Burbank Water and Power

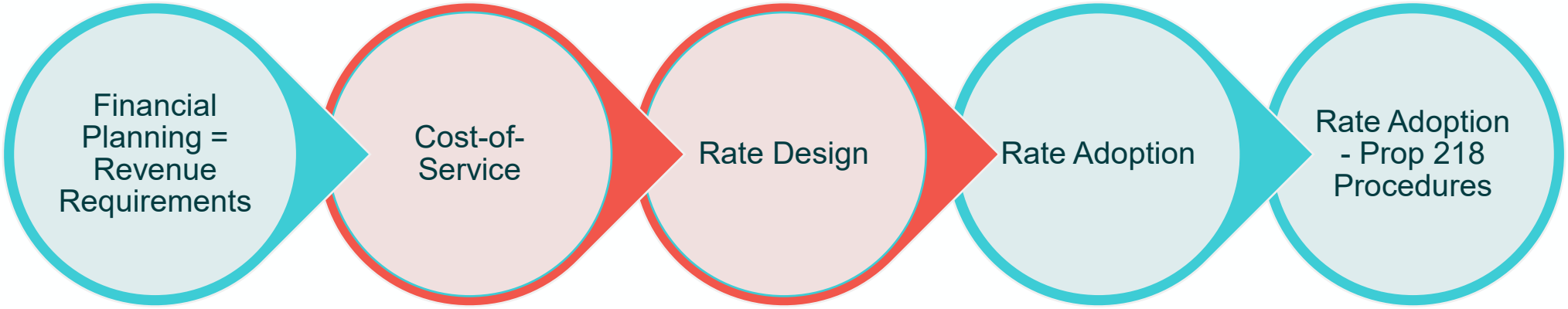
Water Cost of Service Analysis & Rate Design Services

RAFTELIS

Agenda

1. Water Rate Study Overview
2. Cost-of-Service Overview
3. Proposed Rate Structure Changes
4. Proposed Rates

Steps in Conducting a Rate Study



Compare revenue with operating costs, capital costs, and reserve requirements.

Establish revenue needs

Identify differences in costs to serve each customer class

Design rates to recover the cost to serve each class

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Cost-of-Service Steps

Cost-of-Service calculates the cost to serve each customer class and tier

Step 1: Functionalize expenses into water functions

- Functionalizing costs helps put the costs into cost causation components

Step 2: Allocate functionalized expenses into **cost causation components**

- Use AWWA guidance

Step 3: Distribute cost causation components to customer classes (cost to serve each class)

Cost Causation Components – Base Extra Capacity Method

Supply Costs: Costs associated with purchasing/sourcing water

Base Delivery Costs: O&M expenses and capital costs associated with distributing water to customers under *average* load conditions (base use)

Peaking Costs (Max Day & Max Hour): Costs associated with serving water during *peak* flows in excess of base use

Meter Maintenance: Maintenance and capital costs related to meters

Customer Service: Costs associated with serving customers, irrespective of the amount or rate of water use: Meter reading, billing, customer accounting, customer service, collection expenses

Direct Fire Protection: Costs that apply solely to the fire protection function

- Public hydrant maintenance
- Maintenance of branch mains and valves

Conservation: Costs associated with a conservation program

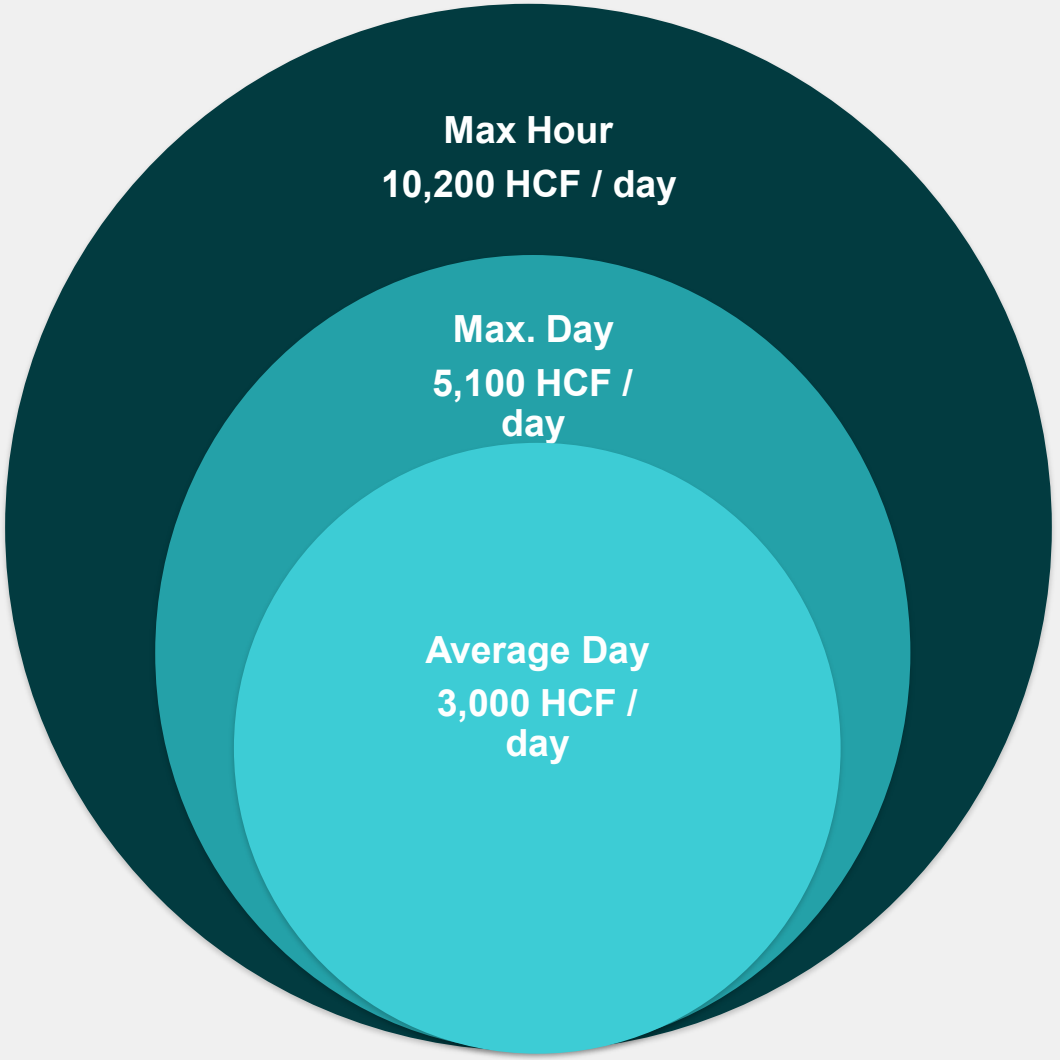
Definition of Peaking Costs (Max Day and Max Hour Costs)

Pipeline diameters are used as an example to visually illustrate how much more infrastructure is needed to meet peak demands.

The same argument is extended to water storage tanks and pumps.

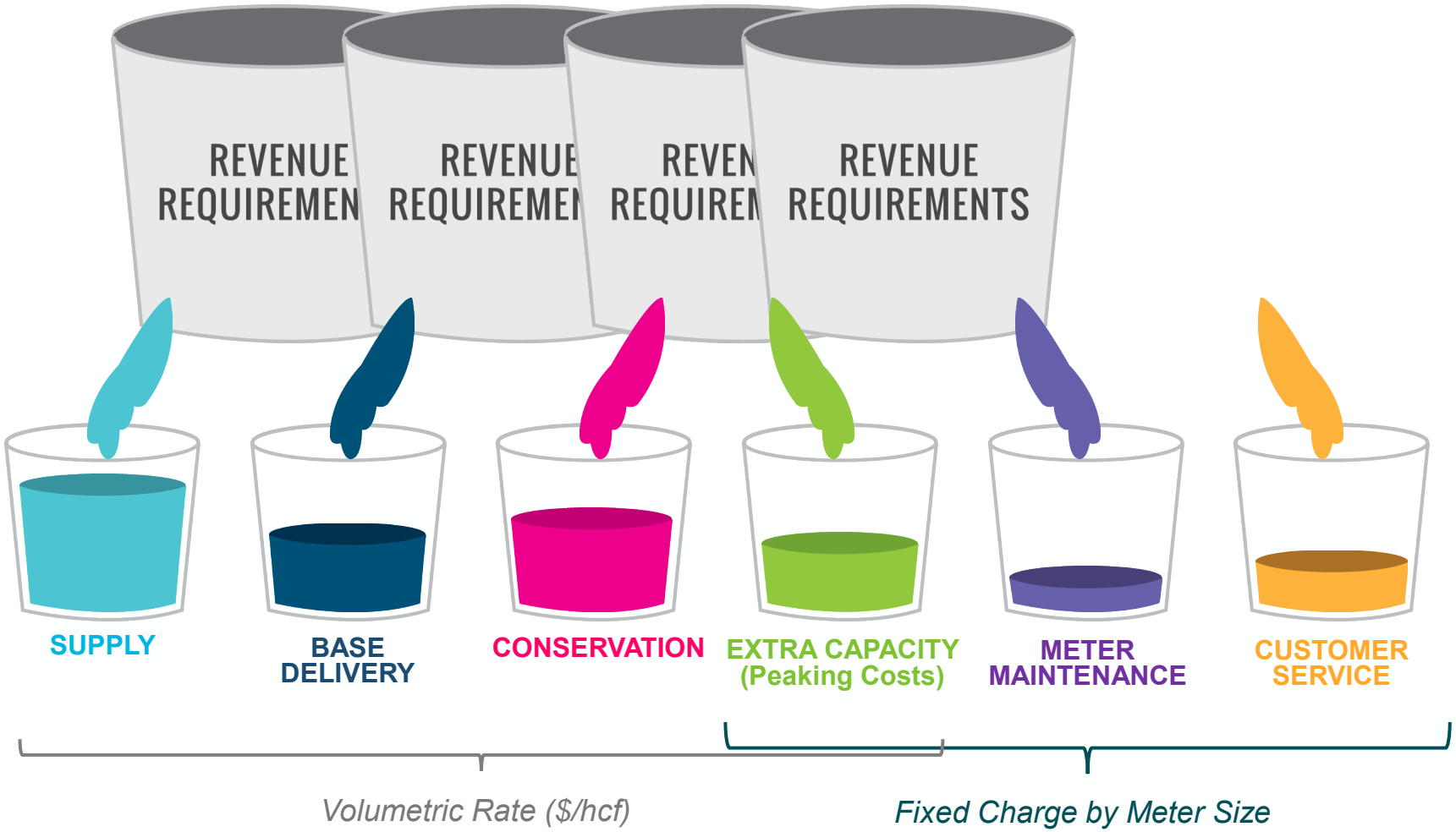
Larger pipes and tanks are more expensive to build and maintain and replace than smaller pipes/tanks

Costs are proportional to the area shown

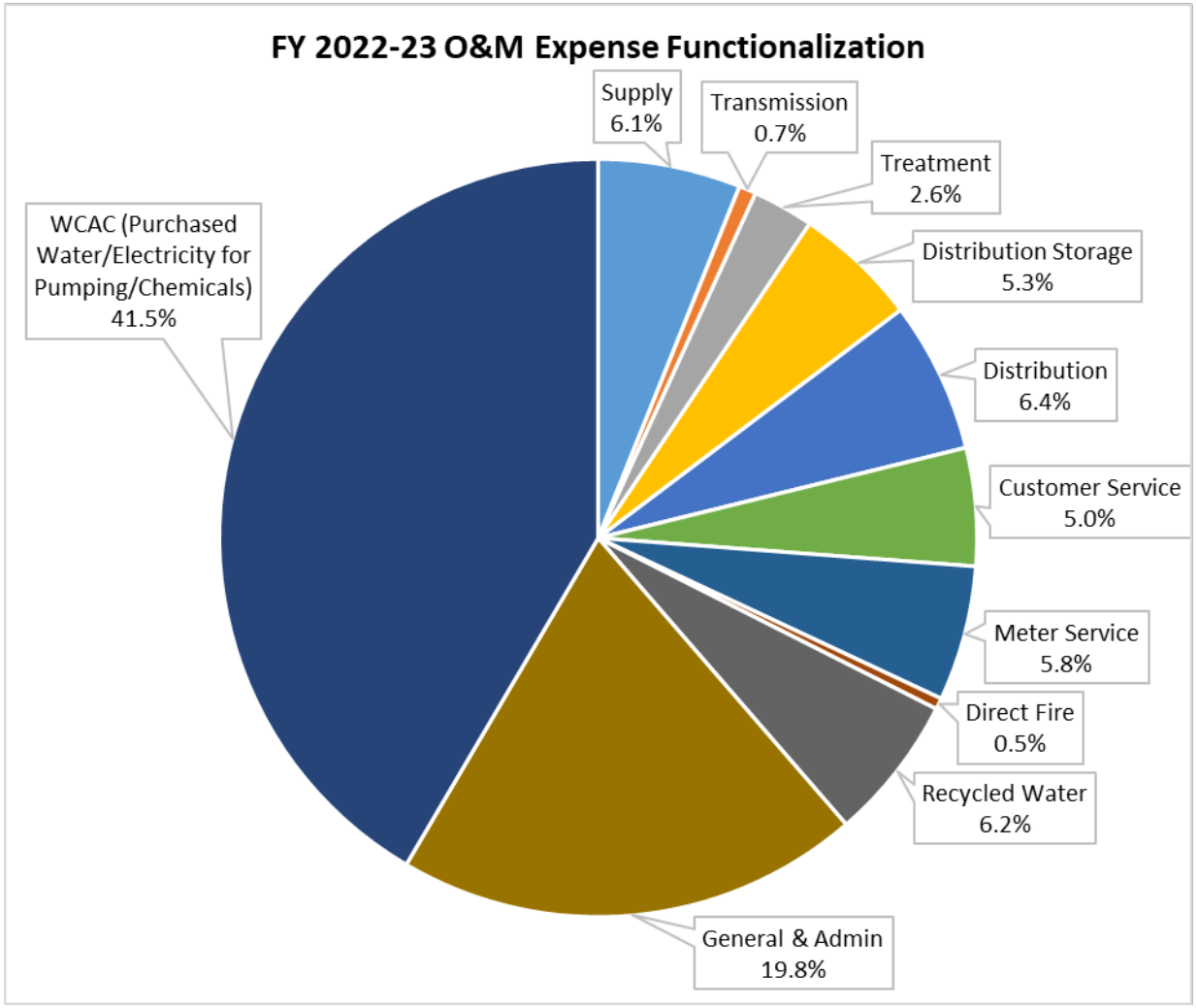


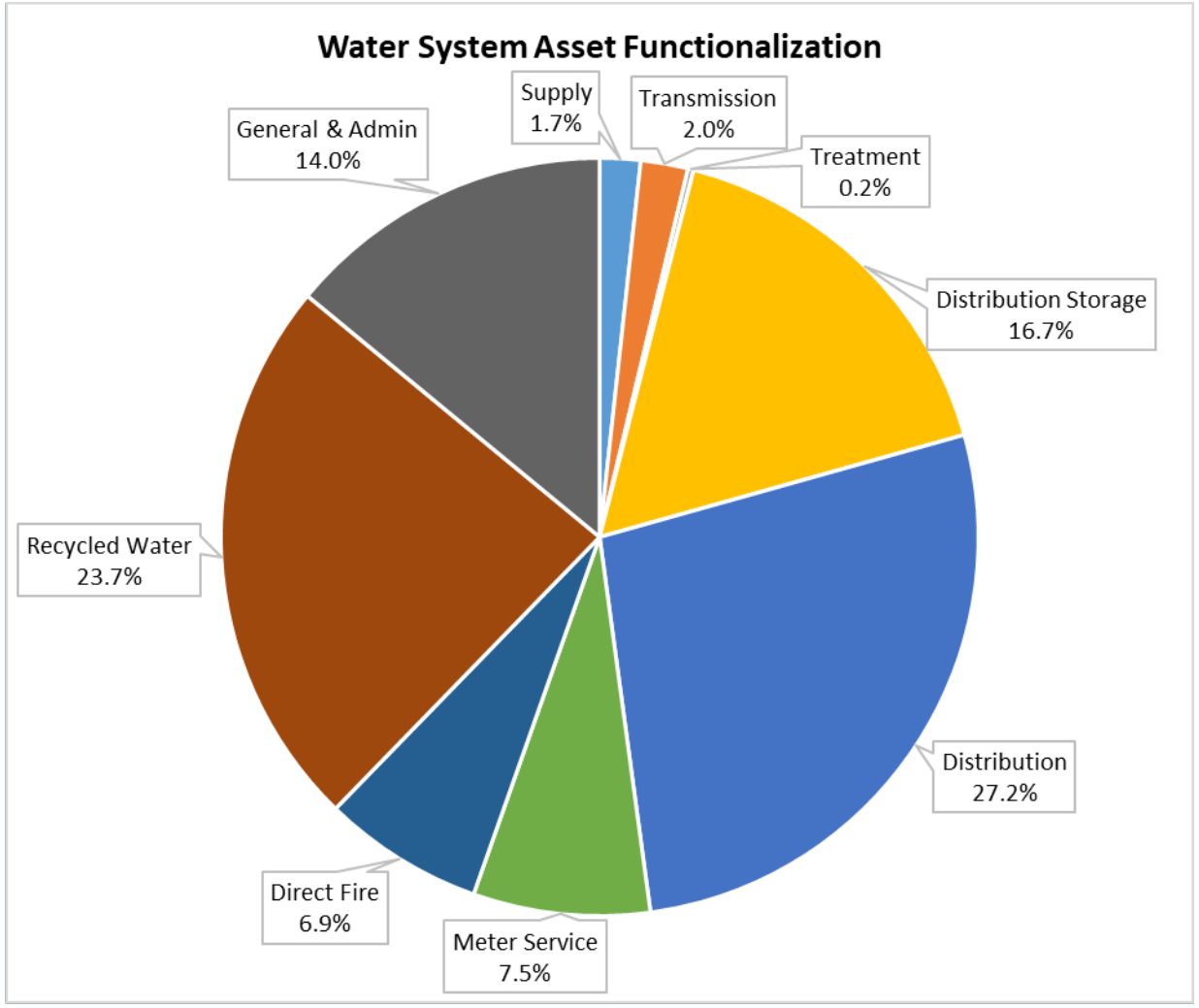
Water Cost-of-Service

Allocation to Cost Components



Step 1: Functionalize O&M Expenses & Capital Assets





Systemwide Peaking Factors

- Systemwide design max day and max hour peaking factors
- Percentages shown used to allocate certain functions to cost causation components

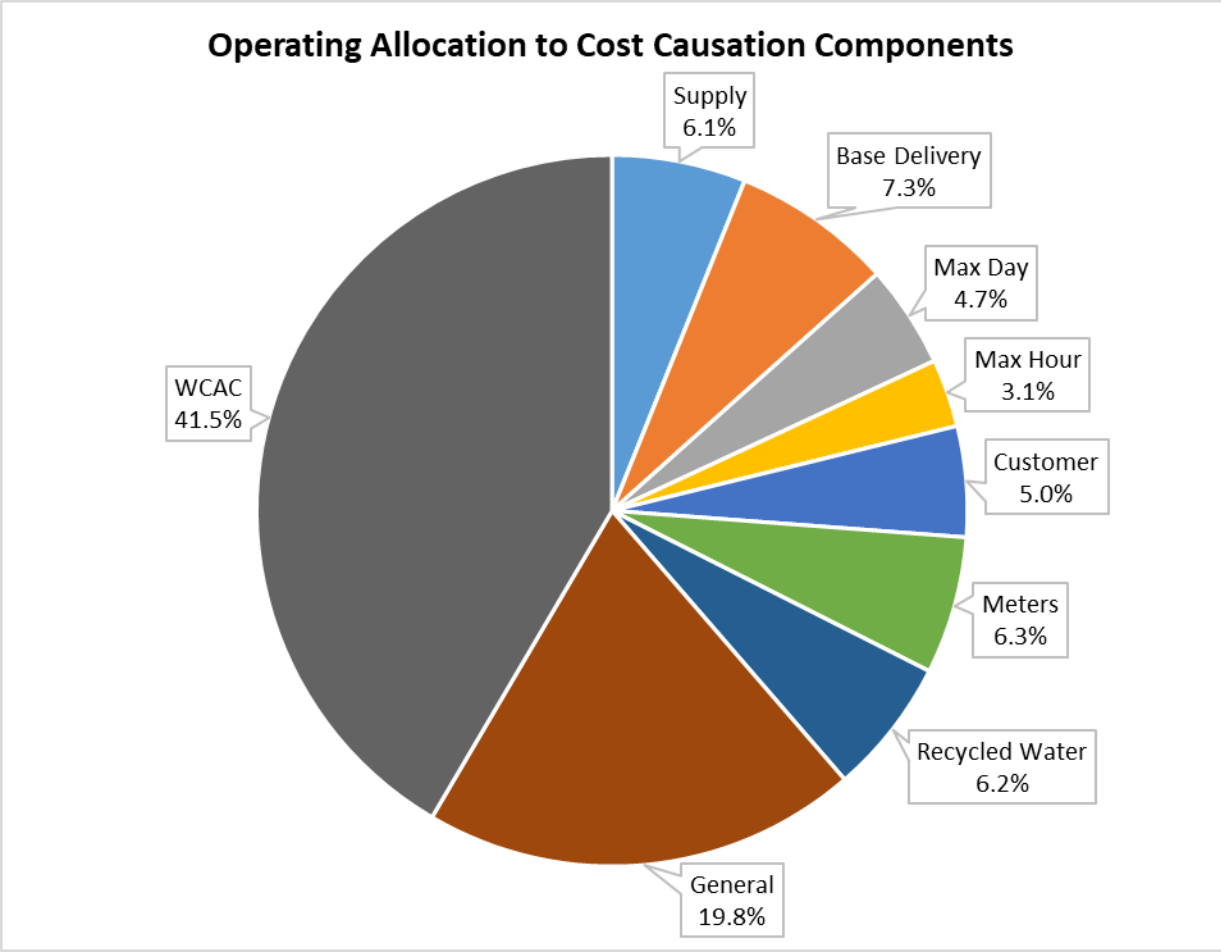
Peaking

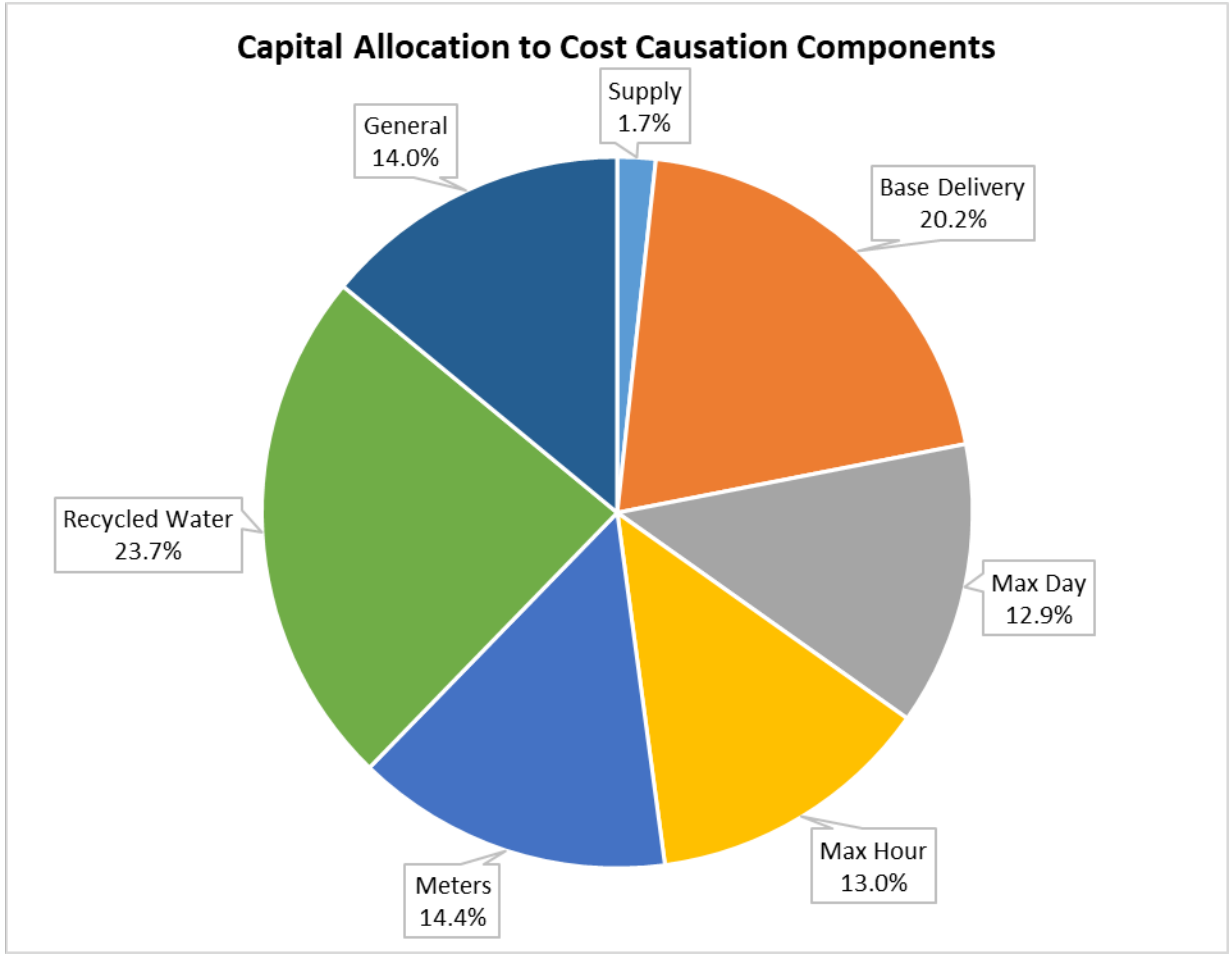
	Peaking Factor	Base	Max Day	Max Hour
Base	1.00	100.0%		
Max Day	1.64	61.0%	39.0%	0.0%
Max Hour	3.15	31.7%	20.3%	47.9%

Step 2: Allocate Functionalized Expenses to Cost Causation Components

Function	Allocation to Cost Causation Components
Supply	100% Supply
Transmission	61% Base Delivery / 39% Max Day(i.e., Max Day Basis)
Treatment	61% Base Delivery / 39% Max Day(i.e., Max Day Basis)
Distribution Storage	61% Base Delivery / 39% Max Day(i.e., Max Day Basis)
Distribution	31.7% Base Delivery / 20.3% Max Day / 47.9% Max Hour (i.e., Max Hour Basis)
Customer Service	100% Customer
Meter Service	100% Meters
Direct Fire	100% Meters
Recycled Water	100% Recycled Water
General & Admin	100% General
WCAC (Purchased Water/Electricity for Pumping/Chemicals)	100% WCAC

Step 2: Allocate Functionalized Expenses to Cost Causation Components





Allocation of Revenue Requirements to Cost Causation Components

- Use the preceding percentages to allocate operating and capital revenue requirement to the cost components

Cost of Service	Supply	Base Delivery	Max Day	Max Hour	Customer	Meters	Private Fire Protection	Recycled Water	General	WCAC	Total
Revenue Requirement Allocation											
Operating Revenue Requirement	$1,865,860	$2,240,846	$1,434,142	$947,062	$1,541,113	$1,916,612	$0	$1,898,080	$6,074,435	$12,731,698	**$30,649,846**
Capital Revenue Requirement	$88,593	$1,028,949	$658,527	$665,257	$0	$735,881	$0	$1,209,023	$715,350	$365,887	**$5,467,468**
Revenue Offsets	($96,000)	($125,632)	($80,404)	($189,704)	$0	$0	$0	$0	($340,318)	$0	**($832,058)**
Subtotal	**$1,858,453**	**$3,144,163**	**$2,012,264**	**$1,422,615**	**$1,541,113**	**$2,652,493**	**$0**	**$3,107,103**	**$6,449,467**	**$13,097,585**	**$35,285,256**
Cost Reallocation											
Reallocation of General Costs	$761,588	$1,288,468	$824,620	$582,983	$631,543	$1,086,983	$0	$1,273,281	($6,449,467)	N/A	**$0**
Reallocation of Extra Capacity to Private Fire Protection			($178,776)	($186,317)			$365,093				**$0**
Reallocation of Extra Capacity to Public Fire Protection			($426,493)	($444,484)		$870,977					**$0**
Subtotal	**$761,588**	**$1,288,468**	**$219,350**	**($47,818)**	**$631,543**	**$1,957,961**	**$365,093**	**$1,273,281**	**($6,449,467)**	**$0**	**$0**
Total	**$2,620,041**	**$4,432,632**	**$2,231,615**	**$1,374,797**	**$2,172,656**	**$4,610,454**	**$365,093**	**$4,380,384**	**$0**	**$13,097,585**	**$35,285,256**

Unit Cost Development	Supply	Base Delivery	Max Day	Max Hour	Customer	Meters	Private Fire Protection	Recycled Water	WCAC
Cost of Service	$2,620,041	$4,432,632	$2,231,615	$1,374,797	$2,172,656	$4,610,454	$365,093	$4,380,384	$13,097,585
Unit of Measure	**Potable HCF**	**Potable HCF (excl. Private Fire)**	**HCF/Day**	**HCF/Day**	**# of Connections (incl. Private Fire)**	**Equivalent Meter Units**	**Equivalent Fire Demand Units (Private Only)**	**Recycled HCF**	**Potable HCF**
Units of Service	6,005,169	6,002,782	6,210	23,599	25,823	40,123	87,206	1,383,466	6,005,169
Unit Cost	**$0.436**	**$0.738**	**$359.34**	**$58.256**	**$7.011**	**$9.576**	**$0.349**	**$3.166**	**$2.181**

Potable Volumetric Rates

Monthly Fixed Charges

Recycled Rate

WCAC

Step 3: Distribute Cost Causation Components to Customer Classes

- Rate revenue by customer class:
  - Current: based on existing FY 2022-23 rates
  - Proposed: based on updated FY 2022-23 cost-of-service analysis

Current vs. Proposed Cost of Service by Customer Class	Current ($)	Proposed ($)	$ Difference	Current (%)	Proposed (%)
Single Family Residential	$16,025,734	$17,266,683	$1,240,949	45.4%	48.9%
Multi-Family Residential	$7,379,203	$6,856,030	($523,173)	20.9%	19.4%
Commercial/Industrial/City	$5,944,077	$5,716,171	($227,907)	16.8%	16.2%
Irrigation	$269,858	$281,992	$12,134	0.8%	0.8%
Private Fire Service	$765,475	$463,119	($302,356)	2.2%	1.3%
Recycled Water	$4,900,908	$4,701,260	($199,648)	13.9%	13.3%
Total	**$35,285,256**	**$35,285,256**	**$0**	**100.0%**	**100.0%**

Proposed Changes to Single Family Residential Tiers

- Single Family Residential monthly tier allotments in HCF:
  - Current:
    - Tier 1: 0-15 HCF
    - Tier 2: 16-30 HCF
    - Tier 3: >30 HCF
  - Proposed:
    - Tier 1: 0-8 HCF (based on efficient indoor water use for a family of 4)
    - Tier 2: 9-20 HCF (based on average water use during peak summer)
    - Tier 3: >20 HCF

Proposed Changes to Rate Structure

- Water Availability Charge (fixed charges): No changes
- Quantity Charges (volumetric rates):
  - Eliminate seasonal rates (i.e., same rates for “Summer” & “Non-Summer”
  - Unique rates for Multi-Family & Irrigation (currently the same as Commercial)
  - Unique rate for Temporary Potable (currently 2x the Commercial rate)
  - Unique rate for Private Fire Service (currently 3x the Commercial rate)
- Water Cost Adjustment Charges (WCAC):
  - Same rate for ALL potable water use (currently Temporary Potable and Private Fire Service are 2x and 3x the base WCAC rate, respectively)

Rate Design Process

- FY 2022-23 Cost of Service (COS) Rates:
  - Calculated directly from the results of FY 2022-23 cost-of-service analysis
  - Designed to recover the same total revenue as current FY 2022-23 rates (i.e., revenue neutral)
  - These are not proposed rates and will never be effective
- FY 2023-24 & FY 2024-25 Proposed Rates:
  - Calculated by increasing all FY 2022-23 COS Rates by a percentage for all rates
  - Designed to recover the proposed overall rate revenue requirement

Water Availability Charge Calculation

- FY 2022-23 COS Charges by meter size equal to the sum of:
  - Customer unit cost (same for all meter sizes)
  - Meters unit cost x meter capacity ratio (increases with meter size)

Water Availability Charge Comparison

- FY 2022-23 COS Charges vs. Current:

Meter Size	Total Number of Meters	COS Monthly Charge	Current Monthly Charge	Difference ($)
1" or Smaller	23,151	**$16.40**	$17.72	($1.32)
1.5"	1,169	**$39.21**	$35.40	$3.81
2"	1,329	**$58.52**	$56.67	$1.85
3"	60	**$147.05**	$113.34	$33.71
4"	75	**$248.46**	$177.08	$71.38
6"	30	**$522.10**	$354.19	$167.91
8"	6	**$908.41**	$566.68	$341.73
10"	0	**$1,359.10**	$814.61	$544.49
12"	2	**$1,713.22**	$1,522.95	$190.27
14"	1	**$2,421.46**	$1,522.95	$898.51

Private Fire Service Charge Calculation

- FY 2022-23 COS Charges by connection size equal to the sum of:
  - Private Fire Protection unit cost x Fire Demand Factor (increases with connection size)
  - Meter maintenance/replacement cost for 3/4-inch meter (same for all connection sizes)

Private Fire Service Charge Comparison

- FY 2022-23 COS Charges vs. Current:

Connection Size	Number of Connections	COS Monthly Charge	Current Monthly Charge	Difference ($)
2" or Smaller	111	**$9.96**	$23.62	($13.66)
4"	469	**$21.17**	$40.15	($18.98)
6"	251	**$46.64**	$73.21	($26.57)
8"	129	**$90.56**	$129.89	($39.33)
10"	17	**$156.63**	$212.55	($55.92)
12"	4	**$248.20**	$309.73	($61.53)

Tiered Rate Design Derivation

- Tiered rates must be based on the cost to serve water to customers in that tier
- The total tiered rates can be broken down into different components

SUPPLY
Supply rate
($/HCF)

BASE
Base
Delivery rate
($/HCF)

EXTRA CAPACITY
(Peaking Costs)
Peaking rate
($/HCF)

TOTAL
VOLUMETRIC RATE
FOR EACH TIER
($/HCF)

Quantity Charge Calculation

- FY 2022-23 COS Rates:

	[A]	[B]	[C]	[D]	[E = A+B+C+D]
Customer Class/Tier	Supply	Base Delivery	Peaking	Recycled Water	COS Rate ($/HCF)
Single Family Residential Tier 1 (0-8 HCF/ month)	$0.436	$0.738	$0.186	N/A	**$1.361**
Single Family Residential Tier 2 (9-20 HCF/ month)	$0.436	$0.738	$1.488	N/A	**$2.663**
Single Family Residential Tier 3 (>20 HCF/ month)	$0.436	$0.738	$2.117	N/A	**$3.293**
Multi-Family Residential	$0.436	$0.738	$0.115	N/A	**$1.290**
Commercial/Industrial/City	$0.436	$0.738	$0.184	N/A	**$1.360**
Irrigation	$0.436	$0.738	$0.767	N/A	**$1.942**
Temporary	$0.436	$0.738	$0.767	N/A	**$1.942**
Dedicated Private Fire Service	$0.436	N/A	N/A	N/A	**$0.437**
Recycled Water	N/A	N/A	N/A	$3.166	**$3.167**

WCAC Calculation

- WCAC is calculated each year since it functions as a pass-through of specific WCAC expenses:

Proposed Water Cost Adjustment Charges ($/HCF)	Current	COS	Proposed	Proposed
Description	**FY 2022-23**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**
WCAC Expenses		$12,731,698	$14,644,062	$15,598,675
Additional WCAC Reserve Funding		$365,887	$618,249	$1,320,645
Total WCAC Revenue Requirement		$13,097,585	$15,262,311	$16,919,320
Potable Water Sales (HCF)		6,005,169	6,419,893	6,529,259
WCAC Rate ($/HCF)	$2.200	$2.181	$2.378	$2.592
Difference ($)		*($0.019)*	*$0.178*	*$0.214*

Rates for the Next Two Years

- Previous slides derived FY 2022-23 cost-of-service rates
- Propose rates for FY 2023-24 and 2024-25 will be increased by a certain percent to reach rate revenue requirements

Fiscal Year	Rate Revenue Requirement	Notes
FYE 2022-23 COS Water Rate Revenue	$35,285,256	*per adopted FYE 2023 budget*
FYE 2023-24 Proposed Water Rate Revenue	$40,075,810	*per BWP Staff's 10-year Proforma*
FYE 2024-25 Proposed Water Rate Revenue	$44,042,832	*per BWP Staff's 10-year Proforma*

End of Presentation

Supplemental Slides

Burbank Water and Power

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4. Proposed Rate Calculations
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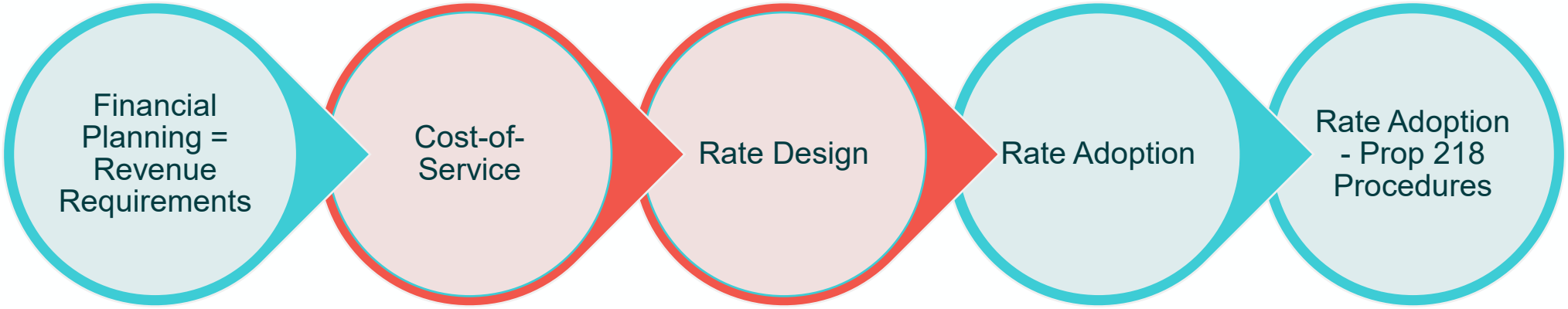

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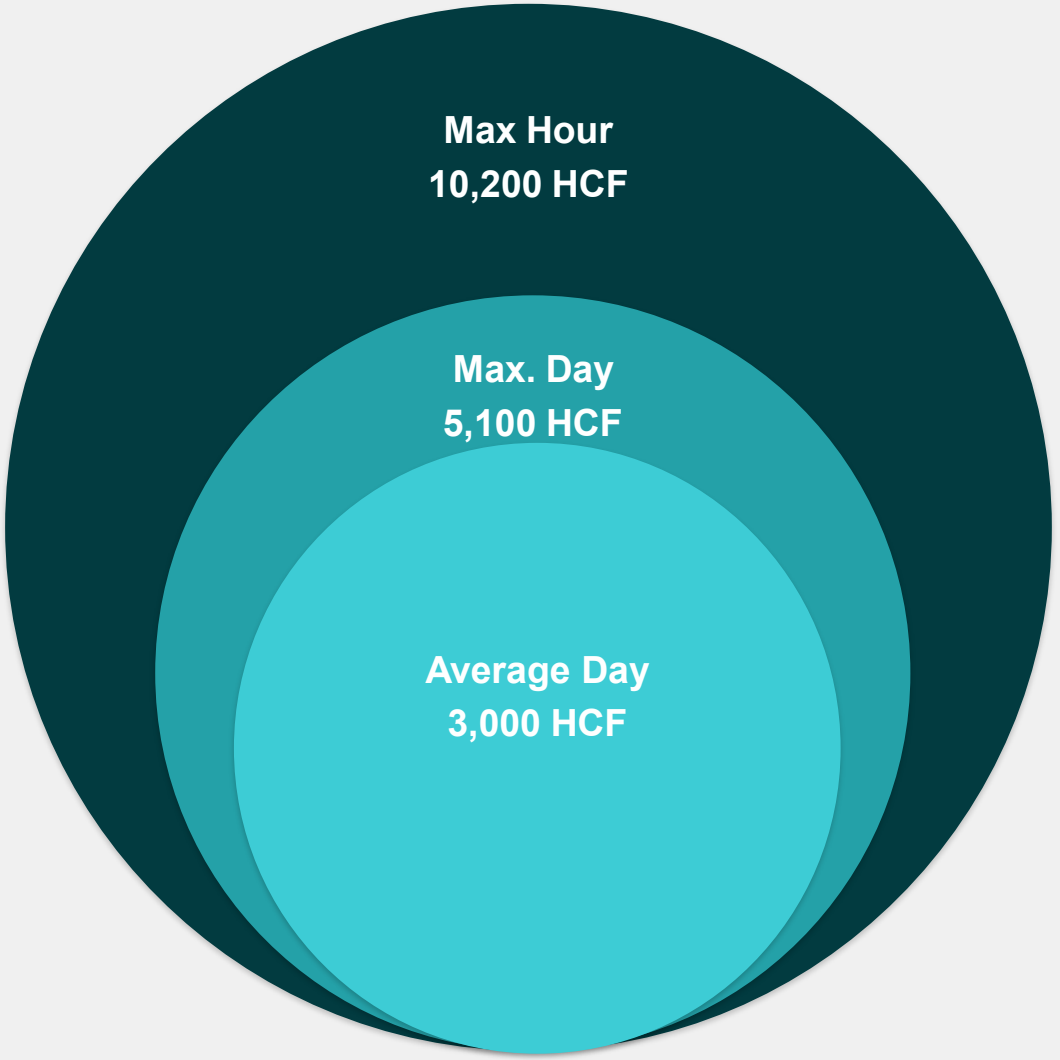
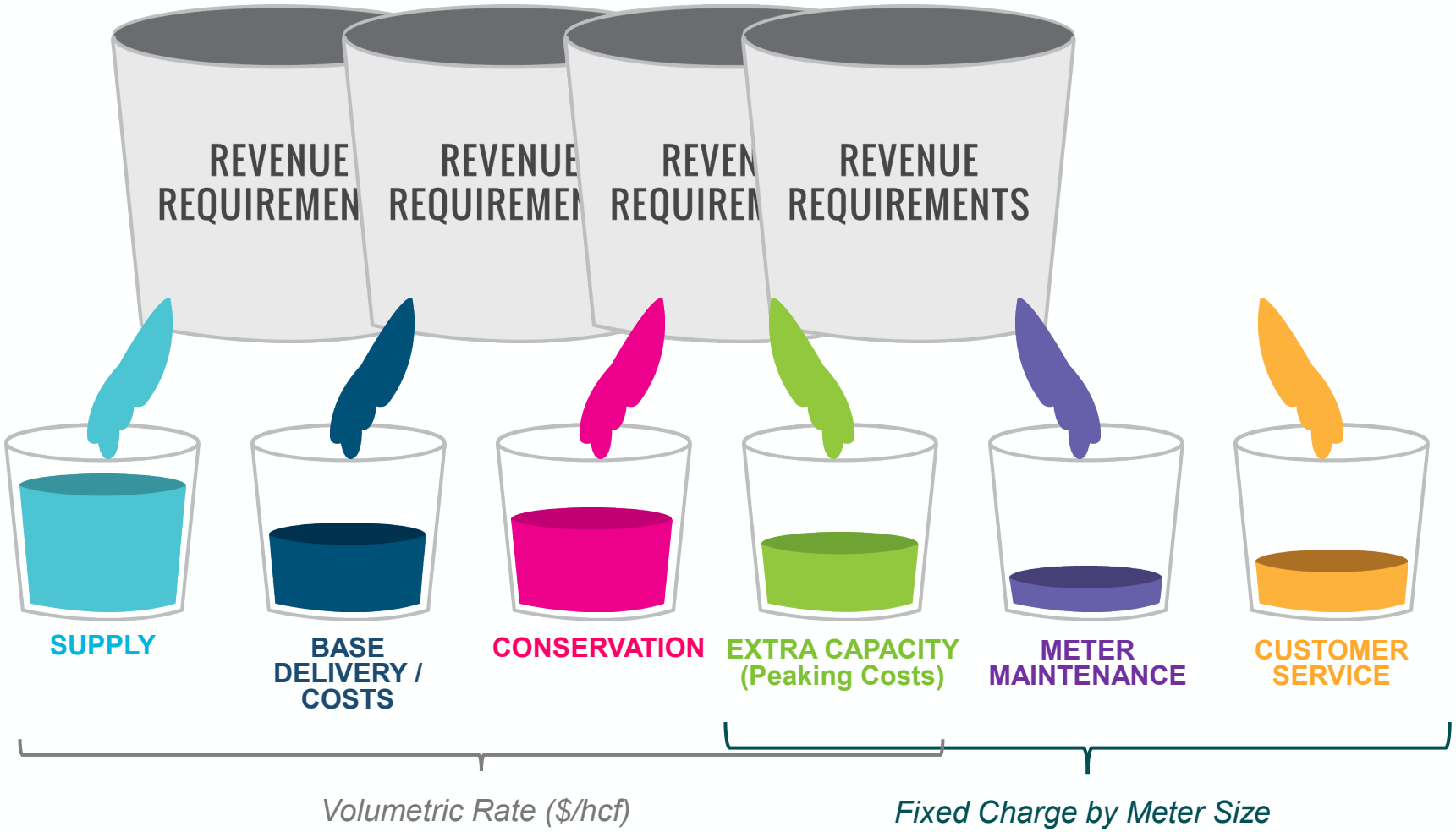


Water Cost-of-Service

Allocation to Cost Components



Step 1: Functionalize O&M Expenses

- Staff functionalized O&M expenses
- We functionalize expenses because each function has design requirements (found in a water master plan) and helps us allocate costs to the cost components

Functions	$	Basis
Supply	$1,865,860	**Base/Supply**
Transmission	$224,639	**Max Day**
Treatment	$799,255	**Max Day**
Distribution Storage	$1,622,497	**Max Day**
Distribution	$1,975,659	**Max Hour**
Customer Service	$1,541,113	Customer Service
Meter Service	$1,769,720	Meters
Direct Fire	$146,892	Meters
Recycled Water	$1,898,080	Recycled
General & Admin	$6,074,435	General
WCAC	$12,731,698	WCAC
Total	**$30,649,846**	

Cost Components

- System wide design max day and max hour peaking factors
- Percentages shown used to allocate functions to cost components

Peaking

	Peaking Factor	Base	Max Day	Max Hour
Base	1.00	100.0%		
Max Day	1.64	61.0%	39.0%	0.0%
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O&M Expense Allocation to Cost Components

- Allocate functionalized O&M expenses to cost components

Functions		Basis	Supply	Base Delivery	Max Day	Max Hour	Customer	Meters	Recycled Water	General	WCAC
Supply	$1,865,860	Base/Supply	$1,865,860								
Transmission	$224,639	Max Day		$136,975	$87,664						
Treatment	$799,255	Max Day		$487,351	$311,905						
Distribution Storage	$1,622,497	Max Day		$989,327	$633,169						
Distribution	$1,975,659	Max Hour		$627,193	$401,404	$947,062					
Customer Service	$1,541,113	Customer Ser					$1,541,113				
Meter Service	$1,769,720	Meters						$1,769,720			
Direct Fire	$146,892	Meters						$146,892			
Recycled Water	$1,898,080	Recycled							$1,898,080		
General & Admin	$6,074,435	General								$6,074,435	
WCAC	$12,731,698	WCAC									$12,731,698
Total	**$30,649,846**		$1,865,860	$2,240,846	$1,434,142	$947,062	$1,541,113	$1,916,612	$1,898,080	$6,074,435	$12,731,698
%			**6.1%**	**7.3%**	**4.7%**	**3.1%**	**5.0%**	**6.3%**	**6.2%**	**19.8%**	**41.5%**

Asset Allocation to Cost Components

- Allocate functionalized asset values to cost components

Functions	Asset Value	Basis	Supply	Base Delivery	Max Day	Max Hour	Meters	Recycled Water	General
Supply	$2,256,282	Base/Supply	$2,256,282	$0	$0				
Transmission	$2,619,075	Max Day		$1,596,997	$1,022,078				
Treatment	$309,500	Max Day		$188,720	$120,781				
Distribution Storage	$21,646,560	Max Day		$13,199,122	$8,447,438				
Distribution	$35,344,061	Max Hour		$11,220,337	$7,181,016	$16,942,709			
Customer Service	$0	Customer Service							
Meter Service	$9,809,409	Meters					$9,809,409		
Direct Fire	$8,931,951	Meters					$8,931,951		
Recycled Water	$30,791,279	Recycled						$30,791,279	
General & Admin	$18,218,479	General							$18,218,479
WCAC	$0	WCAC							
Total Asset Value	**$129,926,597**		**$2,256,282**	**$26,205,176**	**$16,771,312**	**$16,942,709**	**$18,741,359**	**$30,791,279**	**$18,218,479**
%			**1.74%**	**20.17%**	**12.91%**	**13.04%**	**14.42%**	**23.70%**	**14.02%**

Allocation of Revenue Requirements to Cost Components

- Use the preceding percentages to allocate operating and capital revenue requirement to the cost components

Preliminary Cost of Service	Supply	Base Delivery	Max Day	Max Hour	Customer	Meters	Private Fire Protection	Recycled Water	General	WCAC	Total
Revenue Requirement Allocation											
Operating Revenue Requirement	$1,865,860	$2,240,846	$1,434,142	$947,062	$1,541,113	$1,916,612	$0	$1,898,080	$6,074,435	$12,731,698	**$30,649,846**
Capital Revenue Requirement	$88,593	$1,028,949	$658,527	$665,257	$0	$735,881	$0	$1,209,023	$715,350	$365,887	**$5,467,468**
Revenue Offsets	($96,000)	($125,632)	($80,404)	($189,704)	$0	$0	$0	$0	($340,318)	$0	**($832,058)**
Subtotal	**$1,858,453**	**$3,144,163**	**$2,012,264**	**$1,422,615**	**$1,541,113**	**$2,652,493**	**$0**	**$3,107,103**	**$6,449,467**	**$13,097,585**	**$35,285,256**
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Reallocation of General Costs	$761,588	$1,288,468	$824,620	$582,983	$631,543	$1,086,983	$0	$1,273,281	($6,449,467)	N/A	**$0**
Reallocation of Extra Capacity to Private Fire Protection			($178,776)	($186,317)			$365,093				**$0**
Reallocation of Extra Capacity to Public Fire Protection			($426,493)	($444,484)		$870,977					**$0**
Subtotal	**$761,588**	**$1,288,468**	**$219,350**	**($47,818)**	**$631,543**	**$1,957,961**	**$365,093**	**$1,273,281**	**($6,449,467)**	**$0**	**$0**
Total	**$2,620,041**	**$4,432,632**	**$2,231,615**	**$1,374,797**	**$2,172,656**	**$4,610,454**	**$365,093**	**$4,380,384**	**$0**	**$13,097,585**	**$35,285,256**

Unit Cost Development	Supply	Base Delivery	Max Day	Max Hour	Customer	Meters	Private Fire Protection	Recycled Water	WCAC
Adjusted Cost of Service	$2,620,041	$4,432,632	$2,231,615	$1,374,797	$2,172,656	$4,610,454	$365,093	$4,380,384	$13,097,585
Unit of Measure	**Potable HCF**	**Potable HCF (excl. Private Fire)**	**HCF/Day**	**HCF/Day**	**# of Connections (incl. Private Fire)**	**Equivalent Meter Units**	**Equivalent Fire Demand Units (Private Only)**	**Recycled HCF**	**Potable HCF**
Units of Service (Current Fixed Charg	6,005,169	6,002,782	6,210	23,599	25,823	40,123	87,206	1,383,466	6,005,169
Unit Cost	**$0.44**	**$0.74**	**$359.34**	**$58.26**	**$7.01**	**$9.58**	**$0.35**	**$3.17**	**$2.18**

Volumetric Rate

Fixed Charge

Cost to Serve Each Class

- Rate revenue by customer class:
  - Current: based on existing FY 2022-23 rates
  - Proposed: based on updated FY 2022-23 cost-of-service analysis

Current vs. Proposed Cost of Service by Customer Class	Current ($)	Proposed ($)	$ Difference	Current (%)	Proposed (%)
Single Family Residential	$16,025,734	$17,266,683	$1,240,949	45.4%	48.9%
Multi-Family Residential	$7,379,203	$6,856,030	($523,173)	20.9%	19.4%
Commercial/Industrial/City	$5,944,077	$5,716,171	($227,907)	16.8%	16.2%
Irrigation	$269,858	$281,992	$12,134	0.8%	0.8%
Private Fire Service	$765,475	$463,119	($302,356)	2.2%	1.3%
Recycled Water	$4,900,908	$4,701,260	($199,648)	13.9%	13.3%
Total	**$35,285,256**	**$35,285,256**	**$0**	**100.0%**	**100.0%**

Current Water Rate Structure

Monthly Fixed Charges

Water Availability Charges ($/Month)	July 1, 2022
1" or Smaller	$17.72
1.5"	$35.40
2"	$56.67
3"	$113.34
4"	$177.08
6"	$354.19
8"	$566.68
10"	$814.61
Larger than 10"	$1,522.95
Private Fire Service Charges ($/Month)	**July 1, 2022**
2" or Smaller	$23.62
4"	$40.15
6"	$73.21
8"	$129.89
10"	$212.55
12"	$309.73

Volumetric Rates (per HCF)

Quantity Charges ($/HCF)	July 1, 2022
Single Family Residential Quantity Charges	
First 15 HCF	$1.579
Next 15 HCF	$1.943
All additional HCF	$2.447
Multi-Family Residential, Commercial, & Industrial Quantity Charges	
Summer HCF (June 1 - October 31)	$2.279
Non-Summer HCF (November 1 - May 31)	$1.064
Temporary Quantity Charges	
Summer HCF (June 1 - October 31)	$4.558
Non-Summer HCF (November 1 - May 31)	$2.128
Dedicated Private Fire Service Quantity Charges	
Summer HCF (June 1 - October 31)	$6.837
Non-Summer HCF (November 1 - May 31)	$3.192
Recycled Water Quantity Charge	
All Recycled Water	$3.349
Water Cost Adjustment Charges ($/HCF)	
Single Family Residential, Multi-Family Residential, Commercial, & Industria	$2.200
Temporary	$4.400
Dedicated Private Fire Service	$6.600

Proposed Changes to Single Family Residential Tiers

- Single Family Residential monthly tier allotments in HCF:
  - Current:
    - Tier 1: 0-15 HCF
    - Tier 2: 16-30 HCF
    - Tier 3: >30 HCF
  - Proposed:
    - Tier 1: 0-8 HCF (based on efficient indoor water use for a family of 4)
    - Tier 2: 9-20 HCF (based on average water use during peak summer)
    - Tier 3: >20 HCF

Proposed Changes to Rate Structure

- Water Availability Charge (fixed charges): No changes
- Quantity Charges (volumetric rates):
  - Eliminate seasonal rates (i.e., same rates for “Summer” & “Non-Summer”
  - Unique rates for Multi-Family & Irrigation (currently the same as Commercial)
  - Unique rate for Temporary Potable (currently 2x the Commercial rate)
  - Unique rate for Private Fire Service (currently 3x the Commercial rate)
- Water Cost Adjustment Charges (WCAC):
  - Same rate for ALL potable water use (currently Temporary Potable and Private Fire Service are 2x and 3x the base WCAC rate, respectively)

Rate Design Process

- FY 2022-23 Cost of Service (COS) Rates:
  - Calculated directly from the results of FY 2022-23 cost-of-service analysis
  - Designed to recover the same total revenue as current FY 2022-23 rates (i.e., revenue neutral)
  - These are not proposed rates and will never be effective
- FY 2023-24 & FY 2024-25 Proposed Rates:
  - Calculated by increasing all FY 2022-23 COS Rates by a percentage for all rates
  - Designed to recover the proposed overall rate revenue requirement

Water Availability Charge Calculation

- FY 2022-23 COS Charge Calculation:

Meter Size	Total Number of Meters	Meter Ratio	Customer	Meter Service	Public Fire Capacity	COS Monthly Charge
1" or Smaller	23,151	1.00	$7.01	$7.58	$1.81	**$16.40**
1.5"	1,169	3.43	$7.01	$25.99	$6.21	**$39.21**
2"	1,329	5.49	$7.01	$41.58	$9.93	**$58.52**
3"	60	14.92	$7.01	$113.05	$26.99	**$147.05**
4"	75	25.73	$7.01	$194.91	$46.54	**$248.46**
6"	30	54.88	$7.01	$415.80	$99.28	**$522.10**
8"	6	96.05	$7.01	$727.65	$173.74	**$908.41**
10"	0	144.07	$7.01	$1,091.47	$260.62	**$1,359.10**
12"	2	181.80	$7.01	$1,377.33	$328.87	**$1,713.22**
14"	1	257.27	$7.01	$1,949.06	$465.38	**$2,421.46**

Water Availability Charge Comparison

- FY 2022-23 COS Charges vs. Current:

Meter Size	Total Number of Meters	COS Monthly Charge	Current Monthly Charge	Difference ($)
1" or Smaller	23,151	**$16.40**	$17.72	($1.32)
1.5"	1,169	**$39.21**	$35.40	$3.81
2"	1,329	**$58.52**	$56.67	$1.85
3"	60	**$147.05**	$113.34	$33.71
4"	75	**$248.46**	$177.08	$71.38
6"	30	**$522.10**	$354.19	$167.91
8"	6	**$908.41**	$566.68	$341.73
10"	0	**$1,359.10**	$814.61	$544.49
12"	2	**$1,713.22**	$1,522.95	$190.27
14"	1	**$2,421.46**	$1,522.95	$898.51

Private Fire Service Charge Calculation

- FY 2022-23 COS Charge Calculation:

Connection Size	Number of Connections	Meter Ratio	Fire Demand Factor	Meter Service	Private Fire Protection	COS Monthly Charge
2" or Smaller	111	1.03	6.19	$7.80	$2.16	**$9.96**
4"	469	1.03	38.32	$7.80	$13.37	**$21.17**
6"	251	1.03	111.31	$7.80	$38.83	**$46.64**
8"	129	1.03	237.21	$7.80	$82.76	**$90.56**
10"	17	1.03	426.58	$7.80	$148.83	**$156.63**
12"	4	1.03	689.04	$7.80	$240.39	**$248.20**

Private Fire Service Charge Comparison

- FY 2022-23 COS Charges vs. Current:

Connection Size	Number of Connections	COS Monthly Charge	Current Monthly Charge	Difference ($)
2" or Smaller	111	**$9.96**	$23.62	($13.66)
4"	469	**$21.17**	$40.15	($18.98)
6"	251	**$46.64**	$73.21	($26.57)
8"	129	**$90.56**	$129.89	($39.33)
10"	17	**$156.63**	$212.55	($55.92)
12"	4	**$248.20**	$309.73	($61.53)

Peaking Unit Rate

- The total quantity rates (volumetric rate) by class is the sum of:
  1. Supply rate
  2. Base Delivery rate
  3. Peaking rate
- Peaking (Extra Capacity) rates were derived using:
  - BWP AMI data with hourly reads
  - Allowed us to calculate daily and hourly peaking factors
  - One of the points made in the Otay lawsuit is that they did not have AMI data and therefore no max day or hour customer data

Tiered Rate Design Derivation

- Tiered rates must be based on the cost to serve water to customers in that tier
- The total tiered rates can be broken down into different components

SUPPLY
Water supply rate ($/HCF)

BASE DELIVERY
Delivery rate ($/HCF)

EXTRA CAPACITY (Peaking Costs)
Peaking rate ($/HCF)

TOTAL VOLUMETRIC RATE FOR EACH TIER
($/HCF)

Peaking Unit Rate

Peaking Requirements (excluding Fire Protection)	Water Use (HCF)	Average Daily Water Use (HCF)	Max Day Factor	Max Hour Factor	Max Day Demand (HCF/Day)	Max Hour Demand (HCF/Day)	Max Day Requirements (HCF/Day)	Max Hour Requirements (HCF/Day)
Potable								
Single Family Residential	3,096,085	8,482	1.63	4.13	13,819	35,014	5,336	21,196
Multi-Family Residential	1,638,543	4,489	1.04	1.54	4,647	6,907	158	2,260
Commercial/Industrial/City	1,213,422	3,324	1.19	1.13	3,947	3,763	622	0
Irrigation	54,732	150	1.62	2.58	243	387	94	144
Subtotal	**6,005,169**	**16,457**			**22,656**	**46,072**	**6,210**	**23,599**

Peaking Unit Rate

- Peaking rate is a component of the total volumetric rate by class

Customer Class/Tier	Max Day Requirements (HCF/Day)	Max Hour Requirements (HCF/Day)	Extra Capacity: Allocated Max Day Costs	Extra Capacity: Allocated Max Hour Costs	Total Peaking Costs	Water Use (HCF)	Peaking Unit Rate ($/HCF)
Single Family Residential	5,336	21,196	$1,917,559	$1,234,765	$3,152,324	3,096,085	***By Tier***
Multi-Family Residential	158	2,260	$56,778	$131,669	$188,448	1,638,543	**$0.115**
Commercial/Industrial/City	622	0	$223,677	$0	$223,677	1,213,422	**$0.184**
Irrigation	94	144	$33,600	$8,364	$41,964	54,732	**$0.767**
Total	**6,210**	**23,599**	**$2,231,615**	**1,374,797**	**$3,606,412**	**6,005,169**	

- Peaking rate for Single Family Residential classes

Tier	Average Daily Water Use (HCF)	Tier Specific Max Day Factor	Tier Specific Max Hour Factor	Max Day Demand (HCF/Day)	Max Hour Demand (HCF/Day)	Extra Capacity: Max Day Requirements (HCF/Day)	Extra Capacity: Max Hour Requirements (HCF/Day)	Max Day Allocation (%)	Max Hour Allocation (%)	Allocated Max Day Costs	Allocated Max Hour Costs	Total Peaking Costs	Peaking Unit Rate ($/HCF)
Single Family Residential Tier 1	3,900	1.01	1.67	3,951	6,497	51	2,547	1.8%	18.6%	$34,360	$230,231	$264,591	**$0.186**
Single Family Residential Tier 2	2,848	1.52	3.65	4,329	10,399	1,481	6,071	52.1%	44.4%	$998,199	$548,808	$1,547,007	**$1.488**
Single Family Residential Tier 3	1,735	1.76	4.66	3,048	8,089	1,313	5,041	46.2%	36.9%	$885,000	$455,726	$1,340,726	**$2.117**
Total	**8,482**			**11,327**	**24,985**	**2,845**	**13,658**	**100.0%**	**100.0%**	**$1,917,559**	**$1,234,765**	**$3,152,324**	

Quantity Charge Calculation

- FY 2022-23 COS Rates:

Customer Class/Tier	Water Use (HCF)	Supply	Base Delivery	Peaking	Recycled Water	COS Rate ($/HCF)
Single Family Residential Tier 1 (0-8 HCF/ month)	1,423,390	$0.436	$0.738	$0.186	N/A	**$1.361**
Single Family Residential Tier 2 (9-20 HCF/ month)	1,039,475	$0.436	$0.738	$1.488	N/A	**$2.663**
Single Family Residential Tier 3 (>20 HCF/ month)	633,220	$0.436	$0.738	$2.117	N/A	**$3.293**
Multi-Family Residential	1,638,543	$0.436	$0.738	$0.115	N/A	**$1.290**
Commercial/Industrial/City	1,213,422	$0.436	$0.738	$0.184	N/A	**$1.360**
Irrigation	54,732	$0.436	$0.738	$0.767	N/A	**$1.942**
Temporary	0	$0.436	$0.738	$0.767	N/A	**$1.942**
Dedicated Private Fire Service	2,387	$0.436	N/A	N/A	N/A	**$0.437**
Recycled Water	1,383,466	N/A	N/A	N/A	$3.166	**$3.167**

Quantity Charge Comparison

- FY 2022-23 COS Rates vs. Current:

Customer Class/Tier	COS Rate ($/HCF)	Current Summer Rate ($/HCF)	Current Winter Rate ($/HCF)	Summer Difference ($)	Winter Difference ($)
Single Family Residential Tier 1 (0-8 HCF/ month)	**$1.361**	$1.579	$1.579	($0.218)	($0.218)
Single Family Residential Tier 2 (9-20 HCF/ month)	**$2.663**	$1.943	$1.943	$0.720	$0.720
Single Family Residential Tier 3 (>20 HCF/ month)	**$3.293**	$2.447	$2.447	$0.846	$0.846
Multi-Family Residential	**$1.290**	$2.279	$1.064	($0.989)	$0.226
Commercial/Industrial/City	**$1.360**	$2.279	$1.064	($0.919)	$0.296
Irrigation	**$1.942**	$2.279	$1.064	($0.337)	$0.878
Temporary	**$1.942**	$4.558	$2.128	($2.616)	($0.186)
Dedicated Private Fire Service	**$0.437**	$6.837	$3.192	($6.400)	($2.755)
Recycled Water	**$3.167**	$3.349	$3.349	($0.182)	($0.182)

WCAC Calculation

- WCAC is calculated each year since it functions as a pass-through of specific WCAC expenses:

Proposed Water Cost Adjustment Charges ($/HCF)	Current	COS	Proposed	Proposed
Description	**FY 2022-23**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**
WCAC Expenses		$12,731,698	$14,644,062	$15,598,675
Additional WCAC Reserve Funding		$365,887	$618,249	$1,320,645
Total WCAC Revenue Requirement		$13,097,585	$15,262,311	$16,919,320
Potable Water Sales (HCF)		6,005,169	6,419,893	6,529,259
WCAC Rate ($/HCF)	$2.200	$2.181	$2.378	$2.592
Difference ($)		*($0.019)*	*$0.178*	*$0.214*

Rates for the Next Two Years

- Previous slides derived FY 2022-23 cost-of-service rates
- Propose rates for FY 2023-24 and 2024-25 will be increased by a certain percent to reach rate revenue requirements

	Current	COS	Proposed	Proposed
Proposed Water Rate Schedule	**FY 2022-23**	**FY 2022-23**	**FY 2023-24**	**FY 2024-25**
Revenue Requirement				
Calculated Revenue (with Revenue Adjustments)		$35,285,256	$40,076,223	$44,043,176
Proposed Revenue from BWP 10-Year Proforma		$35,285,256	$40,075,810	$44,042,832
Difference ($)		*$0*	*$413*	*$343*
Difference (%)		*0.0%*	*0.0%*	*0.0%*
Across the Board Percentage Increases to All Rates				
Proposed Revenue Adjustments			7.97%	8.66%
Total Adjustment	N/A	N/A	**7.97%**	**8.66%**

Fixed Charges

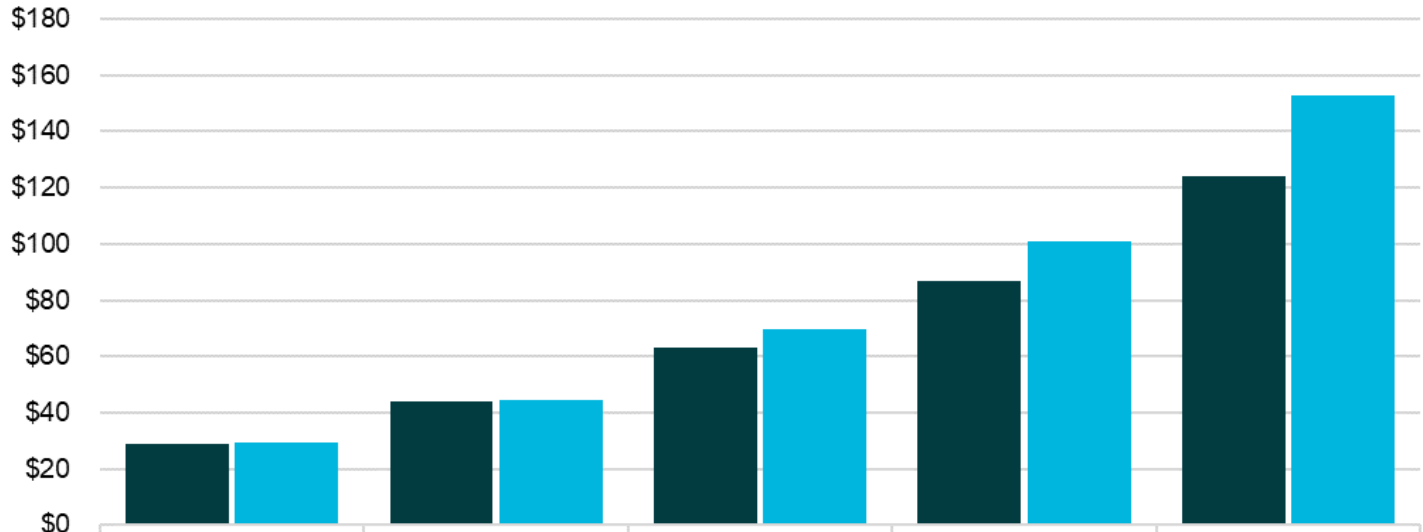
Proposed Water Rate Schedule	Current FY 2022-23	COS FY 2022-23	Proposed FY 2023-24	Proposed FY 2024-25
Water Availability Charges ($/Month)				
1" or Smaller	$17.72	$16.40	$17.71	$19.25
1.5"	$35.40	$39.21	$42.34	$46.01
2"	$56.67	$58.52	$63.19	$68.67
3"	$113.34	$147.05	$158.77	$172.53
4"	$177.08	$248.46	$268.26	$291.50
6"	$354.19	$522.10	$563.70	$612.52
8"	$566.68	$908.41	$980.79	$1,065.74
10"	$814.61	$1,359.10	$1,467.38	$1,594.47
12"	$1,522.95	$1,713.22	$1,849.71	$2,009.91
14"	$1,522.95	$2,421.46	$2,614.38	$2,840.81
Private Fire Protection Service Monthly Fixed Charges (by Connection Size)				
2" or Smaller	$23.62	$9.96	$10.76	$11.70
4"	$40.15	$21.17	$22.86	$24.84
6"	$73.21	$46.64	$50.36	$54.73
8"	$129.89	$90.56	$97.78	$106.25
10"	$212.55	$156.63	$169.11	$183.76
12"	$309.73	$248.20	$267.98	$291.19

Volumetric Rates

Proposed Water Rate Schedule	Current FY 2022-23	COS FY 2022-23	Proposed FY 2023-24	Proposed FY 2024-25
Quantity Charges (per HCF)				
Single Family Residential				
Tier 1 (0-8 HCF/ month)	$1.579	$1.361	$1.470	$1.598
Tier 2 (9-20 HCF/ month)	$1.943	$2.663	$2.876	$3.126
Tier 3 (>20 HCF/ month)	$2.447	$3.293	$3.556	$3.864
Multi-Family Residential				
Summer HCF (June 1 - October 31)	$2.279	$1.290	$1.393	$1.514
Non-Summer HCF (November 1 - May 31)	$1.064	$1.290	$1.393	$1.514
Commercial/Industrial/City				
Summer HCF (June 1 - October 31)	$2.279	$1.360	$1.469	$1.597
Non-Summer HCF (November 1 - May 31)	$1.064	$1.360	$1.469	$1.597
Irrigation				
Summer HCF (June 1 - October 31)	$2.279	$1.942	$2.097	$2.279
Non-Summer HCF (November 1 - May 31)	$1.064	$1.942	$2.097	$2.279
Temporary Potable				
Summer HCF (June 1 - October 31)	$4.558	$1.942	$2.097	$2.279
Non-Summer HCF (November 1 - May 31)	$2.128	$1.942	$2.097	$2.279
Dedicated Private Fire Service				
Summer HCF (June 1 - October 31)	$6.837	$0.437	$0.472	$0.513
Non-Summer HCF (November 1 - May 31)	$3.192	$0.437	$0.472	$0.513
Recycled Water				
All Recycled Water	$3.349	$3.167	$3.420	$3.717
Water Cost Adjustment Charges ($/HCF)				
Single Family Residential, Multi-Family Residential, Commercial, & Industrial	$2.200	$2.182	$2.378	$2.592
Temporary	$4.400	$2.182	$2.378	$2.592
Dedicated Private Fire Service	$6.600	$2.182	$2.378	$2.592

Single Family Residential Bill Impacts

Single Family Residential Monthly Bill Impacts for 1" or Smaller Meter

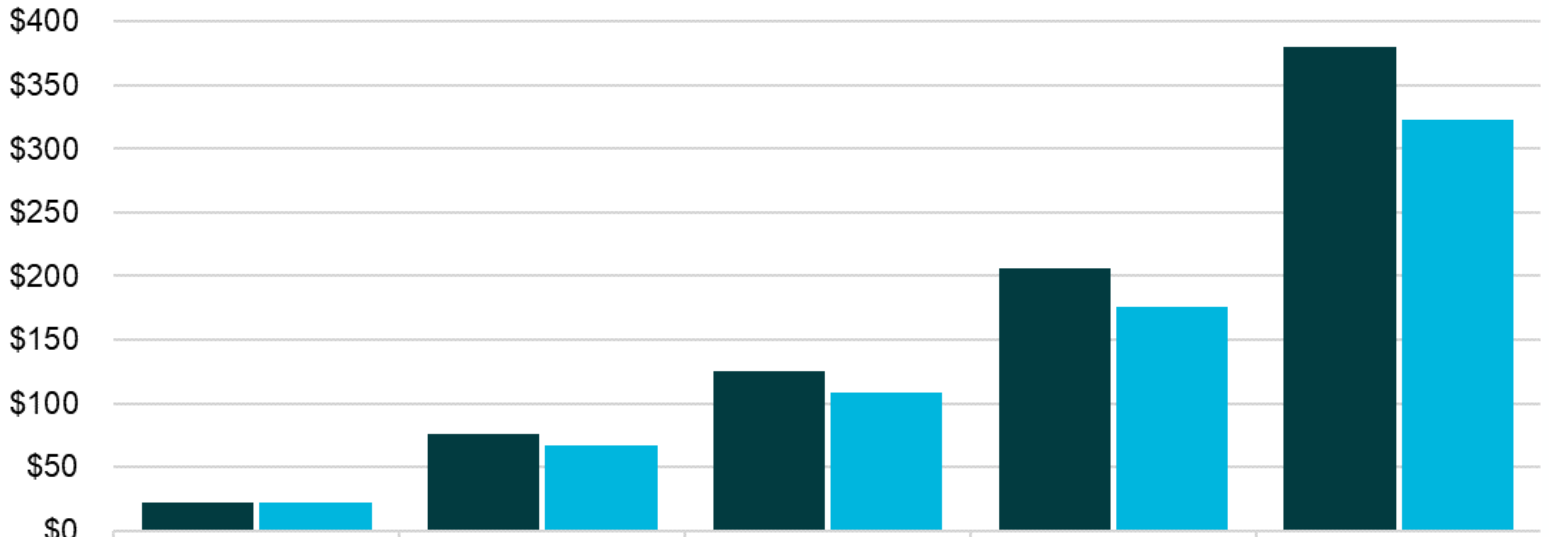


	3 HCF	7 HCF	12 HCF	18 HCF	27 HCF
Current Monthly Bill	$29.06	$44.17	$63.07	$86.83	$124.12
Proposed Monthly Bill	$29.25	$44.65	$69.51	$101.03	$153.08
Difference ($)	$0.20	$0.47	$6.44	$14.20	$28.96
Difference (%)	0.7%	1.1%	10.2%	16.4%	23.3%

Current Monthly Bill Proposed Monthly Bill

Multi-Family Residential Bill Impacts (Summer)

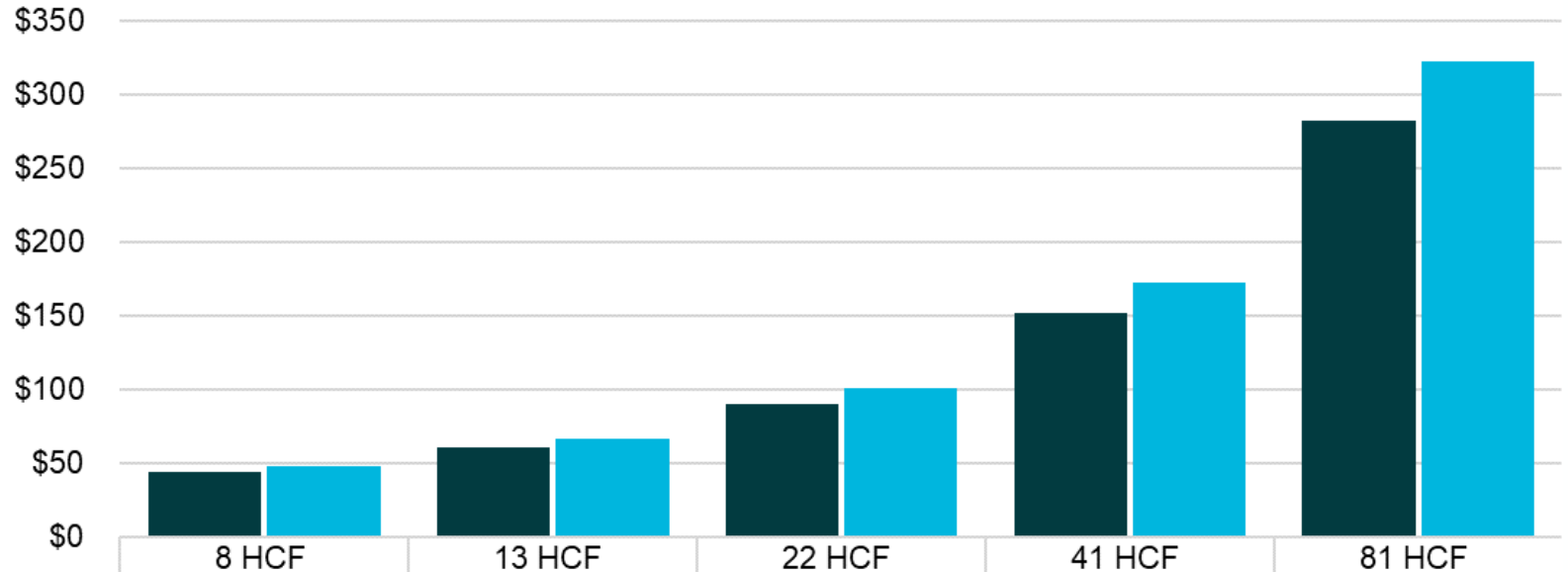
Multi-Family Residential Summer Monthly Bill Impacts for 1" or Smaller Meter



	1 HCF	13 HCF	24 HCF	42 HCF	81 HCF
Current Monthly Bill	$22.20	$75.95	$125.22	$205.84	$380.52
Proposed Monthly Bill	$21.48	$66.73	$108.21	$176.09	$323.16
Difference ($)	($0.72)	($9.21)	($17.00)	($29.75)	($57.36)
Difference (%)	-3.2%	-12.1%	-13.6%	-14.5%	-15.1%

Multi-Family Residential Bill Impacts (Non-Summer)

Multi-Family Residential Winter Monthly Bill Impacts for 1" or Smaller Meter

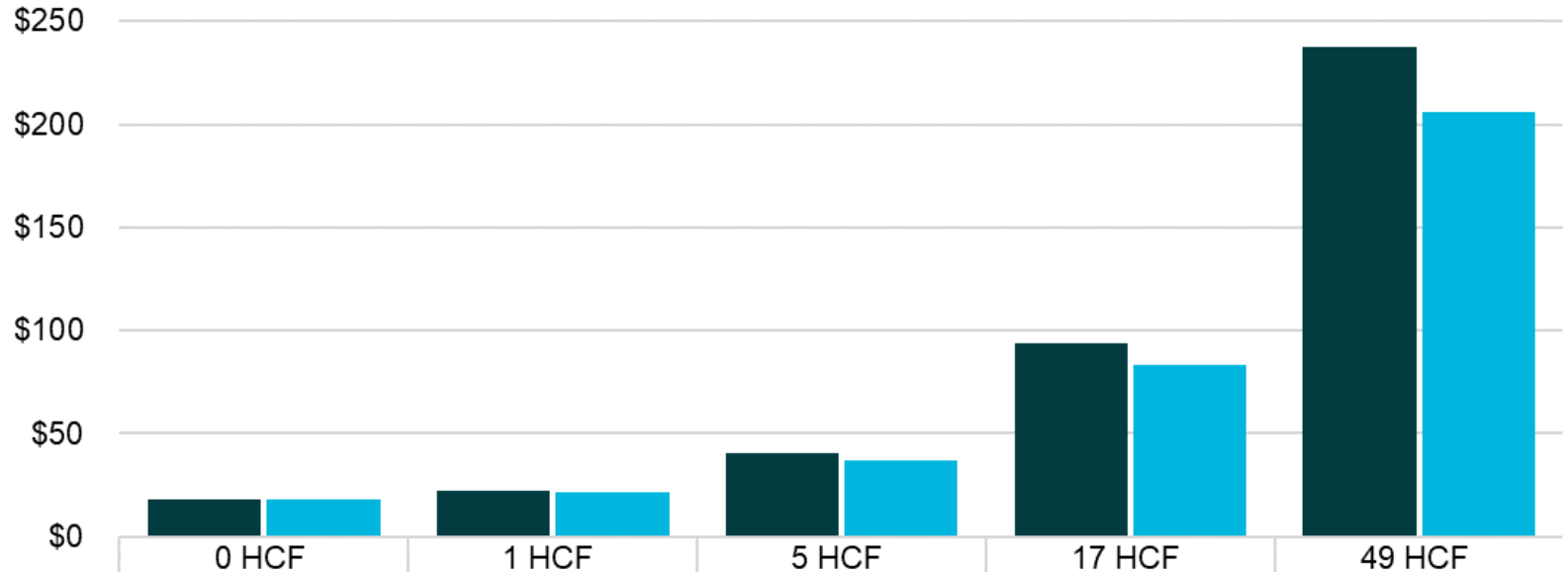


	8 HCF	13 HCF	22 HCF	41 HCF	81 HCF
Current Monthly Bill	$43.83	$60.15	$89.53	$151.54	$282.10
Proposed Monthly Bill	$47.88	$66.73	$100.67	$172.32	$323.16
Difference ($)	$4.05	$6.58	$11.14	$20.78	$41.06
Difference (%)	9.2%	10.9%	12.4%	13.7%	14.6%

Current Monthly Bill Proposed Monthly Bill

Non-Residential Bill Impacts (Summer)

Commercial/Industrial/City Summer Monthly Bill Impacts for 1" or Smaller Meter

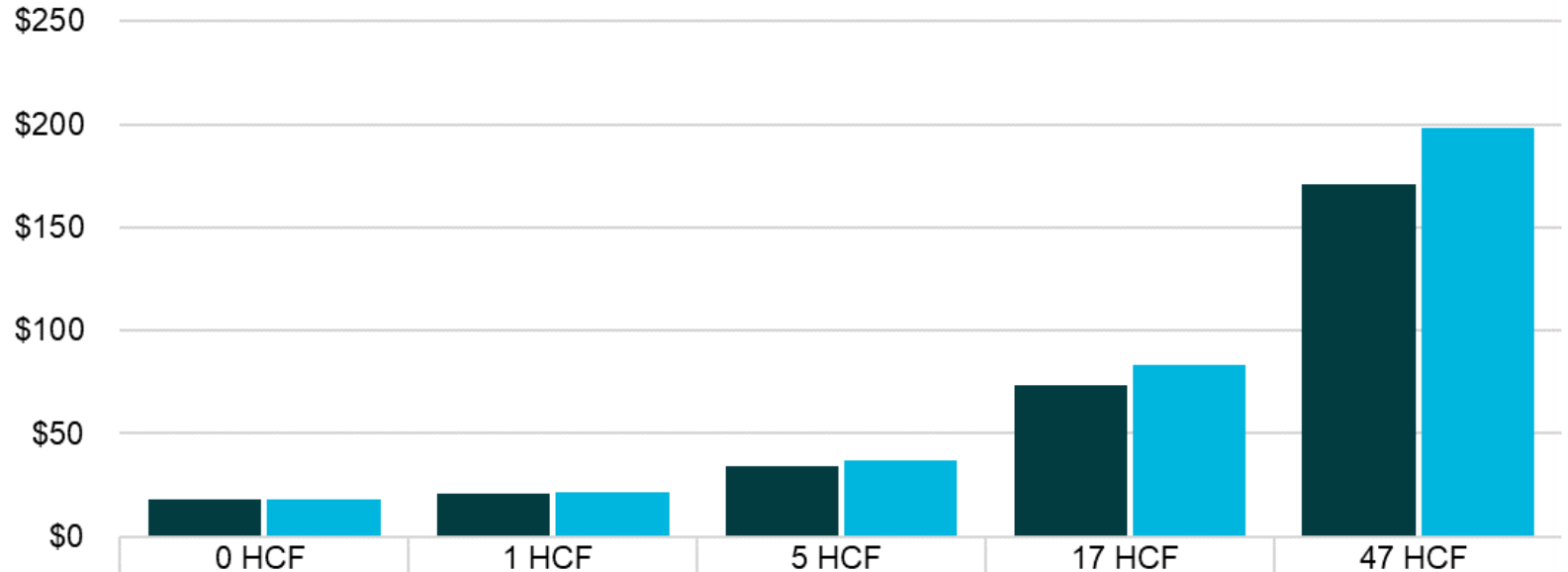


	0 HCF	1 HCF	5 HCF	17 HCF	49 HCF
Current Monthly Bill	$17.72	$22.20	$40.12	$93.86	$237.19
Proposed Monthly Bill	$17.71	$21.56	$36.95	$83.11	$206.21
Difference ($)	($0.01)	($0.64)	($3.17)	($10.75)	($30.98)
Difference (%)	-0.1%	-2.9%	-7.9%	-11.5%	-13.1%

Current Monthly Bill Proposed Monthly Bill

Non-Residential Bill Impacts (Non-Summer)

Commercial/Industrial/City Winter Monthly Bill Impacts for 1" or Smaller Meter



	0 HCF	1 HCF	5 HCF	17 HCF	47 HCF
Current Monthly Bill	$17.72	$20.98	$34.04	$73.21	$171.13
Proposed Monthly Bill	$17.71	$21.56	$36.95	$83.11	$198.52
Difference ($)	($0.01)	$0.57	$2.91	$9.90	$27.39
Difference (%)	-0.1%	2.7%	8.5%	13.5%	16.0%

Current Monthly Bill Proposed Monthly Bill

End of Presentation