



Defining a Resilient Business Model for Water Utilities

Water Research Foundation #4366

Association of Metropolitan Water Agencies

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Revenue Resiliency

- Background
 - Trends
 - Practices other than pricing
 - Pricing
- 

Team: Environmental Finance Center at UNC



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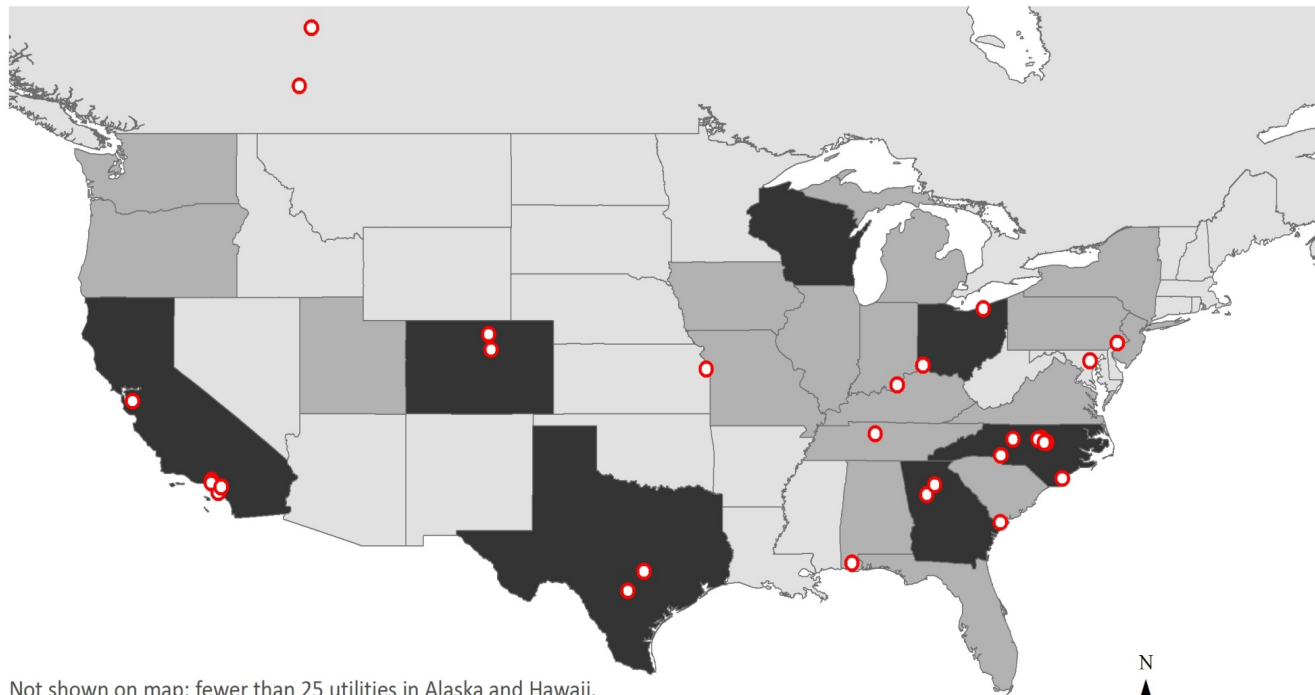
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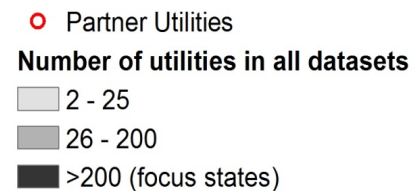
Project Advisory Committee

- Jonathan Cuppett, Project Manager, Water Research Foundation
 - Nick Dugan, US Environmental Protection Agency
 - Amber Halloran, Louisville Water Company
 - Scott Haskins, CH2M Hill
 - Myron Olstein, Independent Consultant
- 

Project Partners and Study Area



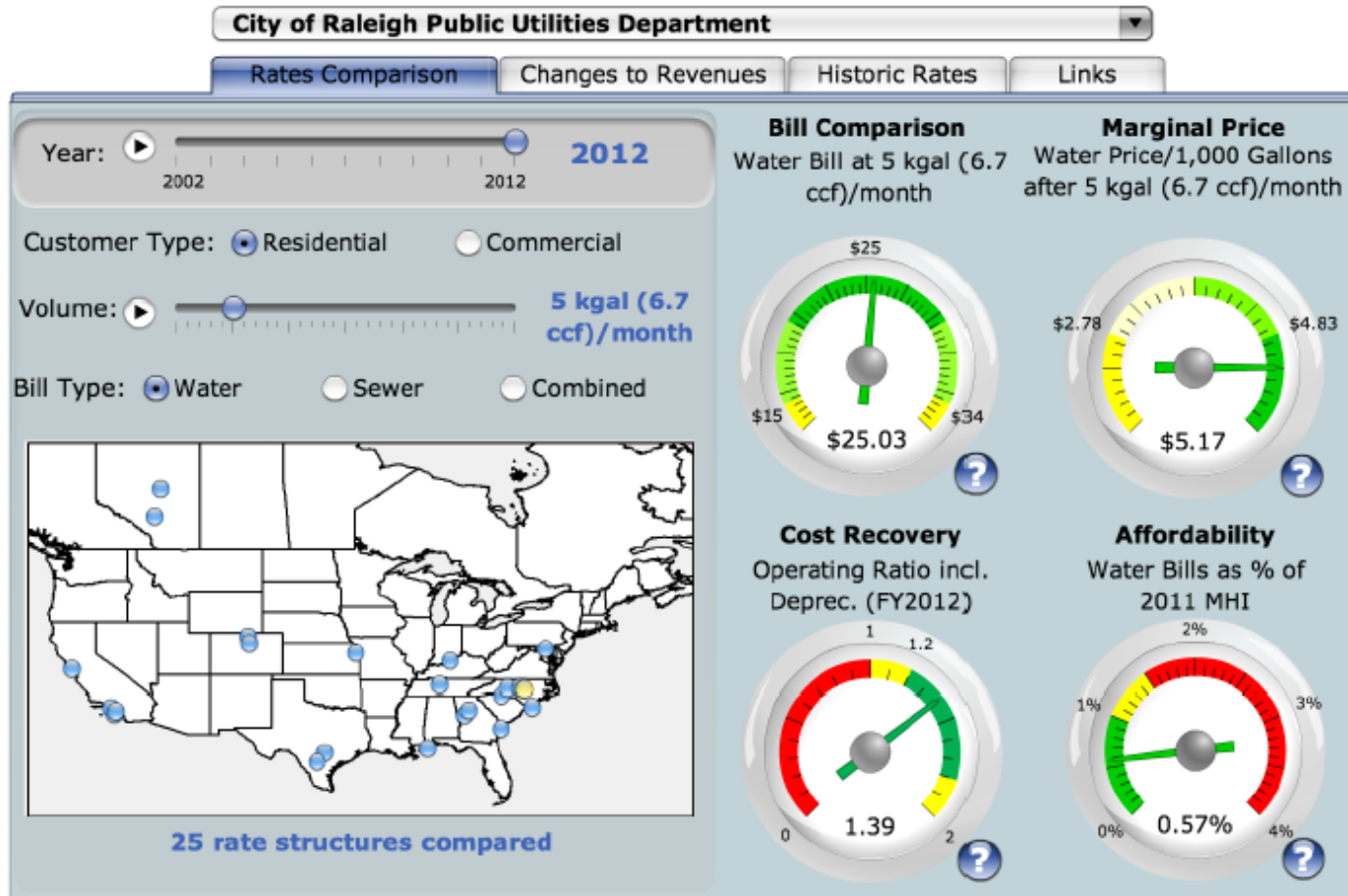
Not shown on map: fewer than 25 utilities in Alaska and Hawaii. Data on rates, revenues and financial performance of subsamples of 7,316 water and wastewater utilities across the United States and Canada were obtained from several national and regional data sets and merged by the Environmental Finance Center at the University of North Carolina, Chapel Hill and Raftelis Financial Consultants, Inc. Data for some utilities were not analyzed depending on time period and focus of the analyses. Partner utilities are utilities that provided additional data, guidance, and feedback to the researchers throughout the project.



Trends

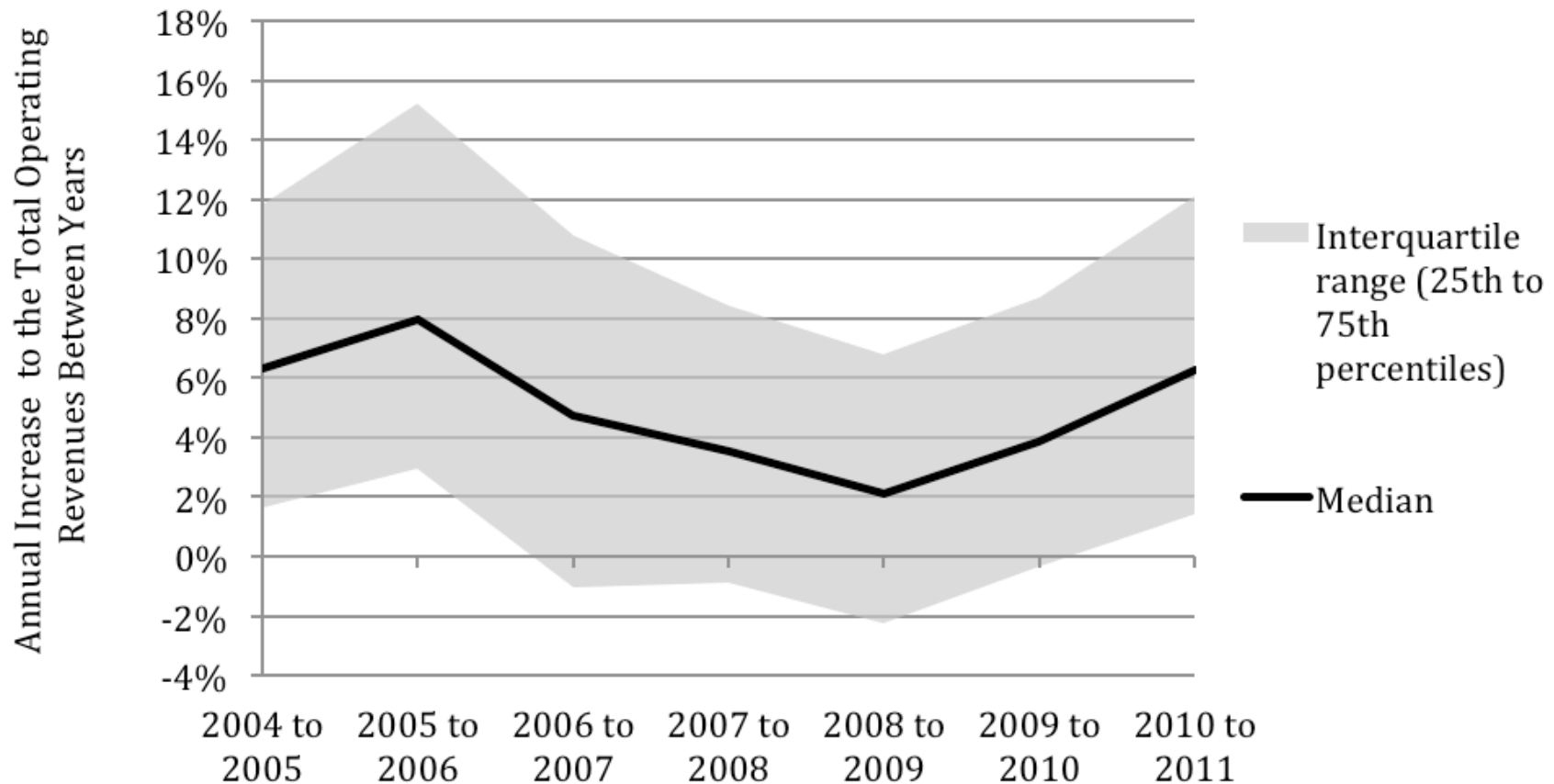
2002-2012 Financial Benchmarking Dashboard for WRF Project #4366

Beta version - March 2013



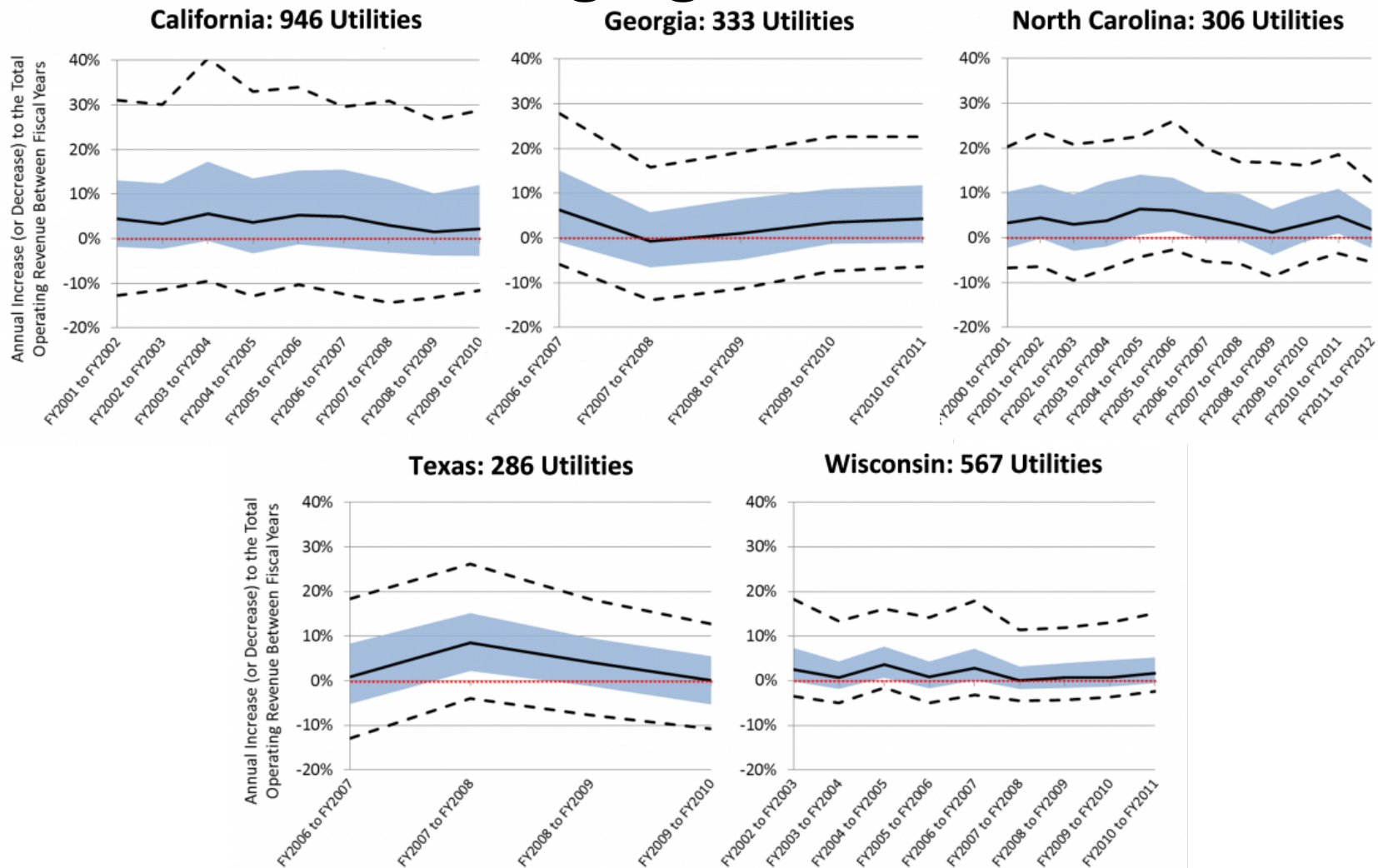
Copyright (c) 2013 Environmental Finance Center at the University of North Carolina, Chapel Hill. www.efc.unc.edu.
Data sources: Utilities' rate sheets and CAFRs, Census Bureau, RFC-AWWA biennial national Water & Wastewater Rate Surveys, 2013 FitchRatings. Funded by the Water Research Foundation for Project #4366.

Industry Revenue Roller Coaster



Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill and Raftelis Financial Consultants, Inc. Data Source: Moody's Water and Sewer Municipal Financial Ratio Analysis. The cohort of 485 utilities is consistent across all years.

Changing Revenues



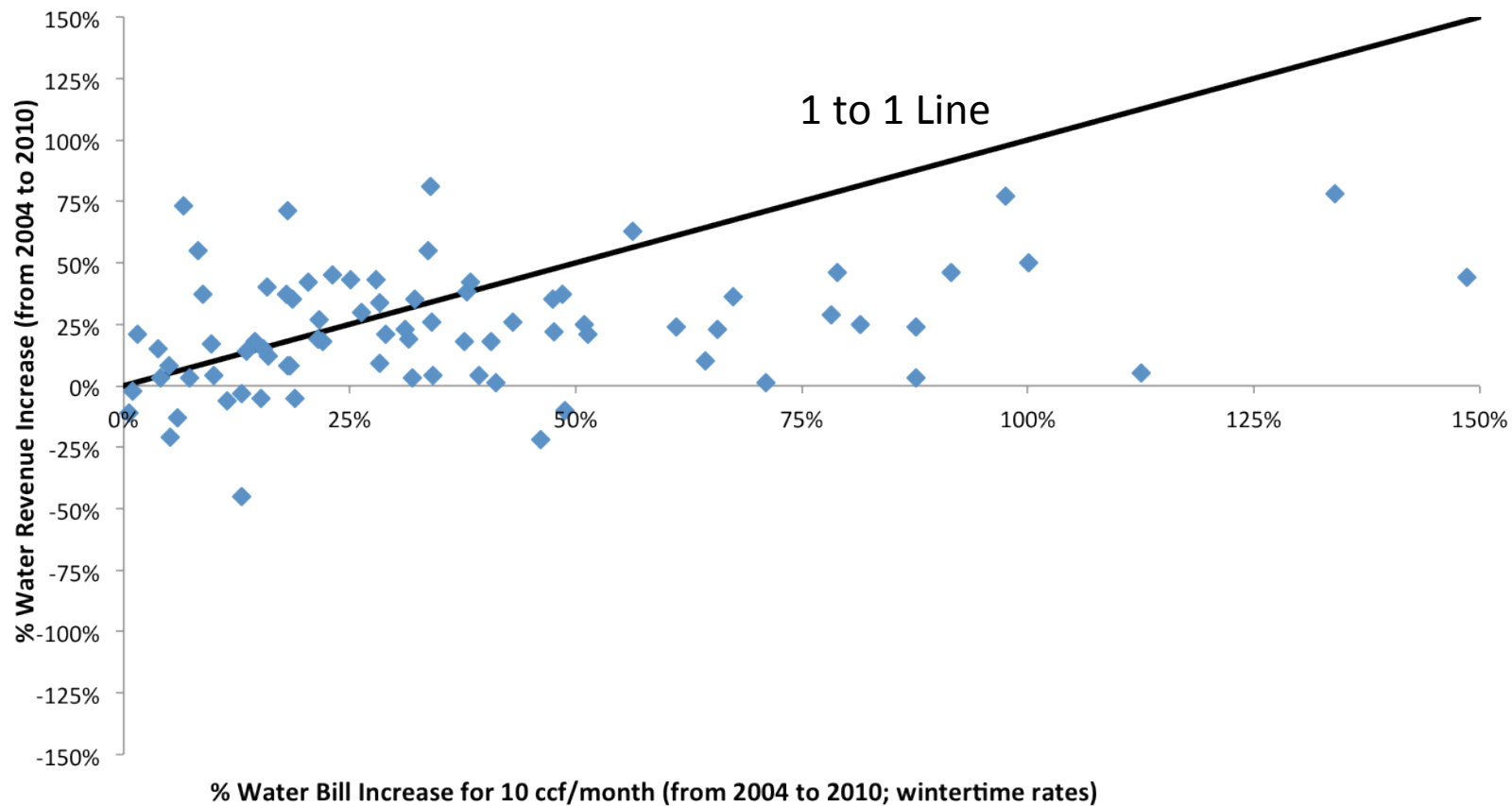
Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill and Raftelis Financial Consultants, Inc. Revenues are: total operating revenues in CA, GA, NC, WI; gross revenues in OH; revenues that can pay for debt service in TX. The sample of utilities in each state is consistent across all Years (e.g.: the same 946 utilities in CA are analyzed every year). Data sources: California State Controller's Office, Georgia Department of Community Affairs, North Carolina Local Government Commission, Ohio Water Development Agency, Texas Water Development Board, Wisconsin Public Service Commission.

Legend

- Middle 50% (25th to 75th percentiles)
- Middle 80% (10th and 90th percentiles)
- Median

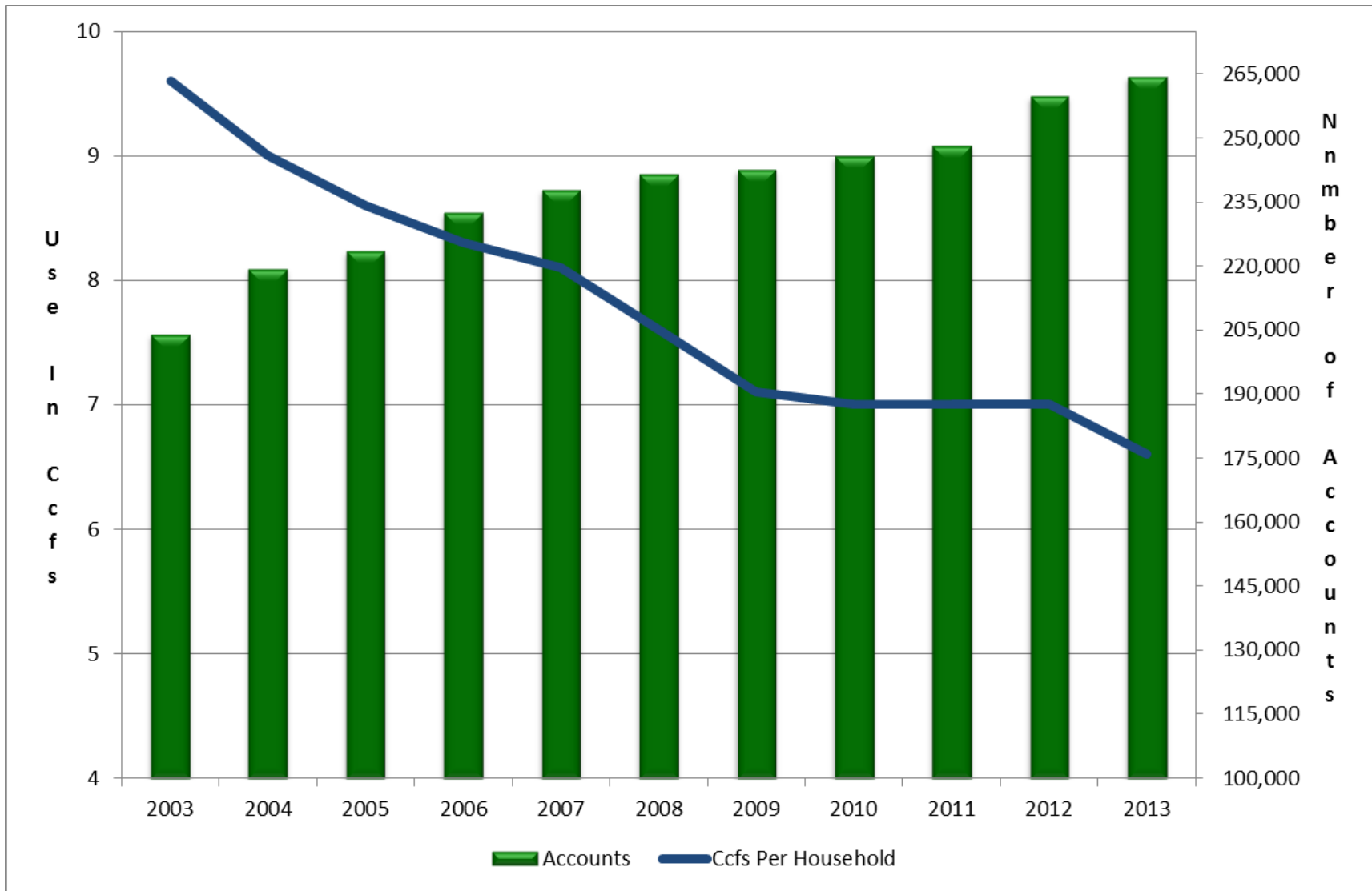
The challenge of driving revenue increases through rate increases:

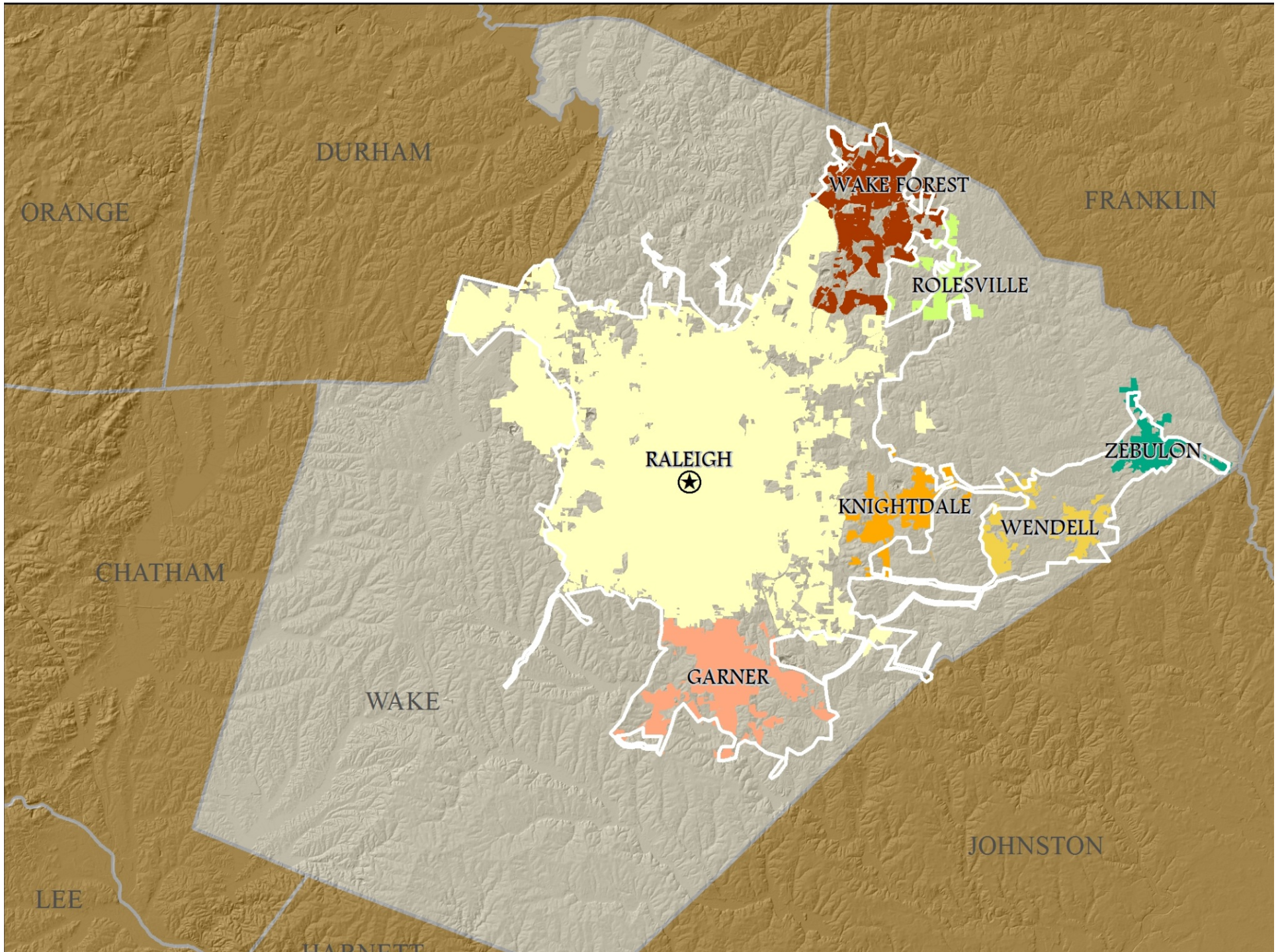
HH rate versus revenues increases (2004 to 2010)



Data analysis by the Environmental Finance Center at the University of North Carolina. Data sources: 2010 and 2004 REC/AWWA Water and Wastewater Rates Survey Data for 82 Utilities

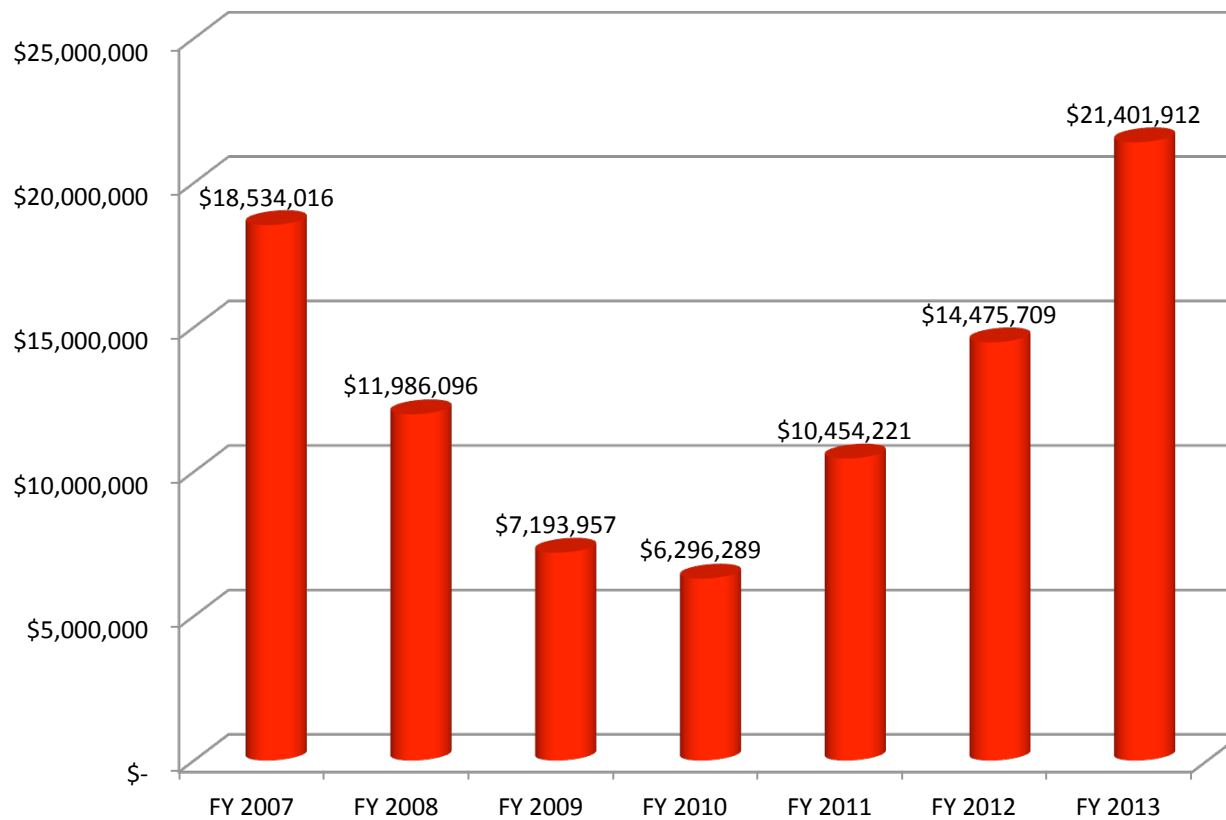
Account Growth & Household Consumption



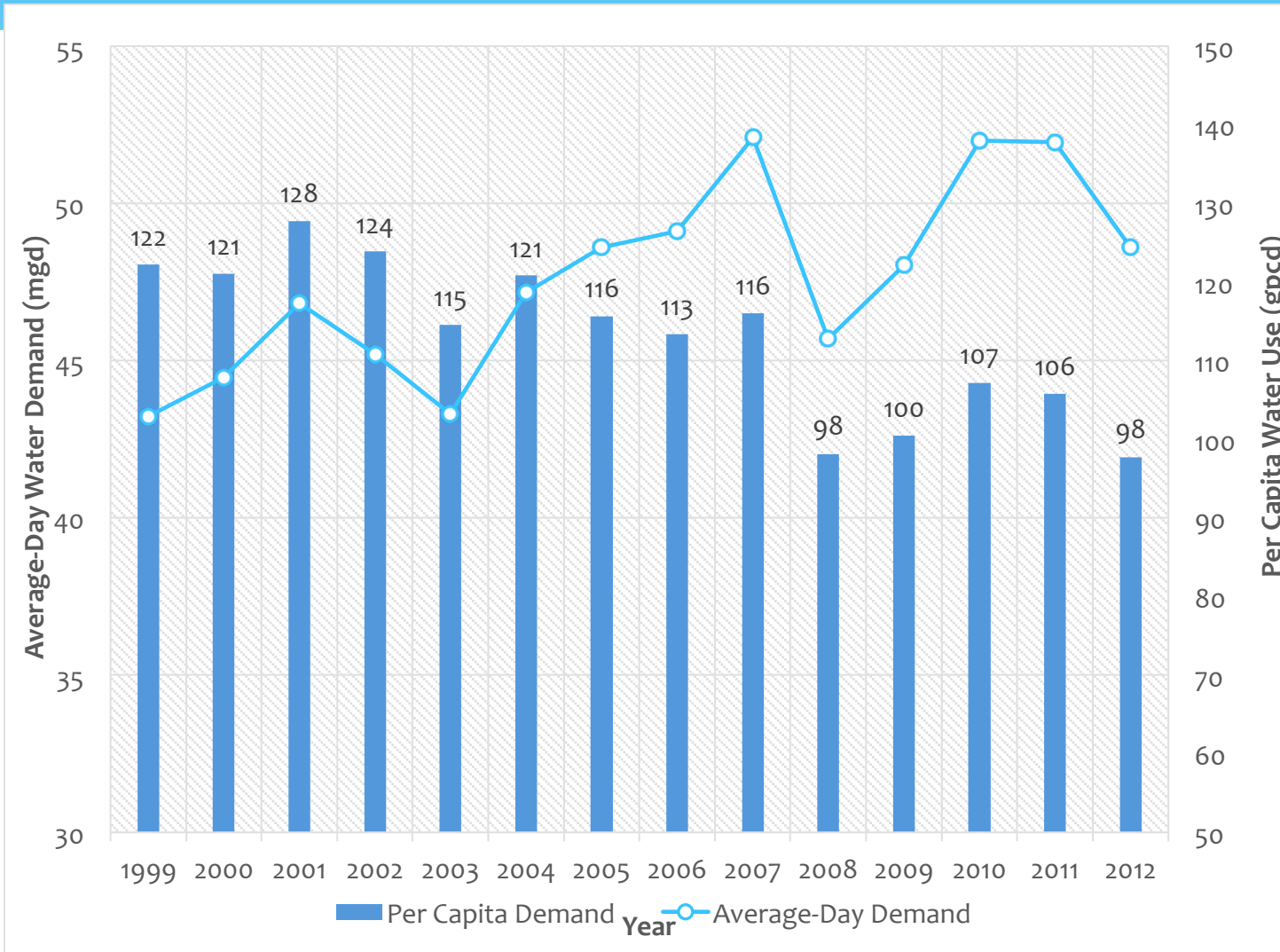


Development Fee Impacts

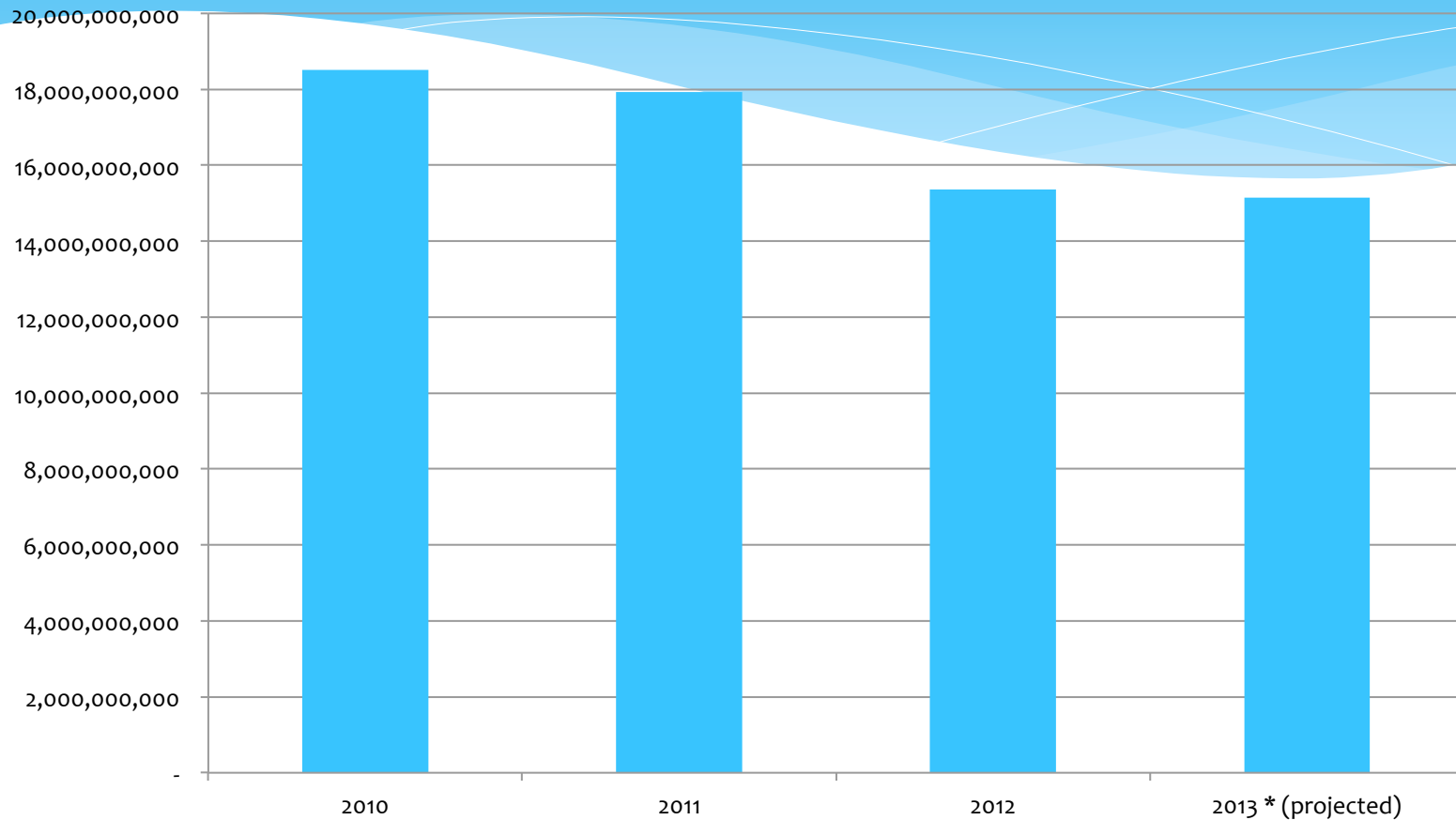
Development Revenue Collected



Water Demand Summary



Sales (in gallons)



* Actuals through July 2013, projected to year end using 2012 numbers

Bill Comparison for 6 CCF User



January 2010

July 2013

* 6 CCF Residential Water & Sewer Bill

\$ 36.53 (\$ 1.21/day)

FY 11 Revenue - \$
153,061,920
FY 13 Revenue – \$
187,332,838

* 6 CCF Residential Water & Sewer Bill

\$52.63 (\$ 1.75/day)

A 44% rate increase over time period

A 22% revenue increase over time period

* Raleigh's average residential usage was 5.36 CCF



PRACTICES AND STRATEGIES

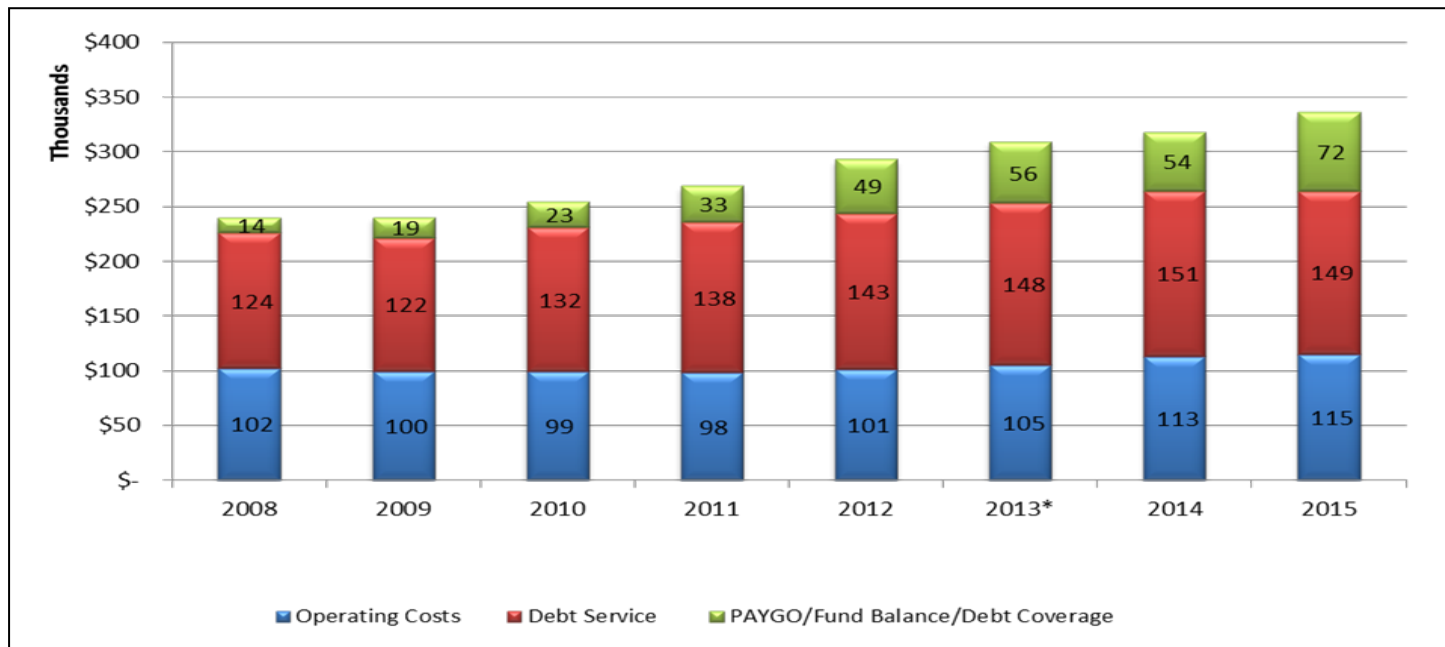


Rethinking Rate Models, Projections, and Cash Flow Plans

- More conservative
- Rate models with less (or no) dependence on revenues from high volume or high block sales
- “Excess” revenues transferred to reserve funds or used for increased pay as you go cash capital funding

Example Internal Financial Performance Targets

- Debt service coverage ratio min 2.00
- The City's goal is a 40-60% mix of PAYGO to financing within next 2 years



- Fund balance is one the most important measures of credit quality for revenue bonds
- Goal to maintain fund balance at 35% of the following year's operating and debt service
- Projected fund balance as of June, 30 2013 was ~\$170.0 million or 64% of FY 14's operating and debt service
- Large fund balance provides rate stabilization, minimizing impact of annual revenue fluctuations and associated impacts to operating and PAYGO

Table 4.4
Utility Reserve Fund Targets

Utility	Reserve Fund Targets
City of Minneapolis ¹	15% of revenue budget for the next year
Orange Water and Sewer Authority ²	The greater of 33% of O&M budget or 20% of the total estimated cost of the succeeding 3 years of the CIP budget
Baltimore Dept. of Public Works ³	Minimum of 90 days cash on hand
Alameda County Water District ⁴	Sufficient to meet operating, capital, and debt service obligations
Charlotte-Mecklenburg Utilities ⁵	100% of operating expenses for the current budget
Water District No.1 of Johnson County ⁶	The Board will be notified when the rate stabilization reserve reaches a minimum level of \$2 million

¹Source: GFOA, 2013

²Source: OWASA, 2009

³Source: Baltimore Department of Public Works

⁴Source: ACWD, 2009

⁵Source: CMUD, 2011

⁶Source: Water District No.1 of Johnson County, 2012

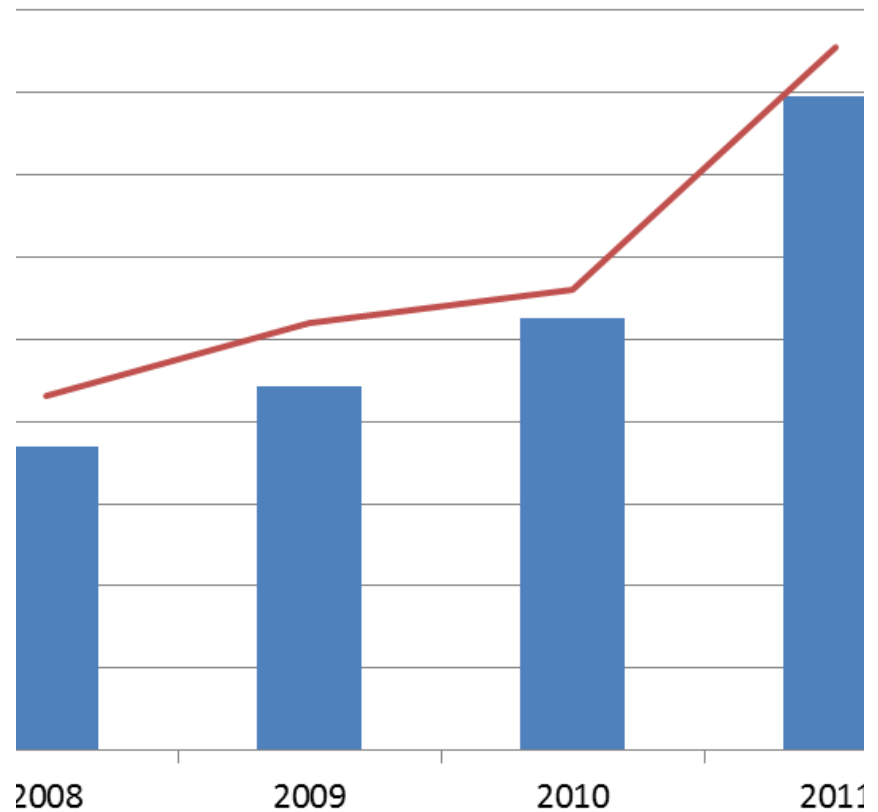
Types of affordability programs

Options facing payment-troubled customers		
	Percent	N
Payment plan to allow customer to pay amount over time	76%	231
Customer referral to private, nonutility agency	54%	163
Customer referral to a local gov. agency for assistance	49%	149
Education	35%	105
In-home conservation assistance	25%	76
Special billing arrangements	21%	64
Change in the rate customer is charged	8%	24
Other	8%	24
One-time bill credit from utility funds	3%	8

2010, Best Practices in Customer Payment Assistance Programs, Water Research Foundation #4404

Developing New Product Lines

- Customer line repair programs
 - Self administered
 - Third party
- Selling services to other enterprises
 - Meter reading and billing
 - Project management



Environmental Finance Center at the University of North Carolina, Chapel Hill
Source: Louisville Water Company.

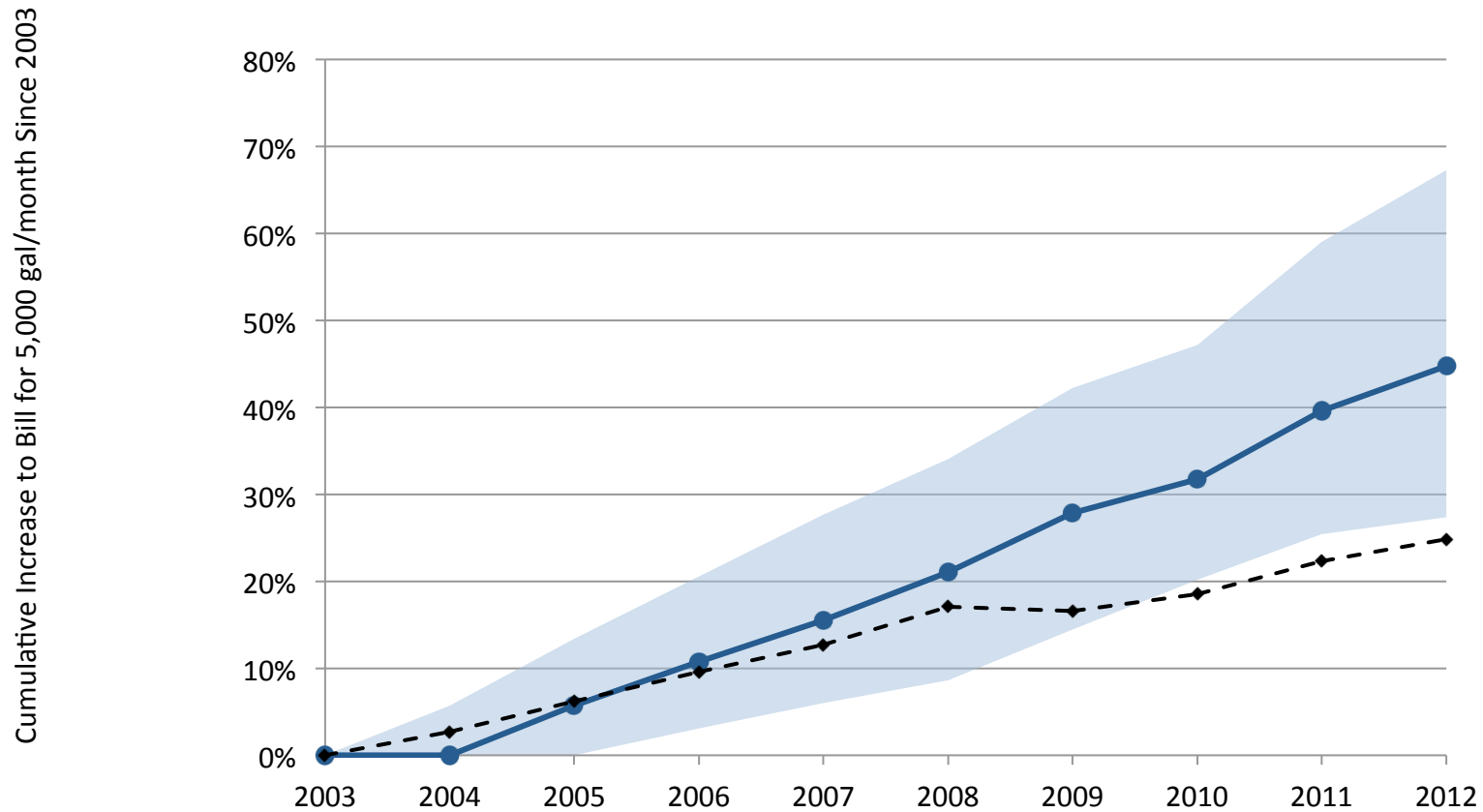


PRICING PRACTICES



Rising Rates.....

Texas: 194 Utilities



Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Rates data for all utilities in this analysis were known for all consecutive years. Data sources: Rates surveys conducted by , TML (TX).

The Variable Charge Portions of All Customers' Bills

Cary	91.1%*	(FY2010)
Charlotte	82%**	(FY2008)
Raleigh	75.4%*	(FY2010)
OWASA	75%**	(FY2012)
Durham	73.5%*	(FY2010)
Cape Fear	59%**	(FY2012)

Sources: * Billing records from utilities analyzed by the Environmental Finance Center at the University of North Carolina,
** reported by utility

Significant Need for Capital (and Stable Revenue to Pay for it)

- New Hanover County (NHC), City of Wilmington (COW)
- 2003 – June 2008: 166 SSOs, 11.33 million gallons spilled
- NC Dept. Water Quality (DWQ): COW Sewer Moratorium, 4/06
- EPA: Show Cause Letter to COW, 3/07*
- NC DWQ: Special Order of Consent for COW, 9/07



Basics of Cape Fear Public Utility Authority Rate Model

- Rates are set at a level to cover operating expenditures, principal & interest on bonds/loans (debt service), and an additional 20% of debt service that is required to issue additional bonds.
- Water rates cover the cost to provide water.
- Sewer rates cover the cost to provide sewer.

Basics of Cape Fear Public Utility Authority Rate Model

- Fixed Water charge covers debt service on water projects.
- Fixed sewer charge covers debt service on sewer projects.
- Fixed charge calculation = debt service ÷ equivalent customers ÷ 6 billing cycles.

Basics of Cape Fear Public Utility Authority Rate Model

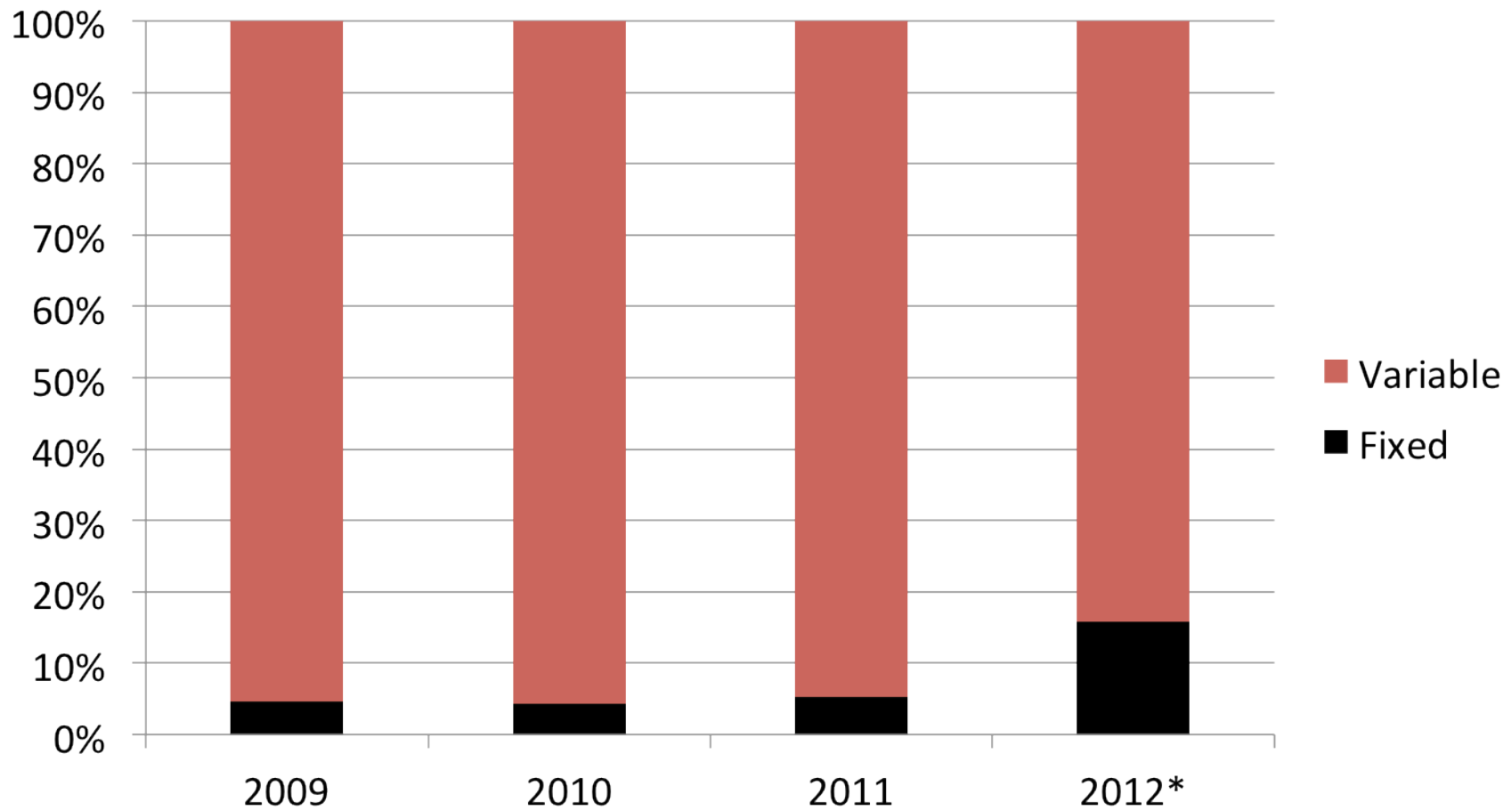
- Volumetric rate covers operating expenditures.
- Sewer volumetric rate is uniform rate.
Calculation = estimated expenditures ÷ gallons expected to be sold based on water meter readings.

Basics of Cape Fear Public Utility Authority Rate Model

- Since the Authority began operations, the residential water volumetric rate has been a 3 Block inclining rate.
 - Residential are single family residential homes.
 - Block 2 is 50% higher than Block 1
 - Block 3 is 100% higher than Block 1
- Current residential water blocks are 12,000 gallons.
- Nonresidential volumetric rate is Block 2.
Nonresidential are all customers except single family residential homes.
- Irrigation volumetric rate is uniform rate.

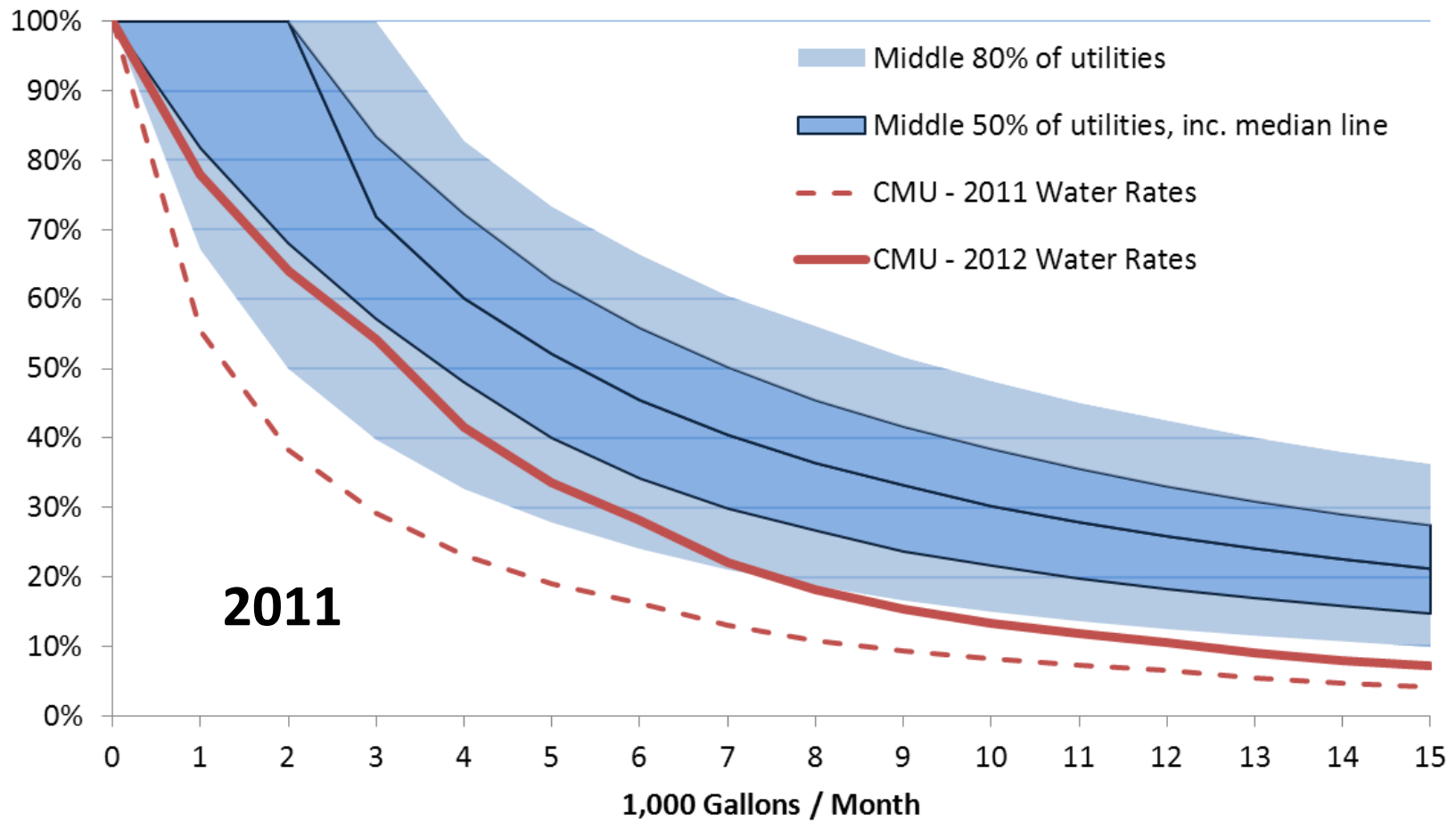
Charlotte-Mecklenburg Utilities

Water and Sewer Revenues Fixed versus variable



Data sources: Mickey Hicks, CFO, Charlotte-Mecklenburg Utilities

% of Water Bill that is Fixed (Base Charge / Total Charge) 650 NC and GA Utilities



Data analyzed by the Environmental Finance Center at the University of North Carolina.
 Data sources: EFC and NC League of Municipalities Annual NC State Rates Survey, 2011, & EFC and GA Environmental Finance Authority Annual Rates Survey, 2011.

Evolving Pricing: Water Utility 2.0?



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BREAKING

Verizon Wireless to overhaul its phone and data pricing plans

By: Kelly Hodgkins | Jan 14th, 2010 at 12:02PM

0 Comments

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2010 Plan Changes Online Course



Summary

- Nationwide Consumer Plans have been simplified with fewer price points
- New Names for Basic and Select Plans: Nationwide Talk and Nationwide Talk & Text
- Easy upgrade to Unlimited Anytime Minute options



Fab. Join Now! Save up to 70% da

BRETT KING

BANK 2.0

HOW CUSTOMER BEHAVIOUR AND TECHNOLOGY WILL CHANGE THE FUTURE OF FINANCIAL SERVICES_

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Conservative Pricing Paired with Rebates or Dividends

- Dividends linked to sales, cost of service, and/or policy goals



DC Water Refunds Customers

DC Water will issue a one-time credit to customer bills in early 2013. Depending upon bill cycle and account status, customers may receive the credit as early as January or late as April.

DC Water relies on customer bill payments to fund its operations and capital projects. Each year, management takes a long-term look in developing a proposed budget and a rate structure to support that budget. Through exceptional management and sound financial planning, DC Water expects it finished Fiscal Year 2012 (which ended September 30, 2012) with a surplus.



ACE 2012: Skepticism Among the Judges...


Can Annual Revenue be More Predictable Without Losing Price Signal?

One Possible Option: Peak-set Base Rates

- Inspiration: electricity peak charge
- Example: A customer's base charge for fiscal year set based on their three-year rolling average peak.

	Current residential rate structure	PeakSet base residential rate
% fixed annual revenue	18%	57%
Base rate	\$6.00/meter – water + \$6.00/meter - irrigation	\$1.85/kgal applied to 3-year rolling average of peak month
Variable rate	\$3.46/kgal of previous month's use	\$0.52/kgal of previous month's use

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Clouds and rain have lifted, runoff into waterways will continue [http:...](#)

Water committee recommends untested rate structure to bill ratepayers

By Tom Sakash

From page A1 | November 16, 2012

Going first. It just seems to be the Davis way.

The Water Advisory Committee voted 8-2 Thursday to recommend a consumption-based, fixed-rate water structure to the City Council, a revolutionary way for public agencies to bill ratepayers to recover the fixed costs of its water utility system.

It's so revolutionary, in fact, that the structure, which actually was invented this year by WAC members Frank Loge and Matt Williams, has never been tried before in California.

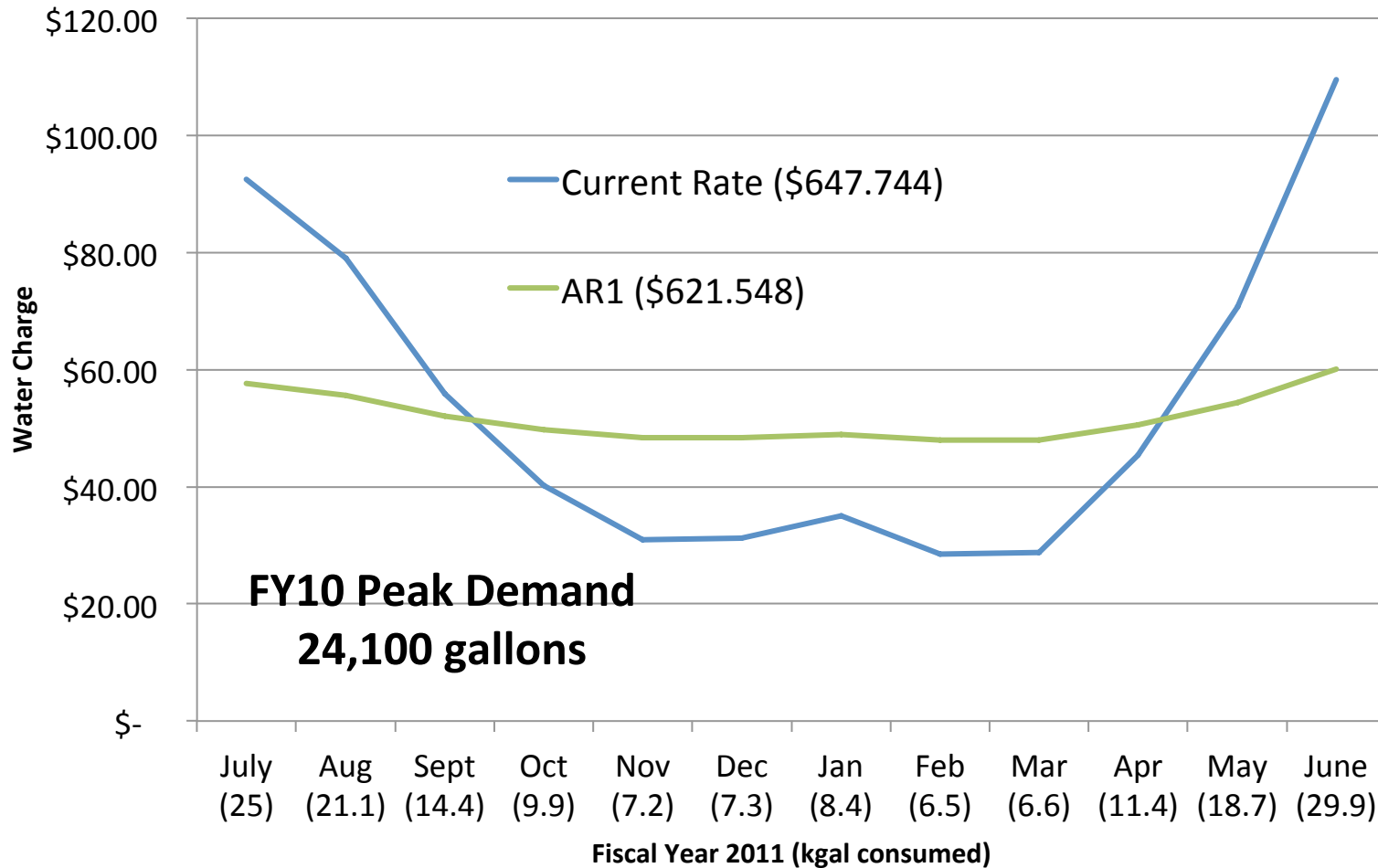
But while that didn't stop the committee from eventually voting for the structure, it took almost three hours of heated



Matt Williams, Water Advisory Committee Member to the City of Davis (CA) Water Division

Peak-set Base: Example of Customer Impact (Beaufort Jasper Water and Sewer Authority Simulation)

Comparison of monthly charges for water under current rate and a Peak-set Base model

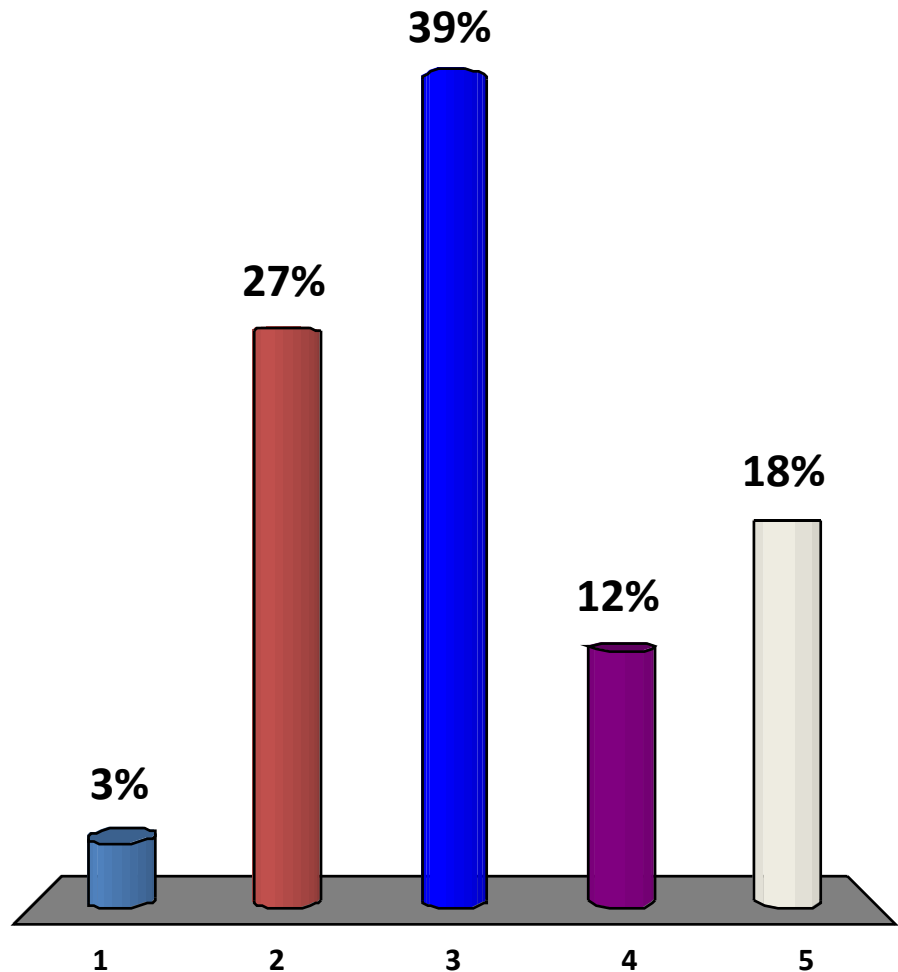


Feedback from Expert Panel

- 8: “This model is intriguing. I like that it relates to customer classification. I think it should target the largest customers first. I do worry about customers understanding the mixed signals.” (Beecher)
- 8: “This model provides a steady stream of revenue for the utility, which makes it very attractive to me. I like that it helps customers manage their peak demand.” (Scott)
- 7: “I like that the base rate is set based on use, rather than need – but what happens if people really conserve?” (Walker)

On a scale of 1 -5, how well would the Peakset Base Model work for your utility or the utilities you work with?

1. Very well
2. Pretty well
3. Maybe so, maybe not
4. Not well
5. Dreadfully



Poll taken by EFC of approximately 30 utility staff officials at 2012 AWWA's ACE in Dallas

Customer*Select* Rate Model

- Individual customers choose plans that best works with their consumption and pay an overage fee if the household uses more than the plan

Monthly water allotment	Cost for water under current rate structure	Customer <i>Select</i> Plan Cost	Overage Charge
2,000 gallons	\$8.93-\$13.13	\$8.13	\$6.83/kgal
6,000 gallons	\$15.23-\$30.38	\$18.70	\$6.83/kgal
10,000 gallons	\$35.43-\$54.18	\$32.52	\$6.83/kgal
24,000 gallons	\$64.75-\$146.68	\$81.30	\$6.83/kgal
unlimited	>\$154.18	\$162.60	NA

For More Information

- Dashboards and Blogs:
<http://www.efc.sog.unc.edu/>
- Full Report (early 2014):
<http://www.waterrf.org/>
- Questions:
jhughes@unc.edu