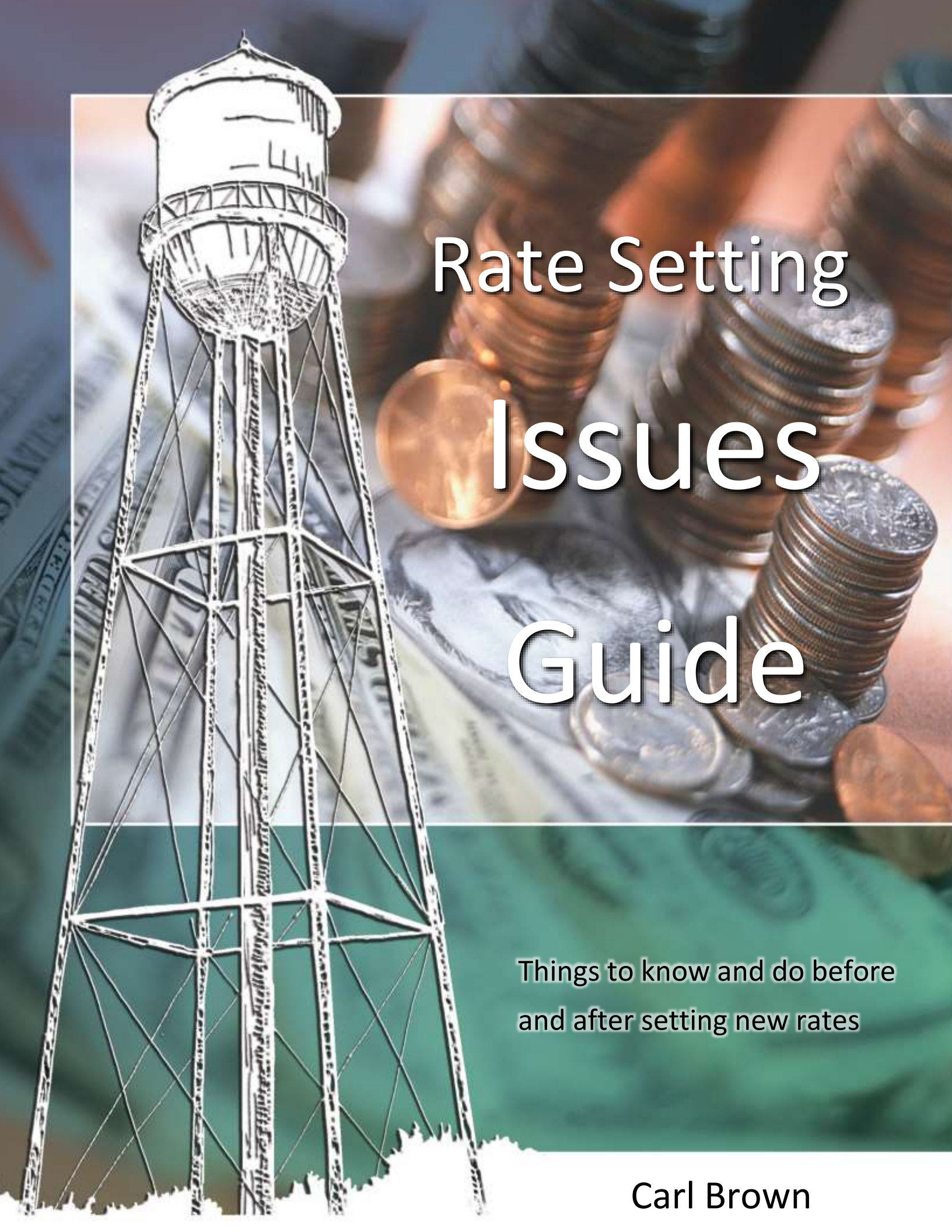

Rate Setting Issues Guide

Things to know and do before and after setting new rates

Carl Brown

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This guide is a companion to the book, "How to Get Great Rates." The electronic version of that book may also be downloaded, free of charge, from the same site. Anyone who wants a hard copy of the book should contact the author. Hard copies are not free, but they are handsome, perfect-bound, large format books.

To download this guide and the book, and several other guides and spreadsheets referenced in the guide, all free of charge, visit https://gettinggreatrates.com/freebies/freebies.shtml and click the links for each desired item. The book and guide are large, so download may take a minute or two.

Note: Some of the issues discussed in this guide were written about and first published, in part, in articles, also written by Mr. Brown, in the rural water association journals in Colorado, Kansas, Virginia and Wyoming. Other associations were granted permission to publish such materials. However, the author does not have specific knowledge of which materials have been published in other journals. The author, with gratitude to all who have published before, has included some of those materials in this guide.

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Introduction

In the book, "How to Get Great Rates," I covered the processes, math and other things that a utility needs to do to get "great rates." Utility rates should be that good, periodically. If you will think of a timeline, analysis and initial rate adjustments fall at one point on that line.

"Great rates" are appropriately simple or complex, adequate and fairly structured. "Appropriately simple or complex" takes a lot of explaining, so I often just say, "adequate and fair" to describe great rates.

What this guide is about:

There are things to be considered and done before doing rate analysis. There are others that should follow the initial rate adjustments. All are up to the governing board or council to handle. Those board or council tasks are the subjects of this guide.

Target audience for this guide:

- City, town, utility district and private utility board and council members,
- Staff of such entities,
- Agencies and associations that help or fund such entities, and
- Others who do planning for such entities.

Language in this guide:

- Whenever possible, I use the first person "I," rather than the third person "the author." That should speed your reading and increase understanding.
- I address issues directly to rate setters and those who will calculate those rates. To do that, I usually simply address comments to "you."

There are tasks related to rate setting besides rate analysis. Those are the subjects of this guide. The governing board or council will do some of those tasks on its own. To accomplish other tasks, the board or council needs to lead others, like the community at-large, in discussions, decisions and action. Ideas on how to get these things done well are included in this guide.

Some tasks should be done before, and some after, rate analysis and initial rate adjustments. The before and after break is not always clear-cut. I just present the tasks and ideas here. You get to decide if each is a concern for your community, and when you should deal with it.

While I just said, you get to decide when to handle tasks, some should happen at a certain time if you want to avoid future problems. Examples:

- Several of my clients signed a new long-term water supply, or wastewater treatment agreement that locks in how their rates will be adjusted for decades. They did that BEFORE they had me analyze their rates. BACKWARDS! Analysis should happen before signing any deal like this. The rate setting stipulations of the contract should be set up so they will treat both parties fairly well into the future. Fairness makes for a good on-going relationship. "Good fences make good neighbors," they say. Well, good pricing stipulations make for a good buyer and seller relationship. That good relationship is what really keeps you out of court.
- Cities and utility districts have hired me to do calculations that will help defend them against a lawsuit over the rates they charged the plaintiff, usually a ratepayer, and usually a high-volume, deep-pockets one, at that. BACKWARDS AGAIN! If you get sued by a customer, not analyzing and not setting rates appropriately and transparently is probably why that happened. Setting rates appropriately will usually make ratepayers feel good enough that they won't sue. They may not jump for joy about paying more, but they won't sue. And, if a hothead still wants to try it, but you have done a demonstrably good job of rate analysis and rate setting, most of the time, an attorney will tell them it won't work. Lawsuit averted.
- Across-the-board rate increases; you can do these before getting great rates. But that usually layers unfairness on top of unfairness in rate structure. Across-the-board increases are fairest when done AFTER getting great rates. And, there is a limit to how long you can do across-the-board increases and still have rates that are fair enough for now.

Timing matters on these kinds of things, so do them when they need to be done. It all boils down to planning ahead and good execution of the plan.

Such planning and execution also require that we recognize that, sometimes, we don't know what we don't know. If what you are getting ready to do is important, it will be important for years to come, and it may be hard to change course later, find someone to help you with the things that might be lurking that you don't know. A cliched line will illustrate this: "Guys, occasionally you MUST stop and ask directions." Unfortunately, the line gets retold often for good reason.

Throughout my career, I think I have discovered this. Some successful people are personally strong, full of stamina, very intelligent, and they carry the entire load of their life's work on their own shoulders. But more people are successful because they stop, ask questions and get help when they encounter something they don't understand. Then, they might carry the entire load themselves. But more often, they get help with that, too.

Sometimes, success is an individual endeavor. More often, it is a team sport. The utility governance and management game definitely is a team sport.

Back to rate setting, there is not a set decision tree for rate setting and related things. There are issues or things that your town or utility needs to deal with. Others you can just consider, recognize they are not relevant or at least, not critical here and now, and move on. The need to deal with or not deal with issues is dictated by your situation. Every situation is different. Thus, these things cannot be handled in a cookie-cutter fashion.

That said, I had to order issues in some way in this guide. Thus, I ordered issues as I think most utilities will bump into them.

The guide is not long, so I suggest you just plow through it, first page to last. I flesh out some of the basic ideas and definitions in the beginning of the guide. Later, I layer chapters on top of those basics.

I have written before on many of the issues in this guide. Such articles have appeared in numerous journals, especially those of the Colorado, Kansas, Virginia and Wyoming rural water associations, with occasional inclusion in other journals. I thank those publishers for getting the word out. They fill a great information and training need for their readers and members.

Some of the chapters in this guide use much of the material from those journal articles. I thank all those publishers and associations for allowing me to cover this ground in their journals, and again in this guide.

Some issues, purposely not covered in the guide, are huge. They have been covered extensively in books and on Web sites. I left those out completely. Some issues are in play everywhere in every system – the need to seek compliance with public health and environmental protection requirements, for example. I only covered those issues enough to relate them to the issues I focused on in the guide.

Some issues are so situation-specific and technical that they can only be properly dealt with by hiring a consulting engineer, an accountant, an attorney, a rate analyst and other specialists. As I mentioned, sometimes you don't know what you don't know. And by the way, in this guide I say many things that have a legal component (doesn't everything?) I'm not an attorney. Consult your own attorney about legal issues.

Finally, I have some opinions about utility service. I will not write much about these later. I list them here, so you will know where I am coming from as you read the guide:

1. All things that are done by a utility must be done in the context of how that action serves customers and ratepayers. Actions you take should serve them, or at least not be a disservice to them. If your actions are contrary to the best interest of your customers and ratepayers, you need to change course. However, one must sometimes take the broader view when making interpretations. For example, non-compliance with public health regulations and permit requirements would let you keep customers' rates lower. That would benefit them. But, being out of compliance might kill someone or make them sick. That would not benefit them. Thus, you need to seek balance in the benefits you provide to your customers and ratepayers.
2. Part of providing good utility service is doing it in a fair rate structure. Fairness should be demonstrable. Always line up on the side of truth and good information.
3. Private citizens and businesses make large investments in their properties because they believe public utilities will provide good, sustainable service to them. A utility's rates are important, but they are secondary. Service and dependability are key, rates are secondary.
4. Every sustainable utility must have adequate reserves. Strive to break even and you will go broke. Yes, "government" is non-profit. But, that does not mean "government" should have no reserves. To NOT have reserves is irresponsible. Fortunately, inadequate reserves can be fixed.
5. Many people think that utilities, owned by governments, are "government." Granted, a utility worker's paycheck may be drawn on a "government" account. But utilities are first, and always, businesses. Those businesses serve us very well when they are both efficient – not expensive, and they are effective – they provide good and dependable service. They serve us, perhaps, adequately if they are not efficient, but at least they are effective. They serve us poorly if they are neither efficient or effective. Sure, utilities should seek efficiency. But above all else, your mantra should be, "Serve our customers well and dependably. After that, we work on efficiency."
6. Utilities, and their staffs, are good at some things, but not good at others. Rather than try to do all things, doing some poorly or doing them at great cost, utilities should hire specialists to do those things they rarely do themselves and cannot retain staff to do. These areas of expertise often include engineering, rate analysis, law, sometimes accounting and other special fields. Hiring such specialists is, no doubt, expensive. But not hiring them when they are needed can be even more expensive in lawsuits filed against you, rate revenues not increased and similar bad effects.
7. Utilities should make their records, meetings, operations and all other things as open to the public as possible, so long as doing so does not compromise the utility's functions and personnel. "Open meetings, open records" laws make utility service less efficient. You must take time away from "doing the task," and spend that time telling people what the task is and why you want to do it. I consider telling the folks what you are doing and why to be one of the key services you provide. After all, it is their utility, not yours. They deserve to know what is going on and why.

Now it is time to cover the issues.

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Chapter 1 – Making Decisions

Author's Note: Decision-making applies to everything, all the time. But, to do this well, you need a good blend of data gathering, timeliness and logical decision-making. Logic should be involved in every decision, but the mix of the other two ingredients depends on the situation.

It is crunch time. You must decide and take action. Do you have enough "data" to support that decision? Should you study the issue longer? How long?

In your personal life and public service life, you are making decisions all the time. If you decide well, you do well. If you decide poorly, you, or your customers, don't do well. And, perhaps others suffer or benefit, too. If you decide well but too late, sorry, that's a bad decision, too.

Much of your job is about making decisions that affect those you serve. You need to make good decisions and take correct actions.

There are books about good decision-making. Unfortunately, there are no "cookbooks" on the issue. But, there are some key ingredients:

- Criticality of the issue, decision or action – If someone will die if you do this wrong, do it right. If they will get sick, ditto. If they will be inconvenienced a little bit, it's not critical.

Criticality is the quality, state, or degree of being of the highest importance.

- Timeliness – sometimes, making almost any decision but doing it fast is the key to success. The shorter the time before the decision must be made, the less data you can gather to support that decision. "Snap" decisions must be made based on data and information you gathered before this decision opportunity even came around. That is when you discover the value of deep experience – your own and that of your network of advisors.
- Data – you can never gather all the data. Decisions are always made with only part of the possible data. The key is, within the time allotted, you need to gather as much of the most important data as you can. Or, you may gather data until most of it, especially the most relevant data, consistently points to a particular decision and away from other options.

Several problem and solution pairs follow, drawn from my field of experience. See if you can apply these to your areas of concern.

Problem 1: The water utility fund is "broke."

Solution 1: It's a simple formula; more revenue, less cost or maybe a mix of both. This problem is, logically, easy to fix. Thus, if it is a problem, there is a good reason for it.

When a utility goes broke, it usually doesn't happen fast, so the utility probably has already been cutting costs. If that is the case and the situation is critical, you get a loan right now and then raise rates soon. If it's not critical, maybe you can raise rates now and grow your way out of the problem. To do that, across-the-board increases will probably cause the least ratepayer anger, in the short run. Data needs? Quantify how broke the fund is and decide how quickly you should change that. Then, it's just a little math to reach the solution.

As mentioned, this is probably not a math problem. Chapter 2 should help you solve it.

Problem 2: The utility has inadequate cash reserves to see it through financial upsets and emergencies.

Comments: What are "adequate reserves?" It depends. A large, up to date water or sewer utility may only need reserves that amount to 25 percent of its annual operating budget, plus whatever debt reserves are required by its lenders. A small, older, in-need-of-improvements utility likely needs 100 percent of its annual operating budget in reserves, not including debt. That shows you the likely low and high boundaries. I would not go lower. Sometimes, I have gone higher.

Solution 2: Determine what "adequate reserves" are in your case, raise rates soon, keep doing that for some years and get reserves up to the target level. Then, maintain that level of reserves, except for those years when the event you are building reserves for, occurs. The solution to this problem takes a little more math than Problem 1, but it's not that tough.

Problem 3: The utility currently has substantial reserves, rates are in a cost-to-serve structure but next year the budget is going up.

Inflation happens, so you need an inflationary rate increase every year.

Solution 3: Inflation happens. Yes, cut costs if you prudently can, but rates need to keep pace with costs. As costs go up, raise rates to match, every year. The budget itself will give you all the data you need for such increases. Of course, the current rates need to be in a structure that is close to cost-to-serve. Otherwise, by doing across-the-board increases, you will make the rate structure even less fair over time.

Problem 4: You can't prove that rates are based on cost-to-serve principles. Some people complain. One talks of hiring an attorney.

"Cost-to-serve" rates recover costs from those who cause those costs to be incurred.

Comments: When someone says, "attorney," it's time to get your "ducks in a row." You are going to have to move fast (timeliness) but at the same time, you must get it right (data and good decisions), too. Get it wrong and you're a dead duck. Good intentions won't keep you out of court or win the case.

Solution 4: Get a comprehensive rate analysis, now. And try to keep the aggrieved person from hiring an attorney because that is the rate setting equivalent of "going nuclear." When there is a rates-related lawsuit, one party loses and the other loses bigger. The fact is, ratepayers, tax payers and citizens like to occasionally see the "math" behind the rates. It's only reasonable. Show them the math. Assure them the increase will not be that big a deal, if it won't. If it will, you must win them with the fairness of the rate structure. That takes rate analysis and analysis takes some time. Don't procrastinate. It won't get better with age. Chapter 2 is quite relevant to this situation.

More on criticality: How seriously will a decision, or non-decision, affect the utility, ratepayers, others? Generally, proper rate setting is important but not critical. Thus, you need excellent, complete data and sound analysis. Set rates well. Don't rush it, unless the utility is going broke.

More on timeliness: Data gathering, and decisions happen in real time. All decisions have a "window of opportunity" to achieve the best possible outcome.

Example: Your utility budget for next year is going up by the equivalent of one dollar per month per customer. You "gather data" for an entire year and don't make a decision, meaning, you don't adjust rates and get the needed boost in revenue. It is now time to do the second year's budget. The utility now needs the dollar for the procrastinated first year, plus another dollar for the second year's inflation. If "pulling the trigger" was hard the first year, it will be even harder the second year. Pull the trigger on inflationary increases every year.

A good decision based upon the best data available now, is almost always better than a spot-on decision made too late.

In your day to day decision-making, there are lots of recurring decisions. Gather more data, if you need to. Then stop, decide, take action, move on and monitor results.

In all decision-making that will not risk life or health, you must weigh the potential value of gathering more data (delay) against the likelihood that the delay will erode the value of the decision. Besides that, getting stuck on this decision keeps you from moving on to the next one. There is always a next one. To a large degree, decision-making is a numbers game.

You also need to consider the severity of the outcome from making a bad decision too quickly.

Decisions are hard. That's why your constituents need you. Change is hard. Decisions lead to change. Change gets us to a better place, if we decide well. Good decision-making will serve your customers, and you, well.

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Chapter 2 – Getting New Rates (and Other Good Ideas) Accepted

Author's Note: To get new rates accepted, there are things you need to do long before you even figure out what those rates need to be. Therefore, it is useful to consider these things early and often. Besides, most of the ideas and strategies covered here are useful in getting consent for many other things you want to do. Stating strategies aimed at getting consent may seem to some as being against the notion of open public service. What I say here may seem underhanded or crass, dismissive of ratepayers. That is not correct. In order to get to the point where you can provide good public service, you must get approval of the public to do that service. Some would thwart you at every turn, so you need to get past the "no to everything" folks to get on with providing good service.

You could "sell" ratepayers on new rates, maybe.

You could fool them into new rates. That happens. But, it can also have bad repercussions later. And, use this trick too often or too ham-handedly, and you WILL be found out.

To provide good utility service, you must get ratepayers' consent. Sounds odd, doesn't it?

Or, you could inform ratepayers honestly and sufficiently to gain their consent of the new rates. Some will consent freely, which is wonderful. Some will consent grudgingly, which is good enough. If all goes well, none will vehemently, or in an organized way, oppose the new rates. That is also good enough.

The underlying notion to this chapter is called, "Systematic Development of Informed Consent," or "SDIC." The goal of SDIC is gaining at least grudging consent. Here we are talking about setting new utility rates. But the notion applies to just about everything you do for, or with, anyone else.

I suspect this notion has been around for as long as two or more people found it necessary to agree on a course of action. For many years, SDIC has been thoroughly developed and capably taught by Hans and Jennifer Bleiker. This chapter will not expound upon the details of SDIC, so to learn more, visit https://consentbuilding.com/sdic/. By the way, I got this training three decades ago and it serves me better the more I apply these principles.

The goal of SDIC is gaining consent or acceptance of a course of action. In the context of setting new rates, rarely will a ratepayer say to you, "I accept the rates you proposed." Mainly, ratepayers hear the proposed rates presentation and they nod up and down, or they don't nod sideways, or they fail to voice resistance, or they signal that they are ready to move on to the next issue. Or, when the presentation is done, they quietly rise and leave.

Rate analysis is a tool that helps you get ratepayer consent for rate adjustments, which are almost always bill increases.

Why Utilities Analyze Rates

1. Most commonly, a city or district calls for a rate analysis and initial rate adjustments because it is embarking on something expensive: building a new water tower, a whole new wastewater treatment plant, new lines or something else on that order of magnitude. Costs are going up, so it is clear, revenues need to go up. That means that, bills need to go up; maybe not everybody's bills, but at least some.
2. Other times, the expensive event that calls for analysis is dealing with rates that have been held too low for too long. Now, the utility must play catch up. Situations 1 and 2 can be in play at the same time. In both, the utility needs more revenue.

3. There is a third group of utilities that I really like to work with. For those, the expensive event is trying to justify keeping their high reserves, high. These utilities have been doing a good job of managing the service, and the finances. They just need an outsider's look at how they are doing, and they need help restructuring rates. They don't need wholesale changes. They need a little tweaking. That is, unless this situation runs together with Situation 1. In that case, they probably need a bit more revenue, too.
4. Sometimes utilities call in an analyst to do rate restructuring, but not often. Why get people mad about their bills going up if you are not going to get more revenue out of the effort, too? The purpose of rate analysis and initial rate adjustments, in the utility's view, is almost always getting more money. Fairer rates are a side benefit. In my view, you should seek structure fairness first and always. That gets you rate acceptance from the most ratepayers. Extra revenue will follow as a side benefit to good rate structure.

Reason Number 1 is easy for ratepayers to get – markedly higher costs lead to higher rates. It is a case of "cause and effect."

Reason Number 2 is tough for ratepayers to grasp, for good reason. That is because, by NOT raising rates regularly as costs have risen over the years, the utility has been sending a message: "Costs do NOT rise for the utility." Now, to get the needed rate increase, the utility must go against the case it did not realize it has been making for years. If you, the utility, allow rates to remain below the sustainable level for a long time, it is reasonable for ratepayers to assume that those rates are, indeed, sustainable. And, if you now say that rates need to go up drastically, they have grounds to doubt you and even protest. You have a case to prove up.

Initial rate adjustments lead to someone's bill going up more than others, and perhaps, some will even go down. The question then is, who's bills need to go up or go up the most? Is it the low-volume, low income folks? Or, is it the ABC Corporation? Rate structure makes little difference to customers who fall close to the average. If revenues are going up 25 percent, the average customers' bills are going up about 25 percent, too. But, structure makes a big difference to those at the margins. How their bills will change makes a big difference from whom you need to seek acceptance.

If bills will go up the most for the low-income folks, gaining consent is mainly a numbers game. If it will be the ABC Corporation, it might be a "money to pay lawyers" game. Alternatively, you may soon find out how good a diplomat the mayor is.

I get ahead of myself with all this discussion. Let's back up and parse it out.

The Ratepayers

Ratepayers need utility services. Those needs boil down to getting the desired level of service "24/7/365," or very close to it.

It is simplistic to describe it as follows, but useful. Your customers can get the impression that, once the infrastructure is set up, service just happens. Many do not realize that it takes skilled people, doing good work and making good decisions to make utility service happen.

Some ratepayers also do not know, do not appreciate, or simply want to dismiss the fact that providing utility service costs money, their money. They would like to pay nothing for the service, or at least, as little as possible. And, they would like to think that, once the utility is up and running, inflation does not happen to utility costs. On a related note, they think that "government should do more with less." And, they think a utility that is owned by a government entity IS, by association, "government." Thus, the utility should also be able to do more with less. Some even think they will get the best value out of utility service if they "starve the beast," meaning, keep the rates cheap.

The Utilities

Utilities often feed into the belief that utility inflation does not happen. They provide good service and almost always do it "sight unseen." They don't talk up what it takes to provide that service. They hold rates steady for years. Many utilities say nothing to their ratepayers, except for every five or ten years, when they want more money. Do you have children who say little to you until they want money? Ah, you know how it feels.

Utilities, and the governments that own them, have a fact-based, logical, realistic view of utility service. They know it costs money to set up and run a utility – they put together the budgets and pay the bills. They do the unappreciated work of developing and setting rates and fees to pay those costs. Staff and decision-makers of utilities are immersed in the business of utility service. It is clear to them that this takes work and money. It seems to them that ratepayers and customers should be able to easily grasp that, too. But somehow, they don't.

Thus, there is a natural difference between the understanding and mindset of ratepayers and that of the people who make utility service happen. Ratepayers are not going to bridge that divide. Many distrust "government." And, cutting ratepayers slack for their lack of interest in the utility, they have busy lives to live. They have a lot to do. They can't afford to carve out time to make sure "government" runs right. That means, it is up to those in the utilities, and the governments that own them, to do some education and winning of consent for adequate and fair rates.

With that groundwork laid, recall that the act of adopting new rates is a break point on a timeline. There is strategizing and work to be done before that break. There is strategizing and work to be done afterwards.

Before you adopt new rates, you must propose new rates. That lets people have an opportunity to think about what is likely to come and voice opinions about it, if they want to.

Before you propose new rates, you should do an appropriate level of analysis to support the rates you would propose. You, yourself, need to know what that math says about those rates. Plus, you need to be able to show ratepayers and others why you are proposing those rates. In other words, you need to use facts to seek informed consent. Once they are shown the facts and the math, and assuming the facts and the math clearly support what you are proposing, most ratepayers will accept those rates. Acceptance is as good as it gets in the rate setting game.

Other ratepayers are not so accepting. Some of those will challenge you. Your job: Limit the opportunities they have to do that. Develop the facts and math that clearly support the rates you propose. If the facts and math clearly support the proposed rates, most challengers will back off. With this kind of ratepayer, that is as good as it gets – postponing argument to another day or over another issue. Some will even grudgingly accept that you are right and that you are trying to serve them well. A third kind of ratepayer will be against you no matter what. The next subsection covers these folks.

A Key Point of Strategy

You will have a meeting, or maybe several, to discuss the analysis and the proposed rates. At some point in that meeting, you will take feedback from ratepayers. Do not open the floor to the public for discussion until the analysis and resulting rates have been sufficiently discussed. Here's why.

In going first, the decision-making body stakes the "high ground" by examining the analysis, finding it sound, and recommending and supporting adequate and fair rates that are supported by that analysis. The decision-making body may not uniformly line up behind the recommended rates, and that is Okay. But, they should be in favor of adequate rates and some structure that treats people fairly.

Through that examination and discussion of reality, the decision-making body sets a benchmark. If someone, or a group of people, want to go a different direction with rates, that may turn out fine. But they must prove that their option will actually work, and that it makes better sense than the benchmark. If the benchmark really is sound and fair, it will be hard to prove the case of the alternative.

Now, back to how the process should play out.

After discussion of the analysis is done and board or council members, through their comments, have made it clear they want to fund the utility right and do it fairly, you can open the floor to comments, and no doubt, some complaints. Since you have already taken the high ground, complainers will be forced to try to prove the analysis is wrong. If the analysis is sound, that won't work, but some will try anyway. Alternatively, they must argue for the low ground, which also happens.

Complainers can rail against the facts. They can advocate a structure that is not fair. But both strategies are unseemly and difficult to execute. Some other ratepayers, who would be treated fairly by the new rates, may join YOU in support of adequate and fair rates and take issue with the complainers' attempts to stop such rates. That makes it even harder for complainers to win. Still, most complainers will give it a shot, mainly to voice their disapproval, but then they will grudgingly cease and desist. That is their form of grudging acceptance, and that is as good as you will get from them.

Here is a mini-strategy on what that complainer just did for you, and what you should do.

They just gave you their (grudging) acquiescence, meaning, they don't like it, but they won't fight you. They just gave you a gift. Treat them kindly and accept the gift, graciously. Never demean them or say anything to the effect of, "Ha-ha, we won, you lost." And, don't linger on the issue. They could get angry again and change their mind.

Also recognize that, as they may see it, they are practicing the "live to fight another day" strategy, and that's Okay. A battle averted now might be a battle you never have to fight.

To return to something mentioned before, there are two main kinds of rate adjustments:

- The infrequent kind gets revenues high enough to pay the utility's costs, plus it restructures rates. These are the most difficult to implement. These get the most complaints.
- The more frequent kind of adjustment is the simple, across-the-board increase to all ratepayers. These only aim at keeping revenues high enough. These are a snap to implement. These get few, if any, complaints.

Generally, you should do initial rate adjustments first, to get rates up to an adequate level and into a fair rate structure. Follow that with across-the-board increases each year for several years, to keep them adequate. Eventually, do new initial rate adjustments, restarting the cycle.

Let's consider the initial rate adjustments, first.

Initial Rate Adjustments

I call the restructuring type of adjustment, "initial" rate adjustments. This kind of adjustment requires cost classification, a part of rate analysis, to achieve the goal. These adjustments lead to both adequate and restructured rates. I promote fairness in the restructuring. But, you could restructure and get unfairly structured rates, too. Let's just assume you want fairly structured rates. They are a lot easier to promote.

Initial rate adjustments require the most analysis, the most educating and the most diplomacy, on your part, whether the structure of those rates is fair or not.

Cost "classification" is the process of separating costs into "fixed costs," "variable costs" and maybe a few other types. Each of the types of costs are then recovered by different parts of the rate structure. Fixed costs are recovered through minimum charges. Others by other fees.

Cost classification requires knowledge of what the various costs are related to. Otherwise, you are just playing with numbers.

To arrive at the initial rate adjustments, you or a rate analyst need to do analysis. It is risky to try initial rate adjustments without it. Without detailed analysis, you don't know how restructured rates will perform. (You might get such rates adopted without analysis, against the wishes of the complainers, and if those rates go belly-up in some way, the complainers have you in a headlock.) To successfully educate ratepayers on the new structure, you need some facts and math to back you up. That is especially true when some ratepayers' bills will go up a lot and others will go down, which is common.

People often think of the status quo, the current state of their rates, as being fair. They believe, if the proposed new rates would increase their bill, or they would increase their bill more than others, or especially if their bill would go up while others go down, the proposed rates are not fair. In the case where a ratepayer's bill would go down, they consider that fairer than their current rates. Of course, if their bill will go down and others' bills will go down even more, they consider that a move in the right direction, but still not fair.

Trying not to be judgmental, over my years in rate analysis, I think this is what I have discovered:

1. If a ratepayer's bill is going up more than any other, they want to fight you.
2. If their bill is going up the same as the average bill, they don't like it, but they almost always accept it.
3. If their bill is going down some, they like it and welcome the change.
4. If their bill is going down the most, they love your sense of fairness and think you are a great board or council member.

Groups 3 and 4 will accept the new rates. You had them at, “this will lower your bills.”

To gain wide consent, which you want, you really need to get Group 2 on-board.

Group 1 might only be one person, but to keep from being embroiled in acrimony, attempts to organize against you and maybe even a lawsuit, you need Group 1’s acquiescence, grudging consent or resignation.

It is also possible that those who, by all rights, should fall into Group 1, just won’t show up. That happens a lot.

Group 1 often includes the CEO of the “ABC Corporation.” Your proposed rates would double the ABC water bill from $1,000 per month to $2,000. But, right now, the CEO is dealing with a labor dispute, two material supplier negotiations worth $10 million per year and his wife is suing him for divorce. The CEO has bigger fish to fry. And, the operative consideration is, the $1,000 per month increase is a rounding error on his expense statement. If he had nothing else to do, he may argue about the bill increase just to see if he could get a better deal. But in reality, $1,000 per month is not important to his bottom line.

However, if the Group 1 person is a hothead and he, or his company, has deep pockets, the going could get tough.

Groups 3 and 4, are a numbers game. Group 2 is manageable. Group 1, you’re talking personalities and individual situations.

There is one other group you should want to pay attention to, as a matter of fairness, and in the interest of good utility management. That is the “little old lady, widowed, retired, living alone on Social Security,” and others in a similar situation. “Jack” her bill up too much, even if the math says that is fair, and you will have news media problems (headline: “City Slams Retirees”) and you might increase the number of slow-pays and no-pays. Those outcomes do not lend themselves to good utility management. Remember, this is a business, and slamming little old ladies is not a good business practice.

After doing the education process well, you have gained mostly willing consent, a little grudging consent and you blockaded one or two hotheads. You pass the new rates ordinance. Finally, you can relax, right? No.

So far you have only been putting the great rates apparatus into place. Now you need to work it and monitor it. Make sure it is bringing in the right amount of revenue and that the improvements you said the money would pay for are lining up as promised. Keep folks informed about what their higher bills are now buying. That is just good service. But it also buys you continued support – consent.

Before you know it, it will be time to start preparing the next year’s budget and inflationary rate increases, which will be discussed a bit later.

To sum up initial rate adjustments, analysis determines rate adequacy and a new rate structure. That becomes the recommended set of rates. And hopefully, those are what get proposed, discussed, generally accepted and later adopted by the rate setting body.

How to Educate for Initial Rate Adjustments

There are good and bad ways to discuss and promote initial rate adjustments. I will cover the good ways, because that is what you should do and there are fewer of those.

- First, and always, tell people about the utility. Not the rates, the utility. Do this frequently, using several different media, if you can. Let people know a little bit, but frequently, about what it takes to own and operate their utility in a way that serves them well. In fact, stress that it is their utility, not yours. You are just managing it for them. You need to give them a sense of just how big and complicated the utility is. How people worked hard to get it set up right and how they continue to manage it, so it serves them well. Don't go deep into engineering, chemistry or other technical things. Give them the basics, the costs and highlight the people side of making service happen. Following is one way you might say this:

  > "Did you know that our operators must sample your drinking water every _____, from the right locations, at the right time, in the right way, and handle those samples properly and timely to get accurate test results from those samples. If those results are corrupted, your drinking water might be bad, but the test would not show it. That is why we spend good money to get your operators good training. You want them to know what to do and how to do it because they are protecting your health. That is a big reason we pay a competitive wage, so we can keep good operators serving you."

- Later, when it comes time to ask ratepayers for more money, ratepayers will already know the utility is big and complicated and skilled people are working hard every day to keep it going and serving them well. Needing more money won't be a surprise. And, it won't be a nameless, faceless machine they are pouring money into. Then, they won't be so inclined to "starve the beast" or fight you. And, they will have a better sense of perspective, "They are only asking me for another $3.00 per month and that will keep the good service coming. I can go with that." By the way, you just got consent.

Now, you are approaching the time for making the initial rate adjustments. The analysis has been done. The board or council is aware of the new rate needs that the analysis outlined and likely they agree about what they should do, at least generally. It is time to inform the ratepayers. Remember, this will not be brand new to them. You have already been talking about the utility, its finances and such. But this discussion of new rates is a current event. This is not a drill, this is real.

Everyone impacted by the utility's rates should at least be given the opportunity to become aware of the results of the rate analysis and resulting recommended rate adjustments:

- My default recommendation is to give any customer as much information as they want. If they want a copy of the full report, give it to them.
- Give the media a copy of the full report so they can quote the report directly and accurately rather than be forced to "figure things out." I will say that another way. Don't wait for them to ask for the full report. Give them the full report. Much of this is very complex. Few people know how to, or have the time to, calculate utility rates. Make it easy for everyone to get the facts right. And make it impossible for the media to claim that you are trying to hide anything.
- If, between you and your analyst, you give people everything and try to openly and honestly answer every question, it should go well, with one caveat. As stated earlier, at the meeting where you receive the analysis report and discuss it and the recommended rates, you must cover the math (the analysis) and stake out the high ground, which is the math-supported, restructured rates, before opening discussion to the public. Stick to that plan.

- What will happen to their water bills is as much as most customers care to know about the analysis. To satisfy those information needs, the utility can publicize the current and recommended rates. You can also give people a table showing bills for different volumes and rate classes "before and after" the rate adjustments. Post such tables on your Web site. Hand them out at rate discussion meetings. These tables will satisfy almost all ratepayers and lead them to consent. Some may even walk out of the meeting after they read through such tables. It's not because they are disgusted with you. It's because they now know enough, and they are off to do something more important than sit through the rest of the meeting. "Mission accomplished," is the phrase you are looking for.
- A few customers will want to know more, especially high-volume customers. Give them the full report, if that is what they want.
- A good way to accomplish these things is to post the report on the utility's Web site so everyone can see for themselves what the report says. That way, no one would have to print out or carry around a long document, unless they wanted to. Publicize the Web posting widely and publicly. Information is a good thing. Being seen as trying hard to get information out to folks is also a good thing.
- Open meetings/open records laws require some of these measures. Of course, you should satisfy those requirements. But, whenever possible, go beyond those minimum requirements and do it quite publicly. Again, you want to be seen as being as open as possible. And, behaving in this way is another aspect of staking out the high ground. Many will not understand the math and much of what is in the report. But, if they feel you are being completely open about the analysis, they will be inclined to accept the resulting rate adjustments.

As I have said before, when it comes to rate adjustments, consent is as good as it gets.

When the Bad Thing Happens, You Need a Fall-back Strategy

It just might come to pass that an overwhelming number of ratepayers will line up against the proposed rates, or, one very powerful ratepayer (they have money) will do it. In these cases, you need to do some thinking:

- Did we analyze well enough?
- Did we educate well enough?
- What else could we have done to turn the tide? Can we still do that now?
- Did that ratepayer, or that group of ratepayers, not like the overall level of the rate increase? Or, do they just not like the structure? If it is a structure issue, would their favored structure be worth it to us to accept, in order to get adequate rates, which the utility needs? Would the structure they prefer not harm others much, or be rejected by others in big numbers? You must do some additional analysis to figure out some of these things.

The point is, you need to do a "post-mortem" to try to find where you went wrong, and to see if you could do it another way.

An aside, but a very important one: Other functions of the utility and the entity that owns it are controlled by processes. These include city policies and ordinances, State laws and even federal requirements. Stick to the "process." Rate setting is a process. Follow the process. Do it even if doing so may, at least temporarily, lead to a bad result – the utility gets under-funded and flirts with failure. Follow the process. If you don't follow the process, you might "win" the new rates but lose on the grounds of process – you improperly over-ruled the will of the people.

Now, back to the situation where lots of ratepayers have balked at the proposed new rates.

If you just cannot turn them around, you may need to stick to the process and go with the flow. Keep the rates where they are. Or, if you raise them at all, only raise them as much as ratepayers will stand for at that time. No, those are not sustainable rates, but if ratepayers demand it and overruling them would lead to great harm, let them have their way.

At this exact point in time, you need to act quickly to try to prevent bad outcomes from becoming utility-killing outcomes. For example, if it is appropriate, start the discussion laid out in the ghost town chapter of this guide. Relate to the ratepayers how funding must be at a minimum level just to keep the utility sustainable, and the rates are not there. Tell the ratepayers that the utility might serve them poorly for a while and perhaps even fail after that. If you can project with some level of certainty when that will happen, tell them when. (For example, if you have a $100,000 loan payment coming due in six months and there is no way you will make it without that rate increase, tell the ratepayers that. And, tell them about the credit worthiness hit the utility will take for missing that payment. Default, itself, is not a utility-killing event, but losing credit worthiness can destroy a utility somewhere down that road.)

Or, a more generic example, tell them that if the water system fails, everyone will need to find an alternative to community-based water and sewer. This might be the core of the case you would make:

> "The city water utility draws its water from a great water source (location, quality, pumping capacity). If we lose the water system, you all will have to drill your own private wells. On town-sized lots, drilling your own well is seldom a viable solution because there would be too many "straws" sunk into the same aquifer below, drawing it down over time. It will become more expensive to reach deeper and deeper to keep getting water and you might not be able to get any water someday."
>
> Continue with, "On the wastewater side, seldom are town-sized lots large enough or have enough of the right type of soil to adequately treat everyone's wastewater. Some of that untreated wastewater would find its way into the aquifer below and contaminate wells. You might treat your wastewater just fine, but if your next-door neighbor, or even someone a half-mile away doesn't treat their wastewater adequately, your water gets polluted. Thus, you lose in two ways."

Once a community builds community-based water and sewer utilities, going back to on-site private systems is difficult and expensive, if not outright impossible.

There are other issues that need to be discussed when ratepayers balk. Do it frankly and truthfully. Do not try to scare, even if the facts are scary. Scaring almost always backfires.

What you should try to do with these kinds of discussions is educate ratepayers. Bring them back around to the fact that, rates that are a bit higher really are the cheapest, best solution to their utility service problem. And hopefully, you can turn them around before too much damage has been done. Remember, you are seeking consent, not appreciation.

The going-down-the-wrong-path chain of events might take a long time to play out. In fact, I run across utilities that have been, incrementally, going down the wrong path for decades. Thus, while this is going on, you should document the consequences of going down the wrong path. Again, you need facts to educate ratepayers. Trust that, eventually, you will turn them around.

When you do turn them around, never, ever even hint of saying, "I told you so." Preserve their dignity. People need to retain their sense of worth. If you take it away, you will cause more problems. The fact is, they made a choice, it turned out badly, they learned, they made a new choice, and now things are improving. Your job is to facilitate good things happening for them. Facilitate them back to that good place. Remember, it is not your utility, it is theirs.

Now you are thinking, "All that is easy for him to say. He's not living it." And my response is, "You are right. I'm not there." So, figure out how you can best serve your customers and do that.

Deciding when and how to start "facilitating them back to a good place" might be a little tricky. Every situation, and every set of players, is different. When the time is right, make another run at initial rate adjustments. Eventually, you will get there. Or, at least, you can get on the road to getting there.

Inflationary Rate Adjustments

The other main type of rate adjustment is a simple, across-the-board increase, likely set to match inflation in the next year's budget. It is best to do initial rate adjustments to make rates adequate and fair. Then, for several, to maybe even many years after that, do inflationary increases.

Inflationary increases should happen every year that there is inflation in the cost to own and operate the utility. That is just about every year, so as a general rule, do an inflationary increase every year except for when you do initial rate adjustments, which will cover inflation, too.

Inflationary increases are small, two to four percent most years. In most water systems, and for the average residential customer, that amounts to a bill increase of 75-cents to maybe a buck per month. Most people don't argue about one buck.

Build your education campaign around that fact. Prepare the next year's budget. If it will be three percent higher than the current year's budget, propose to increase all major rates and fees by three percent across-the-board. As you go through the budget adoption process, carry the proposed rates right along with it. When the time comes, adopt a new budget and at the same time, adopt the rates needed to fund it. Two jobs done and one of them, the rates, supports the other.

Few people will turn out to discuss inflationary increases. What is your proof that an inflationary increase is needed? The new budget. Because most ratepayers consider the current rate structure to be the de facto "fair" rate structure, and everyone's rates will go up the same, and not by much, they see little reason to argue or even take time away from other activities to attend a meeting. You pass the new budget, you pass the new rates and you're done with rates for another year.

Now, what you have read for the last nine pages sounds very crass and dismissive. I don't mean it that way at all. That is just how these things usually play out. We all make decisions about how we will invest our time. Arguing about one buck is not a good investment of time for most people. And few people want to argue for the low ground. When it comes to considering inflationary-style increases, you may have no one even attend that meeting.

To close, you want adequate and fairly structured rates because they serve your customers well. Customers want cheap utility bills. Those two things collide. Thus, you need to convince ratepayers that rate adjustments won't hurt (or hurt too much) and it will insure that the good service will keep on coming.

You gain consent, adopt the needed rates and all ends well… until next year.

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Chapter 3 – Ghost Town Issues

The three discussions that follow are concerned with utility, and even whole city or whole district, sustainability. This chapter covers the importance of remaining sustainable, if that is possible, and what to do if it is not. Of course, a utility cannot remain sustainable if the customer base it serves is not sustainable, too. That means, if the town or other place the utility serves is not itself, sustainable, the utility is probably not sustainable, either. But, it depends.

We all have a good idea of what sustainable is. And we can prove what was not sustainable, once it has gone belly-up. But, before that, who really knows? Still, we are not relieved from seeking sustainability.

Let's lower the horizon over which we measure sustainability from "forever," to "for a long time." Thus, if certain conditions exist, a town can be said to be sustainable "for a long time." Once that town has moved well into that time period, its conditions should be assessed again to determine if it is still sustainable.

A sustainability analogy:

Gauging sustainability is like standing on a small boat in a bad storm, looking through binoculars at another boat one mile away and trying to make out the color of the flag that boat is flying.

Sustainability is a moving target.

Achieving sustainability is like getting great rates. You analyze and adjust properly and your rates are great, for a while. Over time they become less great. More time and they are just Okay rates. Eventually, they are awful rates. Rates must periodically be renewed to greatness.

The sustainability of cities, utilities and all other things are the same way. You don't make them sustainable once, and then forever after that they stay sustainable. To stay sustainable, all things need renewal.

The Ghost Town Ghost

You're climbing, climbing and then, BANG! The engine stops. Time to revisit your traveling goal.

Old goal – reach some distant destination to work or have fun.

New goal – find as flat and smooth a surface as you can, get as close to stall speed as you can and try to execute a "walk-away-from-it" crash.

Two important definitions:

- Natural places are… well… natural.
- "Built" places are formerly natural places that we humans changed to suit our needs. (Yes, I know, one could argue that beavers create "built" places, too, but that is a different area of concern.) Built places are often called cities, towns and utility districts. Let's lump them all together as "towns" because "ghost town" has a ring to it. "Ghost utility district" is… blah. Just remember, utilities are included in the "town" mix and it is utility health that I am focused on in this guide.

To put a finer point on sustainability, "towns" should have a diversified mix of compelling reasons to exist. That way, when one reason plays out, the other reasons can "save" the town. Thus, the town changes, progresses and stays relevant and viable.

Ghost towns – crashes – happen. Such crashes are in the works right now. But, don't think you can stand there and see the crash progress. This is not a train-like event. It is more like a glacier. Forces chip away at a town's sustainability until one day, the town simply tips to the bad side and cannot recover.

The ghost town fate is unavoidable for some places – engines sometimes quit. But, good maintenance can prevent many failures. Is your "town" headed for ghost town status? Can you walk away from that crash? Can you prevent it?

Fact of life: Every sustainable town must have a compelling reason to exist. Exhibit A: the gold mining town back in the mountains where the vein played out in 1801 – ghost town.

Most towns grow from the grass roots up, centered around a compelling reason to exist. In these towns, people buy homes and build businesses hoping to make a return on their investment. A big reason to officially form a town is to protect those investments. Towns do that, if they can stick around. Supporting property values is also why most towns get into the utility business, so let's focus on utilities.

Fact of life: Utilities live or die by the rates their ratepayers pay.

Fact of life: Ratepayers do not want to pay higher rates. It's in our DNA. But, we can swallow our DNA pride when properly motivated. Consider:

Bob invests $200,000 in a nice home in Rateville. The water bill Bob might pay to support a failing water system (an oxymoron, but it's happening) might be $360 per year, $30 per month. And, eventually, the Rateville water system… well… fails.

So, now what? Can Bob drill a well and get water? If he can, what will it cost to drill it? What will it cost to operate and maintain it? And, is this a permanent and desirable solution for Bob?

Facts of "town" life:

- Towns serve us and protect our investments – homes and businesses.
- All towns must have a compelling reason to exist.
- Your town must compete well with other towns to remain viable and serve you well. A compelling reason to exist is not enough.
- Tax payers and ratepayers don't want to pay the full cost of all the goods and services they receive.

Another option – Rateville sets rates that enable a sustainable water system. After doing 290+ rate analyses, I find it usually takes about 25 percent more in revenue to go from unsustainable to sustainable. Bob's rate then works out to $450 per year, $37.50 per month. That is $7.50 more, and that $7.50 is an insurance premium to protect Bob's $200,000 investment. Is that a good deal? Bob would probably say, "yes," if he knew the facts.

Without the facts, Bob will say, "NO! Thirty bucks, that's it. Rateville's water is good. I've got a good job and a really nice house. And besides, government should do more with less."

Bob may be okay with a failing water system. Sustainable businesses are not. They want infrastructure to last at least as long as their investment horizon before they invest in a new business location or they expand an existing business.

Businesses are the canary in the mineshaft. When they don't thrive, Bob can't thrive. Result: Bob loses his job. Bob sells his house at a loss, if he is lucky. Ghost town.

A sustainable town must have a compelling reason to exist…and… it must have the desire and wherewithal to continue to exist. Nature reclaims everything, unless we prevent it.

If a town is to stay viable, folks must develop and maintain assets. There are "soft" assets, and those are important. But here I am talking about hard assets – things like water and sewer utilities.

How do we fund those? Rates.

Nature reclaims everything, unless we prevent it. Whether a water system produces and distributes water or not, it is continually being reclaimed by nature. Metal rusts and corrodes, plastic weakens and breaks, pipe joints pull apart, concrete turns into little pieces of clam shell.

As long as we want a water or sewer system, or any other built thing, to serve us, we must work to maintain those systems. And, even the best maintained system must someday be replaced with a new one – start over.

Rates that are adequate (a must-have) and rates that are fair (a nice-to-have) are the basis for sustainable utilities. Sure, it is self-serving for a utility rate analyst to say you need great rates. But, if your town is to compete well with others that have even stronger compelling reasons to exist, you need to give yourselves every possible advantage. Providing great utility service is such an advantage. Without great rates, you can't do that.

If the ghost is chasing your town, you need to have an honest talk among yourselves. Ask: Is ghost town status inevitable here? If it is, think in terms of a "walk-away-from-it" crash as you plan your next steps. I will cover that in the next section.

If the ghost is behaving, figure out what you can do to make your town as competitive as possible. Get great rates and you will be a leg up on most of your competition.

If the ghost catches your town, know this. Provide easy access and a dog walking area, and being a "ghost town" could, itself, be a compelling reason to exist. People love to visit somebody else's ghost town.

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Winding Down the Town

Okay, the ghost is catching your "town." Now what?

Becoming a ghost town is wrenching. It turns the investments made by people in their homes and businesses into low-return, or even no-return investments. That often bankrupts people and businesses. Depression and other maladies can follow. In short, little good results from a town becoming a ghost town.

Becoming a ghost town is not inevitable for most. But, if your "town" loses its compelling reason to exist and local people and businesses do not want to invest what it will take to come up with a new compelling reason, "shutting down" may be in your future.

Some towns have no choice. They will become ghost towns. But they usually get to choose whether that event will be a planned and orderly crash, or a haphazard and costly one; the loss of everything, or just a downgrade.

Shutting down is no picnic. But, shutting down may not mean everything stops. Some services and functions will likely continue, at least for a while, but under new "management:"

- The town might disincorporate; if, where and in the way that is allowed; and assign responsibilities to higher levels of government – generally the county. Thus, the county might take over law enforcement, social services, road maintenance and the like.
- The county, or a nearby utility district, might take over ownership and operation of the town's water, sewer and other utility services.
- If a utility can be a profitable venture, a private company may purchase it. This also happens in viable towns. Sometimes selling is a good town management strategy. Sometimes it is not. That will be discussed in the next article.

When a town heads down the road to ghost town status, some services the town provides will cease. Folks in the town do not want to support (fund) them, other governmental entities don't either, and there is no profit to be had by a private company taking up the services.

So far, I have been discussing functions of the "town," the governmental entity. These are important, but they might only be the tip of the sustainable-place iceberg. There are lots of other things you should consider when faced with the ghost town ghost.

Business does not thrive in a ghost town. If you go to the local grocery store, gas station and take care of lots of other life and business needs locally, you will not be able to do that in a ghost town. You may find yourself driving an extra 40 miles a few times per week to satisfy your life needs. And, you may not be able to satisfy your business needs that way at all. As a result, you may find the resale value of your home will drop or even go to zero without a hometown to support it.

Business needs to be sustainable at least long enough for the investor(s) to get their investment back out in the form of profits. They really would like for the business and the town to be long-term sustainable, so when they decide to sell out, there will be willing investors to buy them out. Government and utilities, however, need to be sustainable even longer.

"Economy of scale" helps all these entities achieve their sustainability goals. Economy of scale simply means, the bigger an entity is, or the bigger a group of entities are, the cheaper it is to make things and do things. Granted, your small town may not have much economy of scale – selling bread, milk and gas are more expensive in a small town. But your personal economy of scale, when forced to drive far for everything, is not too good, either. At some price level, it is cheaper and less time consuming for you to buy local, keeping local businesses going, than it is to drive down the road a far piece.

Unless you are quite wealthy, and you are diligent about buying local, you are not going to save your town alone. Many others must buy local, too. It is not likely that everyone will spontaneously decide to buy local and save the town. You really need to get together and talk this over.

Still, if the ghost cannot be stopped, it would be better if that is a planned event than a surprise. Yet another reason to get together and talk it over. That way, people can make good decisions about where, and in what, they invest their money and time:

- A homeowner might: Build a $50,000 addition to the house? No. Plant a garden? Yes.
- A business might: Build a $500,000 plant expansion? No. Stop making long-term investments in the existing plant and "mine" the current investment? Yes.
- If the town is going to completely shut down and the need for utility service is going to cease, utilities need to make plans, too: Invest in a brand-new whiz-bang treatment plant? Avoid it. Invest in upkeep so the existing plant will be functional until it is no longer needed? Yes, if it will last that long. If it won't last, you have a real hard decision to make.
- Those in the "town" funding business, like private lenders and grant and loan agencies, must deal with sustainability, too. They must "pick winners and losers" if they are to invest well: Invest $2,000,000 in a whiz-bang treatment plant for a soon-to-be ghost town? Bad idea. Do the same in an ongoing concern town? Good investment, if everything else lines up, too.

Were these examples simplistic? Yes. To get down to the real issues and options, people in a town need to have an open, honest and informed discussion about their situation, options and probably costs and benefits of those options. That discussion will be uncomfortable, even painful for some. But, you need to do it.

To keep a town going, it takes a lot of investment by the town government and the people and businesses of the town. Work, planning, leadership and money; people will invest if they feel their town can remain sustainable. Absent that, people will pull back, making ghost town status a self-fulfilling prophesy. If your town has a compelling reason to exist and the wherewithal to exist, make that fact well known and "talk it up." People need reassurance to keep investing.

But, if survival is just not in the cards, be honest about that, too. Again, people need to make investment decisions. Help them make good ones.

One last plea. Don't pull the plug on your town unless that is the best course. Clearly, it takes a lot of work to keep a town successful. It takes a lot to wind one down well, too. If you are going to put in a lot of work anyway, why not aim at sustainability? With expert help, you probably can achieve that.

Utility service is where most of the "rubber meets the road" in the services provided by "towns" and similar places. For help managing utilities, rural water associations, power associations and others have great experts. They give lots of good, down to earth, utility management assistance and advice. Call them. And then, follow the leads they provide.

If you must wind down your town, do it on purpose and in control.

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To Sell, or Not to Sell (the Utility)

Your town, district or other unit of government, let's call it a "town," may be hitting hard times. The town needs cash, lots of it. The ABC Water Corp. just offered $10 million to buy the town's water utility. Hmm…

Or, ratepayers are digging in their heels and fighting the higher rates needed to sustainably fund the water system. They say, "government should do more with less." Hmm…

Or, ratepayers simply distrust "government" and want the utility to be sold to a private company. Hmm…

To sell or not to sell, that is the question. Whether 'tis nobler to cash out big and leave the ratepayers to twist in the wind, or suffer their slings and arrows and sorrowful lack of gratitude…

Selling the water, sewer or other utility for big bucks is tempting. Cash out big. Get rid of all the headaches. No more complaints to smile through. Never be responsible for raising a utility rate again.

Keeping utilities public has its up and downsides. Selling out has its up and downsides, too. You need to weigh one against the other to arrive at the best course for your utility, its customers and the town or district, in general.

Table 1, on the next page, lists some upsides and downsides to public ownership of utilities. Utilities, especially water and sewer, are very capital intensive. That makes Upside Number 2, very important.

In many places, Upsides 3, 4 and 5 are the most important. Small towns struggle with economy of scale – it costs more to do almost everything in a small town. Utilities require experienced and capable operators, plus heavy equipment. Those come in handy for maintaining streets, storm drains, buildings, and other things required to keep a town going. These staff know how to do things and run equipment. Sell the utilities, get rid of the operators and, sure, you rid the town of the costs and hassles of a utility. But the loss of those skilled staff and equipment may cut into your overall economy of scale so much that the higher cost of doing other things, or the inability to do other things at all, negates the savings of selling out.

Scale aside, the cost of utility operations and equipment should be self-funding through proper rate setting anyway.

Table 1: Keep Utility in Public Ownership

Upsides	Downsides
1. Can be more responsive to customers and ratepayers for service, rate setting.	1. If town is small, little economy of scale, so utility expensive to own/operate.
2. Facilities can be cheaper to build due to tax-exempt bonds, and some grants and loans only available to municipal entities.	2. Grants trending downward, reducing advantage of public ownership.
3. Town employed operator(s) are on-site, readily available to fix line leaks, etc.	3. Must deal with ever more stringent and complex regulatory/permit requirements.
4. Town-employed operators can do other tasks, too. With more employees available, town improves economy of scale and responsiveness to perform many functions.	4. Town less likely to have specialized operations/trouble shooting expertise. Must go outside for such expertise.
5. Trucks, backhoes, etc. on-site, readily available, and can be used for other town functions.	
6. If town does not want employees, it can hire contract operations firm.	
7. Town subject to open records/open meetings law so conducts business openly. Enables ratepayers to "watchdog" town.	5. Pressure from customers to keep rates down sometimes works too well, making the utility unsustainable.
8. Rate analysis, to support proper rate setting, fast and cheap if solicited right.	

I often use the notion of "marginal cost" when doing rate analyses. The notion is more complex, but an easy way to describe the notion is this. You produce one-million widgets for one-million dollars. That makes the average cost per widget one-dollar. But, it won't cost you one-dollar to produce the one-millionth and one widget.

The same thing applies to having capable utility operators and their equipment on hand. Most of the time, they work for and are paid by the utility. If you need them for a few hours to do "city" work, sure, you should pay them out of city funds. But, the cost to have them do general "city" work is on a marginal cost basis. Were it not for the utility paying them most of the time, they would not be available to the city for a simple hourly cost.

Back to the story, Table 1 also lists downsides. Downsides 3 and 4 are big and growing. Permitting and regulatory compliance are difficult and becoming more difficult every year. Environmental and public health protection requirements are not like they were decades ago when the town first got into the utility business. Yet, Downside Number 5, shows that ratepayers want to beat down the rates anyway, making it difficult for a small town to run a sustainable utility. You can do it. But you must continually fight the, "our rates are too high" battle. That can be tiring.

Table 2 is a shorter list. But, it has some heavy hitters.

Table 2: Sell Utility to Private Company

Upsides	Downsides
1. Big cash infusion to town, can be millions, available to satisfy many town needs.	1. Whatever cash town receives, ratepayers will pay back to private company, plus return on plant investment, in higher rates.
2. No more utility headaches – staffing, operations, permitting, compliance, rate setting, complaining customers, meter shutoff, etc.	2. With fewer employees available for many town functions, town loses economy of scale and is less responsive. Other functions get more expensive to perform.
	3. If utility is small, operators not likely stationed on-site.
	4. Rate setting governed by a utility commission - very bureaucratic and very expensive for company to bring rate case. Drives up rates.

Selling upside Number 1 is so big, it can blind you to everything else. Cash is hard to come by in small towns. There is a lot of it tied up in utilities. Add to that, Upside Number 2, getting rid of many headaches, and you've got a one-two combination that is hard to turn down.

The economy of scale upside to keeping the utility becomes a downside to selling the utility. Lose enough economy of scale for your other functions and you might cut into the town's sustainability. You might gain big on the sale, but down the road, lose the town.

Upsides for the town from selling are generally downsides for ratepayers. Selling for millions means that, ultimately, the ratepayers are going to pay those millions, plus a return on plant investment, back in rates to the private company. The ratepayers thought they could avoid "high" rates when the utility went private. Maybe not. Adding to the push toward higher private system rates is the cost of getting a rate (increase) case through the utility commission. In my experience, private system rate analysis costs ten to twenty times more than analysis for a public utility.

Again, economy of scale is key when selling. You need the private company to have such an economy of scale advantage that, even after earning profits from ratepayers, the rates will still be lower, and the town will not suffer a large enough economy of scale hit to eat up the advantages of privatizing.

Decisions, decisions.

If selling utilities is on your mind, you need to get some good advice. Your first call should be to your rural water association. They have been around this block before. They can help you sort through and weigh the up and downsides against each other.

The association can point you to others for advice on this very special, one-time, critical situation.

We do a lot of this work ourselves, too, either directly or indirectly as we do rate analyses. We get hired by some cities and towns to calculate the rates they really need to be sustainable, if they keep the utility, and the rates that are likely if the utility is sold. That information gives the town a clearer picture of the up and downsides they, and their ratepayers, are looking at. If they sell, they know what to expect in private rates. If they don't sell, they know where their rates should be to remain sustainable.

Consider all the facts of your situation and the best decision might almost make itself for you.

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Chapter 4 – Cheap Rates, Unfair Rates and Slow-pulling a Band-Aid

A few years ago, I read an article in the American Water Works Association magazine, written 75 years ago, about how folks back then were proud of their too-cheap rates.

They still are.

Cheap rates are bad. Not because cheap is bad. Cheap is good. But, it's not cheap to own and operate water and sewer systems. So, if you operate on the cheap, you will provide service on the cheap, and that is not good.

Economical rates are almost always doable. Most utilities are economical to own and operate, enabling you to serve customers at least adequately while not falling too far behind in taking care of the system.

"Cost-to-serve" rates recover costs from those who cause those costs to be incurred. Mathematically, at least, this is the fairest rate structure of all.

Step up to adequate and fairly-structured rates and now you can serve customers well, prepare for the future, head off problems and do it all by collecting the right amount from each customer. Let's call these, "great rates."

If you are starting from cheap rates, great rates are hard to switch to. It's usually no picnic going from economical rates to great rates, either. Folks like their cheap rates. And, truth be told, folks generally like the status quo, too. But, once you get switched over to great rates, you will not want to go back.

The only thing standing in the way of getting great rates is the "switch."

Making the switch successfully requires two things:

1. Calculating adequate and fair rates, and
2. Convincing ratepayers they want adequate and fair rates. Or, convincing them to at least accept adequate and fair rates.

These points were extensively covered in the chapter called, "Getting New Rates Accepted." But, dealing with too-cheap rates deserves some repetition.

On point number 2, you are not going to convince them all. One of the things that almost always happens when you propose to switch to great rates is this. Surprise, some customers' bills will go up. Some might go down – no problem convincing those folks. Some might stay about the same – ditto for them. But the ones who will see big increases – they come unglued.

Reveal the proposed rates and the rising-bill customer will say, "This is not fair. You're jacking my bill up but you are dropping bills for others. (Or, not increasing them as much.)" Or, maybe they will use more colorful language to describe their new rates, and you, and your family.

Here is the cold, hard truth. The customers whose bills need to go up are being subsidized right now by the customers whose bills need to go down. It's not that someone's bill is going up now. It's that their bill should have been higher all along.

The "this bill increase is not fair to me" ratepayer is operating under at least one erroneous belief:

1. The current rate structure is fair, therefore, to change it (and increase my bill) is unfair, or
2. Forget everything else, I just don't want to pay more.

Truth be told, Belief Number 2 is usually the operative thinking. You cannot change that thinking. They want what they want. However, you can inform them, "This is why too-cheap rates for you would not be fair to others."

When you change the rate structure, somebody is going to "get hurt." Great rates usually lead to some customers being happy and others being "disappointed," to say it mildly. But, the goal of fair rates is not to prevent anyone from being disappointed. Instituting, or reinstituting fairness, leads to someone being disappointed.

Therefore, you, a person who sits on the rate setting board or council must choose between making those with the currently unfairly high rates happy, or, making those with the currently too-low rates happy. That is an easy choice, when ratepayers are just theoretical. It is much tougher when those ratepayers are real people, and some are family, friends, business associates and customers of yours. Make the right call and, at least after the complaining subsides, you will feel better for it.

The switch will be hard. Grit your teeth, do it, do it quickly. "Bad" news doesn't get better when you drag it out. Gently and informationally, announce what needs to happen. Then, adjust the rates. Stand your ground when the complaints fly. In my experience doing 290-plus analyses, this is what will happen.

You will get some complaints when you propose the change. After the first bill under the new rates goes out, you will get some more. Some people are not tuned in at the discussion stage. Second billing, a few more complaints.

An aside:

Comparing your user charge rates to neighboring utilities is risky business. Their rates are probably inadequate, unfair or both.

Rule: Don't compare rates.

Exception: If your rates are the most inadequate or unfair of the bunch, comparison might help you.

Exception to the exception: Many folks are proud of having the cheapest rates around, even if that results in bad or risky service. They might dig in even more when they find out they have won the race to the bottom. They want to hang onto that prize.

My advice: figure out what it really costs, be strong, charge what it costs. For what customers get, those rates will be pretty cheap, too. Plus, the utility will be funded right.

After that, almost everyone discovers, "Hey, I'm still alive. I didn't go broke. And, I think that, tonight, the football player will get eliminated on 'Dancing With the Stars.'"

That last sentence is not meant to be cynical, it's reality. People have lives to live. Most recognize after getting over the shock that, "Wow, it really wasn't that big a deal. And, they did a thing they call 'analysis' to figure out fair rates and they gave us the information. I like that. What do you want to do for dinner tonight?"

Switching to great rates is hard, for a little while. But, within a few months you will be glad you did it. Then, your utility's "life" will get a lot better – now well-funded, it will be well-maintained; capital improvements will not be daunting, and you will be proud of the level of service you can provide your customers.

Fair rates and well-served customers – you can't beat that. Happy ending…

It would be nice if they were all neat and tidy, happy endings. It is too much for some.

Sometimes, getting to great rates is a change that some cities and districts feel like they can't do in one jump. The "rate shock" would be too great. They need to go slow. Occasionally, that really is the case.

I'm a 'pull the band-aid off fast," kind of guy. Most rate increases are small – maybe $5.00 per month for the low-volume customer. Just pull the band-aid off.

But, if you want to pull the band-aid off slow, I can do that, too. To accomplish that, you calculate the desired rates. You make your best guess at how close to those rates your ratepayers can go before it becomes overwhelming. If that is one-third of the way to the desired rates, you calculate one-third-of-the-way-there rates. The first year, you adopt those. The next year, you raise rates by another third, plus one-year's budget inflation. Do that one more time, with inflation, of course, and you are there. Then, you drop back to inflationary-style increases each year.

Now you have fair rates, arrived at with little pain, and well-served customers. Happy ending postponed, but it eventually arrived.

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Chapter 5 – Rate Analyses, Studies and Calculations, Oh My

Analysis, study, calculation: Why should you know the difference among these sets of calculations and services?

Your rates might be way out of whack – too low and unfair. That calls for a big fix – rate analysis.

Maybe your rates are fair enough for now, and you just need a little more revenue to cover next year's budget. That calls for an easy fix – a do-it-yourself rate calculation.

Maybe you need something in between – a rate study.

Rate analysis is multi-faceted.

Rate calculations are simple or limited in scope.

Rate studies fall in between.

To get the results you need, the calculations and analysis you get need to match up to your situation. Complexity of the calculations and analysis will determine who should do whatever gets done, how much it will cost, if anything, and likely, how much extra revenue those adjusted rates will generate.

Let's start at the high-end of calculation complexity – rate analysis.

Rate Analysis

Rate analysis is a comprehensive set of calculations, a "model," that virtually depicts the real financial life of the utility. The goal is to determine the rates and fees needed to fund that utility properly. A nice secondary goal is to fund the utility using fairly structured rates.

Rate analysis considers and tabulates volume usage, current rates, incomes, expenses and balances. It also projects several things well into the future: operating expenses for five to ten years, capital improvement expenses for five to ten years, and equipment repair and replacement expenses for, usually, 20 years. There may also be some wildcards to deal with: lawsuits, wholesale supply agreements, non-rate or fee revenues and other special issues. Using such data and information, analysis projects financial needs five to ten years into the future. This data and some calculations define the revenue need side of the equation.

A set of assumptions, data and calculations is often called a "model." In that context, model is a noun, a name for something.

To "model" (a verb) rates is the action of putting together those assumptions and data and running the calculations.

The English language can be confusing.

Costs are then classified to determine the desired rate structure, preferably a "cost-to-serve" structure, but it could be another structure.

Rates are then calculated in the desired structure that will be high enough to satisfy the revenue need with a combination of initial rate adjustments and future adjustments. Future adjustments will most likely in an across-the-board format so future increases should be a "do-it-yourself" affair.

While an analyst could create a model that defines all this, print the model out and give or e-mail it to you, I think more is needed. Because such models are complex, I think the analyst should list and summarize their important assumptions, analysis findings and recommendations in a narrative report, too. That way, you need not be a spreadsheet guru to discover and interpret what you need to do. The narrative report will tell you.

One more step is also desirable to flesh out the analysis process. That is, the analyst should visit the rate setting board or council to present their findings, recommendations and answer questions. This is complex stuff to try to read and interpret. It helps rate setters to hear it explained, in person, hopefully in fairly plain language. It also should bring home the point: rate adjustments really need to happen. This not just a "good to do" thing or an interesting thing to think about. Sometimes boards and councils need encouragement to "bite the bullet" and just do it. The analyst should give the rate setters encouragement to just do it.

That description is long and a bit complex. Analysis is long and complex.

Rate analysis is time consuming and complex, it is not free, and few people know how to do it. Fortunately, you don't need rate analysis very often. So, when do you need rate analysis? Likely you need it when two or more of the following issues are in play:

1. Your system has over 200 connections, especially those over 1,000 connections.
2. You are going to do a big capital improvement soon. This is the most common trigger for rate analysis. But, the same could be said for rate studies, too.
3. Your rate structure is out of whack, meaning, unfair. You might have some sense that is the case. But, you can't really know until you do analysis. Hint: If you are getting lots of complaints about fairness and you can't "prove," with the math, that they are wrong, and certainly if you are getting sued over rates, the complainers may be on to something.
4. You have many commercial customers, any special agreement customers, quite a few larger meter customers, one very large meter customer, or three different customer meter sizes.
5. You have a high usage allowance, such as 5,000 gallons per month.
6. Your growth rate is either fast or negative (losing customers).
7. You have low reserves, no reserves, or reserves have been on a downward slide lately.
8. You haven't had a comprehensive rate analysis done in the past five years.

How many of these issues are in play for your utility? Two? Five?

Above, I said you need analysis if at least two issues in the list are in play. I will soften that just a bit.

If your water utility only has 200 customers, they are all residential and those homes are uniform in age, size and lot size, customer use will be at least somewhat uniform. The more uniform customer use is, the less important rate structure is. When structure is not important, the overall level of rates is key. You need to keep rates high enough to pay all costs and retain strong reserves.

As I think of it, "great rates," and rate analysis to get them, are not that important when rate structure is not that important. In that case, you don't need analysis. You just need to do a simple calculation. If you need X percent more revenue next year to pay for your budgeted expenses, you increase the major rates and fees by X percent.

The problem with that simple solution in what seems like a simple situation is this. Use really does vary a lot, even in what looks like a homogenous community.

Use and other complications multiply as systems get larger. At 2,000 customers, you just will have more volume use outliers; lots of zero to 1,000 gallon per month customers and a few 50,000 gallon plus users. You might even have one that uses one-million gallons. You will also have a wider variety of meter sizes and capital improvements will be needed more frequently and cost more. When use and other issues are this complicated, rate structure matters a lot.

When you have 10,000 customers – case closed. You need analysis about every five years.

There are no hard, fast rules that say, "Rate analysis is this, rate studies are that and rate calculations are the other." Thus, when you examine your rates, decide what you want to accomplish. If it will take rate analysis to do that, get a rate analysis. If a small increase to already fair rates is in order, do-it-yourself is the way to go.

Why is this important? You want to achieve your goal – adequate and fair rates. To do that, you need to employ the right tools. And, you don't want to pay for analysis if you will only get simple calculations. You can and should do those yourself.

Thus, size (and things that are often related to size) matters.

Size of the utility and size or number of the issues in play make all the difference. Rate analysis will show you how to make rates adequate and the structure fair. I call those, "great rates." If you are not so worried about fairness, the analysis can model another structure you prefer.

How to get a rate analysis is discussed in Chapter 7. If you think you might need rate analysis, you should read that chapter.

There is good news on the rate analysis front. Even those utilities that need "great rates," don't need them all the time. Good enough rates are good enough, during most years. Rate calculations can get you those rates, so let's cover the low end of the scale – rate calculations – next.

Rate Calculation

Rate calculations can take different forms. The safest and simplest rate calculation, the one that EVERY utility should do during most years, is the annual across-the-board inflationary increase. I stress, annual. Do this every year at budget preparation time. If next year's budget is going up by three percent, increase all important rates and fees by three percent.

Calculations might, however, be complex but confined in scope. An example on the high-end are system development fees and system development surcharges, covered in Chapter 8. Because these calculations lead to a set of rates that will generate revenue, revenue that will not need to come from regular user charge fees, these calculations are best done by a rate analyst as a part of a comprehensive analysis. But, if you wanted to, you could calculate and set such rates separate from all others.

One set of calculations that some do on their own, but they shouldn't, is this. A nearby city or district needs more water. It asks you to contract to sell water to them at X percent of your "regular" rates. Don't do it!

Without analysis, you don't know if the price is too high or too low. And because such agreements cover almost forever, basing that set of rates on another set of rates will end up, in the future, charging rates that are too high or too low compared to the cost of providing that water, in the future. Eventually, the shorted party is going to figure out they are getting "ripped off," as they would see it, and the relationship will sour. Eventually, somebody "lawyers-up" and you both go into a very regrettable tailspin.

Instead, wholesale rates should be based on the marginal cost to supply that water, plus an agreed-upon profit percentage. That way, the seller recovers all unavoidable costs of such sales and makes a profit that both parties consider to be fair. And, the buyer almost always purchases water at a rate below the average cost to produce. Both parties stay happy. Calculating marginal cost, at least periodically, requires rate analysis. But, the seller needs to do that for their inside rates anyway, so they roll the marginal cost calculation into that service.

There is more to wholesale pricing and your analyst can guide you on all of it.

Rate calculations can include many things, but one thing they probably would not include is cost classification calculations. Cost classification is the process of separating "fixed costs" and "variable costs" from each other, and perhaps from a few other types of costs. Classification is done to determine cost-to-serve rates, and that verges on rate analysis or rate studies.

Rate analysis is high-end, rate calculations are low-end. That leaves ground in between for rate studies.

Rate Study

The American Water Works Association (AWWA) has a rather robust description of "rate studies" that verges on my definition of rate analysis. The AWWA description includes cost classification and development of the base minimum charge and average unit charge. A true rate study should include at least that much.

In practice, many things that are called, "rate studies" fall short of the AWWA description. Thus, for all practical purposes, what is in a rate study can vary a lot. That is why, when you solicit a rate "study," you need to verify what each analyst is going to supply. Just saying "study" does not guarantee you will get what you think you will get.

A rate study is commonly done by an engineer. That is most commonly done when that engineer is designing a new treatment plant or other expensive capital improvement. In that situation, the engineer needs to tell their client the financial effect the new infrastructure will have on the system's finances and rates. Sometimes that study tells the client, "To pay for this thing, the average bill for each customer will need to go up by YY dollars per month." Or, the study might determine, based on cost classification, that the average minimum charge needs to be YY dollars per month, and the average unit charge needs to be Z dollars per 1,000 gallons.

The description I just gave is simplistic. It is not meant to be dismissive of what such a rate study does. Often, the rate effect of an engineered improvement is required by grant and loan agencies and the lending market. Funders want to know how much more must a customer pay to fund this thing? Or, they may want to know how high the rates will need to be to fund this thing, plus, fund the entire utility service, too. Thus, funders want to ascertain from a study or analysis of the engineer, or sometimes from a third-party analyst, "Will these rates be 'affordable?' Can this town or district comfortably repay our loan? Is this town or district grant-worthy? And, for how much grant?"

Engineers are great at solving problems and answering questions. They are presented with a problem, they design the fix, they calculate the cost, and they calculate how that cost will affect ratepayers, if and as directed by the funder of the project. They would do more, if asked to. But, seldom are they asked to.

Conclusion

Descriptions of the three classes of rate calculations lead to this.

If you need rate analysis, buy a rate analysis from someone that you have verified does rate analysis. Most likely, that person will go by the title, "rate analyst" and their only service is doing rate analysis. But, some engineers, financial advisors and others do rate analysis, at least part-time, too. The key: verify that rate analysis is what a service provider does before hiring them to do a rate analysis.

If you need a rate study, buy a rate study done by someone who, you have verified, does "rate studies" that will satisfy your needs.

A few years ago, I was asked by a small town to review a "rate study" the town bought, to see if the recommended adjustments were reasonable. They sent me a copy of a short letter from the person who did the study. The letter included one main statement, like this:

- If you increase rates by five percent, revenues will rise by $100,000.
- If you increase rates by ten percent, revenues will rise by $200,000.

Someone should be ashamed of themselves for taking money to come up with a "study" like that!

Now, if you need an inflationary, across-the-board rate increase, the most common rate calculation, don't spend a dime for that. You should do that yourself. If you are preparing a budget, you have already figured out how much higher that budget needs to be compared to the current year's costs. Just increase all rates and fees to match.

Your rates need some sort of adjustment this coming year, maybe even right now. Consider what you are up against and the result you want to achieve. Then, choose the right kind of calculation or analysis to get the job done right.

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Chapter 6 – The Results of Rate Analysis

Author's Note: An article similar to this was published in several states where there is a RATES Program. If you live in one of those states, good for you. If you don't, results much like those reported here are still available for you. The main difference is this. You won't get the 25 percent discount on fees the Program gives. Thus, instead of getting an average return on investment of, say, 36,000 percent, you may "only" get 27,000 percent. I would hope that a return on investment of only 27,000 percent, or even just 10,000 percent, would still be a nice return for you to make for your utility.

Utilities need adequate and fair rates. Easy to say. Hard to do.

"Back in the day" when utility service was cheap, rates were… cheap. Being cheap, rate structure fairness was no big deal. Surprise: it's 2018. Rate structure now matters.

Like many, I am a proponent of cost-of-service rates. Even if you do not adopt cost-to-serve rates, you should determine what such rates would be, so you will at least know what you are giving up when you adopt different rates.

To that end, if you want to learn how to do cost-of-service rate "studies," your starting place needs to be a visit to the American Water Works Association's store https://www.awwa.org/store to order the manual, "M1 Principles of Water Rates, Fees and Charges." Spoiler alert: tough reading ahead. And, it will take you a few years of application to get really good at rate analysis. I'm 25 years into it now, and I'm still learning.

You say you don't want to be a utility rate analyst? But, you still want to get that job done right, for a reasonable fee? Then, read this chapter and Chapter 7. They will show you what to expect from analysis and help you solicit and select the right analyst. There are few ways to do this right but lots of ways to do it wrong.

If your utility happens to be located in one of the RATES Program states (visit https://gettinggreatrates.com/ and click your state link to learn more), you can avoid doing rate analysis, knowing anything about rate analysis or knowing anything about how to solicit rate analysis. That is, IF you trust your rural water association to look out for you. (Disclosure: I have partnered with those associations to do rate analyses, under their supervision, at a 25 percent discount off my regular fees.) The associations make sure I serve their member systems well – it's very bad PR if they hang you out to dry. I give these associations a no-recourse guarantee. They can fire me at any time for any reason, or no reason. Thus, they keep me on only because I serve their members well and reflect well on the association.

I beat the cost-of-service drum loudly. But I think each system should have appropriately simple or complex rates. Sometimes, simple trumps mathematically fair. Your rate analyst can gather data, do the math and advise you, but the simple or complex decision belongs to you.

For those of you not in one of these states, don't worry about it. You won't get the discount or supervision by the association, but I treat everybody the same way, anyhow. I do it because it's the right thing to do, and because that way, I only have one set of morality principles to remember.

Drilling down a bit, in 2012, the Kansas and Wyoming associations were the first to initiate RATES Programs. Those associations have long stressed good rate setting, so the lion's share of clients have come from those states.

North Dakota, New Mexico and Virginia came along in 2013. Virginia and New Mexico have a few participants. In North Dakota, the association's executive director handles all rate analyses himself, but we are there to backstop him.

In early 2017, Colorado became the most recent association to join in. As of this writing, we have nearly finished one analysis and are starting a second in Colorado, so there are no results to report quite yet.

With that as background, here are the Program results so far. Remember, if you are not in one of these states, your return on investment results will not be quite this good, but they will still be pretty hard to believe.

Table 1, shows some of the over-arching results. For example, recommended rate increases over the first five years averaged more than $2 million for each utility. (A couple of larger cities and utilities pushed up the average revenue increases, but the average fee is up because of them, too.) If all utilities did as we recommended; granted, not all will; on average, the utilities would recover our fees in the first 5.2 days after collecting at the new rates.

RATES
Rate Analysis and Training for Environmental Systems
"RATES" is a joint effort of rural water associations and GettingGreatRates.com. To learn more about the program and see detailed results by client, visit https://gettinggreatrates.com/ and click on a state link.

Table 1: Over-arching Results of RATES Programs

$109,067,878	Projected 5-year Revenue Increase, All Utilities Combined
$2,225,875	Average Revenue Increase per Utilitity Analyzed
$6,123	Average Fee per Utility Analyzed
1.7	Average Number of Utilities Analyzed for Each Client
$10,715	Average Fee per Client (Mainly Cities) for All Utilities Analyzed
36,353%	Average Five-year Return on Rate Analysis Fee Investment
5.2	Average Days to Payback of the Analyst's Fees

Think of that return rate this way. You set the new rates to become effective on Wednesday, January 1. By the morning coffee break on Monday, January 6, the new rates have earned enough extra revenue to pay us. After that, you pocket the extra earnings for almost five more years. "Pocket the extra earnings" is flamboyant-speak for, "You now can build up reserves, pay for a big capital improvement, take care of other big-dollar needs and fund markedly better service with the extra revenues the new rates will generate."

Generally, smaller systems need smaller rate increases, on a dollar basis. They may be small dollars, but to those systems, they are very important dollars. Thus, their returns generally run lower than the average, but most are still in the range of thousands of percent to tens of thousands of percent return on investment. Maybe they can't pay us with 5.2 days' worth of extra revenues. They may need to go a couple of weeks to get us paid.

The net revenue increases for all these utilities, projected at $109 million, will buy a lot of system improvement, service improvement and other important things.

The fee per rate analysis of the average utility worked out to $6,123. Clients averaged 1.7 utilities analyzed (usually water and sewer), so the fee for that combination, plus a visit to present results and recommendations for most clients, ran the total fee to $10,715.

The five-year average return on investment rate is 36,353 percent. It is hard to picture what that means. Try this.

GGR Fees

With one common exception, we assess fees on a lump-sum basis. Going in, clients know exactly what their project will cost.

The exception? When attorneys are involved (rates lawsuits), we charge by the hour. Early on, we did a couple of those on a lump-sum basis. Never again!

Table 2: Returns by Utility Type

		Revenue Increase	
Utility	Number	Total	Average
Water	24	$40,059,063	$1,669,128
Sewer	19	$49,447,795	$2,602,516
Electric	3	$13,307,281	$4,435,760
Trash	3	$6,253,739	$2,084,580

Let's say you bought a top-notch mutual fund. It grows by 20 percent per year for five years. Thus, it would grow by a bit more than 100 percent over five years, doubling in value. That same fund would need to grow 363 times faster than that to match the returns our clients have been averaging. So there, Wall Street!

This all sounds like bragging. It is not. Other good rate analysts, with utility funding goals as conservative as mine, can give you similar results.

Table 2, reveals some interesting things. Electric utilities needed the greatest rate revenue increases, in dollars. Electric is often considered the "cash cow" of utilities, but (the few we analyzed) were significantly underfunded.

Water rates needed to go up the least, averaging $334,000 per year. That is interesting because we hear a lot about how water rates are too low. At least for this group of utilities, water was better funded than all the other utilities. Still, a third of one-million-dollars per year is a lot to be short.

Table 3, shows that we analyzed 49 utilities but only had 29 clients. That's where the 1.7 analyses per client comes from. Plus, eight of these clients (so far) invited us back for the next round of rate analyses. Rate analysis and initial rate adjustments are not a once-and-done activity. You must analyze rates periodically and get back to "great rates," if you don't want to fall back into the under-funded and unfair rates camp.

Table 3: Basic RATES Program Client Data

2,839	Average Connections or Customers of Each Client
49	Utilities Analyzed
29	Clients (Cities, Districts)
8	Repeat Clients
6	Analyses Where a Return on Investment (lawsuits, rate disputes, etc.) Calculation is Not Relevant
4	Analyses Underway Now

There are two big picture results to take away from this discussion:

1. Analysis yields improved rate structure fairness – this result does not show up in a return on investment calculation. But, it produces goodwill. Every utility needs goodwill to be successful.
2. Increased revenues – $2 million per utility in this group of utilities. If your utility is "smaller" than these, your extra revenues will probably be lower. But whatever amount each client needed, we designed rates to get it for them. That extra revenue buys a lot of good service and that buys goodwill, too – a double-dip.

Your utility probably needs more revenue right now. Your ratepayers deserve fairly-structured rates. Rate analysis will set you on the course to get both.

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Chapter 7 – How to Successfully Solicit Rate Analysis

Author's Note: I am a utility rate analyst. In one respect, it is self-serving to tell you how to solicit rate analysis services. In another, I am telling you some little-known facts about how to get this done well. I think you would do well to consider this approach.

When you "solicit" to buy a utility rate analysis, engineering for a bridge, a tractor or toilet paper, you are seeking the best result, the cheapest to purchase result, or some compromise of the two. That is "Solicitation 101." But, you need more.

Utility rate analysis is a service that, even the largest, most active utilities use only infrequently. Others use rate analysis even less. Most of the people responsible for soliciting rate analysis have never done it before. So, I ask you, rate analysis solicitor newbie, how are you going to do this right, first time, no practice?

Most people fall back on the engineering request for qualifications or request for proposals. Let's call those an "RFPQ."

Engineering and rate analysis are different. You should acquire these services differently, even if you still hire an engineer to do rate analysis.

When used for rate analysis or rate studies, the engineering RFPQ is usually a 15 to 20-page long document that requires timetables and milestones, a detailed description of how the project will be done, resumes, insurance coverage, deliverables, and more. Responses are often 100+ pages, before giving any rate study report examples.

In the standard RFPQ, you state that you won't pay anyone for submitting a response. That is all well and good, but you will. Here's why.

Every successful consultant of every stripe keeps track of their solicitation response success rate. They also keep track of the time it takes to write those responses. If, on average, a certain consultant gets one project out of every five responses he submits, and it takes 40 hours to write each response, he has invested 200 hours for each winning response. To keep the math simple, let's say this consultant calculates his productive work-time at $100 per hour. That means, this consultant has $20,000 in each successful response, meaning he needs to earn that much, before doing any analysis work, just to break even.

That description comes close to describing my situation. That is why I rarely respond to RFPQs in the engineering format – I can't win frequently enough to do analyses for about $7,000 per utility.

Back to the engineering RFPQ, it is fine to build $20,000 worth of project acquisition cost into a $500,000 engineering project. With engineering, the stakes are high on many fronts. But, you can't build $20,000 worth of cost into a $7,000 rate analysis project. As an analyst, I can tell you, that math does not work.

This may be painful for you to read, but here comes the truth. For rate analysis, you need to simplify. Work less on your RFPQ. In fact, to get the best solicitation results, do almost no RFPQ preparation work. Instead, spend almost all your effort finding actual rate analysts and soliciting them. Here's how it should go.

As Stephen Covey, the management and self-improvement guru advised, "Start with the end in mind." Decide what you want to end up with and write it down in a statement. I recommend this,

"We want to have rates that are appropriately simple or complex, adequate and fair."

Note to my engineer friends: Don't get mad. If you are a good rate analyst, you can get rate analysis projects through this simpler solicitation process, too. And, you will like not spending a week to write a doctoral thesis-like response in hopes of getting a $7,000 rate analysis project.

Your end-goal might be different, but whatever it is, write it down. Tell it to your prospective analyst(s) or give it to them in a short solicitation. Before you take that step, call the rural water association. Ask, "Who is a rate analyst?" And, "Who do you recommend?" They may balk on the second question; they can't play favorites. But, listen closely, they don't want you to mess up.

Now that you know who to solicit, consider the following before you write up a big RFPQ.

Rate analysts know rate analysis. You don't need to tell us how to do it. Just tell us your goal, you know, that statement three paragraphs ago, and we will tell you how we plan to get you there.

Thus, at its simplest, you should call and tell me, or us:

1. Your goal, and
2. Response requirements:
    - Deadline,
    - Who to send it to,
    - How to send it (e-mail is best),
    - How the fees should be structured (lump-sum is to your advantage, hourly usually is not),
    - State that professional liability insurance is required (Ask, what do you have?),
    - State that a guarantee is required (Ask, what is yours?),
    - State who to contact with questions, and maybe a bit more.

Yes, you need documented proof that you did your due diligence. That is one reason you feel the need to specify every detail in the RFPQ.

Fight that urge. Do your due diligence by carefully considering responses to a simpler solicitation and checking up on the best, or the several best, responders. That is productive due diligence.

Three pages long – tops.

The thing is, if you miss asking for something, we're going to catch it and cover it in our standard solicitation response anyway.

What do you accomplish by keeping the solicitation short and sweet?

- You reduce your conceptualizing and writing work. There is no need for you to know how rate analysis is done. Just state your goal and the response requirements.
- You reduce what you will pay for analysis. The more your write and specify, the more you force responders to tailor our words to your words, our organization to your organization. That takes lots of time, running up our costs, which runs up your costs. The more time we spend proposing, the higher we must push our fees to recover those costs.
    - By the way, when you solicit using a long, detailed, overbearing RFPQ, you tell potential responders, "This town or district is very bureaucratic and is going to micro-manage my work." That tells us, add more time (fee) to the project to cover that extra bureaucracy.
- You reduce the chances you will mess up.

The simple solicitation response for me averages four hours: a scoping call with you, calculate fees, write up the proposal, e-mail it, and include some sample reports.

When solicited in this way, I get one out of two projects on which I propose. Thus, I have eight hours of unpaid time to build into project fees. That's cheap project acquisition.

- You reduce the chances of picking a non-rate analyst or an aspiring rate analyst. That would be a big mess up. (Yes, we need more and new rate analysts, but let them get training and do their trial and error learning on someone else's dime.) When you give no guidance on what to do and how, responders must figure those things out. Experienced rate analysts do that all the time. Others don't. Everyone's response to your solicitation will be telling.

You have your solicitation written, now what?

1. Don't mail or e-mail it out to the world! That invites unnecessary responses for you to sift through. That increases your chances of… that's right… messing up. Instead,
2. Don't mail the solicitation at all. Call the one or few analysts identified by the association. Tell the analyst your goal and the response requirements you wrote up, then let them take it from there. Each of us will gather the information we need to figure out what you need, so we can propose the right services, for fees each of us needs to be an on-going concern.
3. Consider responses and options. A logical read of the proposal(s), something you need no training in rate analysis to do, should reveal "your" analyst. Also recall, you talked to these folks on the phone. Those conversations should have given you a very good idea who is the best candidate for your project. The written response should just serve to formalize it.
    - And, if they give you a guarantee something like ours, "You will be satisfied, or you don't have to pay us," you know that they really intend to satisfy you, and probably will. Worst-case scenario, they work for a while, you are dissatisfied, you fire them and don't pay them, you lose a little time, then you get a rate analyst who will satisfy you.
    - Keep it in perspective. This is not engineering where there is the risk an engineer could design a faulty bridge, it falls down, someone gets killed. Life, death and public safety, that is why we must be so fastidious when selecting engineers. In rate analysis, nobody dies. It's just about getting high-quality rates. A logically minded person can choose an analyst who can deliver that. And, if you have the out – the guarantee – you get a do-over if you need it.
4. Decide, and move forward. Well, first, run that decision by the association. They likely know something you don't. And, they don't want you to mess up.

That describes the low-work, low-bureaucracy approach. Short of having an analyst who was vetted by an organization like the association, it is the most effective approach, too.

If you absolutely, positively must have more process than that, visit https://gettinggreatrates.com/freebies/rag.pdf and download the "Rate Analyst Guide." This guide will lead you through the solicitation process in several variations. It also has a link to a two-page solicitation template in Microsoft Word. Plug in your details and your RFP is written.

Utilities rarely solicit for rate analysis. Many have never done it. When they solicit, they often do it ineffectively. Don't be one of those.

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Chapter 8 – System Development Fees and Surcharges

Author's Note: System development fees and capacity surcharges are complex. They are not needed in some utilities. When they are needed, their calculation should be part of a comprehensive rate analysis. However, they could be calculated separately, as well. Such fees are covered here so you can figure out if you need these or not, get an idea of what they are, what they do and how they are calculated.

Why assess system development fees? Because it costs money to build capacity to serve new customers. You obligate capacity every time you connect a new user. Once you have obligated all the available capacity, you're done. No more new connections.

If you don't assess the cost of capacity to new connections, the cost gets passed on to existing customers in some other rate or fee. Usually, that is not fair. Consider this analogy:

You buy a car and finance it through your bank. You decide you don't need to drive the car next month, so you don't send next month's payment to the bank. Next month arrives and the banker calls, "Where's our payment?" You say, "I'm not driving the car this month, so I'm skipping this month's payment." The banker says, "When you bought the car, you didn't buy miles, you bought the opportunity to drive miles. The bank finances opportunity, not outcomes. The repo truck will be over in two hours. Remove your personal belongings before then."

Water and sewer service are the utility types discussed in this article. Why? They are just about everywhere there is a concentration of people. Thus, meter size can be the key to fair rates in water and sewer.

But, SDFs and minimum charge surcharges should be applied, with some tweaking, to electric, trash collection and other services, too. Brevity demands that we limit the media covered here but the principles are the same for other services.

When you connect a new customer, you create an opportunity to get service. Opportunity has its costs. Because it is hard to repossess utility capacity, it is best to be paid for it up front.

Why assess capacity surcharges? Because almost never can you collect all system development costs from new customers up front and still have competitive connection fees. Charge "too much" for capacity and development goes elsewhere.

This article examines system development fees and minimum charge surcharges, later just called, "SDFs" and "surcharges." In particular, it describes meter size-based SDFs and surcharges. Granted, you really don't want to deal with SDFs and surcharges. But, in the utility business, rates happen.

Does your community need SDFs and surcharges? If your system has more than 500 connections, or at least three different meter sizes, or any four-inch or larger meters, or it might be asked to serve such meters, it probably does. As communities grow and diversify, generally, their rates should be tailored to the customer base (become more complex), including meter size-based SDFs and surcharges.

How a community sets SDFs sends a message. "We believe everyone should pay their fair-share." Or, "Cheap fees! Cheap fees! Please build here." Or, "We want to keep out the riff-raff."

The cost-of-service notion is simple – figure out who causes how much of the system's cost and assess fees to each customer accordingly.

Those statements are simplistic and crass, but you get it. Where and how you set SDFs sends messages. Be sure that the message people receive is the message you wanted them to receive.

Back to the cost-of-service rates notion, it is this. Figure out who causes how much of the system's cost and assess fees to each customer accordingly. The notion is simple and intuitive. Making such rates happen is another thing.

SDFs and surcharges are cousins; two parts of an overall rates program. SDFs recover capacity costs "up front," at the time of connection, based on the cost of infrastructure needed to serve each new connection. SDFs are very good for recovering peak flow capacity costs.

Up front is the best time to get paid for capacity costs. Why? If a plant wants to move to town and will need an eight-inch meter, and that will require you to upsize a lot of infrastructure to serve the plant, it is best to get as much of that extra cost up front as you can. You could assess the plant surcharges instead. But, if the plant goes belly up after five years, everyone else will be left holding the capacity cost bag.

Table 11 - Capacity Costs

This table shows capacity costs to expect. From these costs, system development fees were developed in Table 12.

Peak and Base Flow Capacity Costs

Fixed Assets Original Value (Capacity Cost)	% of Value Attributable to Peak Flow Capacity	Peak Flow Capacity Cost	Annual Peak Flow Capacity Cost (40-year Depreciation)
$6,906,856	50.0%	$3,453,428	$201,259

	% of Value Attributable to Base Flow Capacity	Base Flow Capacity Cost	Annual Base Flow Capacity Cost (40-year Depreciation)
	50.0%	$3,453,428	$201,259

How Capacity Costs Will Be Recovered

These costs are modeled to be recovered from system development fees in Table 12

Peak Flow Capacity Costs to be Recovered by System Development Fees

6.5%	Target Percentage of Costs to Recover
$13,001	Target Portion of Costs to Recover
$1,350	Resulting Peak Capacity Cost per Share

Base Flow Capacity Costs to be Recovered by System Development Fees

0.0%	Target Percentage of Costs to Recover
$0	Target Portion of Costs to Recover
$0	Resulting Base Capacity Cost per Share

In addition to calculation of the capacity cost for each new connection based on the unit cost above, the system development fee for each new connection should also include recovery of the following costs:

$100	Average Field Cost per New Connection
$50	Average Administration Cost per New Connection
$150	Sum of Admin and Field Costs (Fixed Costs to Make New Connections)

Then again, price new connections too high and development goes down the road. You need new customers to improve your economy of scale. Decisions, decisions.

Surcharges recover capacity costs on the "easy payment plan." You can recover peak flow or base flow capacity costs, or both, with surcharges.

Did you catch that? Capacity costs come in two main flavors: peak and base flow. Fees to recover peak flow costs should be based on meter size. Base flow costs are the same for all customers regardless of meter size, so you can classify those as "fixed" costs and they will be recovered in everyone's minimum charge at the same level.

One way to calculate very fair and reasonably simple peak flow SDFs and surcharges is to base them on meter size, but you figured that out already.

Meter size-based rates are clear cut. Other methods can be quite subjective. In rate setting, you want things to be clear cut every chance you get. You want to say to a disgruntled ratepayer, "The math clearly says this is fair so we're going to do what is fair." Once you stake the high ground, they are forced to argue for the low ground. Have that discussion openly, in front of everyone, and your other ratepayers are going to argue for the high ground rates. Plus, they will appreciate your being fair and open with them. Kill two birds with one stone.

The following generalities should give you an idea of which fees to use, when:

- If your community has stopped, or nearly stopped growing, meaning, no new connections are being made, SDFs become a moot point. Just set them low and pretty flat to avoid discouraging growth.
- Surcharges can be used in concert with SDFs, each recovering part of the cost of building and rebuilding infrastructure. Or, surcharges can be used alone.
- As communities mature, their infrastructure needs transition from mostly building new "stuff" to mostly replacing or upgrading existing stuff. SDFs match up with costs for building new stuff quite well. Surcharges are on-going, so they match up with replacing existing stuff quite well. Only new connections pay SDFs. But, all customers pay surcharges.

With the important concepts covered, here comes some of the math, albeit, simplified for brevity and to reduce confusion. Tables used to illustrate the math come straight out of a recent rate analysis model and report to a water district. Thus, table numbering starts at 11. Tables have been truncated to fit the length and format of this page.

System Development Fee Calculations

SDF calculations aim at recovering part of the capacity costs. Surcharges aim at the remainder. The calculations for surcharges are the same as SDF calculations, with a little tweaking. That will be described later. Let's start by looking at SDF calculations.

1. Establish the Cost Basis

You need to establish the cost to be recovered, as shown in the previous Table 11.

In this case, the original value of the assets, which comes out of the balance sheet, was used as the cost basis. This value was broken into peak flow and base flow capacity costs, each to be recovered appropriately.

An alternative to original value could be debt for a new system or major upgrade.

The next thing you need is the "share" value of each meter size, so you know how to divvy up peak flow capacity costs.

2. Establish "Share" Values

The American Water Works Association (AWWA) has done studies of the sustainable peak flow capacity of different meter sizes and types. From those flow capacities, you can calculate the capacity "share" of each meter size. That has been done in Table 11B.

As shown in that table, in the right-most column, a five-eighths inch meter is the starting place for assigning share values. That meter size gets one share. A three-inch meter gets 16 shares (320 divided by 20). That means, a three-inch meter customer will pay for 16 shares of peak flow capacity costs, which is calculated in Table 13, that follows.

Table 11B - Safe Operating Capacities by Meter Size

Data source: Table VII.2-5, page 338, AWWA Manual M1 Principles of Water Rates, Fees and Charges, Seventh Edition

This table calculates the meter equivalent ratio, which is used for calculating peak flow capacity-based system development fees and system development surcharges in Table 12.

Meter Size, in Inches	Meter Type	Maximum-Rated Safe Operating Flow, in Gallons per Minute	Meter Equivalent Ratio (Capacity Shares)
5/8	Displacement	20	1.0
3/4	Displacement	30	1.5
1	Displacement	50	2.5
1.5	Displacement	100	5.0
2	Displacement	160	8.0
3	Singlet	320	16.0

3. Calculate SDF Rates and Revenues to be Generated

Table 13 that follows performs the calculations. Highlights:

- Second column – the utility expects to hook up an average of nine new customers annually and expects meter sizes to be in the same proportions as the current customer base. Thus, in an average year, there will only be 0.0031 new three-inch meters hooked up. (Out of 2,918 meters on-line now, only one is a three-inch meter.)
- Third column – the nine new customers will have total capacity shares of 9.6295. As you can see, almost all new connections are expected to be served by three-quarter inch meters. This is a capacity to meter count ratio of 1.07 to 1.0 – almost a one-to-one ratio.
    - A system with a high number of large meters, or a rapid growth rate in large meter connections, can have a capacity to meter count ratio of 1.5 to 1.0, or even higher. When the ratio is that high, meter size-based rates become critical for recovering costs fairly.
- Sixth column – the total SDF for a three-inch meter is just shy of 16 times greater than that of a five-eighths inch meter. Why? Granted, the peak capacity cost is 16 times greater than the five-eighths inch meter, but there are other costs besides peak costs. All customers are assessed $150 for base and connection costs (connection costs only, in this situation). These flat costs skew the ratio just a bit.

- Last column – the three-quarter inch meter customers' fees are the lowest, but they will generate the lion's share of SDF revenues. That is because almost all new connections will be three-quarter inch meters.
    - Note: I recommended, and this district opted to assess the same fees to 5/8 and 3/4-inch meters because there is little capacity or cost difference between these sizes and both are commonly used for single family and small business connections. That markedly simplifies the SDF and surcharge fees program. Remember, sometimes simple trumps mathematically correct.
- Again, last column – The $15,701 in total annual SDF revenues is only a small part of the true cost of capacity from Table 11. But, this district plans to boost SDFs over the years to make them more adequate. Before you can finish the race, you must start.

Table 13 - System Development Fees Based on Meter Size

This table calculates system development fees to charge each meter size. Based on growth during the "Analysis Year," it also calculates total fee revenues that would be generated during one full year at these fees.

Meter Size, in Inches	Mix of New Taps in a Typical Year	Projected Annual Growth in Capacity Shares	Peak System Development Fee, Each Meter Size	Base Capacity Cost to Recover With Each New Connection	System Development Fee for Each Meter Size	Grand Total System Development Fees for One Full Year
5/8	0.0000	0.0000	$1,350	$150	$1,500	$0
3/4	8.9211	8.9211	$1,350	$150	$1,500	$14,721
1	0.0123	0.0308	$3,375	$150	$3,525	$45
1.5	0.0031	0.0154	$6,751	$150	$6,901	$22
2	0.0573	0.4586	$10,801	$150	$10,951	$636
3	0.0031	0.0494	$21,603	$150	$21,753	$68
Totals	9.0000	9.6295				$15,701

This is the amount used to calculate the "Meter Size-based System Development Fees" income in Table 3 (the projected incomes table of the analysis model).

Note: In the three columns in Table 13 that have sums, if you added the values above them you would not get those amounts. That is because, many rows and columns of the original table have been hidden to get the table onto this page.

Table 14 - Capacity Surcharges Based on Meter Size

This table depicts minimum charges that are commensurate with the potential of each customer, based on their connection or meter size, to place flow demands on the system.

Meter Size, in Inches	Current Number Meters This Size	Total Capacity Shares Each Meter Size Group	Annual Capacity Cost per Share, From Table 11	Capacity Cost per Meter per Month	Base Minimum Charge	Total Surcharged Minimum per Month	Total Annual Capacity Surcharges for Each Meter Size
5/8	0	0	$60.30	$5.03	$13.61	$18.63	$0
3/4	2,892	2,892	$60.30	$5.03	$13.61	$18.63	$174,409
1	4	10	$60.30	$12.56	$13.61	$26.17	$603
1.5	1	5	$60.30	$25.13	$13.61	$38.73	$302
2	19	149	$60.30	$40.20	$13.61	$53.81	$8,965
3	1	16	$60.30	$80.40	$13.61	$94.01	$965
	2,918	3,122			Full Year of Capacity Surcharges:		$188,258

Surcharge Fee Calculations

The calculation of peak flow cost surcharges to the base minimum charge are like those for SDFs, with a few math changes. Most of the math is shown in Table 14. Following are some highlights:

- Not shown is the cost basis amount to be recovered by surcharges. It was the dollar amount of peak costs not recovered by SDFs in Table 11. Annualize that leftover amount and then divide it by the sum of the capacity shares of customers now on the system. That is the "Annual Capacity Cost per Share, From Table 11" in Table 14, which is $60.30 per share. (I left that section out of Table 11, simply to save space.)
- Divide the $60.30 annual capacity cost by 12 billings per year (monthly billing) to get the $5.03 surcharge per capacity share per month.
- Multiply the $5.03 times the capacity shares for each meter size to get the total capacity surcharge for each size meter.
- Add the surcharge for each meter size to the "Base Minimum Charge," calculated elsewhere in the rate analysis, to get the full minimum charge to assess to each meter size each month. These are the minimum charges, based on meter size, to adopt in your rate ordinance and list in your "rate table."
- To arrive at the "Total Annual Capacity Surcharges for Each Meter Size," multiply the total capacity shares in each meter size by the $60.30 annual capacity cost. Note that the three-quarter inch meter class contributes the most in surcharges. That is not because their surcharges are high; they are quite low. It is because there are so many of them.

Sum Both Revenues

- Add Annual SDF and annual capacity surcharge revenues to get the total SDF and surcharge fees. Keep in mind, SDF revenue is speculative because it depends on growth assumptions coming true. Don't "bank" on those. However, surcharges are a very dependable revenue.
    - In the case of your utility, the total might amount to almost nothing, or it might be 25 percent of your system's total revenue. That depends upon several key factors: growth rate, meter sizes on the system, the capacity costs to be recovered and how aggressive you are at recovering those costs.
    - The annual SDF and surcharge revenues reduce the dollars you need to recover from regular user charges, making those rates that much lower, and fairer.

Closing

Meter size-based system development fees and surcharges are great tools for recovering infrastructure costs. Basing peak cost recovery on meter size, you can do that fairly. Or, at least get on the road to fair. Of course, such fees require math. But, when you "promote" such fees to those who will pay them, you tell them about the math. You don't have to do the political dance of, "We want to encourage this or discourage that, we want to welcome everybody, or we don't."

There are other ways of recovering capacity costs. In my experience, they are all harder to convincingly explain why they are fair. But then, I make my living doing math.

The point of this long, detailed description of SDFs and surcharges is not to turn you into a rate analyst. The point is to show you there is a great way to arrive at fairly structured fees to recover capacity costs. In my opinion, the lack of such fees is one reason, maybe the main reason, we are so far behind in infrastructure construction and renewal. SDFs and surcharges are tools that can help us get that job done and paid for fairly.

Use these tools and they will serve your customers, and your utility, well.

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Chapter 9 – CIP and R&R

Author's Note: The need to fund capital improvements is the number one reason utilities get rate analyses. The need to catch up on equipment repair and replacement is often number two. While rate analysis includes these costs, and sometimes, it includes building CIP and R&R schedules, such planning needs to be an on-going task of the utility's management. Two do-it-yourself spreadsheet planning tools discussed here may help.

In many utilities, CIP debt and cash-paid costs can consume 25 percent of the annual budget. In new utilities, or those that have done major upgrades in the last ten years or so, that might amount to 75 percent of the system's annual costs. CIP is a sore subject for ratepayers. They know that when you are talking about millions of dollars, that will have a big rate effect. Give them the facts. When CIP is well-planned, it can often be surprising how little it affects rates.

As to R&R costs, I find that, in most systems with a few decades of age on them, well-planned R&R costs run about 15 percent of annual operating costs. Fall behind on R&R and then need to catch up, and it can really hurt when rate setting time comes.

All utilities have a capital improvement program (CIP) or plan, whether it is written down or not. Some utilities project their needs over many years, write down their plans, maybe even put them into a database or spreadsheet. They also build those costs into current and future rates. That is how it should be done for large and small systems alike.

Many utilities are less formal about it. Many have little, if anything, written down. Fewer still build those costs into present or future rates. But, they need to.

This lower key approach is not an entirely bad way to handle CIP needs. After all, many utilities, especially the smaller ones, are driven to do improvements by health and environmental protection standards, and other federal and state requirements. In other words, requirements are their de facto plan. And, these utilities look to the federal and state governments to fund the cost of those improvements. At least, they have hopes.

Water and sewer service are the utility types discussed in this article. Why? They are just about everywhere there is a concentration of people. Thus, meter size can be the key to fair rates in water and sewer.

But, SDFs and minimum charge surcharges should be applied, with some tweaking, to electric, trash collection and other services, too. Brevity demands that we limit the media covered here but the principles are the same for other services.

All utilities also have an equipment repair and replacement (R&R) plan and schedule. It may be formalized in writing and rates – a good practice. Or, it may just be in the chief operator's head – as good a memory as the operator may have, this is a bad practice. What happens when the operator retires?

Unlike CIP costs, R&R costs are not federal and state grant and loan fundable, unless someone knows of a loophole that I'm not aware of.

Generally, the upsides of formalizing CIP and R&R schedules outweigh the downsides. The overriding consideration, in my mind, is this: Not having these things well planned out is "no way to run a railroad." People and businesses depend upon good, dependable, sustainable utility services. They assume they will always be there to support the investments they make in their homes and business. Don't let them down.

CIP costs may be fundable through federal and state grant and loan programs, but there just is no "full ride" anymore. You will incur some debt. That cost needs to be recovered by some mix of system development fees or some other new connection charge, system development surcharges to the minimum charge and regular user charges. When to use each of these, and how to calculate them, is not the subject of this discussion. But, calculating the cost of CIP is.

R&R costs are not federal and state grant and loan fundable, though a system might go to their local bank and get a loan to do some neglected R&R in a pinch. That really looks bad and it may haunt your utility if, and when, you do need to issue bonds or borrow for something.

R&R costs are recoverable through regular user charges. Again, calculation of those charges is not the subject of this discussion. But, calculation of the annual cost of R&R is.

I have assembled two Excel spreadsheets that do-it-yourselfers can use to prepare CIP and R&R schedules, including calculation of their costs. Both are available for free download at https://gettinggreatrates.com/freebies/freebies.shtml. The following discussion, and snapshots of parts of those spreadsheets, are based on those applications.

You could do this planning and the calculations using other tools, or just the calculator in your phone and a note pad. But, however you do it, the basic plan parts and calculations you do should include the things discussed here.

Let's start with CIP.

Capital Improvements Program

The CIP Planner© spreadsheet has a directions tab, a data entry tab and an output tab, part of which is reprinted below. Basically, you enter into the data entry tab, your CIP needs for the next 10 years, variables like the percentage of grant, loan and reserves funding you expect, interest rate and rate of inflation you expect and a few other criteria. The spreadsheet then builds your plan in the output tab. You can format that table as you like and print it out or otherwise use it to demonstrate your funding needs to funders, ratepayers and others.

Data output fairly well mirrors the input, so let's skip to the output for an example utility. The following table is a reformatted snapshot of the first four years of a ten-year plan. The table, and data included, were cut down simply to allow the table to fit into this article.

The Capital Improvements Program (CIP) table lists all the expected improvements, splits their costs by the assumed percentages of grant, loan and reserves used to pay for them, calculates and shows the resulting debt service to be paid and then shows, on the bottom line, the total cash needed for each year to fund this CIP.

There are advantages to planning capital improvements using a spreadsheet:

- Once the basic data is in, "what-if" scenarios of all sorts can be run:
    - What-if the new well and tower project was postponed two years and it was added to the new plant project? You can move those costs from 2020 to 2022, and see the effect.
    - What-if no grants were available and the grant dollars assumed in the current plan had to come from a larger SRF loan? That would increase annual costs and the spreadsheet would calculate the increase.

- Or, what-if the lost grant dollars had to come from reserves? That would increase one year's cash outflow but reduce annual costs as compared to SRF financing the difference. You get the idea.

- Capital improvement planning is a long-term task. In fact, it never really stops. To keep the plan up to date, you can change the starting date of the spreadsheet and that will change all other dates accordingly. And, you can update project costs, timing and everything else to keep the plan accurate.

Even in this very simplified, low-dollar example, you can see that Ratewell's debt is going to more than triple in four years. If you don't plan ahead, rates-wise, for such an event, it can really eat into your reserves in a hurry. You do have reserves, don't you?

Capital Improvements Program (CIP)							
Ratewell, WY Water System - Funding Assumptions: 50% Loan, 25% Grant and 25% Reserves							
			Years Following the Analysis Year				
		Test Year Starting	Analysis (This) Year Starting	1st Year Starting	2nd Year Starting	3rd Year Starting	4th Year Starting
		1/1/2018	1/1/2019	1/1/2020	1/1/2021	1/1/2022	1/1/2023
Planned Spending, Debt-paid Portion of Projects (CIP costs to be funded with loans are shown in this section.)							
New Well and Tower		$0	$0	$772,500	$0	$0	$0
New Plant		$0	$0	$0	$0	$1,092,727	$0
Loan Closing Costs, Estimated at:	2.50%	$0	$0	$19,892	$0	$29,851	$0
Total Debt-paid Portion of Projects		$0	$0	$792,392	$0	$1,122,578	$0
Planned Spending, Grant-paid Portion of Projects (CIP costs to be grant-funded are shown here.)							
New Well and Tower		$0	$0	$386,250	$0	$0	$0
New Plant		$0	$0	$0	$0	$546,364	$0
Total Grant-paid Portion of Projects		$0	$0	$386,250	$0	$546,364	$0
Planned Spending, Cash-paid Portion of Projects (CIP costs to be funded from reserves are shown here.)							
New Well and Tower		$0	$0	$386,250	$0	$0	$0
New Plant		$0	$0	$0	$0	$546,364	$0
Grant Acquisition Costs, Estimated at:	2.50%	$0	$0	$9,946	$0	$14,926	$0
Total Cash-paid Portion of Projects		$0	$0	$396,196	$0	$561,289	$0
Grand Total of CIP Costs		**$0**	**$0**	**$1,574,838**	**$0**	**$2,230,231**	**$0**
Planned Spending, Debt Repayment							
Existing Debt Payments (Following is debt that was initiated during the test year or earlier.)							
2015 SRF Loan		$55,000	$55,000	$55,000	$55,000	$55,000	$55,000
New Debt Payments under assumed loan terms							
Loan Originated in 1st Year					$48,460	$48,460	$48,460
Loan Originated in 3rd Year							$68,653
Total Existing and New Debt Payments		$55,000	$55,000	$55,000	$103,460	$103,460	$172,113
Grand Total Cost - Debt Service and Cash-paid CIP		**$55,000**	**$55,000**	**$451,196**	**$103,460**	**$664,749**	**$172,113**

Repair and Replacement Schedule

Moving on to R&R, this is mainly the chief operator's or utility superintendent's duty to keep up with. But, to take it all the way, the annual annuity (savings amount) needed to pay for R&R costs needs to go into the system's budget as a line item cost. That means, the budget adopters must "sign off" on this cost and build it into the rates they adopt.

Anytown, USA, Water System

Equipment Replacement Schedule - Detailed

Year Beginning	Shared Line Camera, 10% Water, 90% Sewer	Shared 2013 Ford F250 4x4, 50% Water, 50% Sewer	Shared 2013 Ford F350 with crane, 25% Water, 25% Sewer, 50% Other	Shared Backhoe/ Loader, 25% Water, 25% Sewer, 50% Streets	Water Tower 1 Recoat	Water Tower 2 Recoat	Total Annual Replacement Costs
7/1/18	$0	$0	$0	$0	$0	$0	$0
7/1/19	$0	$0	$0	$25,000	$0	$0	$25,000
7/1/20	$0	$0	$0	$0	$0	$0	$0
7/1/21	$10,000	$0	$0	$0	$0	$0	$10,000
7/1/22	$0	$0	$0	$0	$150,000	$0	$150,000
7/1/23	$0	$30,000	$20,000	$0	$0	$0	$50,000
7/1/24	$0	$0	$0	$0	$0	$0	$0
7/1/25	$0	$0	$0	$0	$0	$0	$0
7/1/26	$10,000	$0	$0	$0	$0	$0	$10,000
7/1/27	$0	$0	$0	$0	$0	$200,000	$200,000
7/1/28	$0	$0	$0	$0	$0	$0	$0
7/1/29	$0	$0	$0	$0	$0	$0	$0
7/1/30	$0	$0	$0	$0	$0	$0	$0
7/1/31	$10,000	$0	$0	$0	$0	$0	$10,000
7/1/32	$0	$0	$0	$0	$0	$0	$0
7/1/33	$0	$30,000	$20,000	$0	$0	$0	$50,000
7/1/34	$0	$0	$0	$25,000	$0	$0	$25,000
7/1/35	$0	$0	$0	$0	$0	$0	$0
7/1/36	$10,000	$0	$0	$0	$0	$0	$10,000
7/1/37	$0	$0	$0	$0	$0	$0	$0

Therefore, the annuity will need to be put into a draft budget, the budget adopters – the city council, the board – will need to discuss what is in the schedule and, essentially, pre-approve that plan. That will turn the R&R schedule into a working agreement with the system's management, which may just be a chief operator in a small system. Thus, the board will tell the operator, "We are signing off on these items at these costs on this schedule. You are authorized to make it happen. But, if you find need to veer off the plan by much, get our approval first."

Or, they might caveat the plan further with, "and you are authorized to make it happen for all items that cost less than $_____. For more expensive items, get our approval first."

In fact, the chief operator will not have purchasing authority for the cost of most items in a typical R&R schedule. They must have the city manager or similar staff person, if there is one, or the board or council itself, authorize and issue a solicitation and execute the purchase of expensive items. But having the annuity and reserves built into the system's finances will assure that cash will be available to make the purchases.

And, the board or council may go one more step and say, "You are allowed to postpone scheduled projects if that makes good sense, but if you need to move one up, get our approval first."

If this plan is to help the operator do what needs to be done, when it needs to be done, the board or council shouldn't restrict the operator more than that.

I encourage boards and councils to think of R&R schedules like this:

You are not giving up the power of the purse strings and decision-making when you take detailed replacement needs out of the annual budget. You are just carrying out those duties for R&R in two steps:

1. *You approve the plan ahead of time, and*
2. *You build the annual annuity to pay for the plan into budgets and rates as the years go by.*

And, board or council member, putting a level line item cost, the annuity amount, into budgets rather than paying for a new mower this year and a water tower repaint next year, smooths out the budget drastically. That helps to prevent the "uh oh" situation of the water tower repaint sneaking up on you. And, not to be crass or anything, that is especially relevant when that event happens at the same time you are up for re-election.

ReplacementScheduler© has a data entry tab, where detailed replacement items and other criteria are entered, and a tab to calculate the annual annuity. The detailed replacement items table looks much like the table on the previous page. You enter data and information into the yellow highlighted cells. This schedule was greatly simplified and cut down compared to a real schedule, just so the table will fit here. A full schedule will have many more items than this.

Notice that several items are shared with other utilities or other city functions. In these cases, you would list the item in this, the water R&R schedule, and enter the water utility's share of each shared cost. You would do the same thing in a separate sewer utility R&R schedule, entering its share of costs.

The inquiring mind might ask, "What is an annual annuity calculation, anyway?"

In mathematical terms it is a present worth, or present value calculation. Such a calculation considers a string of inflows (incomes, if any, besides the annuity itself) and outflows (expenses) over a period of time and solves for a level annuity (savings amount) that will cause the balance to be zero dollars at the end of the period. In other words, if you add X dollars to the account each year, by the end of the schedule, all expenses will get paid. ReplacementScheduler© has some enhancements, but that is basically what it does.

ReplacementScheduler© is aimed at equipment replacement. But, working with a water district recently, a related problem came up that the spreadsheet can also help solve.

District customers pay fire insurance premiums. By adding a new water tower, the district could boost pressure and, perhaps, lower insurance premiums. By entering the estimated costs to build, operate and maintain the tower, in the appropriate years, and the anticipated premium savings (as a negative annual cost, an inflow), the spreadsheet will calculate the annual annuity in this situation.

If the annuity comes out negative, that means the annual insurance premium savings would be that much greater than the costs of the tower – they would save that much money.

There are a few other considerations to include in such analysis. The important point is this: you don't need to guess about such a high-dollar decision. You can use math.

In the case of cities, towns and counties, or other multi-function entities, you can run an R&R schedule for each utility or function, entering data for each separately or even linking schedules together. Linking schedules makes updating easier, too. Open all the linked schedules, enter updated data and information into the "master" schedule and the linked-in schedules will pick up the updated data and recalculate their annuities.

Anytown, USA, Water System

Equipment Replacement Annuity Calculation

2.00% Average Inflation Rate for the Following Water System Equipment for the Term of This Replacement Schedule

1.00% Average Interest Rate on Balances Invested for the Term of This Replacement Schedule

3.00% Average Interest Rate on Amounts Borrowed for the Term of This Replacement Schedule

Year Beginning	This Year's Costs in Current Dollars	Future Annual Inflated Net Costs	Interest Earned on Prior Balance	End of Year Balance in Future Dollars	Minimum Desired End of Year Balance in Future Dollars
7/1/18	$0	$0	$200	$20,200	$27,000
7/1/19	$25,000	$25,500	$202	$29,515	$27,540
7/1/20	$0	$0	$295	$64,423	$28,091
7/1/21	$10,000	$10,612	$644	$89,068	$28,653
7/1/22	$150,000	$162,365	$891	-$37,793	$29,226
7/1/23	$50,000	$55,204	-$1,134	-$59,518	$29,810
7/1/24	$0	$0	-$1,786	-$26,691	$30,406
7/1/25	$0	$0	-$801	$7,122	$31,015
7/1/26	$10,000	$11,717	$71	$30,089	$31,635
7/1/27	$200,000	$239,019	$301	-$174,016	$32,267
7/1/28	$0	$0	-$5,220	-$144,623	$32,913
7/1/29	$0	$0	-$4,339	-$114,349	$33,571
7/1/30	$0	$0	-$3,430	-$83,166	$34,243
7/1/31	$10,000	$12,936	-$2,495	-$63,985	$34,927
7/1/32	$0	$0	-$1,920	-$31,291	$35,626
7/1/33	$50,000	$67,293	-$939	-$64,910	$36,338
7/1/34	$25,000	$34,320	-$1,947	-$66,564	$37,065
7/1/35	$0	$0	-$1,997	-$33,948	$37,807
7/1/36	$10,000	$14,282	-$1,018	-$14,636	$38,563
7/1/37	$0	$0	-$439	$19,537	$39,334
7/1/38	$0	$0	$195	$54,346	$40,121
			Starting Account Balance	$20,000	$27,000
			Net Present Value less Starting Account Balance	$564,004	Minimum Desired Balance in Today's Dollars
			Capital Recovery Factor	0.055415	
			Minimum Annual Annuity	$31,254	
			Discretionary Annuity	$3,358	
			Required Annual Deposit to Replacement Account	$34,613	

This spreadsheet works for anything that needs an R&R schedule. In fact, you could use this spreadsheet for the upkeep of your house or farm, if you wanted to: New roof in 2025, cost $7,000, replacement cycle 15 years; new water heater in 2030, cost $400, replacement cycle 10 years; new boundary fence in 2027, cost $10,000, replacement cycle 20 years; and so on.

The annuity calculation table appears on the previous page. The annual costs from the detailed items table magically appear in that table as "This Year's Costs in Current Dollars." The table then calculates the annual annuity, called the "Required Annual Deposit to Replacement Account." This is the amount that should go into the utility's budget. Every year, that amount should also go into a reserve fund for R&R. Or, if the dollars go into a general fund, they should at least be accounted for separately.

In the annuity calculation table, there is a column called, "End of Year Balance in Future Dollars." Notice that some of those balances are negative. That is because some of the annual costs exceed the balance in the account during that year, drawing it below zero. In such a case, you need to be aware that, during those years, you will need to borrow from a bank, the utility's general fund, or from elsewhere, to cover those costs. Or, if it makes sense, you may be able to revise the schedule, postponing some replacements a year or more, to smooth out the balances. If you borrow to cover the low-balance years, when the balance goes positive again, you can repay those loans up to at least the balance projected for that year.

To eliminate any negative balances, you could simply fund up the starting balance of this reserve. That is sometimes done by over-borrowing for a CIP project. The thinking of the lender is, "It is protection for us, the lender, to pre-fund the borrower's R&R reserves to a certain level, so they can take care of the assets for which we are lending. We will require them to take care of those assets and make additional deposits to this fund to see to it, that happens. That is a much safer course for us than it would be to leave those assets subject to inadequate care and possible failure before we are paid in full."

You might, alternatively, transfer money from the general fund to the R&R fund to prevent negative balances. How you handle this situation is up to you, subject to your own money management policies, state statutes and loan agreements. The key is, once you near the 20th year, the balance will be strong again.

By the way, I built into the spreadsheet, a cell where you can enter a factor to boost the balance you want to carry in this fund. If you want to carry a balance that is two times the average annual cost of R&R, you enter a "2" and the spreadsheet calculates the annuity accordingly. If, for example, you see that seven years into the schedule you will run a negative balance, but by entering that "2" you can make it go away, do it – no borrowing required. Seven years from now, you can lower the balance back down, if you want to. But I'm always inclined to run higher balances rather than lower balances. Besides, the interest earnings on those higher balances will enable you, over the long haul, to assess lower rates than if you ran a bare-bones balance.

Earlier, I made the budget process sound a little simpler than it really will be. In fact, the previously calculated annual annuity is good for the next budget year. The board or council will agree to the plan and the annuity, put it in the budget and you are off, for that year.

After the utility runs most of the way through that year, the operator should redo the detailed items table. Doing that will refigure the annual annuity. In other words, update the schedule to take into account everything that has or will change. Either remove items that were, in fact, replaced or done during the year and will not need to be done again. Or, if they are repeating items, move them forward in time to the next year they will need to be done. Basically, delete, add or change items as needed to make the schedule relevant for the next budget year. That will calculate a new annual annuity, which needs to go in the next budget.

This process may be easier to do than it is to describe here. Much of this updating can be done by block copying and pasting, so it goes quite fast. Make any needed refinements and you are ready for the next year.

Thus, whatever the next budget year's schedule needs to look like, you make it so. Go through the budgeting and approval gauntlet again. Tell the approvers what R&R was done, what needs to be done in the next budget year and those things will cost. They adopt the next year's budget and you're off, again.

You can see that this is a rolling schedule, it changes every year as future items get closer to the current year and need to be done. That also means the annuity amount, a rolling average, will change each year. But, for a schedule with all the important items included and spread out over the years as they likely will occur, the annuity should not change by much. Certainly, the amounts from one year to the next won't be as different as the cost of a new mower one year and the cost of a water tower repaint the next year.

Reality check 1: you will make a costly scheduling error, but it will go in your favor.

In the detailed items table, back in 2018, you thought that the "Water Tower 1 Recoat" project would be needed in 2022. But, you get to 2021, inspect the tower and discover that the paint is in good shape. You can postpone that paint job until 2025. Such switches, where you can reasonably postpone a project to a later year, are easy to admit to and pay for because they are a cost reduction.

I suggest that if you err in preparing the R&R schedule, err on the side of being too aggressive. Assume things will need to happen sooner, rather than later. That they will be more expensive, not less. It is easy to tell the board, "We won't need Water Tower 1 painted until 2025, so we will carry over a bigger balance till then." Just keep it reasonable.

Reality check 2: you will make a costly scheduling error, and it will go against you.

You are going to have some R&R items come along sooner than you thought, more expensive than you thought or items will pop up that you didn't think about at all. To prepare for such things, it is a good idea to build in an annual "miscellaneous items" cost of perhaps ten percent of the annual annuity that the spreadsheet would calculate without that item in play. That way, you will have a contingency balance to fall back on to pay for unexpected things. Doing that will also erase many, if not all, of the negative balance years.

Closing

In many utilities, CIP debt and cash-paid costs can consume 25 percent of the annual budget. In new utilities, or those that have done major upgrades in the last ten years or so, that might amount to 75 percent of the system's annual costs. CIP is a sore subject for ratepayers. They know that when you are talking about millions of dollars, that will have a big rate effect. Give them the facts. It's their utility. They deserve to know.

Bite the bullet and prepare a CIP. Will that plan be spot on? No. But, any plan will be better than no plan. And, you can revise the plan to make it better. In fact, your plan will always be a work in progress.

As to R&R costs, I find that, in most systems with a few decades of age on them, well-planned R&R costs run about 15 percent of annual operating costs. That is not a real big rate setting deal if you build these costs in and keep them current. But, if you fall behind on R&R and then need to catch up, it can really hurt.

Keep up with CIP and R&R and keep your rates up so they easily pay for these things, and your utility will likely stay sustainable and economical to own and operate for decades to come.

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