

Setting the Right Rates for your System

October 14th, 2020







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Logistics

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If you have questions or need assistance, please contact *smallsystems@syr.edu*.

About Us

The Environmental Finance Center Network (EFCN) is a university-based organization promoting innovative and sustainable environmental solutions while bolstering efforts to manage costs.





Smart Management for Small Water Systems

The Smart Management for Small Water Systems

Program works in every state, territory, and the Navajo Nation. All small drinking water systems are eligible to receive free training and technical assistance.



The Small Systems Program Team

- Environmental Finance Center at The University of North Carolina at Chapel Hill
- Environmental Finance Center at Wichita State University
- EFC West
- Government Finance Officers Association (GFOA)
- Great Lakes Environmental Infrastructure Center
- National Association of Development Organizations (NADO)
- New England Environmental Finance Center at the University of Southern Maine
- Southwest Environmental Finance Center at the University of New Mexico
- Syracuse University Environmental Finance Center
- Environmental Finance Center at the University of Maryland
- Rural Community Assistance Corporation
- Environmental Finance Center at California State University, Sacramento



Topics

Speaker

- Objectives that can be supported by water rates
- Matching rate structure design elements to different objectives
- Benchmarking water rates
- EFCN tools and resources to help you with rate setting

Evan Kirk EFC at UNC 919-962-2789 emkirk@sog.unc.edu



Image: School of governmentImage: School of governmentImage



How you pay for it matters

Supporting fair, effective, and financially sustainable delivery of environmental programs through:

- Applied Research
- Program Design and Evaluation
- Teaching and Outreach
- Advising
- Policy Analysis



Poll Question 1

How much experience and knowledge do you currently have about various rate structure designs?

Terminology: Rates vs. Rate Structure

\$ 32.00 / month, includes the first 2,000 gallons
+ \$ 2.00 / 1,000 gallons for use between 2,000 and 5,000 gallons
+ \$ 5.00 / 1,000 gallons for use between 5,000 and 20,000 gallons
+ \$ 6.00 / 1,000 gallons for all use above 20,000 gallons

Rates

Rate Structure

Terminology for Rate Structure





Poll Question 2

When was the last time your utility seriously considered changing the rate structure design (not just the rates)?

There is no one rate structure that works perfectly for all utilities



What Goes Into Reviewing Rates for the Next Year?



Path Towards Financial Sustainability



The Process of Setting Rates





Examples of water system objectives





Poll Questions 3 and 4

Which would you rank as your utility's most important objectives in influencing your rate structure?

Competing Objectives



No. of Concession, Name

Competing Objectives



Million / House H

Synergistic Objectives



Million / House H

Get to know your customers and future scenarios

- How are your customer demands changing?
- Do you expect to meet demands comfortably?
- What is the make-up of your served community? Serve many large families? What is the community's ability to pay? Is it a seasonal community? Is there growth or decline in customers? Does a large fraction of your revenues come from a small number of customers? What is the mix of residential and non-residential customers? Who are your biggest customers?
- How often have customers been unable to afford their bills?

Get to know your costs and future scenarios

- In the past few years, how much of your revenues and costs were fixed vs. variable?
- How have your operating expenses changed recently?
- Do you know what your capital expenses and debt service payments will be going forward?

Elements of Rate Structure Designs

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

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

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

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Elements of Rate Structure Designs: 2. Billing Period

More Frequently (e.g.: Monthly)

UTILITY

CUSTOMER

Steady monthly revenue stream; Rate changes effected quicker; Lost revenues from unpaid bills smaller; Communicate with customer more frequently Less Frequently (e.g.: Quarterly)

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

Smaller, more regular bills (easier to pay); Higher and faster sensitivity to use and rate changes (leaks, conservation); More sensitive to rate structure design and less confusion

No explicit benefit

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

Elements of Rate Structure Designs: 3. Base Charges

PROS

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

Provides strong incentive to keep use low; Customers more likely to notice month-to-month change in bill due to change in use



CONS

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

Revenues less stable for utility; Revenues are highly seasonal

Suggestion: Smaller utilities with high fixed costs should lean towards higher base charges

Elements of Rate Structure Designs: 3. Base Charges

Two common ways to structure a base charge:

• Constant (by customer class): \$35.00/month

• By meter size:

- \$35.00/month for 5/8" or 3⁄4" meter
- \$55.00/month for 1" meter
- \$105.00/month for 2" meter, etc.

Example of Equivalent Meter-and-Service Ratios

Example described in AWWA M1 Manual, but **you should calculate your own** cost of connection and meter investment ratios. See M1 Manual for method. Based on area of pipe cross section.

Meter Size	Ratio Equivalent to 5/8" Meter (example only; do not use as a rule of thumb)
5/8″	1.0
3/4"	1.1
1"	1.4
1.5″	1.8
2"	2.9
3"	11.0
4"	14.0
6"	21.0
8"	29.0

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



Suggestion: For systems with low base charges, do not include any consumption allowance. For systems with high base charges but wish to encourage conservation, keep consumption allowance low, if any.

Elements of Rate Structure Designs: 5. Volumetric Rate Structure



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

Elements of Rate Structure Designs: 5. Volumetric Rate Structure



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

Elements of Rate Structure Designs: 6. (If Applicable) Block Designs

For block rate structures to be effective:

• Decide on the correct number of blocks

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

• Decide on where the blocks should end/start

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

Elements of Rate Structure Designs: 6. (If Applicable) Block Designs

For block rate structures to be effective:

Set significant rate differentials between blocks

Charging only 50 cents/1,000 gallons more in one block than in the preceding block defeats the purpose of using an increasing block rate structure.

• Keep in mind your base charge and consumption allowance

High base charges and consumption allowances may be significant portions of the total bill, greatly diluting the effect of an increasing block rate structure on providing incentives to customers to conserve.

Elements of Rate Structure Designs: 6. (If Applicable) Block Designs

For block rate structures to be effective:

• Meter reading must be punctual

If the meter is read a few days too late, it may unjustly place the usage from last few days in a higher block.

• Replace meters frequently and repair lines quickly Faulty meters or leaking pipes will cause the customer to be billed at the wrong block levels, costing either the utility lost revenue or the customer more.

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

- Prepare for drought in advance: create an ordinance to give the utility the ability to raise rates temporarily during a water shortage scenario Specify the potential rate increases precisely.
- Rate increases should be substantial, or they will not encourage conservation.
- Explicitly state the conditions that would trigger the temporary rate changes on and off. Tie the triggers to your water shortage response plans and water reservoir/well levels.

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

Fixed vs. Variable Revenues

- Variable revenues are 100% dependent on the volume of water:
 The volumetric rates
- Fixed revenues do not depend on volume of water in the short-term:
 - Base (minimum) charges, flat fees, penalties and charges, connection fees, etc.
How Rates and Water Use Interact

Utilities' costs are mostly fixed, not dependent on the amount of water sold/used by the customers. But the majority of revenues come from the amount of water sold. If demand decreases, revenues drop significantly but not costs.



Source: Charlotte Water Director Doug Bean's presentation to the Charlotte City Council on December 1, 2008.

Important

Avoid maintaining low rates at the expense of your utility's financial health.

It may either lead to the need for a sudden, massive rate increase in the future or to failing systems and endangered public health.

A Few Scenarios

Keep in mind:

No one rate structure design fits all utilities, even in each of the following scenarios.

Showing the starting point of discussion – each utility would then have to evaluate and tailor rate structure according to own conditions.



Poll Question 5

Which scenario(s) would you like me to present briefly on? [Select ALL that apply]

Scenario: Groundwater System with a Very Small Customer Base

High fixed costs, small number of customers

- High base charges, possibly with a consumption allowance.
- Monthly billing if very small number of customers; bi-monthly if cost savings outweigh cash flow stability (phase the meter reading over the two months)



Scenario: Small, Purchase Water System

High variable costs, small number of customers

- Lower base charges (sufficient to pay off the monthly fixed/minimum charge to the seller utility plus at least most of own fixed costs),
- No consumption allowance (unless included by the seller utility)
- High volumetric rates that exceed the variable rates you are paying the utility

Scenario: Worried About Affordability of Rates for Residential Customers

- Do not compromise revenue sufficiency to maintain artificially low rates
- Create separate residential rate structure:
 - Low base charges with no consumption allowance
 - Increasing block rates with a first block only up to lifeline amount (~ 2,000 gallons/month)
 - Relatively steep increases in rates between blocks
 - Monthly billing
- Consider separate "Customer Assistance Programs"
- Find out if it is legal to charge different rates for low-income or fixedincome customers (in many cases, it is not)

Scenario: Water Demands are Decreasing

- Increase base charges and the percent of revenues from fixed charges.
- If using block rates, considering consolidating some of the blocks and/or decreasing the size of the blocks accordingly.

Scenario: Want to Encourage Conservation

- Monthly billing
- Lower base charge with no consumption allowance, higher volumetric rates
- Uniform rates, increasing block rates, or budget-based rates.
- Seasonal rates during peak demand season.
- Many, small block sizes and steep differentials in rates between blocks. Low rate for the first block.
- Have a water shortage rate structure

Scenario: Have Highly Seasonal Demands

Resorts, second home communities, etc.

- Charge a base charge year-round
- Consider seasonal rate structure: higher rates during high season(s)
- If seasonal demand is due to irrigation water, have a separate irrigation rate structure where rates are higher than standard water rates

Rate Setting Resources



http://www.awwa.org

Setting Small Drinking Water System Rates for a Sustainable Future

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



https://www.epa.gov/dwcapacity/resourcessetting-small-system-water-rates-0

Water & Wastewater Rates Analysis Model

<u>http://efc.sog.unc.edu</u> or <u>http://efcnetwork.org</u> Find the most up-to-date version in Resources / Tools

Free, simplified Excel tool allowing you to model and compare two rate structures on your projected fund balance



Tools To Assist Water Utilities With Financial **Decision Making**

http://www.efc.sog.unc.edu/project/utility-financial-tools

http://efcnetwork.org/resources/tools/

Water and Wastewater Rates Analysis Model

Use this tool to review your rates to ensure projected revenues cover projected expenses. This tool will help you determine whether proposed rates will keep the utility financially self-sufficient for the next few years.

or

Financial Health Checkup for Water Utilities

Use this tool to get a snapshot of your utilitys financial health and demonstrate the financial strengths and weaknesses of your utility over the past 5 years. The tool uses your utility's financial data to calculate and visualize 6 financial performance indicators.

Residential Rates Affordability Assessment Tool

Use this tool to assess how affordable rates are to your customer base using multiple metrics.

Plan to Pay: Scenarios to Fund Your Capital Improvement Plan

Use this tool to help plan how to pay for future capital projects. The tool will estimate the effects that paying for capital projects will have on your rates under various scenarios.

Water Utility Customer Assistance Program Cost Estimation Tool

'Use this tool to estimate the funds needed from your utility (or other organization) to create a Customer Assistance Program that helps residential customers when they cannot afford to pay their water bill.



Benchmarking Rates

Comparing Rates – the Old Way



Water Service Provider

What's Wrong with it?

- Comparing to utilities that are not similar
- Comparing to only a few utilities
- Comparing only one bill amount
- Comparing nothing besides rates
 - pressure to keep rates low ...
 - ... regardless of financial condition of utility
 - ignores customers' ability to pay
 - ignores price signals and utility's policies

How Board Members Sometimes Respond to Request to Raise Rates

"Our rates are high enough"

"The customers cannot pay any more"

"Our rates are higher here than towns X, Y and Z [already 'too high']" or "our rates are lower here than towns A, B and C [good, let's not raise them]"



Vermont Water and Wastewater Rates Dashboard – Coming soon!

efc.sog.unc.edu

or

efcnetwork.org

Find them in Resources / Tools





Compare Rates to Utilities of the Same





Questions? Feedback?

In Vermont: Joshua Lochhead Joshua.Lochhead@vermont.gov

> At the EFC: Austin Thompson thompson@sog.unc.edu



Free Assistance and Resources to Small Water Systems by the Environmental Finance Center Network

Small water systems www.EFCNetwork.org



Free, thanks to a cooperative agreement with the U.S. E.P.A.

What kind of assistance can the EFC offer?

• Tier 1 Assistance

• The EFC can provide resources for you to go through, individually, as a utility.

Tier 2 Assistance

- The EFC can work with you individually on a variety of tools that we have developed for small systems.
- If interested, email <u>slapp@sog.unc.edu</u>, and Stephen will follow up with you.

• Resources:

- Tools To Assist Water Utilities With Financial Decision Making
- <u>COVID-19 Resource Page</u>
- Funding table
- <u>Customer Assistance Programs</u>
- <u>Regionalization Blog</u>

Internal audit using the following checklist

- What percent of revenue has your utility lost?
- What kind of staffing changes has your utility seen?
- How has each sector's (residential, commercial, industrial, etc.) usage changed?
- How many days cash on hand do you have?
- Do you have enough reserves to subsidize your revenue loss?
- What do the local economic factors such as unemployment rate look like in your community?
- Have you provided and publicized payment plans for your customers?

Tools To Assist Water Utilities With Financial Decision Making http://www.efc.sog.unc.edu/project/utility-financial-tools

or http://efcnetwork.org/resources/tools/



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Financial Health Checkup for Water Utilities

http://efc.sog.unc.edu or http://efcnetwork.org

Find the most up-to-date version in Resources / Tools

Free, simplified Excel tool allowing you to track and benchmark financial performance metrics for your water/sewer fund in the past 5 years



Financial Health Checkup for Water Utilities

Key	Field in the financial statement/CAFR	2010	2011	2012	2013	2014	Instructions	
[1]	Total Operating Revenues	\$ 2,341,857	\$ 2,556,399	\$	2,271,777	\$ 2,334,236	\$ 2,501,286	Enter as shown
[2]	Total Operating Expenses	\$ 2,229,208	\$ 2,403,938	\$	2,565,282	\$ 2,555,504	\$ 2,740,266	Enter as shown
[3]	Depreciation & Amortization Expenses	\$ 362,047	\$ 490,007	\$	569,998	\$ 568,179	\$ 534,000	Depreciation a
[4]	Debt Principal Payments	\$ 185,000	\$ 279,242	\$	333,558	\$ 132,742	\$ 436,459	Enter \$0 if the
[4b]	Debt Interest Payments	\$ 84,859	\$ 81,330	\$	72,808	\$ 71,620	\$ 55,535	Enter \$0 if the
[5]	Current Assets, excluding inventories, restricted cash, prepaids	\$ 2,986,691	\$ 3,565,601	\$	3,266,234	\$ 3,050,573	\$ 2,941,629	Total Current A
[6]	Current Liabilities, excluding deposits & bond anticipation notes	\$ 757,776	\$ 776,266	\$	495,555	\$ 656,257	\$ 547,019	Total Current L
[7]	Unrestricted Cash & Investments	\$ 1,961,851	\$ 2,883,569	\$	2,411,154	\$ 2,273,697	\$ 2,415,013	Unrestricted C
[8]	Total Accumulated Depreciation	\$ 5,125,329	\$ 5,520,510	\$	7,661,024	\$ 8,229,207	\$ 8,763,207	Total accumula
[9]	Total Depreciable Capital Assets	\$ 17,221,067	\$ 17,144,542	\$	18,697,849	\$ 18,744,028	\$ 18,854,157	Enter the total

n in the Total Operating n in the Total Operating and amortization are liste re were no debt service r re were no debt service p Assets minus all inventor Liabilities minus all refun ash & Investments (and ated depreciation on cap l value of capital assets k



Did you generate the revenues needed to pay for O&M and a little for capital? Did you generate the revenues needed to pay for O&M by itself? Did you generate the revenues needed to pay for O&M and existing debt service? **Operating Ratio, including depreciation Operating Ratio, not including depreciation** Debt Service Coverage Ratio 2.00 2.50 2.00 1.80 1.80 1.60 2.00 1.60 1.40 1.40 1.20 1.50 1.20 1.00 1.00 0.80 1.00 0.80 0.60 0.60 0.40 0.50 0.40 0.20 0.20 0.00 0.00 0.00 2010 2011 2012 2013 2014 2010 2011 2012 2013 2014 2010 2011 2012 2013 2014 Did you have enough liquidity to pay your current liabilities at the end of the ye How many days could you continue to operate the utility with the cash levels ava How much have your utility's assets depreciated (nearing the end of their lives)?







Water & Wastewater Rates Analysis Model

<u>http://efc.sog.unc.edu</u> or <u>http://efcnetwork.org</u> Find the most up-to-date version in Resources / Tools

Free, simplified Excel tool allowing you to model and compare two rate structures on your projected fund balance



Water and Wastewater Rates Analysis Model

Revenue

Rate Structure(s)			Fiscal Year:	2019	FY2020	FY2021	FY2022	FY2023	FY2024
				Existing	New				
late Structure 1:	Residential I	nside Wat	er Rates						
Monthly Base Charge:			1	\$20.83	\$21.14	\$21.46	\$21.78	\$22.11	\$22.44
Consumption allowance include	ded with the b	ase charge	e (gallons/month):						
_	Block St	art:	Block End:						
Block rate 1 (\$/1,000 gal)	-	gal/mo	2,000 gal/mo	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Block rate 2 (\$/1,000 gal)	-	gal/mo	gal/mo						
Block rate 3 (\$/1,000 gal)	-	gal/mo	gal/mo						
Block rate 4 (\$/1,000 gal)		gal/mo	gal/mo						
Block rate 5 (\$/1,000 gal)	-	gal/mo	gal/mo						
Block rate 6 (\$/1,000 gal)		gal/mo	gal/mo						
Block rate 7 (\$/1,000 gal)		gal/mo	gal/mo						
Block rate 8 (\$/1 000 gal)	-	gal/mo	gal/mo						
Block rate 9 (\$/1,000 gal)	-	gal/mo	gal/mo						
Final block rate (\$/1,000 gal)	2,001	gal/mo a	nd beyond	\$8.32	\$8.44	\$8.57	\$8.70	\$8.83	\$8.96



Accounts and Uncollected Bills	Number of Accounts		Uncollected Bills
	in FY2019	Growth Rate %/year	Per Year
Residential Inside Water Rates	308	0.0%	2.0%
Residential Inside Sewer Rates	251	0.0%	2.0%
Residential Outside Water Rates	65	0.0%	2.0%
Residential Outside Sewer Rates	3	0.0%	2.0%
Commerical Inside Water Rates	74	0.0%	2.0%
Commerical Inside Sewer Rates	66	0.0%	2.0%
Commerical Outside Water Rates	9	0.0%	2.0%
Commerical Outside Sewer Rates	3	0.0%	2.0%
Institutional Inside Water Rates	27	0.0%	2.0%
Institutional Inside Sewer Rates	20	0.0%	2.0%
Institutional Outside Water Rates	21	0.0%	2.0%
Institutional Outside Sewer Rates	17	0.0%	2.0%

ust Reserves 50,000 50,000 50,000 50,000 50,000 50,000 50.000 50,000 50,000 50,000 50,000 50,000 50,000 50,000

Expense

Debt S Expen

ervice and Other Known Annual		Additional Utility Expenses that Grow Every Year	Building U	from Rates					
ses for Ne	ext 20 Years	(\$ per year)	Enter as neg	Enter as negative if transferring money					
Year	Expected Expenses	Admin & Personnel	\$ 178,350		Year	Revenue Needs to Adjust Reser			
Y2019	\$ 92,100	Utilities and Rent	\$ 102,000	F	Y2019	\$ 50			
Y2020	\$ 35,225	Capital	\$ 56,100	F	Y2020	\$ 50			
Y2021	\$ 35,225	payments	\$ 8,000	F	Y2021	\$ 50			
Y2022	\$ 35,225	Operations and Maintenance	\$ 73,364	F	Y2022	\$ 50			
Y2023	\$ 35,225			F	Y2023	\$ 50			
Y2024	\$ 35,225			F	Y2024	\$ 50			
Y2025	\$ 35,225			F	Y2025	\$ 50			
Y2026	\$ 35,225			F	Y2026	\$ 50			
Y2027	\$ 35,225			F	Y2027	\$ 50			
Y2028	\$ 35,225			F	Y2028	\$ 50			
Y2029	\$ 35,225	Total:	\$ 417,814	F	Y2029	\$ 50			
Y2030	\$ 35,225			F	Y2030	\$ 50			
Y2031	\$ 35,225	All expenses in this box are assumed to grow linearly every year at a constant rate		F	Y2031	\$ 50			
Y2032	\$ -	Inflation of Utility Expenses (%/year)	3.00%	F	Y2032	\$ 50			

Water and Wastewater Rates Analysis Model

Outputs



If we stay with our existing rates, how much of our revenues will from fixed (base) charges, and how much will be from volumetric charges? If we change our rates, how will that affect the revenues from both fixed and volumetric charges?



Residential Rates Affordability Assessment Tool

Affordability of Water Rates Assessed at 4000 Gallons/Month and the 2017 Income Levels



Under CURRENT Rates

39.4% of residential customers are estimated to have had less than \$25,000 in annual income. These households will have spent more than 1.38% of their income under the current rates for water bills at 4000 gallons/month. 13.6% of households will have spent more than 3.44% of their income. However, a substantial number of low-income households may be living in rental homes and apartments and do not pay water bills, which may be included in their rent.

Plan to Pay: Scenario to Fund Your Capital Improvement Plan

CAPITAL IMPROVEMENT PROJECTS - 20 YEARS	Project Construction Start Year	Project Expenditure/ Construction Period (years)	Estimated Cons	Annual Cost In Estimated Construction Cost		Expected Grants at Time of Construction	Financing Mechanism: Debt Financing or Capital Reserves?	Term of Debt (years)	Interest Rate Charged for Debt (%/year)	First Year of Capital Reserve Allocation	Additional Annual O&M Costs (\$/year)	
📲 List all known projects for the next 20 years 💌	Select here to sort by year 🔻	~	In the Start Year (🔻	Today (i.e. in FY18 🔻	▼	*	· · · · · · · · · · · · · · · · · · ·	*	*	*		-
1 Project 1 - type in name or description	FY27	2	\$ 2,000,000			\$ 100,000	Capital Reserves			FY22	\$ 2,50	0
2 Project 2 - debt financed portion	FY21	3		\$ 2,200,000	2.8%	\$ -	Debt Financing	15	5.00%		\$ 10,00	0
3 Project 2 - capital reserves financed portion	FY21	3	\$ 500,000			\$ -	Capital Reserves			FY21	\$	-
4 Project 3 - immediate project. Start new year	FY19	1		\$ 350,000	2.0%	\$ -	Capital Reserves			FY19	\$ 1,50	0
5 Project 4 - energy efficiency reduces O&M	FY29	5		\$ 3,500,000	2.8%	\$-	Debt Financing	20	2.50%		\$ (250,00	<i>J</i> 0)
6												
7												



Project cost in the start year net of grants	Number of years before project starts	Years of construction	Year payments end	Yearly allocations to reserves for capital reserve-financed projects		Number of years allocating to reserves for capital reserve-financed projects	Annual payment: debt service if debt-financed or cash payments during construction years if capital reserve-financed
\$ 1,900,000	9	FY27-FY28	FY28	\$	316,667	6	\$ 950,000
\$ 2,390,023	3	FY21-FY23	FY35				\$ 230,260
\$ 500,000	3	FY21-FY23	FY23	\$	500,000	1	\$ 166,667
\$ 357,000	1	FY19	FY19	\$	357,000	1	\$ 357,000
\$ 4,742,336	11	FY29-FY33	FY48				\$ 304,207

Financial Resilience Dashboard

- This dashboard is designed to show the impact of revenue losses on a utility in light of COVID-19.
- What data do you need?
 - Operating revenues
 - Percent of revenues anticipated to be lost due to COVID-19
 - Operating expenses
 - Unrestricted cash
- <u>https://public.tableau.com/profile/efc.at.unc#!/vizhome/l</u> <u>nputCOVIDDashboard/Landing</u>

FINANCIAL RESILIENCE DASHBOARD

A GLIMPSE INTO THE EFFECTS OF COVID-19 FOR WATER AND WASTEWATER UTILITIES

Please input the values below utilitizing the *most up to date information* on the utility's finances.

Operating Revenues	Unrestricted Cash
\$1,000,000	\$250,000
Operating Expenses	Percent of Revenues Anticipated to Lose
\$900,000	30%
	O · · · · · · · · · · · · · · · · · · ·

Based on these inputs, the utility can expect to have the following financial outcomes:

Days Cash on Hand	101												
Days the Utility can Opera Supplementing Revenue Los Unrestricted Cash	456												
These values assume that ALL of the unrestricted cash at the utility will be use to supplement revenue loss and t to buffer other short-term expenses. Unrestricted cash often has many uses for the utility, including covering emergency expenses.													
< Click to View Landing Pg		Clic	ew Inp	uts >									
‡‡ + a b e a u		\leftarrow	\rightarrow	\leftarrow	a O	Ţ	[_]						

COVID-19 Revenue Loss Tool

• This tool integrates any changes in usage, delinquencies, capital improvements, and expenses to provide a more in-depth understanding of COVID-19's impacts going forward.

			Name of Utility:					Name you	ur scenari	os:													
								Scenario 1															
Additional	l informa	ation on inputs						Scenario 2															
			Bills charged		Anticipated for	FY2020		State of E	mergency	lifted (wh	hen late f	ees can b	e collecte	ed, when	payment	plans start)							
Only input	revenue	e from water rate	Total annual revenue from billed charges:	\$428,418.00)			Enter as r	month/yea	ar (e.g. Jur	ne 2020)												
					leave blank if	no change	Scenario	Jun-20															
			Annual Revenue from residential connections	\$ 406,417,44	\$ 414,545,79		Scenario	Aug-20															
			Annual revenue from non-residential connections	\$ 22,000,56	\$ 22,660,58																		
				•,	,																		
This can b	e calcula	ated by dividing t	% of average residential bill that is fixed	28%	29%																		
			% of average non-residential bill that is fixed	7%	9%																		
							we might	see a sen	ni-gradua	l shift bao	k to typica	al consum	notion, th	ough it d	epends or	n the action o	of the I	ocal orga	nizations	/instituti	ons and w	hen folks go ba	ack to work
			Change in usage due to COVID-19	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	01 2021	Q2 2021	Q3 2021 Q4	2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022		
Use AMI d	ata if av		% change in residential usage	5%	5%	5%	3%	2%	1%	0%	0%	0%	0%	-1%	-1%	-1%	-1%	-1%	-1%	-1%	-1%		
Institution	nal, Indu	Scenario 1	% change in non-residential usage	-20%	-20%	-18%	-15%	-12%	-8%	-8%	-6%	-4%	-4%	-2%	0%	0%	0%	0%	0%	0%	0%		
			% change in residential usage	10%	10%	9%	8%	7%	3%	3%	3%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%		
		Scenario 2	% change in non-residential usage	-20%	-20%	-18%	-15%	-10%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%		
			, , , , , , , , , , , , , , , , , , ,																				
			Deliquencies					Customer	Percenta	ge of total	l delingur	ncies											
Revenue ti	Revenue that was billed but not co Typical annual amount of delinguencies pre-COVID					Segment	25%	25%	Pay full d	elinquen	cies after	r mortoriu	m and ful	II bills going	forwar	d							
			OR	OR				Segment 40%	25%	25% Pay partial delinquencies after moratorium and full bills going forward, with part of the delinquence								quencies	added				
			Typical % of annual revenue from billed charges not c	0.6%	i			Segment	35%	35% 50% Pay partial bills going forward													
				Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Q1 2021	Q2 2021	Q3 2021 Q4	2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022		
		Scenario 1	% of delinquences	6%	8%	10%	3%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%		
		Scenario 2	% of delinquences	15%	17%	20%	25%	23%	20%	18%	15%	10%	10%	10%	5%	2%	2%	2%	2%	2%	2%		
			If your delinquency rate has doubled, then it has incre	eased by 200%	* We expect a	sharp increa	ase at the	in March	and April	of 2020, t	hen perha	aps a slov	v climb, a	and a decr	ease whe	en the SOE en	nds*						
			Change in non-rate revenue																				
pre-COVID-	- find in	audit	pre-Covid annual Penalties	\$ 2,600.00																			
pre-COVID-	- find in	audit	Connections and tap fees (and penalties, if not separ	\$ 6,560.00																			
pre-COVID-	- find in	audit	Capital (or system development) fees	s -																			
				Mar-20) Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Q1 2021	Q2 2021	Q3 2021 Q4	2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022		
take into c	onsider		% change in Penalties	-100%	-100%	-100%	-5%	-5%	-3%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
proxy for d	ecline i	Scenario 1	% change in Connections and tap fees	-10%	-10%	-10%	-10%	-9%	-5%	-3%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
			% change in Capital, or system development, fees	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%		
			% change in Penalties	-100%	-100%	-100%	-100%	-100%	-5%	-3%	-2%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
		Scenario 2	% change in Connections and tap fees	-10%	-10%	-10%	-10%	-9%	-5%	-3%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
			% change in Capital, or system development, fees	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%		

COVID-19 Revenue Loss Tool

Scenario 1 and 2 Inputs



- Scenario 1 (solid line) is a more hopeful outlook with the impacts of COVID-19 lessening sooner than later
- Scenario 2 (dotted line) is a worse off case with the impacts of COVID-19 lasting longer

Funding Tables By State

http://efcnetwork.org

Select "Funding Sources by State" under the Resources Tab.


Vermont Funding Table

https://efcnetwork.org/funding-sources-by-state/

Vermont Water and Wastewater Funding Sources

Compiled by the Environmental Finance Center Network, July 2020

Organization	Program (key words)	Gov. Entity	Non- Profit	For- Profit	Purpose or Use of Funds	How to Apply	Website	Contact
Vermont Department of Environmental Conservation	Drinking Water State Revolving Loan Fund (water)	~	1	~	This funding program is applicable for privately-owned community drinking water systems or privately-owned nonprofit, non- community public water systems. All loans must be approved by both the VT Economic Development Authority and the VT Agency of Natural Resources.	Applicants should contact the Agency of Natural Resources directly for information regarding financing your water improvement project.	http://www.veda.org/financing- options/other-financing- option/drinking-water-revolving- loan-fund/	
	Drinking Water State Revolving Fund (DWSRF) Water Planning Loan (WPL) (water)	~	~	~	Planning loans are available for preliminary engineering planning studies, preliminary and final engineering plans and specifications for water system improvement projects needed to comply with state and federal standards and to protect public health. These loans are awarded at 0% interest, 5-year term, and can be rolled into a construction loan.	Applications are accepted on a rolling basis.	https://dec.vermont.gov/water- investment/water- financing/dwsrf-water-planning- loan	
	Drinking Water State Revolving Fund (DWSRF) Construction Loan (water)	~	~	~	All public community water systems and non-profit non-community water systems are eligible, with varying interest rates and loan terms based on the organization type. Loan terms begin at 20 years. Having completed an engineering planning project (typically funded through the Planning Loan above), projects will be ranked according to the prioritization list, which can be found on the website.	Projects must apply to be on the annual priority list by submitting a Priority List Application contained in the Intended Use Plan. To be compliant with National Environmental Policy Act (NEPA), environmental reviews are required as well. Applications and forms can be accessed on website.	https://dec.vermont.gov/water- investment/water- financing/dwsrf	Celia Riechel Celia.Riechel@vermont.gov 802-585-4904 1 National Life Drive
	Vermont Only Drinking Water State Revolving Fund (water)	~			The Vermont-only Drinking Water Revolving Loan Fund was established to provide loans to a municipality for the design, land acquisition, if necessary, and construction of a potable water supply when a household in the municipality has been disconnected involuntarily from a public water supply system for reasons other than nonpayment of fee. The loan is to the municipality, not individual home owners.	The application form is available on the website.	https://dec.vermont.gov/water- investment/water-financing/vt- drinking-water-stf	Montpelier, Vermont 05604
	Source Protection Loans (water)	1			This loan can be utilized for purchasing land or conservation easements to protect public water sources and ensure compliance with state and federal drinking water standards. Maximum loan amount is \$200,000 and loans are awarded at a 3% interest rate and a 20-year term.	Applications are accepted on a rolling basis. Application checklists can be accessed on website.	http://dec.vermont.gov/water/dri nking-water/public-drinking- water-systems/source-water- protection	
	Water Infrastructure Sponsorship (water)	1	~		The goal of Water Infrastructure Sponsorship (WISPr) is to counter the loss of ecological function and biological diversity that jeopardize the health of Vermont's water resources by providing financial resources.	To be eligible, a municipal clean water project must sponsor a Natural Resource project and both projects will be funded with the same loan. To apply, contact the program specialist.	https://dec.vermont.gov/water- investment/water- financing/cwsrf/wispr	



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How are North Carolina Utilities Faring During the Pandemic? Four Key Insights from Survey Results

JUNE 18, 2020 / RADHIKA KATTULA / 0 COMMENTS

With the ongoing COVID-19 pandemic, utilities across the nation continue to adapt to rapidly changing conditions through a number of measures, from suspending water shut-offs to implementing cost-saving maneuvers like reducing energy costs.



How Utilities in the Past have Saved Money during Economic Hardship: Similarities and Differences for COVID-19

MAY 19, 2020 / ELSEMARIE MULLINS / 0 COMMENTS

Co-written by Erin Ansbro

Right now, water utilities are facing great uncertainty about the coming months and years. When will moratoria on water shut-offs end? When will water consumption be back to "normal"? Will utility staff get COVID-19? And the "Big One" – What will revenue loss be for utilities in the coming months and years?



Visualizing the Value (of a State Revolving Fund Loan)

JUNE 3, 2020 / AUSTIN THOMPSON / 0 COMMENTS

Imagine a town called "Smallville." Smallville, as you might guess, is small. The town's water utility needs a new water tank, and they need it now. Like most systems across the US, Smallville's system is aging and has significant infrastructure needs. Smallville generally knows the assets that are most critical



Municipal Finance in a Pandemic: How is the Market Responding?

APRIL 22, 2020 / AUSTIN THOMPSON / 0 COMMENTS

Municipal Bonds & COVID-19: What is going on?

Prior to the outbreak of COVID-19 in the US, the municipal ("muni") bond market was strong. Investors looking for a non-taxable rate of return were hungry for municipal bonds, driving interest rates down for borrowers (state and local governments) and pushing more debt into the marketplace. Most governments

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	Offering ideas on how to effectively Long-term capital planning Assessing options for lowering energi Identifying sources of outside fundir Collaborating with other water system	budget gy use and/or water loss ng ms	3										



Thank you.



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