch	$170.00	$173.60	$176.85	$180.20	$185.40	$198.45	$210.95	$224.70	$242.00
8 inch	$227.00	$227.00	$227.00	$227.00	$227.00	$234.00	$249.00	$264.00	$285.00
10 inch	$339.00	$339.00	$339.00	$339.00	$339.00	$339.00	$339.00	$339.00	$348.00
12 inch	$458.00	$458.00	$458.00	$458.00	$458.00	$458.00	$458.00	$458.00	$470.00
16 inch	$544.00	$544.00	$544.00	$544.00	$544.00	$544.00	$544.00	$544.00	$544.00
20 inch	$700.00	$700.00	$700.00	$700.00	$700.00	$700.00	$700.00	$700.00	$700.00
24 inch	$879.00	$879.00	$879.00	$879.00	$879.00	$879.00	$879.00	$879.00	$879.00
Utility Credit - Inside & Outside (Fixed Credit per month)									
Commercial (Multifamily)	$9.32	$10.14	$11.22	$12.38	$12.38	$12.38	$12.38	$12.38	$12.50

Effective Date:	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20
General Service - Shoreline, City of Lake Forest Park									
Commodity Rate (per ccf)									
Off-Peak	$4.39	$4.90	$5.46	$6.05	$6.14	$6.25	$6.31	$6.39	$6.55
Peak	$5.62	$6.25	$6.94	$7.69	$7.80	$7.93	$7.99	$8.11	$8.32
Franchise Charge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Meter Charge ($s/mtr/mo)									
3/4 inch	$15.80	$16.05	$16.35	$16.70	$17.15	$18.35	$19.55	$20.80	$22.40
1 inch	$16.30	$16.55	$16.85	$17.20	$17.70	$18.90	$20.15	$21.45	$23.05
1 1/2 inch	$25.10	$25.55	$26.00	$26.50	$27.30	$29.25	$31.05	$33.05	$35.60
2 inch	$27.80	$28.30	$28.80	$29.35	$30.20	$32.30	$34.40	$36.65	$39.40
3 inch	$102.70	$104.70	$106.70	$108.70	$111.90	$119.80	$127.30	$135.60	$145.90
4 inch	$147.20	$150.10	$152.95	$155.80	$160.25	$171.60	$182.40	$194.30	$209.00
6 inch	$181.00	$184.70	$188.15	$191.70	$197.25	$211.15	$224.40	$239.05	$257.00
8 inch	$241.00	$241.00	$241.00	$241.00	$241.00	$249.00	$264.00	$281.00	$303.00
10 inch	$360.00	$360.00	$360.00	$360.00	$360.00	$360.00	$360.00	$360.00	$370.00
12 inch	$488.00	$488.00	$488.00	$488.00	$488.00	$488.00	$488.00	$488.00	$500.00
16 inch	$579.00	$579.00	$579.00	$579.00	$579.00	$579.00	$579.00	$579.00	$579.00
20 inch	$745.00	$745.00	$745.00	$745.00	$745.00	$745.00	$745.00	$745.00	$745.00
24 inch	$935.00	$935.00	$935.00	$935.00	$935.00	$935.00	$935.00	$935.00	$935.00
Utility Credit - Inside & Outside (Fixed Credit per month)									
Commercial (Multifamily)	$9.32	$10.14	$11.22	$12.38	$12.38	$12.38	$12.38	$12.38	$12.50

B1.3. Wholesale Rate History

Effective Date:	1/1/09	1/1/10	1/1/11	1/1/12	1/1/13	1/1/14	1/1/15	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20
Full and Partial Contracts												
Commodity Rate (per ccf)												
Off-Peak	$1.14	$1.15	$1.16	$1.52	$1.53	$1.53	$1.42	$1.42	$1.42	$1.50	$1.58	$1.67
Peak	$1.77	$1.77	$1.79	$2.26	$2.26	$2.27	$2.10	$2.10	$2.10	$2.22	$2.36	$2.50
Growth Charge	$0.60	$0.60	$0.60	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Demand Charge ($/1000 gals of deficient storage)	$22.00	$22.00	$22.00	$22.00	$22.00	$22.00	$22.00	$22.00	$22.00	$22.00	$22.00	$22.00
One Time New Service Fee ($s/mtr)												
3/4 inch	$713	$713	$783	$783								
1 inch	$1,426	$1,426	$1,566	$1,566								
1 inch and smaller					$877	$936	$936	$936	$936	$936	$1,081	$1,081
1 1/2 inch	$3,565	$3,565	$3,915	$3,915	$3,915	$4,180	$4,180	$4,180	$4,180	$4,180	$4,825	$4,825
2 inch	$5,704	$5,704	$6,264	$6,264	$6,264	$6,688	$6,688	$6,688	$6,688	$6,688	$7,720	$7,720
3 inch	$15,686	$15,686	$17,226	$17,226	$17,226	$18,392	$18,392	$18,392	$18,392	$18,392	$21,230	$21,230
4 inch	$22,103	$22,103	$24,273	$24,273	$24,273	$25,916	$25,916	$25,916	$25,916	$25,916	$29,915	$29,915
6 inch	$47,058	$47,058	$51,678	$51,678	$51,678	$55,176	$55,176	$55,176	$55,176	$55,176	$63,690	$63,690
8 inch	$79,856	$79,856	$87,696	$87,696	$87,696	$93,632	$93,632	$93,632	$93,632	$93,632	$108,080	$108,080
10 inch	$120,497	$120,497	$132,327	$132,327	$132,327	$141,284	$141,284	$141,284	$141,284	$141,284	$163,085	$163,085
12 inch	$169,694	$169,694	$186,354	$186,354	$186,354	$198,968	$198,968	$198,968	$198,968	$198,968	$229,670	$229,670
16 inch	$169,694	$169,694	$186,354	$186,354	$186,354	$198,968	$198,968	$198,968	$198,968	$198,968	$229,670	$229,670
20 inch	$169,694	$169,694	$186,354	$186,354	$186,354	$198,968	$198,968	$198,968	$198,968	$198,968	$229,670	$229,670
24 inch	$169,694	$169,694	$186,354	$186,354	$186,354	$198,968	$198,968	$198,968	$198,968	$198,968	$229,670	$229,670

B1.4. Private Fire Rate History

Effective Date:	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20
Volume (Penalty) Rate per ccf									
Inside	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00
Outside	$22.80	$22.80	$22.80	$22.80	$22.80	$22.80	$22.80	$22.80	$22.80
Shoreline, Lake Forest Park	$24.30	$24.30	$24.30	$24.30	$24.30	$24.30	$24.30	$24.30	$24.30
Meter Charge ($s/mtr/mo)									
Inside Seattle									
2 inch	$15.40	$15.40	$15.40	$15.40	$16.00	$16.25	$16.25	$17.25	$17.75
3 inch	$20.00	$20.00	$20.00	$20.00	$21.00	$21.00	$21.00	$22.00	$23.00
4 inch	$37.00	$37.00	$37.00	$37.00	$38.00	$39.00	$39.00	$41.00	$43.00
6 inch	$63.00	$63.00	$63.00	$63.00	$65.00	$66.00	$66.00	$71.00	$73.00
8 inch	$100.00	$100.00	$100.00	$100.00	$104.00	$105.00	$105.00	$112.00	$115.00
10 inch	$144.00	$144.00	$144.00	$144.00	$150.00	$152.00	$152.00	$161.00	$166.00
12 inch	$210.00	$210.00	$210.00	$210.00	$218.00	$222.00	$222.00	$235.00	$242.00
Outside Seattle									
2 inch	$18.00	$18.00	$18.00	$18.00	$18.00	$19.00	$19.00	$20.00	$20.00
3 inch	$23.00	$23.00	$23.00	$23.00	$24.00	$24.00	$24.00	$25.00	$26.00
4 inch	$42.00	$42.00	$42.00	$42.00	$43.00	$44.00	$44.00	$47.00	$49.00
6 inch	$72.00	$72.00	$72.00	$72.00	$74.00	$75.00	$75.00	$81.00	$83.00
8 inch	$114.00	$114.00	$114.00	$114.00	$119.00	$120.00	$120.00	$128.00	$131.00
10 inch	$164.00	$164.00	$164.00	$164.00	$171.00	$173.00	$173.00	$184.00	$189.00
12 inch	$239.00	$239.00	$239.00	$239.00	$249.00	$253.00	$253.00	$268.00	$276.00
Shoreline, Lake Forest Park									
2 inch	$19.00	$19.00	$19.00	$19.00	$19.00	$20.00	$20.00	$21.00	$22.00
3 inch	$24.00	$24.00	$24.00	$24.00	$25.00	$25.00	$25.00	$27.00	$28.00
4 inch	$45.00	$45.00	$45.00	$45.00	$46.00	$47.00	$47.00	$50.00	$52.00
6 inch	$76.00	$76.00	$76.00	$76.00	$79.00	$80.00	$80.00	$86.00	$89.00
8 inch	$121.00	$121.00	$121.00	$121.00	$126.00	$127.00	$127.00	$136.00	$139.00
10 inch	$175.00	$175.00	$175.00	$175.00	$182.00	$184.00	$184.00	$195.00	$201.00
12 inch	$255.00	$255.00	$255.00	$255.00	$264.00	$269.00	$269.00	$285.00	$293.00

B1.5. Public Fire Rate History

Effective Date:	1/1/11	1/1/12	1/1/13	1/1/14	1/1/16	1/1/17	1/1/18	1/1/19	1/1/20
Hydrants on 4 inch Mains	$194.80	$198.03	$213.17	$230.48	$197.67	$202.43	$304.52	$310.68	$321.20
Hydrants on 6 inch and larger mains	$389.48	$412.56	$444.11	$480.16	$479.96	$491.53	$548.49	$559.59	$578.53

B1.6. Average System Rate Increase History

Effective Date	Rate Increase
May 16, 2001	5.9%
July 16, 2001	3rd Tier Adopted
January 1, 2002	5.6%
September 16, 2002	14.5%
January 1, 2004	10.6%
January 1, 2005	0.2%
June 1, 2006	0.8%
January 1, 2007	4.6%
January 1, 2008	5.9%
January 1, 2009	11.7%
March 31, 2009*	6.9%
January 1, 2010	9.3%
January 1, 2011**	0.6%
January 1, 2012	9.9%
January 1, 2013	9.7%
January 1, 2014	3.4%
January 1, 2015	-1.9%
January 1, 2016	2.5%
January 1, 2017	2.4%
January 1, 2018	0.7%
January 1, 2019	5.1%
January 1, 2020	2.3%

* Temporary surcharge to cover costs related to *Lane v. City of Seattle, 2008*

** Expiration of surcharge

B1.7. Historical Financial Performance

	Target	Actual 2011	Actual 2012	Actual 2013	Actual 2014	Actual 2015	Actual 2016	Actual 2017	Actual 2018	Actual 2019	Actual 2020
Net Income ($1,000's)	positive	1,797	20,666	28,191	31,505	38,149	43,327	51,195	82,036	49,482	55,913
Debt Service Coverage	1.7x	1.48	1.70	1.86	1.93	1.87	1.78	1.94	2.27	2.07	2.03
Cash Financing of the Capital Program	20%*	28.5%	59.4%	60.9%	65.8%	62.8%	57.8%	55.9%	50.9%	47.2%	53.0%
from Rate Revenues		24.7%	53.3%	46.7%	57.7%	52.3%	43.9%	37.1%	35.5%	36.5%	45.7%
from Contributions in Aid of Construction		3.7%	6.0%	14.2%	8.1%	10.5%	14.0%	18.8%	15.4%	10.7%	7.2%
from Bonneville Power Administration Account		0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Year-End Operating Cash ($1,000's)	varies**	7,224	12,373	29,046	43,516	42,349	39,106	54,637	93,941	130,036	140,762
Revenue Stabilization Fund Deposit (Withdrawal) ($1,000)		(1,553)	3,354	7,000	8,172	7,000	5,266	5,200	7,650	2,518	0

* Current revenues should be used to finance no less than 15% of the CIP in any one year, and not less than 20% in each rate proposal
** Year-End Operating Cash Target is 1/12th of the current year's operating expenses

B1.8. Actual Operations Expenditures

	Actual 2011	Actual 2012	Actual 2013	Actual 2014	Actual 2015	Actual 2016	Actual 2017	Actual 2018	Actual 2019	Actual 2020
Branch O&M *	78,032,153	82,257,166	89,696,040	92,028,663	98,517,597	101,080,197	117,562,578	112,343,955	113,409,070	112,728,101
Taxes	31,033,547	34,579,191	38,439,778	40,801,911	43,038,318	42,128,072	41,676,404	46,354,856	46,330,520	45,676,064
Debt Service										
Interest	49,599,029	48,810,640	45,171,328	43,601,158	47,467,084	40,549,603	42,781,460	41,047,099	38,667,809	36,478,735
Principal	29,998,293	33,363,293	33,873,204	34,669,987	38,454,987	42,739,987	41,206,473	43,069,929	45,129,935	47,674,935

* Includes contracts associated with treatment plants

APPENDIX C: PROPOSED RATES

Effective January 1, 2022

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	Direct Service																	
RATE SCHEDULES	Inside City				Outside City				City of Shoreline / City of Lake Forest Park					Burien				Mercer Island
	Residential	MMRD*	Gen Svc	Fire Service	Residential	MMRD*	Gen Svc	Fire Service	Residential	MMRD*	Gen Svc	Fire Service	MMRD* w/PUT	Residential	MMRD*	Gen Svc	Fire Service	Gen Svc
Commodity Charge ($/100 Cubic Feet)																		
Offpeak Usage (Sept 16-May 15)	$5.56	$5.56	$5.52		$6.34	$6.34	$6.29		$6.74	$6.74	$6.69		$6.31	$6.89	$6.89	$6.84		$6.64
Peak Usage (May 16-Sept 15)																		
Up to 5 ccf**	$5.71	$5.71	$7.01		$6.51	$6.51	$7.99		$6.92	$6.92	$8.50		$6.48	$7.08	$7.08	$8.69		$8.44
Next 13 ccf**	$7.06	$7.06	$7.01		$8.05	$8.05	$7.99		$8.56	$8.56	$8.50		$8.01	$8.75	$8.75	$8.69		$8.44
Over 18 ccf**	$11.80	$11.80	$7.01		$13.45	$13.45	$7.99		$14.31	$14.31	$8.50		$13.39	$14.62	$14.62	$8.69		$8.44
Usage over base allowance				$20.00				$22.80				$24.30					$24.80	
Utility Credit ($/month)	$23.52		$12.78		$23.52		$12.78		$23.52		$12.78			$23.52		$12.78		$12.78
Base Service Charge ($/month/meter)																		
3/4 inch and less	$19.00		$18.85		$21.65		$21.50		$23.05		$22.85			$23.55		$23.35		
1 inch	$19.60		$19.45		$22.35		$22.15		$23.75		$23.60			$24.30		$24.10		
1-1/2 inch	$30.20	$30.20	$29.95		$34.45	$34.45	$34.15		$36.65	$36.65	$36.30		$34.30	$37.40	$37.40	$37.10		
2 inch	$33.45	$33.45	$33.20	$17.75	$38.15	$38.15	$37.85	$20.00	$40.55	$40.55	$40.25	$22.00	$37.95	$41.45	$41.45	$41.15	$22.00	
3 inch	$123.90	$123.90	$122.90	$23.00	$141.25	$141.25	$140.10	$26.00	$150.25	$150.25	$149.05	$28.00	$140.60	$153.55	$153.55	$152.30	$29.00	
4 inch	$177.45	$177.45	$176.05	$43.00	$202.30	$202.30	$200.70	$49.00	$215.20	$215.20	$213.50	$52.00	$201.40	$219.90	$219.90	$218.15	$53.00	
6 inch		$218.00	$217.00	$73.00		$249.00	$247.00	$83.00		$264.00	$263.00	$89.00	$247.10		$270.00	$269.00	$90.00	
8 inch		$257.00	$255.00	$115.00		$293.00	$291.00	$131.00		$312.00	$309.00	$139.00	$292.00		$318.00	$316.00	$143.00	$307.00
10 inch		$314.00	$312.00	$166.00		$358.00	$356.00	$189.00		$381.00	$378.00	$201.00	$357.00		$389.00	$387.00	$206.00	$376.00
12 inch		$424.00	$421.00	$242.00		$483.00	$480.00	$276.00		$514.00	$511.00	$293.00	$481.00		$525.00	$522.00	$300.00	
16 inch		$477.00	$477.00			$544.00	$544.00			$578.00	$578.00		$541.00		$591.00	$591.00		
20 inch		$614.00	$614.00			$700.00	$700.00			$745.00	$745.00		$697.00		$761.00	$761.00		
24 inch		$771.00	$771.00			$879.00	$879.00			$935.00	$935.00		$875.00		$955.00	$955.00		

* Master Metered Residential Development
** per residence

Effective January 1, 2023

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	Direct Service																	
RATE SCHEDULES	Inside City				Outside City				City of Shoreline / City of Lake Forest Park					Burien				Mercer Island
	Residential	MMRD*	Gen Svc	Fire Service	Residential	MMRD*	Gen Svc	Fire Service	Residential	MMRD*	Gen Svc	Fire Service	MMRD* w/PUT	Residential	MMRD*	Gen Svc	Fire Service	Gen Svc
Commodity Charge ($/100 Cubic Feet)																		
Offpeak Usage (Sept 16-May 15)	$5.76	$5.76	$5.72		$6.57	$6.57	$6.52		$6.99	$6.99	$6.94		$6.54	$7.33	$7.33	$7.29		$6.89
Peak Usage (May 16-Sept 15)																		
Up to 5 ccf**	$5.92	$5.92	$7.27		$6.75	$6.75	$8.29		$7.18	$7.18	$8.82		$6.72	$7.53	$7.53	$9.21		$8.75
Next 13 ccf**	$7.32	$7.32	$7.27		$8.34	$8.34	$8.29		$8.88	$8.88	$8.82		$8.31	$9.26	$9.26	$9.21		$8.75
Over 18 ccf**	$11.80	$11.80	$7.27		$13.45	$13.45	$8.29		$14.31	$14.31	$8.82		$13.39	$14.62	$14.62	$9.21		$8.75
Usage over base allowance				$20.00				$22.80				$24.30					$24.80	
Utility Credit ($/month)	$24.33		$13.25		$24.33		$13.25		$24.33		$13.25			$24.33		$13.25		$13.25
Base Service Charge ($/month/meter)																		
3/4 inch and less	$19.60		$19.55		$22.35		$22.30		$23.75		$23.70			$24.85		$24.85		
1 inch	$20.20		$20.15		$23.05		$22.95		$24.50		$24.45			$25.60		$25.55		
1-1/2 inch	$31.15	$31.15	$31.10		$35.50	$35.50	$35.45		$37.80	$37.80	$37.70		$35.40	$39.15	$39.15	$39.15		
2 inch	$34.50	$34.50	$34.40	$17.75	$39.35	$39.35	$39.20	$20.00	$41.85	$41.85	$41.70	$22.00	$39.15	$43.30	$43.30	$43.25	$22.00	
3 inch	$127.80	$127.80	$127.45	$23.00	$145.70	$145.70	$145.30	$26.00	$155.00	$155.00	$154.55	$28.00	$145.05	$159.35	$159.35	$162.95	$29.00	
4 inch	$183.05	$183.05	$182.60	$43.00	$208.70	$208.70	$208.15	$49.00	$222.00	$222.00	$221.45	$52.00	$207.75	$227.80	$227.80	$231.25	$53.00	
6 inch		$225.00	$225.00	$73.00		$257.00	$257.00	$83.00		$273.00	$273.00	$89.00	$255.50		$280.00	$284.00	$90.00	
8 inch		$265.00	$264.00	$115.00		$302.00	$301.00	$131.00		$321.00	$320.00	$139.00	$300.00		$329.00	$332.00	$143.00	$318.00
10 inch		$324.00	$323.00	$166.00		$369.00	$368.00	$189.00		$393.00	$392.00	$201.00	$368.00		$402.00	$405.00	$206.00	$389.00
12 inch		$437.00	$436.00	$242.00		$498.00	$497.00	$276.00		$530.00	$529.00	$293.00	$496.00		$543.00	$545.00	$300.00	
16 inch		$491.00	$490.00			$560.00	$559.00			$595.00	$594.00		$557.00		$609.00	$612.00		
20 inch		$614.00	$614.00			$700.00	$700.00			$745.00	$745.00		$697.00		$762.00	$766.00		
24 inch		$771.00	$771.00			$879.00	$879.00			$935.00	$935.00		$875.00		$956.00	$960.00		

* Master Metered Residential Development
** per residence