

Water and Wastewater Rates and Rate Structures in North Carolina March 2008

This document details the results of a survey of FY 07-08 water and wastewater rates and rate structures conducted by the North Carolina League of Municipalities and the Environmental Finance Center at the UNC School of Government¹. Rates and rate structures are analyzed for local government and not-for-profit utilities throughout the State. For more information, or to download a listing of water and wastewater rate tables, use interactive Rates Dashboards designed to allow you to compare rates using multiple selection criteria, and to view rate sheets of individual utilities, please visit www.nclm.org and www.efc.unc.edu.

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Introduction

Water and wastewater rate setting is one of a local government's most important environmental and public health responsibilities. Water and wastewater rates ultimately determine how much revenue a community will have to maintain vital infrastructure. The purpose of this document is to help utilities in rate setting by providing an up-to-date, detailed survey of current statewide rate structures and trends. This report represents a collaborative effort between the [NC League of Municipalities](#) and the [Environmental Finance Center](#).

Over the course of this survey, 513 local-government owned and non-profit water and wastewater utilities were contacted by email, fax, letter or phone, and 443 utilities (86 percent) responded by sending in their rate schedules. These utilities account for 97 percent of the population served by all local-government owned and not-for-profit water and wastewater utilities in the State. Table 1 describes the utilities analyzed. Some utilities use more than one rate structure for different portions of their service areas, raising the total number of rate structures in our sample to 484. Copies of the 484 rate structures of participating utilities are available online at www.efc.unc.edu/projects/NCWaterRates.htm

Table 1: Number of Participating Utilities with Rates Data for FY 2007-08

| Institutional Arrangement | Provides Water and Wastewater | Provides Water Only | Provides Wastewater Only | Total |
|----------------------------------|-------------------------------|---------------------|--------------------------|------------|
| Municipality | 296 | 39 | 12 | 347 |
| County/District | 24 | 29 | 2 | 55 |
| Sanitary District | 4 | 4 | 3 | 11 |
| Authority | 5 | 1 | 0 | 6 |
| Metropolitan District | 0 | 0 | 2 | 2 |
| Not-For-Profit | 0 | 22 | 0 | 22 |
| Total Number of Utilities | 329 | 95 | 19 | 443 |
| Number of Rate Structures | 337 | 125 | 22 | 484 |

In addition to this report, tables of each utility's rates and key components of their rate structures are available from NCLM (www.nclm.org) and the EFC (www.efc.unc.edu). **It is important to stress that an examination of rates and rate structures only tells a part of the story.** Pressure to maintain low or relatively low rates has the potential to force utilities to run a deficit or avoid making necessary operational and capital expenditures. Ideally, rates should reflect the cost of providing service which depends on diverse factors including size of treatment facilities, customer base, age of assets, type of water supply, and quality of receiving waters. Two neighboring utilities with similar customer bases may have very different costs that justify very different rate structures and rates. **Therefore, policy decisions drawn from the comparative information in this document should also consider many other factors such as age of system, geographic location, site-specific regulatory requirements, source of water, demand, and availability of resources.** For more information, please read *How Much Does Clean Water Cost? 2006: The Story Behind the Revenue*, NCLM and EFC 2006, available at www.sogpubs.unc.edu. Free, interactive Rates Dashboards that combine utility financial, physical and customer characteristics with the capability of comparing rates among utilities that are similar in various categories are available on the web at www.efc.unc.edu/ratesdashboard.

High rates do not necessarily reflect poor or inefficient management — in fact, some utilities with low rates do not generate sufficient revenue to properly maintain their system's assets, thereby reducing short-term investments that are likely to have long-term adverse cost and service impacts. Other utilities may have low rates because they have not re-examined their rate structures in many years. Even when a utility customer base does not grow, operating costs rise every year and rates should be examined and readjusted on a yearly basis.

Overview of Rates and Rate Structures

Utilities employ a range of rate structures to determine what their customers pay. Almost all utilities use a combination of base charges and variable charges in their rate structures. There is considerable variation in how these are calculated and how they are charged for different classes of customers.

Base Charges

Base charges contribute to revenue stability because they do not vary from month to month, regardless of consumption. However, high base charges can also make it difficult for a utility to encourage conservation for the same reason. The number of rate structures with base charges and the range of the charges are shown in Figure 1. The median² base charges are presented in Table 2 by utility size. The median residential base charge applied by utilities in 2008 is \$12.00 per month for water and \$12.60 per month for wastewater. For combined utilities, the median combined water and wastewater base charge is \$24.28 per month.

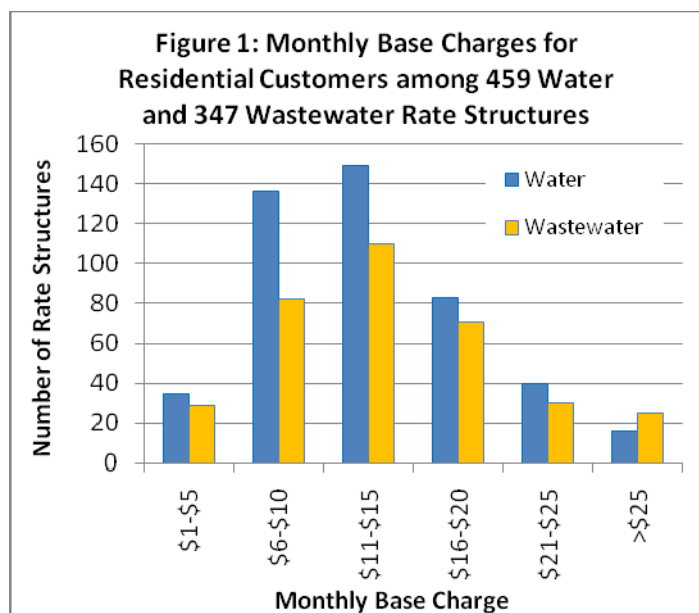


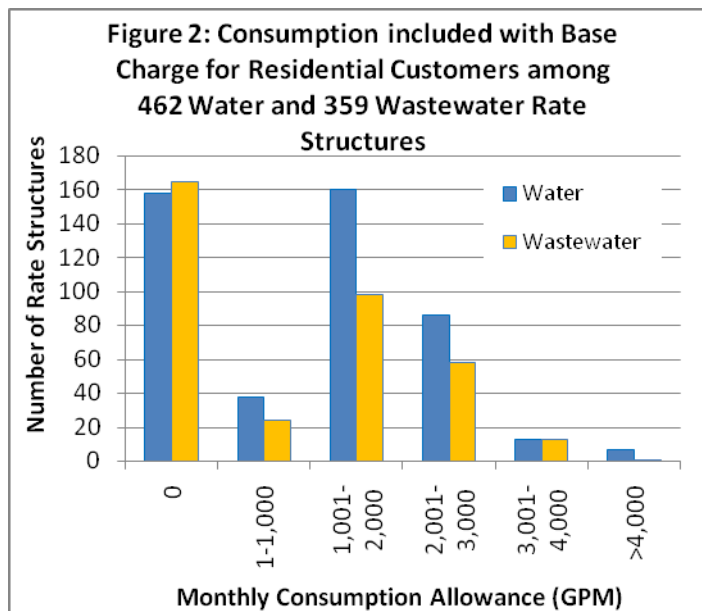
Table 2: Monthly Base Charges in Water and Wastewater Rate Structures, by Utility Size

| Size of Utility (Service Population) | Water Rate Structures | | | Wastewater Rate Structures | | |
|--------------------------------------|----------------------------|-------------------------|--------------------|----------------------------|-------------------------|--------------------|
| | Total Number of Structures | Number with Base Charge | Median Base Charge | Total Number of Structures | Number with Base Charge | Median Base Charge |
| 1 – 999 | 95 | 95 | \$13.25 | 67 | 67 | \$16.00 |
| 1,000 – 2,499 | 79 | 78 | \$12.75 | 74 | 72 | \$14.63 |
| 2,500 – 4,999 | 84 | 83 | \$12.15 | 76 | 73 | \$13.20 |
| 5,000 – 9,999 | 72 | 71 | \$13.00 | 47 | 43 | \$13.25 |
| 10,000 – 24,999 | 72 | 72 | \$11.02 | 51 | 51 | \$10.10 |
| 25,000+ | 58 | 58 | \$8.65 | 41 | 39 | \$7.80 |
| All Rate Structures | 462 | 459 | \$12.00 | 359 | 347 | \$12.60 |

While nearly every rate structure (99 percent of water and 97 percent of wastewater rate structures) has a base charge, their amounts vary by utility size. The largest utilities have smaller base charges than the smallest utilities. This may be a reflection of the fact that larger utilities have broader customer bases that provide a more stable revenue stream. Smaller utilities may, on average, have less stable customer consumption and therefore decide to shift a greater portion of their operating costs into the base charge.

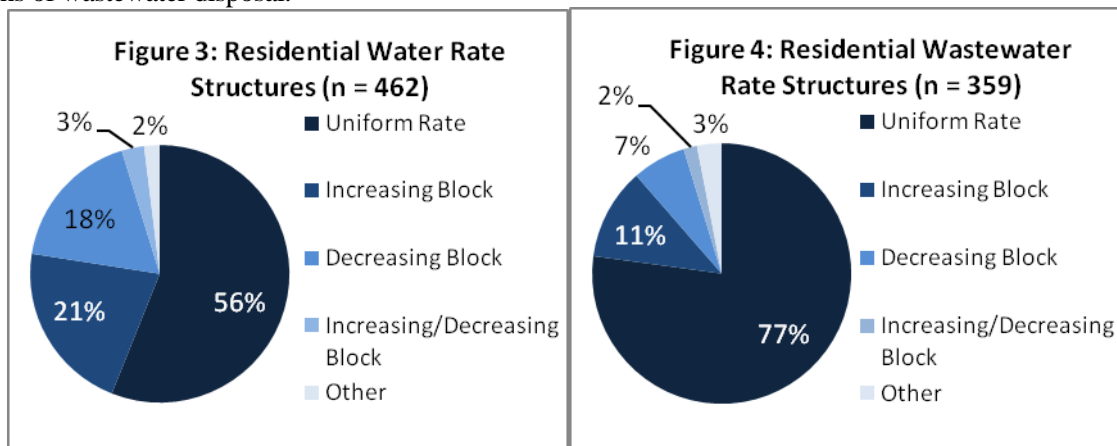
² Most of the statistics reported in this report refer to *medians*. Exactly half of the rate structures in the sample have a value that is equal to or greater than (or equal to or lower than) the median value. The median is preferred over the average because averages are influenced by exceptionally high or low values whereas medians are not.

The majority of rate structures (66 percent of water and 56 percent of wastewater rate structures) include a minimum amount of water consumption or wastewater disposal with their base charges (see Figure 2). For these utilities, the variable portion of the rate structure only takes effect when a customer uses more than the minimum included in the base charge. Thus, all customers of these utilities who consume or dispose of an amount up to the minimum allocation would receive the same bill, which is equal to the base charge. For both water and wastewater utilities, the median amount of allowance included with the base charge is 2,000 gallons per month (GPM). Only 4 percent of water and wastewater utilities include more than 3,000 GPM with the base charge.

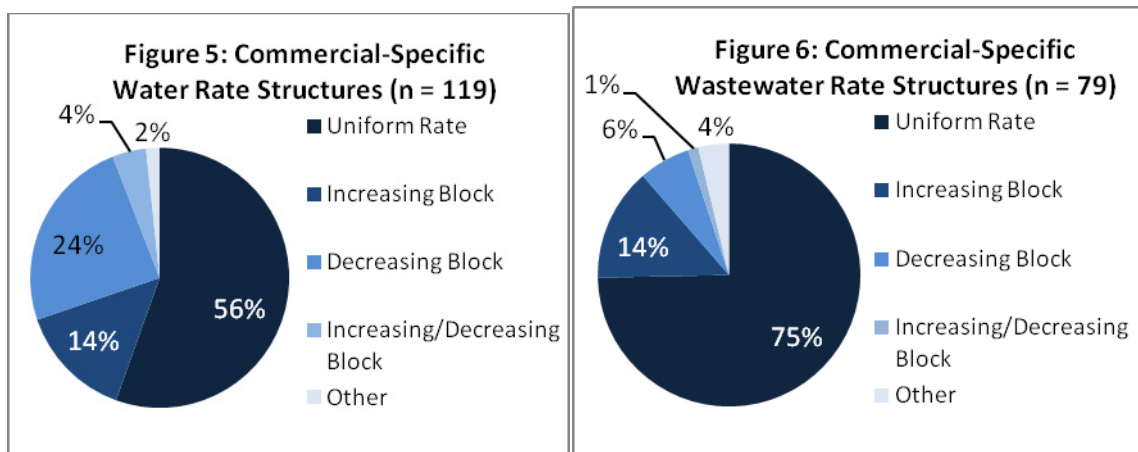


Variable Charges: Uniform, Increasing Block, Decreasing Block, and Other Rate Structures

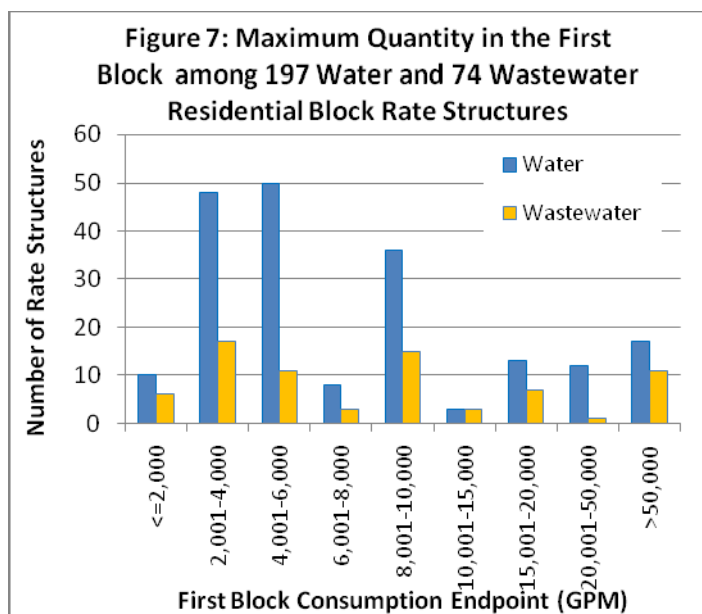
Figures 3-6 present information on water and wastewater rate structures for “inside” customers: those who live within a utility’s political jurisdiction or municipal boundaries. The three most common rate structures are uniform, increasing block, and decreasing block. In a uniform rate structure, the rate at which water/wastewater is charged does not change as the customer uses more water. In an increasing block structure, the rate increases with greater water consumption. This structure is often employed by utilities that want to encourage conservation. In a decreasing block structure, water rates decrease as consumption rises. This structure might be used to encourage economic development. Other rate structures used in North Carolina include a hybrid of increasing and decreasing blocks where rates increase or decrease for specific targeted blocks of consumption, seasonal rate structures applying different rates at different times of the year, uniform rates that are capped at a maximum billable consumption amount, tiered flat fees, and a block rate structure that charges all consumption at the rate of the last used block. Seasonal uniform rate structures support conservation, especially for those utilities that experience large seasonal consumption changes (e.g. tourist locations). Wastewater bills are almost always calculated based on the amount of metered water consumption; however, a fraction of wastewater utilities use rate structures with a cap on residential wastewater consumption. For example, if a utility caps their wastewater bill at 20,000 gallons, a customer that uses 25,000 gallons of water will only be charged for 20,000 gallons of wastewater disposal.



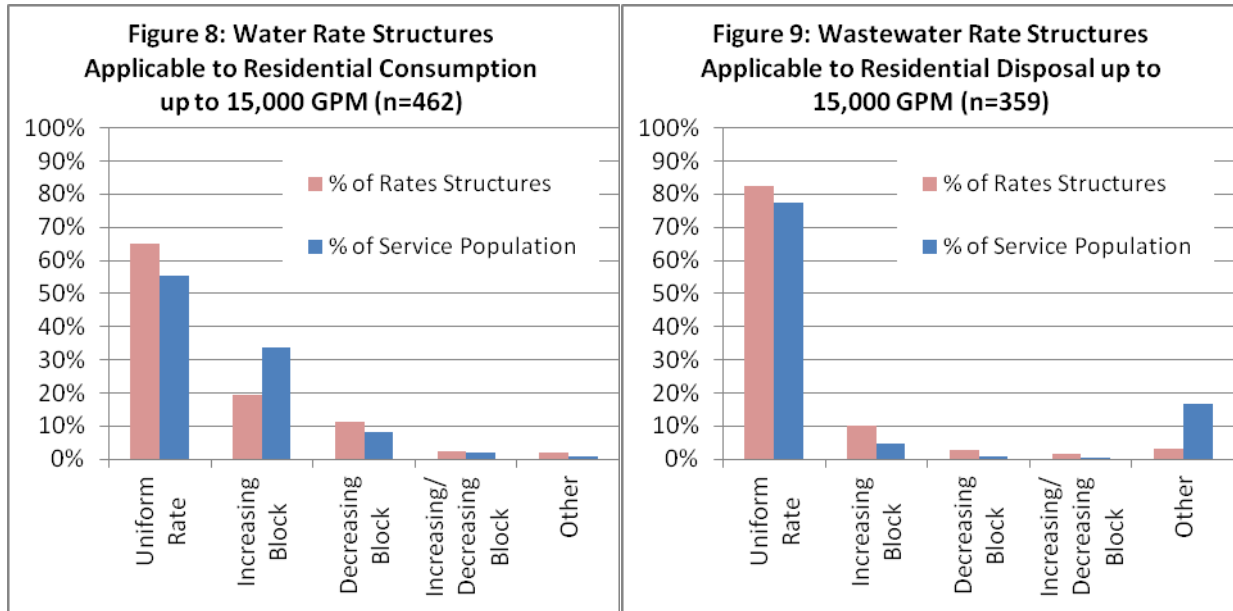
Most water and wastewater utilities use the same rate structure for residential, commercial, and industrial customers, but some have separate rate structures. In this survey, 26 percent of water utilities have a separate rate structure for their commercial customers, and a fraction of these utilities also has a separate structure that pertains to their industrial customers. On the wastewater side, 22 percent have a separate rate structure for their commercial customers. The percentages of all utilities that use each rate structure for commercial users (whether or not a separate rate structure is used) are similar to those for residential structures. The pattern is different when looking at only those utilities that use a separate commercial rate structure. Information on the rate structures that pertain only to commercial customers is presented in Figures 5 and 6.



While some utilities design separate rate structures for commercial users, other utilities use only one rate structure but design the blocks so that they inherently distinguish residential use from that of large commercial customers. A common practice is to set the first block high enough so that essentially all residential consumption is charged one rate (which is equivalent to a uniform rate for these customers) while most large commercial customers will typically exceed the first block, thus paying an increasing or decreasing block rate. Figure 7 shows how many rate structures include various amounts of consumption and disposal in the first block of their residential block rate structure. An examination of rate structures over the range of typical residential consumption reveals that many increasing and decreasing block structures are effectively uniform below 15,000 GPM (shown in Figures 8 and 9).



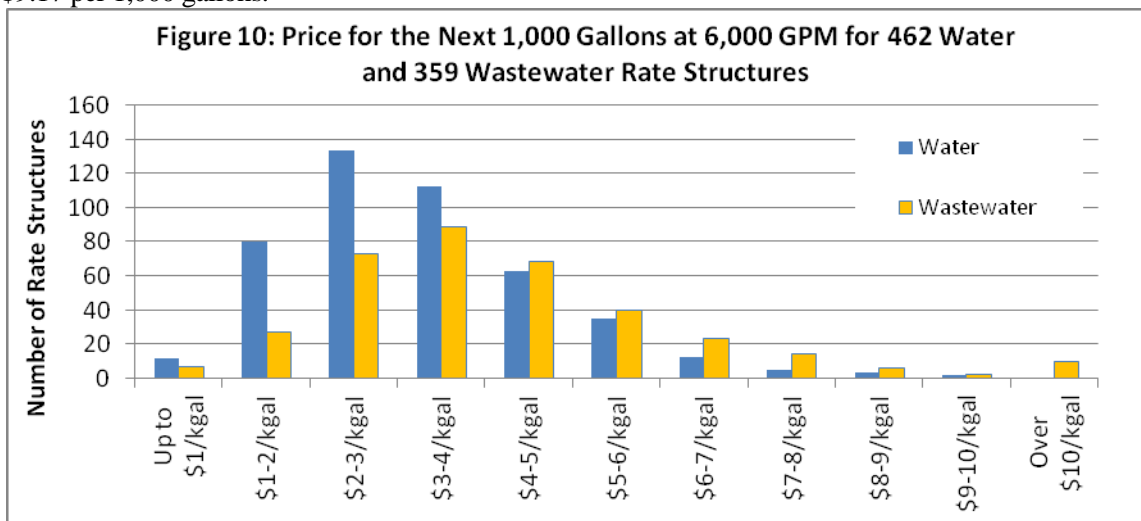
For example, whereas 18 percent of residential water rate structures are decreasing block structures (Figure 3), only 11 percent actually apply decreasing rates within the first 15,000 GPM of consumption (Figure 8) – the other 7 percent have a first block that exceeds the range of typical residential use. Figures 8 and 9 also show the percent of the population served under each rate structure applicable to consumption/disposal levels of up to 15,000 GPM. While only 19 percent of the water rate structures are increasing block structures through 15,000 GPM, 34 percent of all residential customers are served by these rate structures. Figure 9 shows that the vast majority of residential customers pay uniform rates for wastewater disposal.



Residential customers in North Carolina consume an average of 5,000 – 6,000 GPM. Among the 462 water rate structures in the sample, the median price for the next 1,000 gallons (not including base charges) at the consumption level of 6,000 GPM is \$3.10 per 1,000 gallons – 50 percent of the water rate structures have a price that is between \$2.26 and \$4.15 per 1,000 gallons. This compares to a median price of \$2.98 per 1,000 gallons for the water rate structures studied in the 2007 survey.

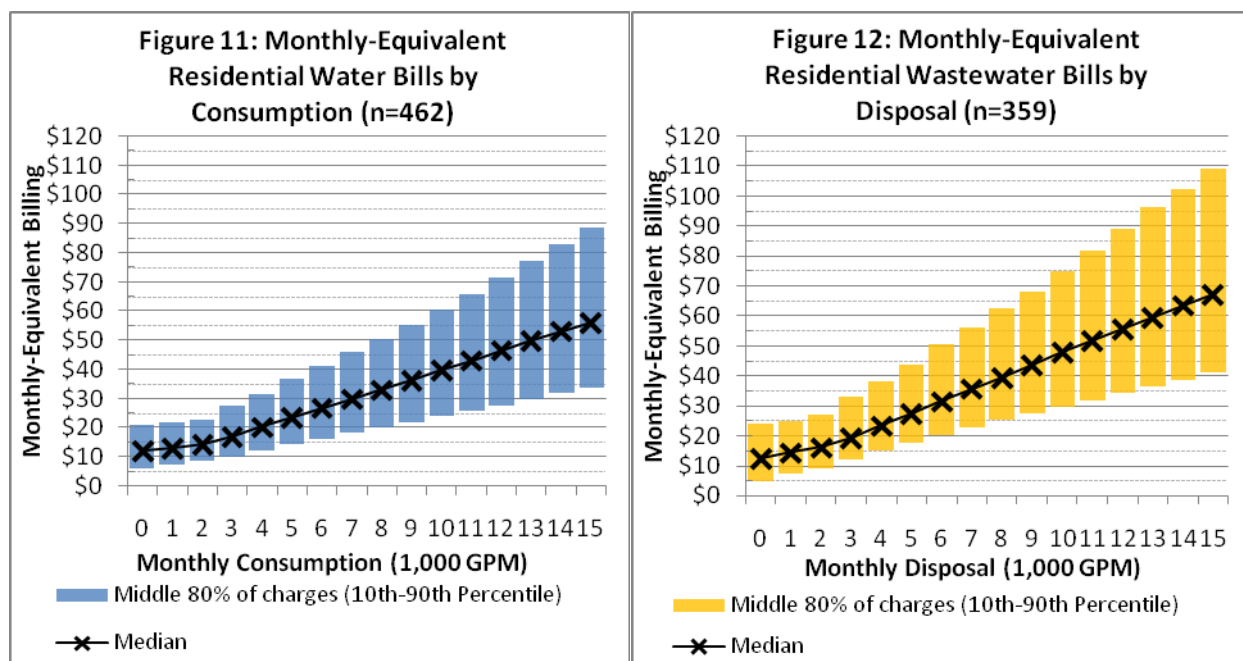
The price for wastewater is slightly higher. Among the 359 wastewater rate structures in the sample, the median wastewater price for the next 1,000 gallons at 6,000 GPM is \$3.96 per 1,000 gallons – 50 percent of the wastewater rate structures have a price that is between \$2.86 and \$5.20 per 1,000 gallons. This compares to a median price of \$3.58 per 1,000 gallons for the wastewater rate structures studied in the 2007 survey. The range of water and wastewater prices for the next 1,000 gallons at the 6,000 GPM consumption level is shown on Figure 10.

Among the 337 combined water and wastewater rate structures, the median combined price for the next 1,000 gallons is \$7.00 per 1,000 gallons – 50 percent of the combined rate structures have a price that is between \$5.12 and \$9.17 per 1,000 gallons.



What Utilities Charge their Customers

Residential Water and Wastewater Bills



Figures 11 and 12 show the median amount utilities bill their residential water and wastewater customers, respectively, for a range of consumption/disposal amounts on a monthly basis³. These calculations include base charges and consumption allowances. The colored bars highlight what the middle 80 percent of utilities charge (between the 10th and 90th percentile) across the consumption spectrum. Utilities that charge below or above the colored bars are charging less than or more than 90 percent of all other utilities in the sample, respectively.

The median monthly amount charged for zero gallons of water is \$12.00, \$23.43 for 5,000 gallons, \$26.75 for 6,000 gallons, and \$39.60 for 10,000 gallons. As a point of comparison, a gallon of potable water at a major grocery retailer is approximately \$1.00 while the median bill for 6,000 gallons is approximately \$0.004 per gallon, which is 224 times cheaper.

Wastewater bills are generally higher than water bills. The median monthly wastewater bill for customers disposing zero gallons of water is \$12.36, \$27.34 for 5,000 gallons, \$31.50 for 6,000 gallons, and \$48.00 for 10,000 gallons.

The range of combined water and wastewater bills for various levels of consumption is shown on Figure 13. The median monthly combined bill for zero gallons is \$24.00, \$50.00 for 5,000 gallons, \$57.11 for 6,000 gallons and \$85.08 for 10,000 gallons.

³ For utilities that bill on a non-monthly basis (bi-monthly or quarterly), charges have been calculated and presented on a monthly basis to allow for accurate comparison.

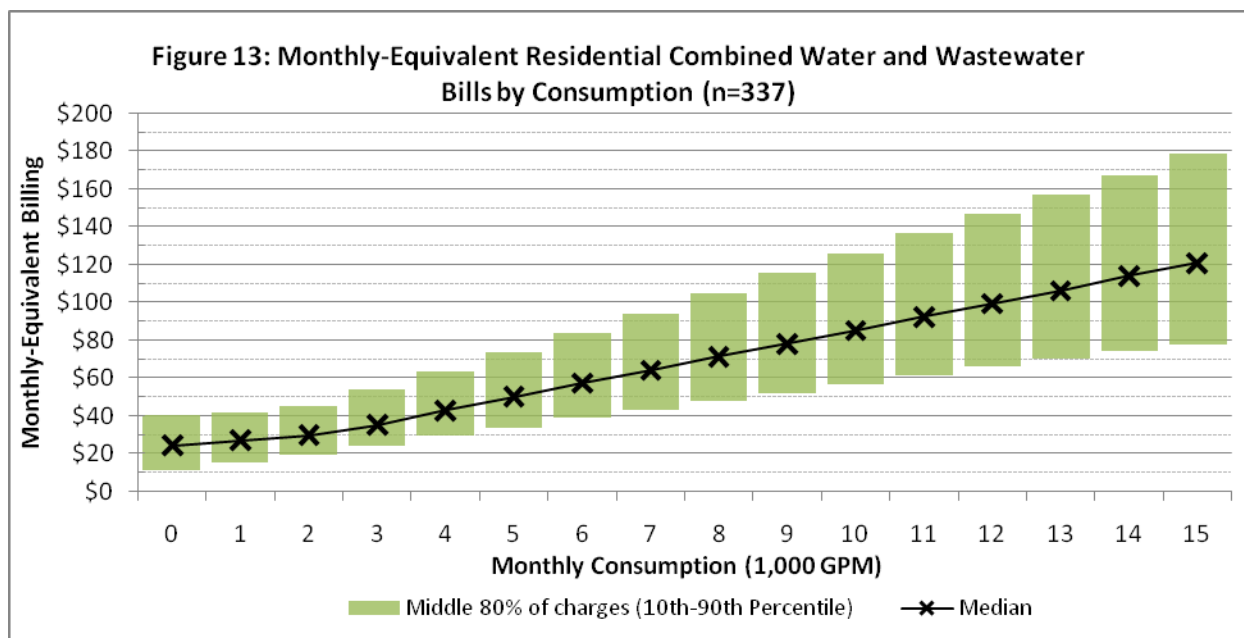


Table 3 shows that the median water bills among the largest utilities are smaller than those of smaller utilities. This trend is not evident for wastewater bills. Table 4 shows that municipal utilities generally have lower water and wastewater bills than other service providers, possibly because the population density is highest for municipal utilities, which translates into lower per customer costs (and therefore bills) for distribution and collection. Conversely, county utilities, which are typically more spread out, have the highest water bills.

Table 3: Median Water and Wastewater Monthly Bills at 6,000 GPM, by Utility Size

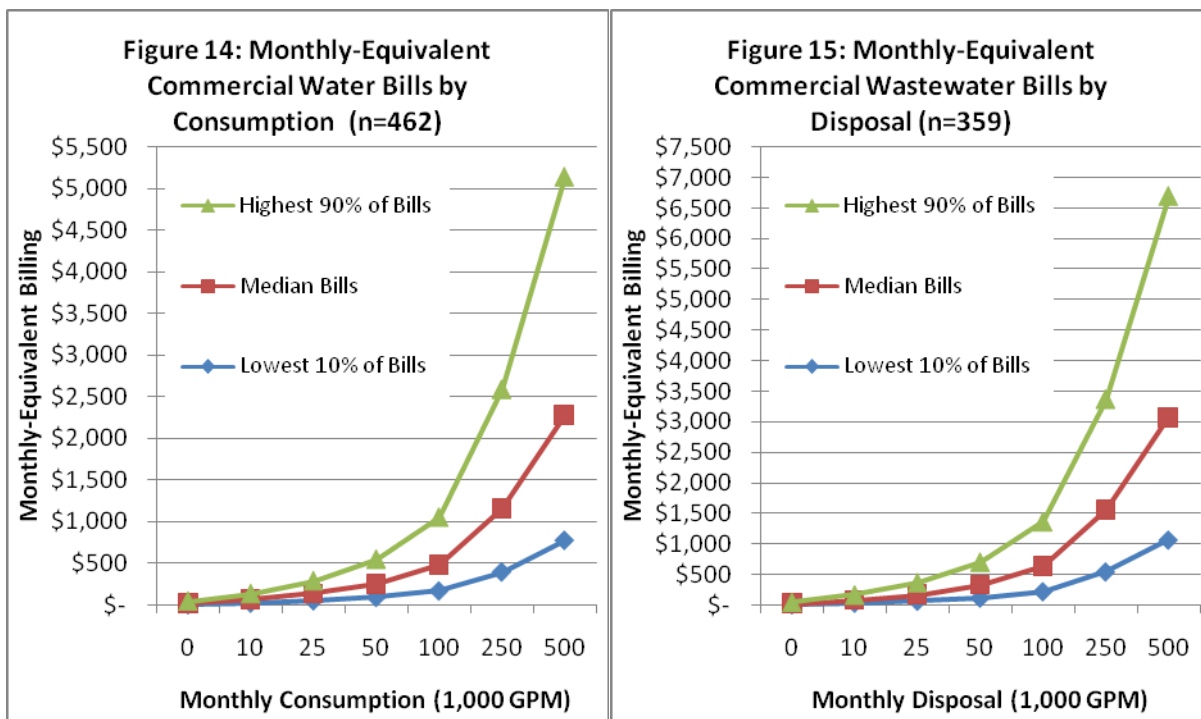
| Size of Utility (Service Population) | Water Rate Structures | | Wastewater Rate Structures | |
|--------------------------------------|----------------------------|----------------------------------|----------------------------|----------------------------------|
| | Total Number of Structures | Median Monthly Bill at 6,000 GPM | Total Number of Structures | Median Monthly Bill at 6,000 GPM |
| 1 – 999 | 95 | \$25.84 | 67 | \$32.10 |
| 1,000 – 2,499 | 79 | \$27.00 | 74 | \$29.50 |
| 2,500 – 4,999 | 84 | \$26.30 | 76 | \$33.63 |
| 5,000 – 9,999 | 72 | \$26.83 | 47 | \$30.53 |
| 10,000 – 24,999 | 72 | \$26.93 | 51 | \$29.74 |
| 25,000+ | 58 | \$25.21 | 41 | \$31.18 |
| All Rate Structures | 462 | \$26.75 | 359 | \$31.50 |

Table 4: Median Water and Wastewater Monthly Bills at 6,000 GPM, by Utility Type

| Utility Type | Water Rate Structures | | Wastewater Rate Structures | |
|---------------------------------|----------------------------|----------------------------------|----------------------------|----------------------------------|
| | Total Number of Structures | Median Monthly Bill at 6,000 GPM | Total Number of Structures | Median Monthly Bill at 6,000 GPM |
| Municipality | 338 | \$24.50 | 310 | \$30.34 |
| County/District | 80 | \$35.49 | 32 | \$36.26 |
| Sanitary District | 13 | \$30.45 | 7 | \$43.25 |
| Authority/Metropolitan District | 9 | \$26.98 | 10 | \$37.35 |
| Not-for-Profit | 22 | \$31.00 | 0 | -- |
| All Rate Structures | 462 | \$26.75 | 359 | \$31.50 |

Commercial Water and Wastewater Bills

Figures 14 and 15 show the median monthly water and wastewater bills, respectively, for commercial customers at different levels of consumption and disposal⁴. The middle 80 percent of charges are also indicated. The median monthly bill for commercial customers consuming zero gallons (on a 3/4" meter⁵) is \$12.78 for water and \$13.22 for wastewater. The median monthly bill for 50,000 GPM is \$165.00 for water and \$213.00 for wastewater. The median bill for those consuming 500,000 GPM (on a 1 1/2" or 2" meter) is \$1,515.00 for water and \$2,010.33 for wastewater. The variation in commercial bills across rate structures increases significantly as the consumption/disposal amount increases.



⁴ The residential rate structure is used to calculate the billings for commercial customers except for the utilities that specify different rates and rate structures for commercial or non-residential customers.

⁵ Some utilities use different base charges for different meter sizes for customers. Bills for consumption or disposal of up to 100,000 GPM was computed assuming a 5/8" or 3/4" meter size, 250,000 GPM assuming a 1" meter size, and 500,000 GPM assuming a 1 1/2" or 2" meter size. When applicable, the "next largest" meter size is used in calculating the bills when a utility does not utilize a specific meter size.

What Utilities Charge by River Basin

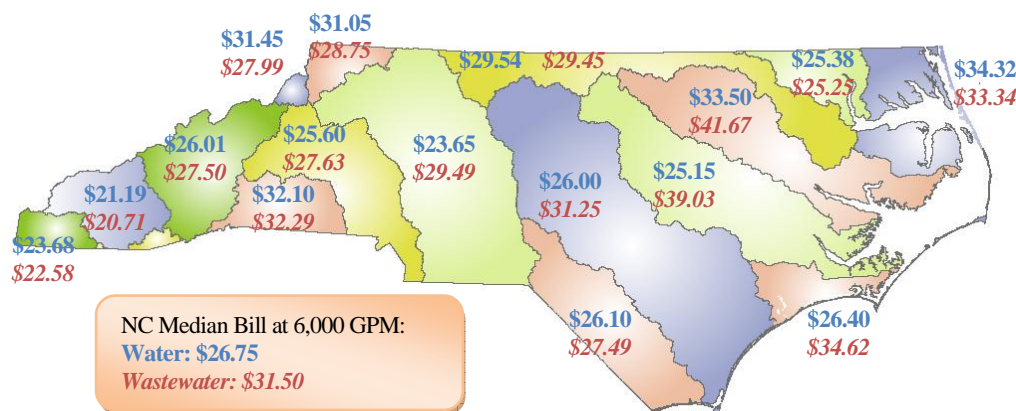
It is important to consider the operating environment when comparing rates among utilities. Source water quality and quantity can have a significant impact on the cost to produce water. Likewise, receiving water quality can have a major impact on the cost of wastewater treatment. In an attempt to consider these impacts, median water and wastewater bills for 6,000 GPM were calculated for each of North Carolina’s 17 major river basins; they are displayed in Table 5 and Figure 16.

The highest median water charges in river basins with a sample of more than 10 rate structures can be found in the Pasquotank River Basin. The lowest median water charges, by contrast, are found in the Yadkin-PeeDee River Basin. The highest median wastewater charges can be found in the Tar-Pamlico and the Neuse River Basins, both of which are under stringent discharge regulations. The lowest median wastewater charges can be found in the Lumber River Basin.

Table 5: Median Water and Wastewater Monthly Bills at 6,000 GPM, by River Basin

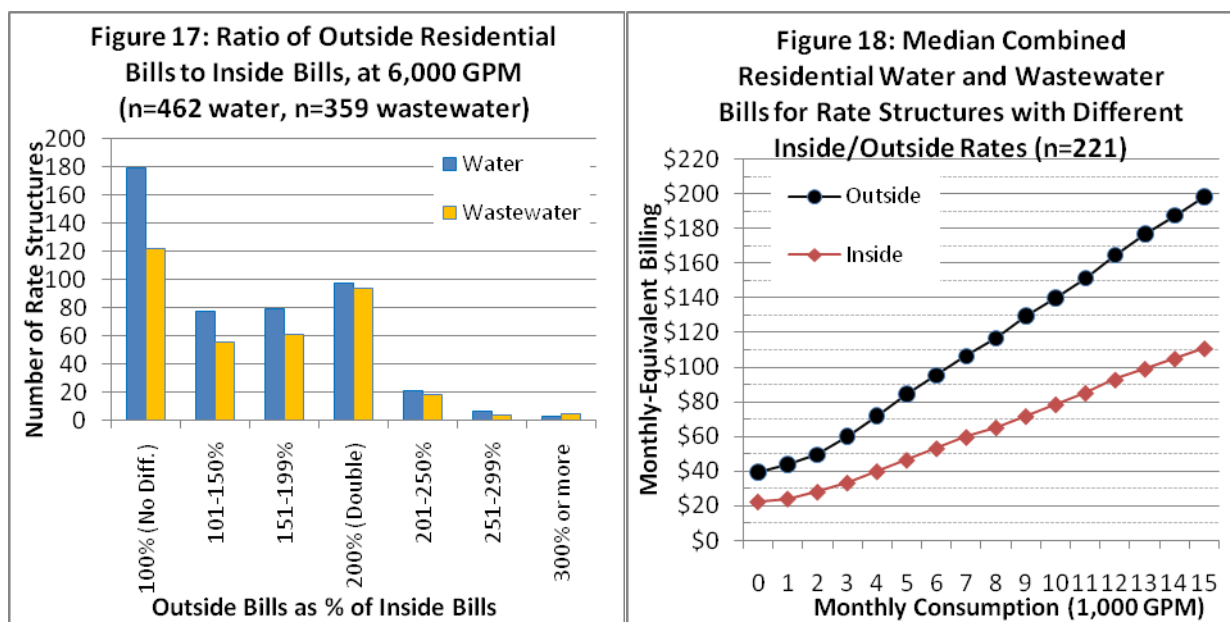
| River Basin | Water Rate Structures | | Wastewater Rate Structures | |
|------------------|----------------------------|----------------------------------|----------------------------|----------------------------------|
| | Total Number of Structures | Median Monthly Bill at 6,000 GPM | Total Number of Structures | Median Monthly Bill at 6,000 GPM |
| Broad | 16 | \$32.10 | 12 | \$32.29 |
| Cape Fear | 98 | \$26.00 | 76 | \$31.25 |
| Catawba | 39 | \$25.60 | 35 | \$27.63 |
| Chowan | 12 | \$25.38 | 8 | \$25.25 |
| French Broad | 24 | \$26.01 | 17 | \$27.50 |
| Hiwassee | 3 | \$23.68 | 3 | \$22.58 |
| Little Tennessee | 4 | \$21.19 | 4 | \$20.71 |
| Lumber | 32 | \$26.10 | 22 | \$27.49 |
| Neuse | 61 | \$25.15 | 46 | \$39.03 |
| New | 6 | \$31.05 | 6 | \$28.75 |
| Pasquotank | 18 | \$34.32 | 11 | \$33.34 |
| Roanoke | 30 | \$29.54 | 22 | \$29.45 |
| Savannah | 0 | -- | 0 | -- |
| Tar-Pamlico | 41 | \$33.50 | 28 | \$41.67 |
| Watauga | 4 | \$31.45 | 3 | \$27.99 |
| White Oak | 8 | \$26.40 | 4 | \$34.62 |
| Yadkin-PeeDee | 57 | \$23.65 | 49 | \$29.49 |

Figure 16: Median Water and Wastewater Monthly Bills at 6,000 GPM, by River Basin



What Utilities Charge Customers Located Outside their Political Boundaries (Inside vs. Outside)

All of the charges presented above refer to what utilities charge customers that 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 areas and identify their customers as those residing “inside” and “outside” those boundaries. In many cases, utilities charge different rates for customers living inside or outside the boundary. Overall, 61 percent of water rate structures and 66 percent of wastewater rate structures specified different rates for customers living outside, and the vast majority were for municipal utilities. In fact, 83 percent of the rate structures from municipal utilities in the sample charged more for outside customers than for inside customers. At 6,000 GPM, outside customers who are charged a different rate than inside customers pay, on the median, a water bill that is 1.93 times more than inside customers. For wastewater, the median ratio is 2.00. The majority of utilities with different outside rates simply double the inside charges, as shown in Figure 17. Figure 18 shows median charges for combined residential water and wastewater service for all utilities that have a separate rate schedule for outside customers for both water and wastewater service. The median bill charged to inside customers for 6,000 GPM of water and wastewater combined is \$53.10 compared to \$95.20 for outside customers.

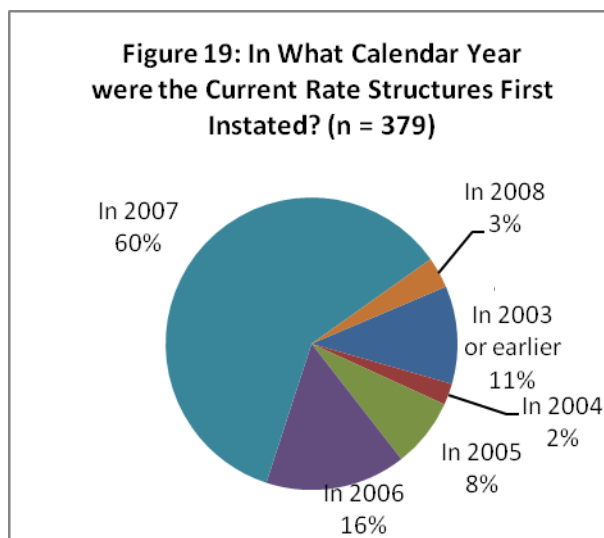


There are at least three reasons why utilities might charge more for outside customers. First: in the case of municipalities, higher outside charges might be part of managing growth and annexation. Second: for all utilities, outside customers are often inherently more expensive to serve because of lower densities and the fact they reside farther, on average, from the water or wastewater treatment plant than inside customers. Extra costs for distribution and collection systems justify higher rates for outside customers. Third: inside customers, as citizens of the unit of local government that provides the utility service, bear more of the investment risks of owning and operating a utility. They also bear more of the burden of financing and facilitating its operations through their local government unit⁶.

⁶ AWWA. *Principles of Water Rates, Fees, and Charges*. Manual of Water Supply Practices: M1. 5th Ed. 2000.

Annual Rate and Rate Structure Adjustments

Most North Carolina utilities actively evaluate and modify their rate structures every one to two years. The calendar year in which each of 379 of the rate structures active presently (in March 2008) were first put into effect is shown in Figure 19. The figure shows that 63 percent of the current rate structures were made effective since January 2007, and 79 percent have changed their rates in the last two years. Only 11 percent of the rate structures were instated prior to 2004.



Changes in Rate Structures in the Last Year

The trend among North Carolina utilities for many years has been to move away from decreasing block rate structures to either uniform or increasing block structures. This trend is largely driven by an interest in preserving water supplies by promoting water conservation and discouraging excessive or wasteful consumption.

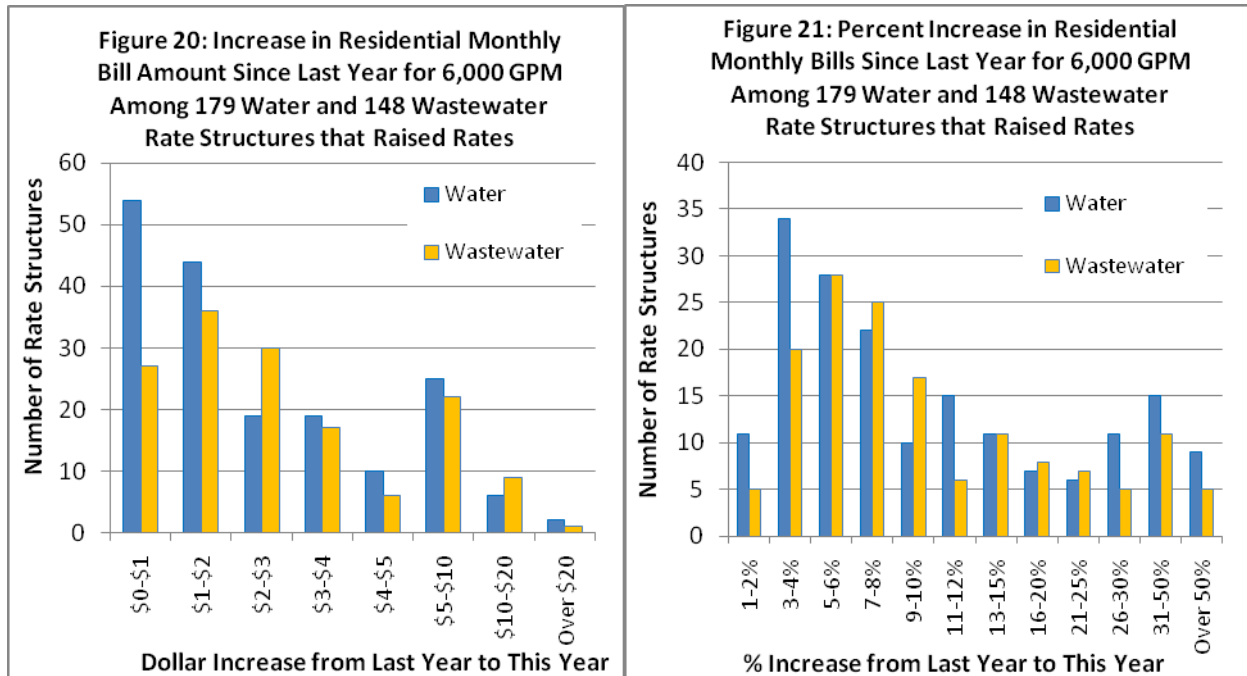
This year’s survey included 358 water rate structures and 295 wastewater rate structures that were also included in the 2007 survey. Out of the 358 water rate structures included in last year’s rates survey, 24 changed in the last year, shown in Table 6. Almost all of the changes were from decreasing blocks changing to uniform rates, and uniform rates changing to increasing block rate structures. Overall, 12 decreasing block rate structures were ultimately changed in the last year, and 9 increasing block structures were gained. Only 4 wastewater rate structures were changed between 2007 and 2008, out of the 295 surveyed in both years.

Table 6: Changes to Water Rate Structures from March 2007 to March 2008

| | | TOTAL | Changed To | | | |
|--------------|------------------|-----------|------------------|---------------|------------------|-------|
| | | | Increasing Block | Uniform Rates | Decreasing Block | Other |
| | | 9 | 12 | 0 | 3 | |
| Changed From | Increasing Block | 4 | | 3 | 0 | 1 |
| | Uniform Rate | 6 | 6 | | 0 | 0 |
| | Decreasing Block | 12 | 1 | 9 | | 2 |
| | Other | 2 | 2 | 0 | 0 | |

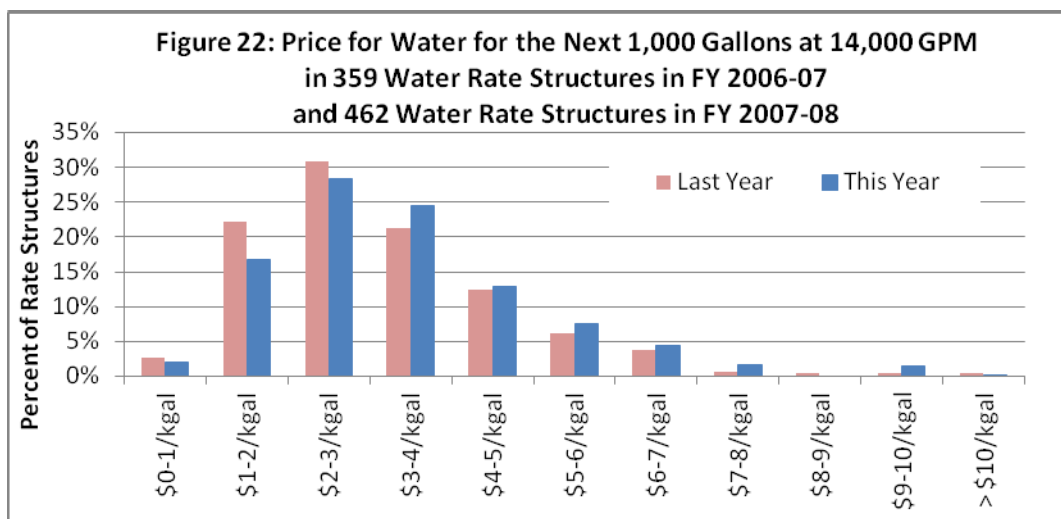
Changes in Residential Rates in the Last Year

Out of the 358 water and 295 wastewater rate structures included in last year’s rates survey, rates were increased from last year for 50 percent of the water rate structures and 50 percent of wastewater rate structures. Figures 20 and 21 show the residential monthly bill increase for customers that use 6,000 GPM among the 179 water and 148 wastewater rate structures that have raised rates in the last year. The median increase was \$1.54/month for water (a 6.8 percent increase) and \$2.05/month for wastewater (a 7.0 percent increase). This compares to a median increase of 7.7 percent and 9.0 percent between the 150 water and 137 wastewater rate structures, respectively, that were surveyed and had raised rates between 2006 and 2007. Similar to this past year, 50 percent of water and 55 percent of wastewater rate structures had raised rates between 2006 and 2007.



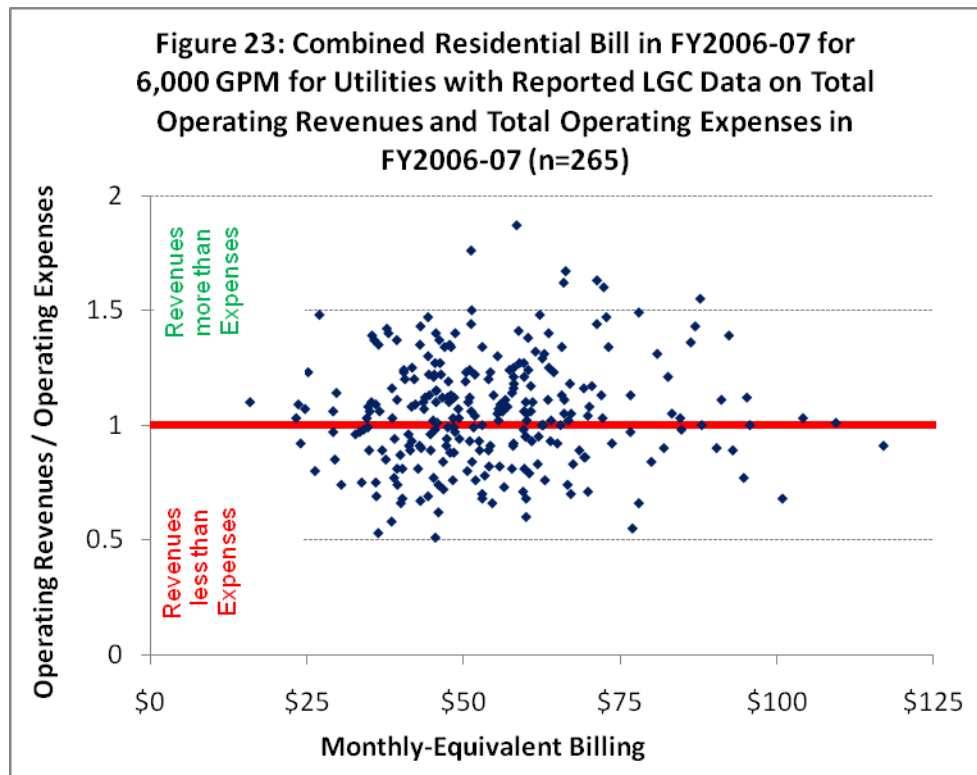
Changes in Conservation Price Signals in the Last Year

One of the water rate structure components utilities can manipulate to send a strong pricing signal to encourage water conservation is the rate that customers pay at higher levels of consumption. Average residential consumption is between 5,000 and 6,000 GPM. Seasonal use of water can raise consumption levels for some customers to two or three times this amount, or more, and utilities can discourage excessive use by setting high prices for the next 1,000 gallons of water at that level of consumption. Nearly half of North Carolina’s utilities raised the residential water rate at high levels of consumption in the past year. Out of the 358 water rate structures included in last year’s survey, the price for the next 1,000 gallons at 14,000 GPM was raised for 173 rate structures (48%). The distribution of the prices for water for the next 1,000 gallons at that consumption is shown in Figure 22. As shown in the figure, utilities have generally shifted their high use water rates upwards. In particular, a smaller proportion of utilities charge less than \$2/1,000 gallons than last year, and almost 5 percent of utilities charge over \$7/1,000 gallons, whereas almost none of the utilities charged that much last year.



The Status of Full Cost Pricing in North Carolina

Comparing rates across the State or among specific utilities is further complicated by the variation in the extent to which utilities charge the full cost of providing service. Rates that provide enough revenue to balance an annual budget do not necessarily provide enough revenue to cover long term capital and maintenance needs and many utilities charge much less than the full cost of service provision. Figure 23 shows rates from FY 2006-07 in terms of combined water and wastewater charges for customers using 6,000 GPM plotted against the ratio of operating revenue over operating expenses (including depreciation) from the same fiscal year. This measure, often referred to as an operating ratio, helps identify if an entity is operating at a financial loss, financial gain, or is breaking even. Financial data were provided by the Local Government Commission in the Department of the State Treasurer. The figure shows that many utilities are not covering their operating expenses, making it difficult or impossible to rehabilitate aging infrastructure, save for operating emergencies, finance system improvements and expansion, and engage in proactive asset management. It is interesting to note that the utilities that did not recover their operating expenses (operating at a financial loss) are not always charging low rates – even some utilities with high rates can be operating at a financial loss. Nevertheless, there are several utilities that charged low rates in FY 2006-07 (to the left of the graph), which resulted in operating under a financial loss (below the horizontal line on the graph) in that fiscal year.



How Utilities Can Respond to the Current Drought Conditions by Changing Rates, Rate Structures or Billing Periods

Due to the current drought conditions, utilities under severe supply constraints are considering different options to managing demand as part of their water drought plans. Some options include changing the billing periods, raising the rates through the use of drought surcharges, or changing the rate structure.

Few utilities with bi-monthly or quarterly billing are considering switching to monthly billing cycles. Although this switch increases meter reading, billing and accounting costs, customers who receive bills monthly receive quicker (and more frequent) feedback on their usage and conservation efforts. Additionally, utilities that include news and statements as inserts with the water/wastewater bills would be able to communicate with their customers more frequently under a monthly billing cycle.

Some utilities have considered switching their rate structures to ones that provide stronger price signals at higher ends of consumption. Increasing block structures are typically assumed to provide a stronger conservation incentive than uniform rates or decreasing block structures – however, the Environmental Finance Center has shown that many utilities with uniform rates provide an equally strong price signal as other utilities with increasing block rate structures. This is a result of the how the rate structure is designed. A uniform rate structure could provide a stronger price signal to residential customers if the uniform rate is high, compared to an increasing block rate structure that has low rates in the first few blocks that covers residential consumption (a common practice among some increasing block rate structures). Careful selection of the base charge, consumption allowance with the base, the block endpoints, the rates and the difference in the rates between blocks are essential to designing a conservation-oriented rate structure.

For advice on rate setting or more information on making appropriate rate comparisons, please contact Jeff Hughes (jhughes@sog.unc.edu) or Andrew Westbrook (westbrok@sog.unc.edu) at the Environmental Finance Center.

About this Report

This report is one of an annual series of reports on water and wastewater rates and rate structures in North Carolina, compiled by the North Carolina League of Municipalities (NCLM) and the Environmental Finance Center at UNC's School of Government (EFC). For reports from previous years, including more in-depth analysis on the relationships between rates, rate structures, system characteristics and policies including cost-recovery, conservation, affordability, regionalization, economic development and growth management, please visit our websites at www.nclm.org and www.efc.unc.edu. Each year in December, we request that local government and not-for-profit utilities submit a copy of their water and wastewater rate schedules. Information on how to participate in next year's survey is provided on the EFC website, along with interactive Rates Dashboards and other information related to this report.