Articles on Utility Rate-related Issues

Title	Description
Rate Design: the Series	First in a series of six articles on basic rate calculations and adjustments
Rate Design: Attitude Adjustment	Second article on scoping needs and methods for rate adjustments
Rate Design: Flat Rates and Minimum Charges	Third article on calculating fixed costs for flat and minimum charge rates
Rate Design: Unit Charges and Usage Allowances	Fourth article on how to calculate unit charges and the benefits and shortcomings of usage allowances
Rate Design: Getting Rates Adopted	Fifth article on rate adoption strategies
Rate Design: Getting Help	Last article on how to acquire rate analysis services smartly
Hiawatha Lays Out a Path	Story of the start to (near) finish rate setting project for Hiawatha, KS
Goodwill and Temperance – The Foundation of Good Rates	It is critical to foster goodwill to get appropriate rates
Lawsuits: Are Your Rates Vulnerable?	Examines various reasons your utility may be sued, prevention and recovery
Sued!	Examines how to recover from a rates-related lawsuit
Risky Rate-Setting Business	Examines risks and pitfalls of rate structures and rate setting practices
Setting a Proper Water Rate: Separating Fact From Fiction	Debunks several commonly held rate setting misconceptions
Pay Them in Water	Examines a way to pay obligations for "pennies on the dollar"
Quick and Easy Water and Sewer Rates: A Slightly "Tongue-in-Cheek" Look at a Serious Problem	Shows how to decide who should do a rate study and how involved it should be
How to Get a Great Rate Analyst	Outlines the correct way to solicit and choose an analyst
What Should a Rate Study Cost?	Shows how to estimate what a rate study should cost
Getting Great Rates: Taking a Closer Look at Rate Analysts	Covers what a rate analyst should do and how to assure good results
But, It's Not in the Budget	Rate studies need not be budgeted ahead of time – they pay for themselves
Why Are Our Rates Too Low?	Considers various reasons rates are kept too low
To Meter or Not Meter: That is the Question	Shows how to decide when it is time to move up from flat rates to metered water use
The Future Starts Now: Setting Rates Helps Systems Today and Tomorrow	Covers rate setting risks, rewards and how to get a good rate analyst
Quelling the Ratepayer Revolt	Covers the basic steps for good rate setting
Great Rates are 'For the People'	Examines pitfalls of the rate setting political process
Great Assets Require Great Rates	Proposes that great rates are needed to fund asset management
How to Get Great Rates and Not Get Beat Up	Shows how to present proposed rate increases and have them be accepted
Rate Adequacy, Fairness and Risk	Briefly examines three main attributes of the rate analysis process
The Rate Setting Story, in two parts	Presents rate structure alternatives and how to go about analyzing and adopting the right one
Rate Design	Examines rate structure types in detail
Minimum Charge Concept for Water and Wastewater Systems	Teaches basic calculation method for minimum charges
The Right Rate	Examines rate structure types and their appropriate applications
Conservation Rates	Shows what conservation rates do and several variations of this structure
Beyond the Binge	Shows how utilities can thrive post "great recession"
Federal Help is on the Way	Articulates why most utilities should not be subsidized
Resilience	Proposes that utilities should be able to weather financial and other "storms"
Asset Management Do's and Don'ts	Tells what makes up good asset management
Asset Management Goes Country	Describes how rural systems can best adopt asset management principles
Refinancing: Do You Feel Lucky?	Looks ahead to when interest rates will climb and how to prevent ill effects
Run it Like a Business	Compares government-owned business (mainly utilities) to private business
Decisions, Decisions	Describes how to make sound, defensible decisions
Make Things Happen	Describes how to successfully take action
Successful Workshops	A checklist to make sure events go smoothly

Rate Design: the Series

Carl Brown, President

GettingGreatRates.com

Editor's Note: This is the first in a series of six articles on rate setting. If you wish to learn more and learn it quicker, you should visit the author's Web site at gettinggreatrates.com/ and click on the "Freebies" link. There you can download dozens of free rate setting articles, guides and tools.

Rate design starts with the absolutely necessary and progresses to the "nice to have" – just like life. If you get only what you absolutely must get, you live. If you get lots of "nice to have" things, too, you live well. The author's goal is to help systems get enough "nice to haves" to enable them to serve their customers very well.

An absolute must have is rates that are *adequate* to pay current expenses. If rates are not adequate, the system will quickly fail; simple as that. Figuring such rates for next year takes no math beyond the regular budgeting process. If revenues are projected to be 10 percent short of expenses, you do a combination of increasing rates and/or decreasing expenses by a total of 10 percent.

To make sure you will generate enough revenue to pay for all of the equipment and services that are needed to make the system "sustainable," you will have to project well beyond next year. You better build substantial additional reserves, too, because "bad" things tend to happen and they are never free. These reserves will give your system resilience. Sustainability and resilience are *nice to have* so you should seek them.

You might say that the system itself "cares" about sustainability and resilience. Ratepayers do too, but their immediate focus is the bill they must pay. They would love free service. Otherwise, they would like cheap rates. At the least, they want *fair* rates. You, the system manager, better give them fair rates or you will have a hard time "selling" the next bond issue. Fair rates require more math than just adequate rates.

Thus, a good starting place would be *adequate and fair* rates.

It would also be nice to have rates that are appropriately simple or complex. That means the rates suit the nature of the users, whether they are very uniform or very diverse. *Appropriate* rates require still more math.

What is appropriate for your situation is all a matter of proportion and preference. If you manage a big, complex system and your ratepayers are OK with simple rates, lucky you. All other things being equal, simple is better than complex. Just be aware that, in that case, some of your customers will be getting the shaft. That goes to fairness. In the extreme, it can lead to lawsuits.

Thus, it would be great to adopt and maintain rates that are *adequate, fair and appropriately simple or complex*. The author calls these, "great rates."

> ***Great rates*** are adequate, fair and appropriately simple or complex.

Now let's consider the basic rate components – structure.

Almost all systems have rates that include a minimum charge.

Some systems have only a minimum charge (flat rates). These are the simplest rates of all. They are appropriate for a small set of systems serving low numbers of customers. An example is a small subdivision of uniform homes and fairly uniform owners or occupants of those homes. The subdivision operates its own sewer system. Flat rates can work just fine here.

Flat rates math is simple. Flat rates are easy to explain. Revenue generation is almost guaranteed. For small systems, these are nice traits. We assume this rate structure is fair because we assume all the customers get nearly the same volume and quality of service. As long as none of these customers are "curve busters," flat rates are fine for small sewer systems and not too bad for some small water systems, too.

Most systems assess a minimum charge plus unit charges. Minimum plus unit charge rates are structurally fairer than flat rates. At their simplest, these rates can be almost as easy to calculate as flat rates, but they can be quite complex, too.

Minimum charge – every user is charged the same

Unit charge – every unit is charged the same

Usage allowance – the volume users don't have to pay extra for

That brings us to unit charges. Unlike flat and minimum charges that are assessed to each *customer*, unit charges are assessed to each *unit of service*. High-volume customers pay more because they use more. However, depending upon how high or low the minimum charge is set, and if there is a substantial usage allowance in place, high volume customers may still end up paying less than what they should on a fairness basis.

Big, complex systems with diverse customers need complex rates. They may not need complex mathematical calculations to prove rate fairness to their rank and file customers. But they may need them to prove to big customers that they are not getting ripped off so they won't sue. Don't laugh, this is happening.

Even if lawsuits are a non-issue, how to pay system development costs, set wholesale rates and many other things require some high-level analysis to figure out. At some point, complexity will outstrip the ability or desire of the system to do the analysis in-house. Then it makes sense to hire a rate analyst. There are right and wrong ways to do this. The right way will yield fantastic results. The wrong way may yield disaster. Fortunately, the right way is actually the simplest way.

There you have it – the rate setting landscape that will be covered in this series. Big system managers, small system managers: all need to know the basic math and thinking behind rate setting. Big system managers will use this knowledge just to make decisions about how to *approach* rate setting. Small system managers will use it to *actually set* rates themselves with little fuss.

All these issues will be covered in this series so tune in to learn how to get adequate, fair and appropriately simple or complex rates.

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Rate Design: Attitude Adjustment

Carl Brown, President

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Wouldn't it be nice if, after reading this article, you could crank some numbers into a calculator, arrive at new rates and fees and adopt them next month? If you believe that is possible you have an attitude adjustment coming.

> ***Great rates*** are adequate, fair and appropriately simple or complex; a simple concept that is often hard to achieve.

Before you start cranking numbers into a calculator or spreadsheet, you need to sit back and think about your system, its finances and the ratepayers.

The system:

- Is it large and complex?
- Is use growing or declining?
- Is it performing well or poorly?
- Is it up to date on equipment repair, replacement and refurbishment?
- Does the system need to change markedly:
    - Build an expensive upgrade?
    - Enter into a new supply agreement?
    - Fend off a lawsuit?
- Do operations need to change markedly:
    - Do new positions need to be added?
    - Will treatment be done differently, probably because of a regulatory change?

Finances:

- Is the system "broke" or, does it have completely adequate reserves of several types?
- Are costs going up markedly because of changes to the system or operations?
- Is the debt load high or will the system soon take on new debt?

Ratepayers:

- Are they "rich" or "poor?"
- Are they very uniform users of the service or do some use a lot and others use none?

> Should you have cash reserves? Picture this:
>
> There you are, in the spotlight, up on the high-wire, over the center ring, under the big top, in your tie-dyed spandex tights. The calliope starts to play. The crowd catches its breath.
>
> You pick up your balance pole, take one quick look at the floor far below, no safety net to break your fall. You slide your foot out onto the wire. Simultaneously all of your ratepayers, clutching your waist, slide one foot forward. Your journey to the other landing has commenced.
>
> This is precisely what running a utility without adequate reserves is like.
>
> Your ratepayers will tell you, "We don't want no safety net," but trust me on this one, they do.
>
> —"How to Get Great Rates"

- Are they very accepting of new (increased) rates or do they want to fight them?
- Do some use the service in ways that could and should be changed (water wasting, late payments) through pricing structures?

What Stephen Covey famously advised people to do applies equally to utilities, "Start with the end in mind." Others have stated in various ways that if you can clearly identify the problem, you are half-way to solving it.

The rates you adopt should fit the needs of the system and ratepayers. Rates need to be appropriate. Once you have a good idea of what "appropriate" is for your system, you can figure out what level of math that will require. If it's easy math, you can jump right in. If it's hard math, you better find good help.

You and your customers may need an attitude adjustment in how you view the utility.

Utilities are first and always businesses. Businesses must cash flow properly or they will go out of business. Utilities are not like restaurants, toy stores and tire shops in that, when these businesses go out of business, their former customers either do without or they find alternatives. But if your water utility stops pumping water through its pipes into its customers' homes and businesses, their water supply alternatives may be poor to down right awful. You owe it to your customers to all but guarantee that once you start serving them you will be able to continue serving them. This guarantee takes a lot of money, planning and execution. You need to bring your customers' attitudes around to accepting this fact, which leads us squarely to customers.

Customers *think* the bill they pay is the only important thing. That is because they just assume the utility service will continue even without rate increases – surely you can do more with less… again.

Attitude adjustment: If yours needs adjusting and you do not adjust it yourself, a ratepayer or court will come along and adjust it for you.

Fortunately, most customers do not want to spend hours "watch-dogging" you. They have busy lives. But some are prone to distrust you. If it even looks like you have set rates unfairly (too high) to some of your customers, those who have the wherewithal and attitude to sue, will sue. When that happens you will probably win, but even the winner loses.

Finally, the open meetings/open records law can be a pain to comply with. But if you disregard it, your attitude is in for a serious adjustment. Frankly, this law is a floor that you should never even approach. You should conduct your system's business so openly, fairly and graciously that your ratepayers admire your conduct and attitude.

All of this should tell you that you need to step back and look at the big picture. What does the system need? What do the ratepayers need, and want? What is doable? What are *you* able to do?

If you then decide that the needs of all concerned are simple, just follow "Larry, the cable-guy's" advice and "git 'ur done." The next couple of articles will show you how to do that. If the needs are greater, it's going to take more math and savvy. That will be covered in a subsequent article.

Tune into the next article to learn how to calculate flat rates and their cousins, minimum charges.

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Rate Design: Flat Rates and Minimum Charges

Carl Brown, President

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Having assessed the needs of the system and its ratepayers, you now have a good idea of what you are up against. If conditions call for simple rates, you can do the needed calculations yourself as follows.

If yours is a small sewer system serving a subdivision of single family homes of about the same value, and it houses families of about the same size and age, you probably can get by with flat rates. Your rate calculations should look something like those in Table 1.

> ***Great rates*** are adequate, fair and appropriately simple or complex; a simple concept that is often hard to achieve.

Table 1: Flat Rates Calculation

Total Expected Annual Expenses		/ # Customers	/ # Bills/Year	= (Monthly) Bill
Operating Costs	$40,000			
Debt Payments	$10,000			
Debt Reserve Payment	$2,500			
Working Capital Reserve Payment	$4,000			
R&R Reserve Payment	$6,000			
Total Expected Annual Expenses	$62,500	100	12	$52.08

Every element in the calculation should be for the year that you are setting rates for, probably next year. Advice: Estimate expenses high rather than low so revenues won't come up short. And, build in payments to reasonable reserves. Someday you will be glad you did.

You can calculate flat rates this way because it is assumed that all costs are fixed, meaning every customer will pay the same share of all costs regardless of how much volume they use.

> ***Minimum charge*** – every user is charged the same
>
> ***Unit charge*** – every unit is charged the same
>
> ***Usage allowance*** – the volume users don't have to pay extra for

In reality, costs are fixed, variable or of some other nature. Fortunately, the calculation of a minimum charge, cousin to the flat rate, can be almost as easy to do as a flat rate calculation. You only need to calculate what percentage of each of your costs is fixed. Such calculations are best done with a spreadsheet program. The medium-sized water system illustrated in Table 2 shows what your calculations may look.

The math required for this calculation is straightforward. What is not always straightforward is deciding what percentages to assign to the various costs. Let's start with the easy ones.

Costs like administration salaries and related "perks," postage and the like are related to customers on a fairly uniform basis. It does not matter whether your bill is high or low, it still takes one stamp to mail it to you. Such costs should be classified as "fixed."

> The calculations shown in Tables 1 and 2 are done by the do-it-yourself rate calculation program called SimpleRates©. To learn more about it visit gettinggreatrates.com/.

Costs like electricity to pump, treat and distribute water or collect and treat wastewater are related to the volume handled. Such "variable" costs will be covered in the next article.

Table 2: System Costs

The modeled year runs from	1/1/2014	through	12/31/2014
Average number of customers for the analysis year:		2,318	
Billing frequency is monthly			
Expenses (see note below)	Cost	% of This Cost That is Fixed	Fixed Costs
Admin Salaries, Taxes, Ins, Etc.	$100,376	100.0%	$100,376
Operations Salaries, Taxes, Ins, Etc.	$298,941	35.0%	$104,629
Postal Services	$8,063	100.0%	$8,063
Travel and Training	$2,054	50.0%	$1,027
Maint, Repairs, Machinery & Equip	$18,489	35.0%	$6,471
Electricity	$86,488	0.0%	$0
Working Capital Reserve Payment	$100,000	100.0%	$100,000
Debt Reserve Payment	$83,260	50.0%	$41,630
Annual Payment to Replacement Fund	$86,694	50.0%	$43,347
CIP Spending Plus Debt Payments	$438,209	50.0%	$219,105
Grand Total Costs, Weighted Av Percentage	$1,391,847	52.4%	$729,861
Average Fixed Cost/User/Month =	$26.24		

Note: Many costs for this system were hidden from view simply to make the table smaller. The calculations were based upon all costs, even the hidden ones.

The costs that create problems are those that are partly fixed and partly something else, mostly variable. You must make your best judgment about these. Complicating your decision is the fact that different systems, or even the same system at different stages of its life, can legitimately claim different mixes of fixed costs and other types of costs. This is a hard concept, but the following may help you see it better.

You probably hold tight to an erroneous idea about fixed costs. That is, a cost is fixed if it does not change (much). Therefore, these costs should be paid equally by all. The fact is, all costs change over time. The thing that really makes a cost fixed or something else is its relationship to customers or to something else. If a cost is related to the fact that someone is a customer, it is fixed.

Costs that are related to the fact that someone is a customer are “fixed” costs.

Take the stamp example. The stamp is related to the bill. The bill is related to the customer. You may recall the algebraic theorem: A = B, B = C, therefore, A = C.

This cost assignment is important because every variable cost that you erroneously classify as a fixed cost will increase the bill of the retired, widowed woman living on Social Security, who uses only 2,000 gallons per month. The local paper will vilify you for unfairly jacking up her rate – headline: “Shame on Utility for Beating up on Little Old Ladies.”

Unfortunately, you can’t go completely soft on the “little old ladies.” If you do, the bill to the XYZ Corporation will have to be higher. Too much higher and XYZ, which has the wherewithal to sue you, just may do it.

Stray too far either way and, well, isn’t public service enjoyable?

You probably harbor another misconception about minimum charges that is worth debunking. It is quite intuitive that the higher the minimum charge is, the more dependable your revenue stream will be. In reality, minimum charges in most systems should only account for perhaps 15-35 percent of the total revenue stream. Thus, to get much of a revenue steadying effect, you would need to set minimum charges at two or three times higher than the fair rate should be. Remember that newspaper headline? By the way, after rate fairness analysis, most systems find that their current minimum charges are already **too high**.

But you say, "We must have steady revenue or we will go broke." If that is case, you are trying to operate on reserves that are simply too low. If your reserves were where they should be you could go for a year with low sales volumes and remain in good financial shape. Strong reserves give you plenty of time to adjust rates on a well thought out basis. Realization of this should take you back to the heart of the last article – you need to figure out what the problem really is before you can figure out how best to fix it.

If your situation is simple enough, you can do your own flat rate or minimum charge calculations as laid out here. Otherwise, get good help so you can get great rates.

Unit charges generate the lion's share of revenues. That will be covered in the next article.

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Rate Design: Unit Charges and Usage Allowances

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In the last article you learned that, for the most part, fixed costs should be recovered through minimum charges. That means that all other costs, mostly variable costs, must be recovered in another way. This article will use the listing of costs from the last article, but concentrate on the variable costs side to develop unit charges. Usage allowances will be thrown in for good measure.

Minimum charge – every user is charged the same

Unit charge – every unit is charged the same

Usage allowance – the volume users don't have to pay extra for

Granted, there are costs that should be categorized as something other than fixed or variable. But in smaller, simpler systems with few financial upsets lurking, those costs are usually minor. Thus, you can start with total costs, deduct the fixed costs and you will (mostly) end up with variable costs. Divide these costs by the number of billable units you expect to sell in a future year and that will be your unit charge. Pretty simple, so far.

Variable cost calculations are shown in Table 1:

Table 1: System Costs

The modeled year runs from	1/1/2014	through	12/31/2014
Test Year Usage Metered Through Customer Meters in Gallons			151,706,900
Billable Units in Thousands of Gallons			151,707
Expenses (see note below)	Cost	% of This Cost That is Variable	Variable Costs
Admin Salaries, Taxes, Ins, Etc.	$100,376	0.0%	$0
Operations Salaries, Taxes, Ins, Etc.	$298,941	65.0%	$194,311
Postal Services	$8,063	0.0%	$0
Travel and Training	$2,054	50.0%	$1,027
Maint, Repairs, Machinery & Equip	$18,489	65.0%	$12,018
Electricity	$86,488	100.0%	$86,488
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Annual Payment to Replacement Fund	$86,694	50.0%	$43,347
CIP Spending Plus Debt Payments	$438,209	50.0%	$219,105
Grand Total Costs, Weighted Av Percentage	$1,391,847	47.6%	$661,986
Variable Cost/1,000 Gallons	$4.36		

Note: Many costs for this system were hidden from view simply to make the table smaller. The calculations were based upon all costs, even the hidden ones.

The illustrated unit charge calculation is for a level unit charge. If you want inclining or declining rates, you must either risk a revenue shortfall or hacking off some ratepayers (just part of the do-it-yourself landscape), or you should hire a rate analyst to do some heavy data crunching for you.

The do-it-yourself option can most easily and safely be done like this:

The calculations shown in Table 1 are done by the do-it-yourself rate calculation program called SimpleRates©. To learn more about it visit gettinggreatrates.com/.

- Calculate level unit charges as shown in Table 1.
- Decide on the volume level(s) where the unit charge will go up (conservation rates) or down (declining rates). The volume between each of the changes in unit charges is called a "block" for which you will set a uniform unit charge rate. Hence, the name "rate block."
- For inclining rates, assign the unit charge you calculated to the first (lowest volume) block. For the next block increase the unit charge by a small percentage, probably 10 percent or so. Do the same for the next block.
- For declining rates, do just the opposite. Assign the calculated unit charge to the highest volume block. Increase the rate for the next lowest block and so on.
- Adopt these rates and track their results.

The rate structure you end up with may look something like one of those shown in Table 2.

Table 2: Inclining and Declining Rates That Increase by 25% at Each Block

Class Bottom in Gallons	Class Top in Gallons	Inclining Unit Charge/1,000 Gallons	Declining Unit Charge/1,000 Gallons
0	4,999	$4.36	$6.82
5,000	14,999	$5.45	$5.45
15,000	100,000,000	$6.82	$4.36

The following thoughts and suggestions should make rate setting, and your life, easier:

- Inclining and declining rates are useful in water systems but not sewer systems.
- For water systems, have no more than three rate blocks. More than that and the rate chart will get overly complex for the marginal increase in revenue or conservation you might achieve.
- Give ratepayers a good reason for why you grouped the blocks of volume as you did. For example: "Our water plant is maxed out; we need to reduce demand or spend $5,000,000 to upgrade the plant. Average residential use in our town is 5,000 gallons per month. We want to encourage customers using above the average to try to dial it back, so we set the first rate block at 5,000 gallons. And we want to encourage the heavy lawn irrigators, who use three times the average and water the streets along with their yards, to use a sprinkler timer or other device and practices to cut their excessive use. Thus, we set the other block at 15,000 gallons."
- Inclining rates encourage conservation and generally produce more net revenue than level rates. However, they have their limits – people need much if not most of the water they use. Don't get carried away and charge three or four times more for high volumes of use or you could drive away large users or encourage them to sue you.

- Declining rates encourage use. But it may take time, maybe even years, for use to ramp up. If you have an ample water supply and capacity to produce it (a brand new system with few customers so far), declining rates can actually generate more net revenue than inclining or level unit charges. But, don't decline rates too far or you will end up losing money on high-volume sales. A rate analysis can figure out your marginal cost to produce to keep those sales profitable.
- Generally, inclining rates make good sense in areas that are primarily residential. Declining rates make good sense in areas with ample water supply and infrastructure, and they are now, or want to become, heavy industrial and commercial centers.

> ***Great rates*** are adequate, fair and appropriately simple or complex; a simple concept that is often hard to achieve.

Changing gears, a usage allowance is not a rate. It is a means by which rates are adjusted to transfer costs from some customers to other customers. The following illustrates how this works.

The unit charge for the example system as shown in Table 1 came out to $4.36 per 1,000 gallons. If you enacted a usage allowance of 2,000 gallons per month, that is potentially $4.36 X 2 = $8.72 worth of water that each customer could get for "free." Technically, that is probably an incorrect statement.

If you add $8.72 to everyone's minimum charge, everyone's bill will be that much higher, whether they use that volume or not. A retired, widowed woman living on Social Security who uses only 1,000 gallons per month would end up paying $4.36 extra and get nothing for it. That may be important money to her.

On the other hand, you could increase the unit charge by enough to pay for all the volume that will be "given away." In that case everyone using 2,000 gallons or less, which could be a substantial percentage of your customers, will get free water. That is not really fair, either.

The upshot is this: usage allowances are unfair to somebody. It is best to have no usage allowance. If you have one at all, keep it low.

This discussion of unit charges and usage allowances really just scratched the surface. If your system is small and simple and your customers are uniform, that's OK. Otherwise, you should dig deeper or get help.

The next article will cover the next logical step of rate setting; getting the proposed rates adopted.

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Rate Design: Getting Rates Adopted

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Getting proposed rates adopted is all about "selling." You need to convince people that the rates you came up with are just the ticket for them. Thus, you need to be the master salesman: "…But wait, there's more…"

> Content for this article was distilled from Chapter 8 of the book, "How to Get Great Rates" and the "Ratepayer's Survival Guide," both available at gettinggreatrates.com/.

Truth be told, you should NOT be a salesman. You should be an educator. A good salesman can convince someone to buy something that is not in their best interest. A good educator, on the other hand, enables that person to make an informed decision that, hopefully, will be in their best overall interest. This article will briefly cover what to include in that education and how to cover it.

You have a good idea of how much revenue the system will need next year and probably several years beyond that. You calculated minimum and unit charges needed based upon the nature of the system's projected costs. All you need to do now is inform ratepayers how you did those calculations, what the results are and then adopt new rates.

Obviously, at the very least you must comply with the open meetings/open records law but go well beyond that. Show everyone that you know and *appreciate* that the water system is theirs, not yours. You are simply trying to take good care of it for them.

Do not, repeat, do not bore all the ratepayers with all the details. In fact, you should tell them few details. That is not so you can hide things from them. It is because they have busy lives and minds. They just want a synopsis.

With the synopsis idea in mind you should hold a board or council meeting and tell your ratepayers something like this (using more words, some tables and a chart or two, of course):

"The system is being run economically. (Show proof.) In fact, we tried to be too economical in the past so now more must be spent on equipment repair and replacement and some capital improvements. All of this will cost $XXX more next year and that requires an overall rate increase to pay for it. Now, some ratepayer's bills will actually go down because we discovered that the current rates are unfairly structured, so we will address that at the same time.

These "catch up" costs and the regular operating costs were tallied up and divided into fixed cost and variable cost groups. The fixed costs will be recovered through minimum charges because everybody causes an equal share of these costs to occur. Variable costs will be recovered through unit charges because those are related to volume produced. So the rates work out to a minimum charge of $26.24 per month and a unit charge of $4.36 for each 1,000 gallons used."

When making this presentation you should not spend more than about 30 minutes describing all of it. Remember, synopsis. If they ask questions, take the time needed to answer them well. That proves to everyone that you really did do your homework and you didn't just put together some slick words to say.

During your presentation you should show ratepayers a table that compares current bills for different volumes with proposed bills and the dollar increase or decrease for each volume of use. That table should look something like Table 1, a partial listing of volumes and bills.

Table 1: Current and Proposed Bills for Different Volumes of Use (see note below)

Use in Gallons	Current Bill	Proposed Bill	Difference
0	$30.00	$26.24	-$3.76
1,000	$33.00	$30.61	-$2.39
2,000	$36.00	$34.97	-$1.03
3,000	$39.00	$39.34	$0.34
4,000	$42.00	$43.70	$1.70
5,000	$45.00	$48.06	$3.06
6,000	$48.00	$52.43	$4.43

Note: Extend table as needed to cover all volumes used

When a customer who uses 2,000 gallons or less looks at the table and sees that their bill will go down under the new rates, that's all they care to know. When the average residential customer, who uses about 5,000 gallons per month sees that their bill will only go up by $3.06, less than any Value Meal at McDonald's, they are also satisfied. Only the larger customers will take more convincing so you know that you will need to concentrate your education efforts on them.

Now, a few do not want a synopsis. Mostly, they distrust you and they are looking for weaknesses in your reasoning and math. One of these folks may have three questions that you can pretty easily answer right there in the meeting. If so, do it. If you have other tables and calculations that illustrate your answers, show them.

Some may have tiny details they want to pick at. You may need to separate them from the herd and deal with them later, one-on-one.

When you answer the distrustful ratepayer, be keenly aware that many others are listening carefully to how you deal with them. They thought of the same questions; they just decided not to ask them. By answering the distrustful ratepayer well, you will gain support from the others.

Once you have made your "case" it is time to act. Do not tarry at this stage. If you need a rate increase to cash flow the system properly, it will only get worse with delay. At that meeting or perhaps the next, adopt new rates.

Now your work is done, right? Wrong! Your work has just started. You need to track the results of the new rates. Are they generating the revenues you thought they would? If revenues fall far short and your reserves are not adequate to carry you through for another year, you will need to adjust rates again right away. (You *really* don't want this to happen so make sure the first increase is big enough.) Do the same kind of calculations you did before, this time using adjusted costs, and follow through with new rates again. If you missed very badly, consider calling in a rate setting specialist.

If revenues are up to par, keep them for the rest of the year and then adjust rates again, as needed, to meet next year's revenue requirements. Such adjustments are basically inflationary increases so increase all rates and fees by the same percentage that it would take to keep on track with costs as they go up. You can do this a few times before a new, full rate calculation or analysis is in order.

By the way, you did mention to the ratepayers in the meeting that the first increase will not be the last, didn't you?

You will do increases like this until one or more big financial upsets come along that warrant hiring the expertise of a rate analyst. For systems with 1,000 or so connections, this will probably be once every five years or so, longer for smaller systems. How to get that analyst will be the subject of the next, and final, article in this series.

Carl Brown is President of GettingGreatRates.com, specializing in water, sewer and other utility rate analysis and do-it-yourself rate setting tools. The firm also serves as the RATES Program rate analyst for five state rural water associations. Contact: (573) 619-3411; carl@gettinggreatrates.com

Rate Design: Getting Help

Carl Brown, President

GettingGreatRates.com

Editor's Note: This is the last in a series of six articles on rate setting. If you wish to learn what you missed, visit the author's Web site at gettinggreatrates.com/ and click on the "Freebies" link.

Hiring a rate analyst is like buying insurance. Don't buy insurance if you can comfortably absorb the possible loss. But if that loss would hurt, you need insurance. But you also need the right insurance.

> ***Great rates*** are adequate, fair and appropriately simple or complex; a simple concept that is often hard to achieve.

Rate analysts are insurance for rate adjustments. They are also investments because a good one is probably going to deliver rates that are 20 percent higher than you thought you even needed or that you could get on your own. The right rate analyst is money well invested. The wrong one is money wasted, maybe worse.

Making such judgments at solicitation and selection time will be tough even if you have already done this before. It will be much tougher if, as is likely, you have never done this before. This article will show you how to do this well whether this is your first time or your tenth time.

During most years most small utilities can get good enough rates by following the guidance in the do-it-yourself articles prior to this one. But hiring a rate analyst is in order when:

- Reserves are low,
- Capital improvements are approaching,
- You can't prove that your rates, fees and policies are fair.
- You need to set tap fees, connection fees, system development fees or surcharges,
- You need to catch up on equipment repair and replacement,
- You are being sued, might be sued or might need to sue,
- You need to set wholesale rates, or
- You don't want to be blamed for a big rate increase.

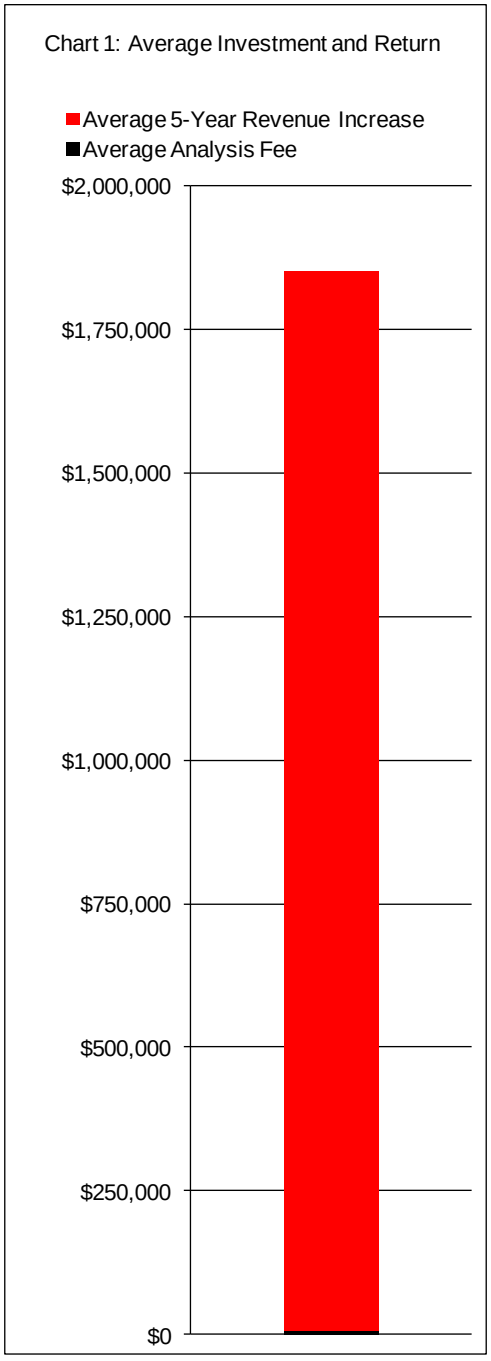
> Content for this article was distilled from the "Rate Analyst Guide." To get it (free), visit gettinggreatrates.com/ and click on the "Freebies" link.

To get the right analyst, do these things:

1. Write down your goal, hopefully this one, "We want rates that are adequate, fair and appropriately simple or complex." Don't embellish – that's all you need. Also pull together basic data and information about the system: number of customers, volume sold last year, last year's financial statements, and your capital improvement plans and equipment repair and replacement schedules, if you have any. If these need work, and you want the analyst to help you, be prepared to tell them so. When a good rate analyst scopes your project they will ask for such information.

> What is a "rate analyst?"
> Unlike engineering or accounting, there is no rate analyst credentialing system. But there is a simple test. Ask the prospect, "How do you make money?' If 50 percent or more comes from rate analysis, they are a rate analyst. Ninety percent is conclusive.

2. Call a prospective rate analyst on the phone, more if you can find them. Before doing anything else, ascertain if they are a rate analyst. Only continue talking with those you determine to be rate analysts so no one's time will get wasted and you won't get burned in the end. Do not solicit proposals from non-analysts.
3. Tell the person, whom you have identified as an analyst, that you want to achieve the statement in Step 1 above. Then… Visit gettinggreatrates.com/ and click on the "Freebies" link to view sample rate analysis packages, several which include the proposals for those projects.
4. Be quiet. Let them lead the conversation, scope the project and propose to you. Remember, you have already ascertained that your prospect is a rate analyst so they know what to do. They also have a particular way of going about it that saves them time, which will save you money. Don't weigh them down with lots of bureaucracy. Yes, the intent is to assure a good outcome but it just ends up costing extra time and money in the case of rate analysis. Steps 6 and 7 that follow will give you a better and more economical outcome anyway.
5. Check to see that their proposal makes sense in your situation. Visit gettinggreatrates.com/ and click on the "Freebies" link to view sample rate analysis packages, several of which include the proposals for those projects.
6. Check references. Repeat, check references for at least the top one or two prospects. The prospect should give you the contact information for all of their clients for at least the last year. Several years would be better. Do not accept a cherry-picked group of their most ardent fans. You want to ascertain that the prospect really can deliver great results consistently. No one is better situated to know that than past clients. Checking references is your best assurance of a successful outcome.
7. Check their guarantee. It should say, basically, "If you are not satisfied with our work, you don't have to pay us, period." If the project does not go as you desire, you want to be able to get out with no cost or hassle.
8. Check out one or more of the analysis reports they produced for past client(s). Complex issues and multiple utilities might take 200 pages to model and report. More likely, a reasonable report will be 40 to 60 pages of useful recommendations and guidance, data, information and a few graphical presentations of key criteria. If the sample report includes lots of extraneous "stuff," they are padding the report. Why? To justify higher fees.



9. Check their pricing. If they don't do core services on a lump-sum basis; $XX for the water rate analysis, $YY for the sewer rate analysis, etc., you don't want them. You are better off paying what looks like a lump sum fee that is too high, than an hourly fee that looks reasonable. The lump-sum amount cannot be fineagled. Hours can.

Pricing is listed last for good reason. It is important but not the critical issue. Getting a great rate analysis is.

That said, getting the right rate analyst could end up giving you a payback rate like that shown in Chart 1. In this chart the red bar represents the additional revenues over five-years for the last 11 of the author's rate analysis clients (excluding several large clients that are not representative of smaller system results.) The black bar, representing fees and system costs, located below the red bar is hard to read. This amount is $7,396 (most clients had two utilities analyzed). In other words, for each dollar in analyst fees plus the value of system staff time, these clients will collect $249 in additional user fees. Beat that payback anywhere.

The take-away from this chart is that, even if you only needed one-half as much revenue increase and your analyst cost twice as much, your net return would still be remarkable.

If you will do only the things listed above, your results will be at least good – because you've stacked the deck in your favor. But realistically, you should get great results.

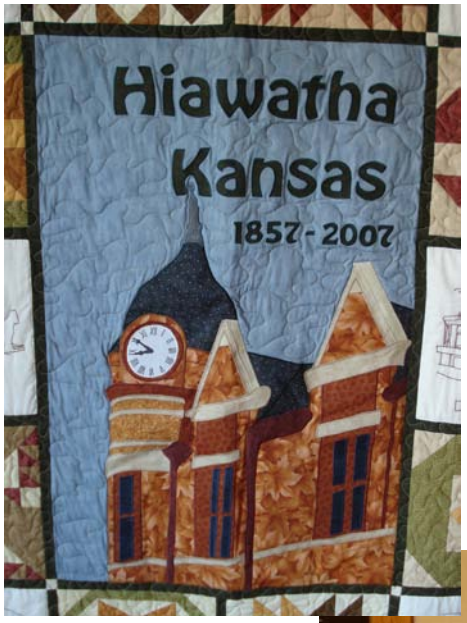
This concludes coverage of the rate setting basics. If you have been patiently reading each installment in preparation for calculating and adjusting your rates, you should now do one last calculation.

Look up last year's sales revenues. Multiply that amount by 20 percent and also by 45 percent. In the author's experience, this is the range within which most system's rates need to be increased right now. Thus, during the months you have been reading these articles, you failed to collect this much revenue that you rightfully should have. Isn't it now time to get great rates?

Carl Brown is President of GettingGreatRates.com, specializing in water, sewer and other utility rate analysis and do-it-yourself rate setting tools. The firm also serves as the RATES Program rate analyst for five state rural water associations. Contact: (573) 619-3411; carl@gettinggreatrates.com

Hiawatha Lays Out a Path

Carl Brown, President
GettingGreatRates.com
Lynne Ladner, City Administrator
Hiawatha, Kansas



Hiawatha is a lovely town in the northeast corner of Kansas. Hiawatha had a big user rate problem brewing. But they solved it, laying down a clear path that you can follow, too.

In November, 2013, Hiawatha moved fast to get its water and sewer user charge rates adjusted. As of this writing in January, 2013, speedy performance by staff is keeping Hiawatha on target to get its sewer user charge system approved soon by its grant and loan provider, USDA Rural Development (RD). That funding will pay for a sewer system upgrade, with bidding in the winter and construction start in the spring of 2013. The dominoes are lined up.

Hiawatha must set adequate rates to get RD to pay for the project. But what ratepayers focus on is getting rates that are fairly structured for them. Hiawatha achieved these and many other things.

The City's rate analyst (co-author) flanked by seated Commission members and the standing City Administrator (co-author), discuss what must be done to their rates.
Photo by Greg Duryea, Kansas Rural Water Association

The lead up to this project took years, but in the end, Hiawatha was required by the state environmental quality control agency to do the upgrade. In the near future Hiawatha will probably face a similar fate on its drinking water system.

You are probably all too familiar with how this process works.

Hiawatha could have "winged it" when it came to rate setting. But city administrator Lynne Ladner knew that it made better sense to get outside help to handle the complex issues the city was facing. And, she was working with a very tight deadline.

Ms. Ladner contacted the Kansas Rural Water Association. They determined that the best course would be to get rate analyses done by a specialist, which turned out to be the one who serves as the analyst for the Kansas RATES Program, gettinggreatrates.com/, "Kansas" link.

Hiawatha's analysis work started on December 3, 2012 and concluded on December 19. This fast turn-around was due to the excellent work of Ms. Ladner and her staff, as the (slightly abbreviated) first page of the rate analysis cover letter details below.

The analyses determined many things, importantly including:

- Sewer rates need to go up markedly but they only need slight restructuring.
- The city has been subsidizing the sewer system by making most of its debt payments. The recommended rates will enable the system to make its own payments, saving city funds for other uses.
- Water rates overall do not need to go up. However, those rates need serious restructuring to make them fair.

Setting the upgrade project aside, the City still needed rate analysis to identify and solve many issues. Most utilities are in the same boat. The analyses detailed all of the changes that are needed right away and for the next 5-10 years. The analyses will serve as financial road maps that Hiawatha can use to set a solid course into the future.

Hopefully Hiawatha has shown you that sometimes you can "wing it" just fine. Sometimes you need help. The trick to getting good outcomes, then, is telling one situation from the other.

> We knew that time was running out for getting a handle on our sewer rates. The general fund was subsidizing the utility and that couldn't continue. We needed to make significant improvements to the system and doing so was going to require us to be proactive about getting our rates in line with our current operating costs as well as understanding our needs for the future. Our project was preparing to go to bid and we needed to know that we fully understood the impact of this project on our utility and our customers.
>
> Our water utility is undergoing long term planning knowing that the current water situation in Kansas is not likely to improve significantly soon. Ground water levels are decreasing, nitrate levels are increasing and regulations are increasing as well. These increase the need to understand our system costs and structure our rates so that they are fair to all our customers. Working with Carl Brown Consulting we were better able to quantify our costs and allocate them fairly across our user groups. It was easy to work with Carl and to understand the information that he needed to complete his study, which was also easy to understand. I really enjoyed working with Carl.
>
> City Administrator Lynne Ladner

Your Association provides lots of help, including rate setting assistance. With utilities being among the biggest "businesses" around, the age of "winging it" on rates is gone. To get your user rates in great shape, you better give the Association a call right now.

Carl Brown is President of GettingGreatRates.com, specializing in water, sewer and other utility rate analysis and do-it-yourself rate setting tools. The firm also serves as the RATES Program rate analyst for five state rural water associations. Contact: (573) 619-3411; carl@gettinggreatrates.com

December 19, 2012

Lynne Ladner, City Administrator
City of Hiawatha
701 Oregon
Hiawatha, KS 66434

Subject: User Charge Analysis Results

Dear Ms. Ladner:

Enclosed please find the results of the water and sewer utility user charge analyses I did for the City. Before turning to the analyses, I want to tell you this.

Most rate analyses take about six months to complete. That is mainly because cities and districts are not able or motivated to gather data more quickly than that. A few of my analyses have been completed in as little as eight weeks. Yours has taken about three weeks. I am amazed! You did a fantastic job and you were wonderful to work with. Your staff, particularly Lynette Grier and Vivian Constable, completely floored me at how quickly and thoroughly they provided data and information and they were always wonderful to work with, too. The City is lucky to have you all.

Turning to my findings, the report will cover the details. Key points are these:

- Your sewer rates are significantly too low on average and need to be raised and restructured. This should be done as quickly as possible.
- Your water rates are generating sufficient revenue now and should do so for some time to come, but those rates also need restructuring.

The report is long, detailed and technical. You, the board and others should read through it but do not obsess over the details. Assuming I meet with the board soon I can probably answer any question someone may have at that time. It is easier for almost everyone to understand things when I explain them and discuss them than it is to glean answers from the written report on their own.

Goodwill and Temperance – The Foundation of Good Rates

By Carl Brown, President
GettingGreatRates.com

Goodwill and temperance – our own and certainly that of everyone else – keep us out of court most of the time. The same holds true for water and sewer user rates. However, the heightened debate on the role of government, taxes and fees are proof that goodwill and temperance are finite resources. More and more, ratepayers want proof that increases are needed and that they are fair.

Fail to prove your rate "case" on your home turf and you may find yourself trying to prove it in court. What rate setting errors are most likely to have you talking with lawyers and judges?

- Being anything short of courteous and professional to everyone when setting rates. The lawsuit will list some legal grievance, of course, but it's really because the plaintiff did not like the way you treated them or they do not trust you.
- Violating the open meetings, open records law. This law gives ratepayers and citizens strong leverage to "keep an eye on you." This law is the weapon of choice for most disgruntled ratepayers.
- Buying or selling water or sewer service on a wholesale basis. The form of the agreement, especially the method by which future rates and fees will be set, is critical to success for you and the other party.
- Having inclining (conservation) or declining block rates and picking a surcharge for each block for subjective reasons, not objective ones. A case can be made for higher or lower rates for high volumes of use, but you must do the math and stay within reason to keep it defensible.

Being sued is repugnant. But you need to think of it the same way you would think about being held up by an armed robber. By giving him your wallet you would hope to escape with everything else. If you fight him you may win, you may win but get injured, you may get injured and lose your wallet or you may lose your life. There is no pat answer – each situation is different.

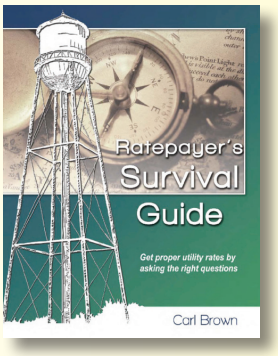
- Assessing multiple minimum charges or their cousins "equivalent dwelling units" and "equivalent residential units." There are better, fairer, more sure-fire ways of accomplishing the goal behind these structures.

- Assessing excessively high or low minimum charges. Do the math.

- Assessing connection or impact fees that are excessively high or low. Building base load capacity and peaking capacity to serve water and sewer customers is very expensive these days. But to charge for it correctly you must do some complex math, make some serious value judgments and explain it well.

- Raising rates across the board to balance the budget. It's logical from the utility's point of view but at some point it becomes unfair enough to warrant a lawsuit.

There are many other ways you can land yourself in court. The best way to prevent it, or to reduce the damage if it does happen, is to maintain good relations with your customers and always set rates that you can simply, logically and mathematically defend. Being right is a good thing but having your ratepayers trust that you are right is even more important. If you want more information on how to accomplish these things the ***Ratepayer's Survival Guide*** is available to download for free at **gettinggreatrates.com**.



Finally, if you do get sued, look into mediation. Yes, you will have to compromise in mediation but the outcome is almost always better than letting a disgruntled ratepayer have his day in court. ■

Carl Brown *is President of Carl Brown Consulting, LLC, specializing in water, sewer and storm water system rate analysis and asset management as well as training nationwide; and* **GettingGreatRates.com**, *home of many rate setting tools. You can contact Mr. Brown at 573/619-3411 or* **carl@carlbrownconsulting.com**.

By Carl Brown, President, GettingGreatRates.com

Lawsuits: Are Your Rates Vulnerable?

The mediator returned to the defendant's room with the plaintiff's offer: "He wants an 18-year water supply agreement, you drop the 'three-to-one' ratio for minimum charges and give him $250,000 in cash." The water board chairman blankly looked at his board. The board looked at the floor. The board's attorney hurriedly planned legal strategy. I calculated the rate effects the offer would cause. What is going on here?

This is a rural water district in Arizona with 500 connections and a $300,000 annual budget, but it could be any rural water district or town, even your's. One of the district's larger customers, the owner of an RV park believes the water rates and fees he must pay are too high, so he sued the district. This is Arizona, mind you, not New York or L.A.

It turns out this RV park owner has money, and he's mad – a dangerous combination.

The new board wants to solve this problem. But, they can't just give the plaintiff everything he wants, or even much of what he wants, because that would hurt the other ratepayers. The board hired an attorney to defend them. The attorney hired me, a rate analyst, to figure out what rate structure is appropriate in this situation to help the district determine the rate effects of any settlement that they may agree to and to convince the plaintiff to accept those rates and settle the lawsuit.

Being sued is repugnant. But you need to think of it the same way you would think about being held up by an armed robber. By giving him your wallet you would hope to escape with everything else. If you fight him you may win, you may win but get injured, you may get injured and lose your wallet or you may lose your life. There is no pat answer – each situation is different.

The thing that landed the district in court seemed like a non-issue. They are charging one minimum charge for every three RV spots. That's because RV parks can draw lots of water at full occupancy, running up the capital cost of the system. The district has had this policy for several decades. The plaintiff bought into the system and has been paying these charges for more than ten years.

The basic idea behind these fees, and their cousins "equivalent dwelling units" and "equivalent residential units" is sound. How the district developed them is not. They did no math. The plaintiff knows this. As the mediator said when he brought in his settlement offer, this man feels like this suit is his "ticket to retire well."

The board considered the $250,000 offer. I analyzed the numbers to put the offer into perspective. I told the district's board, "If the cash settlement and your attorney fees of $25,000 so far were spread over five years and you dropped the three-to-one ratio fees, your system-wide average monthly bill would have to be $9.17 higher. The eighteen-year contract is a long time to tie your hands. If you agreed to all these things it would probably enrage other ratepayers. Some might refuse to pay the extra fees. Some might sue." The person who coined the phrase, "between a rock and a hard place" was thinking of this situation.

NOTES:

- In a lawsuit the plaintiff is the party suing someone.
- The defendant is the party being sued.
- Negotiation is when two parties talk directly to each other to settle a legal dispute.
- Mediation is when negotiation is facilitated in confidence by a third party (the mediator, generally a lawyer) who communicates offers, counter-offers and other information between the parties. The parties convene in separate rooms of the same building and do not talk directly to each other.
- Actual event details have been changed in this article to preserve the integrity of the lawsuit mediation process.
- Carl Brown, the author, is a rate analyst, not an attorney and offers no legal advice.

After much deliberation, the board chairman gave me the board's counter-offer, "No cash and a ten-year supply agreement at the best available rates in the district." The mediator returned to the plaintiff's room.

Multiple minimum charges were this district's downfall. What other misstep might land a water system in court?

- Being anything short of courteous and professional to everyone when setting rates. The lawsuit will list some legal grievance, of course, but it's really because the plaintiff did not like the way the utility treated them or the customer did not trust the board or council.
- Violating the open meetings, open records law. This law gives ratepayers and citizens strong leverage to "keep an eye on you." This law is the weapon of choice for most disgruntled ratepayers.
- Buying or selling water or sewer service on a wholesale basis. The form of the agreement, especially the method by which future rates and fees will be set, is critical to success for the city or RWD and the customers.
- Having inclining (conservation) or declining block rates and picking a surcharge for each block for subjective rather than objective reasons. A case can be made for higher or lower rates for high volumes of use, but boards/councils must do the math and stay within reason to keep it defensible.
- Assessing excessively high or low minimum charges. Do the math.
- Assessing connection or impact fees that are excessively high or low. Building base load capacity and peaking capacity to serve water and sewer customers is very expensive these days. But to charge for it correctly, utilities must do some complex math, make some serious value judgments and explain it well.
- Increasing rates across the board to balance the budget. It's logical from the utility's point of view but at some point it becomes unfair enough to warrant someone filing a lawsuit.

There are many other ways that a water or wastewater system can land in court. The best way to prevent it, or to reduce the damage if it does happen, is to maintain good relations with customers and always set rates that the city or RWD can simply, logically and mathematically defend. Being right is a good thing, but utilities must go way beyond that. Earning and keeping ratepayers' trust is even more important. To learn more about how to accomplish these things, the "Ratepayer's Survival Guide" is available for free download at www.gettinggreatrates.com.

Think it couldn't happen to you? Jackson County, Kansas Rural Water District 3 thought so, too. But, the town of Mayetta, a wholesale water customer of the district, took issue with a recent rate increase and filed suit. Fortunately, all parties eventually sought to resolve the dispute. The author analyzed where rates should be set. Before long everyone was back on the same rate setting page. Mayetta wasn't pleased about the resulting increase, of course. But, they understood how it was determined and everyone moved forward.

After an hour, the mediator returned to the meeting with a counter-offer. The plaintiff, who was angry, had stated that he would not leave here today without an eighteen-year agreement and his attorney's fees to-date of $39,000.

I recalculated the price tag and smiled this time as I told the group, "$2.13 per month and this would end it."

The attorney for the district agreed and said that he thought he could talk the district's liability insurance carrier into paying part of those settlement costs so it should be even less than the $2.13.

Private-sector companies have the option of going out of business if they do not serve their customers well. This process is called "creative destruction."

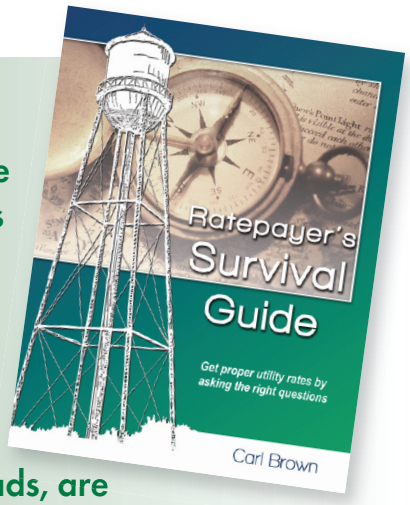
Public-sector companies like water and sewer services owned by cities and public districts are subject to creative destruction, too, but they should practice it with a twist. Customers don't want to have their services stop so public systems need to create and recreate themselves without service interruption.

You have probably heard the analogy of building an airplane in-flight. In the private sector, landings, even crashes, are allowed if the plane can't be built in-flight.

But in the public sector you not only have to build the plane in-flight, you have to continuously upgrade it to newer models, too. All the while your passengers get steamed because you are slow bringing their drinks. Some will even get upset enough to sue you over it.

One of the board members who had been quiet so far, stood up and passionately stated his position. He announced, "I did not come here today to pay this guy anything." More discussion ensued before that board member walked out. Nearly seven hours into the mediation with no real progress, the mediator "recessed" the session. I asked both sides to consider how they could resolve this standoff in the coming days. Otherwise, the court date is set and the issue will be heard there very soon.

The "Ratepayer's Survival Guide" and related resources, all free downloads, are available at gettinggreatrates.com



Will your system be sued?

Will your district or city be sued over rates and fees? Rates and fees must climb in response to rising costs, but that is only the tip of the iceberg. There are many other events playing out on the international, national and local scenes that make people feel they have little control. If some ratepayers do not believe they have control on the input side, they will pursue it through legal means. However, the chances of being sued will remain very slim if cites and RWDs handle rate calculations and rate setting well. Do that and almost all of the ratepayers will understand and be generally accepting of their rates. For those who are not so trusting of a utility's good intentions for them, a good analysis is a good defense.

Let such a case go to trial and there will be one big loser, one even bigger loser – and no winners.

Finally, if your utility is sued, look into mediation. Let such a case go to trial and there will be one big loser, one even bigger loser – and no winners.

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SUED!

By Carl Brown

It has often been said that for a two-car accident to happen, both drivers had to lose focus for the same moment. Unlike car crashes, the "moments" that lead up to a lawsuit over water issues usually take years. Yet, those lawsuits still surprise us. Amazing!

Ten years ago a water district purchased its water from "Anytown." (This story is based upon actual events that have been fictionalized to protect the litigants.) A group in that region decided to look into forming a wholesale supply system to bolster water supplies. The district and Anytown participated. The wholesale system was finally formed a few years ago. The district joined. Anytown did not.

The district switched to buying most of its water from the wholesale system. Anytown then sued the district for breach of contract. You are probably thinking, "The district broke the agreement. It deserved to be sued." Maybe, but there is a twist.

The *written* agreement nowhere mentioned any commitment to buy. The agreement only covered how water was to be priced if it was sold. But the judge ruled that the district must continue past *practices*, too. That included purchasing substantial volumes from Anytown; their historical practice. Then he sent everyone away with instructions to work it out.

Being sued sucks! Wallow in it today if you must, then get over it. Your job as a decision-maker or manager of the system is not to cry over the awfulness of being sued. It is to find the best way through this new landscape for the benefit of your ratepayers.

This story has three main points:

1. You can't always predict outcomes, even if the "rules of the game" are written out in plain English.

2. If you want to continue functioning after the "bad" thing happens, you need to avoid the pity party, reassess and find a good way forward.

3. Your ratepayers judge everything by how it affects their service and rates. You should make decisions, even legal ones, on that same basis.

Back to the story, there was another twist. Before the lawsuit popped onto the district's radar screen it had committed, in *writing*, to purchase the majority of its water from the wholesale system. Some of the district's water purchases were now double-committed.

You should be wondering:

• Why did Anytown not insist on rewriting the agreement to include a required purchase volume once it was clear competition was coming in? Scratch that. Why wasn't it in there in the first place?

• Why did the district not have a discussion with Anytown about its intent to jump ship *before* doing it?

• Most important, are there landmines in *my* system's contracts and practices?

Point number 1 is history. It's time to move on to points 2 and 3. With the encouragement of their attorneys, the district and Anytown entered into legal mediation to resolve the dispute and write a new supply agreement.

To weigh settlement options subjectively each party needed to analyze the rate effects of each proposal. That was accomplished with analyses for both systems that projected their finances, rates and more, importantly including payments to be made by the district to Anytown. Another model linked these analyses together. Table 1 (shown on page 52), a depiction of the money part of the final settlement, includes elements of that model.

Anytown put together a proposal that would have had the district pay a total of $4.3 million through 2025. (For reference, the annual budgets of the district and the water system of Anytown were about $750,000 and $300,000, respectively.) Annual settlement payments would be locked in whether the district purchased water or not. But if the district did purchase water, Anytown would credit those purchases against the settlement payments. After all, water sales were what Anytown wanted.

The district's offer was, understandably, lower than Anytown's offer. It also placed more dollars on water sales. While different attorneys represented each side, one rate analyst, selected by both parties, prepared the analyses and settlement proposals for both parties and interpreted the effects of each for everyone. Awkward? No.

One of the best ways to resolve a contentious dispute is for the parties to first agree upon who will help them resolve it. That approach helps to break down the "us versus them" divide. Using one analyst also produces "apples to apples" comparisons immediately, saving money and time. When parties can agree upon who will help them and how to examine the issues, they are half way to resolution.

The analyst discovered that over the first 10 years of the water supply agreement Anytown lost $155,000 because it (unknowingly) charged the district less than the contract allowed. (The losses have since grown by another $320,000.) The statute of limitations has run out on the first 10 years so Anytown cannot recover those losses. Had Anytown hired a rate setting specialist perhaps three times over those years for perhaps $5,000 each time, results would have been different, including:

• Anytown would not have under charged the district.

•It would have kept in-town user rates in shape.

•It would have guarded against losing its major revenue source – the district.

Through 2025, by not investing $15,000 over the years, Anytown will end up losing at least $1 million.

As for the district, it will now have to pay for one-third of its water twice, spending $1 million or more extra for lack of a few timely analyses.

The alternative is for everyone to hire more of their own experts to help them fight the war more vigorously. That strategy can work fine if the demise of your adversary (bankruptcy for the drunk driver who sideswiped your car) will not degrade your own future. In this case, the success of Anytown and the district were linked; they were a team but just didn't know it. Team mates must communicate and cooperate. The best time to start that is from the beginning. The next best time is from a *new* beginning.

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Table 1
Summarized Settlement

	Year Starting 1/1/10	Year Starting 1/1/11	Year Starting 1/1/15	Year Starting 1/1/20	Year Starting 1/1/25
			District		
Unit Charges	$28,123	$85,189	$121,779	$141,175	$163,661
Minimum Charges	$0	$10,102	$11,370	$13,181	$15,280
Annual Lawsuit Payout	$0	$96,212	$14,102	$16,348	$18,951
Total Payouts	$28,123	$191,503	$147,250	$170,704	$197,892
5,000 Gallon/Month User Bill	$74.70	$92.55	$104.17	$120.76	$139.99
			City		
Cumulative Payouts to City	$28,123	$219,626	$783,391	$1,588,617	$2,522,095
5,000 Gallon/Month User Bill	$39.93	$42.70	$48.06	$55.71	$64.59

What effect did the final settlement have?

Two…point…five…million…dollars! Ratepayers hate such numbers. But, well over half this amount was going to be spent for water purchases anyway so the real payout will be closer to $1 million by 2025.

One…million…dollars! That is still scary to 900 ratepayers. The value of Point 3, figuring the rate effects, is inescapable. Ratepayers needed to see the effects in terms that meant something to them – their water bills.

The bills for 5,000 gallon/month users, for example, are shown in Table 1. In the district this customer's bill needed to rise by 24 percent initially. (In fairness, the district's then-current rates were too low by 10 percent before the settlement.) In-town the 5,000 gallon customer's bill went up by seven percent.

Viewed in the millions, settlement seemed like a no-go. Viewed on a rate basis, the outcome is not so scary. *Still, this never should have happened.*

By now you should have concluded at least three things:

1. I must make sure that such a bad thing never happens to us. That means I need to maintain good communication and cooperation with our customers and partners.

2. If something bad does happen, I need to move to resolve it quickly and humanely, using negotiation or mediation if possible. I should sue only as a last resort because partners get hacked off when they get sued. Then they don't play nice.

3. I need to consider the rate effects of any solution we examine. I'm not paying the bills; the ratepayers are.

Has this story revealed that a big, black Lincoln Continental is bearing down on you right now? Then wake up and take evasive action!

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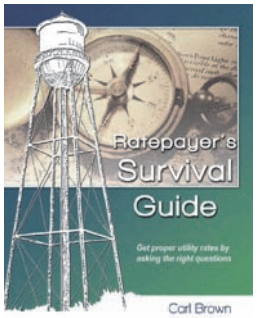


To learn more about how to maintain good relations with customers and partners, the "Ratepayer's Survival Guide" is available for free download at http://www.gettinggreatrates.com/.

See and learn from Carl Brown, author of the *Sued*! article, at MRWA's training session: "Water and Sewer Rate Setting" on October 13, 2011 in St. Cloud. You can pre-register your spot now by calling MRWA's office at: 800-367-6792 or online at: www.mrwa.com (use the training calendar). Don't miss it!

Risky Rate-Setting Business

By Carl Brown

Editor's Note: These issues are complex and not amenable to explanation in just a few words. Readers are urged to contact the author about specific issues of concern.

Lawsuits are awful, and a learning opportunity. They teach us that risk is real.

We open the door to risk by taking an action, or by taking no action. From zygote to grave, risk follows us like a shadow.

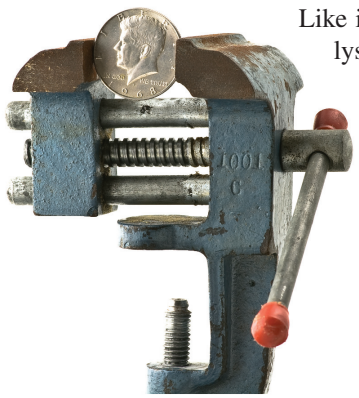
But you need not be morbid about it. Risk is manageable. Consider the following measures to reduce your risks of being sued, having supply agreements collapse or just plain making your utility ratepayers mad.

"Beer is proof God loves us and he wants us to be happy."
– Benjamin Franklin

"Lawsuits are proof that our fellow man thinks we took something, and he wants it back."
– Carl Brown

Insurance

Liability insurance for managers and decision-makers does not reduce risk. However, it will turn unknown risks into a known cost – an insurance premium. There is value in knowing. Get insured and stay insured.



Rate Analysts

Like insurance, by hiring a good rate analyst you can turn unknown risks into a known fee. Use the analyst periodically to get your rates on track. Then do incremental rate increases on your own during the intervening years. This will give you the best blend of low cost, spot-on rates and low risk.

Cheap Rates

You should charge rates that are so cheap that all your customers will love them. Of course, that will never happen, but get as close as you prudently can. Be diligent in wringing all unnecessary costs from the system's operations. This will make lower rates possible.

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You can *be* cheap but if no one sees it, it will buy you nothing. You must clearly, consistently and frequently inform your ratepayers about the great and economical job you are doing. Make such "bragging" a part of your job if you want to keep your ratepayers informed and mollified – the best you can hope for.

Be Nice

People get angry and some sue because they feel cheated, ignored or put down. Utilities are in the service business. First order of business: be "nice" to your customers. Second: conduct the ratepayers' business as openly and transparently as possible. Laws don't require "nice" but they do require openness. Like any good relationship, you must regularly make deposits in the customers' "feel good bank" so that someday, when you need to make a withdrawal, reserves will be there. Confused? See "Men are From Mars, Women are From Venus."

> Not being nice will make them want to sue. Not being open will give them grounds.

EDUs

The idea behind "equivalent dwelling units," "equivalent residential units" and "multiple minimum charges" is sound. Some utility customers can demand more service, volume or peaky flows than the average home. They should pay for those exceptional services. Think manufacturing plants, food processors, football stadiums and large apartment complexes. Unfortunately, EDUs are risky because they are a blunt instrument.

Fortunately, there is a good alternative, usually called "capacity" charges or fees. Capacity fees based upon water meter size or sewer service line size are superior to using the average home as the benchmark. The meter does not care what or who is downstream. It just measures water and passes it along. Big meters can pass more water than small meters. That flow potential is a big driver of system construction costs.

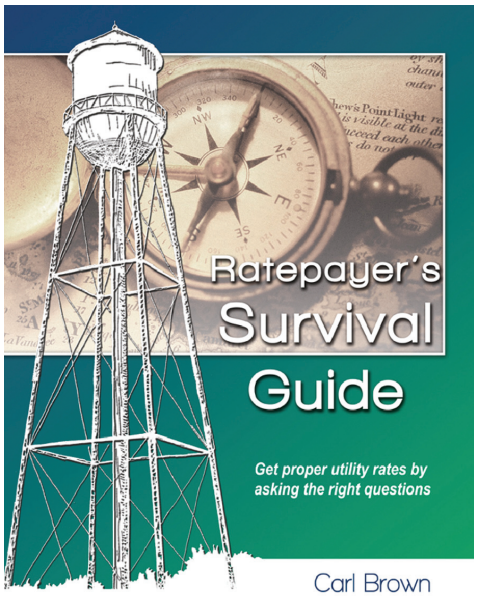
That said; most systems can ignore this issue. If your system has few large or peaky customers, you will raise almost no extra revenue from capacity charges so just assess regular minimum and unit charges.

Development Fees

Development fees are cousins to EDUs. The difference being, they are paid in one lump sum when new customers are hooked up. As with EDUs, if your system is growing slowly and no customers significantly larger than average are hooking up, do not even bother with development fees. When growth is slow, system development costs are stretched out over a long time. Thus, existing customers, and time, will use up and wear out the system faster than growth will consume its capacity. Your capital improvement program will focus on replacing old, worn out facilities and not on building capacity to serve new customers. If you do assess capacity fees, do it smartly.

Conservation Rates

Conservation is a good thing. But be honest. Conservation rates are usually more about collecting extra revenue than they are about saving water. That's not entirely a bad thing. Just make sure those rates are rational, justifiable and not overly harmful to some of your customers. By their nature conservation rates tend to collect the highest marginal fees from those who use the most water, who coincidentally tend to have the most money with which to pay you, or to pay an attorney to sue you.



Even if a plaintiff doesn't win you will end up paying large sums of money and spending many hours defending yourself. A little extra revenue or a little water savings is just not worth lots of risk.

> The "Ratepayer's Survival Guide" and many other free rate setting tools are available at gettinggreatrates.com/.

Wholesale Supply and Other Special Agreements

Discord between parties to an agreement is so common it seems inevitable. Such agreements are a common source of lawsuits, too. Before launching (or re-launching) into special agreements, invest in an attorney and a rate analyst who know the vagaries of such agreements. Being set up well in the beginning is the key to success. Don't think of such an agreement as a contract for selling a commodity and making money. Think of it as the template for a productive partnership because both parties need to win.

In summary, rate setting is risky business. But you can manage that risk with good insurance, good legal and rate setting advisement and smart business practices. The reward for your good work? Ratepayers will pay little attention to you. To paraphrase Martha Stewart, "That's a *pretty* good thing."

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By Carl Brown, President, GettingGreatRates.com

Setting a Proper Water Rate: Separating Fact from Fiction

When setting rates, one of the key assumptions that must be made concerns what a "fixed" cost is. Fixed costs are those that don't change, right? Wrong!

This article is going to explode some myths, but don't take it personally. The author's intent is to educate, not castigate.

Some costs change gradually. Some change rapidly or erratically. But all of them change. Thus, in rate setting you shouldn't think in terms of a cost's tendency to go up or down. Use the following benchmarks instead.

"Fixed" costs (badly named) are those that are related to the fact that someone is a customer. "Variable" costs, then, are related to the volume of the commodity. It's that simple, kind of.

Bill fixed costs to customers; bill variable costs to the commodity.

Consider this fixed cost – the postage stamp. The price of a stamp is not fixed. It changes. However, every bill – whether high or low, takes one postage stamp – except for the bill for that complex customer that takes 20 pages to detail. That one takes more stamps – just a reminder that "fixed" costs are not fixed. Everyone's minimum charge should cover the cost of their stamp or stamps, plus their other customer-related costs.

Fair, adequate and appropriately simple or complex utility rates: "great rates." These are built upon good mathematics, good assumptions and what some call "salesmanship."

Progressing upstream from the stamp, every minimum charge should cover the cost of the postcard or invoice and envelope used to convey the bill to the customer, the printer that printed the invoice, the computer and billing program that calculated the invoice, the time the clerk used to operate the program, and so on.

If a service costs the utility money, the utility should recover that cost from those who use that service if that makes good business and community administration sense.

– From "How to Get Great Rates"

That seems clear enough. Now it gets a little fuzzy.

The clerk, the billing program, computer, printer, paper and such must be housed somewhere. That space costs money. Thus, one customer's share of that space should be billed in the minimum charge. That is, a proportionate share of the mortgage or rent for the building that staff and its tools are housed in, including the heat, air conditioning, electricity and upkeep needed for that space – and so on. If it is related to billing it needs to go into the minimum charge.

Stamp: Fixed cost
Electricity: Variable cost, mostly
Debt service: Mixed and situation-specific

Now it gets fuzzier. This is where most folks get mixed up. What about staff time? Are these costs fixed or variable?

Most people think about staff costs like this: "Even if we sold no water we would still have to pay staff." True in the short term, but remember, your core business is providing water, not being able to provide water. Thus, most staff costs are variable.

Most, but not all staff costs are variable. As discussed previously, billing and general administration staff time is a fixed cost. Early in the design life of a system, when flow is far below its design capacity but staffing is not, you would be justified in calling a high percentage of operations staff time a fixed cost, too. As the service area gets built out and use increases, the operations staff time would shift more to the variable cost side.

Fixed costs are easier to understand when compared to variable costs. Consider this example: the electricity it takes to draw water, treat it and pump it to your customers.

As more water is produced, more electricity is used. Thus, electricity is mainly related to the commodity, not the customer. Of course, the power company may charge less per kWh for high volumes of electricity or off-peak electric use. And maybe five percent of your electricity will be used for security lighting around the well, plant and towers. Such complications muddy the assignment of utility costs. However, if the system pumps a million gallons of water, the electrical costs will be on a fairly level unit cost basis. Customers should pay for the lion's share of electric costs as a unit charge.

"Fairness" is subjective, but good math can make rate setting more objective and defensible.

As this example shows, most costs are a mix of fixed and variable. To figure out how to categorize costs, ask this question about each one: "What is this cost related to?" Customer-related parts of costs should go on the minimum charge. Commodity-related parts of costs should go on the unit charge. New customer connection costs should go on the connection fee. Bill collection fees for those who don't pay on time should be recovered through the late payment penalty fee or the deposit. And so on.

If a cost amounts to less than five percent or so of your total cost stream, don't fret excessively about how to classify it. You can call it 25 percent fixed or 50 percent fixed and it will make little difference in most customers' bills. That said, be consistent in how you classify costs.

Consideration of capacity costs, primarily debt service, makes rate setting very fuzzy indeed. How should you charge off this cost?

A popular myth is that debt service doesn't change. Therefore, this cost should be shared equally by all customers in their minimum charges. Perhaps equal sharing would be appropriate, but not for this reason.

Capacity cost theory is complex. Actually calculating how to divvy these costs up is even more complex. But this example will illustrate several situations you might encounter.

A water system in arid Arizona is designed, debt funded and built to satisfy the actual flow plus the potential flow of one customer – a 500 acre sod farm. This situation is easy – put all the debt service on the minimum charge.

But wait. There is a one bedroom house next to the sod farm. Should we divide the debt service by two and assess each customer half of the debt on their minimum charge? The sod farmer would like that; the little house owner wouldn't. Probably 99.9 percent of the design capacity of the system was for the sod farm and just 0.1 percent for the house. Thus, in fairness, the sod farm should pay 99.9 percent of the debt service, probably by way of the minimum charge and the house should pay the balance. There are even fairer ways to split this cost but they simply cannot be explained in just a few words.

Shortcut: If the system serves mostly residential and a few light commercial customers, making use and potential demand fairly uniform among the customers, just divvy debt service up equally between all the customers and put it on the minimum charge.

In the case of one house and one sod farm, the debt service load should fall heavily on the sod farm. Over time the service area may include 100 houses or 1,000 houses. With this shift in the user base the debt service should be shifted proportionately from the sod farm to the new users.

As you can see, how capacity costs are shared should be based upon the nature of the user base and the weighting will change over time. Your goal should be to figure out what part of the system's capacity costs were incurred just to provide every customer with a base volume of flow. That part should go on everyone's minimum charge. The rest should be billed in some combination of surcharges to the minimums of high flow capacity customers, connection or impact fees or unit charges. This is complex so you should get help from a rate specialist.

Raise rates every year, at least a little bit, unless the cost of owning and operating the system goes down for two or three years – which is not likely to happen.

Having made a big deal about properly assessing fixed, variable and capacity costs, during most years you can forget it all. During most years, most water systems should simply estimate what their total costs will be in the coming year (budgeting) and increase all rates and fees by the percentage that next year's costs will exceed this year's costs. This is a simple inflation factor. With each inflationary increase, rates and fees will become less fair. To periodically fix that problem you can hire outside help from organizations or a rate setting specialist to get your rates back on track.

Using these strategies you will enjoy rates that are very fair right after a rate analysis, fair enough during the early inflationary increase years, always adequate to pay all costs and maintain prudent reserves, and as inexpensive and simple as possible to achieve.

This sounds complicated. Some of it is. But the part you need to do is pretty straightforward. Do it well and you will get great rates.

Want to learn more? Then visit gettinggreatrates.com/ and check out the rate setting guide, articles, book and rate calculation program called SimpleRates©.

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By Carl Brown, President, GettingGreatRates.com

Pay Them in Water

Paying obligations in water (or sewer service, or natural gas or whatever it is that you sell) – is just the old barter system, right? Yes. But it is so much more. It will save or make your utility a lot of money, if done right.

When should you pay in water?

- When the city or system is sued and loses. Or, settlement is made out of court because that will cost less in attorney's fees, other costs and "hassle factor."
- When purchasing an expensive product or service locally.
- To pay a developer to build oversized lines and a pump station that will serve the development's needs plus the needs of future development in that area. Thus, the system will be able to sell that capacity at a profit while saving future developers money.
- When the system over-charged a customer or otherwise owes a big refund or payment.
- When the XYZ Corporation wants to set up shop in the system's service area and employ lots of local people if the company can just get free or cheap utility service.

NOTE:

The author is not an advocate for making special "deals." They complicate rates and they cause most systems to lose money. However, sometimes that is the best course of action so when you do it, you should do it right. That is the focus of this article.

Why not just stick with the tried and true, "Just write them a check" strategy? When the payout is small, that's exactly what you should do. But when the payout is big, giving free or cheap water can save the system money or make a profit. How can you pull this off?

Consider the example in Table 1. This is a simplified presentation of an actual lawsuit situation, with details changed to protect the litigants. A water customer of Wagon Trail City, let's call him "Mr. Gold Digger," sued the city for overcharging him. Mr. Digger had a solid case so the city settled out of court. Through shrewd negotiation Mr. Digger got the city to pay him $50,000. The city convinced Mr. Digger to take that payment in the form of free water, charged at his regular unit rate. Table 1 shows how the average and marginal costs of production are calculated. The difference between the two types of costs determines the system's cost savings rate from paying in water.

The table shows the amount of each operating cost item as well as the part of each cost that is considered fixed. Fixed costs are rarely related to the marginal cost of production. Therefore, these costs should be paid by customers in the minimum charge and not be considered in the marginal cost calculation.

After deducting the fixed costs (and disregarding a few others), variable costs remain. These go into the calculation of the average and marginal costs to produce water. Only part of the variable costs can reasonably be considered marginal costs.

As you can see in the table, in the column with the heading "Marginal Cost to Produce Percentage," the item called "Water Purchased" is considered

Average cost to produce: The sum of all costs required to provide the total volume of service, divided by the total number of units of service provided.

Marginal cost to produce: The sum of all costs required to provide marginally more units of service, divided by the total number of units of service provided.

Wagon Trail Water System Operating Costs

Item	Cost	% of This Cost That is Fixed	Fixed Cost	Variable Cost	Marginal Cost to Produce Percentage	Marginal Cost to Produce
Administration Salaries, Benefits, etc.	$15,720	100%	$15,720	$0	0%	$0
Maintenance Salaries, Benefits, etc.	$70,123	33%	$23,141	$46,983	0%	$0
Water Purchased	$3,336	0%	$0	$3,336	100%	$3,336
Chemicals	$14,850	0%	$0	$14,850	100%	$14,850
Plant Maintenance-Supplies	$52,896	0%	$0	$52,896	10%	$5,290
Insurance & Bonds	$11,067	100%	$11,067	$0	0%	$0
Electric for Pumping Water	$18,206	0%	$0	$18,206	100%	$18,206
Telephone & Cell Phones	$3,084	50%	$1,542	$1,542	0%	$0
Annual Payment to Replacement Fund	$82,763	0%	$0	$82,763	0%	$0
Loan Payment	$79,216	75%	$59,412	$19,804	0%	$0
Grand Total All Costs	$351,261		$110,881	$240,380		$41,682

Per User and Per Unit Costs

Number of Users on the System	Volume Used in Thousands	Fixed Cost/User/ Month	Average Cost to Produce/ 1,000 Gallons	Marginal Cost to Produce/ 1,000 Gallons
550	30,000	$16.80	$8.01	$1.39

to be a 100 percent marginal cost. That is because when the city pays its wholesale water supplier, it will have to pay just as much for water the city will give away as it will for water it will sell. If, however, the city produced its own water, some of the production costs may not be marginal costs.

"Chemicals" and "Electric for Pumping Water" costs are also directly linked to the volume produced. However, the item called "Plant Maintenance-Supplies" is estimated as a ten percent marginal cost item. That means that to produce the give-away water the city will incur a small unit cost for this item.

Notice the item called, "Maintenance Salaries, Benefits, etc." This is the cost of operations staff; it is a large, variable cost for the city. But none of this cost is considered to be a marginal cost in this case. That is because the marginal volume to be produced and given away is small enough that the operations staff will not have to do any extra work to produce the extra volume.

It should be clear that different systems have different types and levels of marginal costs. Even the same system's marginal costs change with time and production level so it is a moving target.

Back to the calculations. The marginal cost per 1,000 gallons is calculated by totaling the amounts in the right-most column of the table and then dividing that by the total billable units of volume used for the year. The marginal cost for Wagon Trail City is $1.39 per 1,000 gallons as compared to an average cost to produce of $8.01. In other words, the marginal cost is only seventeen percent as much as the average cost. This cost difference is a big cost savings or even a profit opportunity for the city.

The last step is to calculate the out-of-pocket cost to the city, and to its ratepayers, for giving Mr. Digger $50,000 worth of water for free. That is shown in Table 2.

If the settlement was paid out in cash and all users' rates had to go up for one year to cover that cost, the unit charge would have to increase by $2.10 per 1,000 gallons. That would make lots of customers angry.

However, by paying the settlement in free water at a marginal cost rate of $1.39 per 1,000 gallons, user rates would only have to increase by $0.36 per 1,000 gallons. By paying with water, the system will save $41,330 of the $50,000 settlement. That's a huge savings!

Unless Mr. Digger is a large water user, he cannot use 6,240,000 gallons of water in one year. Therefore, this payout will probably stretch out over several years. If, for example, it took five years to use this volume, the unit charge hit would go down to about $0.07 per 1,000 gallons. Even if Mr. Digger could use six million gallons of water in one year, the city still may want to stretch out the free water settlement for five years just to reduce the price increase to the system's users or the hit to the system's reserves if rates are not increased.

Now, let's consider a different situation where you can use the same strategy to make a profit. The XYZ Corporation will move to town if it can buy water at a steep discount. If XYZ's hotshot negotiator talked the city into a $2.00 per 1,000 gallons unit charge the company would save $6.01 per 1,000 gallons on a retail cost basis. The

negotiator would probably get a big bonus from XYZ and the company would consider it a big coup to move to your town. If the timeframe of the deal was short enough and the company's water use was low enough, the city would still make a profit of $0.61 per 1,000 gallons on a marginal cost basis ($2.00/1,000 rate minus $1.39/1,000 marginal cost). And, the other ratepayers would not be impacted because the costs of providing service to XYZ would all be covered by the $2.00 unit charge the company would pay. Everyone wins!

Table 2

Cash Outlay for Water Given in Settlement

Settlement Amount	$50,000
Average Cost to Produce/1,000 Gallons	$8.01
Volume, in Thousands, This Amount Will Buy $50,000 / $8.01	6,240
Marginal Cost to Produce/1,000 Gallons	$1.39
Total Cost of Water at Marginal Cost to Produce 6,240 Units * $1.39	$8,670
Unit Charge Increase Needed if Settlement is Paid in Cash $50,000 / (30,000 - 6,240 Units)	$2.10
Unit Charge Increase Needed if Settlement is Paid in Free Water $8,670 / (30,000 - 6,240 Units)	$0.36

Now that you have seen how easy it is to make or save money by giving away free or cheap water, you are probably thinking, "OK, what's the 'catch?'"

Actually, there are several "catches" and some could haunt you if you are not careful:

- Any time you are presented with the opportunity to pay out a substantial settlement or debt with free water, or sell at a discount, there are legal implications. You need a good water law attorney to advise you. Legal fees add to the marginal costs of doing the deal so at some fee level; there just is not enough money to be made or saved.
- The financial calculations will be more complex than were illustrated here so you need a good rate analyst. If you are not a rate analyst, get one. An analyst's fees have the same effect as legal fees.
- Giving away free or cheap water is a slippery slope. Do it once without clear and hard policy limits on the practice and lots of others will line up for an even better deal. Should you go one step further and sell water below the marginal cost to produce? Doing so might be warranted (economic development, increase taxable property) but the payback better be substantial, measurable and sure.
- If your system purchases water and the cost of that water is relatively high, the marginal cost will be relatively high, too. That will markedly reduce your savings potential when giving free or cheap water. The same is true for all other costs that are directly linked to production.
- If your system has plenty of capacity to produce and distribute free water you can safely do so at a cost basis above the marginal cost to produce. However, if during the time you will give away water you will have to build extra capacity, the math will change completely. Span this event and you could end up losing serious money if the marginal costs jump up more than the price you settled upon.
- If a settlement that includes free water will go on for several years, inflation will also be a factor. Inflated costs will eat into the initial savings or profit margin. If cost increases are great enough and the free water deal stretches out long enough, it would actually be cheaper to pay the settlement in cash on the front end unless you have a cost basis adjustment factor built into the deal. Therefore, your cost calculations need to look forward, not backwards.
- If you are facing a lawsuit you will incur legal and other costs as a result, regardless of how the issue is resolved. Those costs will be a blend of fixed, variable and marginal costs. Therefore, you will need to add these costs into your cost mix to calculate the average and marginal costs before arriving at a settlement amount. Otherwise, you could end up giving away more than you intend.

Paying in water can be complex and risky. But it is well worth looking into because it can make or save tens of thousands of dollars for small systems and hundreds of thousands for large utilities. It is also likely that your other customers would prefer you pay someone off with free water rather than write them a big check.

Within the next five years – maybe next month, your city or water system will probably face a Mr. Digger or XYZ Corporation situation. If the dollar amount is small, just "pay the man" and be done with it. But if the amount is large enough and the conditions are right, you could pay with water, give the other party what they want and pass big savings or even a profit onto your ratepayers. Wouldn't that be a nice change of pace?

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Quick and Easy Water and Sewer Rates

A Slightly "Tongue-in-Cheek" Look at a Serious Problem

By Carl Brown, President. GettingGreatRates.com

In many things, quick and easy is good. When it comes to your water and sewer rates, will quick and easy be good enough? Consider:

- Is it good enough to take your annual operating costs, divide by the number of customers you have and divide by the number of bills you send out in a year, then charge every customer that? Sometimes.
- Is it good enough to separate costs into fixed and variable categories, assess a minimum charge to cover the fixed costs and assess a unit charge to cover the variable costs? Sometimes.
- Is it good enough to tabulate all current costs; project costs into the future to operate the system, replace equipment, do capital improvements, pay debt and build reserves; project growth in the customer base and consider risks on the horizon; then calculate rates that will satisfy all these needs and divvy up the costs fairly? Sure. But do you really need to do this?

Deciding what is good enough depends on the size of your system; how big a "deal" everyone thinks it is to have fair and adequate rates; whether you are going down the financial tubes right now or you still have some reserves to work with; whether *THE ELECTION* is coming up in a few months or it was six months ago, and lots of other variables. Larry the Cable Guy's advice may just be your ticket to the right rates, quick and easy do-it-yourself affairs. It certainly has made millions for Larry. But, until you do some thinking about your situation, you just will not know if "Git ur dun" will get the job done right.

Rates described in Option 1 above, commonly called "flat rates," work just fine in very small systems where use is very uniform. This is especially true for very small, one-subdivision residential sewer systems. In such situations almost every household puts about the same amount of wastewater down the drain. What is in that wastewater is pretty standard, too. Flat rates require no metering. The bill is known to all customers. Rate calculation and budgeting are quick and easy. These are all nice benefits for a system that probably has no full-time employees and might even have NO employees at all, just Larry volunteering to help out.

Option 1 above seldom works well for water systems, though very small systems can sometimes get by with such rates.

Option 1 never works well for large systems and those that have a wide variance in use by different customers. It's just not fair to charge a car wash the same monthly water bill as the "little old lady,

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There are even simple programs available that will do the calculating for you, making it quick and easy.

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widowed, retired, living alone on Social Security." Their use and ability to pay is totally different.

Option 1 rates require only a butcher knife sort of calculation. Option 2 rates require more of a paring knife approach. These rates include a unit charge that is based upon flow for each customer. Such a rate structure works better than Option 1 in the case of the town with the car wash and some "little old ladies…"

The basic parts of Option 2 rates are not that hard to calculate. There are even simple programs available that will do the calculating for you, making it quick and easy. This level of complexity is still in the "Git ur dun" category and this is where most water and sewer systems in the U.S. fall. You still need to consider equipment replacement, capital improvements, payments to build reserves and such, but most town and district clerks and managers can handle a paring knife just fine.

Option 3 calculations require a scalpel. This level of analysis can model any type of rate structure and prepare you to face any situation. The calculations needed to do this are most appropriately called "comprehensive rate analysis" but most people just call this a "rate study." Unless you are a rate analyst, Option 3 is not a do-it-yourself affair. Fortunately, no system needs this level of help every year. Once every five years or so is usually good enough. For a very small system, once during its *useful lifetime* may be good enough. During the in-between years do-it-yourself adjustments using paring knife-quality calculations will do just fine.

Hopefully you are figuring out that "Git ur dun" is good enough for most systems during most years. But it's definitely NOT good enough during some years. Which years are those?

- In years when your system is flat broke,
- In years when, in the course of planning for capital improvements, you are estimating rate needs and seeking funding options for those improvements,
- In years when your ratepayers may complain *strongly* about the fairness of the rate structure you might propose –"Why are you charging me X when you are only charging them Y?"
- In years when you want to get elected or re-elected (cynical but true),
- In years when you want someone else to get blamed for the rate increase proposal (see previous bullet point), and
- In the fifth year after you had a comprehensive rate analysis done and your system has more than about 500 connections.

Actually, during years when your system is broke you need to use the paring knife right away and the scalpel soon after that. Why?

- You need money, now! There is no time to prep for surgery.
- Being broke, by definition, is a crisis and people just want you to end it.
- During a crisis the "Git ur dun" crowd is tuned in and they just want you to… well, you know.

After you announce, "We're broke so we're raising your rates," don't stop there. The next step is a comprehensive rate analysis. Why? Once the crisis has passed, "Monday morning quarterbacks" are going to ask why this happened in the first place, if the "fix" really fixed the problem and if the "fix" was fair. (Actually, *during* the crisis the "back seat drivers" will have already pestered you with these questions.) The comprehensive rate analysis will answer such questions. Those answers, by the way, will probably be, "This happened because we followed your directions before and kept rates low – too low. The 'fix' didn't go far enough – we need more. The current rates are not exactly fair – but the analysis has shown us how to make everything right."

Now it's time for you to take stock. Are you at a "Git ur dun" moment in time? Well, then…

Editor's Note: Want to learn more about rate setting, asset management and capital improvement planning? Mr. Brown will lead a full-day session on rates setting and an hour on the rest at our annual conference on February 15 and 16, 2010, respectively. You can also pick up a copy of his book, "How to Get Great Rates" at one of those sessions. Join us.

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By Carl Brown, President, GettingGreatRates.com

How to Get a Great Rate Analyst

Every city and rural water district needs to have rates that are adequate, fair and defendable.

Perhaps you have met or heard about a service provider who is well-meaning but he or she is just not suited to this line of work. There are also some pretty good service providers out there. Regrettably, great rate analysts are scarce, but they do exist.

Whether someone is a full-blown crook or just a bad service provider, this is a big problem. Yes, there are some utilities that get taken to the cleaners. But because of the horror stories that circulate, there are many cities and water districts that shy away from having their rates analyzed at all. That leads to bad rates, which leads to angry ratepayers and poorly funded systems.

Despite the horror stories, you can get a great rate analyst at the right time for reasonable fees with almost no risk. You just need to go about it properly.

What is proper?

- Talking very little, specifying even less;
- Listening carefully to prospective rate analysts;
- Making it easy for them to propose to you;
- Critically evaluating their proposals; and
- Checking their references, guarantee and proposed fees.

Download this free Rate Analyst Guide at carlbrownconsulting.com

What is not proper?

- Mailing a 10-page written Request For Proposals to every service provider you can find;
- Not verifying that your prospects are actually rate analysts;
- Not talking with prospects;
- Taking two months to get the analyst on-board, and;
- Paying a fortune.

KRWA Shortcut to Great Rates

KRWA has initiated the Kansas RATES Program to help cities and water districts get their rates set properly, simply. Through the program, KRWA provides basic rate reviews, FREE OF CHARGE! Most of the time, that is all that is needed. But when the situation is more complex, KRWA will refer those systems to the author's firm to get a service and fee proposal. If the city or RWD then wants to proceed, the firm will do an analysis and assist in getting rates, fees and everything else set up properly.

In addition to rate reviews and analyses, KRWA will be sponsoring five-hour training sessions entitled "Getting Good Rates for Cities and Rural Water Districts." By the time this article is printed, sessions will have been conducted in Salina, Tonganoxie and Iola. Additional sessions are in the planning stages. If your city or RWD is interested in learning how to logically set water rates, let KRWA know. The Association will do everything possible to schedule rate setting training in your area.

The bottom line is this. Every city and rural water district needs to have rates that are adequate, fair and defendable. By providing rate reviews, analyses and training, KRWA can get you there. Please consider making the Kansas RATES Program your first step toward getting the rates you need.

As you might imagine, soliciting and selecting the right rate analyst requires attention to more why, when and how-to details than this. Those details can be found in the "Rate Analyst Guide," a free download at carlbrownconsulting.com/. You don't even have to register, give your e-mail address or anything else to get it. This guide is written by a 19-year veteran of rate analysis. The guide also includes a link to a free model request for qualifications and proposals in Microsoft Word format. Use the guide and the RFP to get this critical task right.

In closing, consider this thought. When utility ownership costs were low, rates were low, so unfair rate structures were no big deal. Costs are no longer low. Rates must go up. That means fairness now counts.

Water systems often need higher but fair and appropriate rates at reasonable cost. Select an analyst properly or just take advantage of the Kansas RATES Program and you will get there just fine.

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What Should a Rate Study Cost?

Fees paid for rate studies are frequently too high, primarily because of how those services are solicited. Fees can be reduced by simplifying the service acquisition process.

By Carl Brown

I opened the mail — another request for qualifications for a water and sewer rate study. This one was from a city, population approximately 10,000, located within a three-hour drive of my office. The document was 15 pages long — bad sign, they're looking for way more than they need.

The deal breaker — it specified several kinds of liability insurance that a small rate setting specialty firm cannot get for a reasonable premium. I tossed the paper into my recycle box.

This article is about cost containment. However, fees should be no higher than No. 3 on your "good rate analyst attribute" list. First should be the capability of the analyst to solve your rate setting problems. Anyone can double your rates. But it takes a good rate analyst to double your rate revenues with a high level of confidence while creating a rate structure that is demonstrably fair to your ratepayers. Second on the list should be how well the analyst fits you, professionally and personally. Fees should come in third. This article will help you get a good rate analyst who fits you well and won't cost you an arm and a leg.

This article will show you what drives fees upward. That will help you figure out what drivers you can eliminate and still get the services you need.

Keep in mind:

- Every utility and every rate study is different from every other.
- Fees should be commensurate with services rendered.
- Services rendered should be appropriate for the situation encountered.

Buying rate study services can be likened to hiring a tax accountant. Your top priority should be getting an accountant who will get you every tax break worth taking. But if you have to pay an excessive percentage of your tax savings to the accountant you would be better off doing your own taxes.

In the rate setting arena it makes sense to do your own rate setting during most years. You should only call in the analyst when big or complex things are going on or it has been several years since your last rate study.

Back to the request for qualifications story; it didn't actually end in the recycle box, yet. A few days later an engineering firm called and asked me to partner with them on that same rate study. I agreed. We worked up a proposal – it took a week. We got selected as one of the top three responders. We attended an interview. We just knew we were the best team for the project. We lost to another engineering firm. Here's the interesting part.

If this city had solicited simply, allowed each analyst to specify what needed to be done and did not require the extraneous insurance, I would have done this study for around $8,000 including one trip there to present my results and recommendations to their council.

Partnering with the engineering firm to respond as specified; adding their overhead, insurance and response costs; and then adding fees to cover my response costs pushed our proposed fee to $25,000.

The winning firm estimated their total costs at around $70,000. However, they were willing to cap their charges at $35,000.

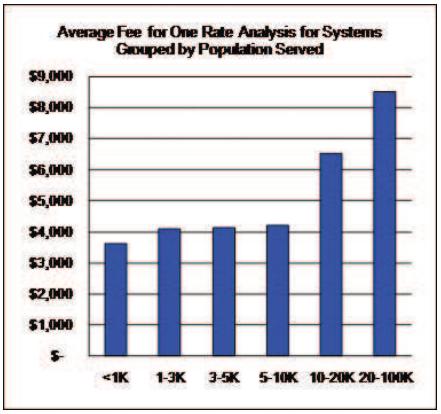
Perhaps this city will actually get $70,000 worth of rate analysis but $8,000 would have bought what the city really needs.

Do you think the winning firm "ripped the city off?" Slow down. Consider it from the proposer's point of view.

The winning firm incurred costs (marketing and acquisition) just to get this project. Its costs included staff time, response production, travel (one member of the team flew in from Florida), etc. These costs may have totaled $5,000. If this firm wins one out of five such responses (a strong winning rate), the firm needs to make $25,000 ($5,000 times five tries) on this project to pay the acquisition costs. Add $8,000 for rate study work and $2,000 for additional profit and the total is $35,000. Thus, the fee is made up of acquisition costs; the lion's share of the fee; rate study work and profit. The level of the fee is a direct result of how the city went about soliciting these services. The city got what it (perhaps unknowingly) asked for – a very expensive rate analysis.

If your system is much smaller and simpler than the example city you will, of course, be looking at lower fees. But you could be looking at far lower fees if you will just solicit in a way that will allow proposers to keep their acquisition costs low. Following is a checklist of things to do. Some will sound like heresy but the explanations that follow the list should clear that up.

- Ditch the RFPQ (request for qualifications and proposals). Instead,
- Decide what outcome you want to achieve. That should boil down to a simple statement like, "We want our rates to be adequate to fund our utility properly for the long term while being fairly structured for our ratepayers."
- Gather some basic information about the system to be analyzed.
- When you have the rate setting goals in mind and system information at hand, canvass prospects by phone. Solicit responses only from those you determine to be rate analysts.
- Require responders to carry auto, health and general accident insurance coverage, if you care to bother with it, but do not require liability coverage, often called "errors and omissions" insurance.
- Before hiring an analyst require an excellent guarantee and check their references thoroughly.



When compared to services as solicited by a typical request for qualifications, the fees above usually fall in the middle of the bottom third of the range so they are a reasonable estimate of the fee "floor" you may expect. Fees stay flat until the population hits 10,000 or so. Generally smaller systems have simpler rate needs largely because they have a simpler customer base — mostly residential and general commercial. However, it takes a minimum of work to produce any proper rate analysis. Thus, each analyst's fees can only go so low regardless of how small the system is.

Ditch the RFPQ? Yes! You should not assemble pages and pages of requirements and specifications

(expensive and time consuming on your part), mail them in a RFPQ to everyone you can find an address for, receive boxes full of response materials and have a committee wade through them for weeks trying to decide which firm would be the best to serve you. The more you specify about rate study techniques the more it will cost because you will always ask for things that are not necessary. A written rate study RFPQ, if you use one at all, should be about two pages long. Much more than that and you are unnecessarily running up your costs. Keep it simple.

If you don't mail out a long written RFPQ, or even a short one, how then can you tell rate analysts what you want them to do? That's just it. You don't need to tell them what to do. In their responses they will tell you how they intend to conduct your analysis. Let them use all the rope they want to either climb to the top of the mountain or hang themselves. Don't tell them ahead of time how to do the former and avoid the latter.

The trick to getting a great rate study at reasonable cost is not the RFPQ. It is finding one or more rate analysts to solicit. If you must have a RFPQ, just use it as your "script" for talking with prospects on the phone. When you talk to a prospect you should first ask, "How do you make money?" That will separate the analysts from the pretenders. If they are not a rate analyst there is no need to waste more of your or their time. You wouldn't ask a lawyer to design a water tower, would you?

Continue talking with those you determine to be analysts, telling them your rate setting goals, project timeframe and such. To scope your project they will also need basic information drawn from sources like these:

- Income and expense statement, balance sheet and balance trends,
- Capital improvement and equipment replacement plans,
- Current rate chart and rate adjustment history, and
- Expected events that will impact the financial health of the utility.

Receive responses from analysts by e-mail. Phone and e-mail contact are how most facets of the rate study will be handled anyway so use them from the start. You can call prospects, solicit three or four rate analysts from among them, review their responses and call references using about a day's worth of time. This method is quick, easy and cheap.

You might think that saving on acquisition costs is most important for large systems because there are large sums of money to be saved. The opposite is actually the case. A large system is likely to end up raising rates enough to generate, say, $1 million more each year. If the analysis costs $20,000 the payback period will be 7.3 days. That means the system will raise its rates and use 7.3 days worth of its extra rate revenues to pay the analyst. If the analyst charged $40,000 the payback period would still only be 14.6 days.

If, however, a small system ends up raising rates enough to generate $35,000 more per year and the analysis costs $3,500, the payback period will be 36.5 days. If the analysis costs $7,000, the payback period will stretch out to 73 days. Thus, $3,500 in extra fees for a small system is worth five times more to that system than $20,000 in extra fees to the large one. Fees are still only No. 3 on the small system's list of analyst attributes, but they are a very strong No. 3.

Almost never should you hire a rate analyst on an hourly basis. Pay for results, not hours.

Finally, rate setting carries risk. You need protection against the risk of hiring a firm that may look good, but cannot deliver the goods. You should not do that with layers of expensive insurance coverage. Collecting damages from an insurance policy is a pain, it can be costly and it is not a sure thing. Besides that, the consultant is not paying those insurance premiums, you are. They only serve as the collection agency.

Instead of superfluous liability coverage you should require a guarantee from your responders that reads something like this, "You will be satisfied or you pay us nothing." You should also require extensive references and check references thoroughly. No one is in a better position than a past client to tell you if a rate analyst is good.

Now that you know how to eliminate extraneous fee drivers, what should a rate study cost your water or sewer system? The chart on page 35 depicts fees for analysis of one utility without the extraneous fee drivers. In the chart find the population range served by your system. To that fee add between $400 and $1,000 to pay the analyst to appear before your board or council to present their results and recommendations if they can drive there in a reasonable time. If they have to get on an airplane, tack on $1,500 instead.

Small systems frequently require no onsite visits. Seldom do they need more than one. Larger systems and those with multiple utilities being analyzed sometimes require two or even three visits. If there will be controversy about the rate adjustments, usually because

they are going to be large, an on-site visit by the analyst is money well invested. It is better that the analyst take the arrows than you.

A cheap or even free alternative to the onsite visit is to have the analyst participate remotely by speaker phone. (Someday we may do this by online video conference or video phone conference even for small systems.) The upside to speaker phone participation is the analyst can do rates for any system anywhere without once leaving their office. The downside, for those of us who love to go face to face with naysayers as we "educate" them, is that the speaker phone is not nearly so satisfying or "educational."

If you want the analyst to examine a second utility; for example, analyze water and sewer rates; you should boost the dollar figure in the fee chart by 75 percent before adding the travel costs. In other words, the second analysis should be about 25 percent cheaper than the first.

Finally, whatever dollar amount you got when you did the simple math above, subtract 20 percent and add 40 percent to get the range of fees that may be reasonable for your situation. Why subtract a little and add a lot? You are probably under-estimating, not over-estimating, just how bad your situation is.

To demonstrate the math above, consider the systems in the 1,000 to 3,000 (1-3K) population group. The average system in this group paid $4,105 for its rate analysis. It also got a $400 onsite visit which brought the total fee to $4,505. Therefore, a fee range of $3,604 on the low side (20 percent less) to $6,307 on the high side (40 percent more) would be reasonable for a system of this size located close to the analyst. Spread over the five years that this analysis should comfortably carry such a system's rates, this fee range is roughly equivalent to paying $721 to $1,261 per year.

From another perspective, a fee of $4,505 would cost each person in such a system 3.8¢ per month for five years to get and keep rates that are adequate for the system and fairly structured for the ratepayers. That s a cheap cheeseburger once every five years.

You now know how to estimate the range of fees you can expect to pay for a rate study if you will eliminate the extraneous fee drivers before soliciting analysts. If you will make these simple changes you might reduce the fees you have to pay by 50 percent or more compared to traditional solicitation methods. More importantly, your rate setting results are bound to be better. The key to getting these results is not "holding out" for the right fee offer. The key is soliciting properly so prospective analysts can deliver what you need at the right fee.

You can get the right rate study at the right fee that will give you rates that are right for your system and right for your ratepayers, if you will just do it…right.

AUTHOR'S NOTE: Fee data and information referenced throughout this article is from the author's practice. Some might view this information as promotional. However, it has been cited here as a means to educate, not promote.

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Getting Great Rates

Taking a Closer Look at Rate Analysts

By Carl E. Brown

With all due respect to the sages of advanced asset management (AAM), it's not about the equipment. It's all about the money.

It always has been all about the money. If it wasn't all about the money, we would have no need for free service providers. Engineers wouldn't do engineering reports and other front-end work for "free." Grant and subsidized loan agencies and all the other "freebies" aimed at keeping systems functioning would be gone. We would have nothing but well funded, self-sustaining water and sewer systems cranking out great service 24/7 into the distant future. And how would they come to be well funded? Great rates.

We should set level of service goals, set up means of satisfying them, deal with risks responsibly and handle all the other issues that fold nicely into AAM. We really should. However, even if we don't do those things, we still need to set rates that will pay our operating costs, keep the doors open and keep the services coming. Rate setting is a must-have. AAM, though smart, is still just nice-to-have.

Fortunately, the analysis process that leads to great rates can also reveal opportunities to productively (read "save money") use AAM strategies. If you want to advance the asset management performance of your hometown's utilities or those utilities you help, convince them to get great rates first. That will pave the way for AAM.

You have choices when it comes to getting great rates. You might do a rate analysis yourself. Or, you might hire a specialist to do the heavy lifting for you. Be aware, rate analysis/rate setting is a risky sport, but it's easy when you have a tag-team to help you. Let's start with the easiest part – a few cold, hard facts.

Fact: Water and sewer rates don't get out of whack overnight. It usually takes years. You probably won't get great rates overnight either. And, to keep your rates great you need to examine your financial performance and impending needs regularly and adjust rates every year, a little bit.

This is the part of the tag-team sport you need to handle. Small, inflationary rate increases are easy for ratepayers to swallow. It's the 25 to 75 percent increase that really gets their hackles up. As a commercial on TV says, "Don't agitate the dots."

Fact: Most water and sewer rates are currently 20 to 45 percent too low right now. To be clear, your rates probably need to go up 20 to 45 percent right now.

Getting great rates from this position could involve agitating the dots. You might get fired or lose your elected position if you agitate the dots. In fact, someone's desire to not agitate the dots probably got you into this predicament in the first place. Getting out of this predicament is problematic. This is the part of the game you need an outside specialist to handle. They will do the math correctly for you and they, not you, will take the heat for the big increases they propose. Their function here is simply to propose a financial course of action that makes good business sense.

Fact: Utilities are businesses regardless of what entity owns and operates them. All businesses must cash flow well or they will cease to do business.

Fact: All decisions are investment decisions. You are making them all the time – sometimes well, sometimes not.

Fact: All investment decisions boil down to three basic questions: What must I invest? What return do I expect? What is the risk I won't get what I expect and how do I feel about that?

Rate Setting in Pine Haven, Wyo.

Pine Haven is a small town in the northeastern corner of Wyoming near Devil's Tower and the Black Hills. Retirees, summer homebuilders and buyers, and energy field workers have discovered Pine Haven so it is now growing at about 12 percent per year.

With all this growth in customer base, are Pine Haven's water and sewer systems rolling in cash? No. Their rates have been too low for many years. Twelve percent annual growth also means they are outgrowing their systems rapidly, bringing more debt for upgrades. Ratepayers thought their rates would go through the roof.

Analyses of the water and sewer rates by the author revealed that recent rate increases generally fixed the financial problems on a gross revenue basis. However, the city wasn't getting the right amount of revenue from users of various sizes. In other words, the rate structures were not equitable. Rates still needed to go up for the high-end users but down for some low-end users. The analyses proposed new rates that will now be adequate for a long time, fair to the ratepayer classes and affordable. Best of all, assured adequate funding will enable the city to continue providing good service and accommodate growth.

This set of questions is at the heart of AAM. Investment decisions should be supported with data and estimates of outcomes. Otherwise, you're just shooting in the dark and that will lead to friendly fire casualties.

Getting the Rates Right

The pressure to under-invest in infrastructure, management prowess and financial capability is great. You or your predecessors may have already succumbed to that pressure. Why? Simple, really. On a current cost basis (read "keeping rates low") it's cheaper to under-fund.

Ratepayers know with near certainty that they will have to pay their water bill every month and they would rather do something else with that money. However, they don't have a clue (no slight intended) about the risk of service outages or poor service they might receive if they starve the water system with inadequate rates. Thus, they won't storm city hall demanding that you reduce the risk of outages because that is not on their radar screen. But, they will string you up if you propose big rate increases because that is on their radar screen.

User charge analysis is nothing more than a decision-support tool that places investment, return and risk in proper perspective. The analysis doesn't set your rates for you. You still have to do that. But, it does give you the information so you can make and execute good investment decisions for your system and your ratepayers. While the specific techniques of user charge analysis get very complex, the underpinning is just that simple.

Rate setting is risky business. If you don't have a strong background in rate analysis, you run a moderate risk of doing the math wrong. However, you run a huge risk of making some wrong assumptions along the way, some of which can be troublesome.

Here are a couple of simple rules to keep in mind:

Rule 1: Don't do your own rate analysis.

Rule 2: Never make a big rate adjustment without a rate analysis.

Breaking either of these rules can kill your elected or professional career. As with all rules there are exceptions:

1. If your system is very large (more than 50,000 connections) and you are the director of the finance and rate analysis department, sure, do your own analysis. Your analysis would probably be better than an outsider's because you know many things about your situation that the outsider may never get to know or that would cost lots of money for them to get to know.

2. If your system is very small (less than 100 connections), again, do your own analysis (or get a free service provider to do it). The harsh fact is, being very small entails lots of risks that you just can't escape and with so few ratepayers, you can't buy your way out of it.

a. An exception to this exception: If you are planning to build or upgrade expensive infrastructure, spring for the insurance of a professional rate analysis. You want to ensure that your decisions lead to good long-term investments. Make the wrong choice and it could cost you hundreds of times the cost of an analysis.

Rate setting is a tag-team sport. Each team member has the following responsibilities:

1. You hire a user charge specialist.

2. The specialist analyzes your current and future financial condition under various scenarios, including different rates.

3. The specialist proposes a course of action. Usually key to the specialist's service is "selling" your ratepayers on what the current situation is, where the system and they will be if changes are not made, and where they will be if changes are made.

4. You take over again. You tell your ratepayers that YOU did not analyze the rates, the specialist did. (Blame the specialist. Weasely, yes, but it works.) Then adjust rates appropriately. This is the big, initial rate adjustment. If you don't step up here and get the job done, your system may never climb out of the hole – game over for the system. Do the big rate increase without the cover of a specialist's analysis and you are exposed to the risk of involuntary departure – game over for you.

5. You track your system's financial results against the results predicted in the rate analysis. Key to this tracking is calculating your operating and coverage ratios. Consider including these ratios in your financial statements so decision-makers can track the system's performance.

6. You make small rate adjustments annually for a few years based upon comparing the system's actual financial performance with the performance predicted in the analysis.

7. Probably in three to five years the system's performance will diverge widely from the predicted performance. When that happens it's time for you to get another analysis – you reset the game. Or, you may decide to build a new treatment plant or replace some lines and this was not foreseen by the analysis. Again, you reset the game.

The 12-Step Plan to Rate Analyst Selection

1. Examine your existing acquisition process. Compare it to the following steps. As needed, revise your processes to make them work better.
2. Get advice on what kinds of rate analysis services (scope of service) you need.
3. Develop a probable scope of services.
4. Ask service providers for firms and others that do rate studies.
5. Prepare a request for qualifications (RFQ) that includes the scope of services.
6. Talk with prospective rate specialists and give them the RFQ.
7. Review responses.
8. Select a responder with whom you want to discuss doing the project and talk it over.
9. Check references.
10. Have the specialist give you a firm proposal for what they will do, what you need to do and what they will charge you.
11. If the proposal is acceptable to you, present it to your decision-making body for approval or disapproval. If they approve it, proceed. If not, go back to Step 7.
12. As your specialist does the work, ask questions, be involved and assure yourself that things are going well. If they are not, and your specialist can't fix the problem, fire them and use another analyst.

Selecting a Rate Analyst

You are probably not even ready for responsibility No. 1, selecting a rate analyst. How do you get started and do it well? Fortunately, this part of the game is easy and pain-free for anyone who has the authority to do it, who has their heart in the right place, who is well reasoned and who can follow a step-by-step process.

A rate analysis done by a specialist will probably give you a higher return on investment, on a percentage basis, than anything else you can do for your water or sewer system. Now you're thinking, "OK, what is this high return going to cost me?" That depends but the following should give you a basic idea of what to expect in a professional rate analysis.

Return on Investment

A professional rate analysis may result in the fees collected by a 500-user water or sewer system to go from $150,000 per year to $202,500 during the year after the analysis. That is an increase of $52,500 or 35 percent. The system would pay the specialist about $4,000 for the analysis, or 7.6 percent of the first year's extra revenues. After paying the analyst, the system would net an additional $48,500 in its first year after rate adjustment and the full $52,500 each year after that until the next analysis is done.

The first year return on investment would be 1,212 percent and go up by 1,312 percent each year after that. These returns do not include any future inflationary increases the analyst would probably recommend. (The first year return on investment for smaller systems is normally a few hundred percent.) In other words, the system will pay to the analyst for about 28 days the additional rate revenues that the analyst enabled them to collect. From Day 29 forward the system will "pocket" the rest of the additional income. Thus, the system is not "out" $4,000. It is "in" by $48,500 the first year and more after that.

Put another way, for every week the system procrastinates doing the analysis and consequently doesn't raise its rates, it loses $1,007. Put yet another way, if the analyst can shave one week off of the time it takes to start rate increases as compared to the time it would take for a free analysis, the analyst gains the system an additional $1,007. If the analyst gets them to their rate increase 29 days sooner than they could have done it using some free method, the professional rate analysis is then cheaper than the free method.

Now, of course, there is no free lunch. The ratepayers pay the cost whichever way you go. However, as a result of the analysis, the ratepayers get a system that is more assured of proper funding and that makes excellent operations and service to them possible. You don't spend a month or two of your time doing a rate analysis and many more hoping it's right. And, you get to keep your job or elected position. Those are some nice returns all by themselves.

Rate analysis and appropriate rate adjustment is critical to the performance of your system. You will invest your time and money somewhere. Do it where you can get the best return possible.

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BUT, It's Not in the Budget

By **Carl Brown**
President, Carl Brown Consulting

If you make decisions for a water, sewer, stormwater, or other utility service, you need to be focused on making money—probably more than you are making right now, even if you think you are well funded. You must make more money than just enough to cover your operating costs because your operating costs are going up. And that doesn't even count the unexpected costs that are going to pop up and surprise you.

Let's put some numbers to this situation.

Say you have a water system with an annual operating budget of $75,000. (I'll get to you big guys later.) You're breaking even—code for "you have no money in the checking account after you pay this month's bills." Picture taking all of your ratepayers with you up on a high wire with no safety net. That's what breaking even is. You need a safety net of approximately $26,000. Your ratepayers might say they don't want a safety net, but trust me, they do. You probably need even more cushion than that to cover equipment replacement costs, and you need to make sure your rates are fair to all your customers. But let's keep it simple and only consider the $26,000.

You have about 315 customers paying an average bill of $20 per month. To raise the $26,000 in one year would require a rate increase of about $7 per customer per month. That won't be popular, and it may not be advisable depending on your situation. But it is do-able if you sell it right. After all, the ratepayers' affordability index will only go from about 0.8 percent now to 1.1 percent after the increase. That's close to the national average.

To successfully clear the $26,000 in a year your system needs to invest about $3,000 in a good rate study. What do you do? If your system is like most, you forgo the $26,000 net cash increase because you don't want to spend $3,000 to get it. As you view it, you are losing $3,000, not setting yourself up to gain $26,000.

Let's personalize this. Assuming there was no risk, would you give your stock broker $3,000 of your own money now if she would give you back $6,000 (your $3,000 plus $3,000 more) in one year? You probably would, because you would be doubling your money in a year. What if she would give you back $29,000 (your $3,000 plus $26,000 more)? Almost certainly. You would be multiplying your investment about nine times in one year—a remarkable rate of return. What if you didn't even have to give her the $3,000 to get started? If you could just wait for the results of her work to earn the first $3,000 for you, then would you pay her $3,000 after the fact to net the $26,000? Surely you said, "Yes." Well, you can have it that way with your rate analyst.

Back to your water system. You would spend about one-and-one-third months worth of your additional first-year revenues to pay your analyst, then you would pocket the rest. Saying that another way, every month you procrastinate in raising your rates costs you about $2,000 in lost revenues. A good rate analysis will carry you for about three years, and you will net about 96 percent of the new revenues after paying your analyst.

Now, to state the obvious: you're not giving your analyst $3,000 that he will invest in the market to earn your return. He's going to get it from your customers. Thus, what you pay him, in all fairness to your customers, should only be a small part of the increase in their rates. Otherwise, you should just figure out your funding shortfall percentage, boost everyone's bill by that percentage and hope that nothing bad happens. Keep it simple and cheap.

Now, back to you large-system guys. If your annual operating budget is five to 10 times that of the small system above, your return on investment is in the thousands of percent the first year. You spend maybe a quarter-of-a-month's worth of your additional revenue to pay your analyst, and then you pocket the rest. Every month you procrastinate and don't raise your rates costs you $10,000 to $20,000. You will net about 99 to 99.5 percent of the new revenues over three years after paying your analyst.

The early adopter in you says, "Let's go," but the timid side of you is looking for stop signs. You think first of the standard, "We can't fund a rate study because it's not in the budget." Remember that $26,000 gain waiting for you? You think, "We're too busy to mess with a rate study right now." Then, you are too busy! You think, "Let's save the $3,000 to $6,000 investment in having a specialist do a rate study, do it ourselves and net all the money." That is good thinking. Run the numbers, all the numbers, on doing it in-house versus having a specialist do it. Doing your own rate studies may be your best option. Even if it is, you may need the help of a specialist to get you started. You think, "Let's get a cheaper analyst." Yes, your analyst's fee is a cost. However, it is also an investment toward great rates for your system. Quality takes time and it costs money. Invest wisely.

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Why Are Our Rates Too Low?

By Carl Brown

Citizens Against Virtually Everything

Water utilities, and many other utilities for that matter, have a problem – under-funding. Translation: our rates are too low. How did we get here? There are lots of reasons, most notably this one.

Ratepayers say loudly, "We want cheap rates." They say softly, "We want fair rates, too." And, ratepayers just assume that good service will happen at whatever rate they pay. (Hey, we've been delivering it to them for years, on borrowed time, of course.)

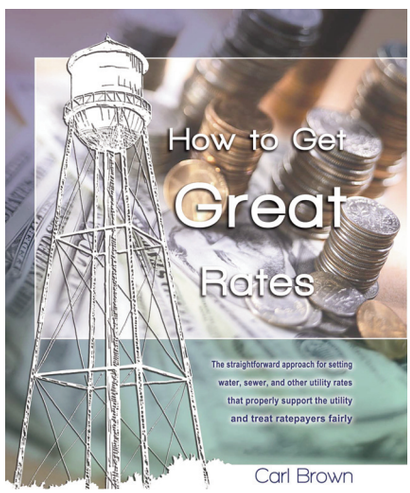
The call for "cheap" drowned out the call for "fair" so we went with cheap. What we should do is go with a fair rate structure first. Then see if the ratepayers are willing to pay rates that are high enough to provide the level of service they want. If not, we provide a lower level of service because, sorry, the free lunch is over.

This is a game of "chicken" that the ratepayers have been winning so far. But, the ratepayers don't want substandard service, especially when it costs so little extra to get good service. We just haven't given them their real options before. If you will prove to everyone that everyone is being charged fairly structured rates, just about everyone (notably excluding "CAVE" people) will accept fair and adequate rates.

There are several ways you can prepare to prove up your rate case:

*You can use standard politics. Just keep telling everyone, "Rates are fair and square regardless of what it looks like. And, besides that, we just know our Senator is going to get us an earmark to pay for upgrades so you won't have to pay for those anyway." Wake up and smell the deficits!

*You can use a free rate calculation program you find on the Web, plug in your data and set cookie-cutter rates like it tells you to. Cookie-cutter works for some, but most folks think they are not cookie-cutter (and they're right).



*You can do or get a comprehensive rate analysis that looks specifically at your system's needs as well as your ratepayers' needs and desires and set rates accordingly. You are probably concerned that this is going to be painfully complex. For do-it-yourselfers it is, but you can just hire it done. Hiring it done will be wildly expensive, right? Actually, for most systems a good comprehensive rate analysis costs the equivalent of

one cheap cheeseburger per person every five years. Who can't give up one cheeseburger every five years?

There are various ways you can get started in learning how to prove up fair and adequate rates. A good one is to download the free "Ratepayer's Survival Guide©" at http://gettinggreatrates.com/.

Whatever you do, don't just stand there. Your rates are almost certainly unfair and too low right now and they are getting worse by the day.

Editor's Note: You can purchase Carl's book "How to Get Great Rates" (graphic shown at left) from Minnesota Rural Water Association for $25.00 plus shipping by calling our office at: 800-367-6792.

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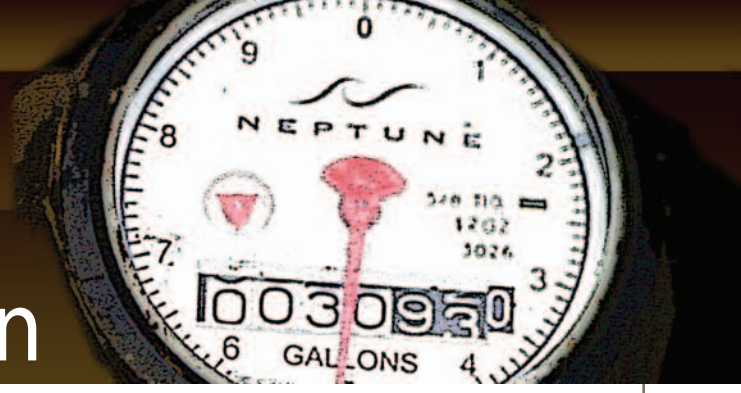

To Meter or Not Meter: That is the Question

By **Carl Brown**, President, Carl Brown Consulting, LLC

Most public water and sewer systems in the U.S. are metered. That is, customers pay fees based upon the metered volume of water or sewer service they receive. However, some systems, particularly the smaller and more rural ones, do not meter for their service. Instead, they charge customers a flat fee or bill them through property taxes.

Generally, unmetered systems "graduate" to metering at some point in their maturation. The decision of when to graduate should be based upon several important factors. Perhaps the easiest way to determine when a system should graduate is to know when it makes more sense to not graduate and remain unmetered.

Not metering makes the most sense when most of these conditions exist:

- The system is small and probably serves fewer than 100 users.
- It is fairly new and watertight so little volume is lost to leakage.
- The source water requires little or no costly treatment.
- All users are very similar, probably residential of about the same family size with no industrial or large commercial users.
- All the users draw on water and sewer services in about the same way.
- There is a functional "peer pressure" system in the community that serves to encourage those who otherwise would waste or use lots of water to conserve.
- The water supply is adequate to handle some wasteful or excessive use.
- Although the system is well-run and maintained, the rates are relatively inexpensive, probably below $15 per month or about 0.3 percent of the median household income. For a community that averages $30,000 in household income per year, the monthly water or sewer bill would then be $7.50 or less.

Like a Kid in a Candy Store

A water system can be likened to a candy store. The normal business model for such a store is basically this: Customers browse the merchandise. They bring their purchases to the counter. A clerk totals the sale, and collects payment based upon what the customers buys. There is a cost to the checkout process, but that process equates the volume and value of each customer's purchase with their payment. The storeowner may suffer some petty shoplifting, but wholesale theft is unlikely. This model keeps control of the operating costs in the hands of the storeowner, a necessary step if risks are to be managed well.

This candy store owner could also choose a different business model to avoid the checkout cost. The owner could take monthly flat fee subscriptions from customers to shop at the candy store as often as they like, taking as much candy as they like each time. While the checkout costs have been eliminated, loss of product, a major operating cost, is a very real concern.

Without the price signal to cease taking candy, some customers would be wasteful. The storeowner could raise the subscription price to cover excessive use by some customers. However, the stereotypical "little old lady, widowed, on social security" who just wants one to two pieces of candy each month will have to pay the same fee as the customer who takes candy by the bagful everyday.

Water, at least in the eastern U.S., is free. As long as you can find access, you take a bucket to the river and dip out all you want. But, if you want it pumped out of the ground or the reservoir, treated, stored, and piped into your home ready to use whenever you want, that will cost you. If a water or sewer system is to remain financially sound, it usually needs to meter the volume of service it provides to each customer.

What should your system do now?

If your system is unmetered, but it doesn't satisfy most of the criteria listed at the beginning of this paper, you should find help to get meters installed and to place a metered water and sewer rate structure into operation. This is a larger task than it would appear because you would be moving your business model to a much higher level of operation. Fortunately, many assistance providers, such as Rural Community Assistance Partnership, Rural Water Associations, private consultants, engineers, and others can help you do that. Contact a service provider and be careful to get the assistance required to make this change successfully.

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The Future Starts NOW

Setting Rates Helps Systems Today and Tomorrow

By **Carl E. Brown**, President
Carl Brown Consulting, LLC

Background photo of Pipestem State Park, WV, by Julie Black

It's all about the money. It has always been all about the money. If it weren't all about the money, all water and sewer systems would run great all the time. We would have no need for National Environmental Services Centers, grant and subsidized loan agencies, rural water associations, and all the rest. We would have nothing but well-funded, self-sustaining water and sewer systems cranking out great service round the clock. And how would they come to be well funded?

Great rates.

If rate setting were easy, all systems would have great rates. Well, I'm here to tell you that you ***can*** have great rates and it doesn't have to be hard, on your part.

This article will outline a thought and action process that uses hard facts for making good decisions about how to set rates properly. Maybe you will end up doing the analysis yourself, especially if you represent a very large or a very small system. Otherwise, you will hire a specialist to do the heavy lifting for you.

Just the Facts

Whether you decide to analyze rates yourself or use outside help, here are some facts to consider:

FACT: *Water and sewer utilities are businesses.* If run and financed well, they become invisible wonders providing excellent service. If not, they become very visible sources of trouble for a community.

FACT: *All decisions are investment decisions.* You are making them all the time—sometimes well, sometimes not.

FACT: *All investment decisions boil down to three basic questions: What must I invest? What return do I expect? What is the risk that I won't get what I expect?* Such decisions should be supported with data and estimates of outcomes.

FACT: *According to the U.S. Environmental Protection Agency, water and sewer utilities in the U.S. are facing a funding shortfall of hundreds of billions of dollars by 2020.* The federal and state governments will bail out a few ailing systems, at least temporarily. Some systems will actually fail. (Failures will probably occur over a long time so we won't really notice it.) Some will be gobbled up by other systems or companies. Some will do the gobbling.

Your system is going to (and maybe already has) hit a funding shortfall. Unless you have been calling the shots for your system for 20 or 30 years, it's not all your fault. But the final failure will be blamed on whoever is in charge at the time. Will that be you?

Gaining the Proper Perspective

Accept for now that you, or people who came before you, made decisions to under-invest in infrastructure, management prowess, and financial capability. Why did they do this? Simple, really. On a current cost basis—read "keeping rates low"—it's cheaper to under-fund. We human beings normally give current cost and the risk of losing something plenty of attention. But we give the potential for future gains little attention. That is why a few people got rich investing in Wal Mart, Microsoft, and other big winners while the rest of us haven't invested enough, early enough in our retirement programs so we can just enjoy our golden years. We manage our water and sewer utilities the same way. Some people have figured out how to place investment, return, and risks in proper perspective. Most of us haven't, but we can learn. That brings us to user charge analysis.

What is user charge analysis? It is nothing more than a decision-support tool that places investment, return, and risk in proper perspective. The analysis doesn't set your rates for you, but it does give you the information you need so you can make good investment decisions for your system. While the specific techniques of user charge analysis get very complex, the underpinning is just that simple.

If you analyze your rates regularly, adjust them as needed, manage the systems well, and continually look for opportunities to make improvements, you are headed for success. Do less and you are headed for problems, maybe terminal problems. However, this is not to say you need to learn how to analyze your own rates.

The articles "Proper Rates are Critical for Financial Health" and "Increasing Water Rates: How are Public Service Commissions Involved?" are available on the National Environmental Services Center Web site at *www.nesc.wvu.edu/ndwc.*

Rate Setting Is Risky Business

If you don't have a strong background in rate analysis, you run a moderate risk of doing the math wrong. More significantly, you run a huge risk of making some wrong assumptions along the way, some of which can be crippling or fatal.

How do you reduce your risk of loss? Control and reduce your big risks by having an experienced analyst do the big, all-encompassing analyses for you. Most small- to medium-sized systems need this level of analysis every two to five years. In years following the big analysis, simply compare your actual financial performance with what the analysis predicted, then adjust your rates accordingly. Voila! You just achieved the best of all worlds: low investment, low risk, and high return.

RISK: Who Does it Hurt?

If you are a single person with no heirs and no one who would be affected by your death, you really have no need for life insurance. We buy insurance to protect from the risk of loss those we would leave behind.

A father and mother of five small children have a large need to protect their heirs. While they are not at high risk of dying, the potential cost to their children is great. If they happen to be wealthy, they don't need insurance. They are self-insured by their own means. If these same parents and children have little wealth, life insurance is exactly what they need.

Water and sewer systems have much at risk. These systems are expensive to build, operate and maintain. They have many "heirs" (current ratepayers and one or more generations of ratepayers to come) who depend on those systems. Setting your rates incorrectly is not a fatal action in itself but it can lead to other fatal or crippling actions.

Now you're thinking, "OK, what is this high return going to cost me?" Of course, that all depends on your specific situation, but the following should give you a basic idea of what to expect in a professional rate analysis.

A professional rate analysis may result in the fees collected by a 500-user water or sewer system to go from $150,000 per year to $202,500 during the year after the analysis. That is an increase of $52,500 or 35 percent. The system would pay the specialist about $4,000 for the analysis, or 7.6 percent of the first year's extra revenues. After paying the analyst, the system would net an additional $48,500 in its first year after rate adjustment and the full $52,500 each year after that until the next analysis is done.

In this scenario, the first year return on investment would be more than 1,200 percent and would go up by more than 1,300 percent each year after that. These returns do not include any future inflationary increases the analyst would probably recommend. (The first year return on investment for smaller systems is normally a few hundred percent on the low end.) In other words, the system will pay to the analyst for about 28 days the additional rate revenues that the analyst enabled them to collect. From day 29 forward the system will pocket the rest of the additional income.

Of course, there is no free lunch. The ratepayers pay the cost whichever way you go. However, as a result of the analysis, the ratepayers get a system that is more assured of proper funding, and that makes excellent operations and service to them possible.

The Pain Threshold

A few of you got stuck on the "fee increase of 35 percent" statement above. Here is why many systems need to raise their rates and fees about 35 percent.

The typical small- to medium-sized water or sewer system's management operates on the "pain threshold" principle. All people have several thresholds of pain. Water and sewer systems are run by people so they have thresholds, too. Most decision-makers will try to "suck it up" in the form of making their operators scrimp on operating costs, equipment repair and replacement, and the like before they will consider undergoing the pain of pushing through a rate increase. For many small systems that threshold equates to about a 20 percent rate increase. The upper threshold is about 45 percent. Beyond that, most managers just can't stand the pain of scrimping any longer, so they fix the problem: they raise rates.

When management finally succumbs to the pain and raises rates, they usually don't raise rates all the way up to where they need to be. They stop 10 percent or so short in an effort to go easy on the ratepayers, salvage their re-election bid, or whatever. In addition, everyone smarts so badly from the rate increase pain that no one wants to go through that again for several years, if ever. Inflation happens and new things need to be built, and, thus, the downward spiraling cycle never really stops. We need to break this cycle and chart a new rate setting course.

How can you achieve low investment, low risk, and high return in a user charge analysis? You must select the right specialist, invest wisely (pay an appropriate fee), and guide and support them well. Fortunately, this part of the process is easy and pain-free for anyone who has the authority to do it, who has their heart in the right place, who is well reasoned, and who can follow a step-by-step process.

The Politics of Rate Increases

Why don't systems already have great rates? Consider this final fact. Attempting to do the analysis and propose the big catch-up rate increase on your own could end your office tenure or career. This risk is real. The mayor of one of my recent client cities got voted out of office over a rate increase he proposed a few months ago. Trying to serve his city to the end, he hired me to do rate studies to get to the bottom of their rate problems before he left office. I had the benefit of lots of data, number crunching, and experience to determine the proper structure for this city's rates and fees. But the mayor actually got the funding level about right in the adjustment he proposed. Thus, my results proved him to be mostly right on the rate adjustment issue, but he was still wrong on the getting re-elected issue.

How do you get great rates and not get voted out of office or get fired? Try this. (It's weasel but it works.) Get the right specialist with broad shoulders to analyze your rates, then blame him or her for the rate increases they say you have to adopt. Raise your rates all the way up to where the analyst says. At the same time, tell your

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BREAKING the Cycle

Pine Haven is a small town in the northeast corner of Wyoming near Devil's Tower and the Black Hills. Over the last few years, Pine Haven has been discovered by retirees, summer home buyers, and energy field workers, and the population has grown by a whopping 12 percent per year.

You might think that Pine Haven's water and sewer systems are rolling in the cash: rapid growth to fuel tax receipts and rate revenues, but you'd be wrong. Their rates have been too low for many years. In fact, they are not even high enough to cover all their current operating costs. Twelve percent annual growth also means flow through the water and sewer systems doubles about every six years. Just try to keep your system providing a respectable level of service faced with that kind of growth. Pine Haven's debt service to fund new construction is slated to balloon.

Things looked dire for the town. The ratepayers thought they would really take it on the chin with unaffordable rate increases.

A water and sewer rate analysis revealed the facts of the situation and pointed the way to solutions. Recent rate increases generally fixed the financial problems on a gross revenue basis, but they weren't getting the right amount of revenue from users of various sizes. In other words, the rate structures were not very equitable. Rates still needed to go up to the high-end users. But some low-end user's rates actually needed to go down. The analysis proposed new rates that will now be adequate for a long time, fair to the ratepayer classes, and affordable. Best of all, assured adequate funding will enable the city to continue providing good service and accommodate continued growth.

After the analyses were complete, Pine Haven officials remarked that several other towns they know of are worse off than Pine Haven was before rate adjustments, but those towns show no interest in fixing those problems. Alas, they have experienced a most common situation—cities and districts are in bad shape and they don't know it, or they sense it but they don't want to face the cold hard facts. This problem won't fix itself, as another client discovered the hard way.

This city, which will remain nameless, was facing financial ruin, literally. Its total annual budget was about $12 million. Toward the end of fiscal year 2006 it became clear the city would bring in only about $10 million. The numbers are big but the math is easy. Emergency analyses showed many things that needed to be changed in this city. Chief among them, their water and sewer rates were too low. Their operating costs were about $3.5 million per year but revenues only totaled about $2.6 million. That's a shortfall of about $1 million every year to cover operating costs and several hundred thousand dollars more to cover debt service for future capital improvements that are needed. So, rates had to go up substantially, but they remained affordable.

Between those rate increases and some cost saving measures, the city will be fine in about two years. Unfortunately, many city employees had to lose their jobs, and lots of needed projects have been postponed to get the city out of this fix. The ratepayers always pay. In this case it will be in reduced service for several years.

Read more about Pine Haven at www.carlbrownconsulting.com/PineHaven.htm.

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ratepayers that each year you will look at what happened last year and what is on the horizon for next year. Inform them that they need to plan on rate increases to meet rising needs every year. Most years those increases will be an inflationary increase in the range of two to four percent. That will amount to perhaps $0.50 to $1.00 per user per month. An increase that small is basically unnoticeable and completely understandable to ratepayers. Few will come out to a public meeting to discuss a $1.00 per month rate increase anyway.

How does our story conclude? If you hire a good analyst, "blame" him or her for the rate increases needed, adjust your rates appropriately now and adjust them appropriately each year, your rate increases will be a snap, your systems will remain continuously well funded, they will serve the ratepayers well, you will be a hero, you will get re-elected or retain your staff job and all will live happily ever after.

More Information

To learn more about rate setting, visit Carl Brown's Web site at www.carlbrownconsulting.com. The site has information about rate setting, asset management, and other topics, and tools to help systems understand and calculate good rates.

The National Environmental Services Center (NESC) maintains a Manufacturers and Consultants Database, a list of companies and consultants that offer products and services to small community water and wastewater utilities. Call NESC's technical assistance staff at (800) 624-8301 and select option "2" to help you located a rate specialist in your area.

NESC also has several products to help systems with rate setting.

- "Show-me Ratemaker," part of the Environmental Management Suite CD, is a free water and sewer user charge analysis program developed by Mr. Brown. Request product number DWCDMG57.
- The "Small System Guide to Rate Setting" helps decision makers keep track of a system's finances, make changes in rate structures, and gain customer support for rate increases. Request product number DWBLMG49.
- The booklet "Water Rates: Information for Decision Makers" provides an overview of four different rates structures. Request product number DWBLTR05.

To order these products, call (800) 624-8301 or e-mail *info@mail.nesc.wvu.edu.*

The Environmental Finance Center at Boise State University offers Plan2Fund, RateCheckup, and other asset management and rate analysis programs. Visit their Web site at *http://sspa.boisestate.edu/efc/* to learn more.

Carl Brown is President of Carl Brown Consulting, LLC; specializing in water, sewer and storm water system rate analysis and rate setting, asset management program development and training nationwide. Mr. Brown may be contacted by phone at (573) 619-3411, by e-mail at *carlbrown@mchsi.com.*

RATE
Analyst Selection Process

Selecting a rate analyst can be done in a series of steps.

1. Examine your existing acquisition process. Compare it to the following steps. As needed, revise your processes to make them work better.
2. Get advice on what kinds of rate analysis services (scope of service) you need.
3. Develop a probable scope of services.
4. Ask service providers for firms and others that do rate studies.
5. Prepare a request for qualifications (RFQ) that includes the scope of services.
6. Talk with prospective rate specialists and give them the RFQ.
7. Review responses.
8. Select a responder with whom you want to discuss doing the project and talk it over.
9. Check references.
10. Have the specialist give you a firm proposal for what they will do, what you need to do, and what they will charge you.
11. If the proposal is acceptable to you, present it to your decision-making body for approval or disapproval. If they approve it, proceed. If not, go back to step 7.
12. As your specialist does the work, ask questions, be involved and assure yourself that things are going well. If they are not, and your specialist can't fix the problem, fire them and use another analyst.

Calculating Rate Adequacy and Affordability

Rate analysis is a very specialized field. You may not have the time or expertise to do your own rate analysis. However, there are three simple calculations— operating ratio, coverage ratio, and affordability index—that you can do to find out if your rates are adequate and affordable to your ratepayers. These indicators can help you decide if you can simply make small rate adjustments to keep your revenues adequate and your rates affordable or if you need a full rate analysis to get back on track.

If you calculate and track these three indicators regularly, you will get a good sense of the financial health of your utilities and how easy it is for your customers to pay their bills.

For More Information

To make this task even simpler, there is a Microsoft Excel spreadsheet template for a basic financial statement that will calculate these indicators for you. Download the template free at www.carlbrownconsulting.com/Tools.htm.

OPERATING RATIO

How it is calculated:
Operating Income / Operating Expenses* **Not including debt expenses*

Example:
$150,000 operating income / $100,000 operating costs = 1.5 operating ratio

What it does:
Indicates how easy or hard it is to pay your operating expenses.

A ratio of 1.0 means you have just enough income to pay your operating costs. Less than that and you cannot pay all those costs during the time period being considered. Less than zero and you cannot pay any of those costs. From one year to the next your operating ratio should remain fairly stable or grow slightly but it can vary widely over shorter periods. Small systems (a few thousand connections or less) should have an operating ratio of 1.25 or higher. Very small systems (a few dozen connections or less) may need an operating ratio as high as 2.0 to get through short periods when income dips or costs jump.

COVERAGE RATIO

How it is calculated:
Funds Available to pay Debt* / Actual Debt Costs

**Generally includes operating income not needed to pay operating costs plus any funds dedicated to debt expenses.*

Example:
$50,000 funds available to pay debt / $20,000 actual debt expenses = 2.5 coverage ratio

What it does:
Indicates how easy or hard it is to pay your loan payments, closing costs and other debt related expenses.

If you have no debt, you have no coverage ratio. As with operating ratio, a coverage ratio of 1.0 means you have just enough funds to pay your debt related costs. And, as with operating ratio, from one year to the next your coverage ratio should remain fairly stable or grow slightly but it can vary even more wildly than operating ratio. Most systems should have a coverage ratio of 1.25 or higher. Generally a strong operating ratio will result in a strong coverage ratio as well. Having both may get your system better terms and interest rates on loans and bonds.

AFFORDABILITY INDEX

How it is calculated:
Monthly Bill for 5,000 Gallons of Residential Water or Sewer Service / Monthly Median Household Income Within the Area Served at Those Rates

Example:
$20 average residential bill for 5,000 gallons of water / $2,000 median household income = 1.0 affordability index

What it does:
Indicates how easy or hard it is for your residential water or sewer customers to pay their utility bill.

A ratio of 1.0 means your residential customers are using, on average, one percent of their household income to pay their water or sewer bill. This rate level is fairly common across the U.S. and is considered affordable. As a reference point, the U.S. Department of Agriculture's Rural Development Utilities Program targets an affordability index of two percent as the threshold for issuing grants to a system.

Quelling the Ratepayer Revolt

By Carl Brown


Brown

The "Commentary" piece in the March/April 2010 issue of *UIM* discussed utility resilience. If there is a short list of public services that should be resilient, water utilities must be on that list. What service is more critical than water?

The resilience commentary discussed financing of infrastructure construction with "other people's money." Using other people's money works well (for the user) so long as that money keeps flowing, but it puts the utility in jeopardy. Future cash flow from the federal government is starting to look risky, at best.

Any discussion of utility resilience must lead to a discussion of user rates. In case you missed it, ratepayers and tax payers are seething these days. In recent newspaper headlines around the country, water and sewer rate increases have been treated with … well, let's just call it "disdain." If you recently proposed a water or sewer rate increase you may have been named in such a headline. The rate increase made all the sense in the world, to you. To your ratepayers … well, let's just say they said "no." At that point you had a choice to make:

A. Do the rate increase anyway,
B. Do a smaller, inadequate increase,
C. Forget it, or
D. Do more "education" and try again.

The newspaper article about you probably ended badly because you let the ratepayers or the media frame the argument. That must change.

First, recognize that you are in good company. These stories are playing out all over, at all levels – sometimes fairly, sometimes not. Second, recognize that, while the outcome of your rate increase is in doubt, the story's ending should not be. Confused? That will pass.

Your rate-setting job needs to include these steps, completed honestly and openly, in this order:

1. Gain consensus (or something close to it) on service and rate structure goals for the system,
2. Determine how the system needs to be run, and what the cost will be, to satisfy the service goals,
3. Determine how high rates need to be set and how they need to be structured to satisfy the already-decided service and rate goals,
4. Make the case to the ratepayers about the required rates, and
5. Adjust rates as "directed" by the ratepayers.

Step 1: Before doing any rate setting, discuss with the ratepayers what kind of service they want. It's going to boil down to: "We want healthful water with good pressure, 24/7." Still, you can't just assume that. Your ratepayers need to be involved in that discussion so they can "own" that goal set. They need to know that this kind of service is not a given, it's a choice.

Also talk about what makes a rate structure "fair" in the ratepayers' eyes. It probably will boil down to: "Whatever costs each user causes the system to incur, each user needs to pay those costs back." This one is harder for ratepayers to put their finger on, but they need to be involved.

Step 2: Decide how to run the system. This statement sounds strange. After all, wasn't this issue decided when the decision was made to build the system? Probably. But, you may have to run the system cheaper if your ratepayers really don't want to pay the extra cost needed to get good service. Think about what you would have to cut to keep the rates lower.

Step 3: Crank the numbers on rates. If a small, inflationary increase is all the system needs and the current rate structure is considered to be fair enough, the system clerk, finance director or manager should do this number crunching. If big rate structure changes are needed, you need help. Such issues typically pop up every few years. By having a specialist do this once-every-several-years analysis, you can assure that it is done correctly and you can assure your ratepayers that you did not "fiddle" with the numbers.

Step 4: Make the rate adjustment case. The word "case" is used intentionally. In the minds of your ratepayers, the proposed rates are on trial. The ratepayers are both the judge and prosecutor. A strong advocate (you or your rate analyst) must convince the ratepayers that the numbers are sound, the rates will be fairly structured and they will not seriously harm anyone. In other words, the proposed rates are innocent. If the rate increase is going to be small, there is lots of reasonable doubt so you don't need to mount much of a defense. However, if the rate increase will be large, you need a rate-setting "Johnnie Cochran" on your side.

Ratepayer reluctance to pay more will happen. You just don't want it to turn into refusal. When ratepayers say they don't want to pay more, you need to give them service alternatives that don't require you to perform utility management magic. Ratepayer refusal takes you back to Step 2.

Assuming your numbers are good and you present the case well, ratepayer reluctance will yield to financial reality. You will not be viewed as a manager run amok because the facts of this business case were out of your hands – it costs what it costs.

Step 5: Adjust rates. Using the formula described above, the final step is not difficult. It is even anti-climactic, if done right. If your ratepayers say, "We want healthful water with good pressure, 24/7 and rates that are fairly structured," you adopt the calculated rates. If they opt for lesser service, you adopt appropriate lesser rates. Pretty easy.

If you are thinking, "It's not really that easy," you're right. There is more to it. Visit www.gettinggreatrates.com, click on the "Products" link and download the free "Ratepayer's Survival Guide" to start learning more. And give the guide to your ratepayers – they need it.

How do alternatives A through D from earlier stack up?

- A will lead to your failure.
- B and C will lead to utility failure, slowly or quickly. That is certainly not resilience.
- D will lead nowhere, if you don't have a destination in mind and the determination to get there.

Follow steps 1 through 5 and you will almost certainly get adequate and fair user rates. Your utility will run well, maybe even resiliently. You will be the focus of no more disdainful articles. And, the ratepayer revolt will be quelled.

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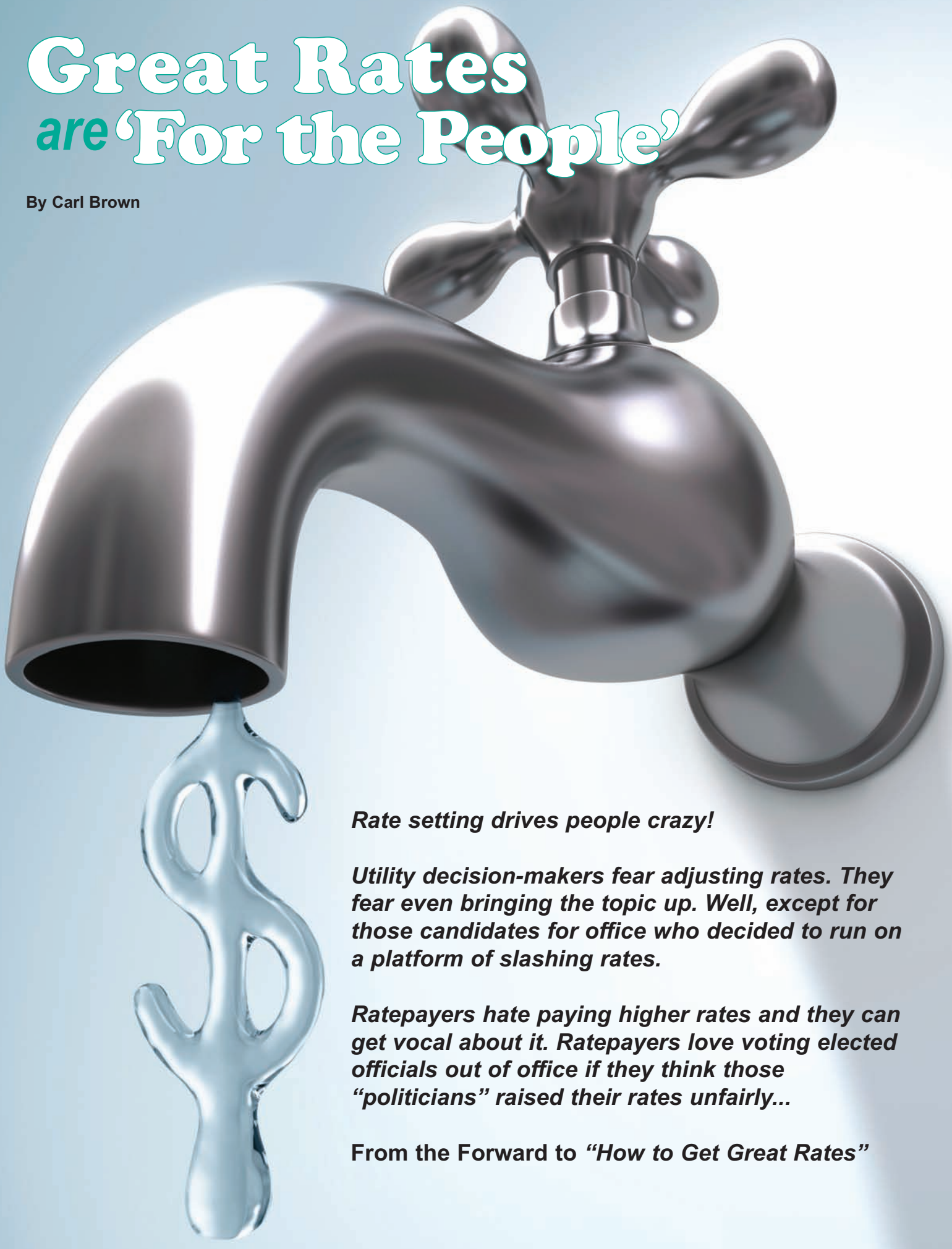
Great Rates are 'For the People'

By Carl Brown



Rate setting drives people crazy!

Utility decision-makers fear adjusting rates. They fear even bringing the topic up. Well, except for those candidates for office who decided to run on a platform of slashing rates.

Ratepayers hate paying higher rates and they can get vocal about it. Ratepayers love voting elected officials out of office if they think those "politicians" raised their rates unfairly...

From the Forward to *"How to Get Great Rates"*

Great service is what your customers want. Great rates are what you need to fund that service and treat your ratepayers fairly. Rate setting is just one of the business functions you need to accomplish to provide great service. It shouldn't be done under the fear of bad repercussions.

Baseball has four bases and it's a complex sport. Great rate setting has many more bases. This article borrows heavily from "How to Get Great Rates" to cover just one of those bases, the "for the people" issue.

Your task:
You have done your rate calculations. They show that rates need to go up, a lot. Now your board or council must discuss the impending rate increase in one or more public meetings. This is a hard message for ratepayers to hear and decision-makers to present. Deciding if and how to proceed can become a wedge between members of the board or council. This wedge can kill the rate increase, injure the decision-makers' relationships and put the decision-makers in a terrible light in front of the ratepayers.

The critical thing the board or council must decide early on and with little if any dissent among them is this. Either the board or council will take actions it considers beneficial for the ratepayers (raise rates), or the board or council will simply execute the will of the people. The board or council needs to drive this train for the benefit of the passengers or the passengers need to drive it themselves. Either way the train is headed down or off the tracks. The following example puts this issue in terms of rate setting.

Specifically, your water rate revenues need to go up 25 percent to adequately fund the system. You must go down one of two paths toward this rate increase.

1 Path One: You may or may not try to convince your ratepayers that it is in their best interest to pay 25 percent more. You may or may not succeed at that. But at the end of the day, acting in their best interest as their elected representatives, you raise their rates by an average of 25 percent. (This is representative government.)

2 Path Two: You try to convince your ratepayers that it is in their best interest to pay 25 percent more. You may or may not succeed at that. At the end of the day you leave the rate increase decision up to them. (This is direct democracy.)

A word of warning

If you choose the direct democracy path make it clear to your ratepayers that is exactly what you have done, and stick to it. If they choose the 'wrong' rates, fine. You have told them what outcome they should expect so let them suffer the consequences they have chosen. But don't double-cross them and as a board or council impose a higher rate on them that they have already demonstrated they don't want. That is a no-win action.

It's a Blame Game

If you, the board or council, set rates wrong in any way, the hotheads will blame you. If you leave it up to your users to set their own rates and they keep rates so low that you can't run the system right, the hotheads will blame you. As the hotheads see it, this is a beautiful system.

Don't worry about the hothead popularity contest – you can't win that one. Just provide good service at a fair rate and your cool heads won't have reason to blame you. As the saying goes, "It don't get any better than this."

Elected officials are legitimately torn between Path One and Path Two, either of which potentially can work if done right. While most elected officials feel they were elected to follow the first path, many perform as if they are following the second path. That kind of thinking has led to rates that are inadequate in most water and sewer systems today. That's because ratepayers got the idea that system funding and rates are negotiable, so they negotiated a better deal. As they see it, you just didn't hold up your end of the bargain by operating the system well with the money they gave you.

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In this country we are proud of our heritage of government that is "of the people, by the people and for the people." People naturally want their utility services to be cheap if not free. However, utility management is more a business function than a government function. Thus, the business must be funded properly or the "for the people" part just won't happen.

And, a word of reassurance

Whichever path you choose, if you will thoroughly research the outcomes you can expect from various rates and you (or your analyst) clearly and convincingly lay that information out to your ratepayers, ratepayers will almost always choose (or let you choose) the right course. If they don't the results will probably be evident soon and they will correct their course.

Your solution:
As a united board or council, choose Path One or Path Two. Then make it absolutely clear to your ratepayers which of the two paths you have chosen. If things go wrong they need to know who to blame, you or themselves.

It happens so commonly that it is almost standard. Three or four of the five board or council members will choose Path One and the other one or two will choose Path Two. The Path One choosers end up doing the hard, unpopular work of funding the system well, usually raising everyone's rates in the process. The Path Two choosers get to be the "for the people" populists. They question the rate increase and their fellow council or board members. They point out how it will hurt the fine citizens or your town or district. But, they get to enjoy the success created by the rate increase.

Human nature being what it is we are stuck with people who want to play it both ways. However, the utilities that provide appropriate service at reasonable cost are usually those that have united boards and councils. You, the board or council members, need to work this issue out "behind closed doors" before considering rate adjustments so you can serve your ratepayers as well as possible and not eat each other up.

Unfortunately, some Path Two choosers also like to "blindside" their fellow council or board members by not revealing their intent in pre-meetings and workshops where the nuts and bolts of the rate analysis are discussed. They prefer to wait until the public meeting, with the press there in force and then they will side with the "poor ratepayer whose rates are going to be jacked up so ruthlessly."

There is no absolute cure for this behavior. However, you should set up a defense beforehand. Your board or council should adopt a resolution something like this.

> *The (council/board) of _____ resolves to set and maintain utility rates and fees that are fairly structured for the ratepayers and high enough to adequately fund the system on a sustainable basis.*

This goal statement tells everyone, including board and council members, how the board or council will decide rate setting issues. Then, before launching into a public discussion of the rate analysis and proposed rates, remind everyone of the council's or board's stated goal. You might even want to read it out loud for all to hear before you start the rate adjustment discussion. In that way, the analysis that was done and statements people make can be measured against this objective criteria. If a board or council member seems to advocate for a rate that won't satisfy that criteria, they should be asked to defend their position.

You will have the rate adjustment discussion with your ratepayers either in a public hearing format or a public meeting format. The public hearing format works best with Path 1, the representative government style. The public meeting format works best with "direct democracy," Path 2.

"The last liar always loses." – Unknown

Consider this to be a rule – never open the floor to discussion until the rate analysis and possible actions to be taken have been covered to the satisfaction of the decision-making body. If a ratepayer, or a board or council member wants to argue against rate increases, that's OK. But make them argue against the facts after they have already been presented, not the other way around.

Regardless of the path you choose, you want to get this basic message across to your ratepayers:

> *If we keep our current rates, which are unfairly structured and inadequate, the system will run out of money in 20___, or, we won't have the money needed to build the new _____, or, we won't have enough money to replace failing equipment so we will start to have service outages or (whatever the consequence is for your ratepayers.) If we adjust rates as proposed they will treat all ratepayers fairly and enable (great, good, just good enough) service to continue (or start.)*

Do that well and you're home free.

Your charge:

Your goal should be adopting adequate and fair rates. To get there you need to use a sound process. That process must cover many issues including keeping your board or council members on the team and in line so you can present a unified story to your ratepayers. Whatever your story is, tell it to them. Good communication is largely in the telling of the story. Ratepayers don't like the "rates need to go up" story. But, if you tell it well, tell it together and back it up with good analysis, they will understand and generally go along. As the saying goes, "It don't get any better than this."

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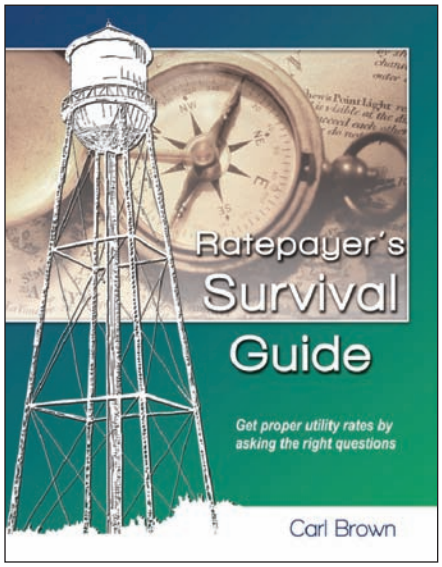
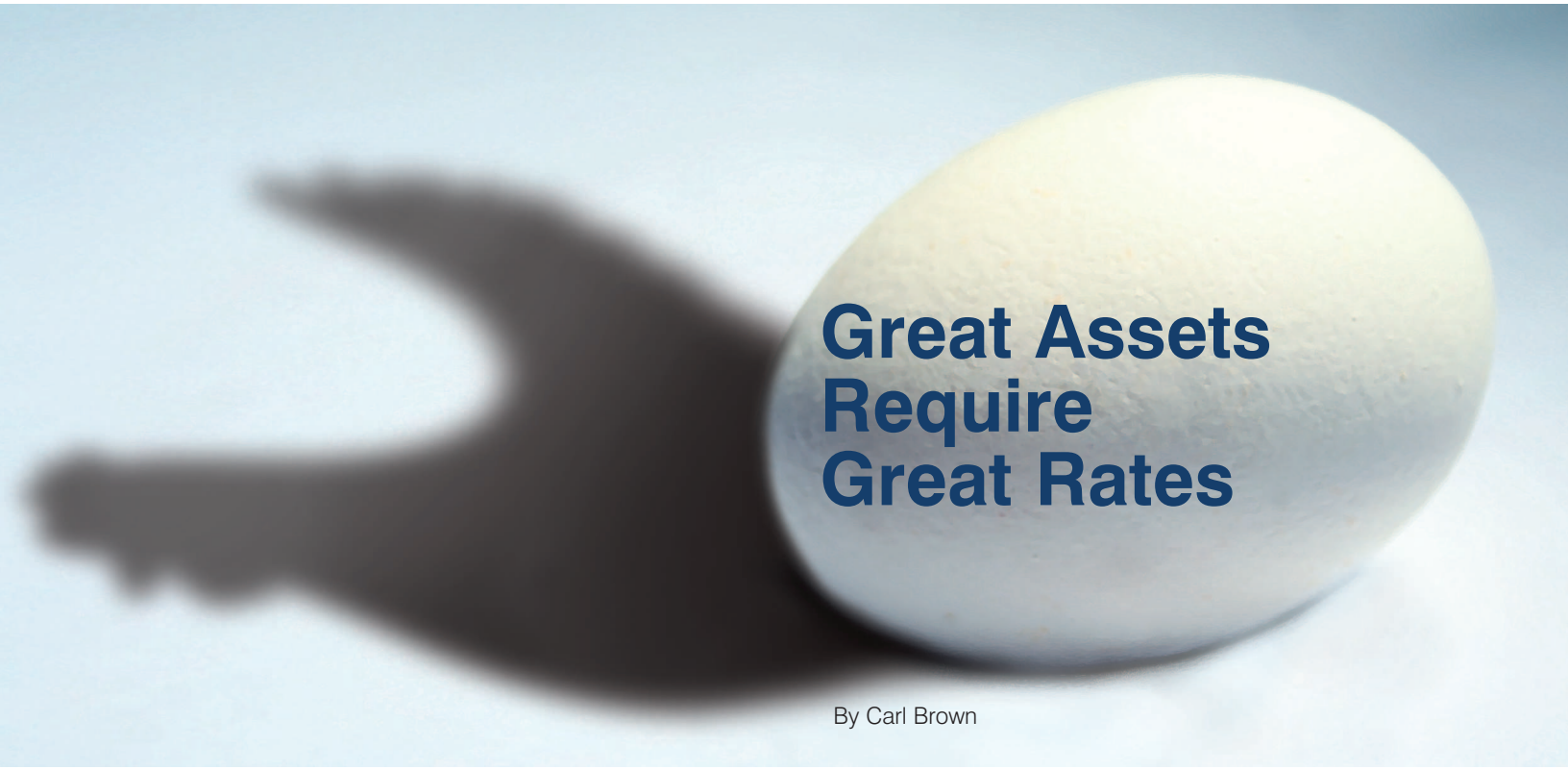
The book "How to Get Great Rates" can be previewed and ordered by visiting http://carl-brownconsulting.com/ and clicking on the "How to Get Great Rates" link or you can purchase a copy from Minnesota Rural Water Association for $25.00 plus shipping by calling our office at: 800-367-6792.





Great Assets Require Great Rates

By Carl Brown

You can have great rates and great assets. Or you can have great rates and bad assets. But you can't have bad rates and great assets. At least, not over the long haul.

That is the crux of our asset management problem – our rates are just too low. To use the "which came first, the chicken or the egg" barnyard analogy, rates are the chicken, assets are the egg. I don't know which came first, but I do know where assets come from.

If you are to set great rates for your system, or if you are to help your client do so, there is a facet of human nature that you need to respect. That is, given the choice between forward-looking asset management at responsible current and long-term rates and short-term adequate management at a cheap current rate, ratepayers will usually choose cheap. Why? You can put it many ways but to put it bluntly, we all want what we can get or keep now more than what we can get or keep later, even if later is better for us. We are "me" and "now" centered. That's not a slam on human nature. All of nature has that outlook.

It actually takes books full of psychology to explain this and related principles, but you understand them intuitively. Does human nature preclude us from selling the notion of advanced asset management? No. But, we must prove to ratepayers that it is in their own self interest to fund well managed assets.

Most ratepayers are quiet and cool-headed and will follow a reasoned approach fairly willingly. Some – the CAVE people – want to organize the cool-heads against you and kill whatever you have in mind. (CAVE: Citizens Against Virtually Everything.) To prevent them from doing that you need to use a well planned and executed approach to rate setting. Here is a strategy to consider.

Rate setting needs to happen in two distinctly different parts. Part 1 is analysis. Part 2 is the political process of passing an ordinance and all that goes with it. The same people can do both parts, but if they do, some of the ratepayers will think the "fix is in." Many will think and some will even ask, "Were the proposed rates cooked up to serve some under-handed purpose?" Your answer must be this:

"The rate analysis and rate setting processes were two distinct parts of the rate setting puzzle. They were done by completely different people. The rate analyst did the 'math.' We, your elected officials, did the rate setting based on the analysis results."

Only the board or council can pass the rate ordinance. They should do so based upon information and advice provided by the rate analyst who is not a member of the board or council. The analyst might be an actual rate setting specialist, a consulting engineer, an accountant, a free service provider from an association or state agency or even the city or district clerk or finance director. Choose this person based on the system's needs and their ability to fulfill them, not just on availability. Rate analysis is complex and you want to get it right. It will be the underpinning for everything else you do.

Rate analysis is voodoo to ratepayers. It's almost as unknowable to many city and district decision-makers and staff, too. That's OK. There are specialists who know how to do rate analysis. Rate setting – the political process – is viewed by many ratepayers as dark, mysterious, even clandestine. Some boards and councils don't do a good job of dispelling that impression. But they need to if they want to be successful.

The best way to bring ratepayers around to accepting higher and restructured rates is to make the analysis as mathematically defensible yet as easy to understand as possible while making the rate setting process as transparent as possible. Ratepayers can't accept what they don't know. They can't know what is hidden from them.

There are many aspects to great rate setting. One key is this. Set your rate setting goals before trying to set your rates. Why bother with working out goals ahead of time? If you don't set goals first and have (almost) everyone buy into those goals, you WILL have people try to shoot down proposed rates later. They might succeed.

Consider adopting an ordinance or resolution that makes this goal statement: "The [council/board] of [your city] resolves to set and maintain utility rates and fees that are fairly structured for the ratepayers and high enough to adequately fund the system on a sustainable basis."

By adopting such a goal statement you will have something to point to if someone tries to highjack the rate setting process or balk at paying rates that will adequately fund the utility. And, here's a helpful hint: You can't wait until you hit a rate increase logjam and then try to adopt the goal statement after-the-fact. Those who don't want their rates to go up will simply see this as an "end around" play. You must adopt your goal statement BEFORE setting out to analyze and adjust rates."

We need to teach our ratepayers how to best satisfy their selfish interests concerning utility services. The first step is acceptable rates. The second is advanced asset management or something close to it.

Rate setting includes these four basic phases: goal setting, analysis, initial adjustment and future incremental adjustments. Simple to state and simple in concept, these steps cover critical and sometimes complex issues that need to be executed correctly.

It seems like many people want to dumb down rate setting by skipping many important issues. They just want to boot up a simple tool or spreadsheet, plug in a few numbers or answer a few basic questions and, BAM, they've got great rates. It just doesn't happen that way. While some of these tools can do the number crunching well, you need to plug in the right numbers and you need to understand the rate setting process and your ratepayers to actually get that rate increase passed. Your goal may not be headline-making, rate setting success. But, there is no alternative to learning some basics about rate setting even if you only want to keep your name out of expose' articles about rate setting shenanigans.

Time is your enemy. Time robs rate setters of their momentum to get the rate setting job done. Time robs rate increases of their ability to boost net revenue. Time is exactly why we have a funding gap in water and sewer that is measured in the hundreds of billions of dollars.

Rate setting is a thankless job. No board or council really wants to do it. Thus, they put it off. Even when they get started they discover troublesome issues, like the need to raise rates big time and how ratepayers feel about that. They have lots of reasons to not start on this task.

Other reasons pop up to halt the task midway. Even when boards and councils know what rate adjustments are needed they feel hesitant about "pulling the trigger" on a rate increase. Every time one of these time wasters pops up remember this mantra, "Just get on with it." Put your head down and charge ahead.

If you pass a rate increase ordinance after six months of deliberation you will feel justifiably relieved. You will be thinking, "Finally we have solved our income problem." Not completely. If you need rates that will generate an annual revenue increase of, for example, $520,000, by waiting six months to get it done you will cost your system $10,000 per week of deliberation and $260,000 all together.

Before "deliberating" about rates you need to ask yourselves, "Will we improve the quality of our decision by more than $x,xxx per week or are we just putting off a distasteful task?" (Your analyst should tell you what your time cost is.) Usually boards and councils are not actually refining their decisions during that time lag. They are just not pulling the trigger on a decision that has already been made or that could be made quickly if they just got on with it.

Thus, time costs you money. You've heard that before.

Once you pass that big increase the next thing you think is, "I sure am glad that is done. I hope I don't have to do that again." If you pass an inflationary rate increase next year and each year that there is inflation in the cost to run the system, you probably WON'T have to do a big increase again. But if you don't keep your rates current with inflationary increases, after only five years of inflation at 5 percent you will need a rate increase of 27.6 percent due to compounding. At 10 years the increase becomes 62.9 percent. And these increases don't cover new needs like system upgrades and expansions. Do inflationary increases annually and you will probably never preside over a big increase again. Your ratepayers will like that.

In summary, there is much more that you need to know to get and keep great rates – rates that are adequate and fair. But always keep the basics in mind. You need to set goals, analyze rates, make the initial big increase and restructuring, and keep rates current every year. Educate and bring your ratepayers along and you will have great rates. Great assets will soon follow.

Rate Setting Phases

Phase 1 – Decide your rate and fee goals – your destination.

Phase 2 – Develop your own or "buy" a comprehensive rate analysis – a map – that leads to your goals. Usually this requires large initial rate adjustments and rate structure changes.

Phase 3 – Actually make those initial rate adjustments.

Phase 4 – Make incremental rate adjustments in future years – course corrections that are almost always small increases – to keep net revenues and other financial indicators on track with the projections from the comprehensive rate analysis for as long as possible.

Carl Brown is president of Carl Brown Consulting, LLC and GettingGreatRates.com.

EDITOR'S NOTE: This article is based upon the author's soon-to-be-published book, "How to Get Great Rates." To be notified by e-mail when the book is available, visit http://carlbrownconsulting.com/ and sign up for the "Tool Shed."

by Carl Brown, Carl Brown Consulting, LLC

How to get great rates (and not get beat up)

The caller ID said '*Kansas City Kansan*,' an on-line newspaper. I said, "Hello, this is Carl Brown, Carl Brown Consulting…" It was Nick Sloan, a staff writer. Nick had read in the Bonner Springs, Kansas newspaper, *The Chieftain* that the Council recently voted to increase water and sewer rates. I think he used the term, 'RATE HIKE.' Nick read that I was the city's rate analyst so he wanted some quotes from me for an article he was writing for his paper. Nick and I had a nice conversation, he got his quotes and I went back to the rate analysis I was working on at the time.

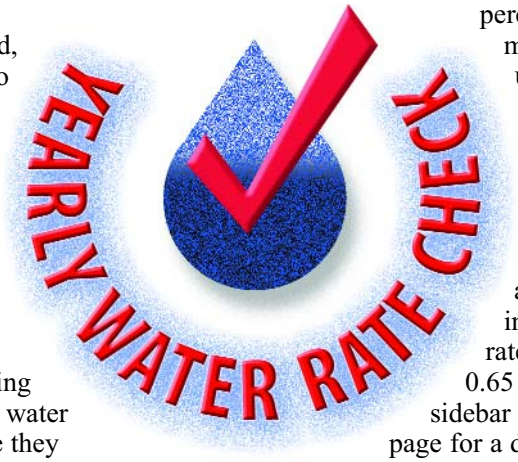
Nick's article, and the *Bonner Springs Chieftain* article, both read very well. They even sounded complimentary. The city and its management were portrayed as they really are – sharp managers planning for the future of the systems and their ratepayers. A ratepayer from Bonner Springs who read those articles would think, 'Our systems are doing OK right now. But, they're headed for financial failure pretty soon and it won't take much of a rate increase to keep them in good shape. Hmmm…'

Carl Brown
Carl Brown Consulting, LLC

Your hometown newspaper writer should be writing that kind of article about you, or your system and or your system's finances every year. That's right. You should be adjusting your rates every year – incrementally. Then, you should do a thorough analysis and rate and fee restructuring every few years to get, and keep your rates, on track.

When was the last time your local paper ran an article about rate increases that your council or board passed? Last month? Last year? Ten years ago? Did the article pass along solid, factual information about the increases and the financial condition of the system? Or, did it read more like a smear of your management? Give newspaper writers good, hard facts to report and they will. Don't, and they are left to interview ratepayers worried about how they are going to pay their water bill because they didn't get the facts either. Adjusting rates in a public system is a political decision. But that decision should be based on the facts.

Give newspaper writers good, hard facts to report and they will. Don't, and they are left to interview ratepayers worried about how they are going to pay their water bill because they didn't get the facts either.



The articles brought back for me these facts. The Bonner Springs staff and Council were great to work with. They all wanted to do the right thing – run solid water and sewer systems and fund them well. Now, they didn't exactly agree on what that would look like – we all have a point of view. But after careful consideration, the Bonner Springs City Council adjusted rates appropriately.

Bonner Springs' water and sewer systems are well managed and funded like most others. You could expect your rate adjustment needs to be something like theirs. Bonner Springs' rate studies showed that the water rates needed to go up an average of 33 percent. (Most of my clients end up raising rates 20 to 45 percent with the range going from six percent to 330 percent.) The affordability index of the new rates would be 0.65 percent (see sidebar on the next page for a description of financial capacity indicators). The sewer rates needed to go up an average of only 11 percent. The affordability index of the new sewer rates would be 0.58 percent. Without an increase the systems would be deep in the hole in 10 years. With the increases, reserves will be about $3.7 million in 10 years and the systems will have the funding to operate well and do

What does it all mean?

Rate analysis or user charge analysis – A thorough examination of a system's use, expected growth (or decline) in use, rates, current and future incomes, current and future operating costs, equipment replacement needs, capital improvement needs, and more. This examination determines if rates and fees are now, and will in the future be, adequate and fair to customers. If they are not adequate and fair, the analysis will suggest how to make them so.

Operating ratio – A measure of how easy it is for a system to pay its operating costs. At 1.0, incomes and reserves are just great enough to pay operating costs, not including payments on debt. Most small to medium sized water and sewer systems should achieve an operating ratio of 1.25 or greater. Chart 10 shows that Bonner Springs' operating ratio started at about break even last year, it is headed to negative numbers soon under the current rates but it will stabilize at a strong position under the new rates.

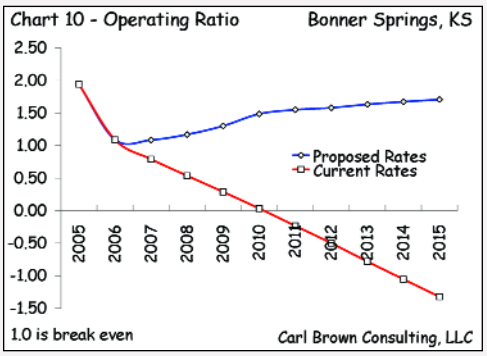
Working capital – Unrestricted reserves plus the funds left in the operating account after all current bills have been paid. Most systems try to break even when they actually should have working capital of about 35 percent. Chart 14 shows that Bonner Springs' working capital will drop like a rock under the current rates but recover in a couple of years under the new rates.

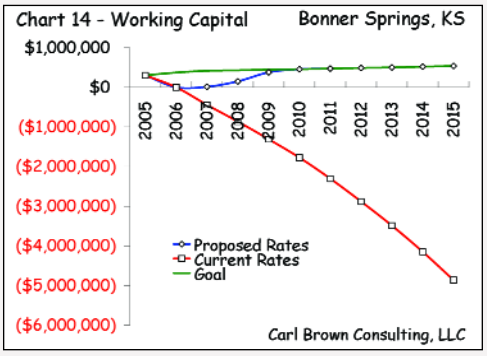
Coverage ratio – A measure of how easy it is for a system to pay its debts. At 1.0, incomes and reserves available to pay debt are just great enough to pay the debt. Most small to medium sized water and sewer systems should achieve a coverage ratio of 1.25 or greater. Chart 11 shows that under the current rates Bonner Springs' coverage ratio will go negative soon but ease down to a strong 2.0 in 10 years under the new rates.

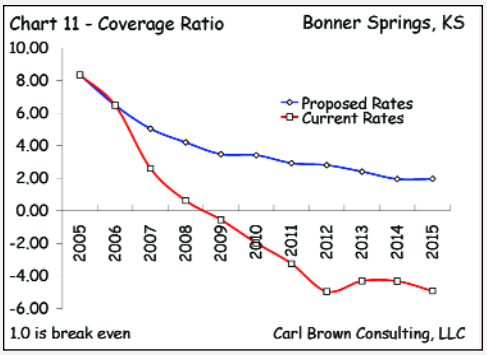
Affordability index – In water and sewer systems, a measure of how easy it is for a residential user of 5,000 gallons per month to pay their water or sewer bill. An affordability index of 1.0 means the bill consumes one percent of the median monthly household income. An affordability index of 1.0 or less is considered affordable. Most grant programs now target an affordability index of 2.0 or greater. Chart 13 shows that Bonner Springs' affordability index will change very little following the rate increases.

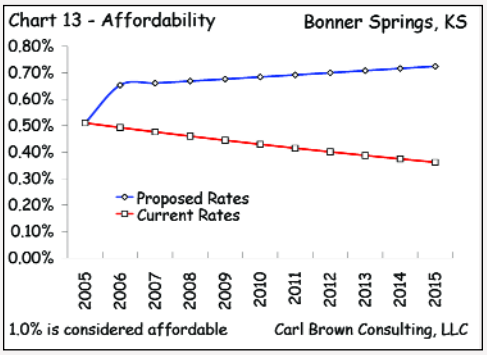
Current position – Subtract all current financial obligations from all reserves and incomes. Do not include values for hard assets such as treatment plants and lines or principal amounts owed for such assets. Current position measures overall financial fitness. Chart 15 shows that Bonner Springs' financial fitness is strong and improving under the new rates but falling fast under the current rates.

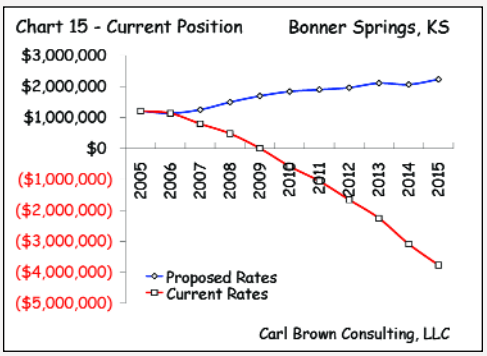
Annual budgeting – An examination of incomes and expenses with the goal of producing a desired net revenue at the end of the year being budgeted. To obtain a financial statement template that incorporates operating, coverage and affordability indices, visit http://carlbrownconsulting.com/Tools.htm and click the 'financial statement template' link. This is a Microsoft Excel spreadsheet and it will do the math of your financial statements, including calculating these indices, for you.











needed capital improvements in the meantime. Quite a turn around for $10 a month. Staff and I presented the rate and fee increase 'case.' The Council considered the facts and voted for the increases.

How should you present your rate increase 'case'? Start by learning and appreciating these facts:

1. While a spreadsheet program or even a printed workbook can help you estimate your rate and revenue needs, it will not analyze your rates for you.

2. Every system needs to estimate its rate and revenue needs every year. This is basic budgeting. But, it is not rate analysis.

3. Every system needs to analyze its needs for revenues, rate and fee adjustments, debt service and rate restructuring every few years or whenever something big happened (you went broke) or something big is getting ready to happen (you need to build a new water tower in three years). This analysis is a giant word math problem, with lots of political and social studies and business planning thrown in. There is no substitute for either you doing lots of learning and lots of work, or hiring a specialist who has already learned how to do this work.

4. Time is money. If you postpone increasing rates, every month that goes by costs you in terms of uncollected rate revenues. This monthly cost ranges from a few thousand dollars for a small system to tens of thousands of dollars for larger systems.

Next, where can you learn how to do rate analysis? Or, where can you learn how to get someone else to do it for you?

The key is, you or someone else must start the rate analysis process and then keep it going. This is an ongoing task like annual budgeting, reading meters and pulling water samples.

Second question first, visit http://carlbrownconsulting.com/HowtogetaRateStudy.htm for a step-by-step process. This site includes document templates that will make the process easier and surer for you.

First question, know that do-it-yourself rate setting will take lots of patience, work and mistake-making. Some of those mistakes could be costly to the tune of tens of thousands of dollars for a small system and more for larger systems, but don't let that stop you. Learn to eliminate many of those errors and make your time as productive as possible by attending training like the workshops discussed below.

The key is, you or someone else must start the rate analysis process and then keep it going. This is an ongoing task like annual budgeting, reading meters and pulling water samples. But, proper rate setting is also different from all other tasks in this way. If you don't do this task right, someday you won't be doing the other tasks at all.

If that happens and you are an optimist, you can enjoy this silver lining. You won't have to worry about a newspaper reporter interviewing you for an article called 'RATE HIKE.'

Rate analysis training scheduled for 2007

User charge analysis is a technique for determining if rates are adequate and fair today and how to keep them so in the future. Water and wastewater utility managers and decision-makers need to analyze rates regularly, or have a specialist do that for them.

The Kansas Rural Water Association wants all Kansas water and wastewater systems to be well-funded. Increasing rates will either be the THE most difficult thing a board or council will do, or it will be close to the top of that list. However, with a solid rate analysis, adjusting rates goes smoothly and incremental increases in subsequent years will be a snap.

KRWA will sponsor workshops this summer to train on rate analysis and other financial issues. These have tentatively been scheduled at:

1. June 5, Manhattan
2. June 6, Wichita
3. June 7, Chanute
4. August, Management Conference, Topeka

Check the KRWA Web site for further updates: www.krwa.net/training

Here's the bottom line. If the system's bottom line is not strong, then the system's future is at risk. KRWA wants to help all systems stay strong.

Water, sewer rates to increase; average bill up $10 a month

By Jesse Truesdale, Reporter, *Bonner Springs Chieftain*
Wednesday, December 20, 2006

The Bonner Springs City Council voted to bite the bullet Monday night and hike water rates by about 33 percent, or $8.43 a month for the average residential ratepayer.

As drastic as the increase may sound, at $9 for a minimum charge and $4.20 per 1,000 gallons for less than 70,000 gallons a month, Bonner Springs' water rates will still be lower than those of nearby systems like Basehor and the Kansas City, Kan., Board of Public Utilities, which charge $5.63 and $6.64 per thousand gallons, respectively.

The rate increase will mean an extra $8.43 per month for the average residential customer, who uses about 5,900 gallons each month. The rate will increase by much smaller increments after the first year, at about 4.5 percent yearly.

The impact fees – money charged to tap into the system – for both utilities were also raised.

A short workshop session had been held before the meeting, after a much longer one and a crash course on rate setting last week, to discuss the findings of a study by Carl Brown, of Carl Brown Consulting, LLC.

Without the rate adjustments, by Brown's calculations, the city would be unable to pay for planned capital improvements, needed equipment replacement, or to accommodate growth.

Brown was hired by the city to look at the financial health of its water and sewer services and to determine what rates should be set at to ensure the continued solvency of both utilities for the city.

Without the rate adjustments, by Brown's calculations, the city would be unable to pay for planned capital improvements, needed equipment replacement, or to accommodate growth. Without the water rate increases, according to Brown's calculations, the city would be in the hole $7,841,411 in 10 years.

But, with the water rate increase the Council approved, Brown said the city would be able to pay for needed improvements and equipment replacement, and build up a capital of $2,174,535, which could be used as security against unforeseen costs.

The Council approved the water rate increase by a vote of 5-3, with Council members Scheidt, Amber Sechrist, and Jerry Jarrett dissenting.

The Council approved the sewer rate increase by a vote of 7-1, with Council member Wendy Scheidt dissenting.

Rate Adequacy, Fairness, & Risk

By Carl Brown

When it comes time to consider adjusting your water, sewer, or other utility rates, there are several issues that need to be on the top of your priority list.

Number one is rate adequacy. Without adequate rates the utility will sooner or later fail.

Number two is rate structure fairness. Without (enough) fairness *you* will sooner or later fail.

Number three is risk. There is risk in everything we do and we can never manage it down to zero. But if the outcome from the "bad thing" happening is serious, you should reduce the risk of it happening to a low level.

Rate adequacy is your top priority and, fortunately, it is a fairly simple condition to determine. If, based upon next years proposed budget, the system's operating costs are projected to go up by five percent and you're only breaking even now, you know that you need to draw from reserves, reduce costs by five percent, increase revenues (usually rates) by five percent, do a combination of these or plan to borrow to cover the shortfall. Assuming you can't reasonably reduce costs any more, you can simply raise all rates by five percent at the first of the year (and maybe another half percent or so just in case customers try to conserve) and you've closed the gap. This is what boards and councils do every year at budget preparation time.

Rate adequacy is the condition where rates and fees are set high enough to pay all known and reasonably expectable operating and other costs as they occur.

Risk is ever-present because upsets can and often do happen. For that reason all utilities should maintain reserves so they can temporarily cover shortfalls. The amount you should keep in reserve depends on the size of your utility and your aversion to risk. For example:

*If your system has 100 connections (inherently risky) but your ratepayers have no worries about bad things happening (not risk averse), total reserves that amount to 10 or 20 percent of your annual operating budget will be enough.

*If your system has 10,000 connections (low risk) and your ratepayers hate the idea that their water might be out of service for a day (highly risk averse), you might need to amass total reserves of 100 percent of your annual operating budget.

Upsets include things like capital improvements, a recession, a drop off in use or fee collection or anything that will cause costs to go up markedly or revenues to go down.

If, for example, your reserves are currently 25 percent of your operating costs but they need to be 35 percent (a 10 percentage point shortfall), you can build reserves by raising rates two percent per year for five years. If you also need to cover five percentage points in operating cost inflation your total annual rate increases will need to be seven percent this year and probably about that much for four more years. Such increases are doable for perhaps three years without a rate analysis (study) to back them up because the cumulative rate increases will amount to slightly over 21 percent by that time. After that you really need a rate analysis to substantiate your proposed rates. If your reserve shortfall is 25 percentage points you need a rate analysis right now to justify increases that will be that severe.

Rate adequacy has nothing to do with rate structure fairness. For at least a short time, and maybe even a very long time, you can have very adequate rates that are very unfairly structured, so long as the ratepayers will stand still for it. However, the reverse is usually not true. Whether the rates are fairly structured or not, systems move toward failure when they are poorly funded.

Rate structure fairness is in a different realm from adequacy. While determining adequacy is simple enough, it takes some analysis to get at fairness. Fortunately, fairness is in the eye of the beholder and most ratepayers don't demand absolute fairness 100 percent of the time. Therefore, you don't need to worry about this issue every year. If your rates are fair enough for now and your operating and other costs are only projected to go up by five percent next year, with no big upsets on the horizon, you can probably raise rates across the board by five percent and still have fair enough rates. You may be able to do this five years in a row before your rate structure gets sufficiently out of whack that you need a rate restructuring.

Eventually, though, you *will* need to restructure. To support your rate structure choice you need evidence. A comprehensive rate analysis serves that function, usually by giving you three pieces of the puzzle:

*Puzzle piece one is a mathematical model (normally done in a spreadsheet program) that accurately depicts your customers' usage, the rate schedule, costs of operation, replacement and capital improvements, starting balances, future balances under the

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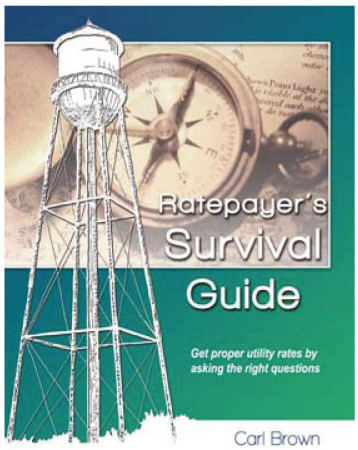

current rates, future balances under adjusted rates and more. Such a model will accurately predict your financial future under nearly any set of circumstances you might like to consider.

*Puzzle piece two is a report in plain words that gives the analyst's adjustment recommendations, their interpretation of circumstances and events that are important to the system and the like.

*Puzzle piece three is an in-person presentation by the analyst to the board or council so issues can be discussed and ratepayers can hear for themselves what the rate adjustments will mean to them.

This analysis could be done by the city or district clerk, finance director or other staff person who has been appropriately trained and armed with good rate calculation tools. Otherwise, you should have a rate setting specialist do it.

The analysis substantially reduces the risk of adopting inadequate and unfairly structured rates. A side benefit, but it is often considered by some to be the *major* benefit, is that the analyst now gets the blame for recommending rate adjustments. (These are almost always rate increases for at least some of the users.) The mayor or board chairperson and other officials get to sidestep blame because the analyst is the one calling for rate adjustments, not them.

Visit http://gettinggreatrates.com/ click the "Products" link, then the "All Products" link to download the free *Ratepayer's Survival Guide*. E-mail this link to your ratepayers and post it on your Web site so they can download to their heart's content.

Sidestepping blame will still not be enough to get a 25 percent or more rate increase through the ratepayer gauntlet. It helps if you can get ratepayers involved *constructively*. To facilitate that you should download the "Ratepayer's Survival Guide" and give it to any ratepayer who cares to read it. This free guide includes a set of questions your ratepayers can ask you about their rates. Therefore, it makes very good sense for you to read the guide, too, so you will be able to answer those questions and put their minds at ease.

Rate adequacy, fairness and risk – If you can get these down you've got it made.

Author Bio and Contact Information
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PART 1

THE RATE SETTING STORY:

How to Adopt New User Rates

By Carl Brown, President
GettingGreatRates.com

All good stories have a beginning, middle, and an end. Stories with sequels—and that includes rate-setting stories—have a beginning, middle, and an end; and then more beginnings, middles, and ends.

In the beginning, there were no water rates, no sewer rates, or rates of any kind. That's because there were no water systems, no sewer systems, or any other constructed systems. But as soon as humans decided to pipe water into their homes and pipe wastewater out of their homes, they needed to find a way to pay for those services. This was the dawning of user charges.

Do you know what data you need to gather for rate calculations? How to do those calculations? How to adopt rates successfully? Or how to do this over and over again

Unfortunately, the genesis of user charges didn't come with data upon which water systems could base fees. That made setting rates something of a shot in the dark. Once enough systems were up and running, they started to generate data upon which future rates could be calculated. But now the ancients were presented with a new problem—how to capture the right data.

Fortunately, we now have enough experience to figure out what the right data are. First of all, you'll need an idea of what kind of rates you want. That should be based upon how diverse your customers are (residential, commercial, high volume, low volume and more) and how closely you want to tailor rates to your customers' needs and desires. The following will help you decide what data you need to gather.

If you want the simplest possible *flat* rates, you only need estimates of:

- How many cutomers will be on the system next year;
- What it will cost to own and operate the system next year, including payments to reserves; and
- How many billing periods there will be next year.

With so few data points to consider, the math is easy. That makes for a short, sweet rate-setting story, in theory. However, most utility customers want more out of their rates than a flat structure will allow.

Let's move up the rates ladder. If you want the simplest possible *proportional-to-use* rates, you need to breakdown the costs into "fixed" and "variable" categories. The resulting rate calculation math is still fairly easy.

Proportional-to-use rates are just one rate structure that has a uniform unit charge. Other rate structures that have a uniform unit charge plus no usage allowance are equally easy to calculate. But they will be harder to sell to ratepayers. If you want rates that are not proportional, expect a few more plot twists.

If flat, proportional, and other uniform unit charge rate structures won't satisfy your ratepayers' needs, you will need to gather some very serious data. And, the number crunching will be complex. Your rate-setting story will not be a dime-store drama. It will be a high-end novel.

Let's move up the rates ladder again. There are *conservation rates, declining rates*, true *cost-of-service rates, usage allowances*, and other rate structures where the revenue to be generated is dependent upon who uses what volume and when. For these rate structures, you will need the data already discussed. But this time the usage data will be for each customer, and it must be detailed. If you use a billing program to generate each customer's bill, you already posess this detailed data (for last year – your base for estimating next year's use). If you do not use a billing program, you probably should stick with flat or uniform rates.

Usage data comes out of billing programs in various formats, but this is what you need to end up with:

- The identity of each customer type – residential, commercial, etc.—to whom you plan to charge different rates, and
- The volume that each customer used during each billing period of the test year.

Therefore, the data string or table of data you get out of your billing program will tell you that:

- Customer R00001, a residential customer, used 5,340 gallons last January, in February they used …, and so on,
- Customer C00001, a commercial customer, used …, and so on through every customer and every billing period.

Don't despair at the impending number crunching. There are some simple do-it-yourself methods you can use to completely avoid gathering detailed usage data. That will follow soon enough.

Once you have the data in hand, you can do some simple calculations for flat and proportional rates, or more serious calculations for several other rate types. That brings us to the middle of the story.

Calculating New User Rates

Let's do the easy rate structure first—flat rates. Flat rates are a fourth grade math problem.

Question: If a water system will cost $24,000 to own and operate next

Flat Rates: A set fee buys unlimited water use. This rate structure is used where water is unmetered, where most customers want to keep it very simple or the customers simply don't know there are fairer ways to pay user rates. Flat rates are not about fairness. They are only concerned with funding the system in the quickest, easiest, cheapest way. And that's no slam.

year, including payments to reserves, and there will be 100 users who will be billed monthly (12 billings per year), what should each user be charged?

Answer: $24,000 in costs /100 users /12 bills per year = $20.00 per user per month

Wouldn't it be nice if they were all that easy? But wait, proportional rates are not much tougher. With proportional rates, you divvy costs up as "fixed" and "variable." The fixed cost part of everyone's rate is calculated exactly like the flat rates above. The variable costs part of everyone's rate (called a unit charge) is calculated based upon the total volume to be sold. The problem, and its answers, will look like this:

Question: If a water system costs $24,000 in fixed costs to own and operate next year and $18,000 in variable costs, and there will be 100 users who will use six million gallons of water, and unit charges will be billed for each 1,000 gallons used, and each user will be billed monthly (12 billings per year), what minimum and unit charges should each user pay?

Minimum charge answer:

$24,000 in costs/100 users/12 bills per year = $20.00 per user per month

Unit charge answer:

$18,000 in costs / (6,000,000 gallons /1,000 gallon billing units) = $3.00 per 1,000 gallons

Therefore, if a customer will use 5,000 gallons during one month, their bill should be:

$20.00 minimum charge +(5,000 gallons/1,000 gallon billing units * $3.00 per unit) = $35.00

That was pretty easy, too. But there's a catch. Separating the "fixed" and "variable" costs is tricky. Just about everyone gets this part wrong. Miss this and you can do the math correctly but arrive at terribly wrong rates. To avoid that, get these definitions in your mind before you try to separate costs:

Fixed costs are those related to the fact that someone is a customer. These are not costs that do not change. All costs change over time. These are costs incurred on the behalf of customers just so you can get the "first drop" of water to them and bill them for the opportunity to use that drop.

Variable costs are those that are related to the volume of service (generally a physical volume, like gallons) provided by the system. The fact that these costs change over time is irrelevant; all costs do that. These costs are incurred because the customers actually used the service; they drew water from their spigots.

To make this even more complex, most costs are partly fixed and partly variable, so you must make reasonable judgment calls about each. There are other judgment calls that really should be made, but do-it-yourselfers should stop here. Remember, you must prove the rate adjustment case to your ratepayers. If you go beyond your ability to provide this proof, your ratepayers will detect that immediately and call you on it.

There are several other rate types that fit the needs of most ratepayers better than those that are flat and uniform. These include the examples of conservation, declining, and cost-of-service rates, plus rates that include a usage allowance. Cost-of-service rates are complex, and there are no shortcuts for these. However, there are do-it-yourself methods you can use to solve conservation, declining, and usage allowance rate calculation problems. Start by calculating proportional to use rates as described above.

Conservation Rates:
Unit charges go up as usage goes up.

Declining Rates:
Unit charges go down as usage goes up.

Cost-of-Service Rates:
Rates that collect from each class of users the costs that those users caus the system to incurr on the behalf.

Usage Allowance:
A volume "given away" with the minimum charge.

Proportional-to-Use Rates: Rates where the minimum charge recovers all fixed costs, the unit charge recovers all variable costs, the unit charge is the same—"uniform"— for all volume sold, and there is no usage allowance in the minimum charge. This structure works great for most sewer systems and lots of fairly small and simple water system too.

Then, for conservation rates, at whatever rate blocks you choose boost the unit charge by some percentage. Thus, at 5,000 gallons of use per month you might increase the unit charge by 25-50 percent. At 10,000 gallons of use you might boost it another 25-50 percent. Two such "surcharges" totaling 100 percent or so is about as high as you should go. But remember, by arbitrarily adding these surcharges without usage data to calculate them against, you are shooting in the dark. But, by starting with proportional rates, you will err on the financially conservative side.

For declining rates do the opposite. At 10,000 gallons and above charge the regular unit charge. Between 5,000 and 9,999 gallons boost the unit charge by a smaller percentage, probably 25 percent or less. From zero to 4,999 gallons boost the unit charge another 25 percent or less. Why smaller rate increases for declining rates? For most primarily residential water systems, this kind of rate structure will yield 2-3 times more extra revenue than the equivalent conservation rate structure. The extra revenue will come from the lowest volume customers, who tend to be the least able to pay. Thus, they will end up paying the highest marginal rates, and that can get lots of ratepayers and voters mad at you.

For a usage allowance, just assume that each user will use at least that much volume during each billing period of the test year. Therefore, the total of the usage allowances would be the allowance amount times the number of customers times the number of billing periods per year. Subtract that volume from the total the system will produce during the test year and calculate unit charges based on this lower volume.

The effect of an allowance is this. With a usage allowance of 2,000 gallons on an average use of 5,000 gallons, for example, you will be giving away 40 percent of your billable volume. And that means that your unit charges will have to be 40 percent higher to make up that revenue loss and/or you will have to boost your minimum charge to cover the difference. There are more precise ways of doing usage allowances, but stick with this simple one.

If you want any rate structure, especially a more complex one, tailored to your ratepayers' needs, you really need to get the help of a rate-setting specialist. And, if you have other issues, like wholesale supply agreements, impending capital improvements, equipment replacement scheduling to work out and cost changes coming in the near future, you really need specialized help.

All told, most system managers and decision-makers can do most of the rate calculations they will need during most years. That will get you to the beginning of the conclusion of your rate setting story—getting new rates accepted and adopted.

If you are thinking, "Maybe I need more training than just reading this article." you're on the right track. Call your rural water association to see what they offer.

For More Information

To learn more about user rates, visit:

The National Environmental Services Center website at www.nesc.wvu.edu. Search using the term "rate setting" to review several free articles.

The American Water Works Association (AWWA) website at *www.awwa.org/* and search for the manual titled, *Principles of Water Rates, Fees and Charges*. AWWA has other related manuals you may find useful if you are serious about doing the calculations yourself.

The *GettingGreatRates.com* website at *www.gettinggreatrates.com/* to download the free Ratepayer's Survival Guide© and purchase the book How to Get Great Rates©. Some rural water associations also sell this book at a discount.

Disclaimer: The author is not an attorney and the information in this article should not be considered legal advice. State laws and local policies vary, so consult your attorney to avoid running afoul of these. In addition, the calculations in this article are the common denominators. There are whole volumes of manuals on rate calculations that teach you these methods. And there are software programs that do most of these calculations for you. But you need to know the basic calculations so you will understand what needs to be done and why.

Carl Brown is President of Carl Brown Consulting, LLC, specializing in water, sewer and storm water system rate analysis, asset management and training nationwide; and GettingGreatRates.com, home of many rate-setting tools. Contact: (573) 619-3411; E-mail *carl@carlbrownconsulting.com* or at *carlbrownconsulting.com/*.

PART 2

THE RATE SETTING STORY:

How to Adopt New User Rates

By Carl Brown, President
GettingGreatRates.com

Getting your proposed user rates accepted by your ratepayers is critical but not always easy. Adopting new user rates is akin to flying a plane: Hours of workmanlike activity, many landings without a hitch, and then the rare but terrifying event happens. In the old days—before disinfection by-products, *Cryptosporidium*, facilities wearing out, and multi-million dollar upgrades—workmanlike rate setting was enough. Rates were dirt cheap, so fairness was not an issue either. Now, every rate adjustment can become a disaster. Because you want your story to have a happy ending, you must make plans every time to avoid disaster or to deal with it if it happens.

The best way to avoid disaster is to be completely upfront with your ratepayers. They will not come to you to inquire about their rates. That is, not until you propose big changes. At that point they're just mad and you've lost them. You must go to them. But, what does that mean?

First it means that you must put together a good rate calculation or analysis. Importantly, it must include some visuals that will show ratepayers—using color, lines and such—what the proposed rates really mean to them. Start with what they care about most: their money. They really don't want to mess with this rate adjustment stuff so you must show them quickly and clearly that the new rates won't hurt and prove that those adjustments are needed.

One of your visuals needs to be a simple table of the bills that different types of users will pay at different volumes of use. From this table users can find their current average bill and what will happen to that bill because of the new rates. Chart 14 is part of a full-page table pulled from a rate analysis. Notice, for example, that the low-volume residential customers' rates will actually go down, and the high-volume ones won't go up much. If you leave it to the rumor mill to spread the word, the rate reduction part of the story won't get told.

Another useful visual shows the affordability index of the current rates compared to the proposed rates. You need something like Chart 9 to show ratepayers that, even with the proposed increase, the average residential customer's water bill will only cost them 0.05 percent of their household income more than the current rates, going from an affordability index of 0.23 percent in 2010 to 0.28 percent. That amounts to one cheeseburger out of their monthly budget! And besides that, the average affordability index in the U.S. is about one percent so these rates are dirt cheap now, and they will still be dirt cheap after the increase.

To prove to ratepayers that the adjustments are really needed, you must show what will happen if rates are not increased. Do that with something like Chart 11. This chart shows that if the current rates are continued, the system will go broke in a few years. If it's financially broke, it won't operate. Ratepayers don't want that. With the increase, reserves will stay in the black so the water service can keep coming. The best choice is clear.

Of course, it will not be enough to simply flash some nice charts up on the screen to convince ratepayers that a rate increase is in their best interest. You also need to apply a bit of salesmanship to accomplish that. Fortunately, salesmen are not born. They learn how to sell their wares just as you can learn how to sell rate adjustments. To do that you can read about rate setting or you can ask your association for some rate-setting training provided by a rate-setting specialist. Then you can avoid becoming a bad newspaper headline. Do this well and your rate-setting story will have a happy ending —you will adopt fair and adequate rates. Then, like all successful Hollywood movies…

Foley, MN, Water Rates Scenario 3

Chart 14 - Old Rates, New Rates and Changes

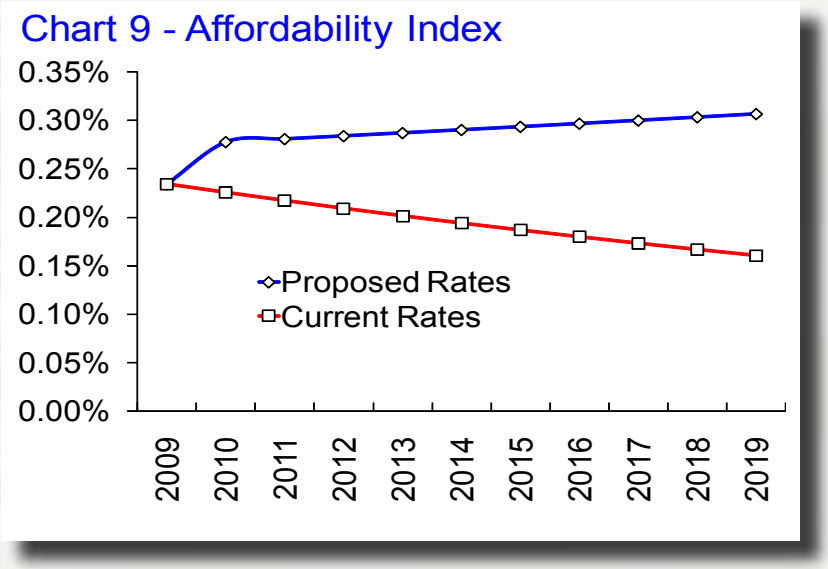
CBGreatRates© Version 5.2

This chart compares current and proposed rates.

	Median or Actual Average use in 1,000 Gallons	Current Average Bill	Proposed Average Bill Starting on 12/31/10	Bill Increase or (Decrease) After Rate Adjustment	Percent Increase or Decrease (-) After Rate Adjustment
Residential	0.123	$29.40	$22.38	-$7.02	-24%
	1.547	$29.40	$26.42	-$2.98	-10%
	2.505	$29.40	$29.13	-$0.27	-1%
	3.460	$29.40	$31.84	$2.44	8%
	11.991	$50.35	$57.88	$7.53	15%
Apartments	5.000	$29.40	$36.21	$6.81	23%
	15.000	$62.99	$64.56	$1.56	2%
	25.000	$104.99	$92.90	-$12.09	-12%
	35.000	$146.99	$121.25	-$25.74	-18%
	46.878	$196.87	$154.92	-$41.95	-21%

Your Fans will be Clamoring for a Sequel

Actually, no, your ratepayers don't want a sequel, but there is no way around it; this must be done again. But as in Hollywood, you will be under pressure to make the sequel better than the original. Use some of the following storylines to make that happen.



Affordability Index: The monthly charge for (typically) 5,000 gallons of residential service divided by the median monthly household income for the area served by the system. An index of 1.0 means a household pays one percent of its income to pay its bill for 5,000 gallons of service.

The first time around you probably will fight an uphill battle to arrive at fair rates. After all, "fair" is in the eye of the beholder, and no beholder thinks their rates should go up. You can get a leg up on that battle by adopting a resolution that is something like the following goal statement concerning fair and adequate rates.

> *"The (council/board) of _____ resolves to set and maintain utility rates and fees that are fairly structured for the ratepayers and high enough to adequately fund the system on a sustainable basis.*
> *– From the "Ratepayer's Survival Guide©"*

Having such a statement on the books before making adjustments will put the naysayers at a disadvantage when they try to disagree with a reasonable adjustment. If they think the proposed rates are too high or unfair, they must prove that the analysis or the goal statement, or both, are flawed. A great saying by an unknown author lends clarity to this situation: "The last liar always loses." If you have a good goal statement and a sound analysis, the naysayers simply cannot disprove them. They may not like it, but the truth is the truth.

The initial rate adjustment should have fixed your rate structure and increased overall rates. This was the hard adjustment. Adjustments that you will do for the next several years only need to raise revenues incrementally, on the order of three to five percent across the board each year. These increases are no big deal. Don't make them into one. All they do is match your projected income with your projected budget needs.

Let this phrase be your mantra: "Raise rates every year, at least a little bit." For all practical purposes, inflation is a law. When inflation happens, you need more revenue to cover it. Ratepayers understand inflation; it happens to them, too. But if you go five or 10 years without a rate increase, they get used to that. When you finally ask for an increase, and it will be a big one, they get mad. And there you go. You've lost them again.

Of course, you should always look for ways to cut costs so rates won't need to go up so much:

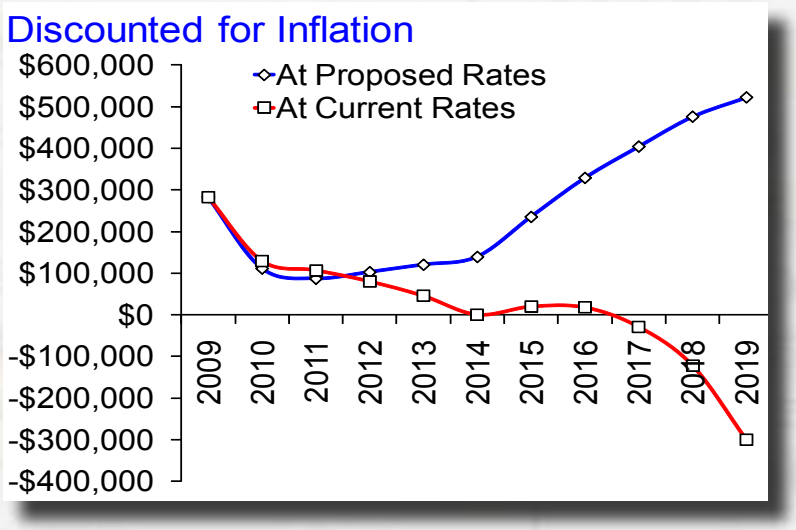
- Form a purchasing co-op with neighbors so you can make bulk purchases of chemicals, supplies, etc. at cheaper prices.
- Form cooperative agreements so your system and neighboring systems can share rarely used equipment like backhoes, dump trucks, jetter trucks and the like. Why should a small system pay for a backhoe that sits around in a storage lot 300 days out of the year?
- Consider what you own and what you do in light of the utility's mission – to provide safe, dependable drinking water or provide sanitary wastewater collection and treatment service. If an activity or piece of equipment does not substantially contribute to accomplishing the mission, axe it. And then "brag" about axing it. Your ratepayers need to be told that you are continuously looking out for them.

Considering what you own, and what you need to own in the future, is a must if you want to adopt adequate rates. You must set rates that include the costs to repair, refurbish and replace equipment (commonly called "R&R" for short), and the costs of building new facilities in the next five to 10 years. R&R costs commonly run about 15 percent of the total costs to operate and maintain the system, excluding administration costs. Capital improvement costs (debt service) in a fairly new system can easily run total costs up by 50 percent. Disregarding these two items when setting rates will quickly get you into the same shape the federal government is in right now. R&R needs to be modeled using a present value calculation, something that few people know how to do.

> *For most residential ratepayers the incremental increase will amount to 50 cents to 75 cents per month, not worth attending a meeting for.*

Finally, take stock of the effort it took to do basic rate calculations and to convince the ratepayers of the wisdom of making rate adjustments:

- Would your time have been better spent doing something else?
- Would you have enjoyed doing something else more than doing rate calculations?
- Did your simple calculations serve the ratepayers better than a comprehensive rate analysis would have?
- Did you end up netting more revenue than a rate setting specialist would have gotten you?
- Did you avoid lawsuits and disgruntlement from your ratepayers?



Not surprisingly, the last issue is a big one. Ratepayers are angry these days. Anger doesn't help you. Sometimes that anger even leads to lawsuits. But after-the-fact and in court is the wrong time and place to be addressing these issues. It should always happen on the front end and on your home turf. None of this is to say that you must hire a rate-setting specialist. But, when you do need a specialist, no one else will do.

We've come to the conclusion of your rate-setting story. By restructuring and raising your rates as described here you will bring in the money your system needs and do it fairly.

For More Information

To learn more about user rates, visit:

The National Environmental Services Center website at www.nesc.wvu.edu. Search using the term "rate setting" to review several free articles.

The American Water Works Association (AWWA) website at www.awwa.org/ and search for the manual called, *Principles of Water Rates, Fees and Charges*. AWWA has other related manuals you may find useful if you are serious about doing the calculations yourself.

The *GettingGreatRates.com* website at www.gettinggreatrates.com/ to download the free *Ratepayer's Survival Guide*©. You also may purchase the book *How to Get Great Rates*©. Some rural water associations also sell the book at a discount. You can also download the free EquipmentScheduler© spreadsheet. Plug in your equipment replacement needs and the spreadsheet will spit out the amount you need to set aside each year for these items. Then you simply plug this amount into your operating and ownership costs list. Also add in the annual costs of debt service and payments to your capital improvement reserves fund.

Carl Brown Consulting to take advantage of the free request for qualifications and proposals template (RFQ Model in Microsoft Word format) linked at the bottom of carlbrownconsulting.com/.

Disclaimer: The author is not an attorney and the information in this article should not be considered legal advice. State laws and local policies vary, so consult your attorney to avoid running afoul of these. In addition, the calculations in this article are the common denominators. There are whole volumes of manuals on rate calculations that teach you these methods. And there are software programs that do most of these calculations for you. But you need to know the basic calculations so you will understand what needs to be done and why.

Carl Brown is President of Carl Brown Consulting, LLC, specializing in water, sewer and storm water system rate analysis, asset management and training nationwide; and GettingGreatRates.com, home of many rate-setting tools. Contact: (573) 619-3411; E-mail carl@carlbrownconsulting.com or at http://carlbrownconsulting.com/.

Rate Design

Carl Brown, President
Carl Brown Consulting, LLC

Calculate your proposed rates poorly and you could read local newspaper headlines like those in the sidebar. If you will set them correctly and present a solid "case," you should read headlines more like this: "**City (or District) Prepares Water System for Sustained, Strong Growth**."

City to Adopt Industry-friendly Water Rates
Seniors Choose Between Water and Prescriptions

Sewer District to Adopt Business-killing Rates
Is Your Job at Risk?

This illustration is not far-fetched. Experience has shown that if you do the rate calculation and presenting job poorly you will be in for some very rough water. Do it well and while you may get a bit wet, you won't sink.

Introduction

This guide was written specifically to help GettingGreatRatesNow© subscribers to develop all the basic rate structures they may want to consider. However, the methodologies illustrated can be used with any other rate calculation method, as well. You should just be aware that the computer adage, "Garbage in, garbage out" applies to rate setting, too. If you start with a bad basic rate calculation, regardless of the quality of the conservation or declining rate structure you overlay on that, you will still have bad rates.

GettingGreatRatesNow© calculates proportional to use[1] rates as well as across the board percentage increases of your current rates. Proportional rates are simple and fair for most small systems. Across the board rate increases are very quick and simple to calculate – they are great for emergencies (which are going to get you some headlines, too).

Sewer Rates – Seldom are sewer rates set up in a conservation rates structure. Generally you don't want to *discourage* customers from putting their used water down the drain so it can be treated. Most sewer rates are set up as proportional to use. If that's what you want, once you finish calculating your sewer rates with GettingGreatRatesNow©, you're done.

While proportional rates are generally superior, some sewer rates are set up in a declining rate structure. Most small and simple sewer systems can use the procedure in this guide to set up such rates.

However, you and your newspaper editor, not to mention your seniors, businesses and employed people, may like a different rate structure. This guide will show you how to design declining[2] rate and conservation[3] rate structures, the two most useful rate structures after proportional to use. You will simply layer one of these rate structures over the proportional rates that GettingGreatRatesNow© calculates for you. This guide will show you how to do it.

Though rate and fee structures can get very complex[4], they all start off based on a conservation,

[1] Proportional to use rates for water are rates where the minimum charge recovers all fixed costs, the unit charge recovers all variable costs, the unit charge is the same for all volume sold, and there is no usage allowance in the minimum charge. For sewer, unit charges are based upon each pollutant, as well. Proportional to use rates are a special but common type of uniform rate, meaning the unit charge stays the same for all levels of use. Proportional rates are very straightforward, fair for most small systems and defensible.
[2] Declining rates are rates where unit charges go down as the volume used goes up.
[3] Conservation rates are rates where unit charges go up as the volume used goes up. They may have other features, such as little or no minimum charge and surcharges for high-flow capacity, as well.
[4] A thorough discussion of the various rate structures and issues surrounding them can be found in the article, "The Right Rate" available at http://www.gettinggreatrates.com/.

uniform[5] or declining rate structure. As volume use goes up, unit charge rates go up, stay the same or go down, respectively. Each of these pricing strategies has a different effect on users and on the system's income and expenses. This guide will help you to understand these effects and how to set such rates.

Water conservation doesn't just happen. People conserve because they decided on their own to conserve or because they were given an incentive to conserve (conservation rates). Job creation and economic development can happen naturally but sometimes communities like to give them a boost by offering cheaper rates for higher volumes of use (declining rates). Your system may have unused capacity that you want to take advantage of or it may be approaching its design capacity and you want to keep from having to build an expensive expansion. Your system and your users are unique so you must assess them and decide what rate structure will satisfy them the best.

Whether you are concerned about volume use or not, you MUST be concerned about the financial well-being of your utility. Too little income and the issue won't be high use or low use. It will be no use at all because below a certain income level, the system will not operate. Putting volume use aside, maybe you just want to use one of these rate structures to boost revenues. As Martha Stewart, who is no stranger to making money might say, "That's a good thing."

Before you embark on setting a particular rate structure, put this thought in your mind. No rate structure is inherently wrong or immoral. Each is a pricing strategy, nothing more and nothing less. Each can work well in certain situations and not so well in others. However, there are people who believe that "their" rate structure holds the high moral ground. Thus, those who believe in those "other" structures are devils. Don't fall for that thinking.

Your job is simply to find the rate structure that will serve your community best *at this time.* Later, another structure may turn out to be best. Don't get caught having to explain why you said five years ago that inclining rates were evil but now you say they are exactly what the community needs.

Table 1: Flow Chart for Conservation or Declining Rates

Step	Description	When
1	Calculate proportional to use rates using GettingGreatRatesNow©.	As soon as possible
2	Add surcharges to base unit charges from Step 1 and adopt these rates.	3 months after Step 1
3	Watch current position to make sure it is strong and/or growing	3, 6 & 9 months after Step 2
4	Compare year-end financials to see if rates are performing well	After close of first fiscal year
5	If actual current position comes up short, start over with Step 1	After close of first fiscal year
6a	If current position under conservation rates is positive but needs to be stronger, raise conservation surcharges by double the percentage difference in the actual and desired current positions.	3 months after Step 5
6b	If current position under conservation rates came in higher than needed, wait and see.	3 months after Step 5
6c	If current position under declining rates came in higher than needed, wait and see or lower rates.	3 months after Step 5
7	Cycle back through Steps 3 through 7.	3 months after Step 6
8	Begin again at step 1.	Within 3 years

GettingGreatRatesNow© is a simple, quick tool for calculating proportional to use rates or across the board percentage increases of existing rates. The beauty of proportional to use rates is that you don't need to know the volume of water used by individual customers to calculate rates accurately. You only need to know the total volume that registered through (or that you estimate will register through) all of your

[5] Uniform rates are rates where the unit charge is the same for all volumes of use.

customers' meters for a one-year period – your "test year[6]."

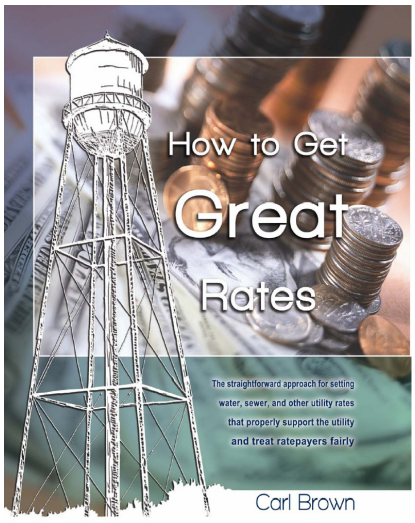
Proportional to use rates don't require you to collect extra volume data. They are considered by many to be fair and they are required for the Clean Water State Revolving Fund (SRF) loan programs for waste water systems. There are lots of good reasons to have proportional to use rates.

All those wonderful attributes aside, proportional rates still may not be the most desirable in your situation. Conservation rates or declining rates may suit your needs better.

Procedure for Adjusting Rates

Conservation rates and declining rates are mirror images of each other. It can be simple to design such rates. However, without individual customer usage data[7] with which to calculate revenue generation at different user rates and usage allowances[8], it is impossible to say exactly how conservation or declining rates will affect your bottom line in the future. Fortunately there is a simple "work-around" you can use to set up one of these rate structures and still guard against having your net revenues drop below a desired level. Just follow this procedure, which is also summarized in Table 1:

1. Use GettingGreatRatesNow© to calculate the proportional to use rates needed to cash flow the system properly. "Proper cash flow" means bringing in the revenue that is needed to run the system properly now and in the future, including funding equipment replacements as they are needed, capital improvements as planned and building reserves that are strong. Teaching all of that is well beyond the scope of this guide so you should read the book, "How to Get Great Rates[9]" to learn more about these issues.

   Key results that GettingGreatRatesNow© will generate for you include:

   a. Calculating your base minimum charge and base unit charge rates. **You will set no rates below these levels,** and

   b. Calculating your system's current position[10] for the next five years under those rates. **You will use current position as a gauge of the performance of your rates.**

2. You will adopt the minimum charge that GettingGreatRatesNow© calculated for you without changes. However, before adopting unit charges you will add surcharges to the unit charges that GettingGreatRatesNow© calculated. Surcharges are simply extra fees that will make your rates into conservation or declining rates. For conservation rates you will surcharge the high-volume user classes. For declining rates you will surcharge the low-volume user classes. Much more will be said later about how big to make these surcharges.

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[6] Test year is the one-year period from which you will gather data and information to do your rate calculations.

[7] A comprehensive user charge analysis collects and uses individual customer usage data. With such an analysis almost any rate structure can be designed and the resulting rate revenues accurately predicted.

[8] Usage allowance is a volume of water or sewer service "given" to each user with their minimum charge each billing period. Usage allowance is sometimes called a "give away volume."

[9] How to Get Great Rates is available at http://www.gettinggreatrates.com/.

[10] Current position is calculated by subtracting all outstanding current costs and other current liabilities from the cash and cash equivalents balance at the end of an accounting period, like the test year. Current position does not include the value of the facilities or long-term debt owed beyond the current year on those facilities. There is no need to do a special calculation to get this figure – it is included in your balance sheet for the test year and GettingGreatRatesNow© projects it for future years.

3. In the months after adopting conservation or declining rates you should watch your current position change. If your current position is positive and hopefully growing, which it likely will be, you probably do not need to revisit rates until the end of the first fiscal year. (If your current position is declining and especially if it is headed for zero soon, give us a call right away for our advice on how to proceed. You may have entered some wrong data or assumptions into GettingGreatRatesNow© for growth, expenses, user rates or other important things.)
4. At the end of the first fiscal year, after your accountant or other financial person has assembled your balance sheet and income and expense statements, you should compare the system's actual financial performance for that year with what GettingGreatRatesNow© projected it would be for that year. You will be looking for large differences between actual and projected financial performance. Key things to compare include:
    a. All incomes, especially rate revenues and connection fees,
    b. All expenses, especially the largest ones, and
    c. All reserve balances, especially the combined reserves that make up current position.
5. If, after making the comparisons above you find that the actual current position is less than the current position projected by GettingGreatRatesNow©, or that there are wide variances between projected and actual incomes or expenses, you should start at step 1 again. That means do everything over. Why should you start over? Even without the surcharges you added to make rates into conservation or declining rates, your actual current position should have exceeded that which was projected by GettingGreatRatesNow©. That is because we built conservative factors into several of the calculations. Thus, if your actual current position came up short, it is almost certainly because you made some wrong assumptions, growth was lower than you hoped for or you used some erroneous data. Because of these variances, your basic rates need to be raised to be adequate and they need to be restructured to be fair to your ratepayers. Only after making your basic rates fair and adequate should you overlay them with conservation or declining rates.
6. Let's assume you don't need to start over as described in step 5 above. However, your current position is still not as strong as you *wanted* it to be. Or, maybe it came in way too strong (not likely but it could happen). In either case you can do a simple adjustment to your rates to get them on track a step at a time by doing one of the following:
    a. If the actual current position under *conservation rates* or *declining rates* came in lower than you intended, calculate the percentage by which it is too low and then raise the conservation rate surcharges or declining rate surcharges again by about twice this percentage. For example, if you wanted a current position of $100,000 at the end of this year but the actual current position was $75,000, you came up 25 percent short. That is ($100,000 – $75,000) / $100,000 = 25%. In that case, raise your surcharges by 50 percent.

       Why raise your rates by double the percentage shortfall? In all likelihood, conservation rate surcharges will not account for more than 15 to 30 percent of your total rate revenues. Declining rate surcharges shouldn't raise more than 30 to 40 percent of your rate revenues. Thus, raising the surcharges by double the shortfall percentage will probably have you come up somewhat short of your goal next year, too. However, it is better to work your way gradually to the conservation or declining rates you need rather than overshoot and make your ratepayers very mad about that "mistake." Remember, by this time you will need to raise all your rates by whatever percentage GettingGreatRatesNow© indicated anyway so that will be in addition to the special adjustments you will make to your surcharges. The book, "How to Get Great Rates" has an entire chapter on how to calculate such incremental rate increases.

b. If the actual current position under *conservation rates* came in higher than projected, just wait awhile. High-volume users may start to conserve and bring down those extra revenues. (However, the urge to conserve usually passes. People conserve early on and after a few months or a year they usually go back to, or close to their previous water use levels. They figure out pretty soon that the conservation rates only cost them the price of a case of soda pop each month and for most that is a small price to pay to keep a beautiful green lawn.)

c. If the current position under *declining rates* came in higher than projected, low-volume users probably can't conserve and bring their bills down much. You may want to reduce the declining rate surcharges using the method described in bullet point 6a above. That will make water bills more affordable, especially for the low-volume users. Alternatively, you may want to keep rates where they are for now and just raise rates less than originally planned for the next year or two and let inflation bring down the excess reserves. Or, you may want to build something sooner than planned or pay more with cash rather than loans. In reality, having "too much" money is not a common or bad problem for a utility to have.

7. In the months following this first one-year cycle, repeat Steps 3 through 7.

8. If nothing special happens to your system you should renew the entire process by doing a new rate calculation with GettingGreatRatesNow© within three years of the last one. You should do a new rate calculation even sooner than that if:

    a. A single large cost changed, like debt service for a new capital improvement,

    b. Several smaller costs changed, like fuel, electricity and chemicals, or

    c. An income stream changed dramatically, such as your connection fee revenues. Many systems learned this in 2008 and 2009 when construction starts plummeted due to the mortgage "meltdown."

    It is important to recalculate your base rates fairly frequently because your costs change with time and events. As they change the mix of fixed and variable costs change. That changes the balance you should have between minimum and unit charges. Sometimes this change is dramatic, as in the case of new debt service. Thus, for reasons of fairness, and possibly rate adequacy, you need to recalculate your base rates fairly frequently. In fact, recalculating rates annually is the best way to maintain adequate and fair rates while preventing "sticker shock" by keeping each rate adjustment small.

By setting rates in this way – with no rate less than the proportional to use unit charge that GettingGreatRatesNow© calculated – you will not charge anyone less than the rate needed to fully fund your system. (In all likelihood, the proportional unit charge rate will be close to but greater than your marginal cost to produce[11].) Thus, you will almost certainly build a stronger current position than your proportional to use rates model says you will. You just don't know *how much stronger* until you have collected at those rates for awhile.

That is the basic rate setting procedure. It is probably more difficult to visualize this procedure reading the explanation than it will be to actually do it. An example will make it easier to understand and give you an idea of how much extra revenue to expect from inclining or declining rates.

[11] Cost to produce: There are several ways to calculate cost to produce. Each is acceptable for different purposes. Generally, cost to produce is the total of all variable costs required to get service to a utility's customers during one year divided by the total units of service delivered during that year. In a proportional to use rate structure, the unit charge will usually be close to the cost to produce rate.

Conservation Rate Setting Example

How can you set surcharges that are just about right, right out of the box? For conservation rates, consider the situation described in the adjacent text box and illustrated in Table 2 on page 7.

Rate Setting Situation: This system is located in a rural area or in a smaller city in an otherwise rural setting where weather and soils are not very droughty. Growth has been slow (less than 0.3 percent/year) for 30 years or more. The current rates are considered by users to be affordable. The users are almost all single-family residential (few commercial and no industrial users), household income is moderate – not too many are very well off and not too many are very poor, and everyone has turf grass lawns. Their monthly use year-round averages about 5,000 gallons. In the summertime their monthly use is 20 percent higher than average (lawn watering). In this situation few households use more than 10,000 gallons per month even in the summertime. This situation, which is fairly typical for systems located at least 40 miles from a metropolitan area, is modeled in Table 2.

Notice in the first two columns of Table 2 that there are few users above 10,000 gallons per month ("10" in the table). (You will not know how many users you have in the various classes because you did not collect such usage data but your users will probably be spread across the classes something like this example.) The next two columns show the proportional to use rates. (These rates were calculated by GettingGreatRatesNow© based upon data entered by the clerk for this system.) There is no usage allowance.

The next two columns of Table 2 are highlighted green. They depict monthly customer bills and revenue generation from proportional rates for each level of use. Rate revenues total $31,501/month (bottom of the table).

The three yellow highlighted columns depict conservation rates with a single block unit surcharge of $2.22/1,000 gallons (50 percent of the base unit charge) starting at 10,000 gallons (center of the table). These rates will only generate an extra one percent in user fees (bottom of the table).

A single block structure that starts at such a high level of volume will usually generate little extra revenue.

What can you conclude from this example? If you plan to set two blocks of surcharges that escalate by 50 percent each time, expect revenue increases of perhaps 15 percent if your users are like those described in the example.

It is not worth getting ratepayers riled up about. If this system really needs the extra one percent in revenues they should stay with the proportional to use rates but raise the rates in GettingGreatRatesNow© by another one percent. Or, they should lower the volume level at which the conservation rates start to perhaps 9,000 gallons to boost revenues significantly.

Look at Table 2 again. This time concentrate on the blue highlighted block of columns on the right side of the table. These columns depict a two-block surcharge rate structure. The first surcharge block of $2.22 (50 percent of the base unit charge) will start at 5,000 gallons of use and a second surcharge block of $4.45 (100 percent of the base unit charge) will start at 10,000 gallons.

Conservation Rates – This is What Really Happens:

- When faced with **severe** conservation rates industry will find ways to permanently use less water.
- When faced with **severe** conservation rates "rich people" who water their lawns heavily may or may not cut their use. It depends on how much they love their lawns versus how much peer pressure they feel to not water their lawns.
- When faced with **mild** conservation rates industry and "rich people" will just pay their higher bills and keep using what they used before.
- Faced with any reasonable conservation rate structure, "poor people," most of whom use the least water, will be affected little if at all.

Thus, you can institute mild or moderate conservation rates and most people will continue using water as they had been and you will bank more unit charge revenue.

Table 2: Comparison of Rate Structure Alternatives

Number of Users in This Class in July	Average Use (1,000 Gallons)	Minimum Charge	Base Unit Charge	Total Monthly Bill, Proportional to Use Rates	Total Rev This Month, Proportional to Use Rates	Single Block Unit Surcharge for Conservation Rates	Total Monthly Bill Including Conservation Surcharges	Total Rev This Month Single Block Conservation Rates	Two Blocks Unit Surcharges for Conservation Rates	Total Monthly Bill Including Conservation Surcharges	Total Rev This Month Two Block Conservation Rates
26	1	$7.42	$4.45	$11.86	$308	$0.00	$11.86	$308	$0.00	$11.86	$308
62	2	$7.42	$4.45	$16.31	$1,011	$0.00	$16.31	$1,011	$0.00	$16.31	$1,011
95	3	$7.42	$4.45	$20.76	$1,972	$0.00	$20.76	$1,972	$0.00	$20.76	$1,972
125	4	$7.42	$4.45	$25.20	$3,150	$0.00	$25.20	$3,150	$0.00	$25.20	$3,150
300	5	$7.42	$4.45	$29.65	$8,894	$0.00	$29.65	$8,894	$2.22	$31.87	$9,561
150	6	$7.42	$4.45	$34.09	$5,114	$0.00	$34.09	$5,114	$2.22	$38.54	$5,781
96	7	$7.42	$4.45	$38.54	$3,700	$0.00	$38.54	$3,700	$2.22	$45.21	$4,340
80	8	$7.42	$4.45	$42.98	$3,439	$0.00	$42.98	$3,439	$2.22	$51.88	$4,150
19	9	$7.42	$4.45	$47.43	$901	$0.00	$47.43	$901	$2.22	$58.55	$1,112
10	10	$7.42	$4.45	$51.88	$519	$2.22	$54.10	$541	$4.45	$67.44	$674
8	11	$7.42	$4.45	$56.32	$451	$2.22	$60.77	$486	$4.45	$76.33	$611
7	12	$7.42	$4.45	$60.77	$425	$2.22	$67.44	$472	$4.45	$85.22	$597
6	13	$7.42	$4.45	$65.21	$391	$2.22	$74.11	$445	$4.45	$94.11	$565
5	14	$7.42	$4.45	$69.66	$348	$2.22	$80.77	$404	$4.45	$103.00	$515
4	15	$7.42	$4.45	$74.11	$296	$2.22	$87.44	$350	$4.45	$111.89	$448
3	16	$7.42	$4.45	$78.55	$236	$2.22	$94.11	$282	$4.45	$120.79	$362
2	17	$7.42	$4.45	$83.00	$166	$2.22	$100.78	$202	$4.45	$129.68	$259
1	18	$7.42	$4.45	$87.44	$87	$2.22	$107.45	$107	$4.45	$138.57	$139
1	19	$7.42	$4.45	$91.89	$92	$2.22	$114.12	$114	$4.45	$147.46	$147
0	20	$7.42	$4.45	$96.33	$0	$2.22	$120.79	$0	$4.45	$156.35	$0
1000	Total Users			Total Rev =	$31,501		Total Rev =	$31,893		Total Rev =	$35,703
								Extra Rev Compared to Proportional to Use Rates =	1%		
										Extra Rev Compared to Proportional to Use Rates =	13%

Notice that this structure will generate an extra 13 percent in revenue from the conservation surcharges. This kind of revenue is worth taking some heat for and it may cause some users to be more conservative, if only temporarily. Keep in mind, not everyone is paying an extra 13 percent. Only a small percentage of users are paying more and to average 13 percent in extra revenue overall, those users are paying 50 to 100 percent more.

If your system is not quite like the example system, consider the following variations that may match your situation better. If one situation listed below describes yours closely, you might collect 20 percent in unit charge revenues in addition to the 13 percent in the two-block conservation structure depicted above. If two or more situations match yours, you might collect an extra 40 percent altogether. Extra revenue generation will tend to max out at 40 percent or so because at that level some users will seek ways to use less water to reduce their bills. Following are situations where you might collect these extra fees:

- Your system is located in an *arid region* or your *soils are droughty* but many residents try to maintain turf grass lawns. People have to water turf grass lawns heavily just to keep them alive in such conditions.
- Your weather and soils are good for growing turf grass but your *customers are fairly affluent and they like that "18th green at Augusta"* look. Green lawn lovers who are affluent can afford to spend what it takes to keep their lawns that way, and they will.
- Your weather and soils are good for growing turf grass and *more than 10 percent of your homes have been built since 1990*. It is becoming common practice in much of the country for builders to install in-ground turf grass lawn irrigation systems in new home construction. Such automatic, large-area irrigation systems can boost water use by a single family home to 50,000 gallons/month or more during the irrigation season while off-season use will probably be less than 10,000 gallons/month.
- Your customer base includes a *high percentage (25% or more by flow) of industrial users*. Industrial users will probably raise the price of whatever they sell by 0.05 to 0.25 percent to cover the additional water cost. (It is easy for both users and water system management to be cynical about rates charged to the high-volume users but the reality is this. If a plastics plant grosses $5,000,000/month and it pays $5,000/month for water, the water bill amounts to 0.1 percent of gross receipts. If the water bill is doubled, it will then amount to 0.2 percent of gross receipts, still a small percentage of gross receipts. Energy and other material inputs probably account for 25 to 40 percent of gross receipts and labor for another 25 to 40 percent. Unless water is a major input for an industry the water bill probably accounts for less than 0.25 percent of gross receipts. Such businesses have bigger fish to fry than the water bill.)

In the last variation there is lots of industrial water use. If your system has many industrial or large commercial users and you try to adopt conservation rates without a separate (lower) rate structure for them, you are going to encounter resistance:

- If you currently have uniform unit charge rates and you propose to switch to moderately aggressive conservation rates the "captains of industry" are going to try to get you voted out of office if you are an elected official, or fired if you are a staff person. They don't want any of their operating costs to go up, even if a cost is a minor one.
- If their rates go up too much some of these high-volume users are going to find ways to conserve:
    - If they have leaky valves, washers and other system components (likely), or they are simply wasting water (likely), they will fix (much of) that.

- If they are irrigating large expanses of lawn they will set their timers to irrigate less often, they will install metered shut off valves or they will skip a cycle after a nice rain shower. (In many communities banks are the big summertime water users. How many times have you driven by a bank in a downpour and seen those sprinkler heads pumping out water right on schedule?) Or a few businesses, if looks are not that important, may stop irrigating altogether and just let the lawn go brown in the summertime. Or, they may change their landscaping to get rid of most if not all of the turf grass lawn. None of these are bad results but company presidents and managers will grouse about them until they have gotten their water using "act" together.
- If they use high volumes of water in their processes they will pay consultants to find ways to use less water. And, they will find ways.
- If your bill to them truly is onerous (not likely) they will shut down or change their business so they won't have to use as much water. Again, water conservation is not a bad thing but conservation is not free so you will get complaints.

Table 3: Monthly Bills Under Declining Rates

Number of Users in This Class in July	Use (1,000 Gallons)	Minimum Charge	Base Unit Charge	Two Blocks of Unit Surcharges	Base Unit Charge Plus Surcharge for This Usage Block	Total Monthly Bill Including Two Blocks of Surcharges	Total Rev This Month for Two Blocks of Surcharged Rates
26	1	$7.42	$4.45	$4.45	$8.89	$16.31	$424
62	2	$7.42	$4.45	$4.45	$8.89	$25.20	$1,563
95	3	$7.42	$4.45	$4.45	$8.89	$34.09	$3,239
125	4	$7.42	$4.45	$4.45	$8.89	$42.98	$5,373
300	5	$7.42	$4.45	$2.22	$6.67	$49.65	$14,896
150	6	$7.42	$4.45	$2.22	$6.67	$56.32	$8,448
96	7	$7.42	$4.45	$2.22	$6.67	$62.99	$6,047
80	8	$7.42	$4.45	$2.22	$6.67	$69.66	$5,573
19	9	$7.42	$4.45	$2.22	$6.67	$76.33	$1,450
10	10	$7.42	$4.45	$0.00	$4.45	$80.77	$808
8	11	$7.42	$4.45	$0.00	$4.45	$85.22	$682
7	12	$7.42	$4.45	$0.00	$4.45	$89.67	$628
6	13	$7.42	$4.45	$0.00	$4.45	$94.11	$565
5	14	$7.42	$4.45	$0.00	$4.45	$98.56	$493
4	15	$7.42	$4.45	$0.00	$4.45	$103.00	$412
3	16	$7.42	$4.45	$0.00	$4.45	$107.45	$322
2	17	$7.42	$4.45	$0.00	$4.45	$111.89	$224
1	18	$7.42	$4.45	$0.00	$4.45	$116.34	$116
1	19	$7.42	$4.45	$0.00	$4.45	$120.79	$121
0	20	$7.42	$4.45	$0.00	$4.45	$125.23	$0
1000	Total Users					Total Monthly Revenue =	$51,383
						Extra Rev Compared to Proportional to Use Rates =	63%

You now have a good idea of how to design conservation rates using GettingGreatRatesNow©. You also have a good idea of what kind of revenue generation to expect from those rates. Declining rates are the same except they run in reverse.

Declining Rates

To set and reset declining rates you will use the procedure described above, except the surcharges will go in reverse of those used to create conservation rates. Thus, the unit charge calculated by GettingGreatRatesNow© will be your cheapest rate and that will apply to the highest volume classes (rate block). As you go down the scale in volume (up the page on

your rate chart) you will increase the unit charges. Those using the least volume will pay the highest unit charge rates, on average.

As an example, Table 3 uses the two-block rate structure and the same rate breaks from Table 2, but in reverse. The monthly bill for 5,000 and 20,000 gallons would be $49.65 and $125.23, respectively. Compare that with the same volumes under the two-block conservation rate structure in Table 2 at $31.87 and $156.35, respectively.

In almost all systems the extra revenue generated from declining rates will be greater than the revenues from conservation rates if the price breaks are the same for both rate structures (but in reverse). Why is that? In most systems billable use above 10,000 gallons/month declines rapidly. Thus, you can set very high rates for 50,000 gallons of use per month but if few people use that much water, you will not generate much revenue. However, most users use at least 4,000 gallons/month and almost all use 1,000 gallons/month. Thus, just a slightly higher rate for everyone's first 1,000 gallons will generate more revenue than a wildly high rate for 50,000 gallons/month for just a few users.

To generate 20 percent more revenue from a conservation rate structure might take two blocks of surcharges that graduate up by 50 percent each time, as shown in Table 2. But, a declining rate structure could generate the same revenue with surcharges that are only 10 to 20 percent higher than the previous (higher volume) rate block. You should not use that fact as a reason for adopting declining rates rather than conservation rates. If conservation is what you need to encourage, you need conservation rates. Just be aware that conservation rates probably will not generate huge windfall profits and some years (wet years) your reserves may not grow at all.

Under conservation rates some customers will use less water and reduce their bill. Under declining rates, those paying the highest average rates are the low volume users. There is little potential savings to be had by such users because they are already using very little volume.

Beyond trying to reduce their bills, how customers will respond to declining rates depends on what type of user they are:

- The "little old lady, widowed, retired, living alone on Social Security" is going to conserve water regardless of the rate structure she pays. She came of age in a time when water conservation was just what you did.
- The family of four is usually going to be your bread and

Table 4: Estimating Adjusted Unit Charges to Make up for Sales Losses Due to Usage Allowance

Step	Description, Formula and Example for Each Step
1	Estimate total volume to be delivered to customers A 100,000,000 gallons
2	Estimate the total volume to be given away B 10,000,000 gallons
3	Calculate volume to be sold A - B = C 100,000,000 gallons - 10,000,000 gallons = 90,000,000 gallons
4	Calculate the dollar loss in sales because of the give away B / 1,000 gallon units * the base unit charge calculated by GettingGreatRatesNow© (For example, from Table 2 above, that is $4.00/1,000 gallons) = D 10,000,000 gallons / 1,000 gallon units * $4.00/1,000 gallons = $40,000
5	Calculate unit surcharge rate needed to cover sales loss due to volume given away D / C * 1,000 gallon units = E $40,000 / 90,000,000 * 1,000 gallon units = $0.444/1,000 gallons
6	Total up the adjusted unit charge E + Base unit charge calculated by GettingGreatRatesNow© $0.444 + $4.00 = $4.444 or $4.44/1,000 gallons

butter customer, using a strong volume of water regardless of rates. However, if you adopt a drastically declining rate structure and your operating costs are low, this user might install an in-ground lawn irrigation system to get that lush lawn look since water is so cheap.

- If your base rates are low, your rates decline drastically and you aggressively court industrial development, a few heavy water using companies might move in to take advantage of your low water rates. Heavy water users like a good deal.
    - If you sell more water to these users at a reduced but still "profitable" rate, that will reduce the need to collect higher rates from your existing customers. Thus, sometimes reducing the water rate to certain users will let you reduce, or at least not raise rates, to other customers. But, you won't know if you can do that and you won't be able to convince your ratepayers of that unless you do or get a comprehensive rate analysis[12] to prove up your case.

With declining rates complaints will come from the low volume users. Be aware that many of these users have the least ability to pay. Don't be surprised if the local newspaper does a story on how you are sticking it to the "little old lady, widowed, retired, living alone on Social Security" with your "industry-friendly" declining rates. YOU DO NOT WANT THAT so keep it reasonable.

Usage Allowance

One final item you may want to consider as you design new rates is a usage allowance. A usage allowance can be used with any rate structure.

As discussed in the declining rates section, the first 1,000 to 2,000 gallons of use are the most important gallons to the utility and to the low volume users. Almost all users use 1,000 gallons/month. That first 1,000 gallons is the most expensive volume most systems will produce[13]. When you "give it away" you are giving away the prime real estate when it comes to rate revenues. Actually, volume that is "given away" is not really given away. The cost of that volume is simply transferred to other customers who don't get to use that volume. That could be a good thing or a bad thing. It all depends on your situation and your rate structure.

You have options concerning a usage allowance:

1. Don't give away any volume.
2. Transfer all of the cost of the give away volume to the unit charge, as demonstrated in Table 4 above. That means you will start with the minimum and unit charges calculated by GettingGreatRatesNow©. You will keep the minimum charge at that level and recalculate only the unit charge needed to make up the loss in sales because of the give-away volume. This pricing scheme transfers the cost of the give-away volume from low volume users to higher volume users because the unit charge affects higher volume users the most.
3. Transfer all of the cost of the give away volume to the minimum charge. Again, you will start with the rates calculated by GettingGreatRatesNow©. You will keep the unit charge at that level and recalculate only the minimum charge needed to make up the loss in sales because of the give-away volume. To do that you simply divide the dollar loss due to the give away volume by the number of customers and divide again by the number of bills to be sent out in one year. Add this

[12] A comprehensive rate analysis, also called a user charge analysis and by some, a rate study is a very thorough examination and modeling of a system's rates and finances, equipment replacement and capital improvement needs and all other important issues that will affect the system for five to perhaps 20 years. Comprehensive rate analysis, being a specialized exercise, must be done by a rate setting specialist.

[13] There are exceptions. When the system must be expanded at great expense to serve the next 1,000 gallons, that volume will become the most expensive to produce. Similarly, if an operating expense is pushed higher by higher production, such as the need to hire one additional operator, that volume will become the most expensive to produce.

amount to the minimum charge calculated by GettingGreatRatesNow© and you have the adjusted minimum charge you need to adopt.

This pricing scheme transfers the cost of the give-away volume from higher volume users to low volume users because the minimum charge affects the low volume users the most.

4. Transfer some of the cost of the give away volume to the unit charge and the remainder to the minimum charge. This calculation will be a combination of the calculations done in steps 2 and 3 above. This pricing scheme spreads the cost of the give away volume across the high and low volume users in proportion to how you weight the transfer. This calculation can be complex and also hard to "sell."

What scheme should you use? We recommend number 1 above. It is the simplest – GettingGreatRatesNow© calculates it for you. It is the fairest – it has everyone pay for the actual volume of service they receive. And, it requires no guess work about how much "free" volume will be used by your customers.

This you can count on. If your unit charge rates are high, you want your usage allowance to be high and you have many users, your revenue loss from that usage allowance will be very high.

Closing Thoughts

Rate surcharges for conservation rates or declining rates can be year-round or seasonal, severe or mild, "across the board" or applied only to individual users or user classes. Whatever you do, keep it defensible.

To institute seasonal conservation rates you simply set up two rate schedules. One has the conservation rate surcharges. You use that one during the conservation season (summer). The other, generated by GettingGreatRatesNow©, does not have the surcharges. You use that one the rest of the year.

If declining rates will serve your users and system better, start with the rates generated by GettingGreatRatesNow© and then add declining rate surcharges to the lower volume classes. If you adopt declining rates, you should use them year-round, not seasonally.

A usage allowance can help the system by increasing its base revenues, if the minimum charge is structured to include the cost of the volume being given away. Conversely, such a structure would hurt low volume users, many of whom have the least ability to pay.

Strategies and methods described in this guide are fairly basic. Generally speaking, the further "out there" you get with special rates, surcharges and allowances, as well as special issues concerning capital improvements, equipment replacement, debt service, growth in the user base and such, the more you need a comprehensive rate analysis performed by a rate setting specialist. In that case, call us to talk about your situation. We want you to ditch the headline, **"City Takes Beating Over Rates"** and replace it with, **"City Hires Expert to Get Rates Right."** Self-promotional, yes, but it really works out that way.

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by Carl Brown

Minimum charge concept for water and wastewater systems

Minimum charges have been set in many ways. Your situation is different from that of all other systems so how you set your rates must be tailored to your needs. Thus, this article is not a rate setting cookbook but it will give you ideas for setting your minimum charges advantageously.

The minimum charge concept applies to all utilities – electric, gas, telephone, storm water, trash service and so forth but it will be discussed in this article in reference to water and sewer systems. Some services, especially storm water and trash, go so far as to pay for their costs with rates that are commonly the same for all users – a minimum charge only.

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The part of a water or sewer bill that is commonly called the minimum charge, flat fee or base charge ranges from zero dollars each billing cycle (no minimum charge) to 100 percent of the bill (a flat fee to all users). These two rate structures are at the extremes and they are rare.

Most systems have a minimum charge plus usage charges. The minimum charge may be the same for all users or it may be different for different user classes or even individual users. That difference might be based on meter or connection size, potential demand each customer can place on the system to provide flow, or other factors that are measured or estimated. Or, the difference might just be arbitrary. The minimum charge may include a usage allowance or it may include no 'give-away' volume at all.

In the ideal world all users would reimburse the utility for all of the costs they cause the utility to incur.

In the ideal world all users would reimburse the utility for all of the costs they cause the utility to incur. Keep that ideal in mind as you set your rates but do not fixate on it. It's a good goal but you probably won't be able to fully achieve it.

Minimum charges always do a couple of things well:

1. They establish an essentially guaranteed base revenue stream for the system, thereby making budgeting for the system easier, and
2. They establish a certain base charge that your ratepayers know they need to pay every billing period, making their budgeting more predictable (if not easier), too.

If set up correctly, minimum charges also do several other things well:

1. They recover fixed operating costs from all ratepayers on an equitable basis,
2. They make potential lenders feel more secure that they will be paid back. Consequently, the interest rate to the borrower may be reduced and
3. They recover part or all of the expected capital improvement costs the system will incur to provide high-volume flow capacity and other exceptional services for users (large customers) that need those services.

Generally, the fewer users there are in a system, the higher the minimum charge will need to be. Fixed costs generally don't go down in proportion to the number of connections. Economists like to say that small systems lack 'economies of scale.' Fixed costs in small systems will commonly comprise one-third to one-half of the system's total operating costs. In a very large system perhaps only 10 percent of its costs will be fixed.

Regardless of size, if a system recently borrowed substantial money for capital improvements, it will likely have a higher minimum charge. That is because the system is paying all or much of those debt payments with minimum charge revenues.

How should your system go about setting its minimum charge? Minimum charges may be set to recover some, all or even more than the total of the fixed costs that all users cause the system to incur. They may also be set to recover potential demand-based costs that certain users cause the system to incur.

Basic minimum charge calculation

To do the most basic minimum charge calculation, system decision-makers need only know three things:

1. The costs (generally fixed costs) for a known period of time, probably one fiscal year, to be recovered in the minimum charge,
2. The number of customers connected to the system for that period of time, and
3. The number of bills to be sent out during that period of time.

Thus, if budget projections say the fixed costs for a small system will be $12,000 next year, there will be 100 customers during that year and bills will be sent out monthly, the most simplistically calculated minimum charge would be $10.00 per month. That is:

$12,000 *in fixed costs, divided by* ***100*** *customers, divided by* ***12*** *months*

The smallest, simplest systems can get by with calculating their minimum charges in this way.

All systems including the smallest need to do a fixed cost-based minimum charge calculation as described in the following.

Fixed cost-based minimum charges

Recovery of fixed costs is the minimum charge money-maker for most systems. Generally you should strive to recover an equal share of all fixed costs from each customer. However, it is likely you will need to stray a bit from that course.

What is a fixed cost? It is not a cost that never goes up. Fixed costs do vary through time. 'Fixed' refers to what the cost is related to. If a cost is related to the volume of service received, it is a variable cost. If a cost is instead related to the fact that someone is a customer, it is fixed. In reality, many costs are a blend of fixed and variable but let's keep it simple for now.

The easiest illustration of fixed costs is this. If you print a water or sewer bill for each customer and you put those bills in envelopes, you must affix one first-class stamp to each envelope to mail them to your customers. It makes no difference to the Post Office if one customer was billed $10 and another was billed $10,000. Your fixed cost for postage for each bill is one first class stamp. (Notice I didn't state the amount of the first class stamp because that would imply that the price of a first class stamp is fixed.)

Of course, the envelope and the paper the bill was printed on are also fixed costs. The computer, the billing software program and all the things and actions it took to create and process that bill are fixed costs. Though the amount and cost of staff time and administrative supervision vary from year to year, the function of administration is almost exclusively a fixed cost.

Use this thought process as you consider all of your costs and delineate them as 'fixed' or 'variable,' or some percentage of each. Once you have done that, calculating your fixed cost-based minimum charge is straightforward. Add up all the projected fixed costs for the year you want to set the minimum charge for and use the simple calculation method described above.

This concept is easy. The actual calculation is usually easy, as well. However, some of the assumptions around this calculation are complex. Growth or loss of customers will come into play for future years. Assumptions you make about how much of which costs are 'fixed' versus 'variable' will affect your minimum charge dramatically. Some costs are real but you may not have considered them. For example, it takes administrative

Note 1: While a system can analyze and set its minimum charges, unit charges and other fees and charges separately, in actual practice that does not work well. Rates should be set using a three-phase approach. In 'Phase 1' you decide your rate setting goals. In 'Phase 2' all rates, fees, incomes, expenses, capital improvement needs and so forth should be analyzed and adjusted comprehensively. In most cases a rate setting specialist should do 'Phase 2' analyses or provide guidance and advice if the system does its own analysis work. 'Phase 3' covers incremental adjustments during years following the initial adjustments. This is a do-it-yourself phase where system decision-makers compare the system's financial indicators to those generated by the comprehensive analysis and adjust rates and fees on a percentage basis as needed to stay on track financially. To teach the concepts of the minimum charge, this article disregards these phases but you should not do that when it comes time to adjust your rates.

Note 2: If your system is not very small or very large, you should have a rate setting specialist do your minimum charge calculation as a part of a comprehensive rate analysis. Even small systems should get advice from a rate specialist if they do this cost delineation themselves. To learn more of the rate analysis process and a methodology for successfully getting such help, visit: http://carlbrownconsulting.com/HowtogetGreatRatesGuide.pdf.

work, such as calculation of each customer's bill, mailing, keeping the books and such, to keep a utility running. That work must occur in a physical place like city hall or the district office. Each utility user should rightfully pay for that portion of the cost to own and operate that place. Likewise, the time the city or district manager, finance director, clerk and other staff spend on utility business should be charged to the utility. Generally, these items are fixed costs and they can affect your minimum charge dramatically.

Potential demand-based minimum charges

Why surcharge large customers for the potential demand they place on your system? Simple. The more you rightfully charge them, the less you rightfully need to charge your other, primarily residential, customers. The rate effects can be substantial.

Most small systems do not have users that warrant a special minimum charge. For example, a small rural town or a water district will tend to have primarily residential customers and only a few commercial customers. Few if any of the commercial customers will have meters larger than those serving residential customers. Thus, their potential demand is reasonably similar to that of the average residential customer. And since there are so few commercial customers in most small systems there is little extra revenue to be gained by charging them a special minimum charge. The cost of doing a study to determine what to charge those few customers may be greater than a whole year's worth of the extra revenues to be gained.

The more you rightfully charge them (large customers), the less you rightfully need to charge your other, primarily residential, customers. The rate effects can be substantial.

Some Generalities:

- Systems with fewer than 500 connections and few commercial customers should keep it simple and calculate their minimum charge using the simple fixed cost-based method described above as long as doing so does not create many 'bad' customers as described in the "Policy Considerations" section that follows.
- Systems with more than 5,000 connections and a mix of residential, commercial, industrial and maybe even some wholesale customers should study the costs of the potential demand that the large customers can place on the system and charge graduated minimum charges if potential demand, and revenues to be gained, warrant it.
- For systems in-between these two sizes, to charge or not to charge depends on the numbers and sizes of large customers. If the users are uniformly residential, charge one minimum charge to all. If there is a lot of variability in user size, study the costs and charge graduated minimum charges if potential demand, and revenues to be gained, warrant it.
- Any size system with one or more industrial customers with very large meters or connections should study the potential demands those customers place on the

system. Potential demand surcharges for such customers can be substantial.

- Finally, if the system was funded with State Revolving Fund loan funds, the former EPA Construction Grants program or some other funding source that dictates how rates must be set, you may have little latitude in rate setting. Your loan or grant agreement and bond covenants will include rate setting requirements. Look them up and follow them.

Variations on the minimum charge theme

Some systems assess minimum charges based upon equivalent dwelling units (EDUs). In other words, each connection is rated against the flow capacity of a normal household. To illustrate, a single family home would be rated at one EDU. A condominium complex with 100 condominiums all billed to the complex through one master meter would probably be rated at 100 EDUs. A large water-using industry might be rated at 20,000 EDUs. When decision-makers base their minimum charge on EDUs, they often are attempting to recover from those large users the capital that it cost to build an 'oversized' system to serve those large users. In effect, they are trying to recover the potential demand-based costs from the 'potential demanders.' However, EDU-based minimum charges are a very inexact way of doing that. Most systems, however, are simply trying to recover their fixed costs from as large a user base as possible and to collect as much revenue as possible from those users that are most likely to be able to pay – the large ones. That will reduce the minimum charge they must assess to smaller users. Some would consider this to be an underhanded tactic but it can work well.

Some systems provide a usage allowance or 'give away' volume with the minimum charge. That volume can be either constant for all users or vary depending on user classes. If the true value of the 'give away' volume is included in the minimum charge, this can be a useful revenue generating and revenue smoothing tactic, though it will not be fair to those customers using less than the give-away volume. Minimum charges that include a give-away volume are a cousin to the EDU method. Rather than taking more from the larger users by charging a higher minimum charge, the give-away volume method gives more to the small users for 'free.' Again, this is an inexact way of helping needy users because not all small users are needy and not all needy users are small. If the give-away volume is kept low, the inequities will be minimal.

Examples of minimum charge variations

A minimum charge that includes fixed costs, potential demand-based costs, EDUs and perhaps other components can be calculated one component at a time, then added together for a total minimum charge for each class of user. This concept is simple. The calculation is complex and the appropriate methodology depends on your circumstances.

Policy considerations

You must weigh several issues against each other to arrive at an appropriate minimum charge for your system. While a rate setting specialist can do calculations accurately for you, provide valuable guidance and support and do the 'selling' of the proposed rates for you, your decision-making body must make the final rate setting decisions. As your decision-makers do that they should consider these issues:

1. Water, sewer and all other utilities are businesses, regardless of who owns them. Businesses must cash flow properly if they wish to survive, much less thrive.
2. In addition to functioning in a business-like manner, a utility has a responsibility to its customers to nearly guarantee

its long-term prosperity for their benefit. Customers depend upon the service being there whenever they want to use it. Thus, a utility must err on the conservative side by maintaining strong reserves that will enable it to weather financial storms. Those reserves should be built with utility (rate) revenues unless the ratepayers and taxpayers are aware of and generally approve of doing otherwise.

3. If a service costs the utility money, the utility should recover that cost from the most logical 'person' if that makes good business and community administration sense. For example, generally 'growth should pay for growth.' Developers should fairly pay for their consumption of utility services during the construction process. Likewise, those users that have the capacity to place high demands on the utility cause the utility to pay extra for that higher capacity to provide service. Even if those users never actually use that extra volume, they should pay the utility for the added expense of making it available. Consider this analogy. A company operates taxi and limousine services. A potential client requests limousine service but only wants to pay a taxi cab fare. Would it be fair to the taxi cab riders if the company met his demand, in effect transferring the extra limousine service costs to the taxi cab fares? Clearly the limousine rider should pay the limousine fare.
4. If adjusting a rate, fee or policy will turn currently 'good' customers into 'bad' customers, decision-makers should consider the necessity of the change carefully before making it. Two contrasting examples illustrate this dilemma:

   A. While it may be warranted on a cost-to-serve basis, raising the minimum charge markedly may make it difficult for fixed, low-income customers like the stereotypical 'little old lady, widowed, retired, living alone on Social Security' to pay their utility bill. That may cause more of them to pay late or not pay at all. That may trigger your attorney, at high expense, to write threatening letters to those customers. Eventually you may even shut off their service. Thus, in the attempt to generate more revenue by raising rates and enforcing them, net revenues may actually go down. Certainly, your local newspaper will run articles detailing how your utility 'beat up' some disadvantaged citizens over a piddling amount of money.

   B. On the other hand, while in fact it is rare for water and sewer rates to significantly figure into a major employer's decision to move to or remain in a particular community, it can happen. Thus, it is possible that, by raising the minimum charge to all users and lowering their unit charges, thus lowering the total bill to a large employer, a system can help that employer to create or retain jobs in a community. Those jobs may be filled by people who would otherwise not be able to pay their water and sewer bills or would have to move out of the community to seek work elsewhere. Therefore, the system would retain more ratepayers and those ratepayers would have income with which to pay their bills. The community would also retain more property taxpayers and all the other economic activity associated with them. This is the economic development school of thought for rate setting. Heed this caution before pursuing this course. If the financial capability of a business is so tenuous that a miniscule reduction in its net revenue (reduced water or sewer rates) is the difference between surviving and collapsing, look for the collapse to happen soon anyway. As an investor in economic development, the community should be looking for businesses that don't depend on bargain-basement utility rates for survival.
5. Including a usage allowance or 'give-away' volume can have the same effect as described in point 4 above. A usage allowance can make it more difficult for customers that use less than the allowance to pay their bill, easier for customers that use slightly over the allowance to pay their bill and it will effectively lower the bills of large users. Allowing 2,000 to 5,000 gallons of use per month with the minimum charge may make rates more affordable for the 5,000 gallon residential user, the nationally recognized 'benchmark' for affordability. However, it will likely make rates less affordable for the stereotypical 'little old lady' because she uses far less than 5,000 gallons/month. If you give away any volume, strive to not give away so much that you make if excessively difficult for this person to pay their bill.
6. You should look toward the

future when setting rates so you can project trends and prepare for them. For example, with few exceptions inflation is a fact of life. In recent years inflation in water and sewer systems has been higher than the general rate of inflation. Thus, you should not increase your rates now and have no plan for future increases. Go ahead, bite the bullet and tell your ratepayers you are increasing rates now because they need to be increased now. And, forewarn them that rates will need to be increased, a little bit, each year in the future to keep up with inflation, too. Thus, they won't have illusions that your current increase is a one-time fix. You will find that making small increases every year in the future is understandable and palatable to your ratepayers.

Conclusion

Small systems and those with fairly homogenous users should set minimum charges that collect the system's fixed costs evenly from all users. The relatively small boost in revenue that graduated minimum charges might generate is generally not worth the hassle and expense to pursue. These systems may be able to calculate an appropriate minimum charge with little outside help. Larger systems and those with many commercial, industrial or wholesale customers should engage a rate setting specialist to analyze the costs that such users are causing the system to incur. If those costs are significant, the system should adopt appropriately graduated minimum charges along with other rate and fee adjustments. Throughout the rate setting effort, the system's decision-makers must balance the financial needs of the system against the effects that various rate structures would have on ratepayers. The system needs to be managed like a well-run business and that includes treating the ratepayers with compassion and respect. If you do all of this well your minimum charges will be become, and remain, just right.

Throughout the rate setting effort, the system's decision-makers must balance the financial needs of the system against the effects that various rate structures would have on ratepayers.

Editor's Note: Mr. Brown is writing a set of comprehensive water and sewer rate setting guides for small, medium and large systems.They should be published in 2008.This article, reprinted here by permission, is one chapter from those guides.

The Right Rate

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Water conservation – just use less water, right? Economic development – just lower all rates, fees and taxes, right? As much as we would like for these things to be easy, they are not. This article will discuss rate structures and their uses, starting with rates that encourage conservation and ending with those that encourage use. You need to understand what each rate structure does, and requires, before picking one.

Water Conservation and Conservation Rates

Water conservation is a good thing in situations like these:

- Demand is approaching the supply limit of the water source or the system's ability to process and deliver it.
- Environmental, wildlife, plant life and other resources would suffer degradation at unchecked water usage levels.
- Higher demand would force expensive system upgrades so costs to produce would rise, increasing user rates.

Conservation rates encourage water conservation but rates are not the only tool in the box. Water conservation can be accomplished by the following means:

Conservation rates charge incrementally higher fees to those who use more water.

1. Technological – Use of equipment, software and other technology-based ways to improve water use efficiency and to find and fix water leaks.
2. Legal – Use of ordinances, rules and other legal methods to force alternating-day outdoor watering or ban outdoor watering altogether, etc. These techniques are especially useful when you are in the middle of a seven year drought and the reservoirs are going dry.
3. Education – Just like in other efforts, educating users on how to conserve water is important.
4. Monetary – If you price water to encourage users to conserve water, many will.

The monetary technique, which is effectuated with conservation rates, usually accomplishes a mix of two basic outcomes:

1. Less water gets used by the customers and
2. More revenue gets collected by the utility.

Side trip: Those of you who are "liberal" leaning are thinking, "Ah Ha, conservation rates, yet another way we can soak the rich!" Those of you who are "conservative" leaning are thinking, "Oh great, yet another way government can transfer wealth." Congratulations, you are both right, to a degree. But the richest part of conservation rates may be this. There are "conservatives" who don't like conservation rates and there are "liberals" who love rates that are conservative. Language is wonderful.

The following story about Minnie, Minnesota, fictitiously located in the Minneapolis metropolitan area, illustrates a common situation that makes adopting conservation rates useful.

> The property owners in the "Aspenwood Club" subdivision all have million dollar homes on one-acre lots with in-ground lawn irrigation systems that soak lawns to the tune of 200,000 gallons per month during the spring, summer and fall. The Club members all revel in their lawns that look like the 18th green at the Augusta National Golf Club.
>
> Meanwhile, the elderly "Clapboard Village" homeowners across town, all of whom grow gardens out back so they can supplement their food supply, scrimp on 2,000 gallons per month in the winter and carefully apply another 2,000 gallons per month to their gardens in the summer.
>
> Because the Aspenwood Club homeowners are taxing the system's capacity so severely the city will soon need to sink two new wells and build two new 500,000 gallon water towers to supply their demand. The Aspenwood Club homeowners say, "Let's do it." But the Clapboard Village homeowners say, "But, that will raise everyone's rates by 50 percent. Why don't we just conserve water?"

Is it fair for the Aspenwood Club members to run Minnie out of water? Most would say it is not.

Conservation rates might cause those who waste water to waste less, although the savings will probably be far less than you would think. Many high-volume users are affluent. You could triple their water bill and it still wouldn't dint their income or curb their water use. Thus, even if conservation rates don't cause conservation, they will end up collecting more money from those who generally can afford to pay more. That will lower the rate revenues the water system will need to collect from all other users, like the Clapboard Village residents. And, that gets at the main issue they have – keeping their rates low.

Those of you who manage and make decisions for water systems must balance rate setting value judgments like those discussed against these realities: Your water system is a business. All businesses must cash flow properly or they will soon be out of business. Then, no one will get any benefits. Viewed in this light, conservation rates can do some nice things for your system and your ratepayers.

Rate Setting Phases:

- Phase 1 – Decide your rate and fee goals – your destination.
- Phase 2 – Develop your own or "buy" a comprehensive rate analysis – a map – that leads to your goals, usually requiring large initial rate adjustments and rate structure changes.
- Phase 3 – Actually make those initial rate adjustments.
- Phase 4 – Make incremental rate adjustments in future years – course corrections that are almost always small increases – to keep net revenues and other financial indicators on track with the projections from the comprehensive rate analysis for as long as possible.

Consider this advice before you enact **any** rate structure. You should analyze your rate setting needs and calculate what your cost to produce water is. You should rarely sell any volume of water below your cost to produce. If you do, you should maintain very strong reserves.

Maintaining strong reserves is even more important if you adopt **aggressive** conservation rates. Why? Your rate revenues, especially those high-volume sales, are extra sensitive to sales fluctuations. Your conservation rates may actually cause users to conserve in a big way. Or it just might rain a lot next year. Either way your sales volume and especially your sales receipts will go down and that could break your system unless you have sufficient reserves to weather the downturn. Lest we forget, there are (and were) some Wall Street investment banking firms that tried to operate without sufficient reserves and we all know where that got them, and us!

Everyone intuitively understands that water conservation is one of the things we need to do to live sustainable, but it is good to actually discuss such issues before setting rates. That gets everyone onto the same rate setting goals page.

Increasing Block Rates: As use goes up, rates go up within specified "blocks" of volume. The increase in rate between each block should be significant enough to encourage conservation.

Example:

Volume	Rate
0-6,000 gallons	$2.50/1000 gallons
6,000-12,000 gallons	$3.15/1000 gallons
12,000-24,000 gallons	$4.00/1000 gallons
Above 24,000 gallons	$6.00/1000 gallons

Simple and Targeted Conservation Rate Structures

The following two conservation rate types are easy to develop and administer. More complex types will be discussed after these.

Increasing block rates encourage conservation all the time by all those affected by the higher rates. They are a blunt instrument in that they tag the high-end users all the time, not just during the peak water use season when you really need conservation.

To illustrate, consider these two user types. A grocery store uses lots of water all the time. Thus, the grocery store raises the base flow of the system, not the peak flow. However, those folks in the Aspenwood Club subdivision use lots of water during peak water use season but far less the rest of the year. Turn them around and you've really made some progress.

On the up side, increasing block rates are usually only moderately difficult to calculate. On the down side they can discourage those types of development that use lots of water all year long unless you have a separate class and different rates for them.

As to the percentages you should increase rates by and the number of blocks you should set up, there are some practical limits. If, for example, you set the first block at 1,000 gallons of use and the rate for that block at $2.50, and you raise the rate 25 percent over the previous rate every 1,000 gallons, the resulting unit

Use in Thousands	Unit Charge per 1000 Gallons	Total Bill for This Volume	Average Unit Charge for This Level of Use
1.0	$2.50	$2.50	$2.50
5.0	$6.10	$20.52	$4.10
10.0	$18.63	$83.13	$8.31
15.0	$56.84	$274.22	$18.28
20.0	$173.47	$857.36	$42.87
25.0	$529.40	$2,636.98	$105.48

Table 1

charge bills will come out as summarized in Table 1.

Unfortunately you can't get away with charging excess users an average rate that is 42 times higher than the 1,000 gallon user, as shown in the last column of Table 1. Besides that, 1,000 gallon rate blocks just make the rate chart too complex. If someone questions their bill you can't talk them through calculation of their rate on the phone and have them understand it very well.

A reasonable approach would be to set rates for blocks of about 5,000 to 10,000 gallons of use, depending upon how your ratepayers use water. Stop the increases by about 40,000 gallons of use/month for residential users, higher for large users like the industrial class. In this case using the same rate escalations shown above, except having each new rate take effect every 5,000 gallons, your rates would be as shown in Table 2.

Use in Thousands	Unit Charge per 1000 Gallons	Total Bill for This Volume	Average Unit Charge for This Level of Use
1.0	$2.50	$2.50	$2.50
5.0	$3.13	$17.54	$3.51
10.0	$4.88	$44.94	$4.49
15.0	$7.63	$87.76	$5.85
20.0	$11.92	$154.67	$7.73
25.0	$18.63	$259.21	$10.37

Table 2

With rate increases at every 5,000 gallons you will still pull revenue from a water waster at four times the average unit charge rate as compared to the 1,000 gallon user. That is still a pretty exorbitant rate and you probably can't get it passed but you are getting closer. For practical reasons you normally shouldn't have more than four rate blocks for each user class. Three or even two would be better. Each of those blocks should start at a natural break point in use.

For example, you should find the average use of the "little old lady, widowed, retired, living alone on Social Security" in her Clapboard Village home. She probably uses about 2,000 gallons/month except in the summer when she's growing a garden and flowers. Then she still doesn't exceed 5,000 gallons/month. It is logical to set the first rate block from zero to perhaps 3,000 or 5,000 gallons/month to protect this user from exorbitant rates. After all, she is already conserving water and she really can't afford to pay much more. You don't want the local paper doing an exposé article about how you are "sticking it to the little old ladies…"

Seasonal Rates: Unit rates go up in the summer, the peak demand period for outdoor water use. Seasonal rates can increase for all volumes of use (a surcharge on all use) or just on higher volumes of use (separate rate schedules for summer and winter).

Examples:
Surcharge method – Between May 1 and October 1 all unit charges go up by $1.00/1000 gallons.
Two-schedule method – In the winter the unit charge for all volumes of use is $2.50/1,000 gallons. During the summer the first usage block is still $2.50/1,000 gallons but higher usage blocks have incrementally higher rates.

The next natural rate block would take in the stereotypical family of four that uses 5,000 to 10,000 gallons/month unless they irrigate their lawn.

Then you set a usage block to capture the reasonable lawn irrigators.

Finally, you set a rate block to penalize the real water wasters.

Seasonal conservation rates may be of the same structure as the increasing block rates described above except the escalating rates only apply during the heavy water use season (summer for most systems). This structure requires two rate schedules, one that is in effect during the heavy water use season and one that applies during the rest of the year.

Seasonal conservation rates tag only the seasonal high volume users so they target those who generally have the greatest opportunity to conserve. These users generally are the most able to pay, as well. In practice, the primary effect of the two-schedule method is to collect extra fees from the high-volume users while leaving the low-volume users alone.

Seasonal conservation rates can also be done using a surcharge on all volumes of use during the heavy use season. This structure tags all users during the peak use season whether they use lots of water or not. Thus, it is not targeted like the two-schedule method. The primary effect of the surcharge method is to collect extra fees from high and low-volume users alike. In its defense, the surcharge method enlists users large and small in the conservation effort so it is not only about collecting more fees.

With either the surcharge or the two-schedule method, during the "off" season your unit rates would probably be of the uniform structure, as described in the next article installment.

Seasonal conservation rates, especially the two-schedule method get at the heart of the problem for most communities. Two-schedule, seasonal rates are generally the most useful and targeted of the conservation rate structures. They are most likely to accomplish water conservation during the peak use season.

Time of Use Rates: These rates are higher during the times of day when water demand is greatest. This structure requires specialized meters that can monitor water use during specified segments of time, such as every 15 minutes.

Example:
Water rates are increased by $2.00/1,000 gallons for all use over 100 gallons/15 minutes during defined times of day of the peak water use season.

If increasing block rate and seasonal rate structures can be thought of as shotgun blasts, **time of use rates** are a rifle shot. In theory time of use rates are perfect. This structure is commonly used in electric utilities where time of use (during the day) can be critical to the capacity costs to serve users. Electricity cannot be economically stored so peak use sets the system capacity that is needed and the cost to meet it. The basic idea is this. It costs more to build enough system capacity to supply the peak demand than to supply the average demand. Thus, the more the peak can be shaved, the less it will cost to produce electricity, or water. If charged more for peak use, some users will reduce their peak use and save themselves and the system money.

Fortunately, few water systems have facility needs that are so severe that such a rate structure will pay for itself. While electricity cannot be stored economically, water can. (In fact, the power industry stores water behind hydro-electric dams for peak power generation.) It takes sophisticated metering equipment and billing programs, staff to manage the program and access to specialized consultants to design time of use rate structures to make such a program manageable. Unless the volumes and dollars involved are high, the revenues generated by this sophisticated technology will not pay off for most water systems. And, complexity itself is rejected by most ratepayers. Their thinking is, "If I can't understand it, it is too expensive so I don't want it." Most of the time, they are right.

On the education front, you can still inform and teach your ratepayers when it's beneficial to conserve water. We are all familiar with the power company's "peak demand" alerts that appear on TV. Managing peak electricity demand also reduces peak water demand, to a degree. It takes electricity (and water) to run washing machines, dish washers, car washes and other electricity-based machines. Postponing use of these machines postpones water use, too.

While your water system probably does not have an income stream near that of the typical power company, you can still afford cheaper media to get your conservation message out. Run a few radio spots or place a short message about water conservation on everyone's bill a month of two before peak use season hits. Do it again when the season is in full swing. Develop a good relationship with your local newspapers. That will give you the opportunity to feed them information and do interviews on water conservation. In that way you and they can provide a valuable public service – educating people.

Individualized Goal Rate (Water Budget Rate): A rate schedule tailored to the use of each customer. This is essentially an increasing block rate for each customer.

Example:
A family of four used 6,200 gallons in January. Summer use is higher than January use so a factor, like 1.5, is applied to their use like this: 1.5 x 6,200 gallons = 9,300 gallons. Their resulting rate schedule may look like this:

Volume	Rate
0-9,300 gallons	$2.75/1000 gallons
Above 9,300 gallons	$4.00/1000 gallons

Like time of use rates, the **individualized goal rate** structure is a rifle shot – very accurate but very hard to pull off. If your system is savvy, technologically sophisticated and financially well off, consider using it. Otherwise, keep it simple and avoid this structure.

The individualized goal rate structure also carries the risk of landing you in court. Let's say you set rates so one of your residential users, Mr. Thurston Howell, III, will pay $4.00 per 1,000 gallons for use above 9,300 gallons. You set rates to another residential user, Mr. Ben Matlock, so the $4.00 per 1,000 gallons rate kicks in at 4,000 gallons because he uses less water on average. Being forced to pay high rates sooner than Mr. Howell, Mr. Matlock says he feels discriminated against. After all, he says, he is already conserving twice as much water as Mr. Howell. Can you convince Mr. Matlock his rates are fair? What if Mr. Matlock happens to be a dramatic and successful attorney? And, what if, instead of $4.00/1,000 gallons we're talking about $10.00/1,000 gallons? People can get hot about rate fairness.

Excess Use Rates: Cost per unit increases greatly above an established level in order to trigger a strong price signal that discourages excessive use. This rate is similar to an increasing block rate but with much higher charges for the higher volume blocks.

Example:

Volume	Rate
0-6,000 gallons	$2.50/1000 gallons
6,000-12,000 gallons	$5.00/1000 gallons
Above 12,000 gallons	$7.50/1000 gallons (Excess Use Rate)

Excess use rates are just the increasing block rates structure (discussed in Part I) on steroids. A rate structure that is this aggressive might just be zoning in disguise, not that that is a bad thing.

If your high-volume rates are unreasonable you will invite serious problems using this structure. You may well pass this rate ordinance now. However, later, when it comes time to get the support of the Aspenwood Club members to do some good civic deed that requires their money, they will balk. To avoid future problems and to just sleep well at night, don't do class warfare or stealth zoning.

Non-conservation Rates

Following are several rate structures that do not encourage conservation and some even encourage use. If you want to use one of these rate structures it does not mean that you are trying to destroy the planet. Where you are, water may be plentiful and using it productively can make good sense. These structures may give your customers the idea, "Conservation is not that big a deal around here." Maybe that is appropriate, and maybe its not, you have to decide.

Uniform Rates: The cost per unit is the same regardless of the volume used.

One of the great features of a **uniform unit charge** is simplicity. If a ratepayer calls you up and says, "I think my water bill is wrong," this rate structure makes it easy to calculate their bill while they wait on the phone. Their bill is simply the volume they used (less any usage allowance) times the unit charge rate plus the minimum charge.

While any unit charge will cause some conservation, uniform rates are considered to be use neutral. Uniform rates are fairly common in water systems, especially smaller ones. Uniform rates are probably the most common structure for sewer systems. That is mainly because the State Revolving Fund (SRF) loan program and its predecessor, the Construction Grants Program, both require rates that are commonly called "proportional to use." Such rates have uniform unit charges. Almost all municipal sewer systems were at least partially built with SRF or construction grants so technically, almost all municipal sewer systems are required to have proportional to use and, therefore, uniform rates.

Declining (Decreasing) Block Rates: The cost per unit of water goes down as water use increases.

Declining rates make sense in the right situation, but you should not adopt such rates unless they are based upon the results of at least a simplified cost of service rate analysis. Otherwise, you run the risk of selling some water volume at a price that is below your cost to produce. Besides determining this key cost, your analysis should show that the system enjoys significant economies of scale to supply higher volumes of water and rate reductions are based on those cost savings. Otherwise, you can end up giving one user class a great deal that is subsidized by other user classes.

Inclining rates and declining rates are mirror images of the same rate structure. One rate goes up with use. The other goes down. Thus, declining rates tend to encourage use.

Declining rates may encourage high-volume users to come to and stay in your community. High-volume users can create economic development. Economic development is good for many things, especially creating jobs for people and raising the tax base for local governments.

In all likelihood you do not need to have declining rates to attract and keep good employers and a high taxable property base. Outside of steel mills, beverage bottlers, canneries and other large water using industries, few employers actually consider water rates to be a major factor when deciding where to locate. Availability and cost of labor, tax rates and other costs are more important for most businesses. Almost all water rates being charged almost everywhere in the U.S. are truly cheap and employers know it.

Flat Rates: A set fee buys unlimited water use. This rate structure is used where water is unmetered.

Flat rates are a minimum charge only, which encourages excessive water use. However, if the system is small, the users are very uniform (a single family home subdivision where the home values are all about the same) and there is strong peer pressure to not waste water,

unmetered water sales work just fine.

Flat rates are simple to understand. For example, a developer can call you up for an estimate of the water rate for a house he wants to build. You will not have to do any calculations to figure that rate. That rate will be the same as everyone else's rate. Flat rates make rate revenue projections dependable, in turn making budgeting simple. It's like being paid on a salary basis rather than on an hourly basis. You don't get to rake in lots of overtime when business is good but when sales are down you are going to bring home the same pay.

Generally the only communities that have flat rates are small. Trailer courts, RV parks and small rural subdivisions are the most common, and most appropriate, users of flat rates. When these water systems were put in, cost was a big factor in deciding what to install – initial cost and the cost of billing later on. Thus, almost all flat rate systems have no customer meters.

While simplicity is nice, especially for the utility, flat rates are unfair to that half of the users who use the least water. They also encourage users to waste water. Unmetered systems of 50 or more connections should consider installing meters and billing on a metered basis to slow down water waste, lower system operating costs, help identify and locate water leaks and to bill more fairly.

Minimum Charge That Includes a Usage Allowance: Including a usage allowance in the minimum charge (base rate) discourages conservation, especially if the allowance exceeds the average customer usage.

Water volume allowed for "free" each billing period is usually called a "usage allowance" or "give away volume." This is not a rate structure itself. It is only one part of some rate structures. Flat rates include an unlimited usage allowance – use as much as you want and the bill is still the same. All other rate structures include a limited volume (which could be zero) that is given away with the minimum charge.

The "little old lady, widowed, retired, living alone on Social Security" in her Clapboard Village home may take a hit if she has to pay for all of her use (zero usage allowance). However, in actual practice, it rarely turns out that way. Because most systems build part or all of the cost of the "give-away" volume into their minimum charges, such structures generally favor the higher volume users by giving them lower rates than they otherwise would get.

Multiple-family Dwellings: Total water use in a multiple-family dwelling which has only one water meter will usually exceed that of a single-family dwelling. To bill fairly, conservation rates should take this into account.

Example: Using the rates in the Excess Use Rates example above but applying them to a four-plex would yield the following rate table:

Volume	Rate
0-24,000 gallons	$2.50/1000 gallons
24,000-48,000 gallons	$5.00/1000 gallons
Above 48,000 gallons	$7.50/1000 gallons (Excess Use Rate)

Including a usage allowance with the minimum charge makes revenue generation a more sure thing for the system. Why? The system simply adds some or all of the cost of that "free" water to the minimum charge. In that case the "little old lady…" has to pay a **higher** minimum charge to get her "free" water, even if she doesn't use it all.

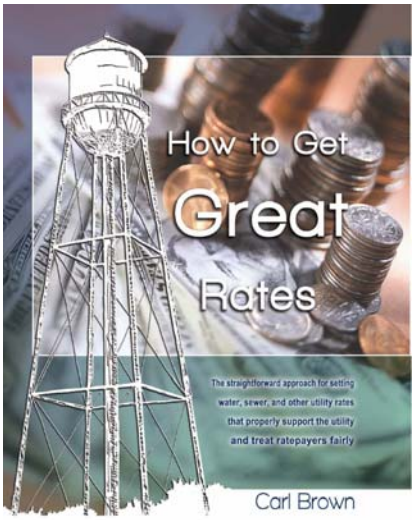
A give away volume encourages higher use. When you encourage someone to do something, they often will.

Multiple-family dwellings (usually apartments) are a troublesome detail of rate setting. Usually the thing that defines a water

customer is the meter. That works fine for single family homes, businesses and industries. It doesn't always work for apartments.

Multi-family is **not** an issue when the unit charge is the same for all volumes of use. With that structure the total unit fees charged will be the same whether they are billed to one meter or 100. Likewise, if unit charges go up or down only slightly with higher volumes of use, it's not a big deal. However, if the unit charge rate goes up or down markedly with higher volumes of use and if some multiple-family dwellings have many housing units, it will be an issue. There is no getting around doing individual rate calculations for apartments, condominiums and similar housing units if you have aggressive conservation rates.

A final caution: Unless you learn about rate setting and do or get a comprehensive rate analysis done you can have the best of intentions but miss your revenue target badly when you go "live" with your new rates. That is no way to run a utility so make sure an analysis is completed to reduce your risk of making huge revenue and rate fairness mistakes. You can count on this. If the public sees that you are just shooting in the dark they will hang you out to dry.



There you have it, Rate Structures 101. Get your rates set right and your system will boost rate revenues and maybe encourage water conservation, economic growth and other good things, too. To learn more about rate setting read the book, "How to Get Great Rates." It is available for preview and purchase at http://www.gettinggreatrates.com/.

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Conservation RATE$

By **Carl E. Brown**, President
GettingGreatRates.com and
Carl Brown Consulting, LLC

Graphic Design by **John Fekete**

Editor's Note: The author is not an attorney and these comments are not legal advice. The author is a rate analyst so these comments address the practical and financial effects of conservation rates.

Water conservation—just use less water, right? Wrong. It's not that easy. This article will briefly discuss the issue of water conservation to lay the groundwork for a discussion of conservation rates. Some conservation rate structures are simple to administer. Others are hard. You need to understand what each structure does, and requires, before picking one.

Water Conservation and Conservation Rates

Water conservation is a good thing in situations like these:

- The water supply is limited relative to demand. Either the water supply will run out for that system (unsustainable supply) or such use will deprive other systems of their water supply (interference),
- Environmental, wildlife, plant life and other resources would suffer degradation at unchecked water usage levels, and
- Higher demand would force expensive system upgrades so costs to produce would rise.

Conservation rates encourage water conservation. But conservation rates are not the only way to accomplish that goal. Water conservation techniques include:

1. Technological—Using equipment, software and other technology-based ways to improve water use efficiency, find and fix water leaks, etc. Advanced technologies are becoming increasingly more available in the water industry.
2. Legal—Using water conservation ordinances and other legal based ways to force people to use water more conservatively. This technique works best when there is a long-term drought and the reservoir is running dry.
3. Education —Teaching water conservation. This technique always makes good sense and for the other techniques to work well, they must should include a strong education component.
4. Monetary—Pricing water so customers will try to reduce their costs by using less water. This technique works best when billing is frequent enough that users can see "cause" (watering the lawn) and "effect" (the water bill jumps).

Conservation rates might cause water wasters to waste less, although the savings will probably be far less than you would think. Many of those water wasters are affluent, and they love their beautiful green lawns so much that their water bill could triple —and it still wouldn't curb their water use. However, even if conservation rates don't cause conservation, they will end up collecting more money from those who generally can afford to pay more.

Those of you who manage and make decisions for water systems must balance rate setting value judgments against these realities: Your water system is a business. All businesses must maintain cash flow properly or they will soon be out of business. Viewed in this light, conservation rates can do some nice things for your system and to some degree, your ratepayers.

It is important to have very strong reserves if you adopt aggressive conservation rates. That is because your rate revenues, especially those high-volume sales, are extra sensitive to sales fluctuations. Your conservation rates may actually cause users to conserve in a big way. Or it just might rain a lot next year. Either way, your sales volume and especially your sales receipts will go down and that could break your system unless you have sufficient reserves to weather the downturn.

Everyone intuitively understands that water conservation is one of the things we need to do to live sustainably, but it is good to actually discuss such issues before setting rates. That gets everyone on the same page in rate setting.

Conservation Rate Structures

Increasing block rates encourage conservation all the time by all those affected by the higher rates. They are blunt instruments in that they tag the high-end users all the time, not just during the peak water use season when you really need conservation the most.

On the up side, increasing block rates are only moderately difficult to calculate. On the down side, they can discourage those types of development that use lots of water all year—and employ lots of people—unless you have a separate class for them.

As to the percentages by which you should increase rates and the number of blocks you should set up, there are practical limits. If, for example, you set the first block at 1,000 gallons of use and the rate for that block at $2.50, and you raise the rate 25 percent over the previous rate every 1,000 gallons, the resulting unit charges will come out as summarized in Table 1.

Now, you may not like water wasters, but you can't get away with charging a 25,000 gallon user a unit charge that is 128 times higher that the 5,000-gallon user. Besides, 1,000-gallon rate blocks just make the rate chart too complex for most to calculate or explain.

A reasonable approach would be to set rates for blocks of about 5,000 to 10,000 gallons of use, depending upon how your ratepayers actually use water. Stop the increases by about 40,000 gallons of use/month for residential users, higher for large users like the industrial class. In this case, using the same rate escalations from Table 1, except having each new rate take effect every 5,000 gallons, your unit charges would be as summarized in Table 2.

With 25 percent rate increases at every 5,000 gallons you will pull unit charges from a 25,000 gallon user at a rate that is eight times higher than the 5,000-gallon user in this table. As compared to the rates in Table 1, their rate would only be five times higher. You will encourage some conservation with such rates, if you can get them passed.

For practical reasons you normally shouldn't have more than four rate blocks for each user class. Three is better. Each of

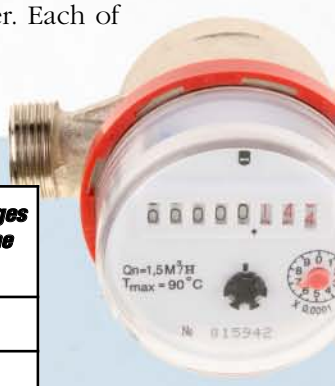

Table 1

Use in 1000's	Charge per 1000 Gallons at This Usage Level	Total Unit Charges for This Volume of Use
1.0	$2.50	$2.50
2.0	$3.13	$5.63
3.0	$3.91	$9.53
4.0	$4.88	$14.41
5.0	$6.10	$20.52
6.0	$7.63	$28.15
7.0	$9.54	$37.68
8.0	$11.92	$49.60
9.0	$14.90	$64.51
10.0	$18.63	$83.13
~	~	~
25.0	$529.40	$2636.98

Table 2

Use in 1000's	Charge per 1000 Gallons at This Usage Level	Total Unit Charges for This Volume of Use
1.0	$2.50	$2.50
2.0	$2.50	$5.00
3.0	$2.50	$7.50
4.0	$2.50	$10.00.
5.0	$3.13	$13.13
6.0	$3.13	$16.25
7.0	$3.13	$19.38
8.0	$3.13	$22.50
9.0	$3.13	$25.63
10.0	$3.91	$29.53
~	~	~
25.0	$7.63	$107.72

Consider this general advice before you enact any rate structure. Analyze your rate setting needs and calculate what your cost to produce water is. Never sell any volume of water below your cost to produce.

those blocks should start at a natural break point in use. For example, you should find the average use of the "little old lady, widowed, retired, living alone on Social Security." She probably uses about 2,000 gallons/month except in the summer when she's growing a garden and flowers. Then she still doesn't exceed 5,000 gallons/month. It is logical and defensible to set the first rate block from zero to perhaps 3,000 or 5,000 gallons/month to protect this user from exorbitant rates. After all, she is already conserving water and she really can't afford to pay more.

The next natural rate block would take in the stereotypical family of four that uses 5,000 to 10,000 gallons/month, unless they irrigate their lawn.

Then you set a usage block to capture the reasonable lawn irrigators.

Finally, you set a rate block to penalize the real water wasters.

Seasonal conservation rates are like the previous style except that the escalating rates only apply during the heavy water use season. That is the summer in most communities. During the "off" season, your unit rates would probably be the same for all levels of use.

Seasonal conservation rates get at the heart of the problem for most communities. It is generally the most useful and targeted conservation rate structure for communities that are mainly residential.

There are other, less commonly used conservation rate structures, but they are usually too complex for smaller systems. Stick to the basics and you will do well. One issue that hits even many small systems is rates for apartment buildings, mobile home parks and the like. If your conservation rates climb very rapidly and you have any large multi-dwelling users, you will need to normalize rates for them back to the average rate of use per dwelling.

There you have it, Conservation Rates 101. Get your rates set right and your system will boost rate revenues and maybe encourage water conservation, too.

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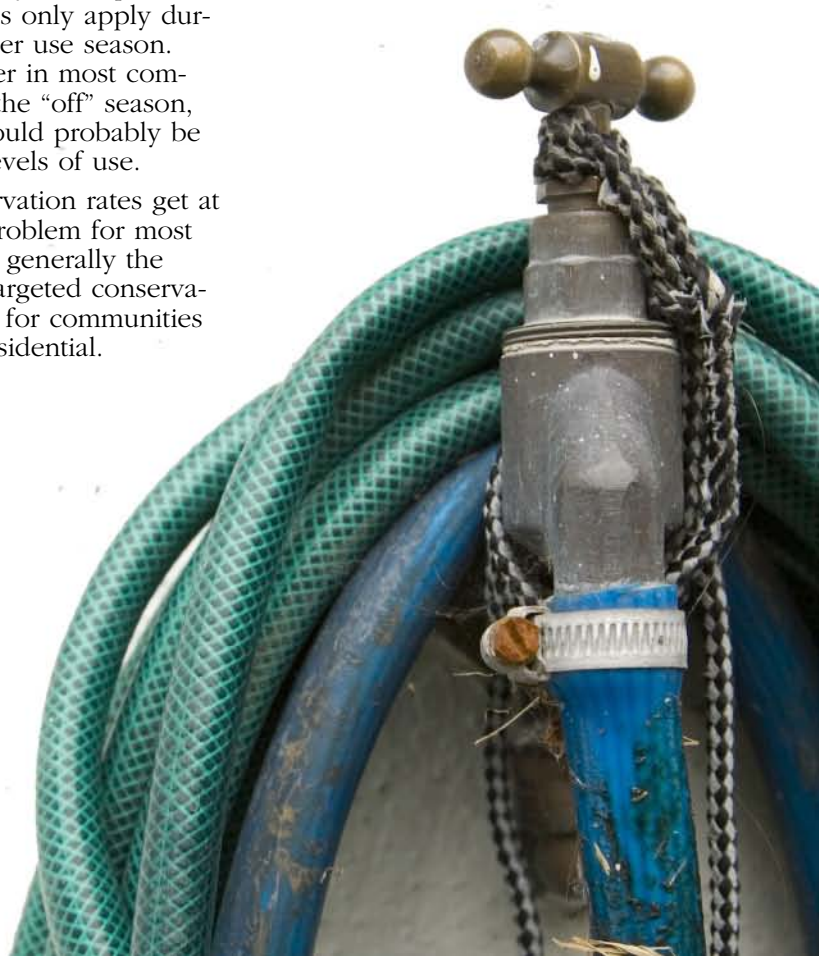


Beyond the Binge

Carl Brown, President
GettingGreatRates.com

The day after the big "bender" one college frat rat says to his buddy, "I'll never do that again." His buddy says, "Next weekend… is that *before* or *after* never?" And, he's not joking; he really needs clarification.

Millions of citizens, taxpayers, business owners and homeowners are waking up from the most prolific debt-fueled bender they have ever known. They are thinking, "We will never let that happen again." Now, you may be thinking, "That's national politics. I just run this nice little water system or this fine little town. This larger crisis won't impact what I do."

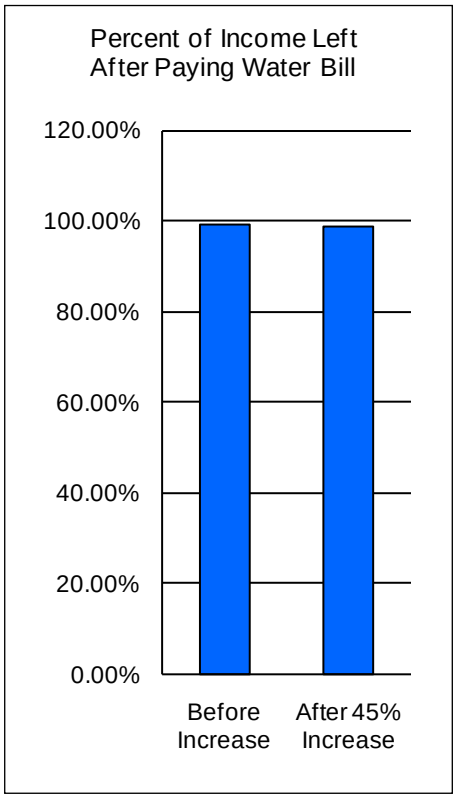
Wrong! This will impact you. If you don't deal with it you may become a casualty of the larger crisis. Here's why and how you can avoid that.

The larger crisis makes many tax payers and ratepayers say, "Stop spending my money, *period*." Being pressed to spend more on debt payments and other obligations, tax payers and ratepayers are looking to spend less elsewhere. If that means lower water rates, they'll take it.

Tax payers and ratepayers still have money to spend but they want to spend it on cheeseburgers, sodas, CDs and other things. Not water. Not sewer. You have some teachable moments ahead.

All utilities must get their financial houses in order. For most water and sewer systems that means rates need to go up right now on the order of 20 to 45 percent. That sounds awful but it's not.

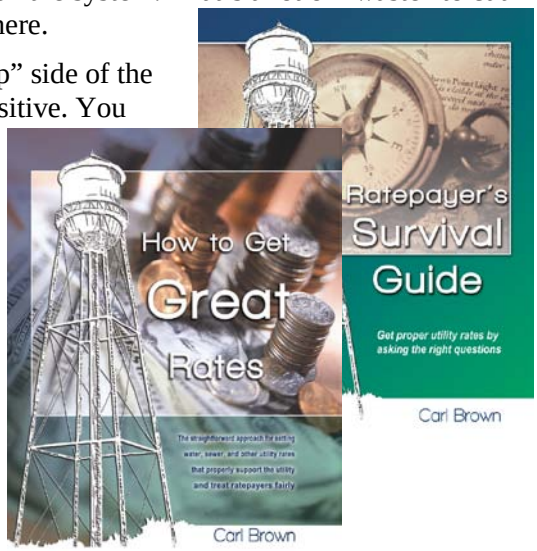
In most communities water rates are in the $25 to $40/month range. (Sewer rates are usually a bit more.) Household incomes run from $50,000 to $70,000/year in most of the states. Let's be conservative and use $40/month rates and $50,000/year incomes as our basis. The affordability index of such rates is 0.96 percent ($40 * 12 months / $50,000). That means the "average" family illustrated here must spend just less than one percent of their income to pay their water bills. That situation is represented by the first bar in the bar chart. Considering the life and job-supporting properties of water, that's a good deal.



If this system needs to raise rates by 45 percent the affordability index will rise to 1.39 percent. The income left over after such an increase is represented by the second bar in the chart. As a result of such an increase, this family's "after paying the water bill" income will go from 99.04 percent to 98.61 percent. On a spendable income basis, even this worst case rate increase doesn't amount to much and the "picture" makes that pretty clear.

Your key to getting and keeping adequate rates will be capturing teachable moments like this. Do not highlight the fact that rates need to go up 45 percent. That is an ugly picture. Focus on the fact their spendable income will hardly change. In exchange the value of their homes and businesses will hold steady or go up. Jobs will be retained or created in the community because investors and home buyers want to invest where the water system is sound, not weak or failing.

Distrustful ratepayers will reply with, "Well, you only need an extra $18/month so just cut it out of the budget." This is another teachable moment. Using your rate calculations or a comprehensive rate analysis you can show such ratepayers where the money goes. You can show them the improvements and investments that are needed to keep their water service coming. For the utility that $18/month increase works out to $18/month times 12 times the number of users on the system. That's a lot of "waste" to cut each year and your calculations will show that it just is not there.



Up to this point we have been considering the "good cop" side of the equation – leading and teaching ratepayers using only the positive. You might also need to work the "bad cop" side. Why? Your ratepayers are wondering if water will *really* stop coming out of the tap if they don't pay an extra $18/month. They are wondering if it will really be untrustworthy to drink without the higher investment.

The bad cop technique includes showing your ratepayers all their options, even the ugly ones. The ugliest is the "not having drinking water delivered to their homes 24/7, always pure" option. Help your ratepayers compare $18 worth of water to $18 worth of CDs, cheeseburgers or whatever they like. Let them decide where investing their $18 makes sense. Be clear, if they don't invest in water, the service will be poor. If funding is woefully inadequate the system may be shut down someday. Make it clear that your personal wishes are not in play. You are just trying to serve them as well as their funding choices will allow.

Tools for the job: Get the guide and book above as well as other tools at http://gettinggreatrates.com/ and http://carlbrownconsulting.com/. Most of these resources are free downloads.

In reality, water in the U.S. would be dirt cheap at twice the price but such rates are unnecessary almost everywhere. Here is the real question. Will you, the manager or a decision-maker for your water system be believed and respected by your ratepayers for the information you give them about the rates you propose to charge them?

It all boils down to this. You need to determine how high rates should be and how they should be structured in order to provide service fairly and sustainably. Tell ratepayers the truth and back it up with the facts. Be kind but firm. Teach them what they need to know to understand the impact rate increases will have on them, and the system. Be sober in all your dealings with them.

While your ratepayers may not invite you to their next party, they will believe and respect you. They won't love paying higher rates but they will understand why it must be so. As a result the system will be well funded and it will serve the ratepayers well for as long as they desire. Then they can focus their attention on solving the larger crisis while they let you run their nice little water system or fine little town.

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Federal Help is on the Way

Carl Brown, President
Carl Brown Consulting, LLC

Problem 1: Building an upgrade with local funds = higher rates.

Solution: More federal grants.

Problem 2: More federal grants for an upgrade = loss of local control.

Solution: see Problem 1.

Here's your problem. You want to build a new water or sewer system. Or, build an upgrade. Actually, you probably don't really want to do either of these. But, federal water quality or water pollution control standards, which have gotten much tighter in recent years, are making you do it. You think, quite logically, that since the "Feds" are making you do it, the "Feds" should pay for it. In regulatory lingo, "The responsible party should pay." It's a straightforward problem with a seemingly straightforward solution and that solution may be on the way.

With a new administration and a change in the complexion of Congress, new federal funding for water and sewer infrastructure is being seriously discussed. We, those of us in the water (including sewer) industry, may be looking at more than $10 billion per year in such funding, much of it grants. Finally, Washington has come to its senses and now realizes the burden they heaped on us. Finally, Washington just might help us out.

"Be careful what you wish for, you might get it." – Unknown

The water "problem" is more complex than almost all others we face. Issues that are a part of this problem include technology, general economic conditions, local economic conditions, system management and rates, agendas of every direct and indirect stakeholder, local governance and sovereignty versus federal funding and authority, and the existence of and the effects of climate change, or not, depending on your persuasion.

Enter $10 billion in federal funding. Federal funding, even if it is all grant money, is not without its problems:

1. It is not free. It costs something to collect and then redistribute $10 billion. Alternatively, if $10 billion is "borrowed" from a future generation, that "loan" must be repaid with interest.
2. This money would not come evenly or "fairly" from those who "contribute" it, at least in the eyes of those who contribute the most. That unevenness is at the individual and state levels as well as the generational level if the money is borrowed. Quite simply, some individuals, states and future generations will contribute more than others.
3. These funds would not go back to individuals and states in the same proportion that they were collected. Thus, some individuals, states and generations would subsidize others' water systems.
4. To get in line for grant and loan money one must apply, costing more money.
5. To actually claim the money each applicant must satisfy federal requirements, costing still more money.

In the end, "free" federal money is very expensive. Keeping the money local in the first place would cut out lots of "middlemen" and probably save lots of money. However, giving to and getting back from the federal government lots of money, even at high cost, may still be worth it. By way of analogy, if you don't have the discipline to watch your diet and exercise more (who among us really have this down pat?), it will be worth it to pay a dietician to tell you "no" and a surgeon for a heart by-pass to keep your heart ticking. At the local level we focus best on keeping more of our money (keeping user rates low) so funding capital improvements with federal money is an attractive option. It seems we need the dietician and surgeon, even though they are expensive.

If you have ever seen hogs at a feeding trough you understand why they call this funds distribution process "pork."

To make matters worse there is the very real phenomenon that if we don't jump in and scramble for what federal money we can get, we will get left out. The fact that we might show discipline and not request federal money does not mean that less tax money will be collected and spent by the federal government. It will be collected and spent. But the funds will go to the trout producers council of Florida or the citrus growers association of Montana. If the money is going to be spent, we reason, it may as well be spent on us.

On the surface it seems unfair to have some people and states subsidize clean water and prevention of environmental degradation for others. In reality, we're all in this together. Even if we wanted to adhere to an "every man for himself" attitude, human health and disease problems and environmental degradation do not respect our boundaries. Disease that breaks out "over there where they don't invest in public health" doesn't stay "over there." Disease or its consequences can migrate "over here." At the least, when those folks go to the emergency room "over there" without insurance to pay for it, the hospital company, which operates hospitals "over there" will pass those costs along to us "over here." Even if you feel no moral compulsion to care for your fellow man, for very practical reasons, "We ARE all in this together."

We need and want national standards on water quality. The critical questions surrounding those standards, then, are these:

It is reasonable in a nation like the United State to assume that you can take a road trip from Raleigh, NC to Yakama, WA and you can trust that the water you drink along the way will not harm you.

1. How ***deep*** do we want these national standards to go?
2. How ***much*** of this cost do we want to bear at the federal level versus the state and local level?
3. How ***much*** sovereignty do we want to retain at the local level versus how much control do we want to give to the federal government?

Our national standards already go deep and we're not going back so Issue 1 is only a question of "deeper" or "deepest."

For Issue 2 we could have the federal government pay for some (where we are at now), much of or all of the costs of building and upgrading systems. If the Feds give us the $10 billion, they will be paying at the much of the cost level.

Issue 3 is intertwined with Issue 2. Federal money rightly carries federal requirements. If you want to get federal money for a water system upgrade you will have to acquire services as mandated, require your contractors to pay wages as mandated and keep lots of records as mandated to prove that you adhered to all the other mandates. These mandates run up the cost of the construction project, arguably most of them for good reasons. Some of these mandates even run up the ongoing operating costs of the system, forever.

For the "Black Helicopter" crowd:
At the extreme, if the federal government essentially purchased every water system in the nation by funding their construction and reconstruction at 100 percent, we would have a de-facto nationalized water system. At that point we could just roll all of our rural water associations into one big water workers union because we would no longer be in control. We would just be hired help.

Finally, if the federal government steps up to the plate to pay for much or all of our infrastructure upgrade needs, expect the federal government to layer on still *more* requirements. That's only fair. After all, he who dug the well has the right to tell you if, when and how you may drink from it.

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Resilience

Carl Brown, President
GettingGreatRates.com

Over the last decade the federal government has been reducing its water and sewer grant footprint, replacing some of that funding with State Revolving Fund (SRF) loans. More recently SRF loan volume has been going down, too. Overall, federal spending on water and sewer has been on a downward trend until 2009. If this reduction has not affected your system, it is the rare exception.

If your water or sewer system was awarded an American Recovery and Reinvestment Act (ARRA) grant, your system may have captured the last big federal grant it will ever see.

In response to the recession of 2008-09 the federal government stepped up water and sewer grants and loans to spur economic recovery. That extraordinary spending will end soon. When it does the federal government will almost certainly pull back on other spending, as well.

While the federal government could pull back on Medicare, Medicaid, Social Security, National Defense and other large and growing obligations, politically, substantial cuts in these programs are not likely. Water and sewer are prime candidates for cuts.

Cuts to water and sewer could actually benefit the sector. Why? Lower outside funding could force systems to become more "resilient."

Resilience includes sustainability but it goes farther. Resilient systems are able to cope successfully with operational and financial upsets, as well. Read more about resilience in the article posted on the Government Finance Officers Association Web site at http://gfoa.org/downloads/financiallyresilientgovernment_whitepaper.pdf.

The federal government sends mixed messages but it has been trying to wean water and sewer systems from financial dependence for years. Consider EPA's notion of the four pillars of sustainable infrastructure: better management, efficient water use, watershed approaches and FULL-COST PRICING. Full-cost pricing just means that the system must pay its full cost to exist. USDA Rural Development's mission is a bit different from EPA's, but even that agency is in favor of infrastructure asset management. A major tenet of asset management is full-cost pricing.

It is good strategy to use the federal government as a funding tool for as long as that tool is useful. But if that tool becomes a crutch, the system will be at risk. Many U.S. water and sewer systems are now dependent, not resilient.

When ratepayers must pay the full cost of everything, including capital improvements, they become very "interested" in what leaders propose to build, the service they receive and what that service costs. When system leaders hire a consulting engineer, a grant writer and other assistance providers, they will not task those service providers with doing whatever it takes to pull down as much grant money as possible. Instead, leaders will task them with delivering the most appropriate improvements at the best expectable long-term cost to the system. That would be the most economically efficient strategy.

With doubled rates, almost all systems could cash-flow themselves resiliently. Most can do it for a lot less.

That strategy (and the results it will yield) is far different from the "maximize federal grants" strategy. For some systems that will mean higher costs will be paid by ratepayers.

However, it is more efficient to keep dollars and decisions local rather than filter them through the federal government, so most ratepayers who are also tax payers will see a net drop in total outlay. At least, that is the expectation.

Systems serving small, rural, declining communities are still likely to get federal help. Some of those will end up failing despite the help. Most communities are destined to prosper because local businesses and people want them to. Such communities will be served best by resilient utilities.

Below some level, water funding can lead to a public health catastrophe and the federal government does not want that. There will probably always be some level of funding for truly needy systems.

How then can a community or system pursue resilience? There are many components to resilience – decision-making, operational, capital improvements execution, staffing and succession, and the like. Reading a short article will not get you there. Your system might benefit from outside professional help for some of this but you cannot "sub out" most of this. Resilience is something YOU must figure out and do yourself. The best *starting* place for most systems is to develop adequate and dependable funding. Even non-resilient systems need to get *this* task right.

Adequate and dependable funding comes primarily as a result of smart rate setting. To achieve that you must calculate rates well. If do-it-yourself is not practical for you or your system's situation at this time, get the right rate analyst and have them calculate rates well. (During most years, do-it-yourself rate adjustments are the best way to get this task done.) Present the rate adjustment (increase) message well. Readjust rates on a regular basis. These tasks are reasonably easy to accomplish once you get the cycle in motion.

Creative destruction is at work in business. It is at work in government and utility service, too. Resilience enables a system to avoid total destruction by creatively remaking itself on the fly.

There are lots of programs, tools, workshops, assistance providers and more out there related to rate setting. Many give bad results and advice but you must sort through them anyway. Talk with your Association to get guidance and help. Ask your Association to provide or sponsor training on rate setting. One good starting place for do-it-yourselfers is GettingGreatRates.com. This site (operated by the author, therefore, he is biased) includes articles, a rate setting book, spreadsheets and programs for rate calculation, equipment replacement scheduling and more. Most items are free. Fees are charged for the most powerful items and services.

The bottom line is this: You must start the rate examination and adjustment cycle and keep it going. Good rate setting and budgeting will pave the way to any destination you desire. But, "resilient" is where your system should be headed.

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Asset Management Do's and Don'ts

Carl E. Brown, President
Carl Brown Consulting, LLC

Everyone is weighing in these days about asset management. Most experts are saying that just about every water and sewer system needs to develop a comprehensive asset management program as soon as possible. The author begs to differ for two reasons:

1. It's just too ambitious, and
2. Almost no small systems are doing it anyway.

Well, then, what's a small system to do? The author believes small systems need to start out gradually and build their way into more complete asset management programs. Following are some do's and don'ts for small systems considering advanced asset management (AAM).

Don't start a comprehensive AAM program all at one time . That is too ambitious!

Do adopt an AAM policy statement, such as, "It is the goal of the city council and administration of Kansasville to provide utility and infrastructure-based services to its users and citizens as well as possible for as long as possible within the confines of funds available. Strategies for performing in this way are commonly called advanced asset management. It is the policy of the city council and administration to grow in its use of advanced asset management strategies in order to better serve the city's users and citizens." Advanced asset management has been defined by the American Public Works Association as, "A comprehensive and structured approach to the long-term management of assets as tools for the efficient and effective delivery of community benefits."

Do inventory assets and their needs.

Do consider all reasonable options to try to assure that investment decisions will produce the best possible life-cycle outcome when considering major capital improvements or infrastructure upgrades, or the funding of such improvements. Translation: you want the cheapest option that will serve you well over the long-haul.

Do mine knowledge from your key operators. Most small water and sewer systems in the U.S. now have key operators that will soon retire. In most cases it took years for these operators to build a base of knowledge and understanding of how their systems work. When these operators leave they will carry with them (in their heads) storehouses of information and knowledge about the systems they manage and operate. You need to capture that knowledge before it goes away.

Do part on good terms with key, long-term operations staff. The system will occasionally have problems that this now retired or resigned staff person will know how to handle. When you hit such a problem, pay the former staff person to help your new staff to troubleshoot the problem. That fee will be money well invested.

Do pursue asset management when the city or district's decision-makers, management AND staff are ALL ready for it.

Do analyze or have a rate setting specialist analyze the utility's rates and fees to assure that revenue generation will be adequate to properly fund the utility and maintain adequate reserves, and to assure that the rate structure is fair to the ratepayers. Such analysis is usually needed once every five years.

Do examine the financial needs (budgeting) of each utility every year and increase rates and fees as necessary to satisfy those needs. Such financial examinations are done during the years in between comprehensive rate analyses.

Do the right things and don't do the wrong things and your advanced asset management program will come together nicely.

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PLAN TO ATTEND

KRWA Asset Management Workshops

Why?

Not using asset management is like driving a speeding train at night with no headlight. The tracks may be clear. Or, maybe not. Either way, knowing what is down the tracks, and knowing that you are on the right track sure makes the trip go better and maybe cheaper.

Carl Brown at the 2008 KRWA conference

Who should attend?

Board and council members, managers, city administrators, finance directors, clerks, utility chief operators and key staff. This training is most useful when a team from your system attends together. Operators receive certification credit.

When, where, how to register?

July 16, Wichita, Best Western North
July 17, Chanute, Holiday Park
July 23, Salina, Holiday Inn
July 24, Topeka, Holiday Inn
Mark your calendar now and register for a session at: www.krwa.net/training

Who is the trainer?

Carl Brown, http://carlbrownconsulting.com/, will surprise you by showing you just how much asset management you are already doing, how much more you need to do and how you can do that in the best way possible. Carl Brown is a nationally recognized expert in water system operation, maintenance, regulatory and financial issues. He developed the "Show-me Ratemaker" rate analysis programs for water and sewer systems and has authored a book, "How to Get Great Rates", as well as numerous articles on rate setting and asset management. DON'T LET THIS TRAIN LEAVE WITHOUT YOU!

Asset Management Goes Country

Small and Rural Communities Embracing New Management Concepts

By Carl E. Brown

More and more large urban water and sewer systems are formally adopting asset management strategies or heading that way fast. Where does that leave the small and rural systems? Behind, as usual. That should not be the case. In fact, small systems actually have several advantages over large systems when it comes to adopting asset management strategies. And, they often have more to gain.

Most small rural water and sewer systems are in trouble now or they soon will be. Most don't even know it. They may well be cash-flowing adequately on a current cost basis but there are costs and needs that they don't see yet. Even when rural community leaders perceive these shortcomings, they may not have the tools they need to convince the ratepayers — the ultimate deciders — of the need to perform better. Therefore, many country towns and districts are not managing their infrastructure on a sustainable basis. Asset management techniques can solve many, if not all, of these problems.

Asset management, or advanced asset management (AAM) as many call it, is intimidating to small water and sewer systems and small communities in general. They have read and heard accounts from the big cities — multiple planning meetings over months or years of time, specialized software and computers, GIS, GPS, expensive consultants, RFPs, RFQs and more. Small community leaders know that won't work for them.

Small community leaders should forget what they have seen or heard of AAM in large systems. Small communities and systems are not small versions of large cities and large systems. They are fundamentally different. AAM will be different and far simpler for small systems. But it will still yield a great bang for the buck.

Why Do AAM in the Country?

AAM is a planning and execution process that enables an infrastructure system, such as water or sewer, to provide desired services at the lowest long-term cost. There is now a gap between water and sewer asset and service needs and what is being built and funded. The total gap between now and the year 2020 is measured in the hundreds of billions of dollars and growing. The gap for small systems is only a small part of that total, but on a per user basis it will be a larger gap to close than the large system gap. If water and sewer systems are to close the gap, they must manage and fund themselves better.

Everyone intuitively understands the AAM concept. Most people practice AAM with their cars, homes, investments and other valuable assets. If you asked 100 people if they were in favor of AAM, you would probably get 98 to say yes — there are always some outliers. If you then told them it would cost money to start an AAM program, many would fall off the bandwagon. We need to get across to people that AAM is not just a cost, it is an investment. Investments produce returns. The AAM investment produces the returns of better service, lower risk, greater protection of public health and the environment, improved manageability and lower long-term cost. Tell people all that, if they will stand still long enough, and many will climb back on the bandwagon.

Rural System Tools, Training and Assistance

Small water and sewer systems are just at the beginning of the AAM journey. Few have even heard of the term asset management. They need and are seeking the most basic of training on the topic. That was one of the author's findings in research he recently completed for the National Environmental Services Center (NESC) on the practice of asset management in small communities. The project also documented that there are tools and resources available to small communities to do AAM, and the volume and quality is growing rapidly. Several notable tools are:

- "A Guide to Asset Management for Small Water Systems" produced by NESC — visit *www.nesc.wvu.edu/netcsc/netcsc_tresource.htm*
- Guides provided by U.S. EPA — visit *www.epa.gov/owm/* and do a search for asset management
- "Total Electronic Asset Management System (TEAMS),"a public domain asset management spreadsheet program produced

by the Maryland Center for Environmental Training — visit *www.mcet.org/*

- "Show-me Ratemaker" public domain water and sewer user charge analysis programs developed by the author and distributed by the National Drinking Water Clearinghouse — call (800) 624-8301 and request product number DWCDMG57, the Environmental Management Suite CD
- "Plan2Fund," "RateCheckup" and other asset management and rate analysis programs produced by the Boise Environmental Finance Center —visit *www.sspa.boisestate.edu/efc/*

The research findings are helping NESC to plan future service delivery to small communities. One of those services will be to produce a three and a half day asset management track within the Environmental Training Institute, which will be to be conducted at West Virginia University July 25-28. For more information on the institute, visit *www.nesc.wvu.edu/nesc/institute.htm*. The author also knows from his own experience in conducting dozens of workshops around the United States that few systems are familiar with AAM, but that is changing rapidly. Last April, 158 small community representatives from Wyoming, the U.S.' least populous state, attended an AAM and rate-setting workshop sponsored by the Wyoming Association of Rural Water Systems. People want to learn about AAM.

Many organizations are gearing up to produce asset management and rate-setting workshops for rural systems. Workshops have or will be sponsored this year by the rural water associations of Kansas, Nebraska, Minnesota, Wyoming, Montana and Missouri; the Iowa Association of Municipal Utilities; and the Environmental Finance Center at the Maxwell School of Syracuse University. These are just workshops involving the author. There are many others springing up elsewhere. Some of these organizations are also providing or moving toward providing other AAM assistance to rural systems. This includes help in developing AAM tools, programs and model plans. Small community representatives need only ask around and search the Internet, and they will find training and assistance opportunities.

Conclusion

Many rural communities lag far behind their urban counterparts in how their systems are managed and funded. It is precisely because of that lag that many rural systems will actually get a bigger bang for the buck invested in AAM than will their urban counterparts. For many of these systems, adopting appropriate AAM techniques will be simpler and quicker. When your system is small and simple, your AAM techniques also should be small and simple. Generally speaking, small and simple is cheap and quick to implement.

The bottom line for small communities that adopt AAM practices is that they will enjoy better service, lower risk and lower long-term cost. Adoption will take work but it will be well rewarded and time and dollars invested to start AAM programs need not be measured in years and six-figures.

If U.S. water and sewer systems are to close the infrastructure needs and funding gap, there is no way around managing infrastructure better. Those who are currently losing the most, on a per user basis, have the most to gain, on a per user basis. And that is how water and sewer systems please their customers - one user at a time. This bodes well for country systems that adopt advanced asset management.

Carl Brown is president of Carl Brown Consulting LLC, specializing in water and sewer system rate analysis, asset management and training nationwide.

Refinancing: Do You Feel Lucky?

Carl Brown, President, GettingGreatRates.com

LIBOR: London Interbank Offered Rate. It's the rate of interest at which banks offer to lend money to one another in the wholesale money markets in London.

– Bankrate.com

Executive Summary: Interest rates will almost certainly rise in the next few years. Utilities and communities that have adjustable rate loans or leases, and those that have relatively high interest fixed rate loans and leases can save substantial sums in loan and lease payments if they refinance before rates start up. This article illustrates likely savings a relatively small system can expect if it were to convert a $2.4 million adjustable rate loan to a fixed rate loan. The payback period from this conversion is estimated at 3.4 years with a total net savings of $193,767. Systems with larger loans or higher interest rate loans can expect greater savings and quicker payback periods. This example should help you decide whether you need to discuss your situation with an investment banker to see if you really can save money. If you cannot save money you will just ride out your current loan.

Table 1: User Rates Needed to Cover a Medium Sized Adjustable Rate Loan

Loan terms: $2,420,090, 20 years, 3.4% current interest rate	Annual Cost	Fixed Cost %	Minimum Charge	Unit Charge	User Bill for 2,000 Gallons /Month	User Bill for 7,500 Gallons /Month
Existing Loan Payments	$168,743	75%	$15.81	$0.70	$17.22	$21.08
Grand Totals	$506,229		$25.58	$5.02	$36.71	$52.46

Introduction

For many years, interest rates have been stable and during the last few years they have also been at or near historic lows. All in all it has been a great decade for loan financing of capital improvements.

After a "normal" recession, interest rates and inflation rise. That increase is usually manageable. The 2008-09 recession has been anything but normal. Many economists believe interest rates and inflation will rise dramatically as the economy recovers from this recession. This, in turn, will dramatically affect tax exempt bond and lease rates.

John Harris, Vice President of Country Club Bank Capital Markets Group, specializes in municipal finance so he tracks interest rate trends. Harris believes, as do many others, that the 3-month LIBOR (and other interest rate indicators) will rise from 0.25 as of this writing to about 1.50 by mid-2011.

Municipal bond and lease rates that are tied to these indices are projected to rise by the same amount. It is less certain what will happen to rates beyond 2011 but many believe that interest rates will not level off after just a one percentage point rise. Some believe rates will continue upward for a total increase of two percent or more and stay relatively high for some years.

If your system has an adjustable interest rate loan or lease, you are probably looking at large debt payment increases as interest rates rise. By using a small water system with a $2.4 million adjustable rate loan as an example, this article will give you an idea of what payment increases might mean for your system and how refinancing with a fixed rate loan can prevent your costs from rising too much.

A Small System Example

Consider the following typical small water system with 667 users where each one averages 7,500 gallons of use per month. This system has an adjustable rate loan. The amount is equivalent to 50 percent of the total of all non-debt costs, a typical debt level for a system that has recently built something substantial. Debt costs and user rates are summarized in Table 1.

Table 2: User Rates Needed to Cover a Medium Sized Adjustable Rate Loan After Interest Rate Goes up

Adjusted loan terms: $2,244,230 remaining balance, 18 remaining years, 4.75% adjusted interest rate	Annual Cost	Fixed Cost %	Mini-mum Charge	Unit Charge	User Bill for 2,000 Gallons /Month	User Bill for 7,500 Gallons /Month
Existing Loan Payments	$188,254	75%	$17.64	$0.78	$19.21	$23.52
Grand Totals	$525,740		$27.41	$5.11	$38.70	$54.90

The existing loan payments are for a 20-year adjustable rate lease or loan that will be paid off in 18 more years. (To save space only debt costs are shown.)

Usually the bill for a user of 2,000 gallons/month and less is the critical one. That is because most systems assess all or most of their debt service to the minimum charge, which affects low-volume users the most. In the case above, the 2,000 gallon/month user's share of the loan payment is $17.22.

If household incomes in this community are strong (especially those of the low-volume users) and the improvements for which the debt was incurred are generally appreciated by the users, these rates will be tolerable to most.

Continued on page 14

Table 3: User Rates Needed to Cover a Medium Sized Adjustable Rate Loan When Refinanced to a Fixed Rate

Refinanced loan terms: $2,244,230 remaining balance plus 2% closing costs, 18 remaining years, 3.6% adjusted interest rate	Annual Cost	Fixed Cost %	Mini-mum Charge	Unit Charge	User Bill for 2,000 Gallons /Month	User Bill for 7,500 Gallons /Month
Existing Loan Payments	$174,995	75%	$16.40	$0.73	$17.86	$21.87
Grand Totals	$512,482		$26.17	$5.05	$37.35	$53.24

Continued from page 13

The interest rate on this loan is now 3.4 percent. The rate and payment will adjust upward as the indicator the loan is linked to, like the 3-month LIBOR, goes up. Table 2 illustrates what will happen if the rate goes up to 4.75 percent and holds there for the remaining 18 years of the loan.

The payments for this loan went up by almost $20,000/year. The 2,000 gallon/month user's bill went up by right at $2.00 for an increase of 12 percent. This is before inflationary increases to any other costs. Including those cost increases, this user's bill will likely rise by 16 to 18 percent during the next year. This user's total bill could easily go up to $43.00/month with the combined cost increases. That will stress more of these users. If interest rates continue upward in subsequent years, user rates will have to follow, compounding the stress. Users will push back against the system or community if they see many such increases.

This is a grim picture and it simply cannot be brought all the way to "rosy" regardless of what management does. Operating costs are going to rise. Debt payments will rise, too. However, the picture might be made a little brighter by refinancing the remaining balance. Table 3 illustrates how refinancing might help this system and its ratepayers.

Loan payments and user rates will be lower after refinancing than if the adjustable rate loan were allowed to ratchet up to 4.75 percent as demonstrated in Table 2. In fact, the savings created by converting to a fixed rate loan are great enough that after 3.4 years the loan closing costs will be paid for by those savings. This "payback" period and the net payment savings are illustrated in Table 4.

These savings assume no additional adjustable interest rate increases in future years beyond the initial one percent increase. Considering that we are at historically low rates now, and recovery will create inflationary pressure, John Harris and others feel that it is unrealistic to expect no more interest rate increases during the next 18 years. If rates go higher, the payback period and net savings from refinancing will be even better.

What You Should Do

If your current adjustable interest rate is close enough to the fixed rate, your system would save money by refinancing. The mechanics are the same as refinancing a home loan. You have to pay some closing costs (usually built into the new loan) to do the refinancing but those costs are paid back by the savings created by the lower, locked-in rate.

If your system has a larger loan than the example or your current interest rate is higher, the savings from refinancing should be greater. At some smaller loan size there would be no net savings from

Disclaimer: In the course of doing user charge analyses, the author sometimes advises clients to refinance existing debt to reduce costs and rates. However, neither he nor his firms are engaged in finance.

Table 4: Payback and Savings from Refinancing

Inflation-adjusted Existing Loan Payments	$188,254
Fixed Payments After Refinancing	$174,995
Annual Payment Savings	$13,258
Cost of Refinancing	$44,885
Payback Period in Years	3.4
Net Savings Over Remaining Life of Loan	$193,767

refinancing because the closing costs would over take the interest rate savings. (If your system has a relatively high fixed interest rate loan that is eligible for refinancing, now is the time to take care of that, too.)

As you decide to either keep your existing adjustable rate loan or refinance to a fixed rate there are a few critical things to consider: the payback period, the expected savings, the comfort level you feel for having a locked-in rate versus the adjustable rate and timing of refinancing.

Savings are pretty straightforward considerations. Timing is harder to pin down. The watch word here is "risk." You are entrusted with public funds. You have a duty to treat those funds conservatively. It is reasonable to prepare all the paper work and have bonds ready to sell on a moments notice. Then you can wait for what looks like the best day out of a two week or so window to catch the market just right before you sell those bonds. But do not wait too long. In this era of recovery, the best bond sale day is more likely to be today rather than this same day next month. As Harris says, "Get your ducks in a row and leave sale timing up to your finance team."

Closing

The example cited in this article shows that many adjustable rate loans and leases should be refinanced very soon to prevent payments from going up as interest rates ratchet up. The higher the outstanding loan balance and the higher interest rates go, the greater will be the savings and the shorter will be the payback period for refinancing.

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Run it Like a Business

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This article explores the differences and the similarities of private and publicly-owned businesses such as water, sewer, solid waste and electric systems. The goal is to help you improve the function of the government-owned businesses for which you are responsible. This article will discuss public water utilities as representatives of all other publicly-owned businesses. Most of the principles discussed also apply to government in general.

Definitions used in this article:
- Private utility – One owned by a private concern and may or may not serve the public
- Public utility – One owned by a city, water district or other government and serves the public

Private utilities are businesses. Most people agree on that, though some balk at the rates needed to sustainably keep them in business. Public utilities are businesses, too. In a few respects publicly-owned businesses (most commonly utilities) should conduct themselves differently than private businesses. But for the most part, business is business. The nature of the owner doesn't change that.

If you are an elected official or staff person of a city, you may have noticed that your accountant lays out your financial statements separating "business-type activities" – water, sewer and other utility services, from all other governmental activities. In the accounting world these concerns are recognized as businesses. (Single service districts, like water districts, probably do not have such a separation of funds in their financial statements because ALL of their activities are "business-type activities.") Some cities have established their utilities as "enterprise funds," formally designating them as business concerns.

Why is it important that decision-makers and staff of public utilities understand the nature of these "business-type activities?" They need to know how to make the business create value like any other business should. But, they need to be open and responsive to their constituents, too, like any other governmental function should. This duality makes for an interesting balancing act.

Webster's Dictionary has several definitions for "business." In the context of this article the relevant definitions include:

- "An immediate task or objective." We have goals we want utilities to achieve, ways that we want them to serve us.
- "A particular field of endeavor." Some government businesses, like a water district, have only one field of endeavor – serving water. Cities, however, are involved in multiple endeavors. In the business world such an enterprise is called "diversified."
- "A usually commercial or mercantile activity engaged in as a means of livelihood." There are those among us who make their living governing or running public utilities.

Both private and public businesses succeed when they identify a niche that needs filling, they are capitalized and staffed to fill the niche well, they make customers and prospective customers aware that they fill that niche well and they do it all at reasonable cost.

All businesses are subject to two basic financial realities.

- Number 1: If there is not enough money to run the business, the business won't run.

- Number 2: The higher the price of the good relative to the value of the good, the less volume of the good customers are willing to purchase.

The bottom line is this. Government can only *sustainably* do what citizens and taxpayers are willing to pay government the full cost to do.

With these basic tenets laid out, consider how your public utility currently conducts its business and how it perhaps should change its business model.

Pricing

Most public water utilities are not being sustainably funded right now (Reality Number 1). Rates generally need to go up, markedly so for many utilities. There is debate about whether the federal government should increase, decrease or even eliminate its subsidies to utilities[1]. The fact remains, most water systems cannot go on at the levels they are now being funded.

Interestingly, public water utilities actually have a leg up on other functions that are in serious jeopardy. Witness the current state of the national debt, deficit spending, under-funded entitlements and more. All of these issues are headed toward monumental change of some sort. In the context of these problems, our water systems are a rounding error. That said, the longer we wait to fund adequately and build what we need, the more it will cost. That extra cost will be a big burden for communities because they are the primary funders of utilities.

Table 1
Cost to Build a New $1,000,000 Water Plant

Year	Annual Inflation	Cost at End of Year	Cumulative Cost Increase
1	4%	$1,040,000	$40,000
5	4%	$1,216,653	$216,653
10	4%	$1,480,244	$480,244
15	4%	$1,800,944	$800,944
20	4%	$2,191,123	$1,191,123

Most public water utilities need to move toward self-sufficiency. Why? Some, including the author, believe that when the federal government finally starts to tackle the under-funding problem that is spread everywhere, there simply won't be much left for utility subsidies. Fortunately, water systems, like most utilities, are capable of generating their own sustainable income stream. Social Security, Medicare and many other programs, due to the demographics of an aging population, probably cannot. This is yet another example of Reality Number 1.

The gross level of funding of your water system is critical to its success. But just as critical to some of your customers is rate structure fairness. Some customers are subsidizing other customers on a cost-to-serve basis. In other words, their rates are not fair.

The only way to determine a fair basis for rates is to perform a comprehensive rate analysis[2]. Analysis generates defensible math, the base upon which good rates should be built. Without comprehensive analysis it is difficult to know if the overall level of the rates is adequate or not and it is impossible to know if a particular rate structure is fair or not.

Such analyses are rarely done. There are many reasons for this shortfall. Two big ones are perceived low value of analysis relative to its cost and the sentiment of many that, "We don't need it." (Some would cynically add, "Because it would just show you in black and white and multi-colored line graphs just how bad off you really are.")

Pricing fairness does not only apply to user fees; what people pay for water they consume. It also applies to how much the utility will charge for a new service connection, for excess volume or other

[1] Admission: The author believes that in all but the rarest of cases the federal government should not subsidize utilities. They are businesses and have the capability to pay their own way. That is not to say your utility should turn down "free money" if offered but be prepared for the "free money" to dry up.
[2] Disclosure: The author is a rate analyst and, therefore, has a bias in favor of more systems taking advantage of analysis.

capacity attributes required by unusual customers, for shut off of service for non-payment and for myriad other "details" the utility must deal with. If these fees are set too low the difference must be made up by customers of other services and that is not fair. For most systems, because they are small and relatively simple, the "details" involve very little money so overall rate fairness is skewed very little even when pricing of the "details" is way off. But in other systems the "details" are a big part of making rates both fair and adequate.

This notion of fairness runs into a stubborn fact – competition. If, for example, new connection fees are set too high relative to the competition (a nearby town), developers will tend to go to the other town – Reality Number 2. Similar effects constrict if and how other fees and policies can be tailored to fit a system's actual needs. The pros and cons of policy options always play against each other and the right choice depends on the conditions surrounding your system.

Rate setting encompasses math, politics, business strategy of the community at-large and "public relations." Public relations deserve further discussion.

In respect to rate setting, public relations should not be thought of as "selling" an increase. Rather, it should be about demonstrating the need for rate adjustments so the public will generally be willing to accept the premise of higher rates (for most). The public needs to be convinced that the proposed rates are fair and justified. If the public is not convinced, the utility may well pass the rate increase now but doing so will erode the public's trust and willingness to accept increases in the future.

To illustrate public relations and probability in a whimsical way, consider the unfaithfully married man. If this man convinces his wife to trust his faithfulness while he secretly has affairs that his wife never finds out about, he will still have her trust. But, you just know she will find out and there goes the trust. Table 2 shows various probabilities that our subject can successfully hide his infidelity. Even if he can achieve an improbable 99.9 percent daily secrecy rate for a whole year, at the end of that year the probability of maintaining the secret is down to 69 percent – not good!)

Table 2
Overall Probability of Keeping an Affair Secret Under Daily Secrecy Probabilities Starting on Day 1

Day	Running Secrecy Probability	Running Secrecy Probability	Running Secrecy Probability	Running Secrecy Probability
1	99.9%	99.0%	95.0%	90.0%
2	99.8%	98.0%	90.3%	81.0%
22	97.8%	80.2%	32.4%	9.8%
45	95.6%	63.6%	9.9%	0.9%
73	93.0%	48.0%	2.4%	0.0%
149	86.2%	22.4%	0.0%	0.0%
230	79.4%	9.9%	0.0%	0.0%
365	69.4%	2.6%	0.0%	0.0%

The wronged wife might go so far as to sue the errant husband for divorce, just as some ratepayers have started to sue their utilities for rate increases they don't like. For sure, the less you shock them with pricing surprises, the less likely it is they will sue.

The under-handed or clumsy rate setter, like the unfaithfully married man, better be good at the fast talking brand of "public relations" because they will need that skill. For the rest of you, hopefully this example illustrates that the honest and transparent way is the better way if not for moral reasons, then for risk avoidance reasons.

Performance

There is a common perception that government is inefficient and wasteful. Sometimes that is true. However, it is also true that we citizens have built safeguards into government to keep it accountable to us. Among other things:

- We require public meetings to discuss government business and open records so we can research and verify that government is doing the right things.

- We require open procurement processes to assure that political or personal favors will not tilt contracts and resulting payments to those who would like to "fix the game" at our expense.
- We require due processes for government actions like the taking of private property for public purposes and hiring, disciplining and firing of public employees.

All such requirements add extra work to government employees and decision-makers so we can keep them on the "up and up." Their private counterparts do not experience these verification measures nearly so much. (In fairness, it must be acknowledged that government, mainly by way of laws and regulations, places due process and other burdens on private business and, private business must deal with tax and reporting issues that dwarf some government accountability burdens. Thus, the burdens are not a one-sided affair.)

It is frequently said, "Perception is reality." Your performance and the public's *perception* of your performance can be very different. You need to continuously seek ways to make good impressions because the public has few opportunities to develop such impressions. When everything goes right and their water service happens on cue, that flawless performance does not register in the consciousness of the public. It is invisible. With years of such performance, which is the norm, the public just assumes that when they turn on the tap, water will flow out and it's no big deal. Thus, most things that can leave a positive impression are not seen by ratepayers and citizens at all.

It's much easier for citizens to get bad impressions. That happens when rate increases are proposed or when they see an employee leaning on a shovel, sitting on a backhoe taking a break, driving around town in a dirty truck or going into a convenience store. There can be good reasons the public witnessing each of these events but the impression left is almost always bad, ambivalent at best.

Public employees must be vigilant in the impressions they leave with people, some they never even see. Their dress, grooming and behavior must be appropriate. They must care for and use equipment and vehicles not as if they are their own but as if they borrowed them. Public relations need to be a part of every employee's job description and actual performance. They must view themselves as ambassadors of their employer, the government that the public is paying for.

Instead of trying to quietly slip into a convenience store to buy lunch and a soda, the water system employee should take the opportunity to engage people in conversation while standing in line. He should tell them, "A contractor with a backhoe cut a water line down on Second Street. We got the break fixed this morning. After lunch we'll fill in the hole and patch the street so it's just about good as new. We looped those lines five years ago so only four homes had their water shut off and that was only for 90 minutes. I feel pretty good about that."

Employees may feel having this kind of dialog with people is hokey but it's necessary to reach out to them. Public employees need to take satisfaction in their service to the public and they need to talk about it. And yes, there are a few elected officials who need to toe the line, too if we are to turn the bad impressions around.

Creative Destruction

Creative destruction is a fact of life in the private business world. In other words, creative destruction takes Reality Number 2 to its logical conclusion, removing under-performing businesses from the ranks.

Creative destruction: The constant churning of business by the marketplace. Based upon perceived value, buyers of products and services choose winners and losers. Winners succeed. Losers change their business or they go out of business.

Some people think that government is immune to creative destruction. It is not. Governments can postpone creative destruction or transfer its downside effects elsewhere but they cannot escape it. Creative destruction should, however, play out differently for governments than for private businesses. We, the citizens and customers of government, don't really want our governments to go out of business.

Therefore, government should remake itself on the fly rather than go out of business entirely. This is how that should work.

If the public wants a service, is willing to pay the cost of that service and prefers to have government provide that service, a new government service may be born. As government performs the service it should endeavor to improve how it delivers the service, lower its cost or do both, if possible. Continual improvement should be a part of every government program for the life of the program. If, after some time, the public changes its mind or private business or technology changes, making it possible to get the service in a different and better way, government should recognize the change and "roll with it."

This strategy may lead government to change how or at what cost it provides a service. Or, it may signal to government that it is time to get out of a business entirely. Thus, government programs are born, mature and die, but the overall delivery of government service continues in other areas. The story of the Post Office illuminates this phenomenon.

Long ago people in this developing nation recognized a need to get messages to others far away. Early on private couriers carried letters. In 1775 Benjamin Franklin was appointed as the first Postmaster General by the Continental Congress; the Post Office was born. The telegraph was invented by Samuel Morse in 1837, competing with the Post Office. In 1860 the federal government started the Pony Express. It lasted 19 months (creative destruction acted quickly in that case). The telephone was invented in 1876 by Alexander Graham Bell – more competition to land mail soon followed. In more recent times private couriers evolved into Federal Express, UPS and other carriers (creative destruction of the earlier letter carrier model), competing fiercely with the Post Office. By the 1990s e-mail supplanted much of the need for land mail. The pace has quickened even more with the advent of Facebook, Twitter and other electronic venues.

Thus, the Post Office was born, thrived for a time but now is struggling against the pressures of competition and technology. Creative destruction is playing out. If the Post Office does not "roll with it," it will go out of business. That result may even be inevitable because of changes in technology and competition. It would be (kind of) sad to see the Post Office disappear but change happens.

Competition and other forces are exerted on government in many areas. That should signal government to change. The key then to making government successful is not to fight change but to lead change when that is appropriate and to roll with it the rest of the time.

Investment

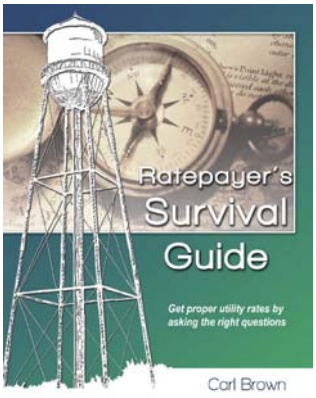
Related to the previous three attributes is investment. We, the people, invest in many things and in many ways. We invest time, effort and especially money in government. We want to get a strong return on that investment. We cannot control government business decisions directly. (In totalitarian forms of government the people have little if any say in matters that affect them, but those forms of government are disregarded here.) Instead, we elect officials and they hire staff to invest for us, hopefully well. Thus, those in government are, in many ways, like mutual fund managers. They make investment decisions for us, using our money.

In our representative form of government the people have a voice, though imperfect, in investment decisions. We elect officials to do our bidding. But even our form of government is subject to a phenomenon that vexes all other governmental forms, too. That is, by its nature, government pokes its nose into people's business, exerting some level of control. That is a good thing when the effects are not onerous and they provide strong public benefit (return on investment). But it can easily become a bad thing when we, the people, lose too much control.

There is a natural tug of war between the extremes of excessive government control – autocracy; no control – anarchy; and all the variations in between. Most people do not want either extreme but finding

the right balance is difficult. And the desired balance is a moving target through time. Still, it's better to be tugging on the rope than to be tied up with it.

These overarching issues may seem far removed from your utility management or decision-maker duties. After all, you are just trying to run a public water utility, not forge new frontiers in governmental forms. But you must consider these issues as you go about business. Many of your ratepayers and tax payers are continually measuring what you do against the "big-government" model they have in their minds. To them, if what you do looks like excessive, overbearing and wasteful government, they will consider it a bad investment and resist or even work against you.



Utility staff and decision-makers make lots of investment decisions for us. If they do so, ever aware of realities 1 and 2 and keeping the public well informed, they will probably perform well and be well thought of. But if they come up short in any important respect, or if it just looks like they are performing poorly, it will not go well for them.

In private business it is often vastly more important to achieve stellar performance (contribute to high profits), even on a short-term basis, than it is to do it in an open, user-friendly, sustainable way. In the public business arena, however, the reverse is more commonly true, though the people will grouse about your slow pace and inefficiency. You can't win them all.

The "Ratepayer's Survival Guide," available for free download at http://www.gettinggreatrates.com/, explores the relationship of customer and service provider when rates are at issue.

Conclusion

The over-arching theme to this discussion of pricing, performance, creative destruction and investment is this. Government-owned business is responsible to its investors – for the most part, ratepayers. It is also responsible to those it serves – also for the most part, ratepayers. We citizens and ratepayers are both the owners of and the customers of these businesses. That dual relationship is different from private business where the owners are one group and the customers are generally a different group. This difference puts a serious burden on government-owned businesses to serve everyone well, economically, transparently and fairly.

Aside from the protection/transparency differences, a government-owned business is just another business. Pricing of your services needs to be acceptable to your customers yet you need to make enough money to keep the doors open, hopefully sustainably. And your customers, most of them anyway, need to be well satisfied with what you do for them – they need to *perceive* that they are getting good value.

If you will run it like a business, you will be successful.

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Decisions, Decisions

Carl Brown, President
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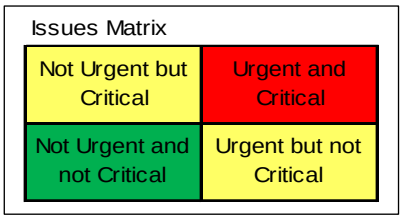
We all make decisions every day. Most are small and fairly inconsequential. A few are really big deals.

Some people seem to have a knack for making great decisions. How do they do that? They use a great decision-making process. This article will show you such a process for making decisions that require an investment. And, it will show you a tool that will make your evaluation work easy.

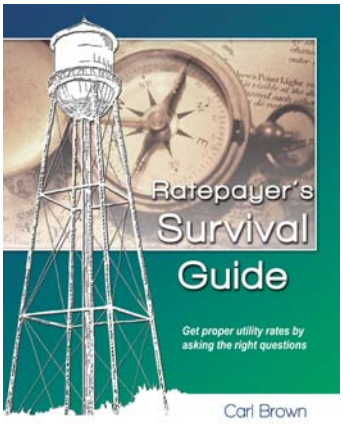


You are probably familiar with the four quadrant issues matrix like the one here. Classifying issues like this works well for clearing your desk, in basket or to-do list. You knock out the Urgent *and* Critical issues real fast, hopefully. Completing that, if you ever do, you should spend most of your time on the Not Urgent *but* Critical issues and little time on the Not Critical issues. Unfortunately, this matrix does not very well fit decisions that are investment-based.

Utility managers and decision-makers make their share of "in basket" decisions. More importantly, they make investment decisions on behalf of their ratepayers. That creates a large burden on decision-makers to *show* ratepayers the merits of those decisions.

Ratepayers and tax payers care about debt, rate and spending questions because it's *their* money that will be spent. Their default response to such questions is "no." Thus, your job as the leader of this pack is to make a sound decision, prove up the correctness of the decision and convince them to say "yes," or at least go along.

Investment decision-making involves two phases: gathering and evaluating pertinent information, then making and carrying out the decision. Most poor decisions happen because, in our impatience, we short change the first phase.



Investment decisions involve these criteria:

1. Investment required,
2. Return expected,
3. Probability of getting that return,
4. Risk of getting something else,
5. Consequence of getting something else, and
6. Your aversion to getting something else.

Good decision-making requires some math. Now, don't get worked up about that. Simple multiplication and percentages will be the most difficult calculations you need to do for most decisions.

Don't like math? The tables in this article were adapted from a spreadsheet called DecisionMaker5©. It is available for free download at http://gettinggreatrates.com/. The free Ratepayer's Survival Guide and other decision tools can also be downloaded there.

From the list above criteria 1, 2 and 3 are the "upside" criteria – what you expect or hope for. Criteria 4, 5 and 6 are the "downside" criteria – what you hope will not happen, but might.

Criterion 6 makes every decision personal. Just remember, when you are making a decision for others you need to use *their* values as much as possible so the decision will match their values. Now, if your ratepayers' *values* need adjusting, meaning they need to stop clinging to inadequate rates, the "Ratepayer's Survival Guide" will help them make that decision.

Think of your ratepayers in this baseball metaphor. There are singles and there are homeruns. Extreme risk takers go for homeruns a lot but they strike out a lot, too. Risk-averse people like nice, safe, consistent singles. While some of your utility customers are risk takers in their personal lives, they are risk-averse when it comes to utility service. They don't want you to strike out with their service or their money.

Risk-aversion: The degree to which one rejects or dislikes a risk.

Let's first consider the risk of downsides in personal decisions.

Each decision places us at risk for various bad consequences. Most are survivable. But some could cost you your life, liberty or ability to live and function well in the future. For example, most people would rate death as an extremely high-consequence decision outcome – they are very death-averse. For them the potential gain from an activity with a 50 percent chance of death would need to be extremely high to overcome that downside. Most just won't knowingly take such risks.

High-consequence activities include things like committing serious crimes, cliff diving and free rock climbing. The last two are a partial double count in that free rock climbing occasionally turns into (involuntary) cliff diving. A small group of people even like to combine free rock climbing, cliff diving and parachuting. One risk is just not enough for them. Of course, one can do research and train for these activities to reduce the risks and consequences. Some risk-takers do just that, notably the old ones.

The death example is extreme but many people make decisions that carry other severe downside risks. Let's consider extra-marital affairs as shown in Table 1. The return on investment of an extra-marital affair will remain un-described here. But on the negative side the potential consequences are big: loss of the partner, loss of family, upheaval for children, loss of net worth, income, reputation and more. Some serious consequences ride on maintaining secrecy.

Someone who is really good at keeping such a secret may be able to achieve a probability of secrecy for one day of 99.9 percent. That is near certainty that they will not be found out for one day. For two days the probability of secrecy will then be 99.9 percent times 99.9 percent which equals 99.8 percent, still a very high probability of secrecy. However, one year in the probability drops to 69.4 percent.

Overall Probability of Keeping an Affair Secret Under Various Daily Secrecy Probabilities

Day	Running Secrecy Probability	Running Secrecy Probability	Running Secrecy Probability	Running Secrecy Probability
1	99.9%	99.0%	95.0%	90.0%
2	99.8%	98.0%	90.3%	81.0%
22	97.8%	80.2%	32.4%	9.8%
45	95.6%	63.6%	9.9%	0.9%
94	91.0%	38.9%	0.8%	0.0%
194	82.4%	14.2%	0.0%	0.0%
230	79.4%	9.9%	0.0%	0.0%
365	69.4%	2.6%	0.0%	0.0%

Table 1

Now, if this person over estimated by just 0.8 percent, making the real probability of secrecy an even 99 percent, their probability drops dramatically. If a person is relatively lackadaisical on the secrecy front at a 95 percent rate, by day 45 they have less than a 10 percent chance of maintaining secrecy. And if they are a secrecy buffoon with a 90 percent rate, by day 22 they have less than a 10 percent chance of maintaining secrecy. One should weigh the probability of serious loss against the potential gains of an affair before proceeding. Mysteriously, running the numbers is not on our minds when we take up such activity.

Now that your attention is fully engaged, you are ready to move on to utility decision-making.

Return on investment: The earnings produced by an investment over a specified time period.

Payback period: The time needed for an investment or venture to return in total earnings the original amount invested.

All decisions that lead to making an investment produce a return on investment and a payback period. These, and the potential downsides, are the primary decision criteria you need to focus on.

Consider this common water system situation. You manage a water distribution system. It springs a leak. You need to figure out if you should fix the leak at all, how you should do it and how quickly you should do it. You need to calculate the payback period and return on investment for your decision options and adjust these criteria for your aversion to risk.

In tables 2 and 3 decision options are called “scenarios.” The formula for each calculation is shown in the center of Table 2.

This is how you should proceed to make such a decision. Measure or estimate how rapidly you are losing water. Calculate or estimate your cost to produce water. Estimate the cost to fix the leak, including the cost of the water you will lose until it is fixed, using the various options available to you. There are many possibilities but just consider the four in the tables for now. Once you have all your options laid out side by side, compare the payback period, return on investment and downsides of each option. Based on your aversion to risk, your best option may now be quite clear and the decision easy.

Consider the cheap water situation in Table 2. It assumes that your water only costs $2.00 per 1,000 gallons to produce. Under this and the other criteria assumptions the do-it-yourself scenario will yield the quickest payback period, the highest return on investment and the lowest risk of things going wrong – which is the “Bad Consequence Adjustment.” Payback and return on investment for the “Don’t Fix” scenario cannot be calculated because no investment will be made to fix the leak. However, in only one year’s time $18,000 worth of water will have run out of the pipe so this is an expensive option.

Some investments enjoy a quick payback but yield a low return. That is because the dollars invested are low and the earnings or savings generated are also low. These options aim too low. Another investment may yield a slower payback but higher return. That is usually the better investment option.

For utility decisions you should use a high percentage for the item in tables 2 and 3 that is called “Aversion to Getting Bad Consequence.” That will give more weight to the downsides part of the equation to match your ratepayers’ high aversion to sustaining losses.

Line Leak Fix, Cheap Water Situation

Scenarios	Loss or I&I/Day in Gallons	Cost/1,000 Gallons	Cost/Day	Days to Fix	Total Cost of Lost Water or I&I	Cost to Fix Leak	Cost to Fix + Lost Water	Probability of Suffering Bad Consequence	Bad Consequence	Aversion to Getting Bad Consequence	Bad Consequence Adjustment	Aversion-adjusted Cost to Fix + Lost Water or I&I	Aversion-adjusted Payback in Days	One Year Aversion-adjusted Return on Investment
Formulas:	A	B	A / 1,000 * B	D	C * D = E	F	E + F = G	H	I	J	H * I * J = K	G + K = L	L / C = M	C * 365 / L = N
Fix it with city staff	25,000	$2.00	$50	90	$4,500	$2,000	$6,500	10%	$1,000	75%	$75	$6,575	132	278%
Fix with bid contract	25,000	$2.00	$50	60	$3,000	$4,000	$7,000	20%	$2,000	75%	$300	$7,300	146	250%
Fix with negotiated contract	25,000	$2.00	$50	15	$750	$5,500	$6,250	20%	$2,750	75%	$413	$6,663	133	274%
Don't fix	25,000	$2.00	$50	365	$18,250	$0	$18,250	0%	$0	0%	$0	$18,250	N.A.	N.A.

Table 2

Some would say, as Table 2 suggests, “Well of course it’s cheaper to do it ourselves so that’s always the best way to go.” Wrong. Consider the situation in Table 3 where water is more expensive to produce.

Line Leak Fix, Expensive Water Situation

Scenarios	Loss or I&I/Day in Gallons	Cost/1,000 Gallons	Cost/Day	Days to Fix	Total Cost of Lost Water or I&I	Cost to Fix Leak	Cost to Fix + Lost Water	Probability of Suffering Bad Consequence	Bad Consequence	Aversion to Getting Bad Consequence	Bad Consequence Adjustment	Aversion-adjusted Cost to Fix + Lost Water or I&I	Aversion-adjusted Payback in Days	One Year Aversion-adjusted Return on Investment
Fix it with city staff	25,000	$5.00	$125	90	$11,250	$2,000	$13,250	10%	$1,000	75%	$75	$13,325	107	342%
Fix with bid contract	25,000	$5.00	$125	60	$7,500	$4,000	$11,500	20%	$2,000	75%	$300	$11,800	94	387%
Fix with negotiated contract	25,000	$5.00	$125	15	$1,875	$5,500	$7,375	20%	$2,750	75%	$413	$7,788	62	586%
Don't fix	25,000	$5.00	$125	365	$45,625	$0	$45,625	0%	$0	0%	$0	$45,625	N.A.	N.A.

Table 3

In this case the cost of lost water mounts up quickly. Therefore, getting the fix done quickly with a negotiated contract is the better option, even though the cost of that contract is higher than the other options. At this cost to produce level the return from a bid project lags that of the negotiated contract and the do-it-yourself option lags even more. It boils down to this. If the value of time is very great at all, you can’t afford to waste it with long bidding cycles or “getting around to it” cycles.

Think about how you normally handle line leaks and other cost saving opportunities. You probably have a consistent way of doing it – such as always do-it-yourself or always bid it out. The above demonstration should bring home this point – it is your decision-making process that should be consistent. Then, your actions should execute each decision accordingly.

The math is dependable but what goes into the equation is not:

- You might know *for certain* that the water loss rate is 25,000 gallons per day. Then again, you might not.
- You *should* know, pretty closely, what your cost to produce is, but you may not.
- You are probably just guessing the number of days it will take to do each fix.
- You are definitely guessing about the cost to fix using each option, at least early on.

In utility management many things are uncertain. But you still have to make a decision – water is running out of the pipe. What to do?

Run scenarios. Run each of the "givens" up and down in the range that you think is reasonable. Your best option will be the one that gives you a good return and payback with an acceptable level of downside risk through a wide range of given criteria. That means that even if you are off by a lot on one or more criteria, that option is still likely to serve you well.

But what if you need to fix some leaky lines, fix some pumps, replace some meters, build a water tower and build a new clarifier? How do you decide where to spend the ratepayers' money? The beauty of this method is that you can compare apples, oranges and dump trucks side by side. It doesn't matter what the decision issue is so long as you can reduce its costs and returns to the same units of measure, such as dollars. Run the numbers until you get a good sense of how each option will perform under stress. Then do the "winning" option first and progress down the list from there. This should sound familiar. This method simply takes the issues matrix and measures with dollars instead of a subjective "criticality" rating.

Some investments, like fixing water leaks, are intended to save money. Others, like the decision to analyze and raise user rates, are intended to make money. A separate worksheet in the DecisionMaker5© application calculates the value of decisions that make money.

In truth, such situations are complex to evaluate. Because they affect user rates, the more effective way to evaluate them is to comprehensively analyze user rates and use the effect on rates as your guide to making good decisions. Rates have a wonderful way of clarifying things. With that analysis in hand you can also prove up your case for raising and restructuring rates, getting grants and more.

Reduce the risk of paying too much for a rate analysis by downloading the article, "What Should a Rate Study Cost?" at http://carlbrownconsulting.com/general/RateStudyCost.pdf.

Finally, the decision-making methodology outlined in this article, with some refinements, can be used to choose between options that will require a long time to show their value. During that time each option will incur various ownership and operating costs so the time value of money and other things will come into play. Situations where this level of analysis is useful include such things as:

- Deciding what type of sewage treatment plant to build, when to build it and how to fund it;
- Deciding if, when and how to adopt advanced asset management strategies; and

- Deciding if, when, and under what terms to enter into a water supply agreement.

Such decisions leave legacies – you can't undo them quickly or cheaply. Again, a comprehensive rate analysis works best but you can use the long investment model in the DecisionMaker5© tool, as well.

Having learned this new way of evaluating issues, are you going to use it for all future decisions? No. Like everyone else, you're in too big a hurry. But, when you encounter a big issue or one where you must "prove up your case" to someone, this method will really show its value.

Decisions are about the future. The future carries risks. Many an actor has been offered and turned down a part because they thought it would not advance their careers. Some of those parts made new stars out of nobodies. Such are the risks actors take. However, the *smart* actors who turned down those parts became stars through other vehicles because they thoughtfully considered their moves. They used sound decision-making strategies. Thoughtful decision-making will help *you* beat chance over the long haul, too.

There it is, decision-making from a simple situation to the complex. After reading this article hopefully you are now saying, "Ah ha, I have been doing that all along in my head." That's great. In-your-head evaluation works fine for most decisions.

Unfortunately, in-your-head evaluation doesn't work well for complex investment decisions. In those cases the math is hard to do in your head. That will encourage you to gloss over the math and get overly influenced by feelings – yours or your ratepayers'. Don't let that happen.

Follow through with good research and calculations. Your ratepayers will be well-served and feel confident in the investment decisions you make for them. They will come to think of you as a person who has the "knack" for making great decisions. And, they will be right.

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Make Things Happen

By Carl E. Brown, President, Carl Brown Consulting

Assume that you are the mayor of a small town or water district. Your water system was built many years ago. After all these years, with little upgrading and spotty maintenance, your water system now needs serious capital improvements. Your rates are antiquated, too.

Why are you in this fix? Inertia. As any physicist will tell you, a body at rest will tend to stay at rest, a body in motion will tend to stay in motion, and a moving body will tend to continue moving in the same direction in which it is now moving.

You will tend to continue in the same direction you have gone before. "You," in this case refers to you personally, every individual in your city or district and the whole community collectively. That is a lot of inertia to overcome. On the occasions you have bucked that system, you probably felt how strong inertia can be. As Richard Watson, CEO of Global Innovation Network said, "The main enemy of ideas is not risk but inertia." The fact that you haven't solved the problem yet may predict that you will not solve it in the future, unless someone or something big intervenes. We all want to *evolve* toward better, but it usually takes a *revolution* to get it done.

There is good reason why we are investing far too little money and upkeep in our water and sewer systems each year to keep them sustainable. We lack *information* for making good decisions, *motivation* to change and *locomotion* to sustain the effort.

Information: Overcoming Inertia

Information abounds, but you need to get the right information for your needs. Do not rely only upon yourself, one assistance provider or one source of information. Multiple information sources will help you guard against making wrong choices and suffering from inertia. For example, when you need to make a major upgrade to your system, you will need an engineer to design it for you. However, and this is not a slight to the engineering community, you should ask your chief operator, your funding provider, your rural community assistance agency, your state's technical assistance program and other assistance providers what they think of the design options your engineer is considering. Ask funding sources what they think it will cost. Ask a rate analyst if they think the rates the engineer estimated seem reasonable. Better yet, have the *rate analyst* handle that part and ask others about the rate analysis they provided you.

Engineering is only one example concerning information. The same is true for your rate analyst, source of funding and any other service providers, free or otherwise, that you engage. Ask others if they think you are getting the right system, the right service, the right rates and the right answers to satisfy your needs. There are two things for you to keep in mind as you do this:

- Almost everything has been done before somewhere. You only need to find out where and talk to those people about how it was done.

- Know when to call it quits. Gather information only as long as you are continuing to productively learn how to solve your problem. Once that information seems to point to a good solution, stop studying and start doing.

Motivation: Use Critical Mass to Your Advantage

To change your status quo you must be motivated, and motivate others. To their credit, enforcement agencies will eventually motivate you, but don't wait for external motivation. Get yourself motivated. Then motivate your whole community.

The fact that you have not yet motivated your community to make a change may indicate that you need help doing it. Consult many of the "information" people and assistance providers to get the motivation job accomplished. Informing people with the facts is important; it is the base upon which you can build. However, a certain amount of salesmanship is usually needed, too. Find great champions and cheerleaders to help you with that aspect. People must be charged up about the changes they will be asked to make or pay for.

Don't be discouraged when visible movement does not happen right away. In the same way that an explosive volcanic eruption occurs, your critical mass may build gradually but when you reach it, action will occur with an explosion.

Locomotion: Be Prepared for the Explosion

Before the explosion happens, get prepared to move people, and keep them moving, in the *right* direction all the way to completion. Before the ball gets rolling identify those who can help you and get their commitment now to help.

Building a new treatment plant or analyzing and adjusting rates can be likened to going to war. You better figure out how to win that war before it starts. Otherwise, you may lose.

Proper goals and tactics can help you complete your project. Good organization is a plus. However, time is a formidable enemy. Take too much of it and people will

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run out of steam. Your project could die from apathy or fatigue. Once your project dies, it is harder to bring it back to life than it was to give it life the first time. It took good will, motivation and energy to get started, but once you have used up that energy, it is not available for a second try.

Locomotion is the final and most critical stage. Getting the right outside help at the right time will be the key to your success. Find those assistance providers who have successfully been through this before because they will know what to do and when to do it.

Success is built on these keys: Get informed, get motivated, get moving, keep moving and do not slow down until you are done.

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Successful Workshops

Carl Brown, President

Carl Brown Consulting, LLC

This guide has one purpose – to help you more successfully and quickly arrange and promote workshops. Frequently I write in the first person to make it easier to read the guide.

I have conducted around 150 workshops and spoken at dozens of conferences, workshops and other events put on by others. I have presented at some events that were wonderful in every respect and some that were hard to find something good to say about. My own events include some from each category, though in more recent years participants consistently tell me very good things about my presentations, workshops and other events. And, they keep coming back.

This guide assumes that you have fairly limited experience in organizing workshops so the guide covers some basic material. If you have extensive experience, please don't think I am being condescending toward you.

Before launching into the checklists, I want to draw some distinctions between training sessions, conferences and workshops.

Compared to workshops, training sessions are usually smaller, shorter, more "nuts and bolts how-to" focused events. Often they are conducted only for in-house staff and the organization handles session costs internally.

Conferences are generally larger, longer, more formal, broader ranging events with more speakers. Logistical and promotional issues for such events exceed the following considerations, often markedly.

It is elementary but important to state that creating successful workshops is not a matter of simply doing the things in the following checklists. You need to spend some time before you start planning a particular event and figure out several things:

1. What do I want to accomplish (goals)?
2. How might I go about it (methods)?
3. Am I and is my organization capable of seeing a particular method all the way through?
4. Who, within and outside of my organization, can help me with this project?
5. What resources, including funding from within and outside of my organization, might be available to help make the project successful?
6. Are there things that I should do before, during and after, or completely separate from, this event to more fully accomplish my goal?

As Stephen Covey likes to say, "Begin with the end in mind" and you are likely to succeed.

Consider the following as you plan your event.

Advertising and Education Suggestions

- ✓ Do promotion in person. There is no better advertising than personal, verbal contact, done face to face when possible. Talk with people about your workshop on the phone or when you meet them at other events. Call prospects on the phone if you have a few staff hours to do it. People respond well to personal invitations when they may not notice print advertising at all.
    - o Personal promotion is especially important when the topic of the workshop is different than your usual fare. For example, your usual workshop may be on water system operation targeting operators. About all you need to do to promote the next such workshop is tell operators when and where the next workshop will be. However, if this time you are doing a workshop on rate setting you need to get the message through to city and district managers, clerks and board and council members that this workshop is for THEM. Personal contact, though time-consuming, is the best way to do that.
    - o For user charge analysis workshops your target audience will include clerks, managers and decision-makers for cities and sewer and water districts, assistance provider agencies, consultants, sewer and water funding agencies, regional planning commissions and councils of governments, environmental finance centers, rural community assistance programs, rural water associations and similar entities. The people you want to contact are those who will actually go to this training or those who will make the decision for their organization about whom to send.
- ✓ Seek referrals. It is very effective if you can get others who your workshop prospects trust to promote your workshop. Spend time in advance educating these potential promoters about your training so they can effectively promote it when the time comes.
- ✓ Write articles to educate readers on your topic. In such articles include a sidebar announcing your workshop so readers will have the opportunity to attend and learn more. Generally you need to get your article copy to the publisher 3-4 months before your workshop session if you want publishers of monthlies to get material into their publications and still allow about one month time between publication and the date of your workshop.
- ✓ Direct e-mail, mail and broadcast faxes can be effective. They are usually quick. Give your readers all the information they need to make a decision to attend and include a registration form so they can pre-register. If you have the capability, post the information on-line and allow participants to register on-line, too. This is especially effective with e-mail because you can give them a hyperlink to your Web site for registration, making the whole process quick and easy.
- ✓ Contact potential participants four to six weeks before a workshop. This allows most people time to get the workshop into their schedules before they fill up but not so much time that they put it off and forget about it.
    - o If you are going to conduct several workshop sessions on the same topic on different but fairly close dates, you should list all locations and dates in the same brochure or message and send them to all workshop candidates. This will allow each person to choose the location and date that works best for them.
    - o If you are going to conduct several workshop sessions but the dates are widely spaced out, you should send separate brochures for each session. Don’t send one brochure covering all the workshop sessions coming up during the next year. Few people plan that far out. Generally, you should do a mailing for each session and target those candidates who are closest to that session location.
- ✓ If location space and finances allow, contact neighboring states and sister agencies and organizations to encourage their staff to attend and to publicize your event as well.

- ✓ To your Web site add a section about water and sewer rate analysis and asset management. Include hyper links to http://carlbrownconsulting.com/ and http://gettinggreatrates.com/ as well as others sites with pertinent information so people can access useful material.
- ✓ The next three bullets concern "branding." It's hard to get the word out too much or in too many venues. Many people will see a workshop announcement several times in several places before it dawns on them that it would be good for THEM to attend. There is good reason why Coke, Ford, Nike, et al run their ads repeatedly. They are "branding" – making people aware of who they are, not just their products.
  - o As you plan your first workshop, think about future workshops and spin-offs. One thing you should do during this workshop is document and photograph it well. That way you can write good newsletter articles about this workshop, including photos that will help readers "see" the event. In doing so you will remind workshop participants about the training they attended, show others what they missed and make everyone feel more inclined to attend the next workshop because of this positive "brand" you have established.
  - o You may have a topic that simply "must" get trained but you are not quite ready to do it well. Postpone such a workshop until you are ready, conditions are right and you have the right trainer for the event. Otherwise, you will get branded negatively for conducting substandard workshops. Such negative branding is hard to overcome.
  - o Some topics are simply so specialized that you should not train them with anyone who does not possess such specialized expertise. Rate analysis is such a topic. If you want to be branded well for coverage of such topics you need to develop a reputation for bringing in the best trainers for specialty topics. In this way you can still be known for presenting the best training. You just won't always do it with your own staff.

Logistical Considerations and Suggestions

- ✓ Many workshops, including those on user charge analysis and asset management, should qualify for water and wastewater operator recertification credit and engineering continuing education credit. Contact your state's water and wastewater operator certification agency and your state's society of professional engineers to check into continuing education credit. Recertification and continuing education credit motivates most water and wastewater operators, and many engineers and other professionals to attend workshops. Fortunately, there is federal money for operator training.
- ✓ A few states have similar funding for decision-maker and management training on rate setting, asset management and similar topics. But generally, to fund training for the right people on such topics you probably need to charge a registration fee, and that's OK. When people prepay for a rate setting workshop they WILL show up.
  - o If you acquire a grant to pay for your workshops, by all means let people attend for free. However, in your advertising and elsewhere be clear that you worked hard, put together a great grant application, it was accepted and that is why they are able to attend at no charge. The workshop is free to them, but it took work on your part to make it so. If you don't toot your own horn, no one will hear the music.
  - o If you cover all your workshop costs, including your presenter's fee through a registration fee, a one-day workshop should run about $90 on the high end down to about $45 on the low end.
- ✓ Require, and advertise that you require, pre-registration with a set deadline of about five days before the workshop. However, if you have room, you should still allow late registrations and walk-ins. Some people in your target audience will have planned something else for that day but it will fall through late and now they will want to squeeze into your workshop. Let them.

- ✓ Use a sign-in sheet at the workshop, preferably pre-filled with each pre-registrant's contact information. Pre-registrants should verify that their information is correct and check off their name. If someone did not pre-register they will sign in on this form. Gather e-mail addresses on this form so you can provide follow up information to participants. This is a "value added" step and it helps to brand your workshops as more than just "seat-time." You or your presenter should follow-up with an e-mail to spur them to take the actions that the workshop was about, give them links to resources and otherwise make your workshop that much more effective. A workshop should be about causing appropriate action on their part, not just giving them some "nice to know" information.
- ✓ If possible, give participants name tags and perhaps certificates for participating. If you have a standard certificate format, you can use that. Some people like certificates. Some show them to their employer to verify they actually attended.
- ✓ Use a meeting hall that will accommodate the number of people the workshop is intended for. Training tables are usually preferred by most people. Have enough room for one additional table for registration and other tables as needed for handout and display materials. Those may include relevant give away materials – funding information, budgeting and user charge analysis booklets and guides, "promo" materials for the host and other relevant organizations, materials pertaining to current hot issues, business cards, etc.
- ✓ Regardless of the fact that most federal funding programs will not allow you to serve break refreshments or food, this is a must. For break refreshments provide ice water all the time. For the morning provide coffee, tea and/or juice with bagels and/or pastries (½ to 1 per person) as your participants may prefer. For the afternoon provide sodas (1 per person) and/or tea, cookies (1 to 1 ½ per person), granola snacks or whatever your participants may prefer. Most people don't eat much at workshops but the food and beverages give them something to do during breaks, make them feel more at ease so they will get into conversations with other participants and just generally help them have a better time. If they feel at ease, they will participate and learn more and feel valued. After all, workshops and such sessions are all about delivering value to participants. The feeling of value is as important as the fact of value.
- ✓ If the workshop is more than a half-day, you should provide lunch, on-site if possible. Eating an actual meal together helps participants to get much more comfortable with each other and they participate more in the afternoon. It also assures that the afternoon session will start promptly because you have a captive audience.
- ✓ If your workshop will take a couple of days, and the timing is right, it would be advantageous to also serve a continental breakfast on the second day. At some point multi-day workshops become conferences, adding many other logistical considerations not covered here. Plus, there are impediments for people to attend multi-day workshops (few people can sit through rate setting for more than a day regardless of how exciting the presenter is) so your workshops should generally last no more than one day.
- ✓ You will need a projection screen. For rate analysis the screen can never be too big. A tall white wall is ideal. A large ceiling or wall mounted screen is not as large but it will be brighter. If you have one of these types of screens the participant limit can be quite high. If you are using a floor standing screen, no more than 55 people will be able to easily view it so 55 is usually the upper limit for such workshops. For the comfort of participants, fewer than 55 is usually preferred anyway.
- ✓ For most of my workshops, an easel and paper are also handy. This lets me personalize the presentation more.

- ✓ I can project my voice all day in a lively room that comfortably sits 50 people. If there are more people than that, the room is not acoustically lively or your voice is not so resonant, use a microphone, preferably a lapel mike and a good quality public address (P.A.) system. Most hotels and meeting facilities with large rooms have their own P.A. systems but check to make sure they work well. Many are poor quality.
- ✓ Provide a PowerPoint compatible projector and cable, preferably a cable long enough to place the projector in the center of the room and the laptop at the front of the room. Thirty feet of cable will usually suffice. If possible, use a projector model with high resolution. I use my own laptop but check with your presenter to make sure who is providing the laptop.
- ✓ If you have one available, provide a back-up laptop with a CD drive. Make sure your presenter brings their presentation and every file they might use on CD or a USB "thumb drive." If failure happens, you must be able to recover.
- ✓ As a fail-safe backup, you or your presenter should always print out the presentation slides, in slide format and bring them. Generally, copies of these go in the participant folders, too. If all the electronics fail your presenter can still use the printed out slides. In the early days of electronic presentations technology I reverted to this backup several times, usually eliciting great participation. In hindsight, these were some of my most enjoyable workshops, perhaps because the audience "pulled for me" when they saw that I was dealing with adversity.
- ✓ Provide power cords, tape and if available, at least one surge protector. In fact, you should assemble a boxful or duffle bag full of useful things like scotch tape, duct tape, stapler, staples, pens, pencils, paper, clipboard, cash receipt book and about anything else you think you might need at a workshop. Carry this box or duffle to every workshop and restock it after each workshop.
- ✓ Signage comes in handy at locations, such as hotels and conference centers, where there are multiple meeting rooms. You should at least print out some arrow signs that you can tape on walls (with permission) pointing the way to your workshop. Better yet, create a foam board sign with the name of your workshop on it. Place this sign on an easel at the most visible spot to point the way to your workshop room, if you are in a large hotel or similar building. Otherwise, place it outside the door to the workshop room. Even better, if you can spare a person, have someone stand near the building entrance and direct people to the room. These steps help people feel more at ease even before they get to the meeting room. This will help them open up and start learning more quickly.
- ✓ Set up the projector, screen and presenter's location so they won't block anyone's view. Provide a stand or table for the presenter's laptop. A podium is OK, too but podiums tend to make the setting too formal for a workshop. You want as little between your presenter and audience as possible.
- ✓ Provide a stand for the PowerPoint projector. Often the corner of a middle table will work fine, too.
- ✓ Provide a table for registration near the room door. Have someone welcome each person, get them signed in and give then handouts.
- ✓ Provide tables for give-away materials, book sales and such. One large registration table will probably handle all these things just fine. It is most effective to place these tables at the back of the room near the break/refreshments area. This will encourage participants to snack, browse the give-away materials, have discussions with other participants and generally feel more at ease.
- ✓ If participants will sit at training tables, and that is preferable, try to use narrow tables. Arrange tables so each faces as directly toward the screen as possible. This will have the tables arranged in rows in a curved or horseshoe shape. Large folding tables also work well so long as there are not so many participants that those in the back cannot see the screen well. This happens at about 45 participants in most rooms.

- Though round tables create a problem for those in the front because they have to turn their chair backs to the table, team exercises work great with round tables. They also encourage people to talk and get to know each other better before the session starts and during breaks.
- Chairs without tables arranged "theatre" style are the worst configuration because participants cannot review their material or take notes well and the arrangement discourages discussion among participants. Peer-to-peer discussion is an important way for adults to learn.

✓ Have someone handle on-site issues and refreshments, registration of participants as they arrive in the morning, introduce the presenter and the workshop and to engage in discussion from the host organization's perspective (why you brought the presenter here, what you want participants to learn, what they should do after the workshop, etc.)

Participant Folders

✓ If you have many handout materials, give each participant a folder that includes those materials. If you only have a few handouts and slide reprints, you can give them to participants loose or all stapled together. Folders are best, especially if you will have additional materials they may want to pick up. If you have a standard folder your organization uses, that should work great. Again, think branding.

✓ Copy and assemble the folder items. Include any of your own materials relevant to this group. Your presenter should send you overhead slides and handout originals plus other items in plenty of time for you to copy and assemble participant packets or folders.

✓ Include a simple feedback form in the folder. Make sure the form has space for participants to write thoughts in their own words. Most won't take advantage of this but I find these comments to be more useful than the checkboxes where they indicate that they thought the training will be "moderately useful" and the room was "comfortable." Try to elicit quotes from satisfied participants for use in advertising future workshops. Again, this goes to branding. Conduct this survey as the presenter wraps up because as soon as they stop talking, many participants want to get on the road.

✓ USE the feedback you gather. No one can tell you better how to improve a workshop for future sessions than someone who attended that workshop. Of course, if your workshop is a one-shot deal, just get a good presenter.

Do you Have Questions? If not, you will. I have included many issues for you consider in this guide sheet. However, each workshop, location and sponsor is different so feel free to call me to discuss your workshop in detail.

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