



RATE STRUCTURE REVIEW WORKSHOP

Friday, June 30, 2017

AGENDA

- ▶ Introduction
- ▶ Rate Structure Review Process
- ▶ Principles of Rate Setting
- ▶ WSSC's Cost of Service Study
- ▶ Wrap-up & Next Steps
- ▶ Public Comment

WORKSHOP OBJECTIVES

- ▶ Understand the rate setting process
- ▶ Understand WSSC's Cost of Service Study
- ▶ Develop a timeline for implementation

WORKSHOP PRESENTERS

Rate Experts

▶ Raftelis

- Chris Woodcock
- Bill Stannard
- Harold Smith

WSSC Cost of Service Analysis

▶ Black & Veatch

- Pam Lemoine

WSSC Rate Structure Review Process



Rate Structure Review Goals

- ▶ Open, transparent, and responsive process
- ▶ Develop rate proposals that will meet both the Commission's and customers' objectives

Legal & Technical Considerations

- ▶ Unable to create different classes of customers
- ▶ *Boltuck v. WSSC*
- ▶ WSSC's current legacy billing system

RATE SETTING 101

GOAL OF RATE SETTING 101

How to Design a Rate Structure That:

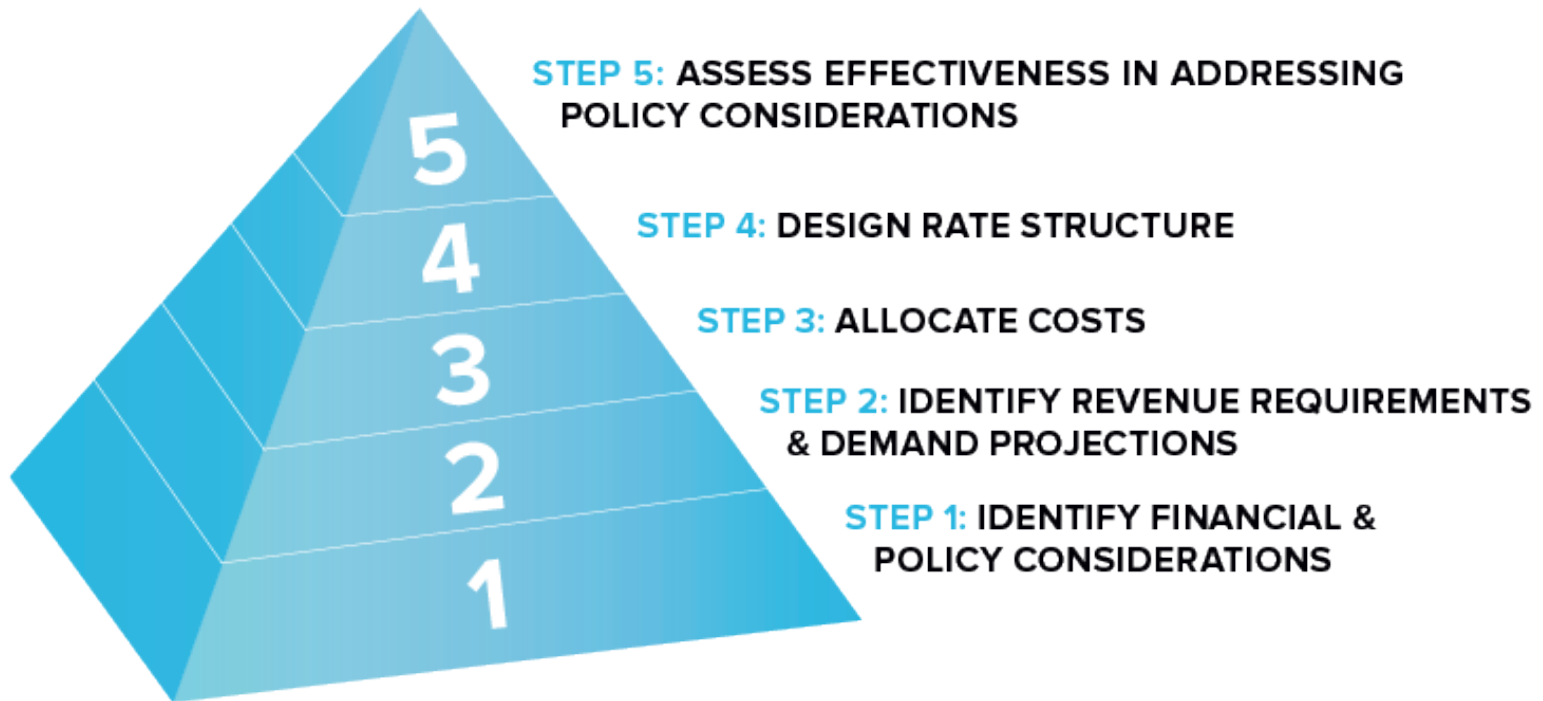
Generates
Sufficient
Revenues

Accomplishes
WSSC's and
Customers'
Objectives

Consistent With
Accepted
Ratemaking
Principles

Is Legally
Defensible

RATE SETTING PROCESS



RATE SETTING PROCESS



STEP 1: IDENTIFY FINANCIAL & POLICY CONSIDERATIONS

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Affordability

Conservation/Demand
Management

Cost-Based Rates

Ease of Implementation

Easy to Understand
and Update

Minimize
Customer Impacts

Rate Stability

Revenue Stability

POLICY CONSIDERATIONS

Affordability

- ▶ Economically disadvantaged customers should be able to afford the essential services
- ▶ Utility should understand the cost of affordability programs

POLICY CONSIDERATIONS

Conservation/Demand Management

- ▶ Shift demand to desired periods of the day, month, or year
- ▶ Targets discretionary use
- ▶ Resource conservation/carbon footprint
- ▶ Encourage efficient use
- ▶ Deferring capital expansion

POLICY CONSIDERATIONS

Cost-Based Rates

- ▶ Recovery of proportionate share of costs to provide service from customers
- ▶ Customers are more willing to accept their fair share of costs
- ▶ “Level of Equity” tradeoff

POLICY CONSIDERATIONS

Ease of Implementation

- ▶ Consider impact on customer service staff
- ▶ Compatible with billing software
- ▶ Based on readily available data

POLICY CONSIDERATIONS

Easy to Understand
and Update

- ▶ Promote easy communication with customers and stakeholders
- ▶ Consider impact on customer service staff
- ▶ Rates can be updated without extensive study and analysis
- ▶ Consideration of data needs for rate update

POLICY CONSIDERATIONS

Minimize Customer Impacts

- ▶ Avoid large bill changes
- ▶ Consider customer service implications
- ▶ Phase in larger impacts, if necessary

POLICY CONSIDERATIONS

Rate Stability

- ▶ Maintain smooth program of rate adjustments
- ▶ Avoid volatile swings in rates

POLICY CONSIDERATIONS

Revenue Stability

- ▶ Ensure revenues are predictable and stable
- ▶ Ensure revenue streams match expenditures

CONFLICTING OBJECTIVES

Revenue Stability



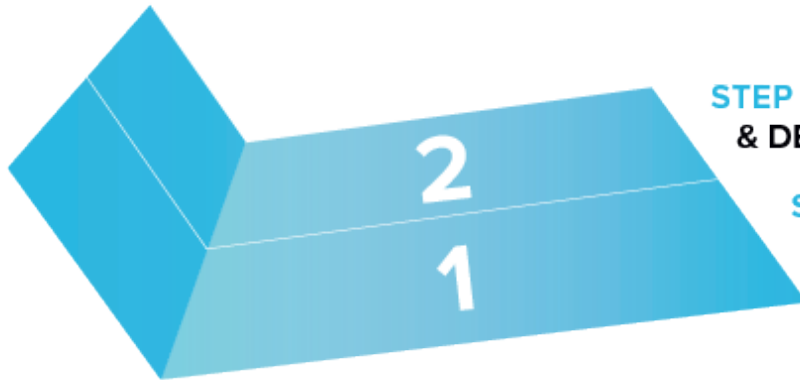
Conservation/Demand Management

Easy to Understand and Update



Cost-Based Rates

RATE SETTING PROCESS



**STEP 2: IDENTIFY REVENUE REQUIREMENTS
& DEMAND PROJECTIONS**

**STEP 1: IDENTIFY FINANCIAL &
POLICY CONSIDERATIONS**

STEP 2: DETERMINE REVENUE REQUIREMENTS and DEMAND PROJECTIONS

Rates Must Generate Sufficient Revenue To Ensure:

Proper
Operations &
Maintenance
(O&M)

Development
and Perpetual
Renewal of
WSSC's System

Debt Service
Requirements

Preservation of
WSSC's Reserves

STEP 2: DETERMINE REVENUE REQUIREMENTS and DEMAND PROJECTIONS

Financial Planning Considerations:

Reserve Levels



Debt Policy



Customer Assistance Programs



Policy to Deal with Growth



Capital Program Financing

STEP 2: DETERMINE REVENUE REQUIREMENTS and DEMAND PROJECTIONS

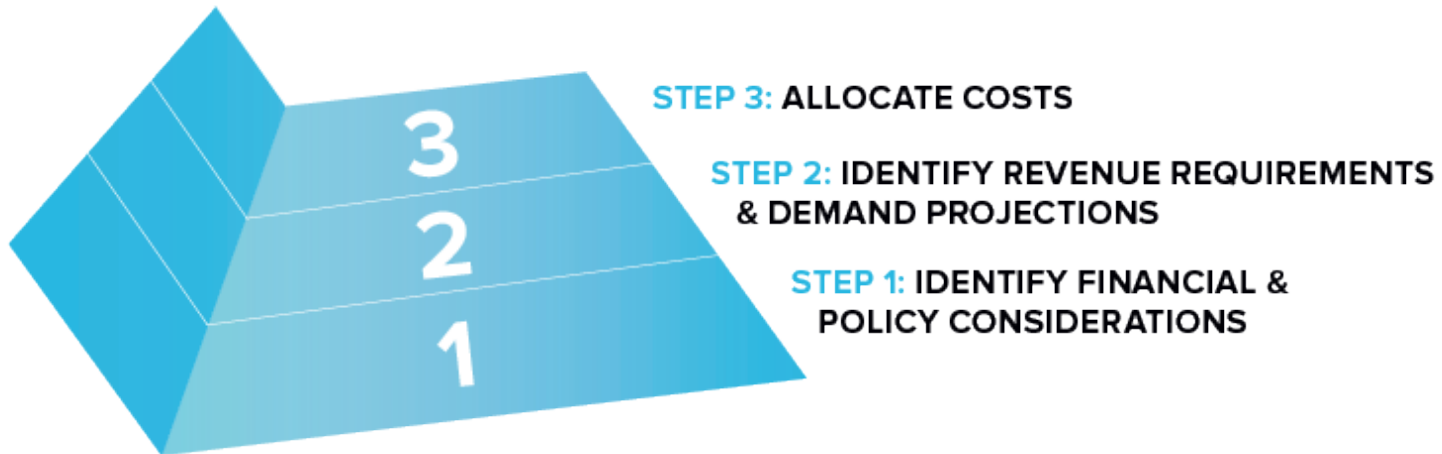
Revenue Requirement Determination Problems:

Inadequate Operating Cost Detail

Incomplete/Unrealistic Long-Term Capital Plan

Lack of Clear Objectives and Policies

RATE SETTING PROCESS



STEP 3: ALLOCATE COSTS

What is Cost of Service?

The process of determining the total annual revenue requirement to be recovered from each customer based on the costs of providing them service. That is, the cost of providing service to each customer should be recovered from that customer.

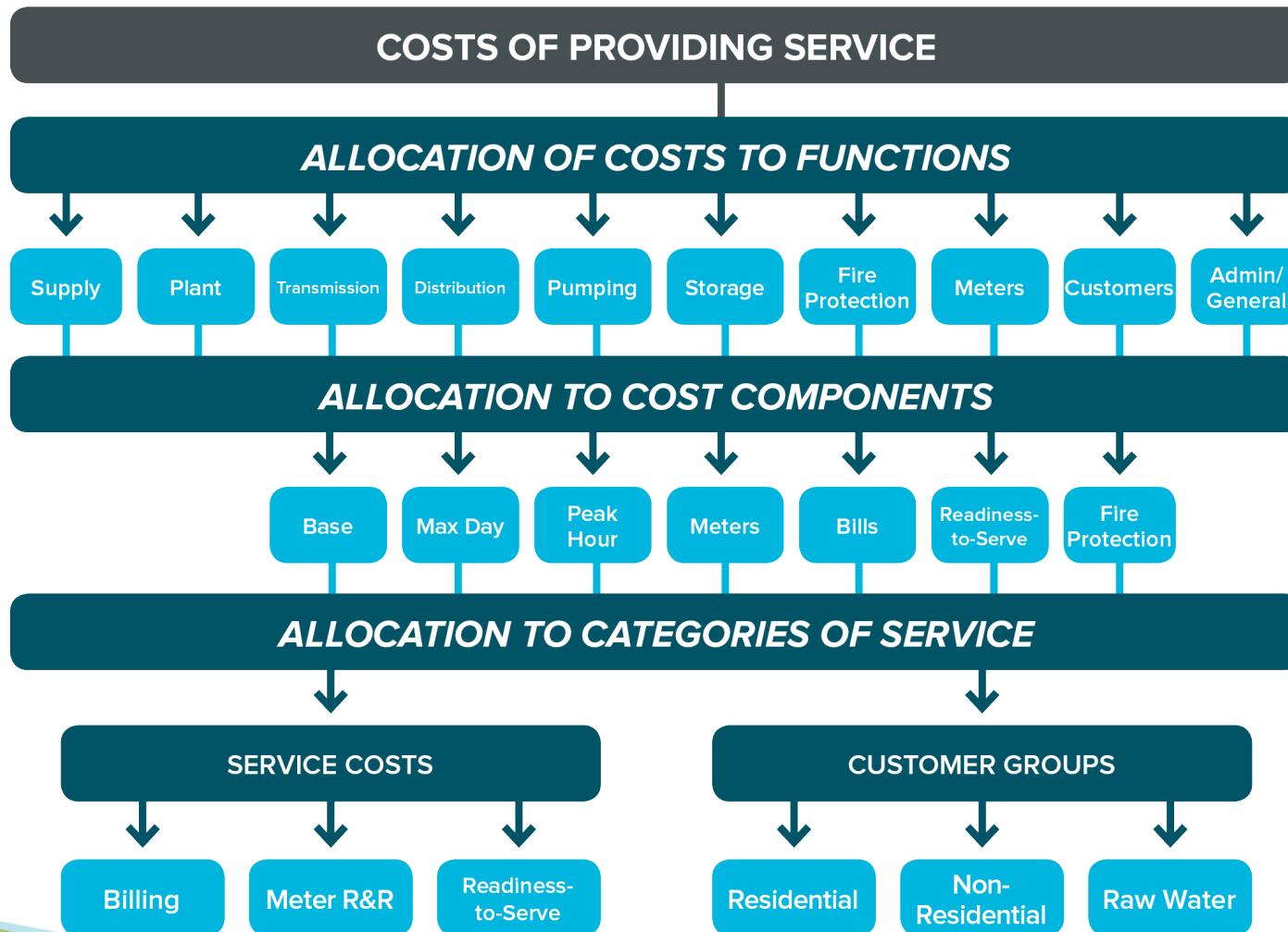
STEP 3: ALLOCATE COSTS

Cost of Service Rationale:

Different types of customers generate different costs because their usage characteristics are different. The cost of service analysis allows for the matching of rates charged to each group to the cost of servicing them.

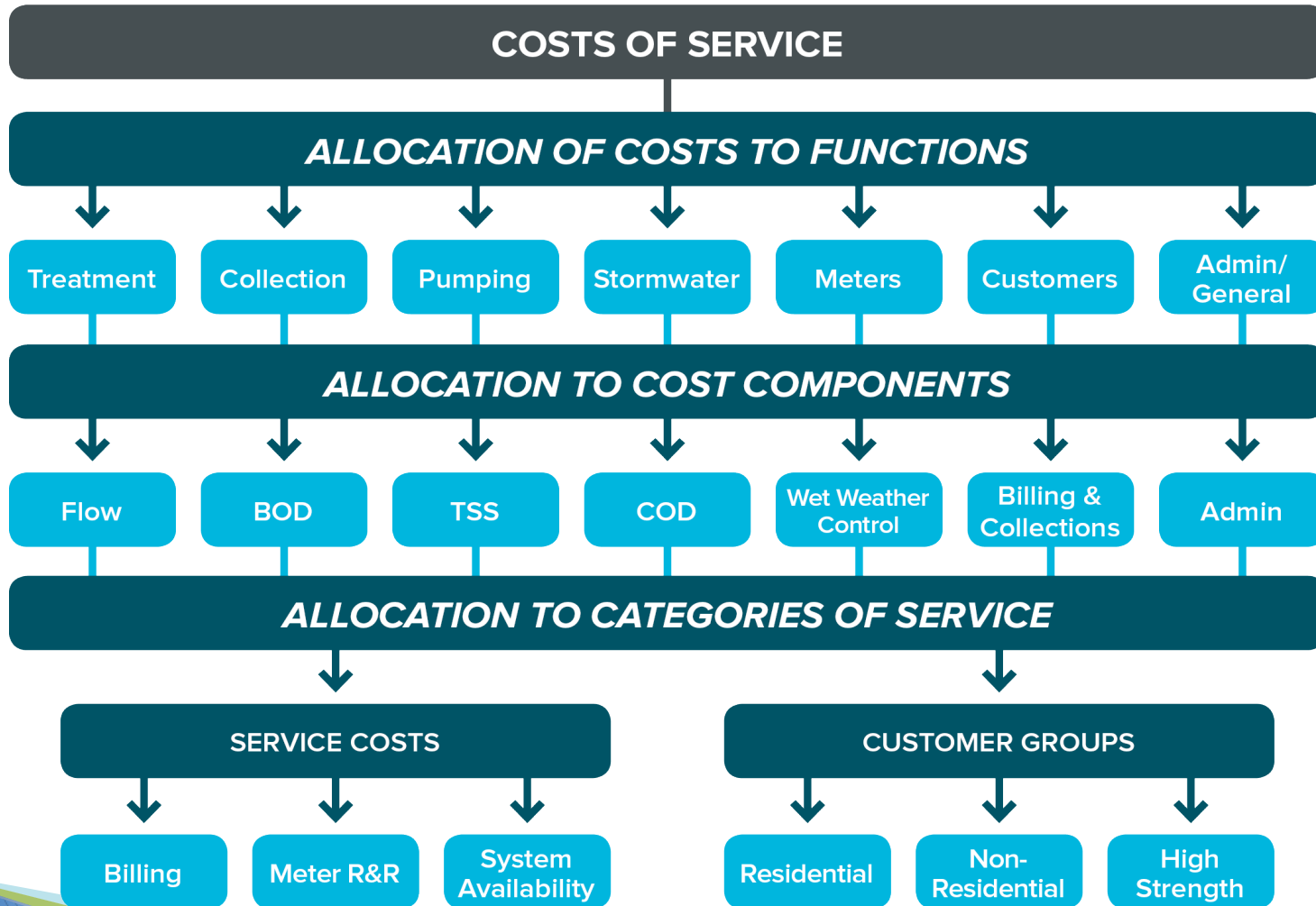
STEP 3: ALLOCATE COSTS

WATER COST OF SERVICE

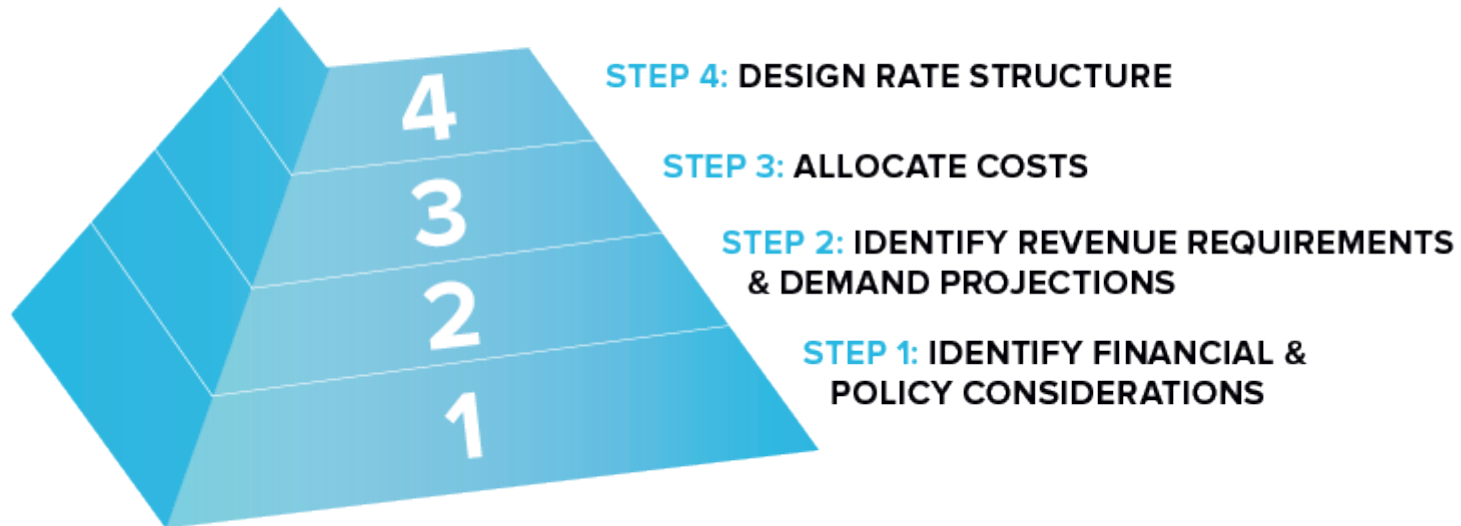


STEP 3: ALLOCATE COSTS

SEWER COST OF SERVICE



RATE SETTING PROCESS



STEP 4: DESIGN RATE STRUCTURE

Rate Design Considerations:

Fixed vs. Variable Charges

Traditional vs. Conservation Rate Designs

Evaluating Alternative Rate Structures

STEP 4: DESIGN RATE STRUCTURE

Primary Charge Types and Considerations:

Fixed Charges

- Do not vary with amount of used
- Cost of service fixed charges reflect customer related costs (Meters, Billing & Customer Service)
- May include portion of capital costs (Readiness To Serve)

Variable Charges

- Vary with amount of water used
- Recover utility costs that vary with customer usage patterns
- Recover some portion of utility's fixed costs

STEP 4: DESIGN RATE STRUCTURE

Typical Fixed Charges:

Customer Charge

Minimum Charge

Service Charge by
Meter Size

Capacity Charge
by Meter Size

STEP 4: DESIGN RATE STRUCTURE

Variable Charge Overview:

Recover all costs not recovered from the fixed charges

Costs pertain to production, treatment & delivery of water

STEP 4: DESIGN RATE STRUCTURE

Traditional vs. Conservation Rate Designs

Traditional	Conservation
<ul style="list-style-type: none">• Flat• Declining Block• Uniform	<ul style="list-style-type: none">• Inclining Block• Seasonal• Individualized



STEP 4: DESIGN RATE STRUCTURE

Considerations While Evaluating Alternatives:

Revenue Generation Risks

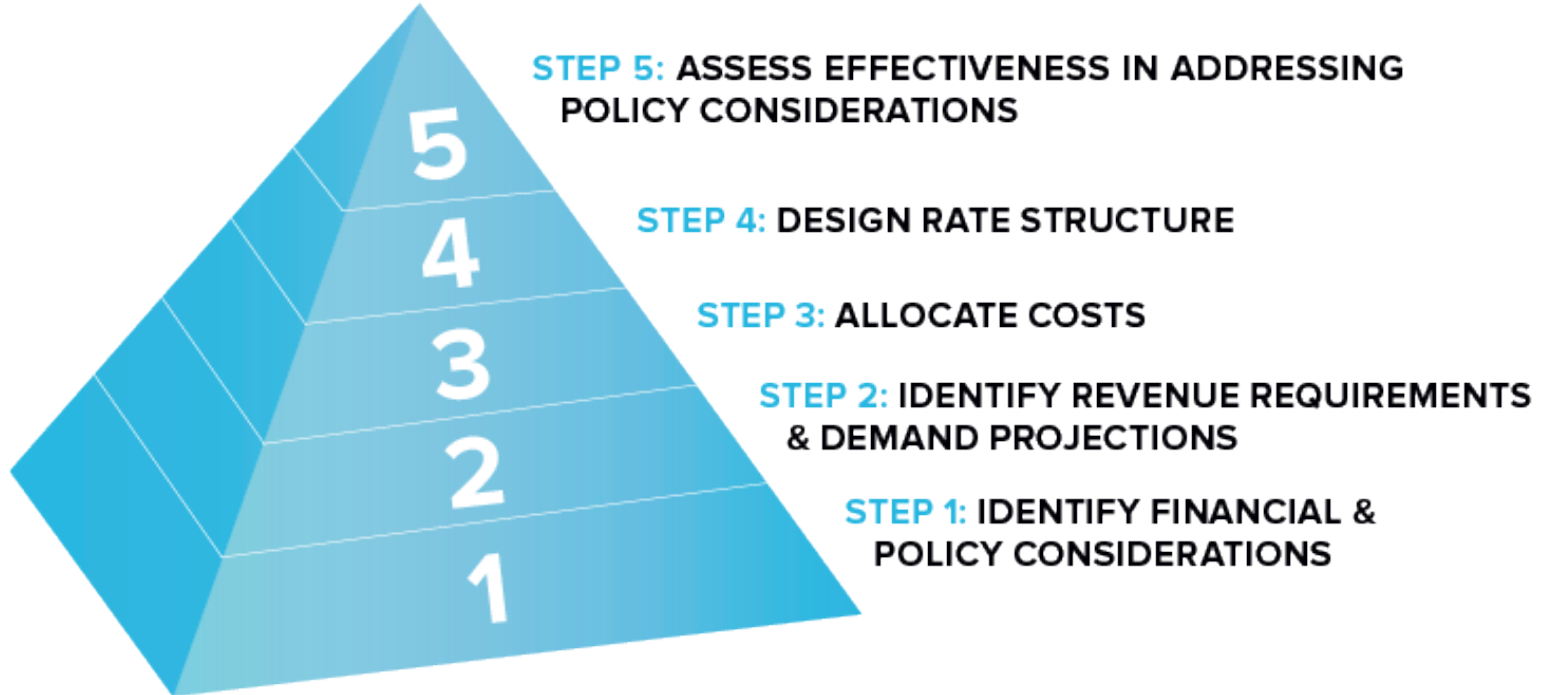
Data Availability and Reliability

Implementation and Update Efforts

Customer Impacts

Other Policy Considerations

RATE SETTING PROCESS



STEP 5: ASSESS EFFECTIVENESS OF ADDRESSING POLICY CONSIDERATIONS

Considerations While Assessing Effectiveness:

Customer Impacts*

Competing Objectives

Price Elasticity of Demand*

Comparison with Other Communities

Affordability of Service*

STEP 5: ASSESS EFFECTIVENESS OF ADDRESSING POLICY CONSIDERATIONS

Customer Impact Considerations:

Assess Magnitude of Impacts

Consider Phase-in to Mitigate Impacts

STEP 5: ASSESS EFFECTIVENESS OF ADDRESSING POLICY CONSIDERATIONS

Price Elasticity of Demand Considerations:

Customers React to Bill, not Rate

Each Customer Group May React Differently

Evaluate Change in Peak vs. Non-Peak Usage

Consider Implementation Timing and Lags

STEP 5: ASSESS EFFECTIVENESS OF ADDRESSING POLICY CONSIDERATIONS

Key Affordability Program Questions:

How does a utility define unaffordable rates?

How can the greatest amount of assistance be obtained while minimizing negative revenue impacts to a utility?

How should an affordability program be funded?

COST OF SERVICE ANALYSIS

What is Cost of Service?

- ▶ The level of revenue **required from user rates and charges** to properly and prudently operate, maintain, and develop utility infrastructure
- ▶ Revenue requirements from rates:

Total Costs (Revenue Requirements)

– Non–rate revenue and adjustments

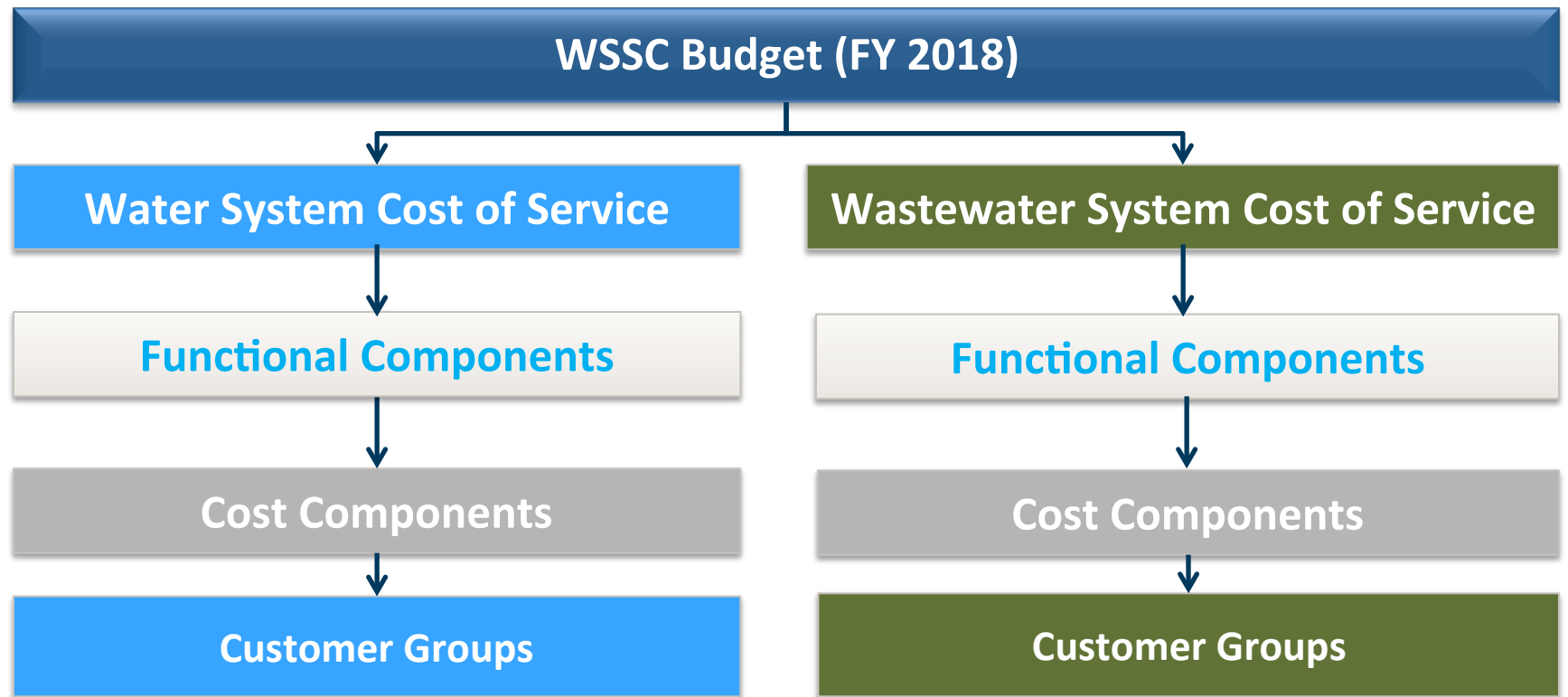
Revenue Requirements from Rates

(Cost of Service)

WSSC Cost of Service Analysis

- ▶ Building block for rate setting
- ▶ Conducted based on Fiscal Year (FY) 2018 Spending Affordability Guideline (SAG) analysis
- ▶ Analysis reflects FY 2018 costs – rates to be designed for FY 2019 will reflect FY 2019 SAG analysis (to be completed fall 2017)

Cost of Service Analysis



Water System Cost of Service

Costs to be Recovered From Rates (Water System)

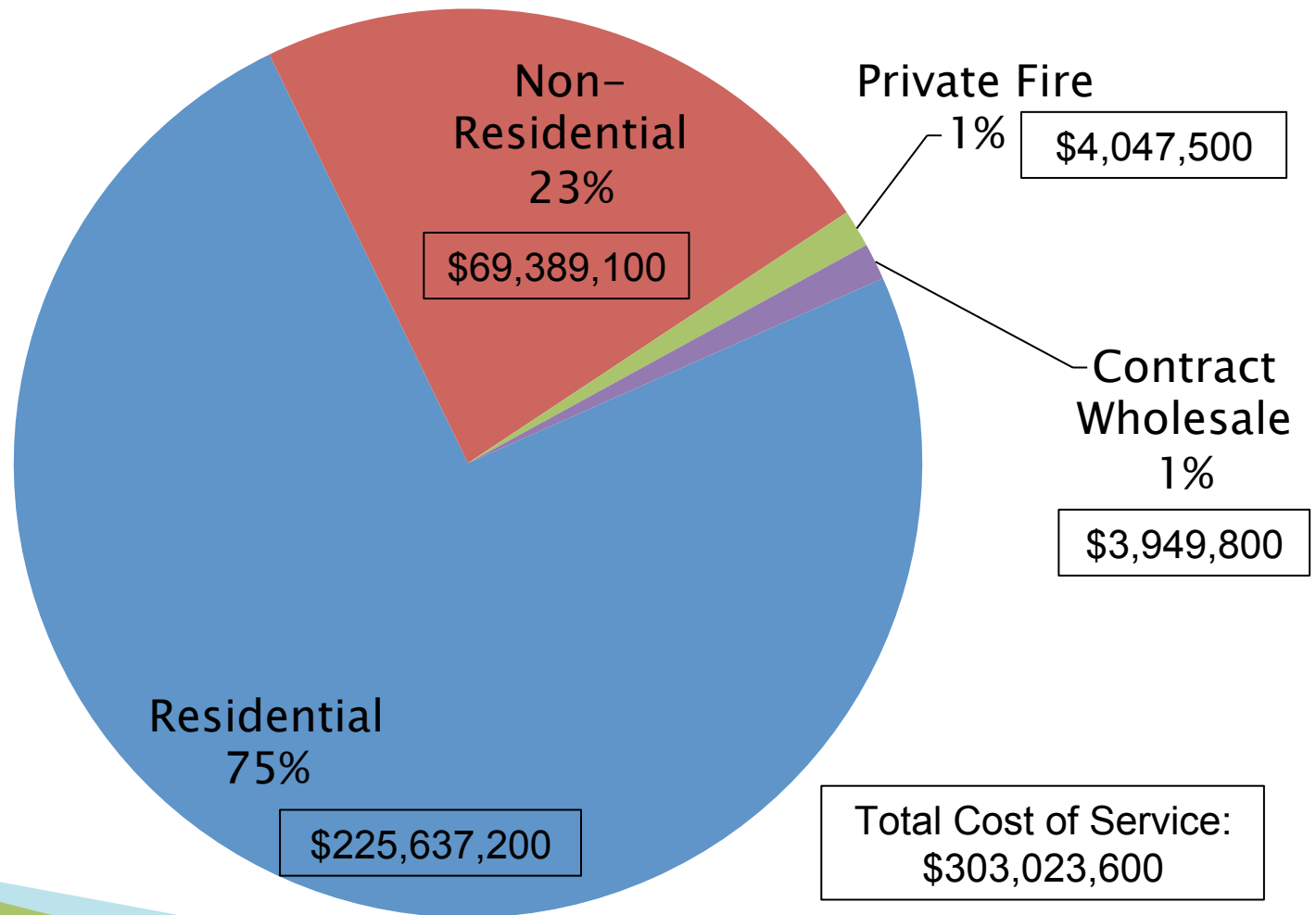
WATER SYSTEM				
Line No.	Description	Operating Expense (\$)	Capital Cost (\$)	Total Cost (\$)
Revenue Requirements				
1	Operation & Maintenance Expenses	\$ 201,301,700	\$ -	\$ 201,301,700
2	Debt Service	\$ -	\$ 106,320,100	\$ 106,320,100
3	Cash Financed Capital	\$ -	\$ 13,163,000	\$ 13,163,000
4	Subtotal	\$ 201,301,700	\$ 119,483,100	\$ 320,784,800
Less Revenue Requirements Met from Other Sources and Adjustments				
5	Other Operating Revenues	\$ 17,760,000	\$ -	\$ 17,760,000
6	Annual Cash Balance Adjustments	\$ 1,200	\$ -	\$ 1,200
7	Subtotal	\$ 17,761,200	\$ -	\$ 17,761,200
8	COS to be Recovered from Rates (Line 4 - Line 7)	\$ 183,540,500	\$ 119,483,100	\$ 303,023,600

Unit Costs of Service (Water System)

WATER SYSTEM - UNIT COST OF SERVICE									
Line No.	Description	Total Costs	Base	Extra Capacity		Customer			Fire Protection
				Max. Day	Max. Hour	Meters	Customer/Bill	IIF	
Cost of Service									
1	Net Operating Expense	\$ 183,540,500	\$ 101,264,500	\$ 34,236,400	\$ 22,293,600	\$ 2,871,600	\$ 11,910,200	\$ 10,661,400	\$ 302,800
2	Capital Costs	\$ 13,163,000	\$ 7,041,100	\$ 2,803,600	\$ 2,340,600	\$ 832,600	\$ -	\$ -	\$ 145,100
3	Debt Service	\$ 106,320,100	\$ 51,191,500	\$ 20,383,400	\$ 17,017,000	\$ 6,053,300	\$ -	\$ 10,620,000	\$ 1,054,900
4	Total	\$ 303,023,600	\$ 159,497,100	\$ 57,423,400	\$ 41,651,200	\$ 9,757,500	\$ 11,910,200	\$ 21,281,400	\$ 1,502,800
5	Units of Service (Total)		44,487,752 <i>kgal</i>	128,796 <i>kgal/day</i>	144,419 <i>kgal/day</i>	660,380 <i>Equiv. Meters</i>	1,806,840 <i>Bills</i>	641,949 <i>Equiv. Meters</i>	4,909,430 <i>quiv. Hydrants</i>
6	Cost per Unit		\$ 3.59 <i>per kgal</i>	\$ 445.85 <i>per kgal/day</i>	\$ 288.41 <i>per kgal/day</i>	\$ 14.78 <i>per EM</i>	\$ 6.59 <i>per bill</i>	\$ 33.15 <i>per EM</i>	\$ 0.31 <i>per EH</i>

Cost of Service Results – Water System (FY 2018)

Allocated Cost of Service



Comparison with Revenue Recovered Under Existing Rates (Water System)

Line No.	Customer Group	Cost of Service	Rev. Under Ex. Rates	Indicated % Change
Allocated Cost of Service				
1	Residential	\$ 225,637,200	\$ 190,577,100	18.4%
2	Non-Residential	\$ 69,389,100	\$ 93,218,800	-25.6%
3	Contract Wholesale	\$ 3,949,800	\$ 2,392,300	65.1%
4	Private Fire	\$ 4,047,500	\$ 5,401,800	-25.1%
5	Total	\$ 303,023,600	\$ 291,590,000	3.9%

Sewer System Cost of Service

Costs to be Recovered From Rates (Sewer System)

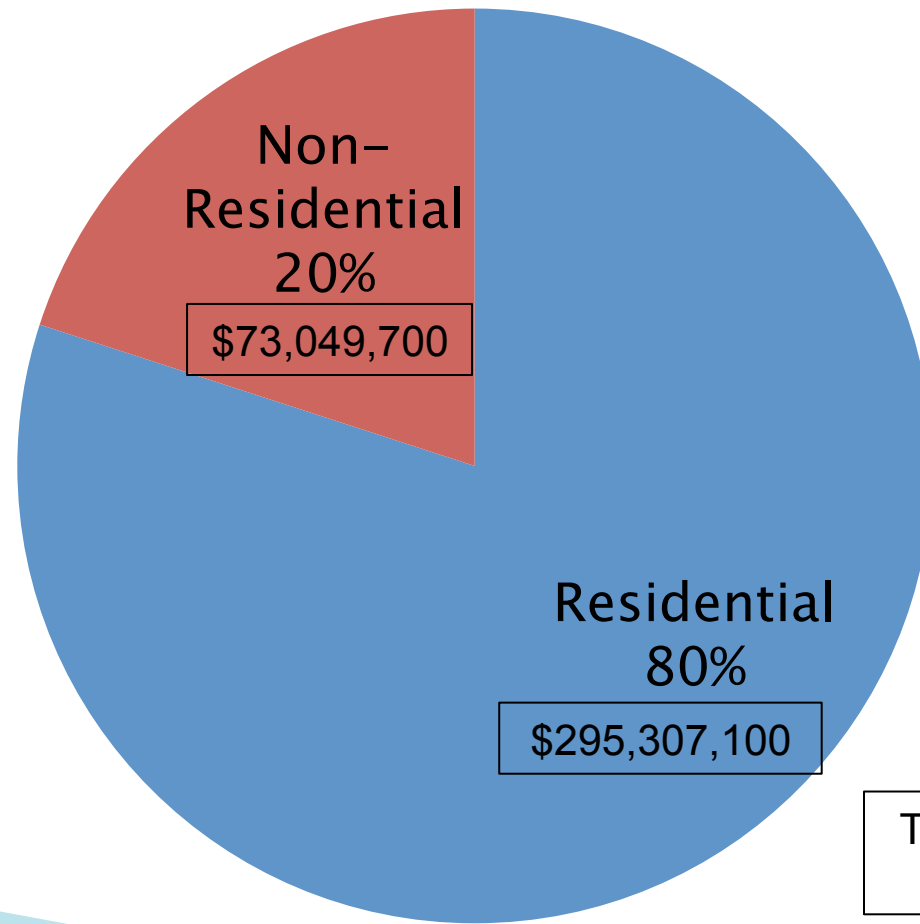
SEWER SYSTEM				
Line No.	Description	Operating Expense (\$)	Capital Cost (\$)	Total Cost (\$)
Revenue Requirements				
1	Operation & Maintenance Expenses	\$ 235,941,100	\$ -	\$ 235,941,100
2	Debt Service	\$ -	\$ 151,137,100	\$ 151,137,100
3	Cash Financed Capital	\$ -	\$ 17,030,000	\$ 17,030,000
4	Subtotal	\$ 235,941,100	\$ 168,167,100	\$ 404,108,200
Less Revenue Requirements Met from Other Sources and Adjustments				
5	Other Operating Revenues	\$ 16,472,000	\$ -	\$ 16,472,000
6	Reconstruction Debt Service Offset	\$ -	\$ 7,700,000	\$ 7,700,000
7	Annual Cash Balance Adjustments	\$ 11,579,400	\$ -	\$ 11,579,400
8	Subtotal	\$ 28,051,400	\$ 7,700,000	\$ 35,751,400
9	COS to be Recovered from Rates (Line 4 - Line 8)	\$ 207,889,700	\$ 160,467,100	\$ 368,356,800

Unit Costs of Service (Sewer System)

SEWER SYSTEM - UNIT COST OF SERVICE						
Line No.	Description	Total Costs	Volume/Capacity		Customer	
			Volume	Capacity	Billing	IIF
Cost of Service						
1	Net Operating Expense	\$ 207,889,700	\$ 128,221,700	\$ 65,468,300	\$ 11,198,400	\$ 3,001,300
2	Capital Costs	\$ 17,030,000	\$ 8,298,700	\$ 7,393,500	\$ 1,337,800	\$ -
3	Debt Service	\$ 143,437,100	\$ 67,256,000	\$ 59,920,300	\$ 10,842,300	\$ 5,418,500
4	Total	\$ 368,356,800	\$ 203,776,400	\$ 132,782,100	\$ 23,378,500	\$ 8,419,800
5	Units of Service (Total)		70,301,837 <i>kgal</i>	412,389 <i>kgal/day</i>	1,798,032 <i>Bills</i>	641,949 <i>Equiv. Meters</i>
6	Cost per Unit		\$ 2.90 <i>per kgal</i>	\$ 321.98 <i>per kgal/day</i>	\$ 13.00 <i>per bill</i>	\$ 13.12 <i>per EM</i>

Cost of Service Results – Sewer System (FY 2018)

Allocated Cost of Service



Total Cost of Service:
\$368,356,800

Comparison with Revenue Recovery Under Existing Rates (Sewer System)

Line No.	Customer Group	Cost of Service	Rev. Under Ex. Rates	Indicated % Change
Allocated Cost of Service				
1	Residential	\$ 295,307,100	\$ 247,259,200	19.4%
2	Non-Residential	\$ 73,049,700	\$ 112,209,400	-34.9%
3	Total	\$ 368,356,800	\$ 359,468,600	2.5%

Rate Setting

- ▶ Cost of Service is one component of utility rate setting
- ▶ Rate structure and pricing must also reflect policy considerations

WRAP UP & NEXT STEPS

- ▶ Deep Dive Into Policy Considerations
 - Additional Considerations?
 - Prioritization
- ▶ Identification of Rate Structure Options
- ▶ Analysis of Rate Structure Options
- ▶ Selection of Preferred Rate Structure(s)