


BUILDING A WORLD OF DIFFERENCE

**SAN ANTONIO WATER SYSTEM (SAWS)
RATE ADVISORY COMMITTEE: MEETING 3**

01 April, 2014

**Bill Zieburtz
Richard Campbell
Robert Chambers**

 **BLACK & VEATCH**
Building a world of difference.

RATE SETTING PROCESS

STUDY APPROACH

RATE SETTING OBJECTIVES


FINANCIAL PLAN REVIEW

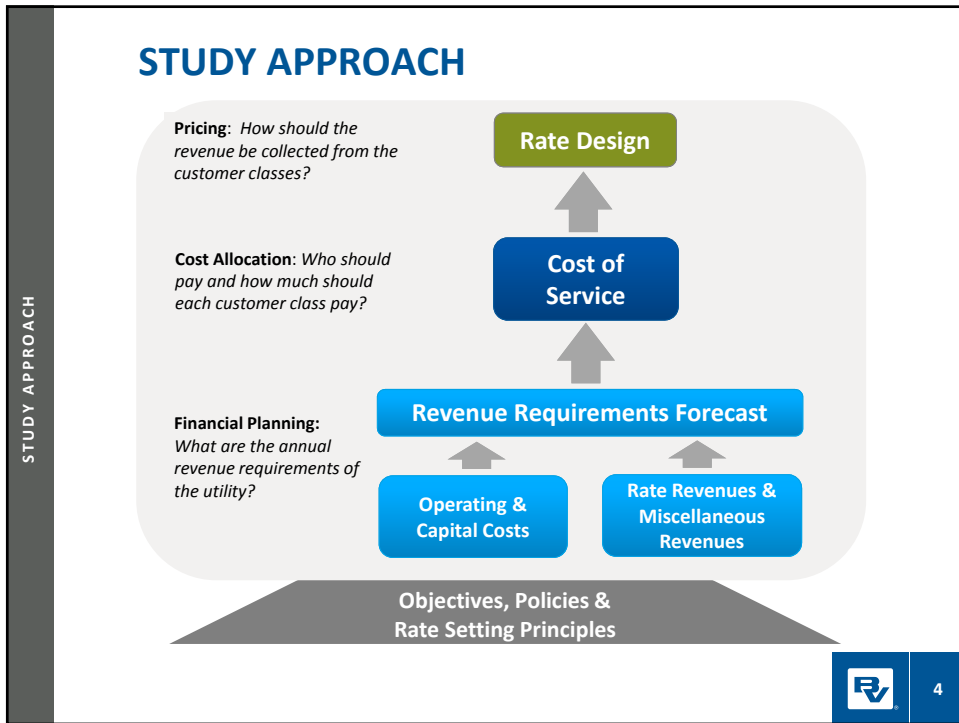
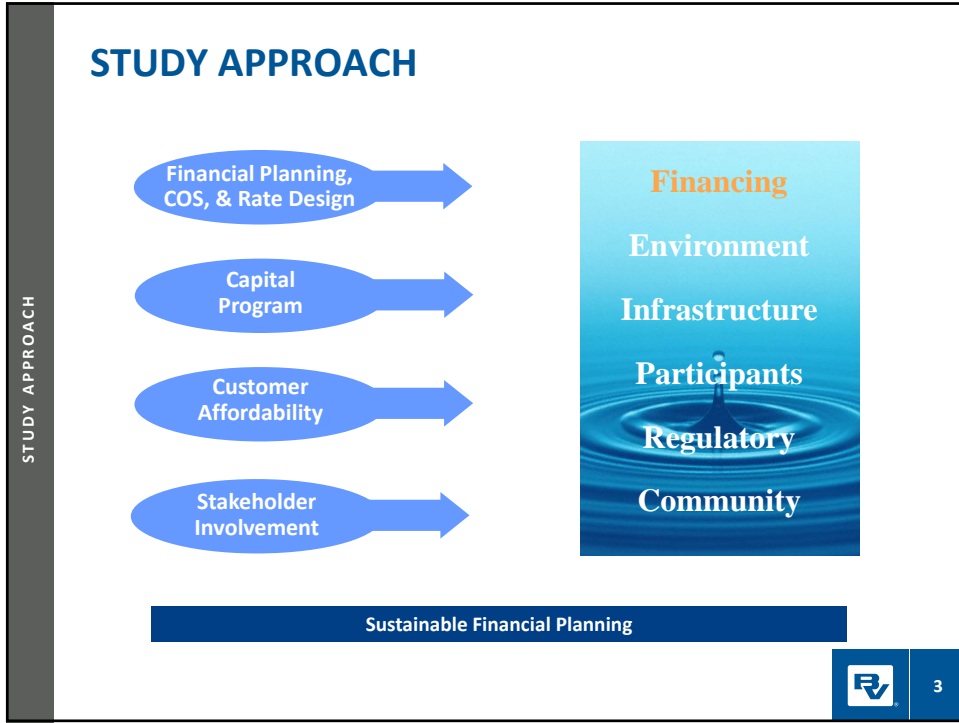
COST OF SERVICE ANALYSIS

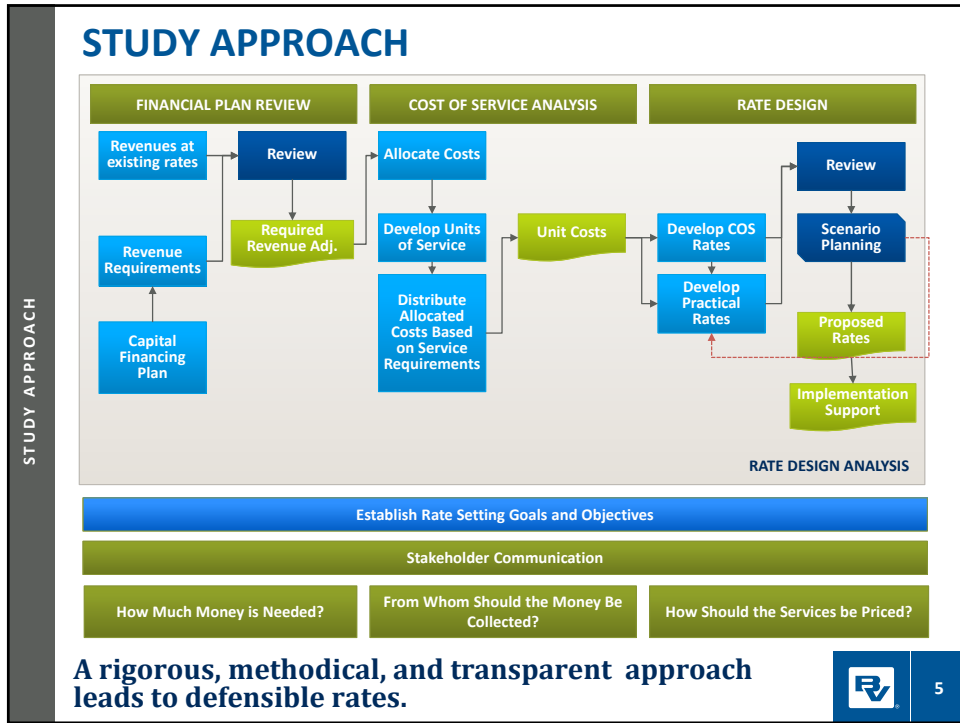
RATE DESIGN

INDUSTRY INFORMATION

QUESTIONS

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- ## RATE SETTING OBJECTIVES
- **Development of a rate structure that**
 - generates sufficient revenues
 - maintains stable revenue streams
 - promotes the efficient use of water resources
 - recovers costs equitably across customer classes
 - **Address customer affordability issues as a part of the Rate Design Analysis**
 - **Appropriately plan and account for the DSP integration**
 - **Incorporation of stakeholders’ prioritized issues and concerns as a part of the Rate Design Analysis**
- OBJECTIVES

OBJECTIVES

RATE SETTING OBJECTIVES

2003 Rate Study Priorities	2009 Rate Study Priorities
<p>Top Three Rated Objectives</p> <ol style="list-style-type: none"> 1. Financial Sufficiency 2. Conservation/Demand Management 3. Revenue Stability <p>Other Rated Objectives</p> <ul style="list-style-type: none"> Legality Cost of Service Based Allocations Rate Stability Affordability to Disadvantaged Customers Equitable Contribution from New Customers Economic Development Consistency of Customer Impacts Ease of Implementation Simple to Understand and Update 	<p>Top Three Rated Objectives</p> <ol style="list-style-type: none"> 1. Conservation/Demand Management 2. Financial Sufficiency 3. Rate Stability <p>Other Rated Objectives</p> <ul style="list-style-type: none"> Affordability to Disadvantaged Customers Cost of Service Based Allocations Ease of Implementation Economic Development Equitable Contributions from New Customers Legality Minimization of Customer Impacts Revenue Stability Simple to Understand and Update

Priority Setting Workshop – May 15, 2014

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OBJECTIVES

RATE SETTING OBJECTIVES

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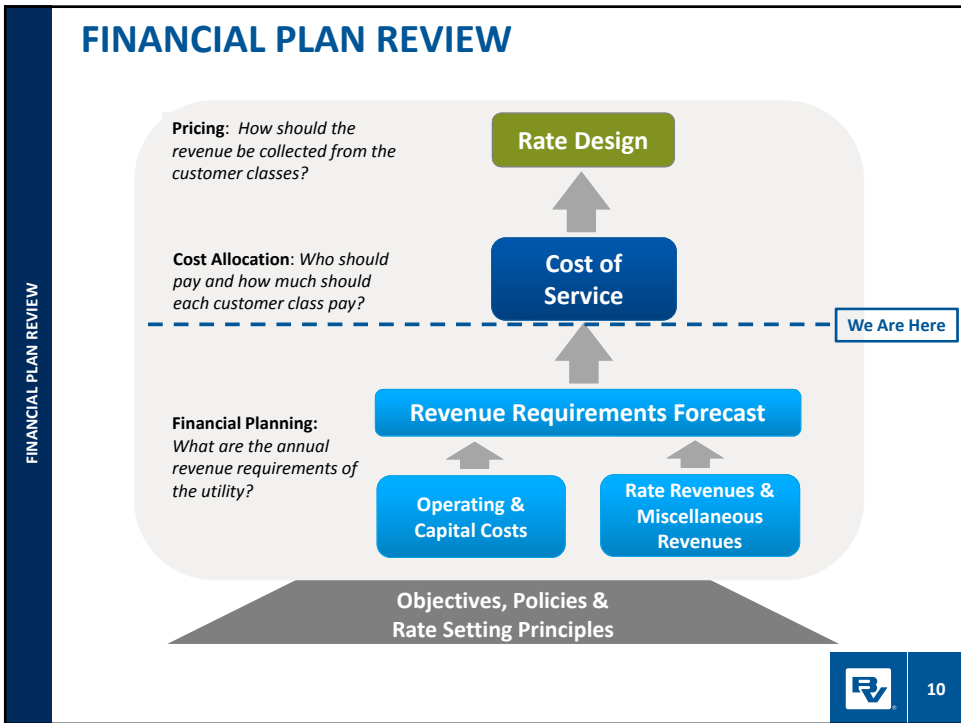
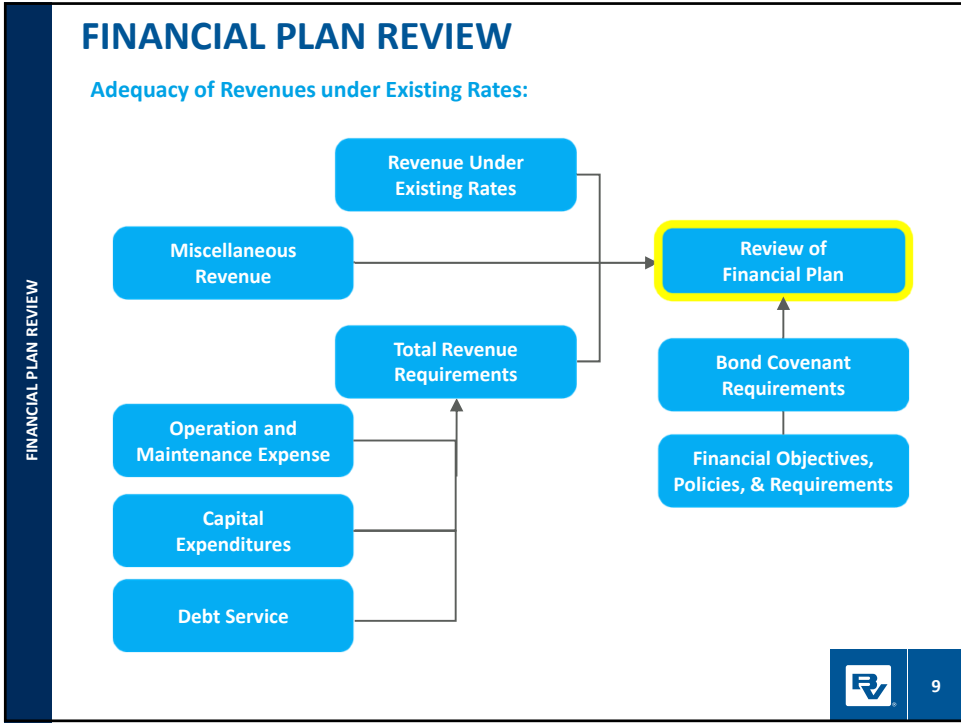
        graph TD
            A[Rate Design] --> B[Cost of Service]
            B --> C[Revenue Requirements Forecast]
            C --> D[Operating & Capital Costs]
            C --> E[Rate Revenues & Miscellaneous Revenues]
            D --- F[Objectives, Policies & Rate Setting Principles]
            E --- F
            G[We Are Here] --- F
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            style D fill:#0070c0,color:#fff
            style E fill:#0070c0,color:#fff
            style G fill:#fff,stroke:#333,stroke-width:1px
    
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Pricing: *How should the revenue be collected from the customer classes?*

Cost Allocation: *Who should pay and how much should each customer class pay?*

Financial Planning: *What are the annual revenue requirements of the utility?*

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COST OF SERVICE ANALYSIS

Step 1 – Determine Costs by Operational Cost Centers

- Cash Basis vs. Utility Basis

Step 2 – Allocate Cost by Operational Cost Centers to Functional Cost Components

Step 3 – Distribute by Function Cost Components to Customer Classes

- Units of Service

COST OF SERVICE ANALYSIS

Allocate Costs

Develop Units of Service

Distribute Allocated Costs Based on Service Requirements

Unit Costs By Classes

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COST OF SERVICE

Cost Determination Approaches:

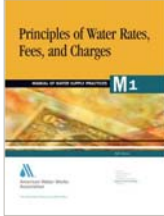
CASH BASIS		UTILITY BASIS
Operation & Maintenance	←	Operation & Maintenance
Reserve Requirements	←	Reserve Requirements
Debt Principal	←	Depreciation*
Routine Capital	←	
Debt Interest	←	
Total	←	Total

- Capital costs are expressed as *Depreciation* and *Return* on Rate Base to recognize the appropriate recovery of return on the utility's capital investment between owner customers and non-owner customers.

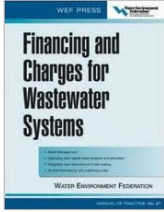
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COST OF SERVICE


Two major guidance manuals for COS analysis:



Guidelines for Water Cost of Service & Rate Making



Guidelines for Wastewater Cost of Service & Rate Making

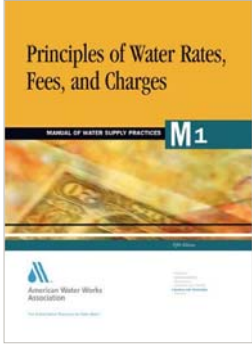

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COST OF SERVICE

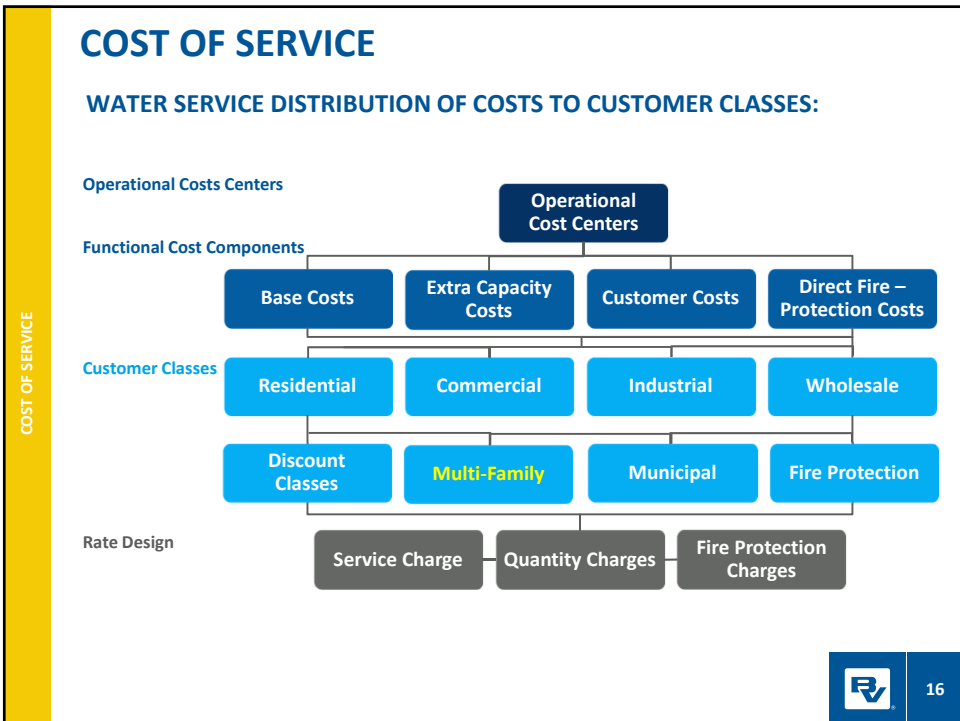
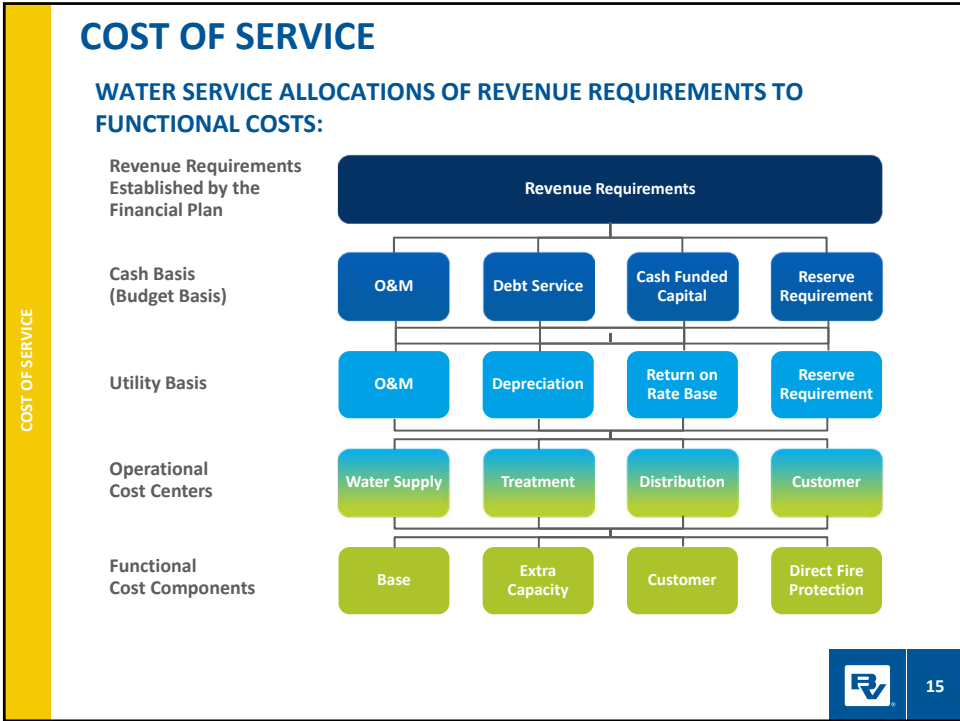
WATER FUNCTIONAL COST COMPONENTS – DISTRIBUTION OF “OPERATIONAL COST” TO CUSTOMER CLASSES

Two standard allocation methodologies are:

- Base-Extra Capacity Method
- Commodity-Demand



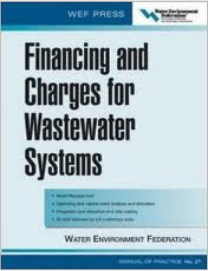

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COST OF SERVICE


WASTEWATER COST ALLOCATION METHODS:

- Design Basis
- Functional Basis
- Hybrid Basis



WEF PRESS
Financing and Charges for Wastewater Systems
 • Plant Management
 • Funding and capital needs studies and planning
 • Operation and maintenance cost setting
 • Rate structure of customer rates
 WATER ENVIRONMENT FEDERATION
 MANUAL OF PRACTICE No. 10

COST OF SERVICE

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COST OF SERVICE

WASTEWATER SERVICE COST ALLOCATION APPROACH:

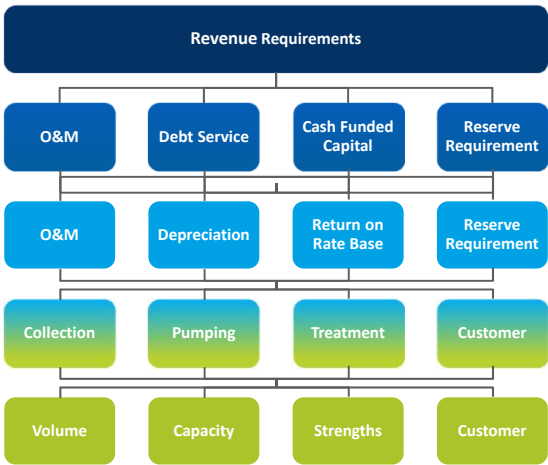
Revenue Requirements Established by the Financial Plan

Cash Basis (Budget Basis)

Utility Basis

Operational Cost Centers


Functional Cost Components

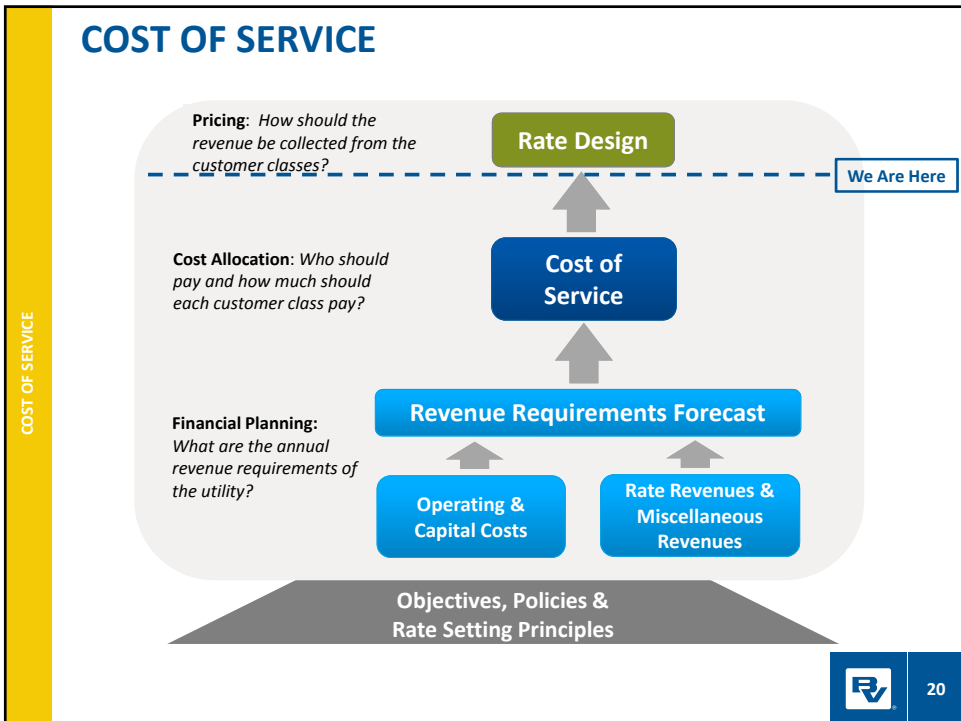
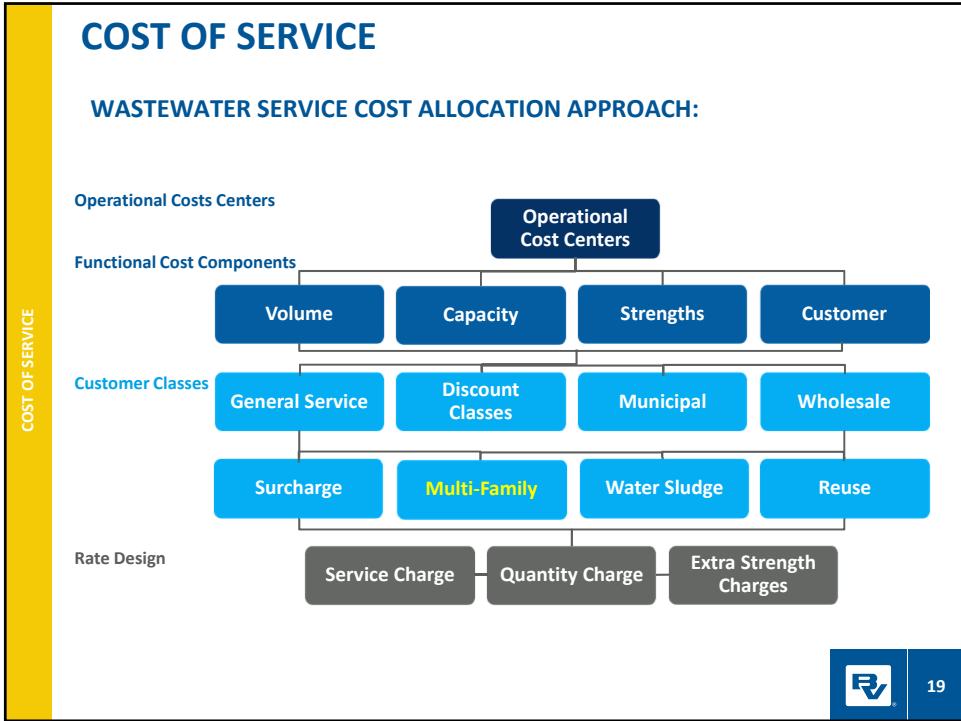


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    graph TD
      RR[Revenue Requirements] --> OM[O&M]
      RR --> DS[Debt Service]
      RR --> CFC[Cash Funded Capital]
      RR --> RRReq[Reserve Requirement]
      OM --> OMC[Collection]
      OM --> OMP[Pumping]
      OM --> OMT[Treatment]
      OM --> OMCus[Customer]
      DS --> DSVol[Volume]
      DS --> DSCap[Capacity]
      DS --> DSSt[Strengths]
      CFC --> CFCVol[Volume]
      CFC --> CFCCap[Capacity]
      CFC --> CFCSt[Strengths]
      CFC --> CFCus[Customer]
      RRReq --> RRReqVol[Volume]
      RRReq --> RRReqCap[Capacity]
      RRReq --> RRReqSt[Strengths]
      RRReq --> RRRequs[Customer]
  
```

COST OF SERVICE

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RATE DESIGN

Purpose of Rate Design:

Fundamental principle in rate making is to establish a rational nexus between costs incurred in providing service (cost of service) and charges assessed to rate payers.

The diagram illustrates the calculation process for rates and charges. It starts with 'Revenue Requirements' (blue box) divided by 'Units of Service' (light blue box) to produce 'Rates & Charges' (green box). This 'Rates & Charges' is then multiplied by a 'Collection Lag Factor' (dark grey box) to produce the final 'Final Rates & Charges' (yellow box). A vertical label 'RATE DESIGN' is on the left side of the slide.


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RATE DESIGN

• Key Principles:

- Maintain pricing objectives
- Utilize the Cost of service system/service and functional unit cost
 - Foundation of Rate Design
- Equitable Cost Recovery
- Identify the Effective Revenue Contribution of all Customer Classes
- Maintain Revenue Stability
- Assess Customer Bill Impact
 - Measure of Affordability


The flowchart shows the 'RATE DESIGN' process. It begins with 'Develop COS Rates' (blue box) and 'Develop Practical Rates' (blue box), which both lead to 'Scenario Planning' (blue box). 'Scenario Planning' leads to 'Proposed Rates' (green box), which then leads to 'Implementation Support' (green box). A feedback loop is shown with a dashed red arrow from 'Implementation Support' back to 'Proposed Rates'. A vertical label 'RATE DESIGN' is on the left side of the slide.

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RATE DESIGN

RATE DESIGN


- **Topics of Interest:**
 - Availability and Quality of Data
 - Mix of Customers
 - Inter & Intra Generational Considerations
 - Timing of Revenues
 - Seasonality
 - Billing Adjustment
 - Customer Bill Impacts
 - Pricing Signals
 - Price Elasticity
 - Ease of Implementation
 - Operational Capability


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RATE DESIGN

RATE DESIGN

- **Rate Design Decision Matrix:**
 - **Fixed vs. Variable Charges**
 - Revenue Stability
 - Full recovery of cost
 - **Variable Charges**
 - **Uniform vs. Inclining vs. Time-of-Use vs. Water Budget**
 - Appropriate level of conservation signals
 - **Special Purpose Rates**


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RATE DESIGN

- Rate Design Decision Matrix (cont'd):

RATE DESIGN DECISION MATRIX									
OBJECTIVES	FIXED CHARGES				VARIABLE CHARGES				
	Meter	Customer	Billing	Demand	Uniform Block	Declining Block	Increasin Block	Time-of-Use	Water Budget
Conservation									
Financial Stability									
Rate Stability									
Revenue Stability									
Equitability									
Affordability									
Bill Impact									
Understandability									
Legality									
Ease of Implementation									
Economic									

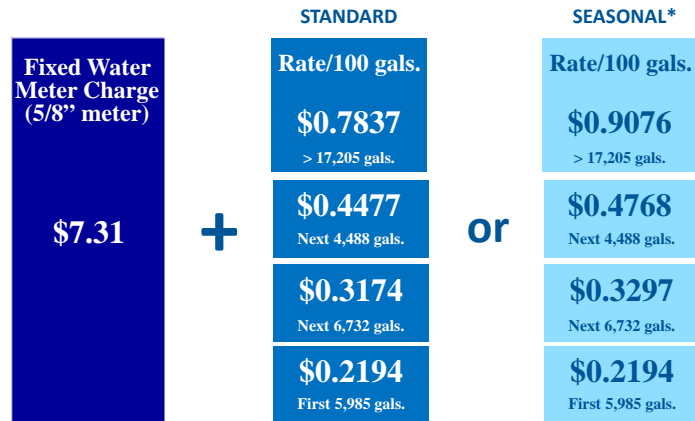
RATE DESIGN



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SAWS RESIDENTIAL WATER RATE STRUCTURE

Increasing Block Structure Designed to Send Price Signals

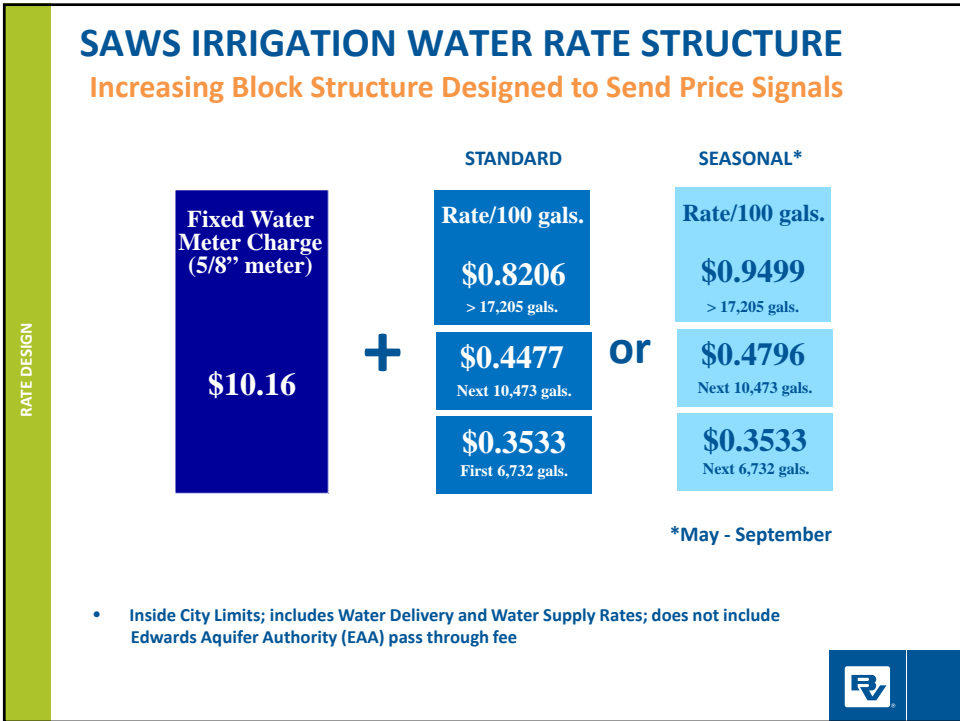
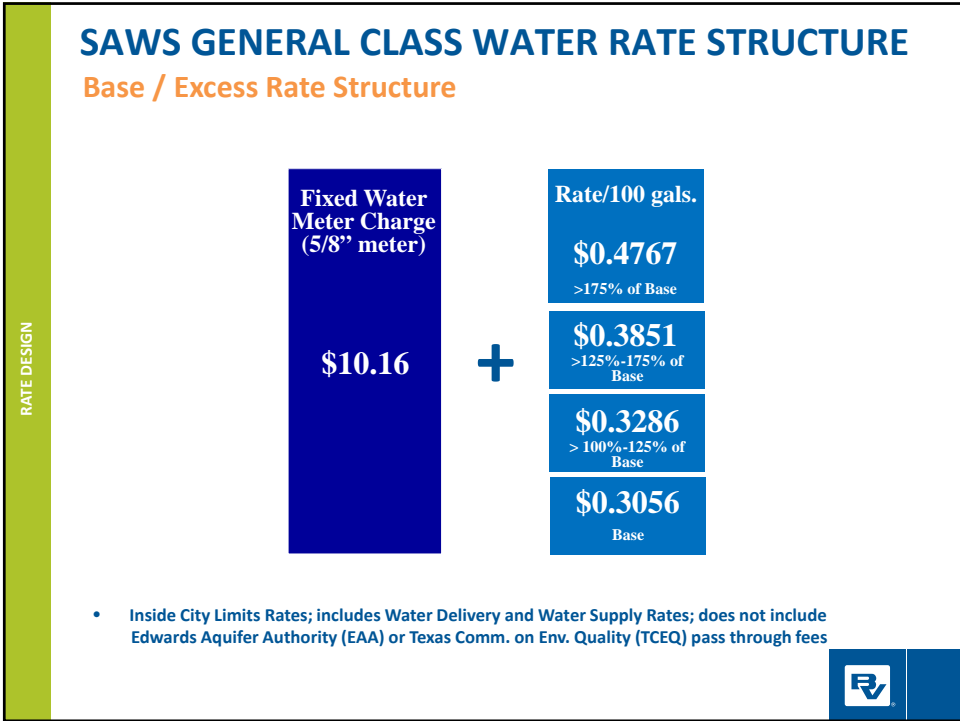


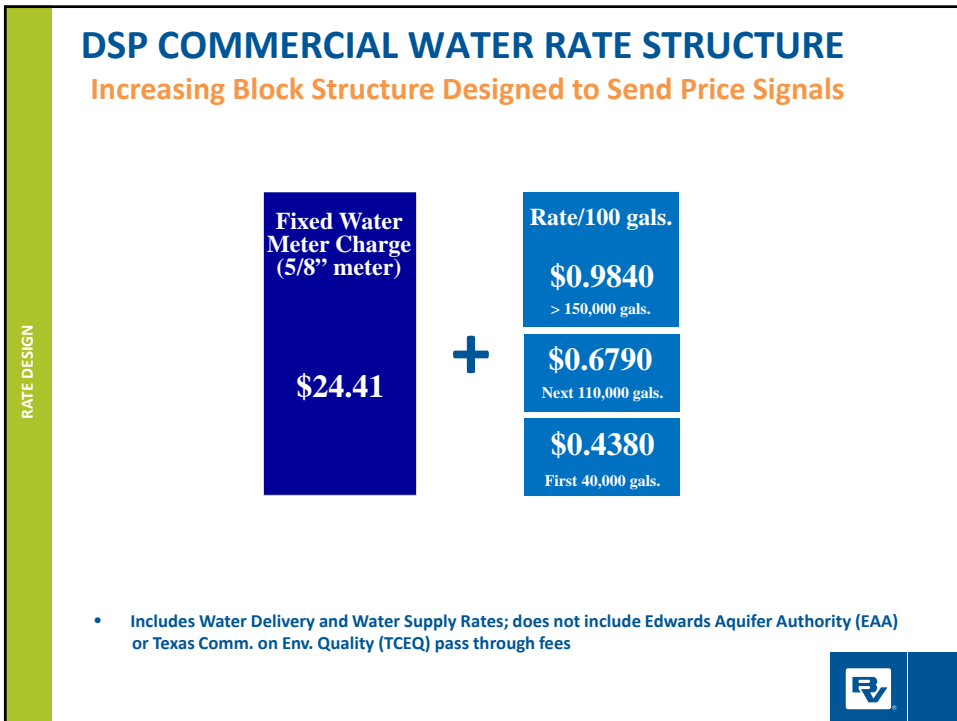
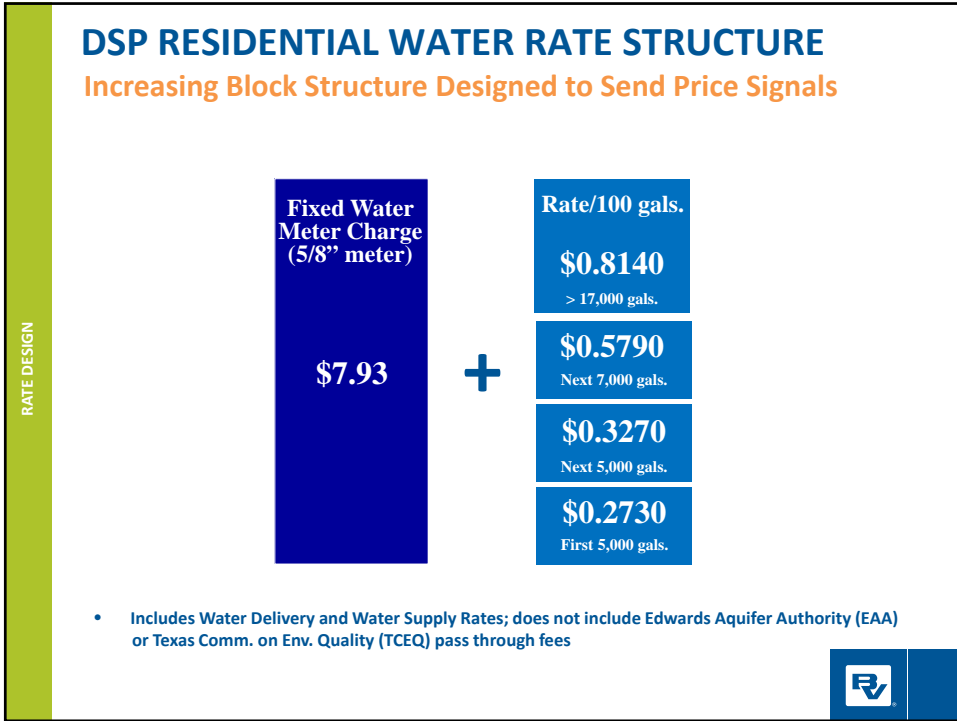
*May - September

- Inside City Limits Rates; includes Water Delivery and Water Supply Rates; does not include Edwards Aquifer Authority (EAA) or Texas Comm. on Env. Quality (TCEQ) pass through fees

RATE DESIGN







RATE DESIGN

SAWS WASTEWATER RATE STRUCTURE

Base Plus Single Tier Volumetric Rate, applies to all rate classes

Minimum Charge
(Includes first 1,496 gals.)

\$11.93


+

Rate/100 gals.

\$0.3163

> 1,496 gals.

- Inside City Limits; does not include Texas Comm. on Env. Quality (TCEQ) pass through fee or Sanitary Sewer Surcharges that may be applicable to commercial or industrial customers




RATE DESIGN

SAWS PASS-THROUGH FEES

Fees Assessed on SAWS by Regulators

- Edwards Aquifer Authority (EAA) Fee Rate: \$0.03295 per 100 gallons
 - Applied in addition to all Water Delivery and Water Supply Rates
- Texas Commission on Environmental Quality (TCEQ) Charges:
 - \$0.18 per Water Connection
 - \$0.06 per Wastewater Connection




RATE DESIGN

DSP PASS-THROUGH FEES

Fees Assessed on DSP by Regulators


- Edwards Aquifer Authority (EAA) Fee Rate: \$0.02764 per 100 gallons
 - Applied in addition to all Water Delivery and Water Supply Rates
- Texas Commission on Environmental Quality (TCEQ) Charge:
 - \$0.18 per Water Connection



RATE DESIGN

RATE DESIGN

- Southeast USA (Florida):
 - Meter size utilized as the determinant of Fixed Charges
 - Variables/Volumetric Rates that are tied to the South Florida Water Management District Drought Triggers
 - Block size adjustments are utilized to compensate for deepening Drought Condition
 - Primary Driver
 - Maintain stable and predictable levels of revenues



RATE DESIGN


RATE DESIGN

- Southeast USA (Florida):

RESIDENTIAL WATER RATES					
Rates Effective: October 1, 2012					
FIXED CHARGE	STANDARD		EMERGENCY ADJUSTMENT		
			<u>Drought</u>		<u>Extreme Drought</u>
Customer Charge ¹	\$	4.14	\$	4.14	\$ 4.14
Meter Size					
5/8" & 3/4"	\$	10.75	\$	10.75	\$ 10.75
1" (ARC = 20,000) ²	\$	10.75	\$	10.75	\$ 10.75
1" (ARC > 20,000)	\$	31.94	\$	31.94	\$ 31.94
1 1/2"	\$	70.63	\$	70.63	\$ 70.63
VARIABLE CHARGE (\$/Kgal.)	STANDARD		EMERGENCY ADJUSTMENT		
			<u>Block Adjustments (Kgals.)</u> ³		
Tiered Rates (\$/Kgal.)					
Tier 1: 0 - 3,000	\$	1.39	Tier 1: 0 - 2,000		Tier 1: 0 - 1,000
Tier 2: 4,000 - 6,000	\$	2.42	Tier 2: 3,000 - 5,000		Tier 2: 2,000 - 4,000
Tier 3: 7,000 - 12,000	\$	5.72	Tier 3: 6,000 - 9,000		Tier 3: 5,000 - 6,000
Tier 4: Over 12,000	\$	6.94	Tier 4: Over 9,000		Tier 4: Over 6,000

Note:

1. The customer charge is applied per customer account on a monthly basis.
2. Represents a customer's Actual Residential average monthly Consumption for the preceding calendar year.
3. The Emergency Adjustments are applied by reducing the size of existing blocks to compensate for the specified drought condition.


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RATE DESIGN


RATE DESIGN

- Southeast USA (Florida):

RESIDENTIAL WASTEWATER RATES		
Rates Effective: October 1, 2012		
FIXED CHARGE	STANDARD	NO EMERGENCY ADJUSTMENT
Meter Size		
5/8" & 3/4"	\$	17.44
1" (ARC = 20,000) ¹	\$	17.44
1" (ARC > 20,000)	\$	24.39
1 1/2"	\$	125.91
VARIABLE CHARGE (\$/Kgal.)	STANDARD	NO EMERGENCY ADJUSTMENT
Volumetric (\$/Kgal.)		
Tier 1: 0 - 8,000	\$	3.43
Tier 1: Over 8,000		No Charge

Note:


1. Represents a customer's Actual Residential average monthly Consumption for the preceding calendar year.


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RATE DESIGN

RATE DESIGN

- Southeast USA (Georgia):
 - The rate structure focuses on capacity utilization
 - A cost basis for increasing variable/unit charges based on customer behavior
 - Solid pricing signals resulting in increased conservation activities by customers
 - Primary Driver
 - Maintaining the ability to price according to the implicit customer usage decisions


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RATE DESIGN


RATE DESIGN

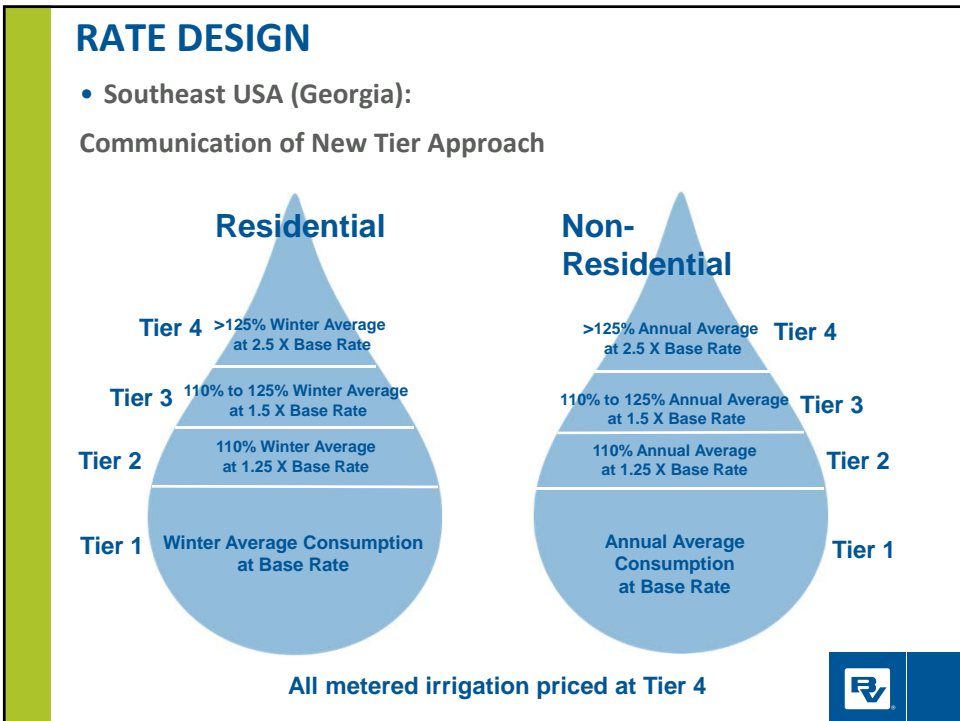
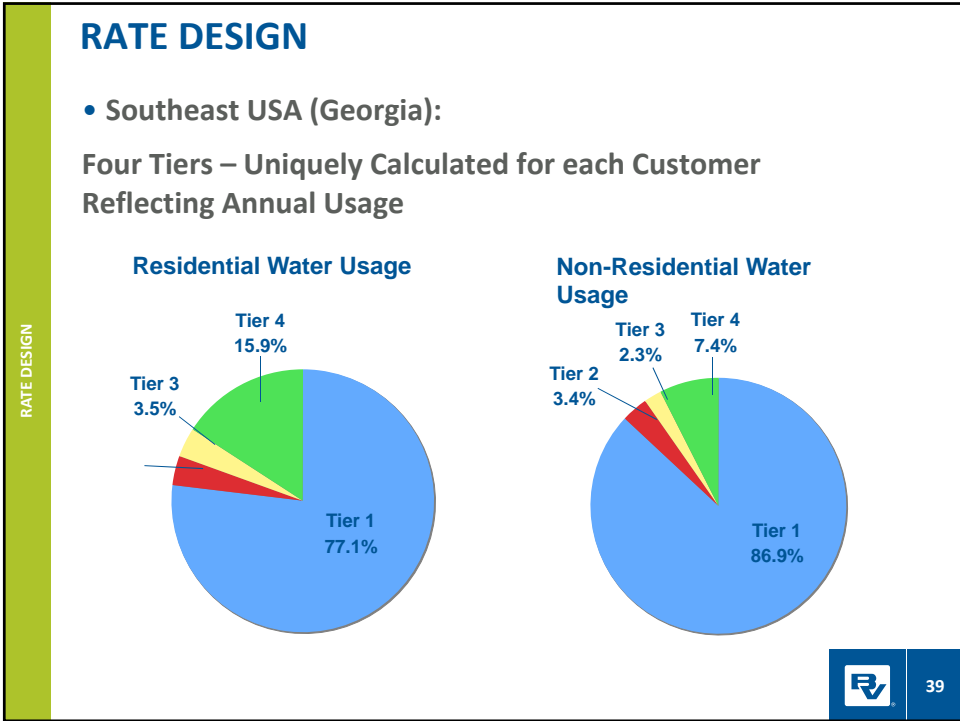
- Southeast USA (Georgia):

Four Tiers – Uniquely Calculated for each Customer Reflecting Annual Usage

	<u>Tier 1</u> ≤ WA	<u>Tier 2</u> WA to 110% WA	<u>Tier 3</u> 110% to 125% WA	<u>Tier 4</u> Above 125% WA
Residential (by Total Volume)	77.1%	3.6%	3.5%	15.9%
Residential (by # of Water Bills)	50.8%	11.7%	11.9%	25.6%

WA = Winter Average (average of Dec, Jan, Feb, and March)
 Winter Average adjusted every 2 years



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RATE DESIGN

RATE DESIGN

- California Example:
 - Consumption Based Fixed Rates (CBFR) Structure
 - Moves away from Meter Size as a major determinant of Fixed Charges
 - Relies on actual water usage from the designated summer months (May through October)
 - Primary Driver
 - Recovery of cost associated with the expansion of system supply



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RATE DESIGN

RATE DESIGN

- California Example:

Rates Effective	1-May-13	1-Jan-14	1-Jan-15	1-Jan-16	1-Jan-17	1-Jan-18
DISTRIBUTION (FIXED)						
<u>Meter Size</u>						
3/4"	\$ 17.33	\$ 19.68	\$ 10.21	\$ 11.38	\$ 11.90	\$ 13.67
1"	\$ 27.13	\$ 31.05	\$ 15.22	\$ 17.19	\$ 18.09	\$ 20.92
1 1/2"	\$ 50.68	\$ 58.51	\$ 26.78	\$ 30.76	\$ 32.62	\$ 38.01
2"	\$ 80.27	\$ 92.80	\$ 42.02	\$ 48.41	\$ 51.40	\$ 59.96
3"	\$ 152.91	\$ 177.97	\$ 76.19	\$ 89.09	\$ 95.19	\$ 111.72
4"	\$ 236.26	\$ 275.42	\$ 116.33	\$ 136.53	\$ 146.12	\$ 171.73
6"	\$ 464.71	\$ 543.02	\$ 224.63	\$ 265.13	\$ 284.43	\$ 335.05
8"	\$ 737.57	\$ 862.88	\$ 353.27	\$ 418.17	\$ 449.16	\$ 529.67
VARIABLE CHARGE (\$/ccf of Current Billing Period Use)						
<u>Single Family Residential Tiered Rates (\$/ccf)</u>						
Tier 1: 0 18	\$ 1.23	\$ 1.53				
Tier 2: 18 29 ccf	\$ 1.37	\$ 1.69				
Tier 3: 30 + ccf	\$ 2.33	\$ 2.87				
<u>All Other Customer Classes Uniform Rate (\$/ccf)</u>						
Multi Family Residential	\$ 1.81	\$ 2.24				
Commercial	\$ 1.51	\$ 1.87				
Irrigation	\$ 2.37	\$ 2.94				
CBFR UNIFORM RATES (\$/ccf of Current Billing Period Use)						
All Classes		\$ 0.86	\$ 1.02	\$ 1.12	\$ 1.32	
CBFR SUPPLY CHARGES (\$/ccf of Prior Year Peak Period Water Consumption)						
All Classes		\$ 0.32	\$ 0.40	\$ 0.45	\$ 0.54	


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INDUSTRY INFORMATION

INDUSTRY INFORMATION



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INDUSTRY INFORMATION


RATE DESIGN

WATER RATE STRUCTURES:

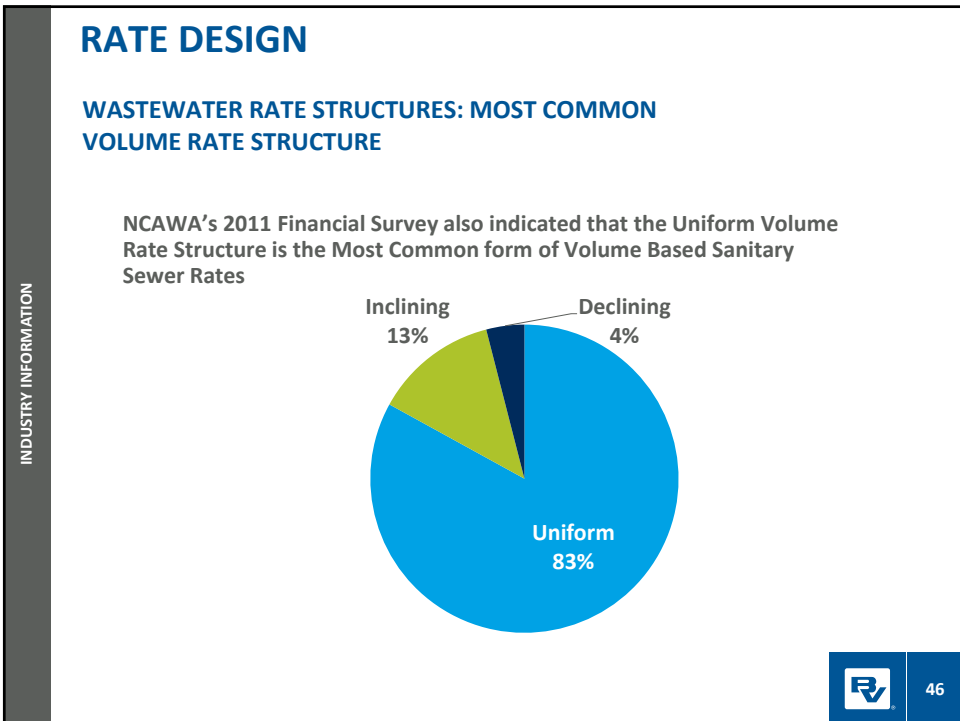
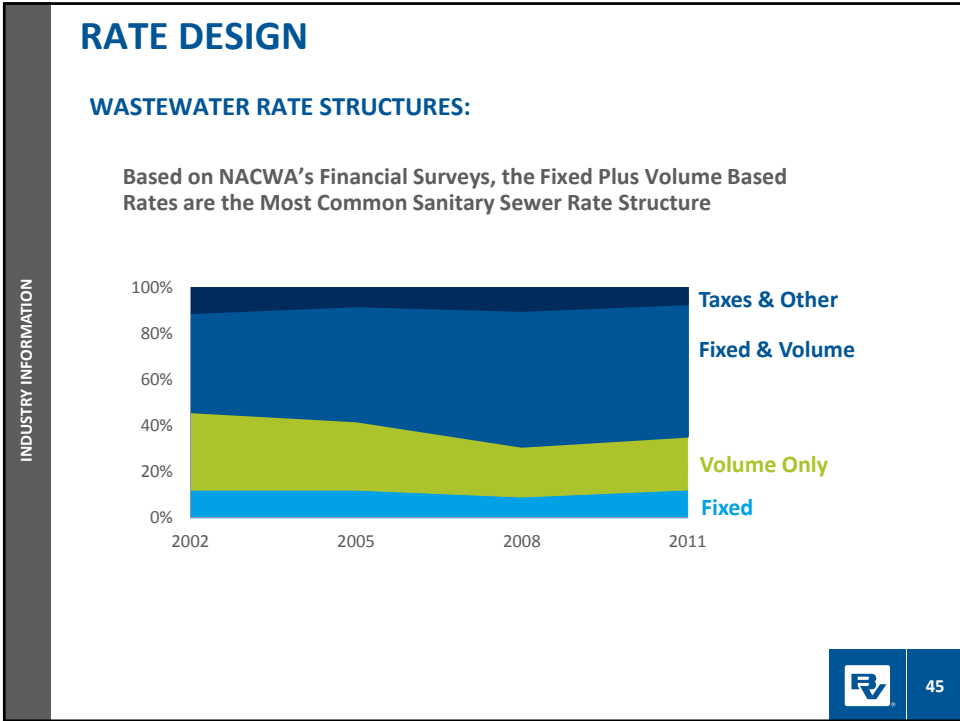
Based on AWWA Rate Surveys, the Most Common Water Rate Structure has shifted from Uniform to Inclining Block

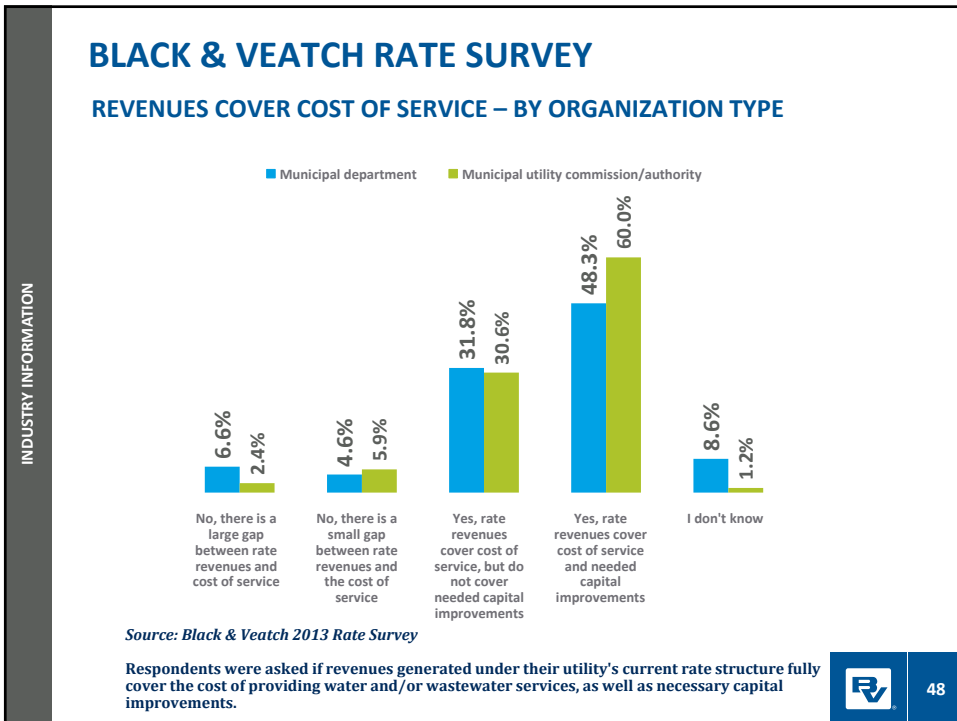
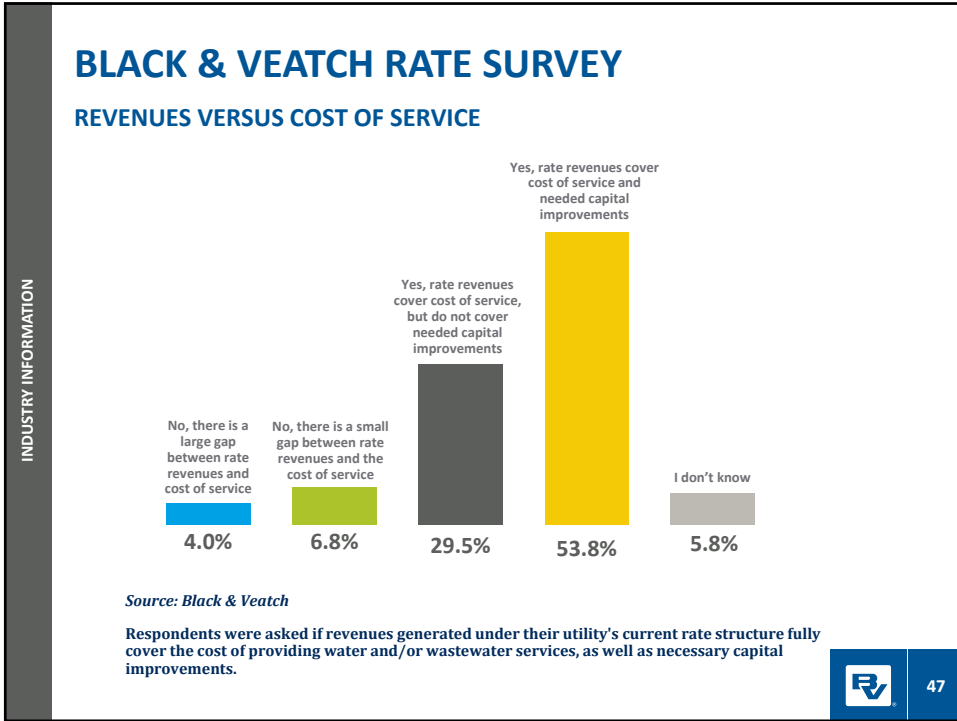
"This Trend Reflects the Industry Focus on Water Conservation"

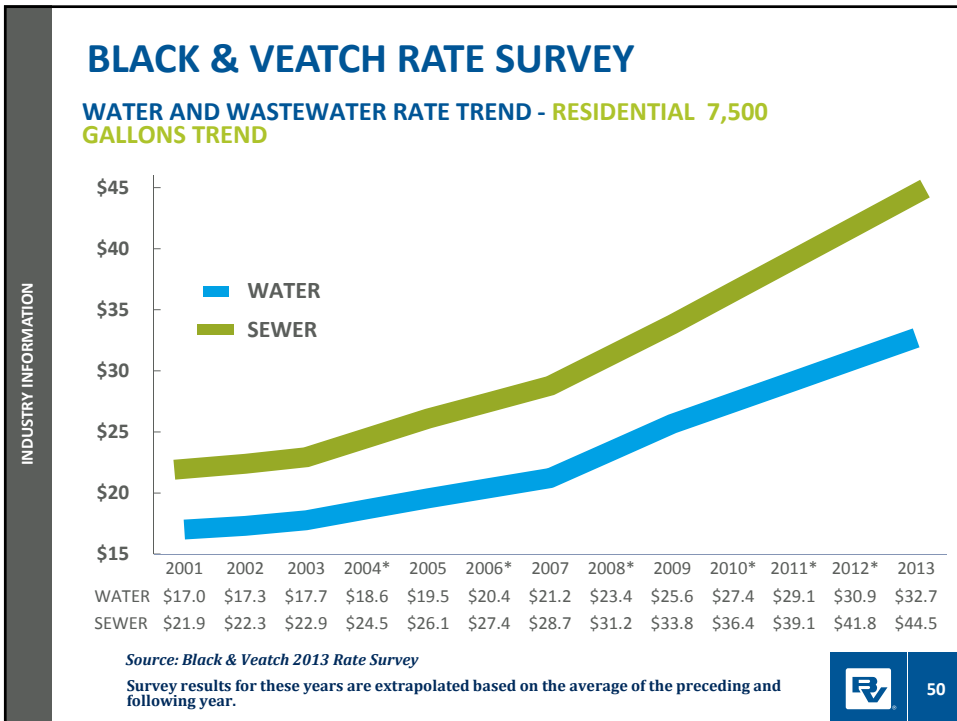
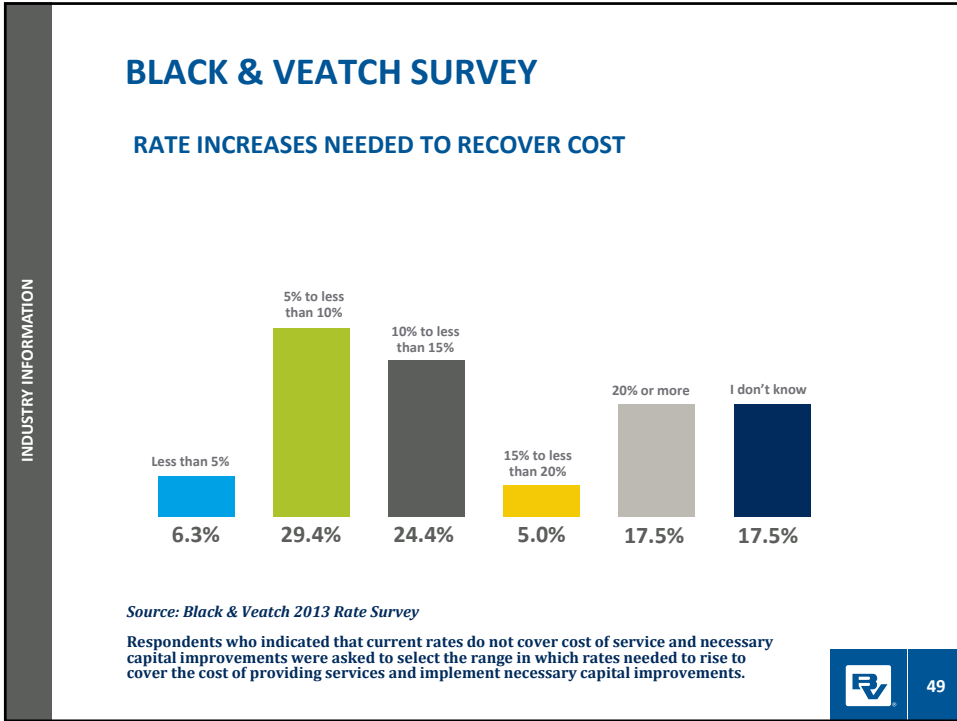
Year	Uniform (%)	Inclining (%)	Declining (%)
1998	35	30	35
2000	35	30	35
2002	35	30	35
2004	35	35	30
2006	35	35	30
2008	30	40	30
2010	30	45	25

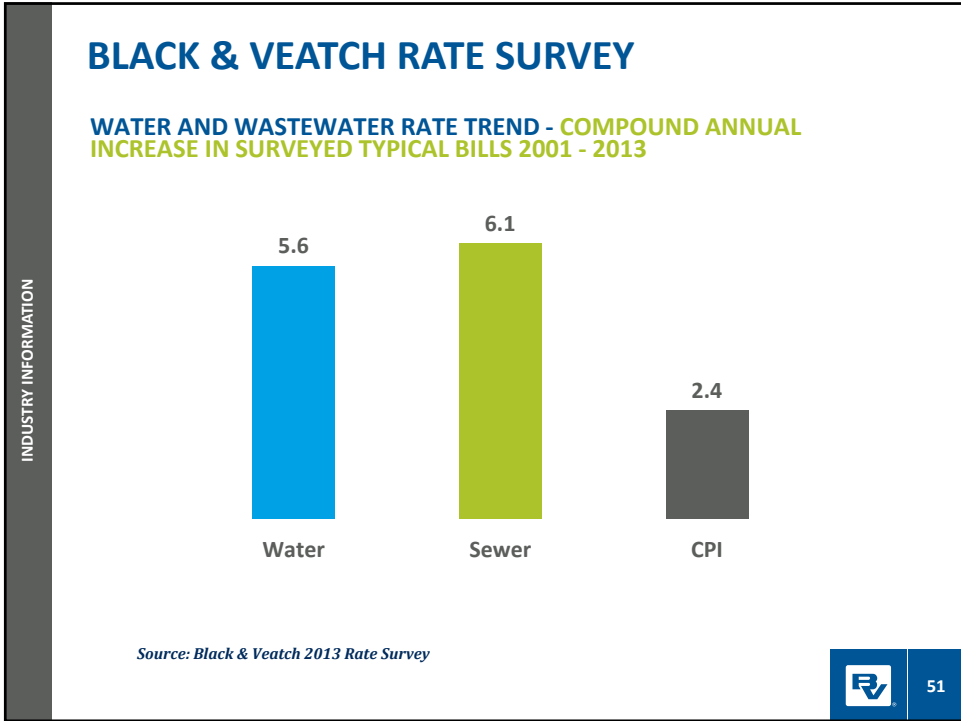


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- NEXT STEPS**
- SAWS Board Policy and Planning Meeting – April 21, 2014
 - City Council “B” Session – April 30, 2014
 - RAC Public Hearing – May 6, 2014
 - Public stakeholders provide input
 - RAC Priority Setting Workshop – May 15, 2014
 - Consultant develops rate structure proposals based on priorities for discussion at later meetings
 - Refinement of rate structure proposal will be the focus of the RAC’s work through the rest of the year.
-
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QUESTIONS

QUESTIONS



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Building a **world** of difference.®

Together



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