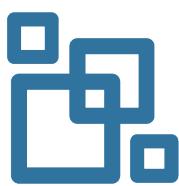


2024 NORTH CAROLINA WATER & WASTEWATER RATES REPORT



SCHOOL OF
GOVERNMENT

Environmental
Finance Center



NCLM
NC LEAGUE OF MUNICIPALITIES



4 Myths About Water Pricing

1

MYTH: High Rates are Bad

FACT: Higher rates do not necessarily reflect poor or inefficient management. Some utilities may not be charging enough to properly maintain assets or have not re-examined rate structures.

2

MYTH: Comparing Rates is Simple

FACT: Rates alone do not tell the entire story. Rates should reflect the cost of providing service and can vary based on many factors. Comparing rates is really just a starting point for more analysis.

3

MYTH: Pricing is Simple

FACT: Utilities employ a variety of pricing structures and should be thoughtful in designing those structures to meet their needs, objectives, and priorities as they evolve over time.

4

MYTH: Promoting Conservation Requires Increasing Block Rate Structures

FACT: Many different types of pricing structures can be employed to encourage conservation, not just increasing block rate. Utilities should aim to focus on all aspects of pricing, not just rate structure design.

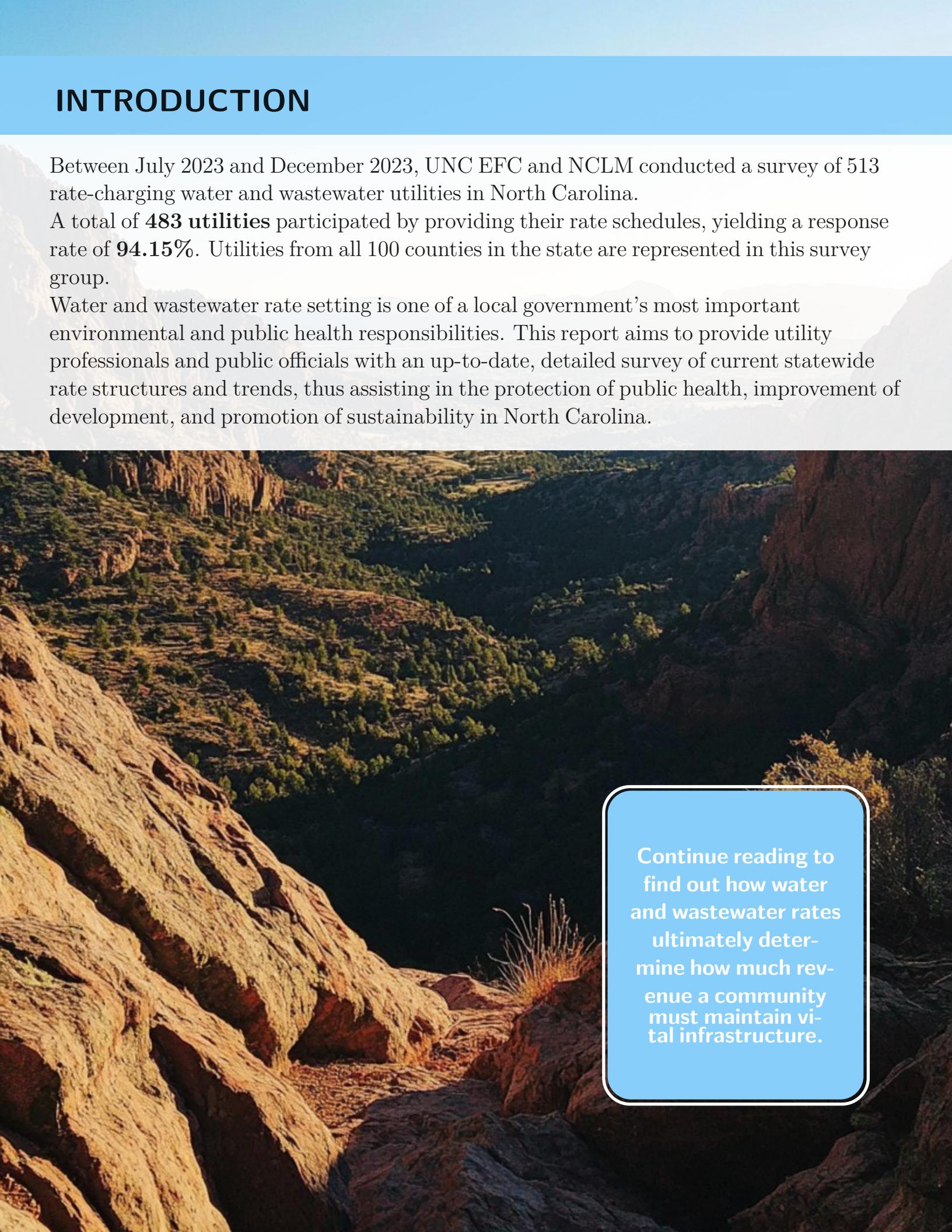
For more information on The Four Myths of Water Pricing, visit the original blog post at <http://efc.web.unc.edu/2015/02/12/myths-about-water-rate-setting/>

INTRODUCTION

Between July 2023 and December 2023, UNC EFC and NCLM conducted a survey of 513 rate-charging water and wastewater utilities in North Carolina.

A total of **483 utilities** participated by providing their rate schedules, yielding a response rate of **94.15%**. Utilities from all 100 counties in the state are represented in this survey group.

Water and wastewater rate setting is one of a local government's most important environmental and public health responsibilities. This report aims to provide utility professionals and public officials with an up-to-date, detailed survey of current statewide rate structures and trends, thus assisting in the protection of public health, improvement of development, and promotion of sustainability in North Carolina.



Continue reading to find out how water and wastewater rates ultimately determine how much revenue a community must maintain vital infrastructure.

BY THE NUMBERS



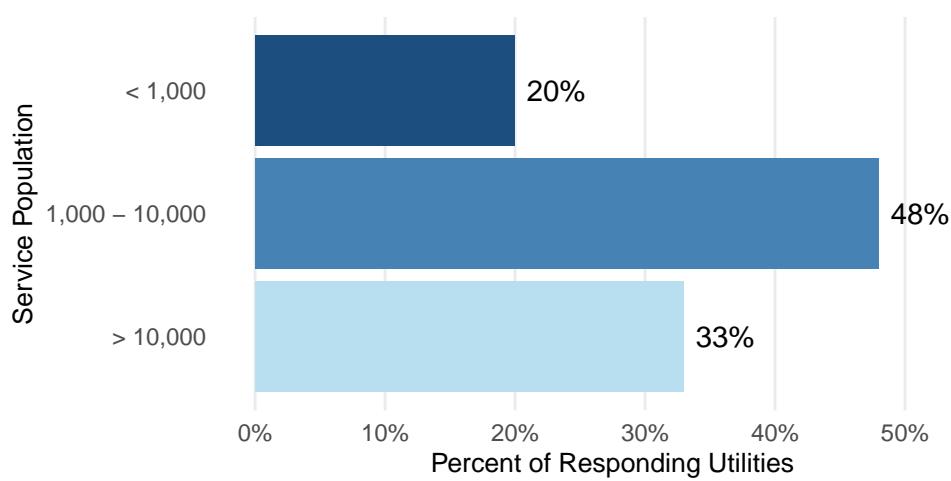
73%
MUNICIPAL

13%
COUNTY/DISTRICT

7%
NOT-FOR-PROFIT

7%
OTHER

Distribution of Utilities by Service Population (n=483)



WHAT DO RATE STRUCTURES LOOK LIKE?

Base Charges

Considerable variation exists in how utilities model rate structures, but almost all use a combination of a **base charge** and a **volumetric charge**.

Base charges do not vary from one billing period to the next based on consumption. These charges are usually a constant, universal fixed amount for all customers, though they can vary based on customer class (e.g. residential vs. commercial) or even meter size.

Base charges sometimes feature a **consumption allowance**, which is a volume of usage included in the base charge.

Larger water utilities tend to have **lower** base charges than smaller utilities, likely because they are able to spread **fixed costs** across a greater customer base.

In North Carolina, 55% of water rate structures with base charges included a consumption allowance. The median monthly consumption allowance is **2,162** gallons.

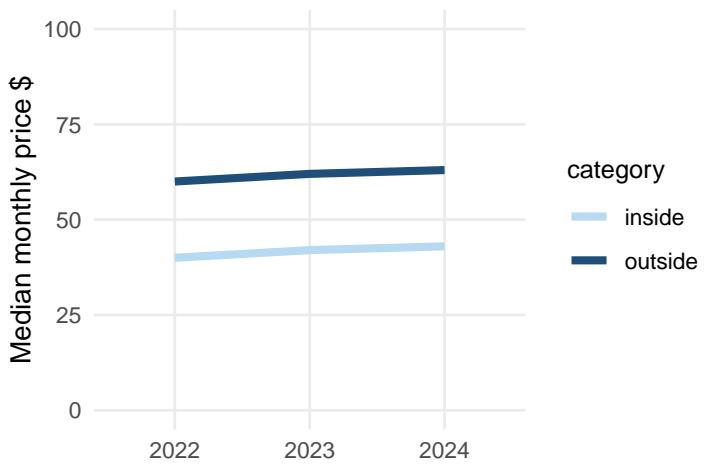
Median Monthly Base

 **\$22.18**
WATER

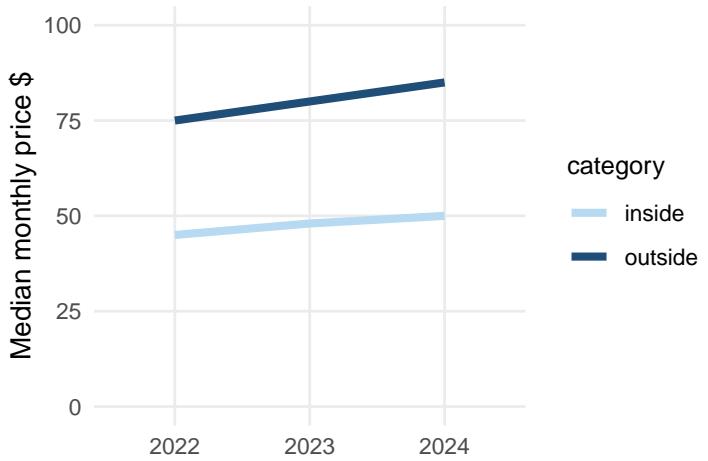
 **\$26.05**
WASTEWATER

 **\$48.23**
WATER AND WASTEWATER

Median Monthly Water Bill
Inside vs. Outside 2022–2024



Median Monthly Wastewater Bill
Inside vs. Outside 2022–2024



WAYS TO CHARGE FOR VOLUME

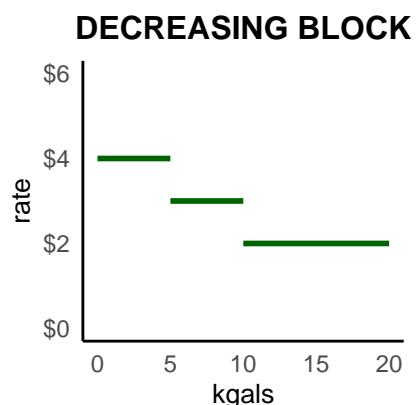
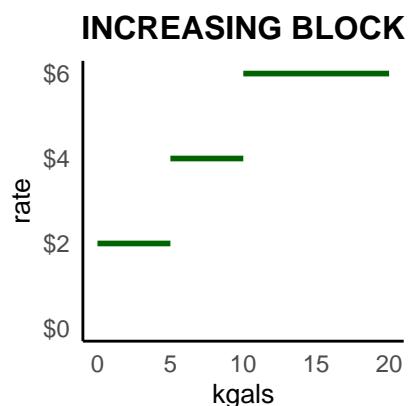
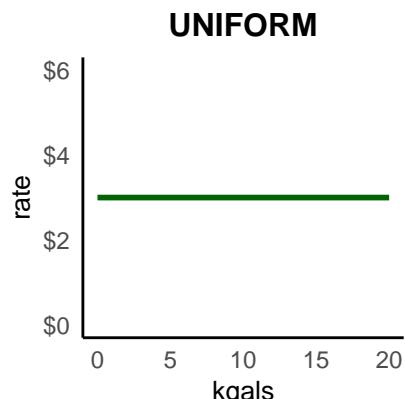
WAYS TO CHARGE FOR VOLUME

In addition to fixed charges, most rate structures also include a volumetric charge. Unlike fixed charges, volumetric charges vary month-to-month based on consumption. Three common ways to charge for volume are uniform, increasing block, and decreasing block rates.

With a **uniform rate** structure, customers are charged a constant rate per unit, i.e., the rate does not change as the customer consumes more.

In an **increasing block rate** structure, the rate increases as the customer uses more. This structure is often employed by utilities that want to explicitly encourage or signal conservation by making higher volumes of consumption more expensive.

Utilities may also structure their rates so that the rate per unit decreases at higher levels of consumption; this type of block rate is called a **decreasing block structure**. This type of rate structure may be used in cases where the utility wants to encourage economic development and attract high consuming customers.

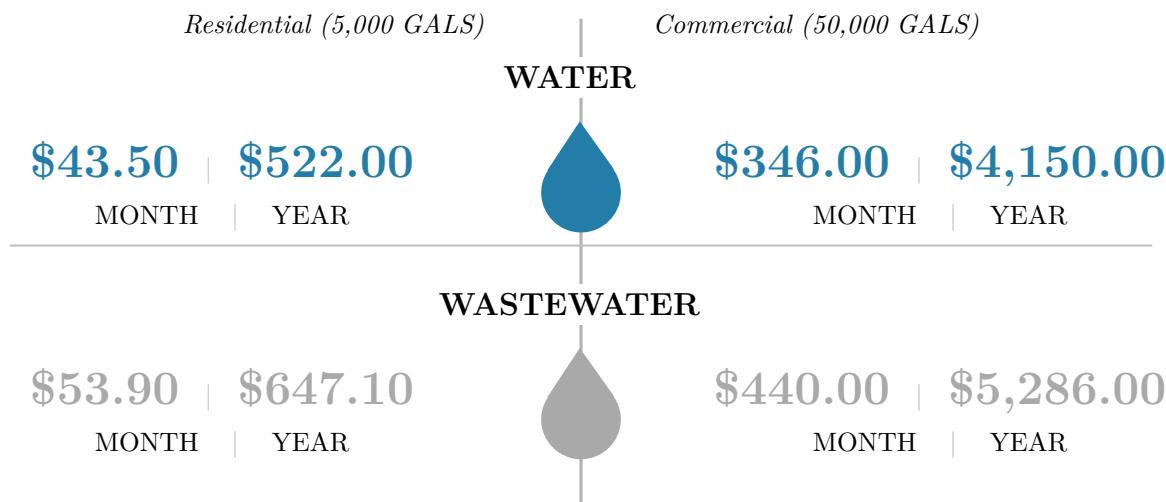


WHAT IS THE MOST COMMON VOLUMETRIC RATE STRUCTURE?

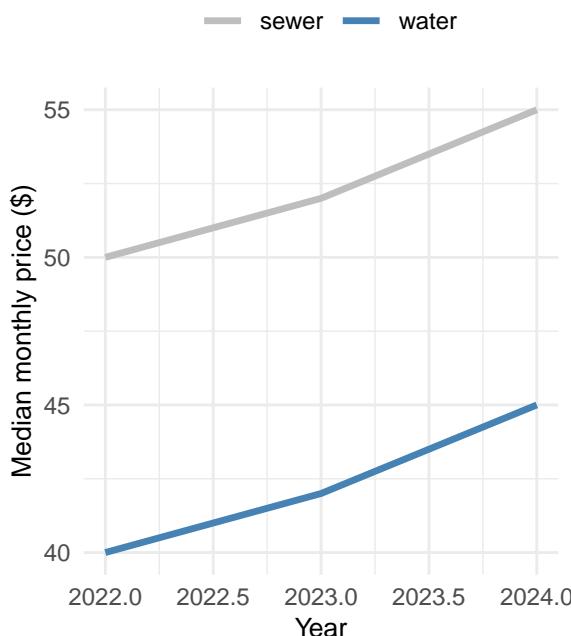
In North Carolina, the majority of residential water (56%) and wastewater (69%) rate structures use a uniform rate to charge for volume. Standardized to thousands of gallons, the median uniform rate is \$5.96 for water and \$8.42 for wastewater services.

WHAT ARE UTILITIES CHARGING?

North Carolina's Average Bills



Median Monthly Inside Bill 2022 – 2024 (5000 gal)



RANGE OF BILLS

The graph at the left shows the median monthly inside bill for both water and sewer at 5,000 gallons consumption. During the years 2022-2024, median water and sewer rates steadily increased.

On average, sewer rates were 24.78 percent higher than water rates during this period.

HOW DO OUTSIDE RATES COMPARE?

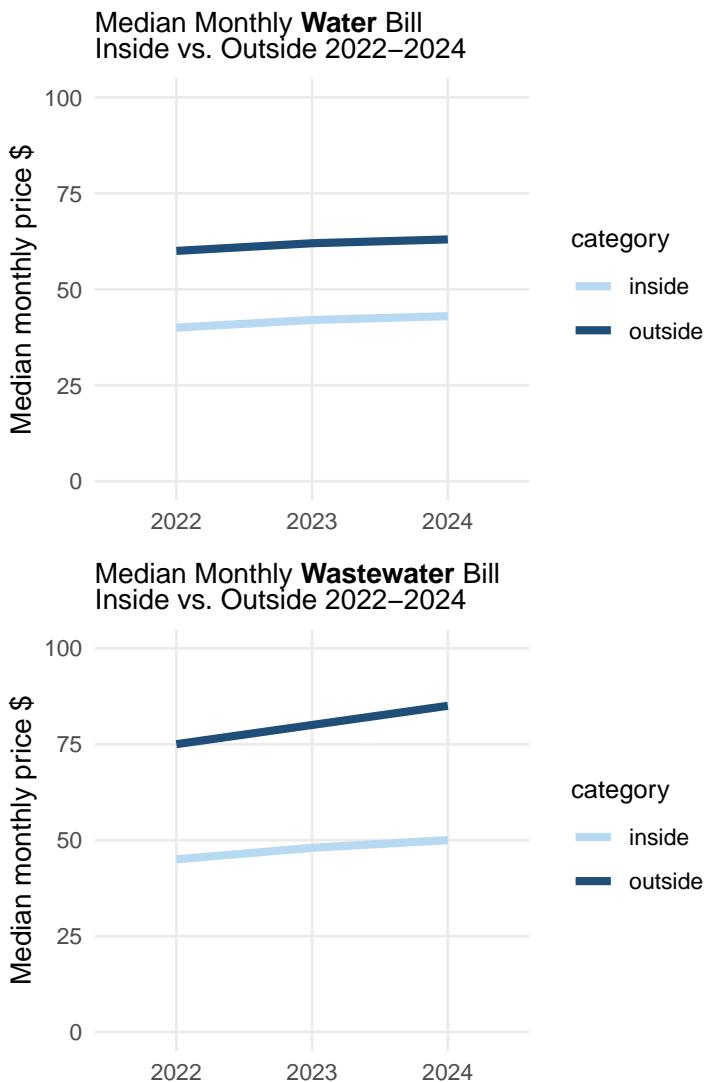
Inside vs. Outside Rates

All the charges presented above refer to what utilities charge customers who live within their political boundaries. Municipal utilities often serve customers who live outside of city limits, and a handful of other utilities specify geographical boundaries within their service area and identify their customers as residing "inside" and "outside" those boundaries. In many cases, utilities charge different rates for customers living inside or outside the boundary.

In North Carolina **57%** of water rate structures and **60%** of wastewater rate structures charge outside rates.

The median monthly outside bill, at 6,000 gallons, is 1.52 times the inside bill for water and 1.63 times the inside bill for wastewater.

The median combined water and wastewater bill at 5,000 gallons is **\$47.87** for customers inside service boundaries and **\$77.03** for those outside of service boundaries.



The graph above shows that on average, outside water rates are 53% greater than inside water rates and outside wastewater rates are 61% greater than inside rates.

Generally, outside rates are greater than inside rates because customers reside farther, on average, from the water and wastewater treatment plant than inside customers.

HOW DO IRRIGATION RATES COMPARE?

Some utilities offer unique irrigation rates. When the same utility provides water and wastewater service, the wastewater service is often tied to metered water consumption. To separate outdoor water use, which does not go into the wastewater system, from wastewater use, utilities will sometimes meter separately for irrigation. These unique irrigation rates do not charge customers for the equal wastewater use and, as a result, are often slightly more expensive than water rates, but less than the combined water/wastewater rate if no irrigation rate existed.

In North Carolina, most irrigation rates are equivalent to water rates. Only about 13% of rate structures have unique irrigation rates. Approximately 68% of the 67 unique irrigation rates are greater than water rates.



WHEN WERE RATES LAST CHANGED?

- The MAJORITY of utilities in North Carolina have updated rates between 2022 and 2024.
- Only about 1 IN 5 utilities have rates that were last updated before 2022.



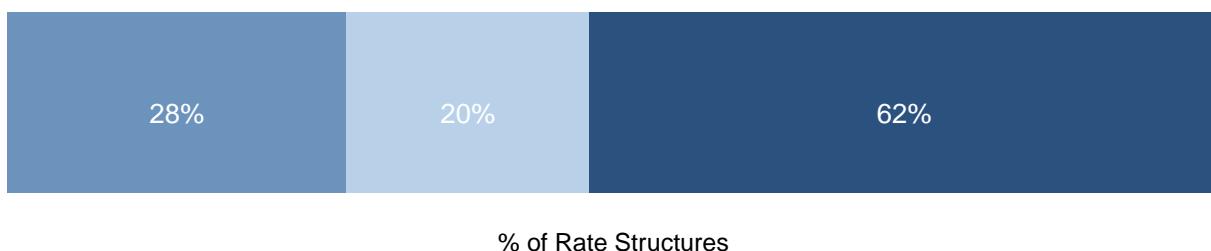
In North Carolina, most utilities are actively evaluating and modifying their rate structures every one to two years. UNC EFC recommends that utilities review their rates at least every two years, at the minimum, to keep in pace with inflation. An annual or biennial review gives utilities the opportunity to evaluate if their current rates are enough to cover the necessary operating expenses and depreciation, not to mention savings goals for capital planning, emergencies, or other funds.

Utilities that modestly raise rates at more frequent intervals accumulate more revenue over time than those that implement less frequent, but more drastic rate increases. Customers are also less likely to balk at smaller, more frequent but gradual rate increases than a significant one-time price hike.

The bar chart below shows the proportion of utilities by when their rates were last updated.

Year Rate Structure in Effect

Effective Date before 2021 2021 – 2022 2023 and later



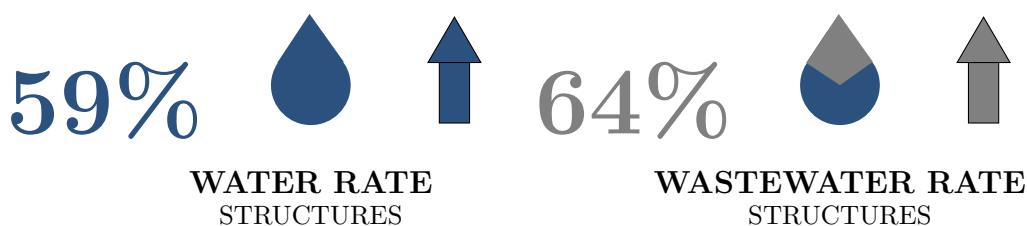
HOW HAVE RATES CHANGED?

As the costs of providing service rise, so should rates. Providing water and wastewater service is costly and infrastructure-intensive. Regular, predictable rate increases are common and recommended. To provide some insight into the extent to which rates have changed, analyzing trends is an important exercise.

Flagging changes as well as the magnitude of those changes are both important when assessing the extent to which rates are meeting utilities' revenue needs. The figures below reflect one-year changes in residential rates using data from both 2023 and 2024 rate surveys. The underlying data only include utilities that for which data exist in both years.

Percent of Rate Structures with Increased Residential Bills from 2023-2024

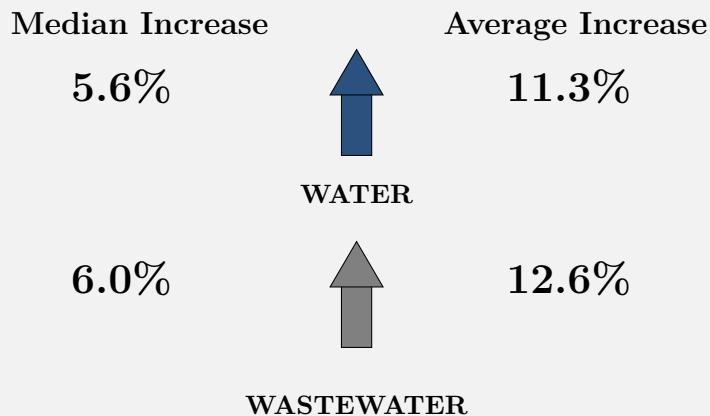
N=483 Utilities



* percentage of rate structures that saw an increase in bills at 5,000 gallons

Given that in most cases bills are quite low, a large percentage rate increase may not translate to a large dollar amount increase. The median bill increase at 5,000 gallons for rate structure with increases was \$2.04 for water and \$2.78 for wastewater.

Of Those Rate Structures with
Increased Bills Since 2023
How Much Did They Increase?
(analyzed at 5,000 gallons)



DO PRICES REFLECT THE TRUE COST OF SERVICE?

Utilities sometimes fall into the trap of pricing services based on what their customers have always paid rather than focusing on the bottom line of their balance sheets. To help utilities more accurately price the costs of their services, UNC EFC also collects financial information on utilities. For FY 2024, data were available for 329 utilities out of the total 483 utilities (68%). Let's start with some essential definitions:

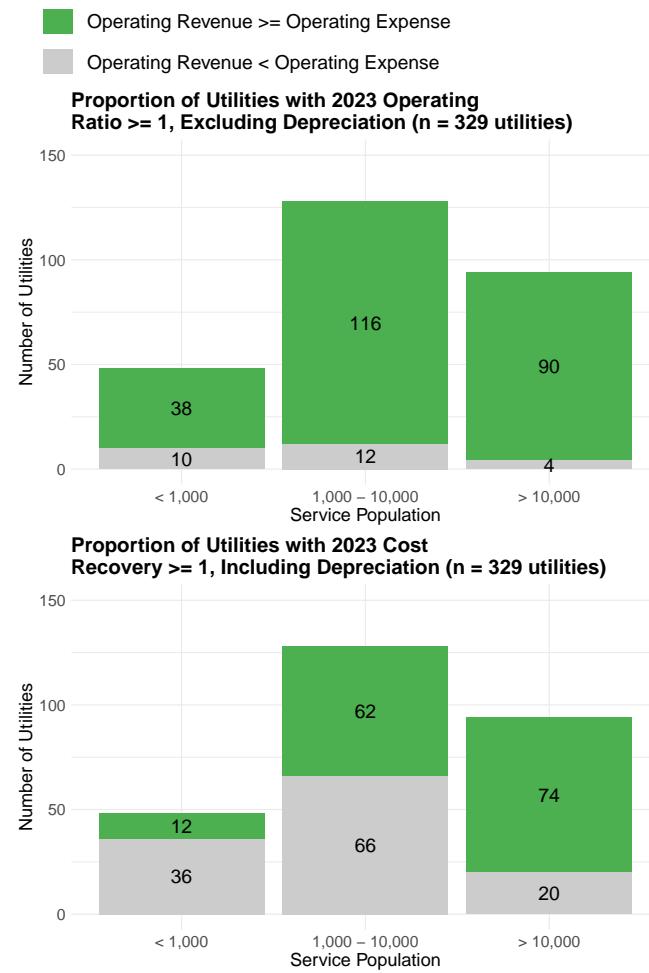
WHAT IS OPERATING RATIO?

The operating ratio, also known as the cost recovery ratio, is a financial benchmark that determines if an entity is operating at a loss, gain, or just breaking even. The ratio is simply the division of operating revenues by operating expenses, which can include or exclude depreciation. A utility's operating ratio must be at least 1.0 to break even.

WHY INCLUDE DEPRECIATION?

Whenever possible, depreciation should be included in operating expenses to account for the inevitable cost of replacing equipment and infrastructure at the end of its expected useful life. Depreciation allows costs to be figuratively parceled out over time, avoiding a sudden, and enormous expense when the time comes to replace assets.

Consider the differences in the graphs below with and without depreciation factored into operation expenses. Keeping in mind that some of the financials collected do not coordinate with utilities rates collected.



DO PRICES REFLECT THE TRUE COST OF SERVICE?

Without including depreciation, **312 of the 329** utilities for which depreciation data was available (95%) generated enough revenue to recover operating costs (operating ratio of 1.0 or greater). Of the utilities that were not able to recover expenses, all 17 serve 10,000 people or less.

With depreciation included, **219 of the 329** (66%) utilities generated enough revenue to cover operating expenses. All utilities face the issue of generating sufficient revenue to pay for the high fixed costs of providing safe and reliable services. However, smaller utilities must spread out those high fixed costs over a smaller customer base. 100 out of 110 of the utilities with an operating ratio of less than 1.0 serve fewer than 10,000 people.

WHAT IS CONSIDERED HEALTHY?

The Cost Recovery dial on the [Rates Dashboard](#) uses red, yellow, and green bands to give the viewer a quick overview of the utility's operating ratio health.

While it is clear that "in the red" is not a good position; there is no universal standard for what constitutes a healthy operating ratio beyond 1.0. Generally, as the Cost Recovery dial shows in the green band above, an operating ratio, including depreciation of at least 1.2, allows utilities to account for day-to-day operations and maintenance expenses, as well as for future capital costs.

Just 28.7% of utilities have an operating ratio, including depreciation of 1.2 or greater.



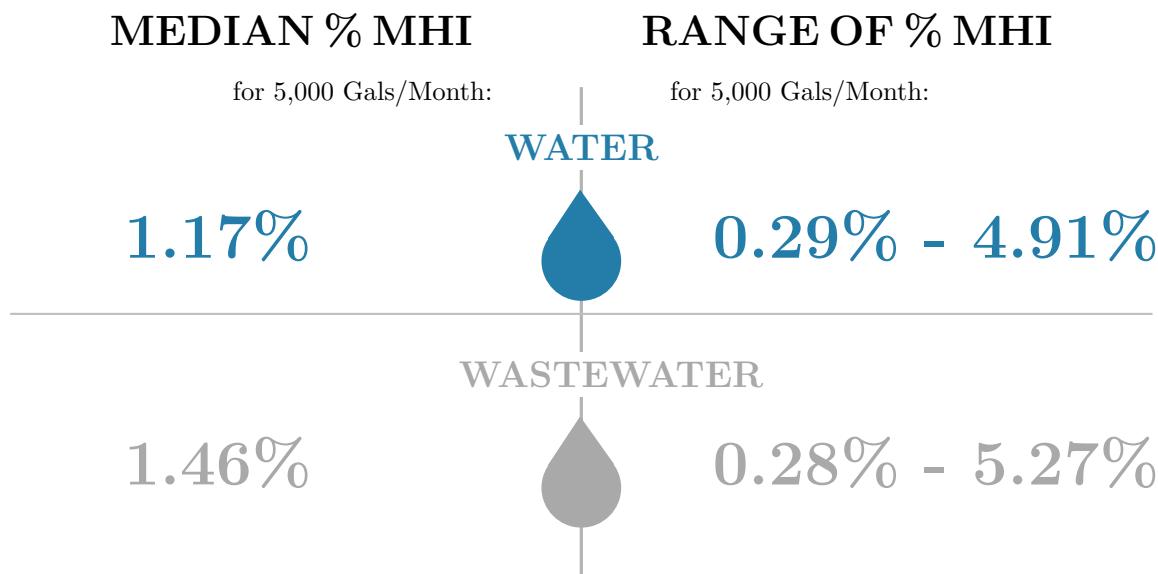
AD-

DITIONAL FINANCIAL DATA

The 2024 [Rates Dashboard](#) features more than 10 financial metrics, including **days cash on hand, quick ratio, asset depreciation, and more!**

HOW AFFORDABLE ARE RESIDENTIAL BILLS?

Assessing the affordability of rates remains a challenge because there is no one true, universal measure of affordability. The most commonly used indicator, Percent Median Household Income, or "Percent MHI," calculates how a year's worth of water and wastewater bills at certain consumption threshold compares to the MHI of the community served by the utility. MHI is provided by the most recent 5-year estimates of the US Census Bureau's American Community Survey. In the graphic below, 5,000 gallons/month is used to assess affordability.



As all communities have a range of income brackets, it is important to keep in mind that what may seem like a small percentage of the community's MHI can have a proportionally larger impact on lower-income populations. This includes households making less than or equal to the federal poverty guideline, \$26,200 in 2020 for a family of four, according to the US Department of Health and Human Services. In North Carolina, the 75th percentile water bill and wastewater bill equates to about 1.18% of income for water and 1.47% for wastewater, respectively, at the federal poverty guideline.

As all communities have a range of income brackets, it is important to keep in mind that what may seem like a small percentage of the community's MHI can have a proportionally larger impact on lower-income populations. For a more in-depth look at the affordability of water and wastewater services in a community, the EFC offers the free, interactive **Affordability Assessment Tool**, available for use on our website.

FURTHER RESOURCES

All the following free resources are available at:
efc.sog.unc.edu

2024 Water and Wastewater Rates Dashboard

Downloadable tables of rates and rate structures for residential, commercial, and irrigation customer classes for water and wastewater

Tableau software tool with standardized **rate sheets** for all utilities in the survey

Need Technical Assistance?
Fill out the form in the link below.
<https://efc.sog.unc.edu/technical-assistance/>



QUESTIONS? FEEDBACK?



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ACKNOWLEDGMENTS



The UNC Environmental Finance would like to thank the [North Carolina Department of Environmental Quality's Division of Water Infrastructure](#), the [North Carolina League of Municipalities](#), and all the water and wastewater systems that participated in this year's survey. The EFC would also like to thank the [Local Government Commission](#) for the financial data presented both on the dashboard and in this report.



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