Rate Setting Design & Pricing

Shadi Eskaf

Environmental Finance Center at the University of North Carolina, Chapel Hill (School of Government) Environmental Finance Center Network 919.962.2785

eskaf@sog.unc.edu







"This part of the plan will be funded with all the unused money we must have laying around someplace."







Session Objectives

- Learn about different rate structures and approaches
- Understand how to set rates to meet your revenue needs
- Introduce tools and resources to help you with rate setting







Everyone in this room charges "rates" of some sort. Where do you get your revenue?







What Goes Into Reviewing Rates for the Next Year?



Resource

Free guide written for utility managers in June 2009

http://www.efc.unc.edu/public ations/2009/GuidelinesDesigni ngRateStructures.pdf Designing Rate Structures that Support Your Objectives: Guidelines for NC Water Systems

June 2009





Funding support for these guidelines provided by the Public Water Supply Section of the North Carolina Department of Environment and Natural Resources, and the United States Environmental Protection Agency





Before You Begin: Rank Your Utility's Rate Setting Objectives



What is your rate structure?







Elements of Rate Structure Designs

- 1. Customer classes/distinction
- 2. Billing period
- 3. Base charge
- 4. Consumption allowance included with base charge
- 5. Volumetric rate structure
- 6. (If applicable) Number of blocks, block sizes and rate differentials
- 7. (Optional) Temporal adjustments

8. Frequency of rate changes







Elements of Rate Structure Designs: 1. Customer Classes/Distinction

Alternative	Targets
One rate structure for all	All are equal
Separate rate structure for residential, irrigation, commercial, industrial, governmental, or wholesale customers	Specific type of customer
One rate structure, but with different base charges based on meter size	Non-residential or multi-family housing
One rate structure for all, but with blocks that implicitly only target non-residential use	Non-residential
Negotiated rate structure with individual high-use customers (typically an industrial customer)	Only one customer
Different rates for customers outside municipal limits/service area boundaries	"Outside" customers





Elements of Rate Structure Designs: 2. Billing Period

Suggestion: Use a monthly billing period if you can afford it

More Frequently (e.g.: Monthly)

Steady monthly revenue stream; Rate changes effected quicker; Lost revenues from unpaid bills smaller; Communicate with customer more frequently

Smaller, more regular bills (easier to pay); Higher and faster sensitivity to usage and rate changes (leaks, conservation); More sensitive to rate structure design and less confusion Less Frequently (e.g.: Quarterly)

Less staff and lower billing costs; Possibly fewer late payments and cutoffs to deal with

None beyond sending fewer checks in the mail

CUSTOMER

UTILITY





Elements of Rate Structure Designs: 3. Base Charges

PROS

Higher "guaranteed" revenue to pay off the fixed costs; Higher month-to-month revenue stability

Provides strong incentive to keep usage low:

Customers more likely to notice month-to-month change in bill due to change in usage

www.efcnetwork.org



CONS

Customers with very low usage are paying a high unit price; Customers do not witness a significant change in bill if conserve water

Revenues less stable for utility; Revenues are highly seasonal



Suggestion: Smaller utilities should lean towards higher base charges



Elements of Rate Structure Designs: 4. Consumption Allowance with Base Charge





Suggestion: Pick the volumetric rate structure that fits your stated primary objectives best. Do not use decreasing blocks for residential consumption.







Suggestion: Pick the volumetric rate structure that fits your stated primary objectives best. Do not use decreasing blocks for residential consumption.







3 4

Consumption (GPM)

Targeted Block Rates Increase and decrease based on desired targets: increasing for residential, decreasing for commercial





Complex, but greater price incentives over traditional block rate structures



Suggestion: Pick the volumetric rate structure that fits your stated primary objectives best. Do not use decreasing blocks for residential consumption.







Suggestion: Pick the volumetric rate structure that fits your stated primary objectives best. Do not use decreasing blocks for residential consumption.





For block rate structures to be effective:

Decide on the correct number of blocks

How many targets should you set on residential usage? Do you want all non-residential use to be charged at a uniform rate, or provide blocks for non-residential use as well?

Decide on where the blocks should end/start

Start the second block only where summertime residential use ends and non-residential use continues (i.e.: charge residential use at uniform rates)? Set increasing block rates for residential customers where the blocks end at average use (e.g.: 5,000 GPM), then double it (e.g.: 10,000 GPM), and then over that (to target irrigation use more

ecifically)?







For block rate structures to be effective:

 Set significant rate differentials between blocks

Charging only 50 cents/1,000 gallons more in one block than in the preceding block defeats the purpose of using an increasing block rate structure. If you select a block rate structure, select significant rate differentials to see any added value of your rate structure.

 Keep in mind your base charge and consumption allowance

High base charges and consumption allowances may be significant portions of the total bill, greatly diluting the effect of an increasing block rate structure on providing incentives to conserve. Offset high base charges by reducing the consumption allowance, or setting high block rates.







For block rate structures to be effective:

- Meter reading must be punctual
 If the meter is read a few days too late, it may
 unjustly place the last few days' of a customer's use
 in a higher block.
- Replace meters frequently and repair lines quickly

Faulty meters or leaking pipes will cause the customer to be billed at the wrong block levels, costing either the utility lost revenue or the customer







For block rate structures to be effective:

Consider the adverse effect on large families Large families consistently use high amounts of water throughout the year and may not have capacity to conserve. An increasing block rate structure therefore negatively affects the customer, without achieving any conservation objectives. Investigate your billing records to estimate the number of residential accounts that consistently use high amounts of water and use this knowledge to select the appropriate block sizes to mitigate this effect. Consider using uniform rates or budget-based rate structures if the community has many families.







Elements of Rate Structure Designs: 7. (Optional) Temporal Adjustments

- Prepare for drought in advance: create an ordinance *in advance* to give the utility the ability to raise rates temporarily during a water shortage scenario (sometimes called "drought surcharges").
- Specify the potential rate increases precisely.
- Rate increases should be substantial to encourage conservation.
- Explicitly state the conditions that would trigger the temporary rate changes on and off. Tie the triggers to your water shortage response plans and water reservoir/well levels.

Note: Temporary rate increases that are significant in magnitude have been shown to be effective methods of encouraging conservation while recovering lost revenue.

EFĈN



Elements of Rate Structure Designs: 8. Frequency of Rate Changes

- Decide when and how often you will review your rates. Some alternatives:
- Always review your rates annually (recommended)
- Review your financial health indicators annually, and then review your rates if any of the indicators reflect poor financing
- Pass an ordinance or internal policy to raise rates each year automatically based on inflation







Elements of Rate Structure Designs: 8. Frequency of Rate Changes

 Important: Avoid maintaining low rates at the expense of your utility's financial health. It will either lead to a sudden, massive rate increase in the future or to failing systems and endangering public health.





Scenario: Rural Water Utility With Naturally High Costs and Excess Capacity, Wants to Maintain Affordability

- 1. Customer class: possible create separate residential class.
- 2. Billing period: use monthly.
- 3. Base charge: if majority of customers use little water, charge fair base charge and include allowance. Otherwise, low base charge, and shift high rates to high volume users.
- Consumption allowance: if including, set at a lifeline amount (~2,000 gallons/month).
- 5. Volumetric rate structure: probably use uniform
- 6. (If applicable) Block design: if using, first block at least 4,000 gallons/month, depending on your customers' consumption.
- 7. (Optional) Temporal adjustments: none.
- 8. Frequency of rate changes: annual.





How much money do you need?









Not This

Government / City Services | About Us | Live & Work | E-Services

CityofCartersville.org

Home | News | Calendar | Contact Us

Job Openings

Citizen Survey Results

Council Agenda

Comprehensive Planning Information

Community Assessment

E-News Signup



News Flash - All

News Flash - Home

You are here: Home > News Flash

Low Water and Sewer Rates

January 8, 2007

Once again, the City of Cartersville's Water Department proved to have some of the lowest water and sewage rates in the state. A recent statewide comparison was conducted among 63 water providers to evaluate the rates residents pay for their water and sewage on a monthly basis. The City of Cartersville is proud to say, based on 7,000 gallons, the average monthly usage per household, the City has the third lowest water and sewage rates statewide, with an average water bill of \$15.38, and sewage bill of \$10.36. As a result, Cartersville proved to have the third lowest combined residential water and sewage rates, of the 63 polled.

The commercial rates were also compared among the same providers, based on 150,000 gallons per month. Cartersville has the lowest sewage, as well as the lowest combined water and sewage rates of those polled. The average commercial monthly sewage bill is \$222.00, with the combined





go

"Full Cost Pricing"

- Operations & maintenance expenditures
- Taxes and accounting costs
- Contingencies for emergencies
- Principal and interest on long-term debt
- Reserves for capital improvement
- Source water protection
- Value ("opportunity costs") of the water







Determining Your Financial Needs

- Your current O&M costs
- Your current and future debt service
- Your planned capital projects
- Your rainy day fund in case of budget shortfalls





Determining Financial Need

- Start with your current budgets. How have they changed over time? What is the cost per customer?
- Then include any known future expenses
- Remember inflation, changes in customer levels, etc.







Things to Watch Out For

- Do you have good detail on your O&M costs?
- Is your capital planning complete? Realistic?
- What is your goal for your utility—think back to the four squares from earlier





A Quick Aside on Increasing Rates





Set rates based on projected water use





Raising rates lowers water use

Rule of thumb: water use declines ~2-6% as rates increase 10%





data from EFC/NCLM Rates Survey.

Estimates vary by community and season. For example, in NC, we found that, on average, utilities charging 10% higher rates have 3-4% lower residential usage.



Residential Water Rates and Water Use in 2008 (n=345)

Data sources: Usage data from Division of Water Resources (DWR). Rates







Public Perception:

Utility Reality:



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 customers conserve, revenues drop significantly but not costs.



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





December 1, 2008.

Rate Setting Resources



http://www.awwa.org



Setting Small Drinking Water System Rates for a Sustainable Future

One of the Simple Tools for Effective Performance (STEP) Guide Series



http://www.epa.gov/safewater/smallsystem





<u>http://efc.sog.unc.edu/</u> Find it in Resources / Tools







Last Concept: Getting Buy-In







A Great Story: Albuquerque







The Story Told

- The following slide was presented to the board
- Message was intended to be: "Things are bad"





Current \$41 Million CIP Spending with no change for the next 10 years







Did it work?

- Short answer is no
- What did they do?
- Defer rate increase







Decade Spending Plan to fund Level 1 & 2 Priorities Starting 2017: Increase \$3 Million per year for next 10 years to reduce backlog



20 Year Analysis





Is that the end of the story?













ABQ Journal March 31, 2012

Water main break causes outages in NE Albuquerque

By Ashley Trevizo / Journal Staff Writer on Sat, Mar 31, 2012

POSTED AT: 3:37 pm



The break occurred around 10 a.m. and shot a geyser, which at its climax reached 80 feet in the air. The break was caused by a hole in the pipe, which was likely related to the age of the pipeline, Morris said.

The geyser did cause damage to the Media Arts Collaborative Charter School.

Crews are currently working on repairing the break and water was turned off around 1 p.m. The repairs are expected to last into late this afternoon, Morris said.





🥏 💇 🌿 💓 Tweet 🛛 👰 +1 🛛 🚮 Like

ABQ Journal April 25, 2012

Road Closure in Southwest ABQ

By Rozanna M. Martinez / Journal Staff Writer on Wed, Apr 25, 2012

🥏 🙅 🍯 Tweet 🛛 👰 +1 💽 Like

POSTED AT: 2:08 pm

Sunset Road SW will be closed at Jeanette Ave until Friday.

The closure is needed by the Albuquerque Bernalillo County Water Utility Authority (ABCWUA) for an emergency repair of a 24-inch sewer main that collapsed last night, according to a county news release. TLC Company Inc., will be making the repairs for ABCWUA.

The work zone also encompasses Hooper Road because of the unusual geometry of that intersection, the news release reads.

A detour route for Sunset Road will be from Sunset Gardens to Atrisco to Bridge Boulevard. There is local access right up to either side of the work zone, according to the news release.

Through traffic is advised to seek alternate routes.







ABQ Journal April 25, 2012

Editorial: Increase in Water Rates Needed for Maintenance

By Albuquerque Journal Editorial Board on Thu, Jun 21, 2012

Prevention is cheaper in the long run.

That's true whether it's getting your teeth cleaned twice a year, your vehicle serviced every 3,000 miles or maintaining the pipes that bring drinking water to your house. A broken water or sewer line is a real emergency residents expect to be fixed ASAP. Albuquerque's water and sewer utility has reached the point where aging infrastructure — pipelines, treatment plants, pumping stations, etc. — is breaking down. More than 400 miles of metro area water and sewer pipe are at high risk of failure.

But lack of money has increased the backlog of pipes that should be replaced. It is estimated it will cost hundreds of millions of dollars over the next decade to replace the Albuquerque Bernalillo County Water Utility Authority's infrastructure. The utility also is in the midst of a \$250 million reconstruction of Albuquerque's primary sewage treatment plant.

Wednesday night, the utility's board approved moderate rate increases — 5 percent in 2015 and another 5 percent in 2017 — to upgrade the system. By 2017, the average residential customer's monthly bill would increase \$9, from \$45 to \$54. The board already has approved two rate increases. One took effect last July. The second will take effect next year and will average 5 percent.

Utility officials say upgrading the system should lower operating costs because so much work now is devoted to repairing broken lines. The new rate increases also will provide money to increase the utility's reserve fund for emergencies.

The increases are intended to cover maintaining or replacing infrastructure, and not operating expenses.

With the rate increases and an ongoing replacement/maintenance plan in place, the utility estimates the backlog of infrastructure in need of repair or replacement could be cleared by 2027.

While no one likes higher utility bills, putting off the problem will just cost more in the long run. Albuquerque's water cost is moderate compared with other neighboring cities — high water users in Santa Fe pay more than double what their Duke City counterparts pay — and the upgrades need to be done.

The utility board did the right thing by biting the bullet now.







ABQ Journal April 25, 2012

Editorial: Increase in Water Rates Needed for Maintenance

Prevention is cheaper in the long run.

That's true whether it's getting your teet's cleaned that bring drinking water to your house. A broken Albuquerque's water and sewer utility has reache stations, etc. — is breaking down. More than 400 But lack of money how increased the backlog of p dollars over the next decade to replace the Albuq in the midet of a \$250 million reconstruction of All Wednesday night the utility's board approved to upgrade the system. By 2017, the a verag The board already has approved two rate incr will average 5 percent.

Utility officials say upgrading the system should in two files. The new rate increases also will provide more for the increases are intended to cover maintaining. The increases are intended to cover maintaining. With the rate increases and an ongoing replacement could be cleared by While no one likes higher utility bills, putting off the moderate compared with other neighboring cities counterparts pay — and the upgrades need to be the the tility board did the right thing by biving the builded to be the tility biving the builded to cover maintaining. The utility board did the right thing by biving the builded to cover maintaining. The utility board did the right thing by biving the builded to cover maintaining. The utility board did the right thing by biving the builded to cover maintaining. The utility board did the right thing by biving the builded to cover maintaining. The utility board did the right thing by biving the builded to cover maintaining. The utility board did the right thing by biving the builded to cover maintaining. The utility board did the right the system of the utility bases and an ongoing replacement could be cleared by the builded to cover maintaining. The utility board did the right the system of the utility bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by the bases and an ongoing replacement could be cleared by t

Wednesday night, the utility's board approved moderate rate increases — 5 percent in 2015 and another 5 percent in 2017 - to upgrade the system. By 2017,the average residential customer's monthly bill would increase \$9, from \$45 to \$54. The board already has approved two rate increases. One took effect last July. The second will take effect next year and will average 5 percent... The utility board did the right thing by biting the bullet now.

o is

201

١d

en

ire i





How could this have been handled?

- Up front, instead of "backlog"
 - We will have 5 major water breaks
 - We will have 10 sewer collapses
 - We will have 3 permit violations at the WWTP
 - We will have 2 well collapses
 - etc.





How are real events different from just money amounts?

- When money is small compared to overall valuation of system, may mask the issue
- Easier to ignore money than to ignore breaks, collapses, permit violations
- Elected officials/board members can't always translate money into real things without help; they're not always "water people"





Building Rate Capacity

- One other aspect of the story of ABCWUA
 - ABQ Journal ran numerous articles regarding water main breaks
 - Many high profile breaks were on the news
 - Were there more breaks?
 - Not really
 - More reports
 - Public ready to accept the need for rates







So.....

- Telling your story can help build rate capacity
- We need \$\$\$ because _____ and ____
 and _____





Confidence in "Story"

- Water/WW utilities tend to be apologetic
 - "we're sorry we have to raise your rates"
 - "you shouldn't have to pay for water"
 - "water is so vital it should be cheap"
- How about....
 - "we provide you a phenomenal service, you need to pay an appropriate amount to have that service"







EFC Rates Dashboards

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

Built with hundreds of utilities' data for several states



Copyright (c) 2013 Environmental Finance Center at the UNC School of Government. Data sources: EFC / N.C. Leauge of Municipalities Rates Survey, N.C. Local Government Commission, EPA SDWIS, NCDENR PWSS, U.S. Census Bureau, N.C. Department of Commerce,

Print