

Managing the Tension between Water Conservation and Utility Revenue Requirements

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Lake Oswego's Funding Challenge – and they're not alone

- Recent trends in water consumption
 - Translates to revenue
- Local circumstances
- Facing up to a new “normal”
- Ideas for adapting

What's Happened to Water Revenues?

- Plumbing fixtures use less water
 - Toilets from 5-6 gallons per flush to 1.6 gallons or less
 - Showers, faucets
- Success with conservation messages
 - People are more aware and more careful with water use
 - We've handed out materials and products to reduce use
- Implemented Inclining Block Rates
 - The more you use, the higher your rate
- Lake Oswego has experienced all these

= ***The sum is Lower Water Revenue!***

Compounding Effects

- Effects from the current slow economy
 - Declining water consumption and rate revenue
 - Slow growth & non-rate revenue (impact fees)
 - Community and ratepayer scrutiny rising
- Sewer bills have increased
- Aging population, declining income
- Customers have become more price sensitive

The result: Revenues are down, and rate increases are required....again

What does the future hold?

- Practitioners can expect further declines in water usage as:
 - Water conservation fixtures and appliances saturate the market
 - Water bills become an increasing percentage of median household incomes, and customers become more price sensitive

What does the future hold?

- Continued downward pressure on water revenue
 - Adjust our revenue forecast
- Effects of lower water demand forecasts on CIP projects
 - Critical infrastructure improvements may be postponed

“The future ain’t what it used to be”

-Yogi Berra

Lake Oswego's Experience

- 2008 Partnership with city of Tigard
 - New river intake
 - New river crossing
 - Expanded treatment plant
 - New finished water pipeline
 - New terminal storage
- Seismic hardening, improved resilience
- LO's share is \$117 million

Remember the Old Days?

- Federal Grants and Low-interest Loans paid for system improvements 1950's through 1970's

But after that,

- Local governments left to operate and maintain them
 - Insufficient replacement and upgrade funds set aside
- Conservation programs viewed as mitigation for demands from new customers



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IN THIS EDITION:

HEADLINES

- » Utilities avoid US credit downgrade aftermath
- » Extreme weather patterns plaguing US

TECHNOLOGY & PRACTICE

Declining demand likely to continue beyond recession

Editor's note: See link below to comment on this article.

Water utility professionals who have watched customer water use decline over the past two to three decades expect this trend to continue



Operations

Declining Residential Water Use Presents Challenges, Opportunities

Conservation efforts and use of more efficient appliances are causing residential customers to use less water. How does this affect the way utilities conduct their business and operations?

BY MARGARET HUNTER, KELLY DOWNHOFFER, JIM CHELUS, AND GARY NACHWICK

FOR MANY North American utilities, residential water use has declined steadily for the last 30 years. In many locations, the trend has accelerated in the last decade. A utility services company studied historic water usage trends for its US operations during the last 10 years. Figure 1 shows monthly residential use per customer. Overall, residential water use across the nation has declined between 2001 and 2010. The trend of declining use was consistent across widely ranging geographic locations and demographic characteristics. Similar results were found in a study of winter-only consumption in northern US service areas where

The New York Times



March 30, 2010

Strapped Cities Struggling to Fund Water Treatment Upgrades

By PETER URBAN, SPECIAL TO E&E of *Greenwire*

Under a federal order to upgrade its wastewater treatment plant, Buffalo, Mo., residents approved a \$3.4 billion bond two years ago fully anticipating that its largest employer -- and its largest water user -- would repay the bulk of that loan.

But Petit Jean Poultry shut down in October 2008, months before the upgrade was completed. And the town, which has fewer than 2,500 households, was left to pay back the bond minus about 500 jobs.

"Had we known they would close, we wouldn't have went to the extent of improving the wastewater facility as we did," Mayor Jerry Hardesty said. "The citizens passed the bond with Petit Jean figured into that. We were counting on that."

Buffalo is not alone.

The Mercury News

MercuryNews.com

Bay Area water customers may pay price for conservation

By Julia Scott
julia.scott@bayareanewsgroup.com

Posted: 04/20/2011 06:39:17 PM PDT

Updated: 04/21/2011 08:10:21 AM PDT

California's water woes have compelled East Bay and Peninsula residents to conserve more water than they have at almost any time since the drought of 1992. Their reward? The biggest water-rate increase they've ever seen.

Cost of Service Analyses Identified Changing Consumptive Behaviors

■ COSA conducted in 2008 and 2011

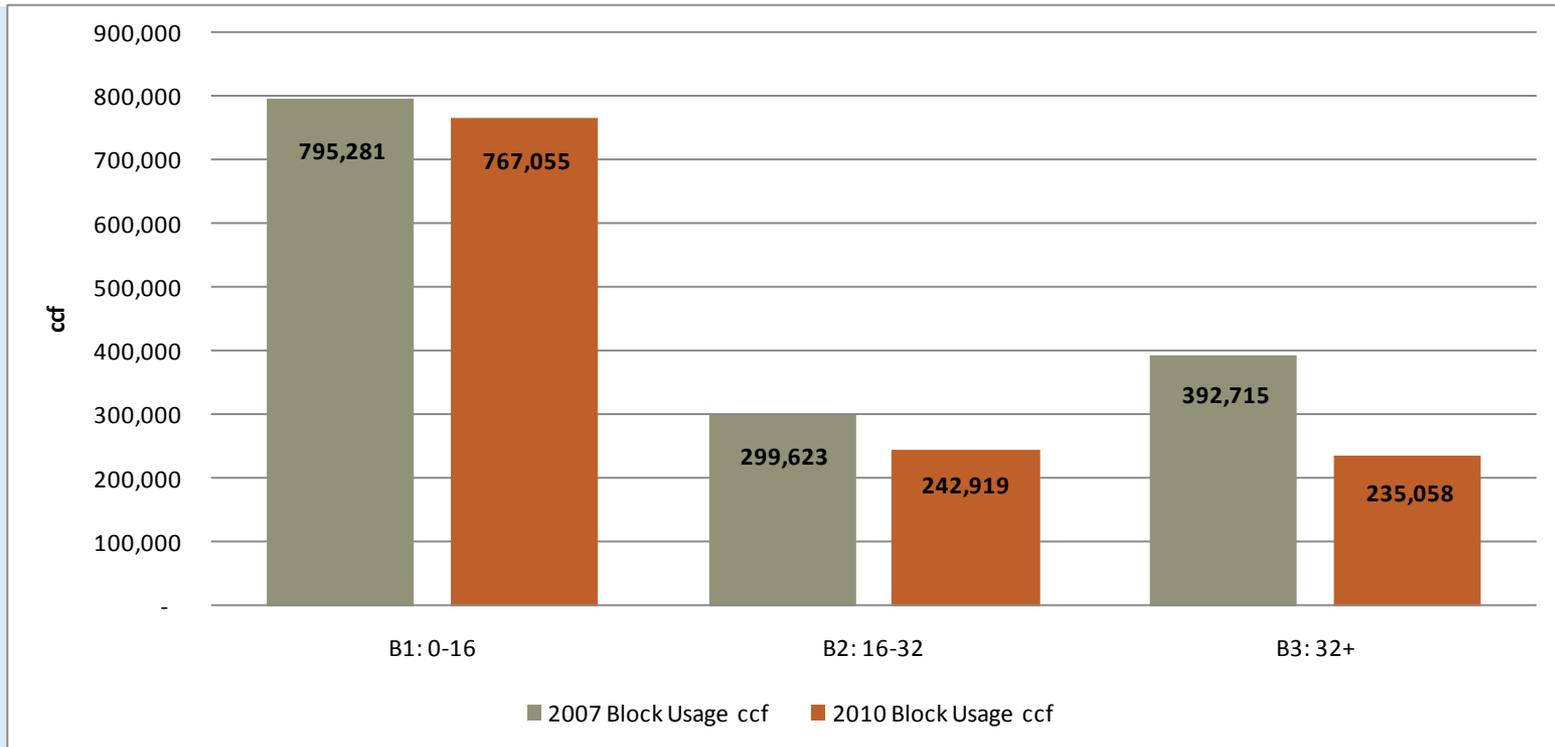
- Showed changing patterns and trends
- Consumption in highest block declined more than anticipated

■ Basis for rate adjustments

- Included revisions to allocation of costs among customer classes
- Acknowledged accelerated timing of capital funding for water supply improvements

2007 and 2010 Comparison

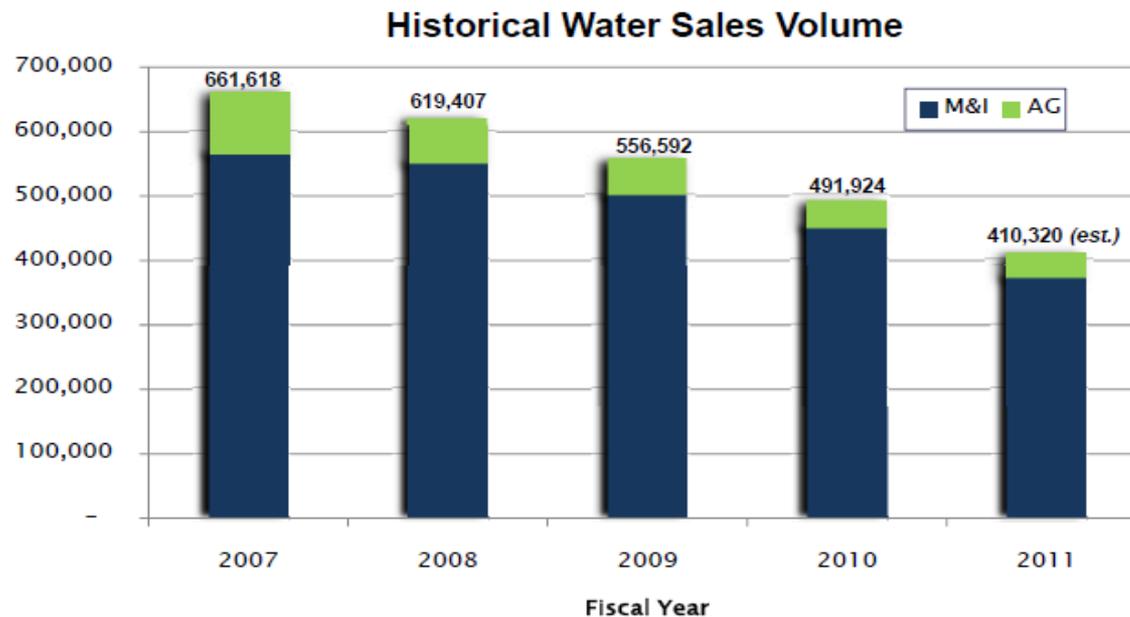
Tiered Rates influenced distribution of consumption



Bi-Monthly Blocks	2007 % of Total Use	2010 % of Total Use	Change
B1: 0-16	53.46%	61.61%	8.15%
B2: 16-32	20.14%	19.51%	-0.63%
B3: 32+	26.40%	18.88%	-7.52%

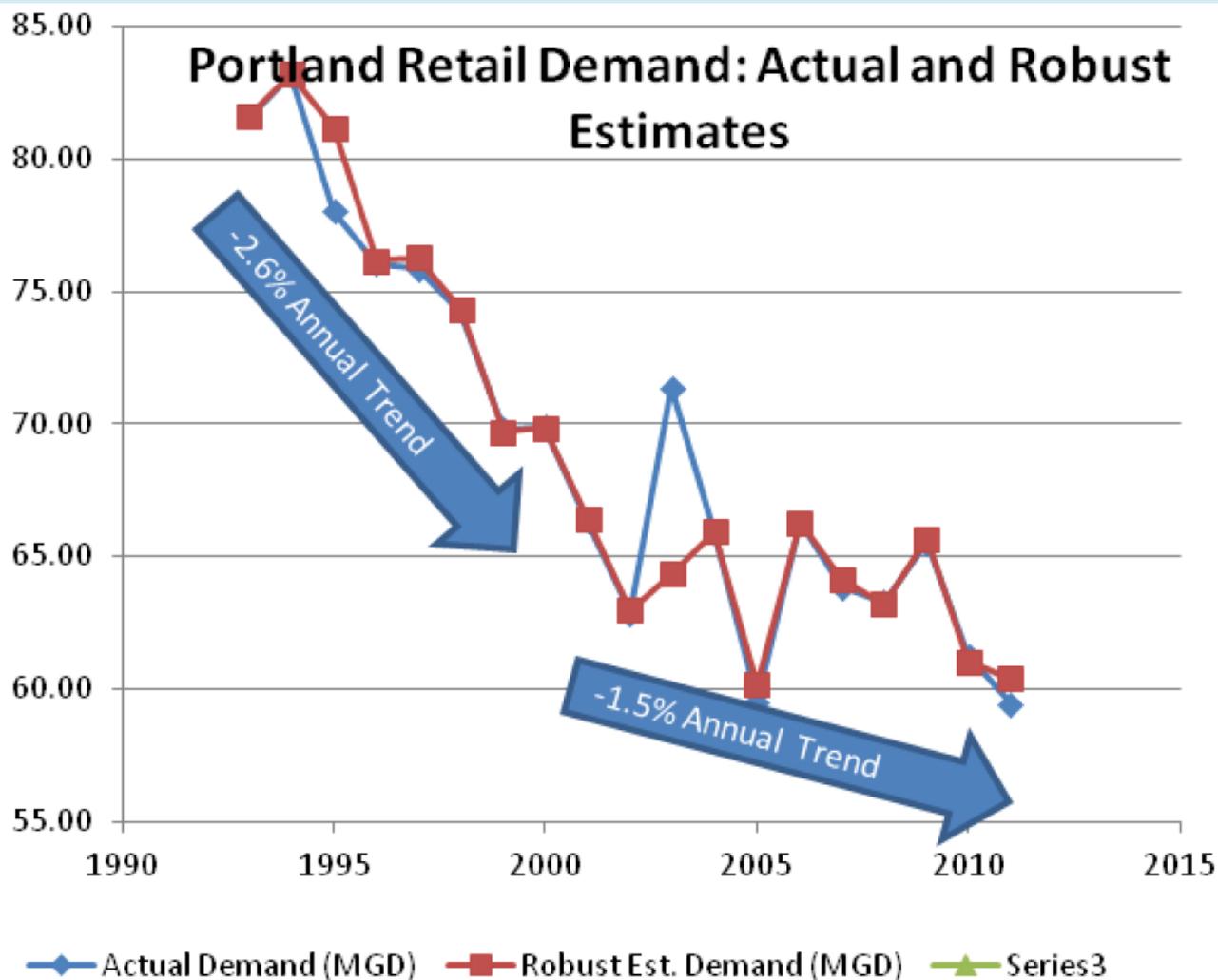
FCS Group December 2010 presentation to Lake Oswego City Council

Decreasing water sales



- ▶ Total water sales have decreased by 38% since 2007
- ▶ Agricultural water sales are down almost 60% since 2007

Portland Water Bureau



From Portland Water Bureau Retail Demand Modeling – Statistical Evaluation of Trends in PWB Retail Demand

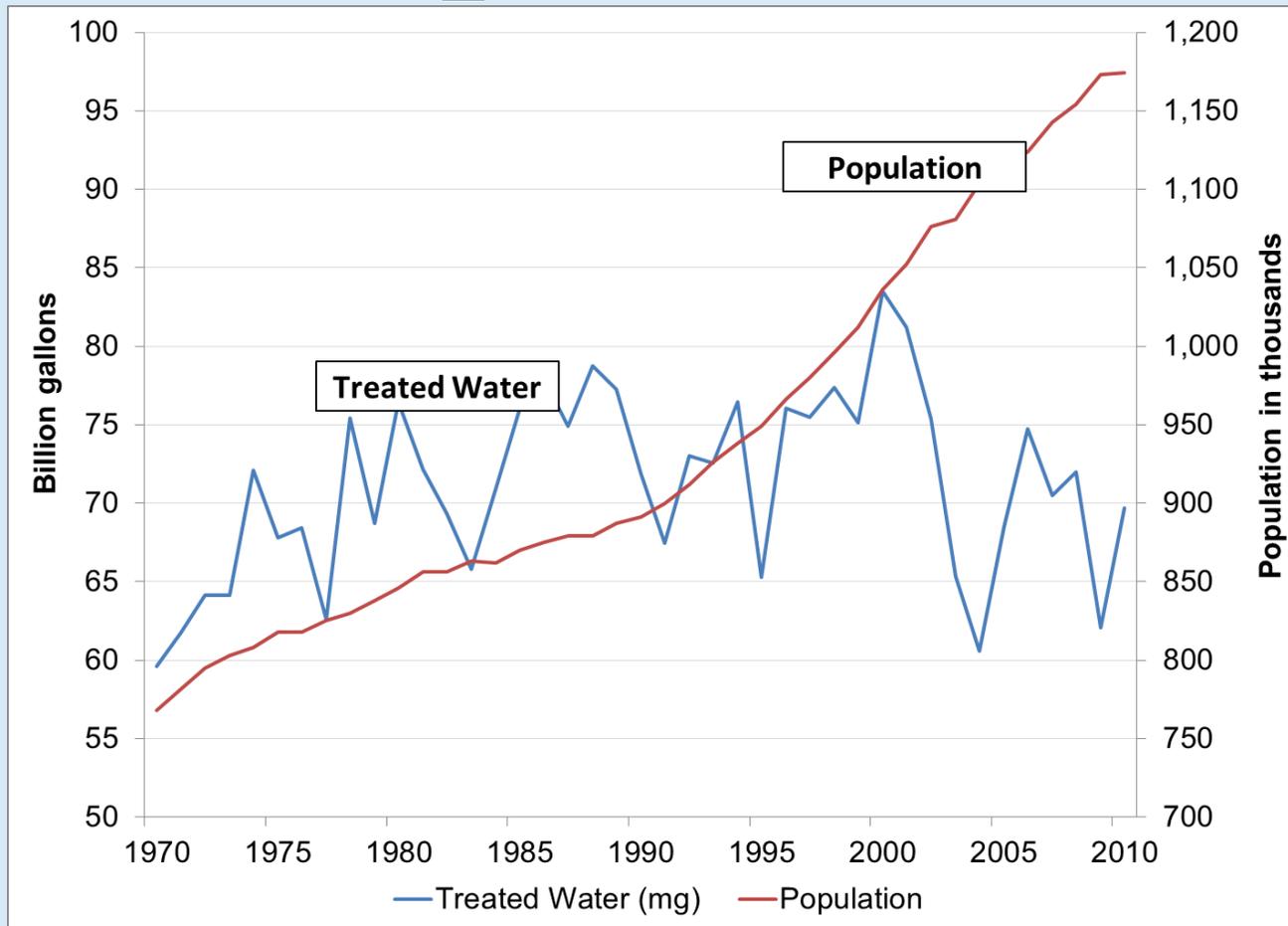
Denver Water 1970 – 2010

Population:

Treated Water:

53%

17%



Denver Water 1970 – 2010

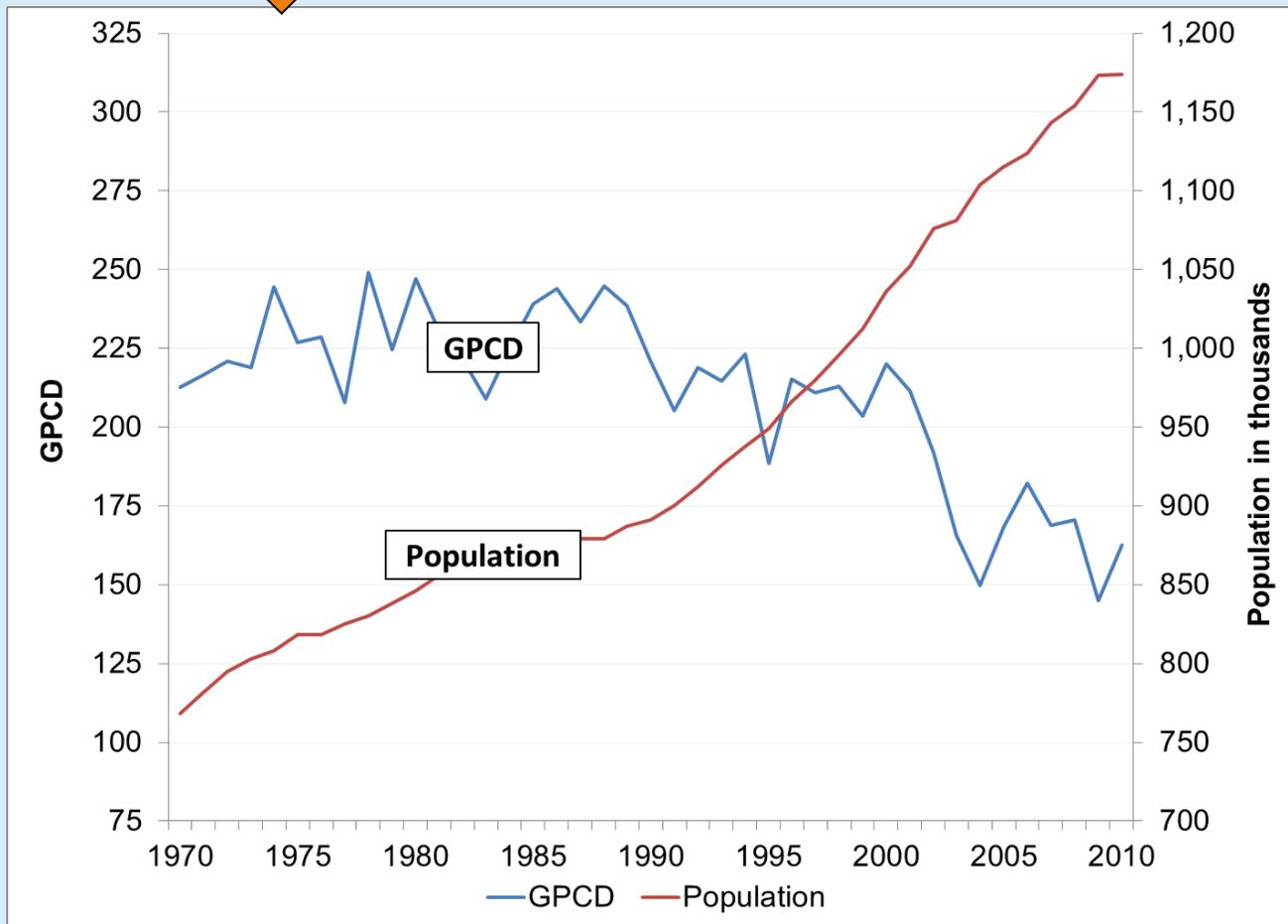
Population:

53%



GPCD:

30%



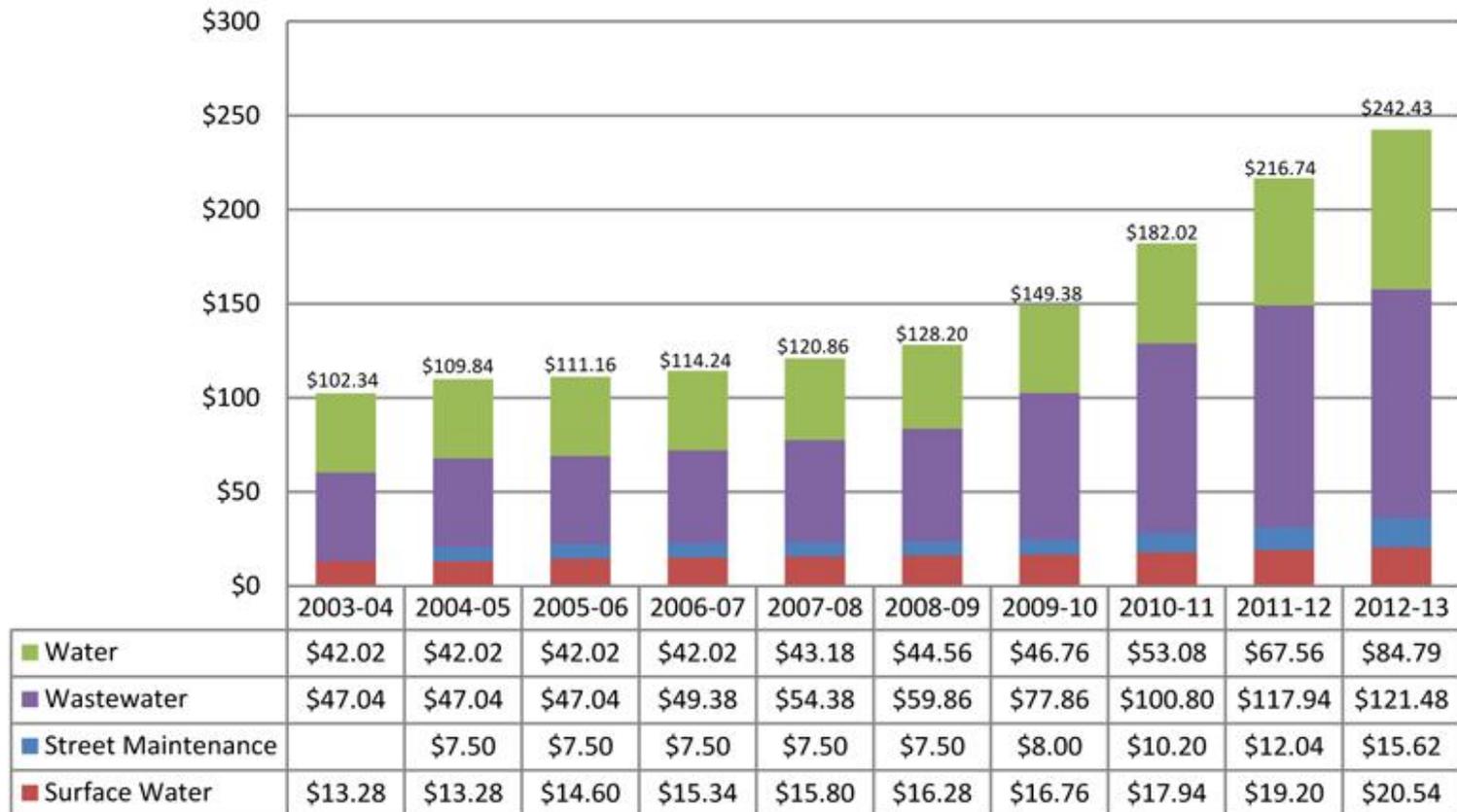
Inclining Block Rates are Intended to Send Signals

- Lake Oswego's lowest rate in 2009 was \$0.90 per ccf
 - In 2012 it climbed to \$2.11 – up 234%
- All blocks have climbed
- Clear signals!

	7/1/10	3/1/11	3/1/12
Single family residential customers:			
Tier 1: 0 – 8 ccf monthly	\$ 1.15/ccf	\$ 1.64/ccf	\$ 2.11/ccf
Tier 2: 9 – 16 ccf monthly	\$ 1.73/ccf	\$ 2.35/ccf	\$ 3.02/ccf
Tier 3: over 17 ccf monthly	\$ 3.51/ccf	\$ 4.41/ccf	\$ 5.67/ccf

Escalating Wastewater Bills Complicates Matters for Water Systems

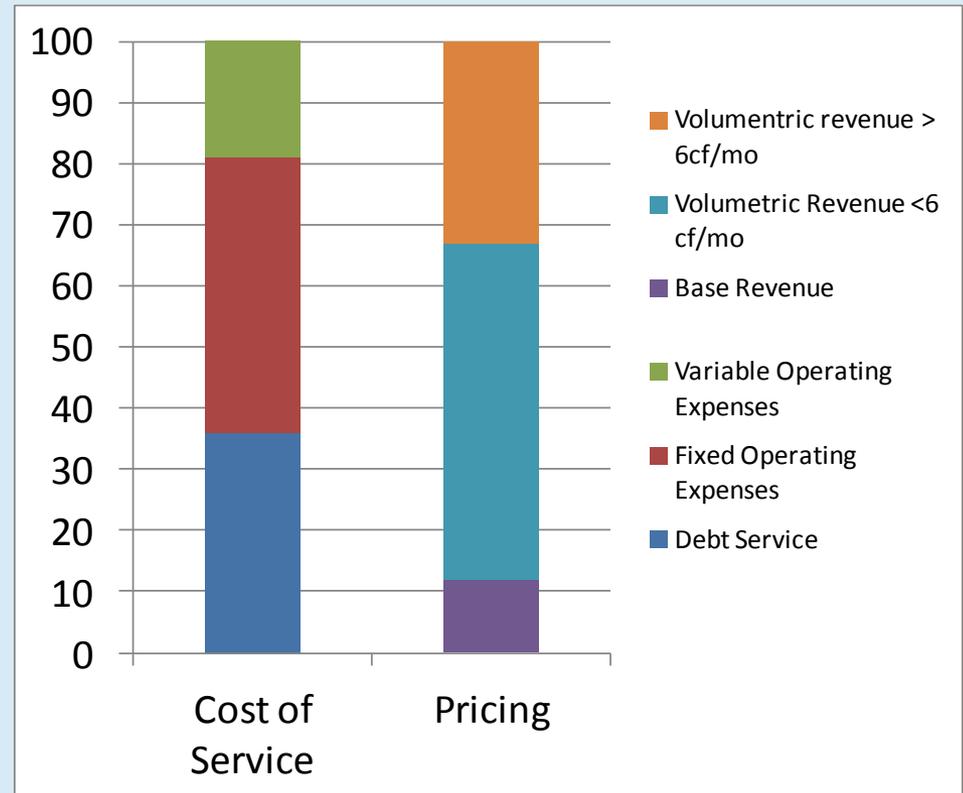
Lake Oswego's Typical Bi-Monthly Utility Bill



Based on typical use for a single-family home – 20 ccf for water & 16 ccf for sewer through FY2011-12
Subsequently conservation of approximately 2% is taken into account.

What should the “Base Rate” include?

- Many water system costs are fixed with little relationship to demand fluctuations
 - Debt service
 - Staffing levels
 - Maintenance activities
- Most rate structures rely heavily on volumetric portion for majority of revenue



Additional steps to understand Lake Oswego's situation

■ Conducted 2011 “Top-down” Audit

- Identified differences between water produced and water sold
- Provided information on how costs should be allocated among customer classes
- Determined potential sources of “non-revenue” water
- Implemented operational changes to track and manage non-revenue water and recover revenues proportionately based on demand characteristics

Suggestions to consider (Joel's checklist)

- Does your community understand the benefits of conserving water?
 - Can utility managers, public relations, and other staff articulate benefits and trade-offs?
- Do your policy-makers understand capital and operating needs of the utility?
 - Interplay between water conservation programs and revenue sufficiency?
- Does a conservation program help or hinder near- and long-term capital investment needs?
 - Are other community values addressed with a conservation program?
- What regulatory drivers call for conservation-based pricing?
 - Water Management and Conservation Plans?

Suggestions to consider (Joel's checklist), page 2

- Have you conducted a Cost of Service Analysis?
 - Water audit?
- Will there be shifts in the demographics of your customer base?
 - Short-term, long-term, planning cycle?
 - Population, age, income
- What other capital projects in your community will create competition for utility revenue?
 - Big sewer project?
 - Stormwater management?
 - Transportation projects?
- What non-traditional sources of revenue can you capture?
 - Services to neighboring utilities
 - Additional service to customers – backflow testing, pipe insurance programs

Other Big Picture Questions to Address Financing Challenges

- How do we predict water demands?
 - History is no longer a good indicator for projecting demands
 - How will climate change affect demands?
- Do we plan to provide 100% of demand at all times?
 - Is a shortage once every 10 or 20 years acceptable?
 - How will climate change affect supply?
- Are we willing to postpone an expansion based on lower demand projections?

Summary/Closure

- The past is not a good predictor of the future – except the recent uncertainty
- Reconsider forecast of future demand and consumption
- Understand the Cost of Service
- Be sure you know where all your water is going
- Educate policy makers and customers
- Adjust and adapt

Thank you!

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