

Overview of Financial Management of NC's Drinking Water & Wastewater Utilities

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Environmental Finance Center at UNC School of Government

Presentation to the State Water Infrastructure Authority

March 20, 2014

Raleigh, NC



UNC
ENVIRONMENTAL FINANCE CENTER

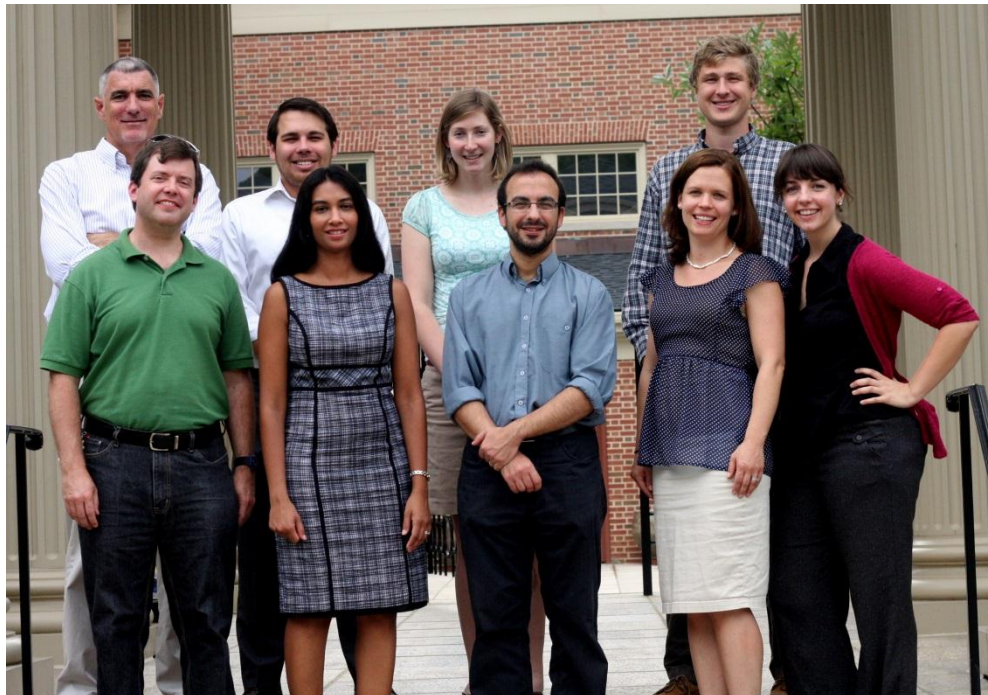


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the ability of governments
and other organizations to
provide environmental
programs and services in
fair, effective and
financially sustainable
ways.

<http://efc.sog.unc.edu>

Examples of School of Government/EFC Water Finance Resources

- Finance and rate analysis – 10 years of data and analysis
- NCwater Listserv
- Water finance blog
- Customer usage studies
- Rate, finance and governance guides
- Education programs
- Statewide finance and governance studies

NC Rates Dashboard

<http://efc.sog.unc.edu/>

Find it in Resources / Tools

Benchmark your rates and your financial performance



NC Water and Wastewater Rates Dashboard Rates as of February 2014

Last updated: March 10, 2014



Cary

Rates Comparison

Financial Benchmarks

Characteristics

Links

Select residential bill and monthly consumption amount

Water Bill Sewer Bill Water + Sewer

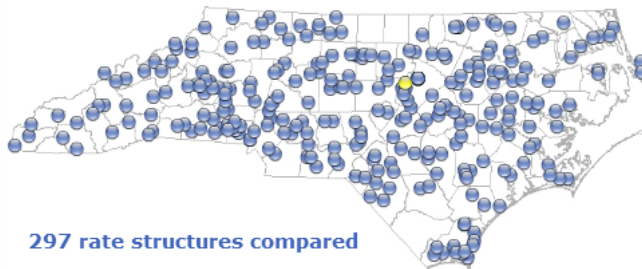


Monthly Water & Sewer Bill: \$69.64

Select comparison group

All Utilities

Comparing to all utilities in the survey



Observe the effects of raising rates by: 0%

Bill Comparison

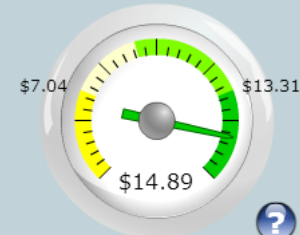
Water & Sewer Bill at 5,000 gallons



Min. \$23.17 Max. \$143.90

Conservation Signal

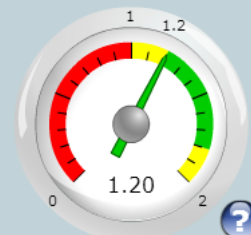
Water & Sewer Price/1,000 Gallons after 10,000 Gallons



Min. \$0.60 Max. \$41.25

Cost Recovery

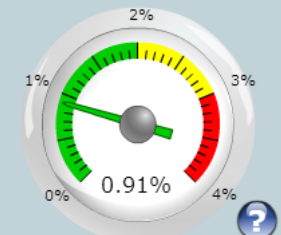
Water & Sewer Operating Ratio incl. Deprec. (FY13)



Edit Data

Affordability

Water & Sewer Bills as % MHI in 2012



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Print

Topics

- Water and wastewater debt among utilities
- Capital planning and financial practices
- How (much) are utilities charging customers
- Relationships between revenues and rates (changing pricing structures, water use)
- Tracking and promoting improved financial performance (benchmarking, credit rating)
- “Troubled systems”

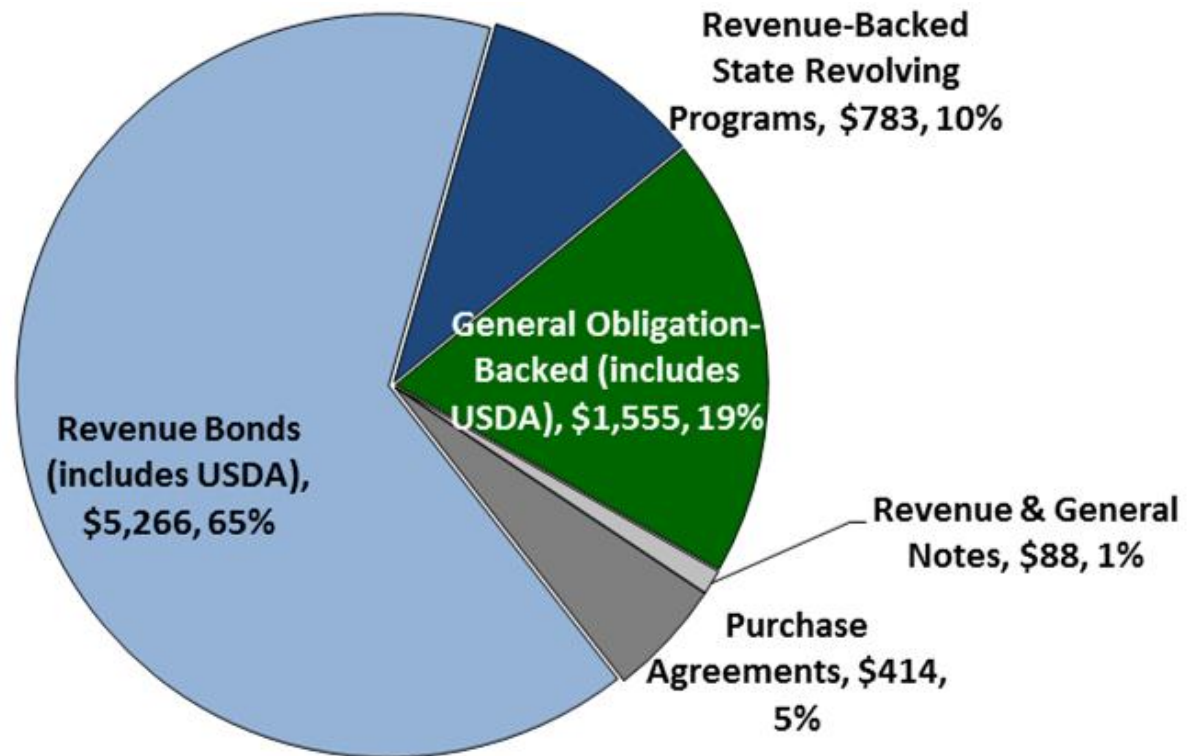
WATER/WASTEWATER DEBT IN NC



Debt and Debt Trends in NC

- Local government utility debt has been increasing steadily over time:
 - \$6.7 billion outstanding debt in 2008
 - \$8.1 billion outstanding debt in 2013

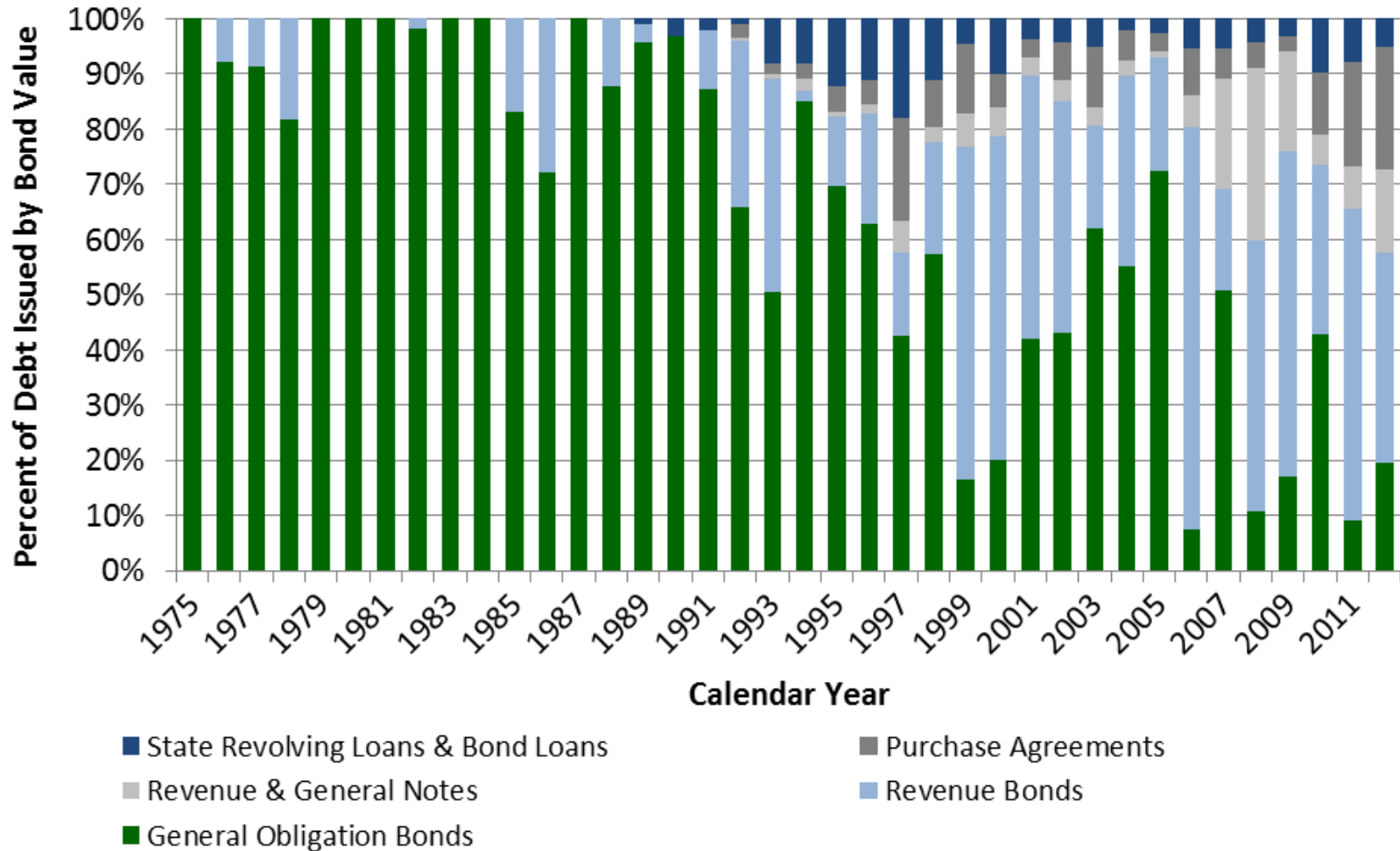
NC outstanding water and sewer debt by bond type as of June 30, 2012



Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.

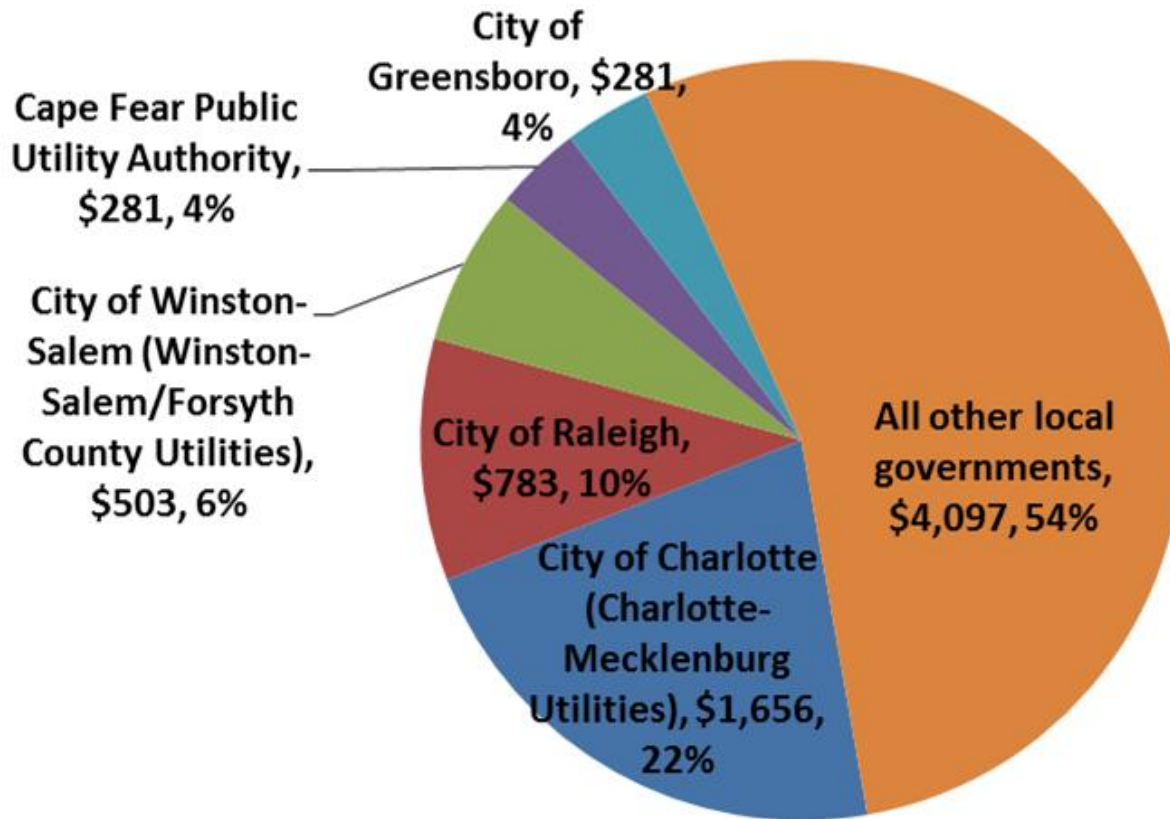
Data Sources: North Carolina Department of State Treasurer State and Local Government Finance Division. Debt shown in millions. Total long-term water and wastewater debt among state and local governments in NC was \$8.1 billion as of June 30, 2012 (\$7.6 billion among local governments).

Bond issuance type by bond value



Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
 Data Sources: North Carolina Department of State Treasurer State and Local Government Finance Division.

NC water and sewer debt allocation among local government owned utilities as of June 30, 2012



Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.

Data Sources: North Carolina Department of State Treasurer State and Local Government Finance Division. Debt shown in millions. Total long-term water and wastewater debt among local governments in NC was \$7.6 billion as of June 30, 2012.

NC Outstanding Debt

- Charlotte-Mecklenburg Utilities carries nearly 25% of the state debt, but are far from having the largest long-term debt per account
- 23% of the 498 NC water utilities have no outstanding debt as of June, 2012
- Of the 308 NC utilities with available debt data, 8 have monthly water bills for 5,000 gallons over \$50

CAPITAL PLANNING AND FINANCIAL PRACTICES AMONG NC UTILITIES

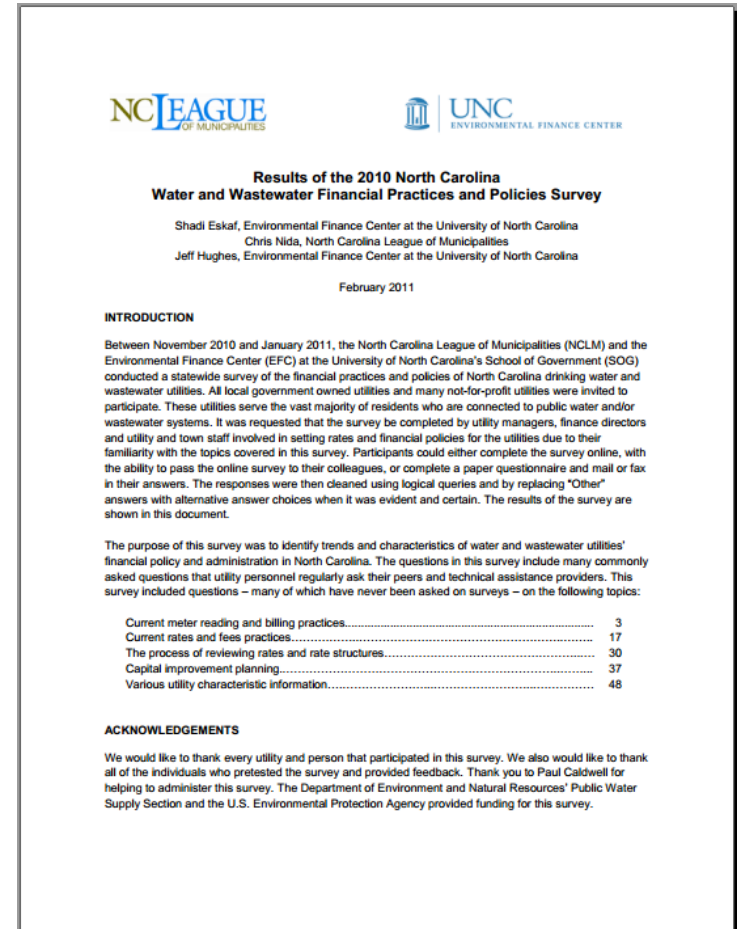


NCLM/EFC Financial Practices and Policies Survey

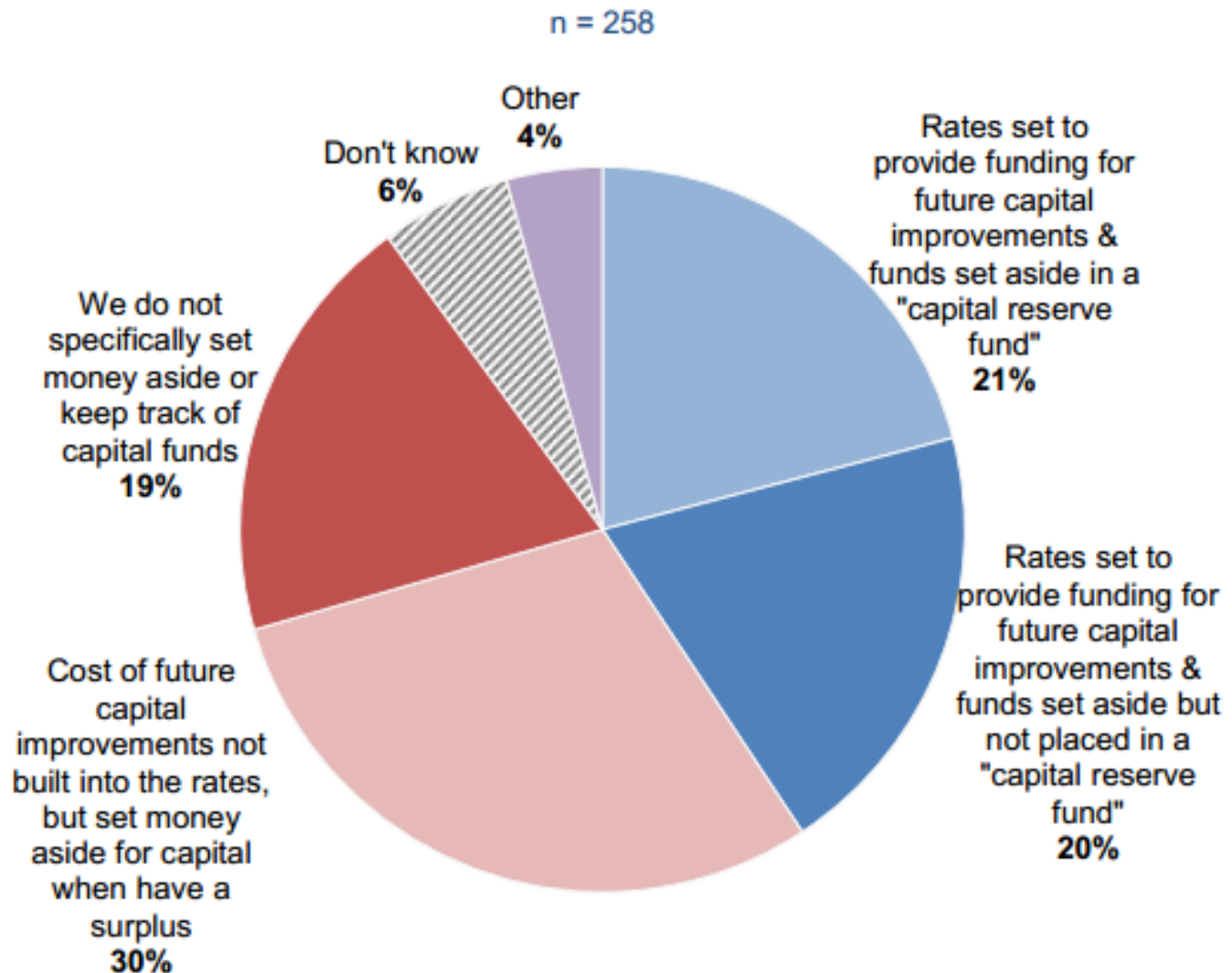
<http://efc.sog.unc.edu> – Find it in Publications
or <http://nclm.org>



- Last conducted in Fall 2010
- 277 local government and non-profit utilities responded (51%)
- Systems with <100 accounts – CMUD



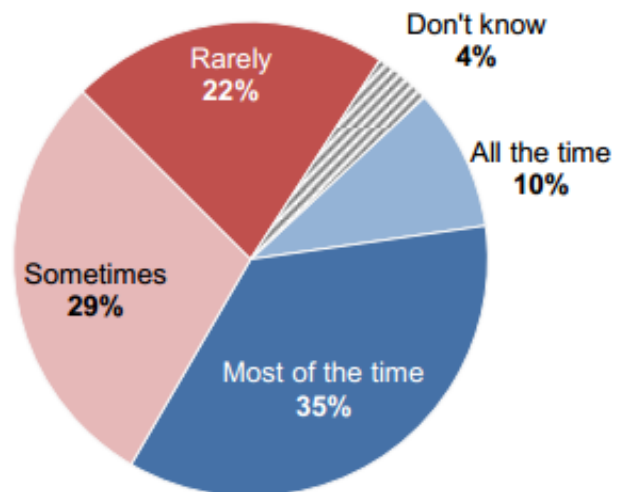
43) Which statement best describes how your utility pays for future capital improvements? Pick one.



Other: Apply for grant & long term loans; Base rate is used for debt payments associated with capital improvements along with utility impact fees charged to new development; Capacity (Impact) Fees - Set aside; Grants; Impact fees; Impact Fees are charged to all new customer; Loans and grants; Operating rates cover debt service and impact fees are set aside for capital; Percentage of connection fees; Rates are set to cover the debt service of capital projects; Utility Fund, Grants/Loans

44) Based on your experience, how often is your utility able to fund all of the necessary capital improvements? Pick one.

n = 258



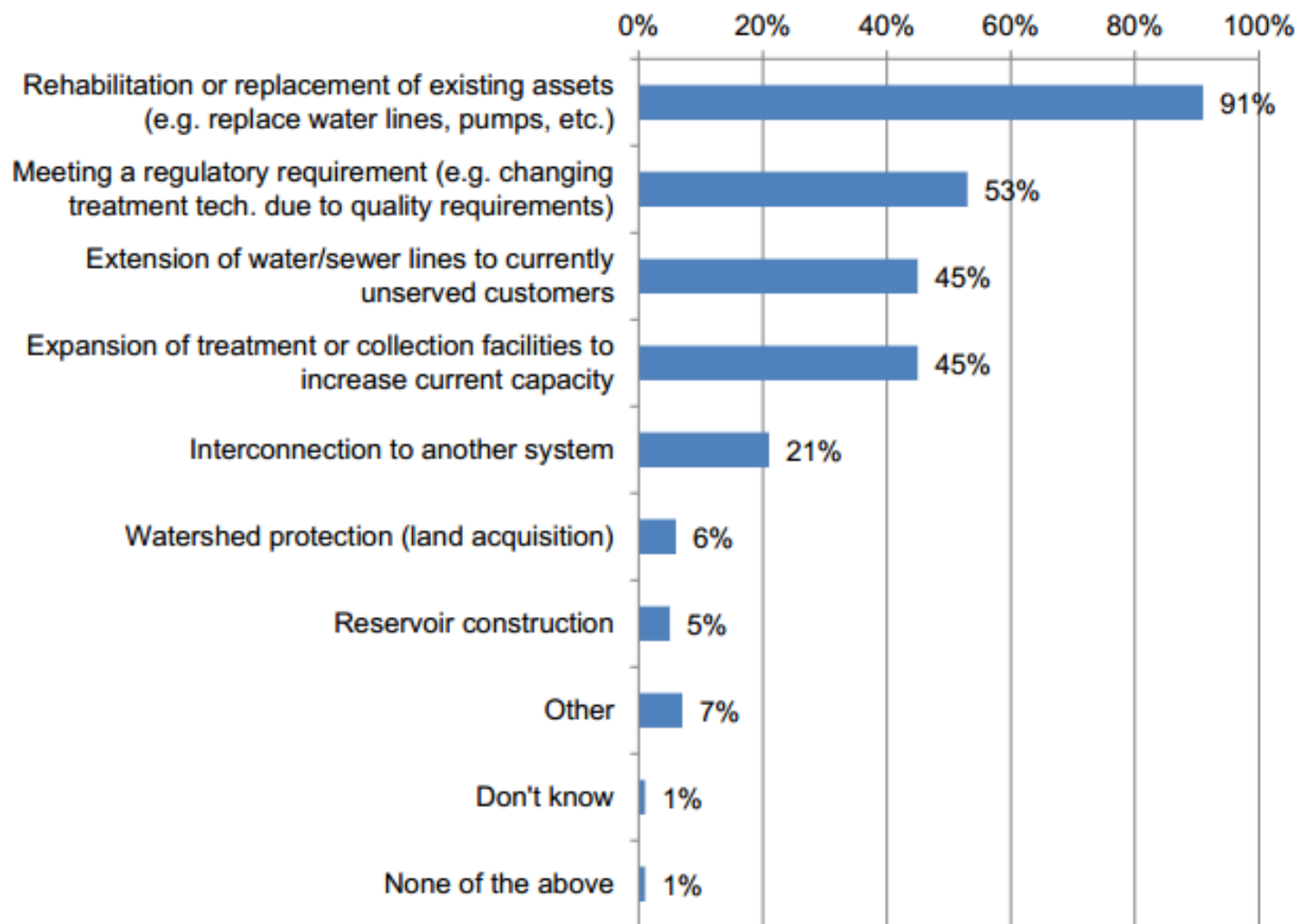
45) With what degree of confidence can you predict how much funds you will need for capital improvements for the next: (Pick one for each row)

n = 253

	Very confident	Fairly confident	Not very confident	Not at all confident	No Response
1 year	56%	31%	8%	3%	2%
3 years	25%	55%	14%	4%	2%
5 years	11%	54%	24%	8%	4%
10 years	4%	34%	38%	18%	5%
20 years	1%	26%	39%	29%	5%

54) What types of projects are in your utility's current CIP? Select all that apply.

n = 174 (excluding "not applicable")

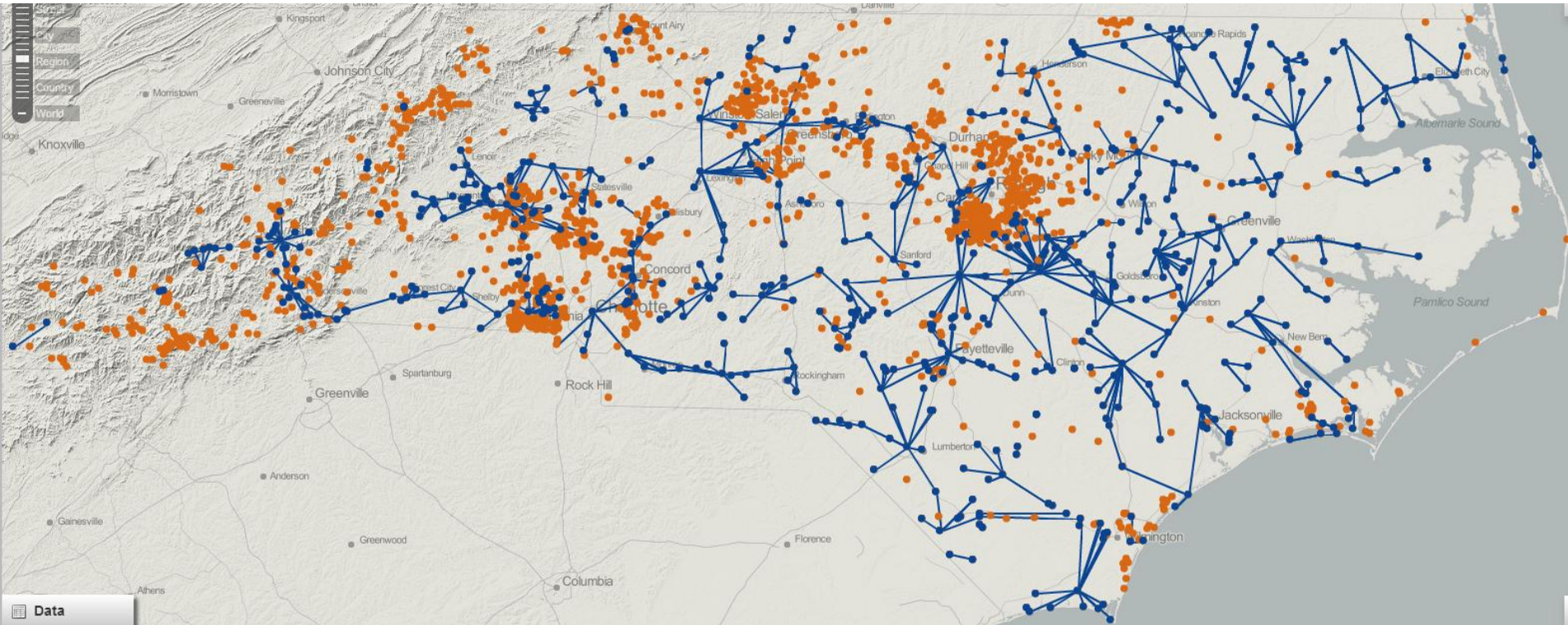


Other: AMR; Dredging; Enlarging water plant; Heavy equipment to conduct repairs, vehicles; New joint intake facility; New Meter Technology; New raw water intake; Rehab in process; Reservoir permitting and mitigation; Security Improvements, New Water Tank; Water packaging facility



Water System Interconnections

30% of community water systems have an interconnection



<http://efc.sog.unc.edu/> (go to Programs / Drinking Water / Water System Partnerships)

Last updated October 2012

Other possibly relevant questions answered in the survey

- Assistance to customers who can't pay
- Reasons for outside rates
- Reasons for transfers of funds
- Utility priorities when setting rates
- Self-assessment of sufficiency of funds
- Existence of financial policies
- Process of reviewing rates; governing bodies
- Mandatory connections
- and more...

HOW (MUCH) ARE UTILITIES CHARGING CUSTOMERS



2014 Water Utility Finance Numbers

- Operating revenues collected by gov. utilities
 >\$2.5 billion
- Highest
 \$304 million (CMUD)
- Lowest
 \$29,386 (Boardman)
- Median by utility \$30.01 W, \$36.15 S, \$64.13 C
- Median percentage of customer bill due to base
charge at 5,000
 48% W, 41% S
- Percent of utilities that raised rates 48%
 - Median increases 5% W, 5% S

Annual NC Water and Wastewater Rates Survey

NC League of Municipalities

Environmental Finance Center
at the School of Government



UNC

ENVIRONMENTAL FINANCE CENTER

- Collaboration since 2005
- 2014 survey just completed. 367 utilities included.
- Free, online information: tables, summary report, Rates Dashboard, rate sheets at <http://www.efc.sog.unc.edu> and <http://www.nclm.org>

Factual Report and Data Tables

<http://efc.sog.unc.edu> – Find it in Programs / Drinking Water

Or <http://nclm.org>

Water and Wastewater Rates and Rate Structures in North Carolina
First Published: March 7, 2014

TABLES OF RATE STRUCTURES AND COMPUTED BILLS

Please click on the following hyperlinks to one of 11 tables in this document. This document contains 140 pages.

Use of Participating Utilities and Rate Structures

Rate Structure Details	Computed Monthly Equivalent Bills
Residential Water	Rate Table 1
Residential Wastewater	Rate Table 3
Residential Irrigation	Rate Table 5
Commercial/Non-Residential Water	Rate Table 7
Commercial/Non-Residential Wastewater	Rate Table 9

These tables complement a report written at the conclusion of a survey of FY 2013-14 water, irrigation and wastewater rates and rate structures conducted by the North Carolina League of Municipalities and the Environmental Finance Center at the UNC School of Government. Rates and rate structures are analyzed for 367 local government and non-local government utilities throughout the State. To download the report, use Interactive Rates Dashboard designed to allow you to compare rates using multiple selection criteria, and to view rate sheets of individual utilities, please visit:
<http://www.efc.sog.unc.edu/efc/nc/nc-water-wastewater-rates-and-rate-structures>
<http://www.nclm.org/nc/nc-water-wastewater-rates-and-rate-structures>

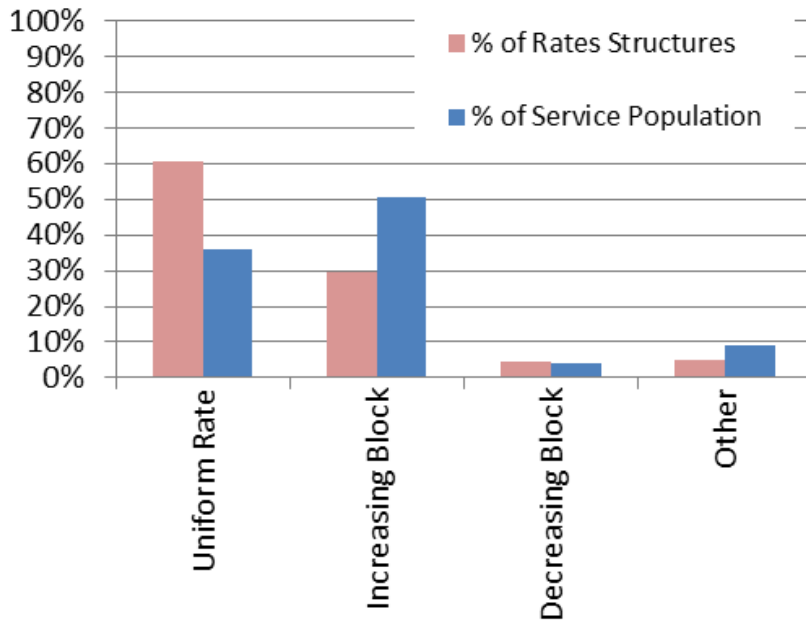
Justified and necessary to protect public health.

WATER Bills at Various Consumption Levels (Includes Base Charges)

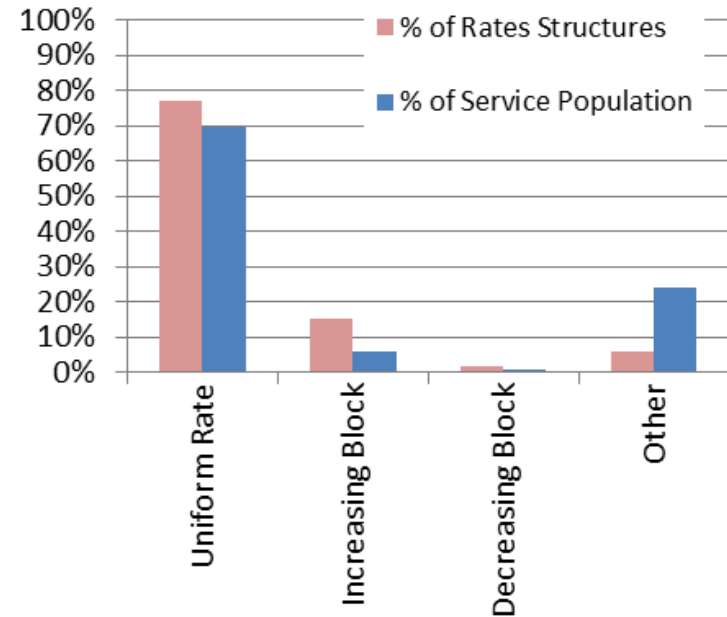
No.	3,000 Gallons (401 cf)		4,000 Gallons (535 cf)		5,000 Gallons (668 cf)		10,000 Gallons (1,337 cf)		15,000 Gallons (2,005 cf)	
	Inside	Outside	Inside	Outside	Inside	Outside	Inside	Outside	Inside	Outside
143	\$20.37	\$50.95	\$23.89	\$59.75	\$27.41	\$68.54	\$44.99	\$112.53	\$62.57	\$156.51
37.44	\$22.14	\$11.75	\$11.75	\$31.92	\$63.84	\$35.22	\$70.44	\$51.72	\$103.44	\$83.26
\$23.75	\$32.50	\$40.83	\$38.25	\$49.06	\$46.00	\$57.50	\$79.75	\$99.69	\$113.50	\$141.88
\$23.00	\$27.00	\$41.00	\$32.00	\$47.00	\$37.00	\$53.00	\$67.00	\$88.00	\$97.00	\$123.00
\$27.00	\$37.70	\$17.00	\$17.00	\$27.00	\$41.80	\$50.95	\$65.00	\$83.00	\$136.95	\$28.00
\$25.20	\$17.00	\$27.00	\$17.00	\$27.00	\$42.45	\$47.50	\$63.00	\$72.86	\$157.50	\$49.00
\$22.00	\$33.95	\$16.20	\$32.40	\$19.50	\$47.50	\$57.50	\$72.86	\$86.00	\$98.01	\$63.00
	\$17.50	\$18.40	\$34.80	\$22.20	\$38.80	\$47.71	\$63.80	\$72.86	\$88.16	\$101.24
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	\$40.73	\$37.34	\$42.68	\$44.26	\$51.99	\$41.76	\$49.44	\$79.24	\$88.16	\$101.24
	\$32.48	\$37.34	\$42.68	\$44.26	\$51.99	\$41.76	\$49.44	\$79.24	\$88.16	\$101.24
	\$37.34	\$30.33	\$37.12	\$42.68	\$40.25	\$47.71	\$63.80	\$72.86	\$88.16	\$101.24
	\$32.48	\$37.34	\$37.12	\$42.68	\$40.25	\$47.71	\$63.80	\$72.86	\$88.16	\$101.24
	\$40.73	\$37.34	\$42.68	\$44.26	\$51.99	\$41.76	\$49.44	\$79.24	\$88.16	\$101.24
	\$32.48	\$37.34	\$42.68	\$44.26	\$51.99	\$41.76	\$49.44	\$79.24	\$88.16	\$101.24
	\$37.34	\$30.33	\$37.12	\$42.68	\$40.25	\$47.71	\$63.80	\$72.86	\$88.16	\$101.24
	\$32.48	\$37.34	\$37.12	\$42.68	\$40.25	\$47.71				

Residential Rate Structures

Water



Wastewater

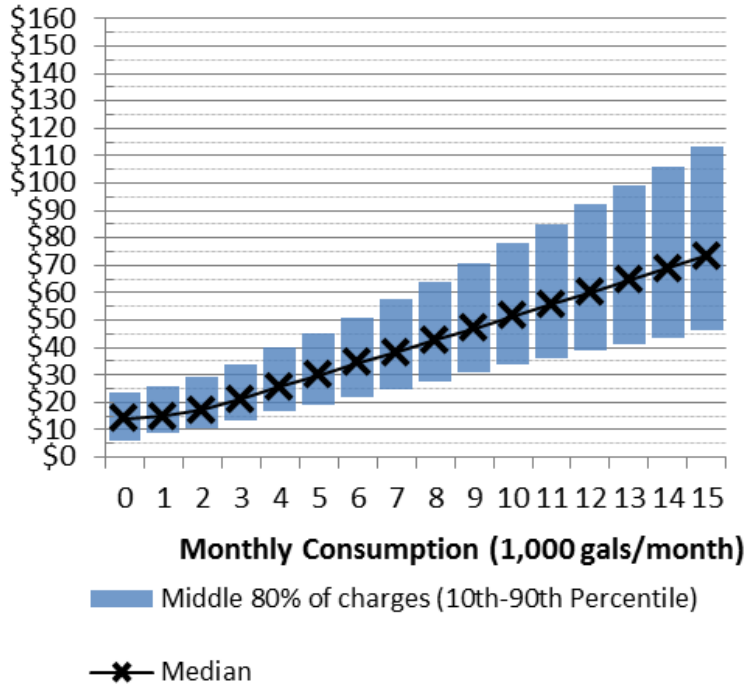


Rate structures applicable to residential customers for consumption up to 15,000 gallons/month only

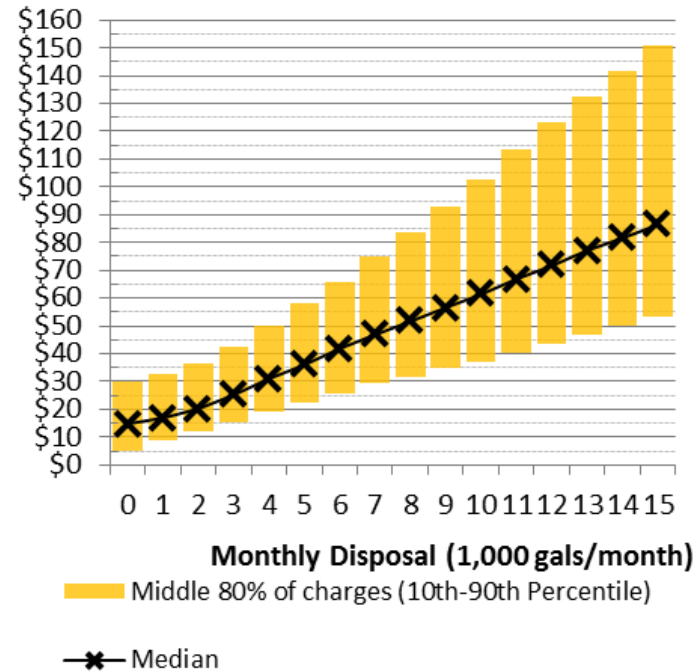
Source: 2014 NCLM/EFC North Carolina Water & Wastewater Rates Survey Report

Residential Monthly Bills

Across 384 Water Rate Structures



Across 319 Wastewater Rate Structures



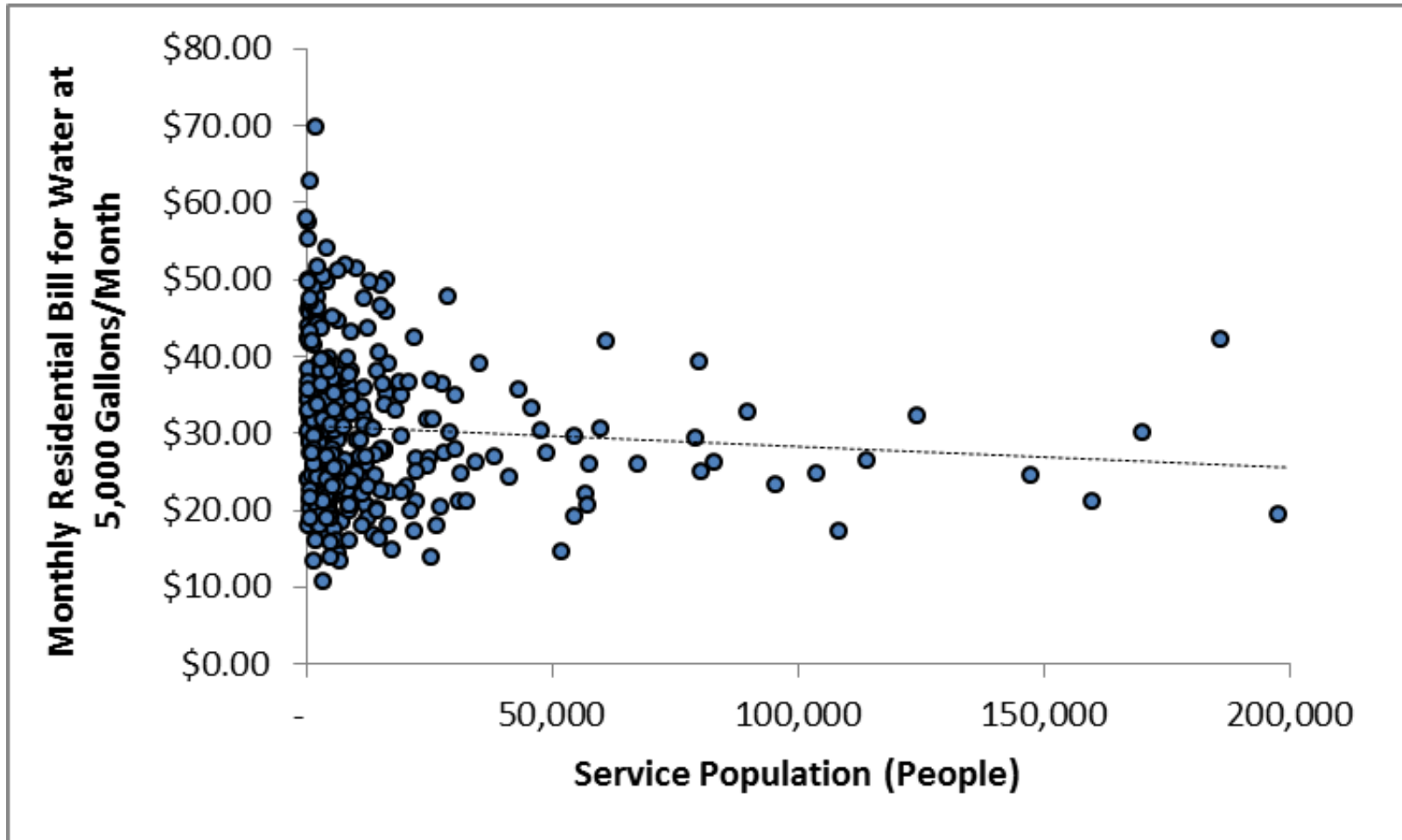
5,000 gallon median: \$30.01

5,000 gallon median: \$36.15

5,000 gallon median combined: \$64.13

Source: 2014 NCLM/EFC North Carolina Water & Wastewater Rates Survey Report

Smaller Utilities Charge Higher Rates

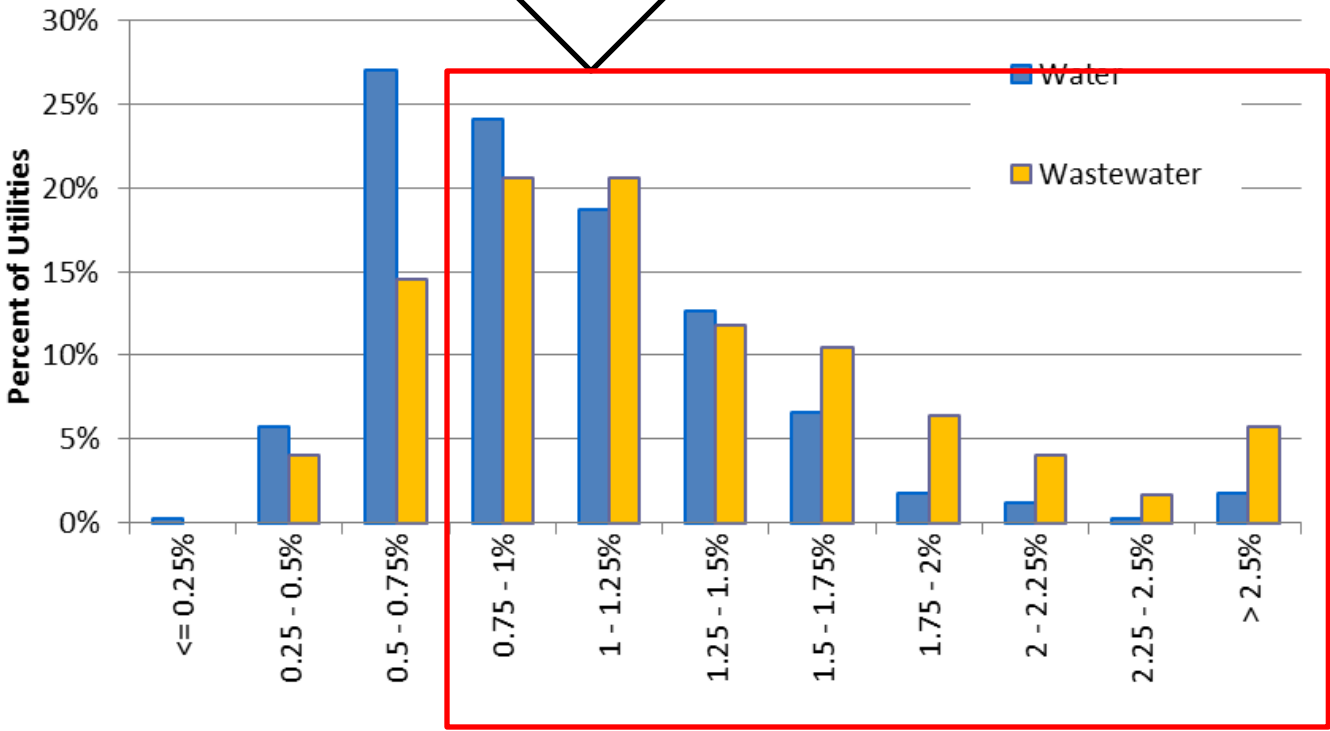


Data Source: 2014 NCLM/EFC North Carolina Water & Wastewater Rates Survey Tables

Rates as Percent of Income

Medians:
0.92% water, 1.13% sewer
2.33% combined

The “average North Carolinian” pays \$68.76/month for 5,000 gallons of water and wastewater, if everyone is charged at the “inside” rate

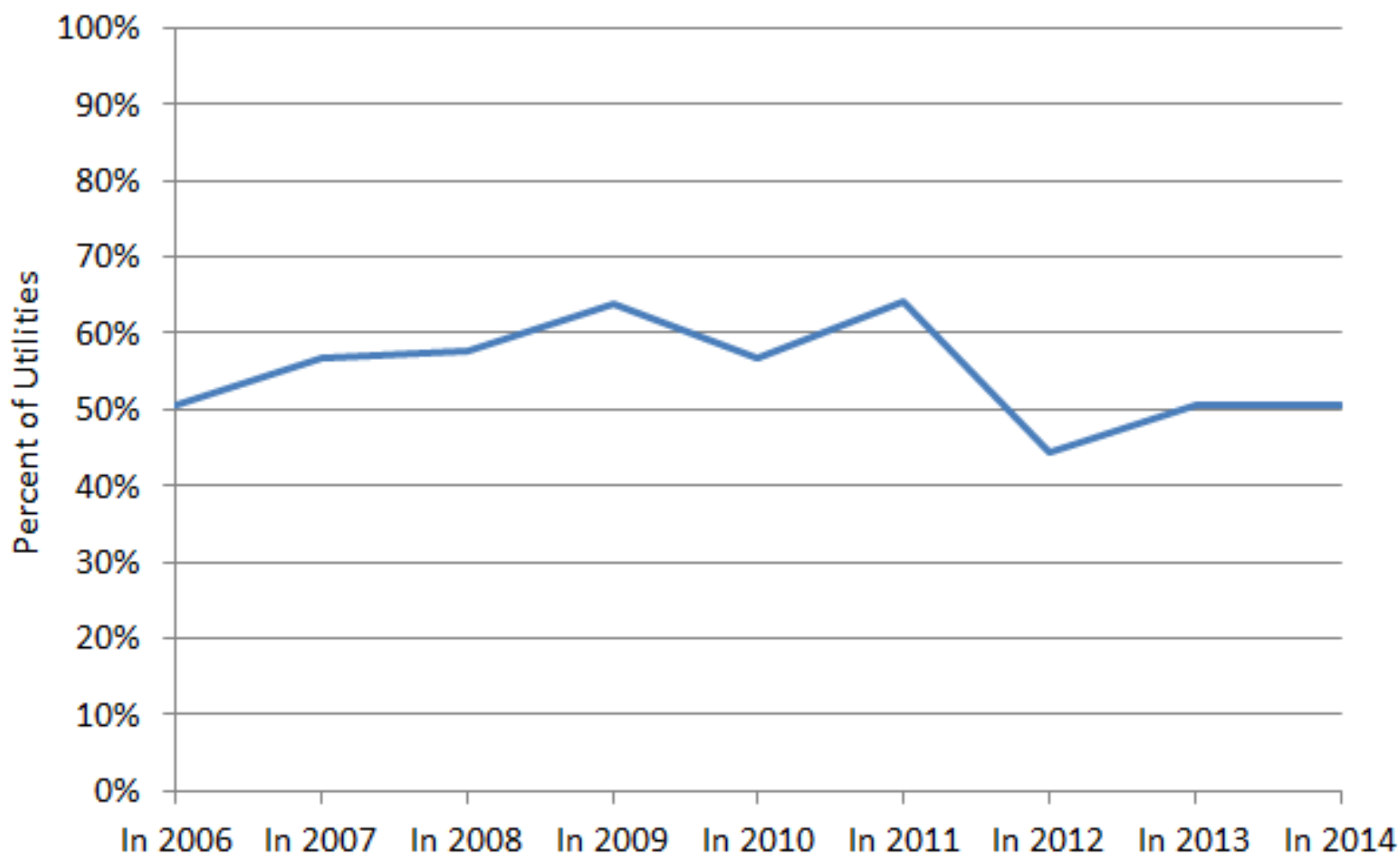


Total Bills in One Year as % of MHI of Community in 2012

67% water utilities,
82% wastewater
(at 5,000
gallons/month and
2012 MHI)

Source: 2014 NCLM/EFC North Carolina Water & Wastewater Rates Survey Report

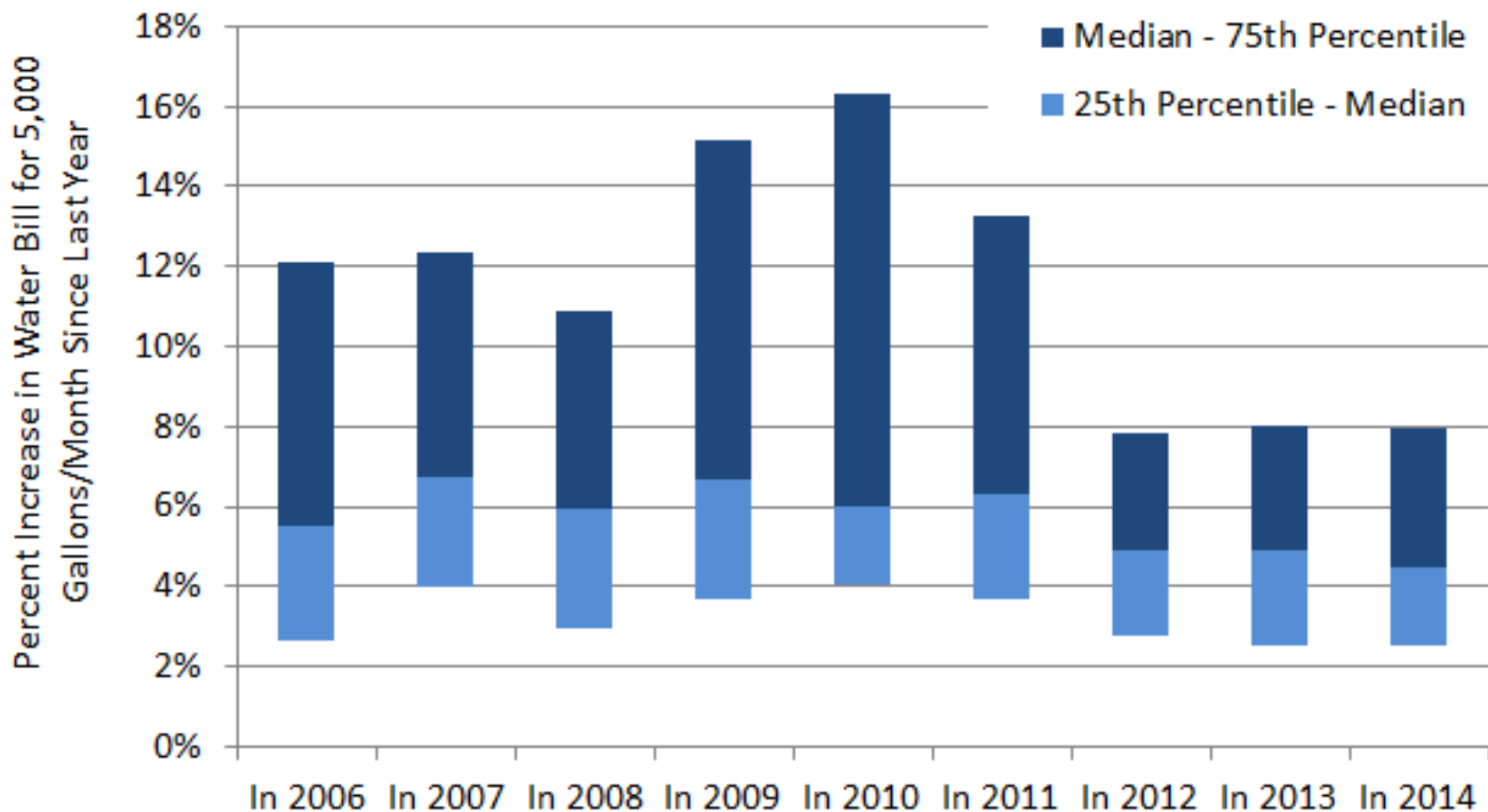
Utilities Changing Water Rates Among the Same 196 Utilities in North Carolina



Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Data Sources: NC League of Municipalities and Environmental Finance Center's annual water & wastewater rates surveys. The cohort of utilities is consistent across all years.



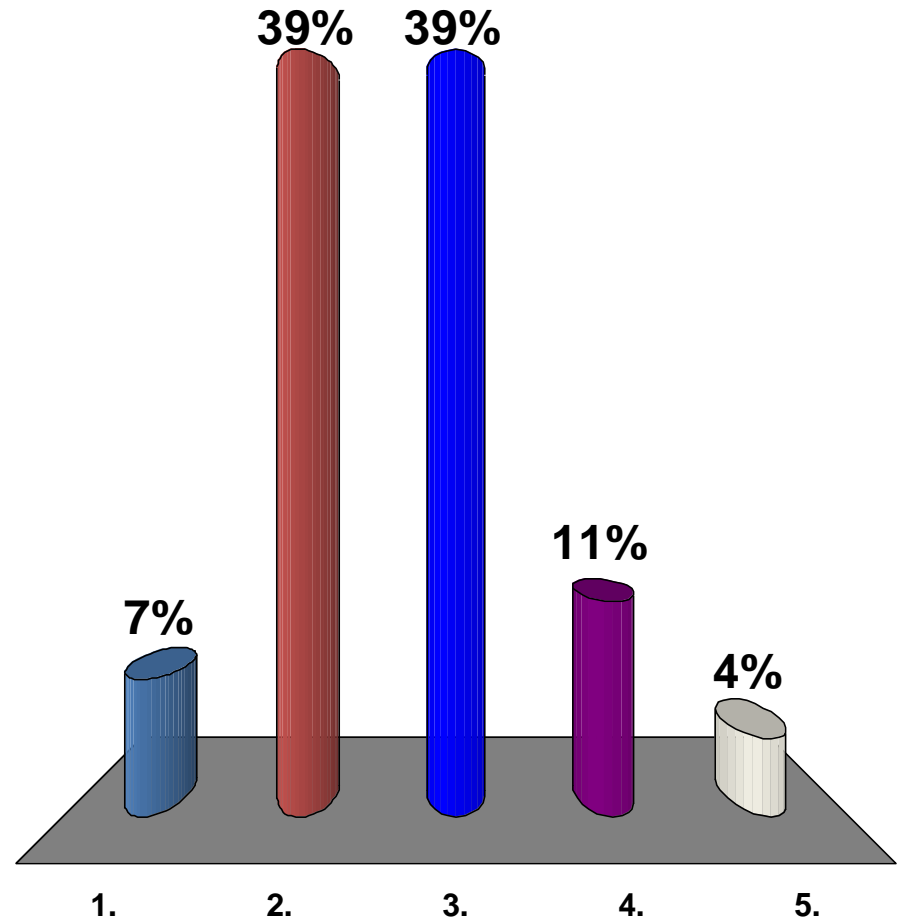
Increases to the Water Bill for 5,000 Gallons/Month by Utilities that Raised Rates from Among 196 NC Utilities



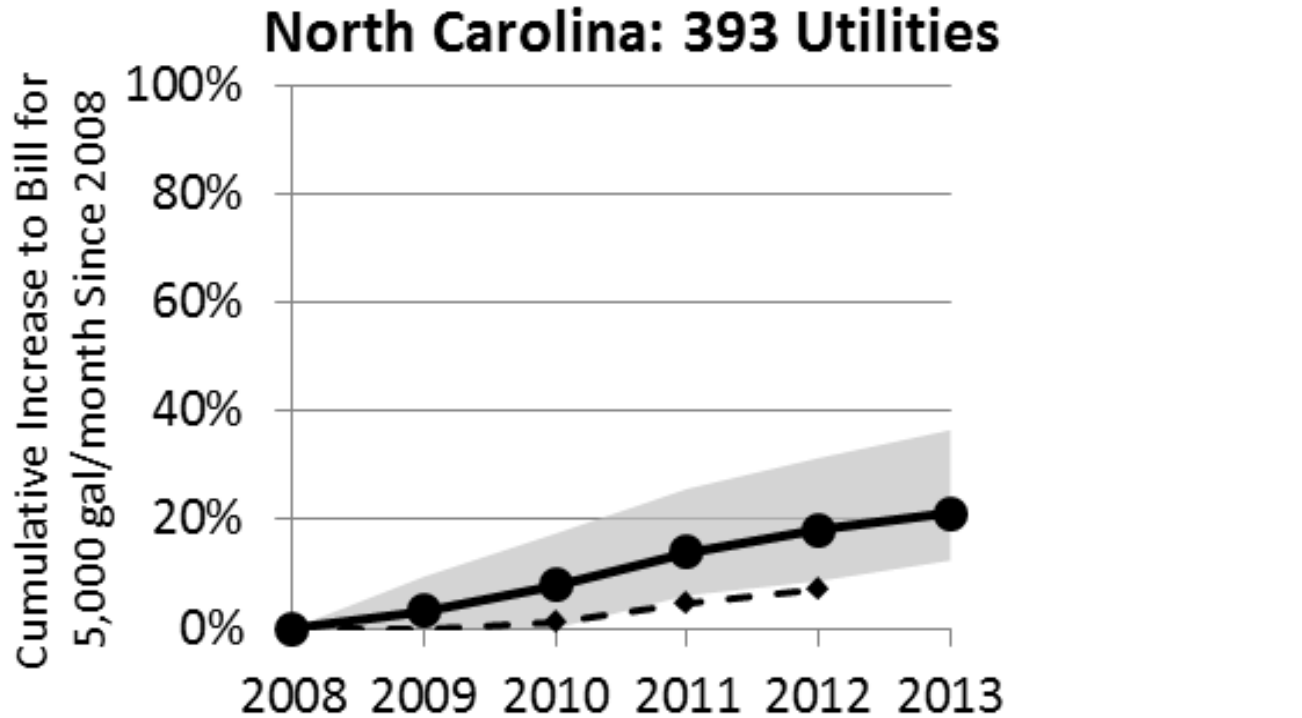
Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
 Data Sources: NC League of Municipalities and Environmental Finance Center's annual water & wastewater rates surveys. The cohort of utilities is consistent across all years. Only utilities that raised rates are analyzed in each year.

Anticipated Rate Increase Request for 2014 (n=30, SOG WW Finance 2014)

1. No change
2. 0 to 2.99%
3. 3 to 5.99
4. 6 to 9.99
5. 10 or above



Rates Rising Faster than Inflation



Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill and Raftelis Financial Consultants, Inc. Rates data for all utilities in this analysis were known for all consecutive years and the cohort of utilities is the same for all years. Inflation of the regional Consumer Price Index is shown for the region each state is located in: South for GA, NC, TX; West for CA; Midwest for OH, WI. Data sources: Annual and biennial statewide rates surveys conducted by Raftelis Financial Consultants (CA), Georgia Environmental Finance Authority/Environmental Finance Center, North Carolina League of Municipalities/Environmental Finance Center, Ohio EPA, Texas Municipal League, and Wisconsin Public Service Commission; Regional Consumer Price Indices by the U.S. Bureau of Labor Statistics.

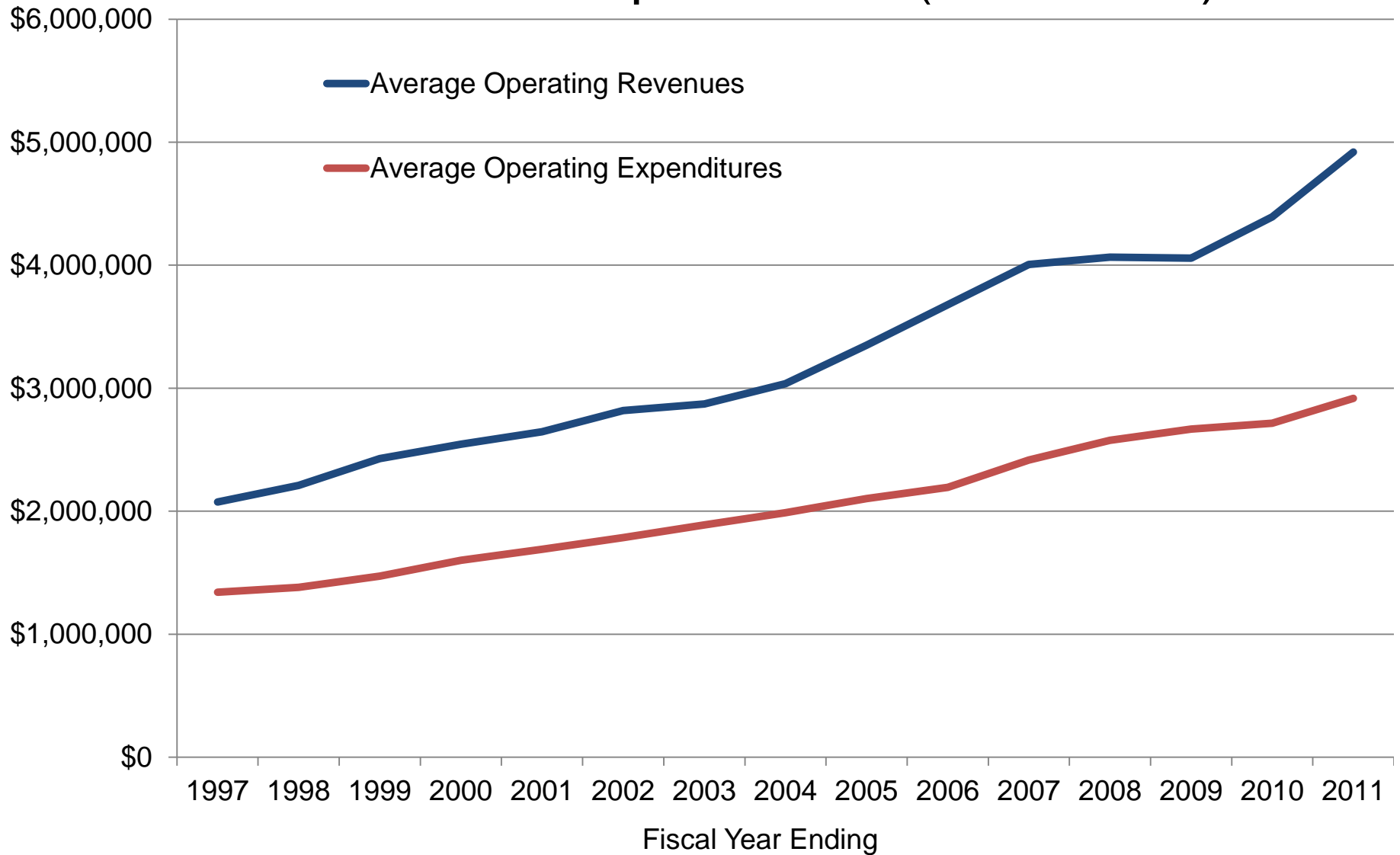
■ Interquartile range (middle 50% of utilities)
● Median
- ♦ - Cumulative regional CPI inflation since reference year

Reported in “Defining a Resilient Business Model for Water Utilities”, Water Research Foundation Report #4366.

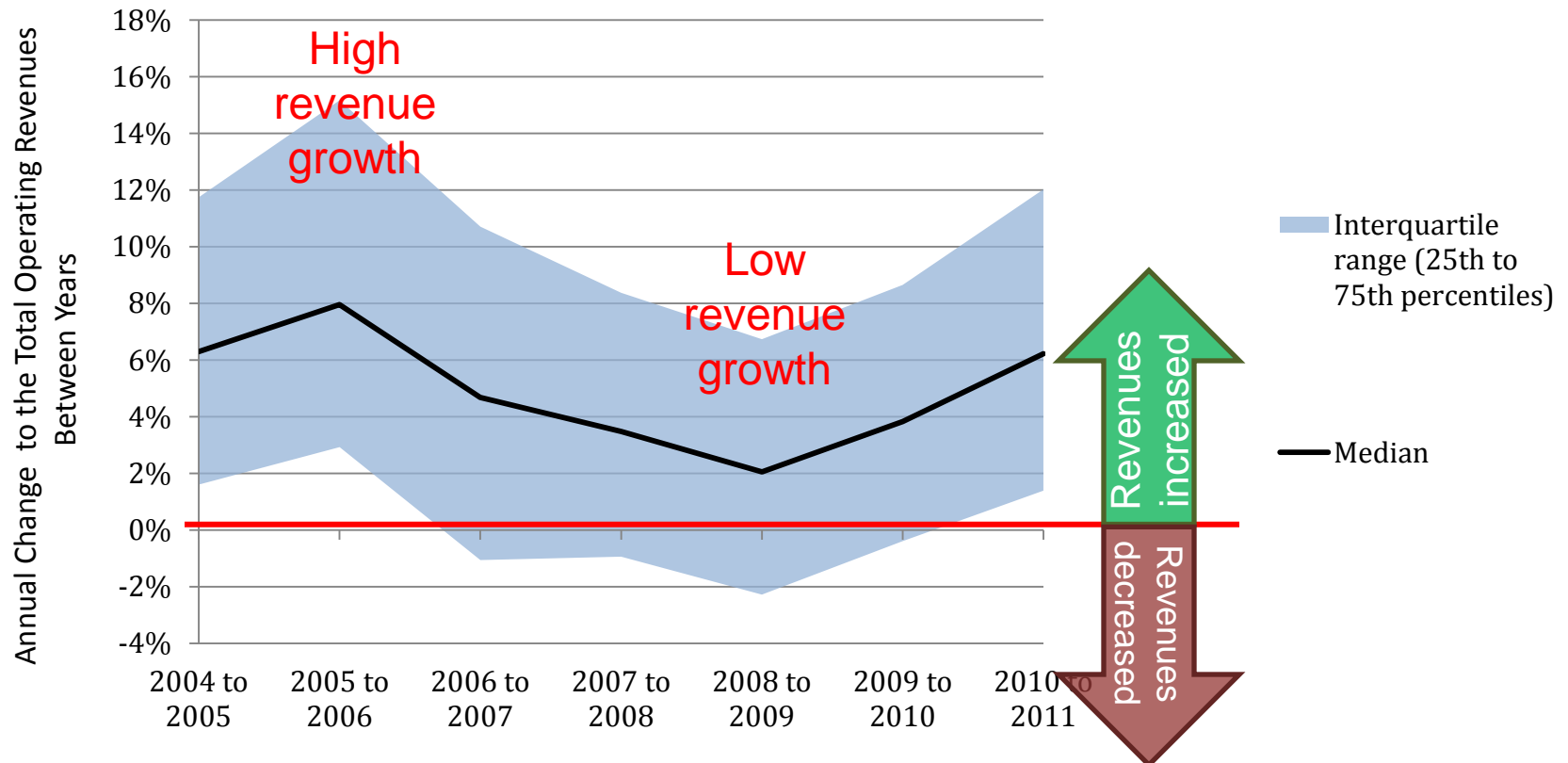
RATES AND REVENUES



North Carolina Utilities' Average Operating Revenues and Expenditures (1997-2011)



Industry Revenue Growth Roller Coaster



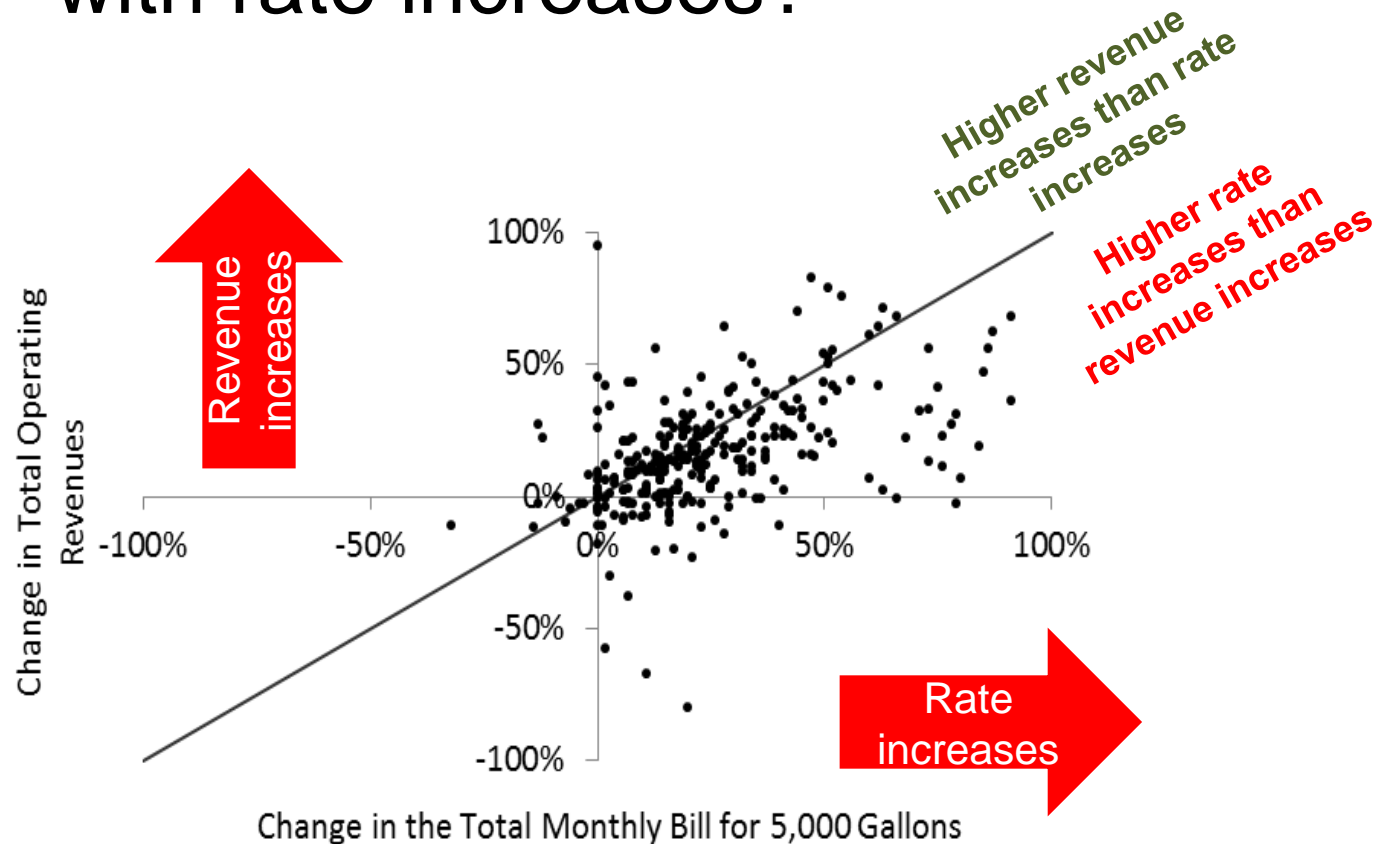
Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill and Raftelis Financial Consultants, Inc. Data Source: Moody's Water and Sewer Municipal Financial Ratio Analysis. The cohort of 485 utilities is consistent across all years.

Annual change in total operating revenues among the same 485 utilities nationwide

Are revenue increases keeping pace with rate increases?

299 North Carolina Utilities: 2007 to 2011

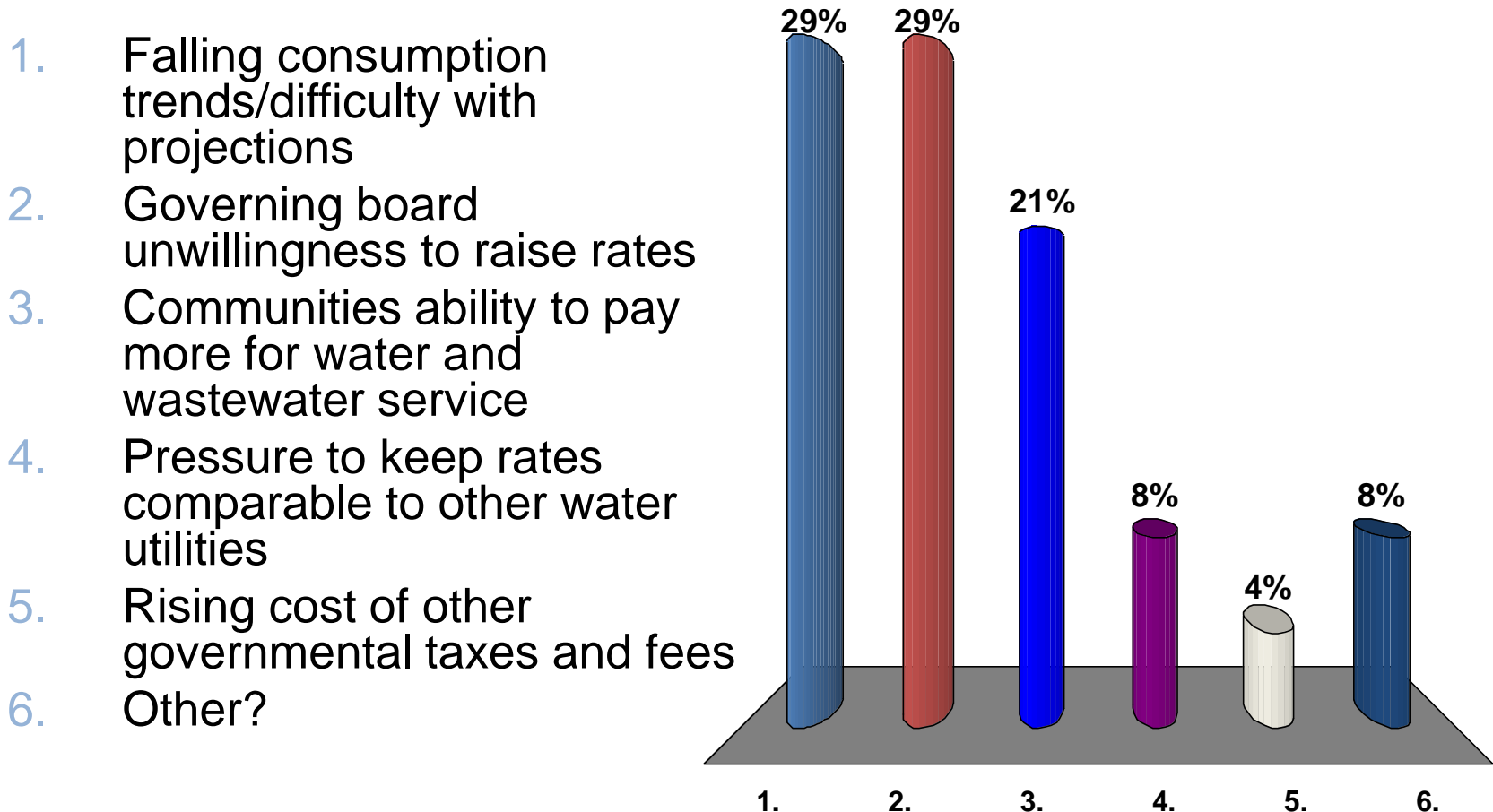
Data Sources: NCLM/EFC annual water and wastewater rates surveys, and the NC Local Government Commission data from audited financial statements of water/wastewater utilities.



Two-thirds of the utilities had lower revenue increases than rate increases (points below the 1:1 line), and almost every utility that raised rates by more than 50% had relatively lower revenue increases.

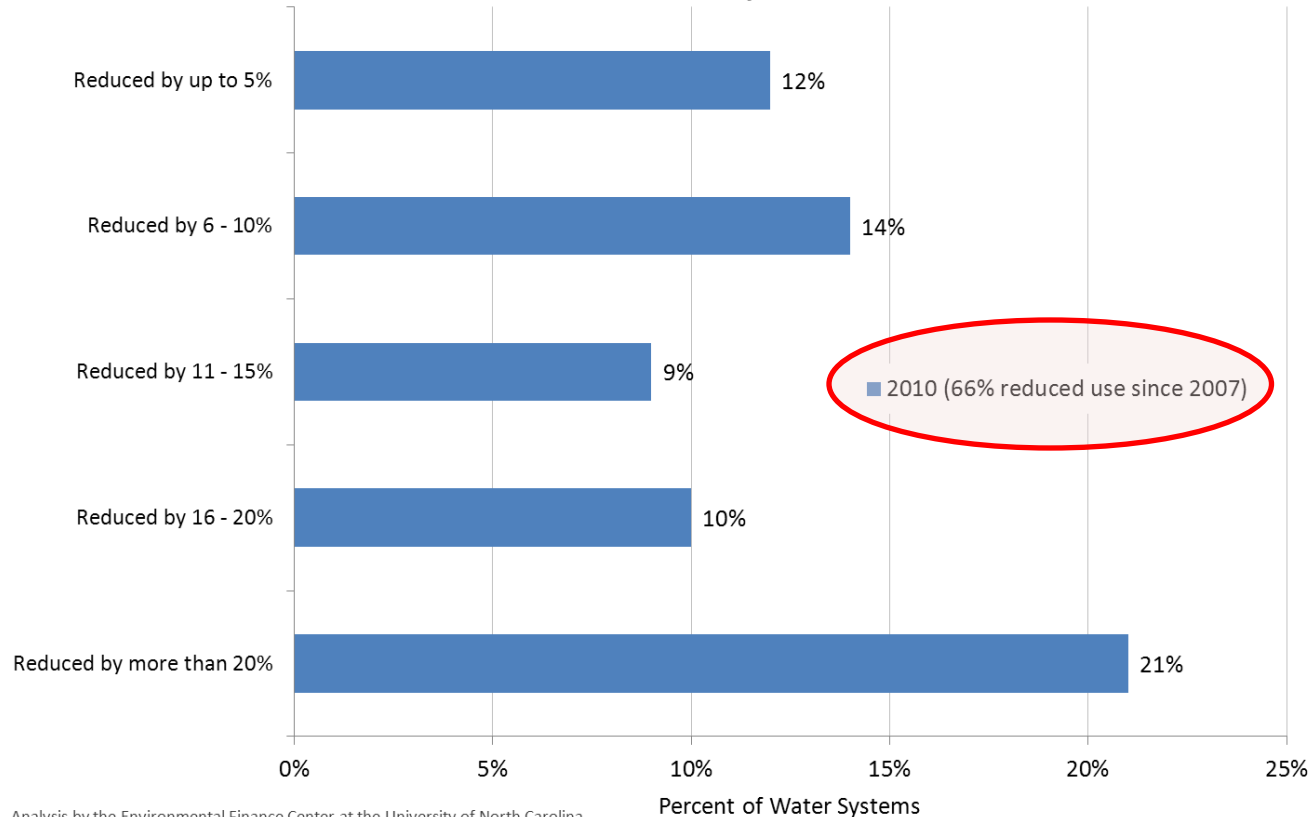
Reported in *Defining a Resilient Business Model for Water Utilities*, Water Research Foundation Report #4366 (2014). Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Revenues are total operating revenues as reported to the Local Government Commission.

What is biggest challenge to setting rates in your utility? Survey of 30 Utility Professionals at Annual SOG Water Finance Workshop (3/14/14)



Average residential demand is declining in NC

Reductions in Average Household Use in 2010 from 2007 Levels for 275 NC Water Systems

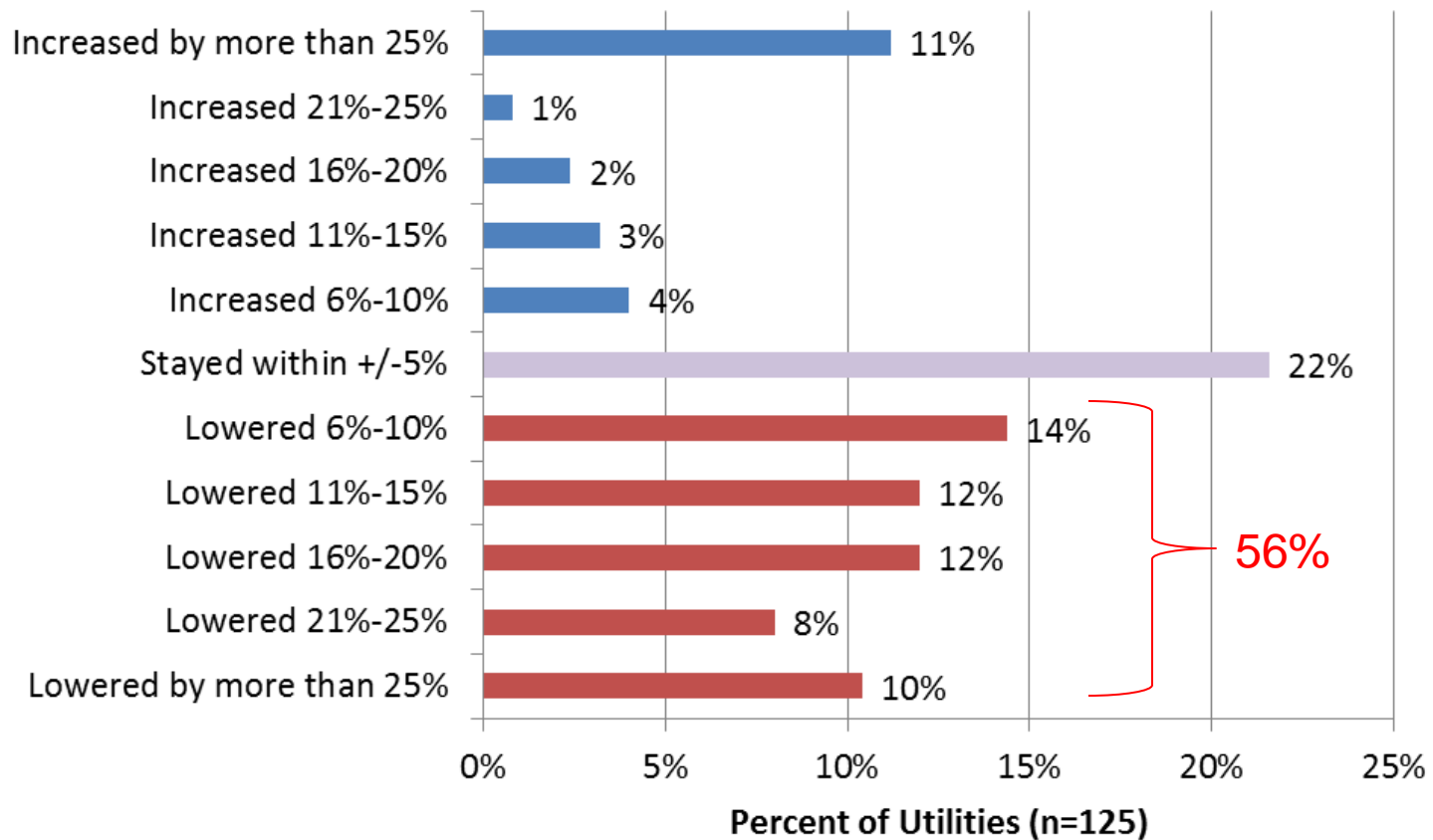


Analysis by the Environmental Finance Center at the University of North Carolina.
Data source: NC Local Water Supply Plans (NC Department of Environment and Natural Resources, Division of Water Resources)

Source: <https://efc.web.unc.edu/2012/05/24/residential-water-use-is-declining-in-north-carolina/>

Even **total** demand is decreasing

Changes to TOTAL Billed Water Volumes from FY2008 to FY2012 Among 125 NC Municipal and County Utilities



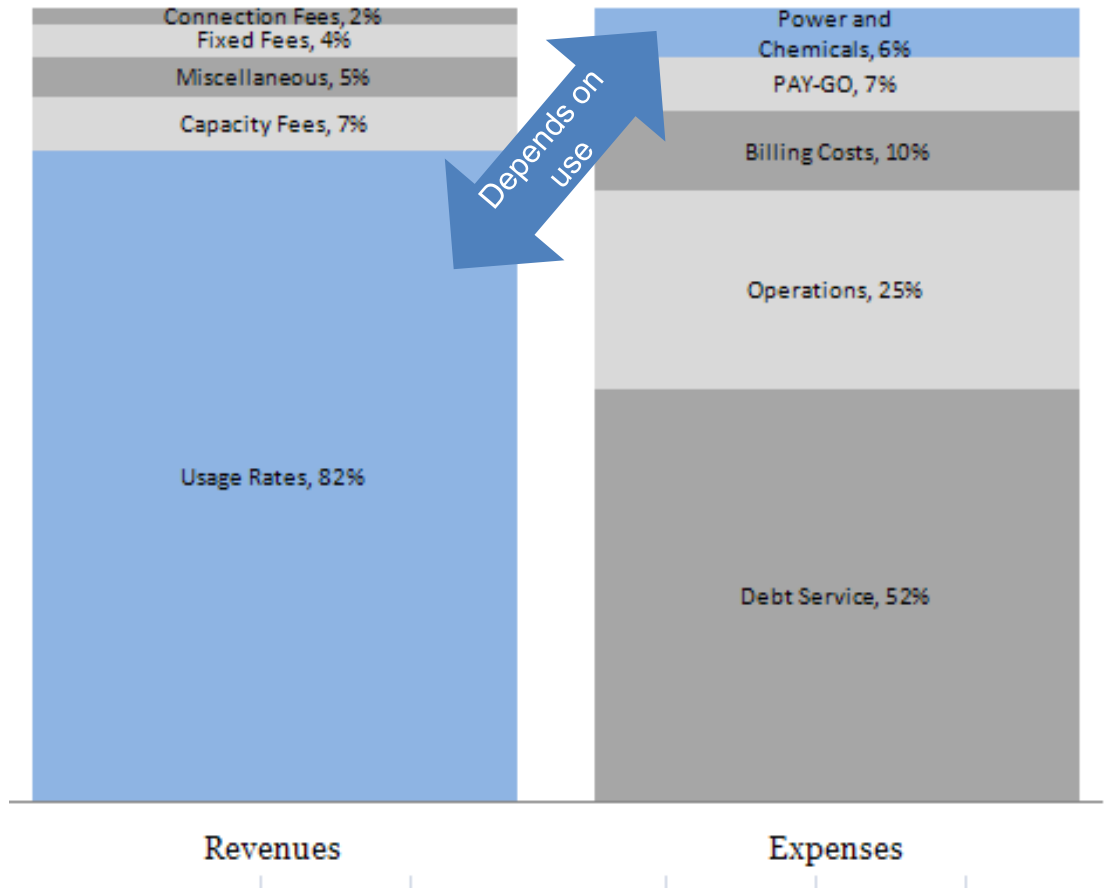
Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.

Data Sources: NC Local Government Commission's Annual Financial Information Reports (AFIR) in FY2008-FY2012. AFIR data are provisional at the time of this analysis.

How this Affects Rates?

Utilities' costs are mostly fixed, not dependent on the amount of water sold/used by the customers. But the majority of revenues come from the amount of water sold. If demand decreases, revenues drop significantly but not costs. Rates have to go up even higher.

Revenue and Expenses for Charlotte-Mecklenburg Utilities in a Given Year



Source: CMU Director Doug Bean's presentation to the Charlotte City Council on December 1, 2008.

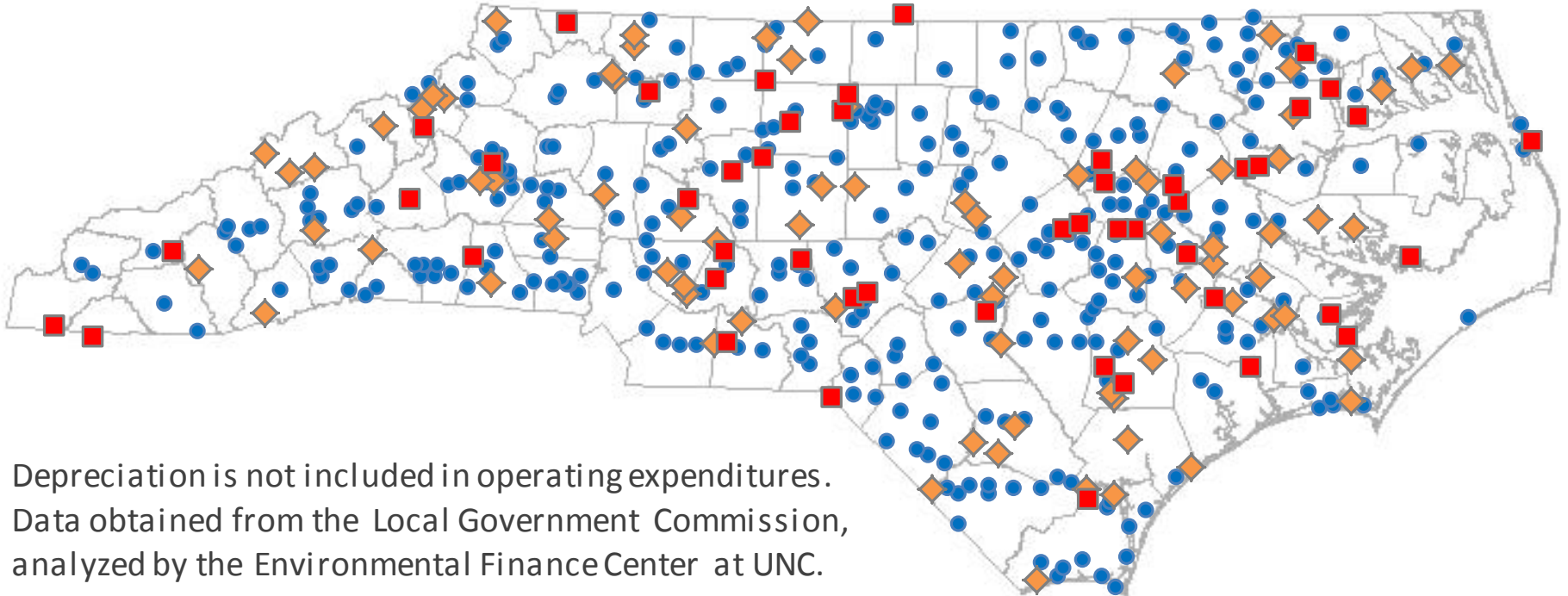
TRACKING AND PROMOTING IMPROVED FINANCIAL HEALTH



Do Water and Wastewater Rates Cover System Costs?

Local Government-Owned Water and Wastewater Utilities' Cost Recovery in FY 2013

- Operating revenues < operating expenditures (11%)
- ◆ Operating revenues < operating expenditures + principal + interest on long-term debt (19%)
- Operating revenues > operating expenditures + principal + interest on long-term debt (71%)



Depreciation is not included in operating expenditures.
Data obtained from the Local Government Commission,
analyzed by the Environmental Finance Center at UNC.

n = 448 (FY 2013)

Small Systems v. Large

Local Government-Owned Water and Wastewater Utilities' Cost Recovery in FY 2013

- Operating revenues < operating expenditures (11%)
- ◆ Operating revenues < operating expenditures + principal + interest on long-term debt (19%)
- Operating revenues > operating expenditures + principal + interest on long-term debt (71%)

Number of service connections	# of utilities	■	◆	●
< 1,000	177	16%	21%	63%
1,000 - 10,000	185	5%	19%	76%
> 10,000	48	0%	6%	94%

n = 410 (FY 2013, with SDWIS number of connections)

Financial Performance Indicators



NC Water and Wastewater Rates Dashboard Rates as of February 2014

Last updated: March 10, 2014



Example: Low Rates, Low OR (Demonstration Only)

Rates Comparison

Financial Benchmarks

Characteristics

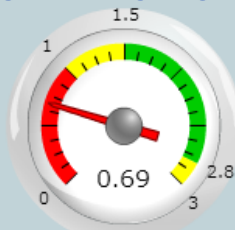
Links

Based on your utility's audited data provided to the Local Government Commission for FY 2013

View 5-year trends (LGC dashboard)

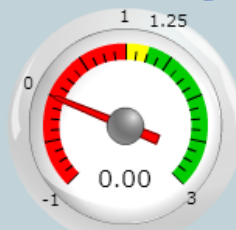
Ability to cover operations and debt service

Op. Rev / Op. Expend



More info

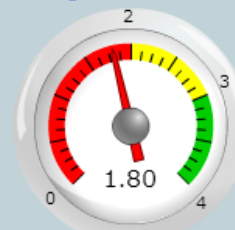
Debt Service Coverage Ratio



More info

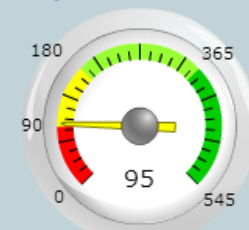
Measures of liquidity

Quick Ratio



More info

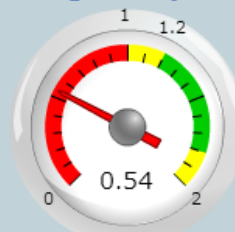
Days Cash on Hand



More info

Cost Recovery

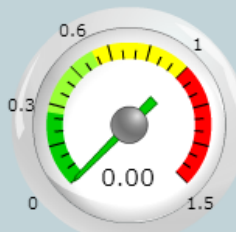
Operating Ratio (Inc Dep.)



More info

Leverage

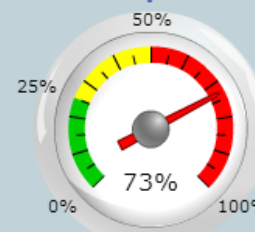
Debt-to-Equity Ratio



More info

Condition of physical assets

Asset Depreciation



More info

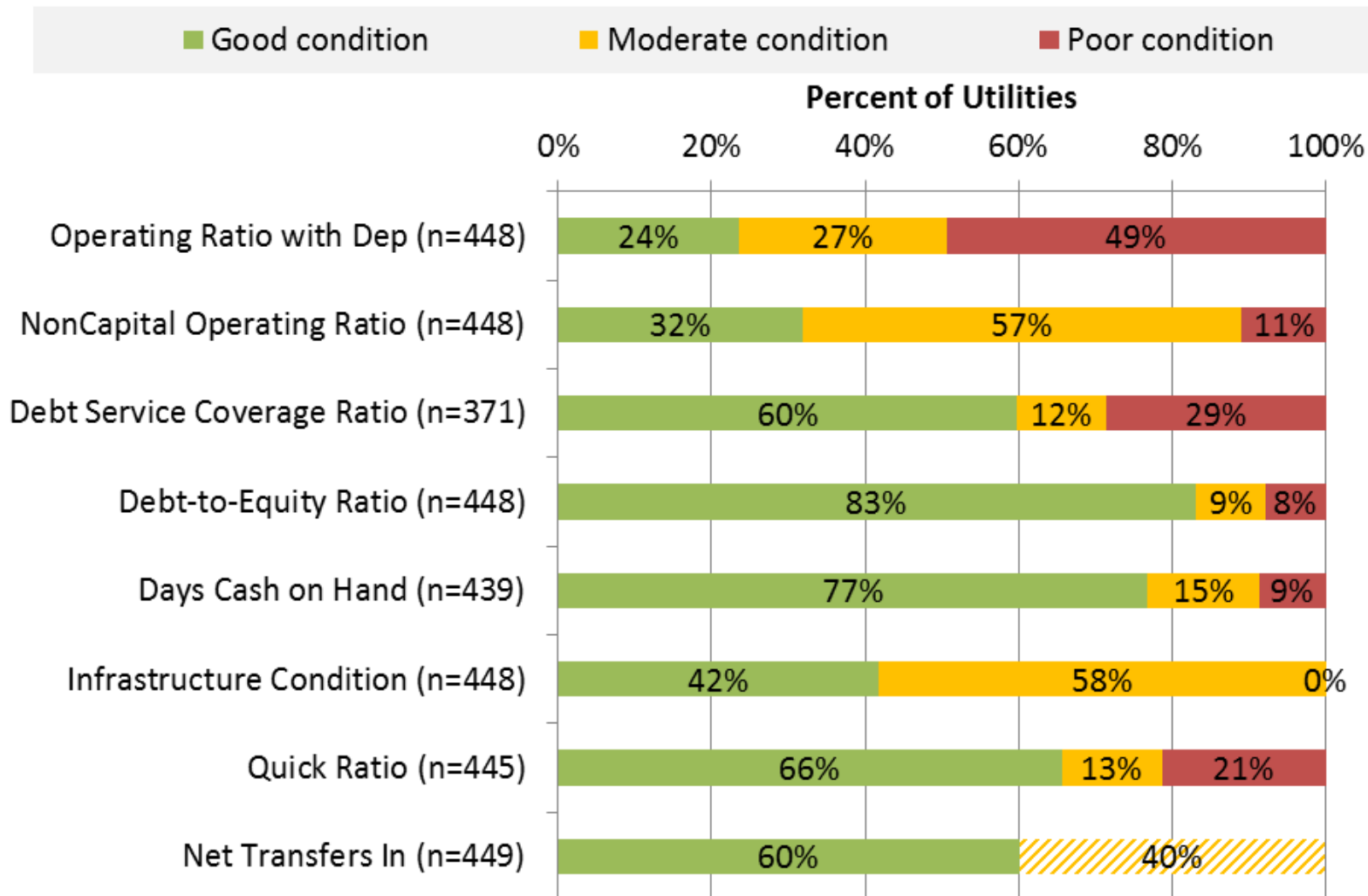
Net Transfers

Utility Enterprise Fund

↑ \$31,323
in
Other funds

More info

Assessment of NC Local Governments' Water and Sewer Enterprise Funds in FY2013

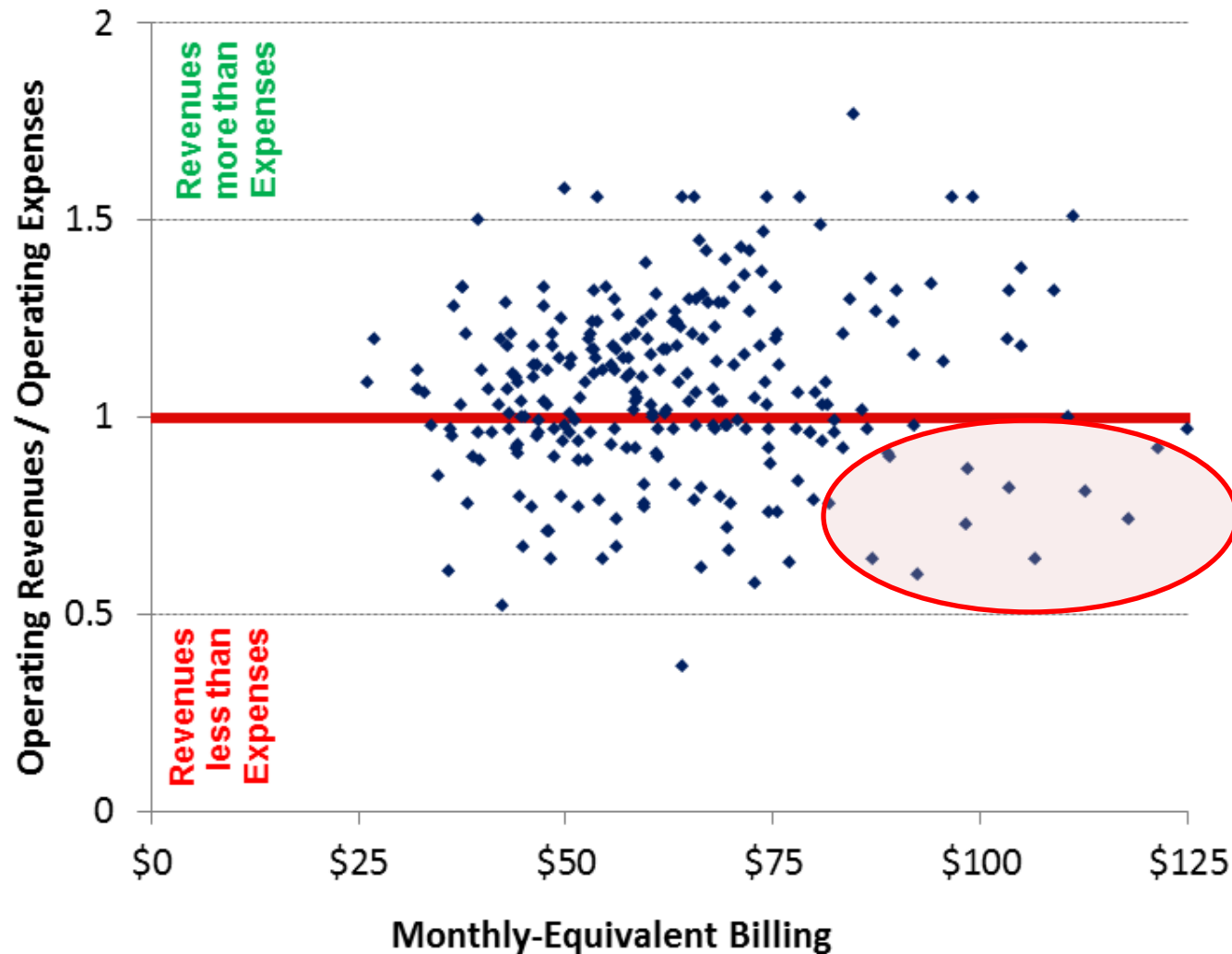


Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
 Data Source: Audited financial statements reported by local governments to the NC Local Government Commission. Thresholds for good, moderate and poor are based on the EFC's Rates Dashboard dials.

Some Thoughts about Credit Ratings

- Limited importance to most systems in NC
- External evaluation
- Oriented towards evaluating ability to repay debt
- Financial benefits of higher credit vary
- Higher ratings do not translate to “lower rates”
- Methodologies and metrics as “guides”

FY 2013 Rates and Operating Ratios

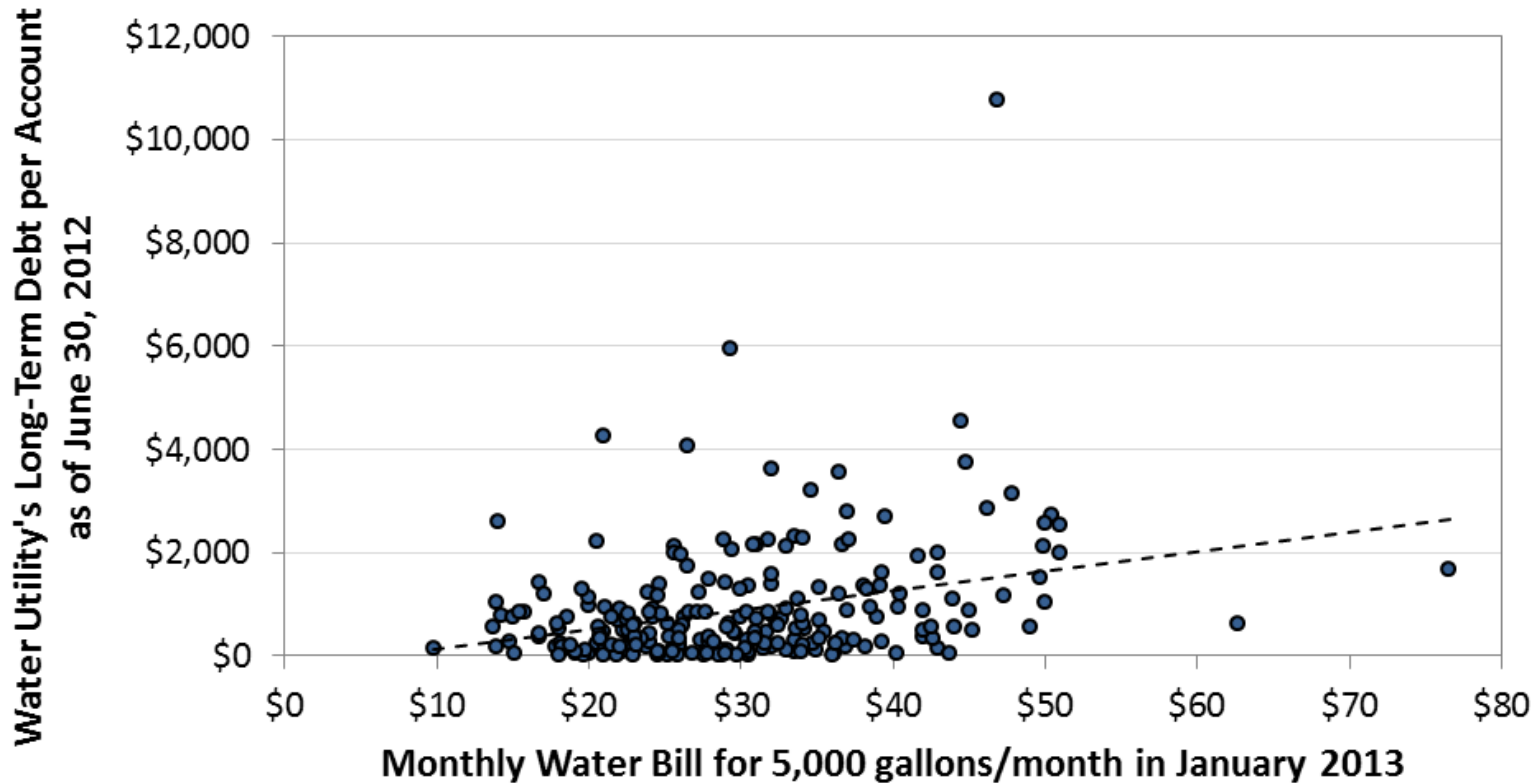


Source: 2014 NCLM/EFC North Carolina Water & Wastewater Rates Survey Report

“TROUBLED SYSTEMS”



Long-term debt per account in 2012 vs. water bill at 5,000 gallons for 235 NC water utilities



Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.

Data Sources: Rates data from the North Carolina League of Municipalities and Environmental Finance Center's 2013 water & wastewater rates survey, debt data from the North Carolina Department of State Treasurer State and Local Government Finance Division, and number of accounts data from the U.S. Environmental Protection Agency's SDWIS database.

Debt includes only outstanding water debt (not wastewater). Water bills reflect inside city rates, not outside city rates.

What is a “Troubled System”

Financial

Managerial

Technical

Other?

Subscribe to Keep Up-to-Date with the Environmental Finance Blog

<http://efc.web.unc.edu>

Examples of relevant blog posts:

- Declining demands in NC
- Increasing rates in NC
- Operating ratios in NC
- Water debt in NC
- What's wrong with %MHI
- Financial strategies
- And much more!



The screenshot shows the homepage of the Environmental Finance Center at the University of North Carolina. The header features the UNC logo and the text "UNC ENVIRONMENTAL FINANCE CENTER". Below the header is a navigation menu with categories: GENERAL INFORMATION, ENERGY, DRINKING WATER & WASTEWATER, FINANCIAL BENCHMARKING, WATERSHEDS, WETLANDS & STORMWATER, and WASTE MANAGEMENT. The main content area includes a "SUBSCRIBE:" section with input fields for "First name", "Last name", and "Email", and checkboxes for "All", "Watersheds, Wetlands & Stormwater", "Energy", and "Drinking & Wastewater". A "Subscribe" button is located below these fields. To the right of the subscription form is a featured article titled "Does Governing Structure Determine the Financial Health of a Water Utility?" by Stacey Berahzer, dated June 3rd, 2013. The article text discusses water utilities in the United States and their governance models. On the far right, there is a "Recent Comments" section listing several comments from users like Dan Ryan and Mark Heberer.

Acknowledgements

- Public Water Supply Section
(Division of Water Resources,
NC DENR)



- Local Government Commission at the
Office of the State Treasurer

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