

Results of the 2017-2018 North Carolina Water and Wastewater Utility Management Survey



August 2018

INTRODUCTION

Between November 2017 and March 2018, the North Carolina League of Municipalities (the League) and the Environmental Finance Center at the University of North Carolina's School of Government (EFC) conducted a statewide survey of the management and long-term planning practices and policies of North Carolina drinking water and wastewater utilities. The purpose of this survey was to examine the relationship between long-term planning and resiliency, as measured by financial stability and fewer regulation violations. The hypothesis is that utilities that undertake more or earlier long-term planning benefit from more resilient finances and improved system performance, thereby providing better environmental services relative to other utilities. All local government-owned utilities and many not-for-profit utilities were invited to participate in the survey. These utilities serve the vast majority of residents who are connected to public water and/or wastewater systems in North Carolina. This initial report summarizes the data collected in the survey. A future report will examine the data presented here using regression analysis to determine the correlation, if any, between long-term planning and resiliency.

Five key types of plans were identified and then broken down into their constituent efforts. Whether a utility has a particular type of plan was determined based on whether they stated that they undertake a key component effort (rather than whether they simply have a document titled "ABC Plan.") This was done to capture the efforts of utilities that may functionally be participating in a given type of planning, but may not have a formal document, or may have a document by a different name.

Not every question was answered by every respondent. In all cases, results are based on those utilities who responded to the question. The n-value included with each question's results indicates the number of utilities responding to that question. When question numbers are not consecutive, that indicates questions where data could not be aggregated, or could not be aggregated sufficiently to ensure anonymity.

This survey was conducted by Shadi Eskaf, James Farrell, and Carol Rosenfeld from the Environmental Finance Center, and Chris Nida from the North Carolina League of Municipalities. Editorial assistance provided by Liz Harvell from the Environmental Finance Center.

ACKNOWLEDGEMENTS

We would like to thank each utility that participated in the survey. We also would like to thank all of the individuals from local government utilities and the North Carolina Department of Environmental Quality Division of Water Infrastructure who pretested the survey and provided feedback. Funding to conduct this project was provided by the North Carolina Policy Collaboratory.



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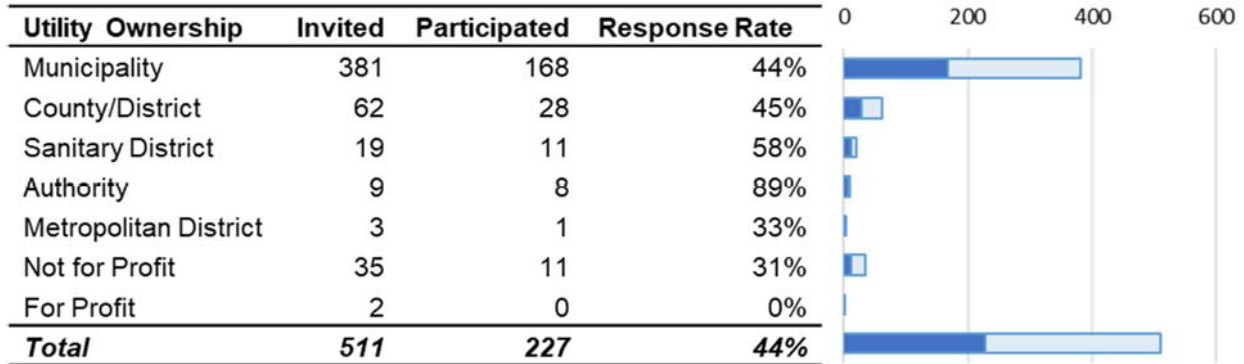
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Environmental Finance Center at the University of North Carolina at Chapel Hill

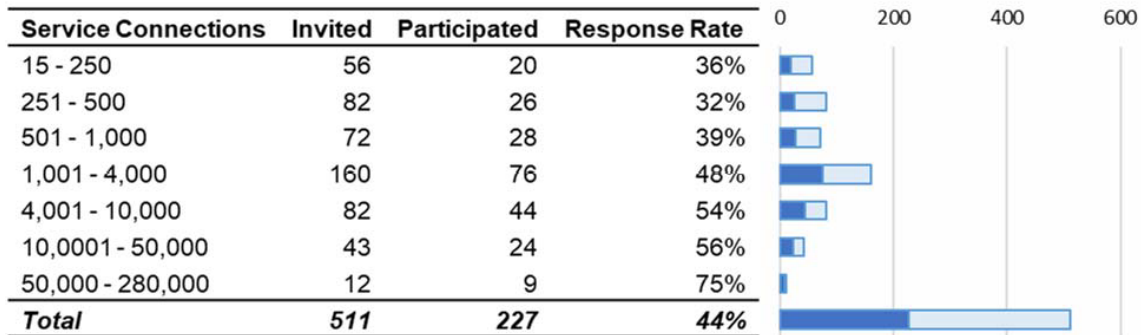
Note: This report was updated August 30, 2018 to remove a question that was not asked of all utilities.

SURVEY RESPONSE RATE

227 utilities (44 percent), of the 511 invited, participated in the survey. Utilities, which included municipality (local government), county/district, sanitary district, authority, metropolitan district, not for profit, and for profit utilities, were invited to participate via email. In cases where email contact information was not available, utilities were invited via phone when possible. Utilities were encouraged to complete the survey online using Qualtrics software, with the ability to pass the online survey to colleagues to ensure questions were answered by the person most knowledgeable about each topic. A written version of the survey was provided when requested. The response rate was highest for authorities (89 percent) and lowest for non-governmental utilities (not for profit and for profit utilities).

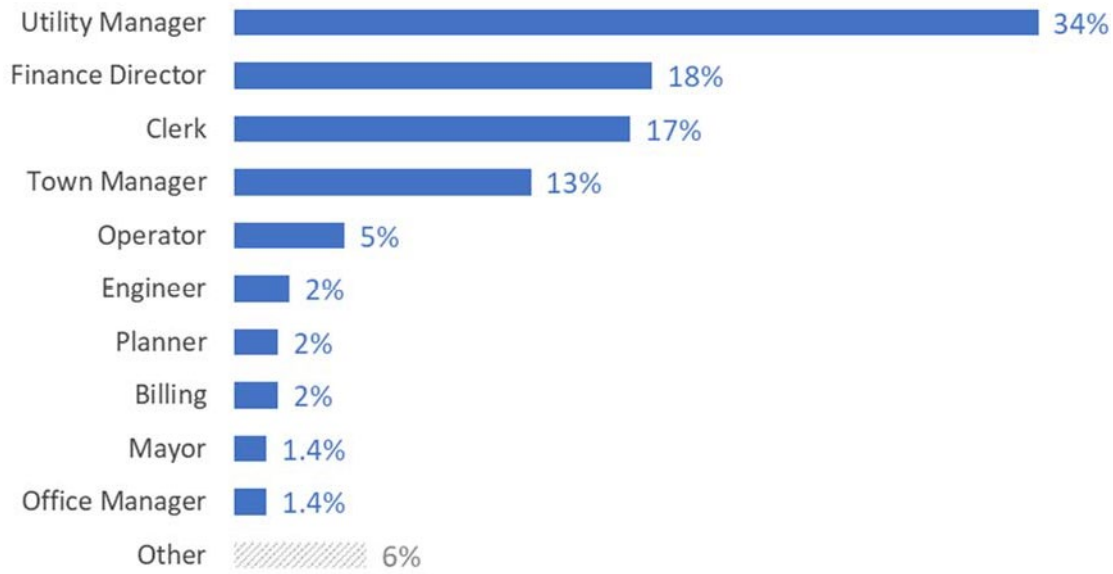


Utilities of all sizes participated in the survey. The response rate was higher for larger utilities, but was significant even for small utilities.

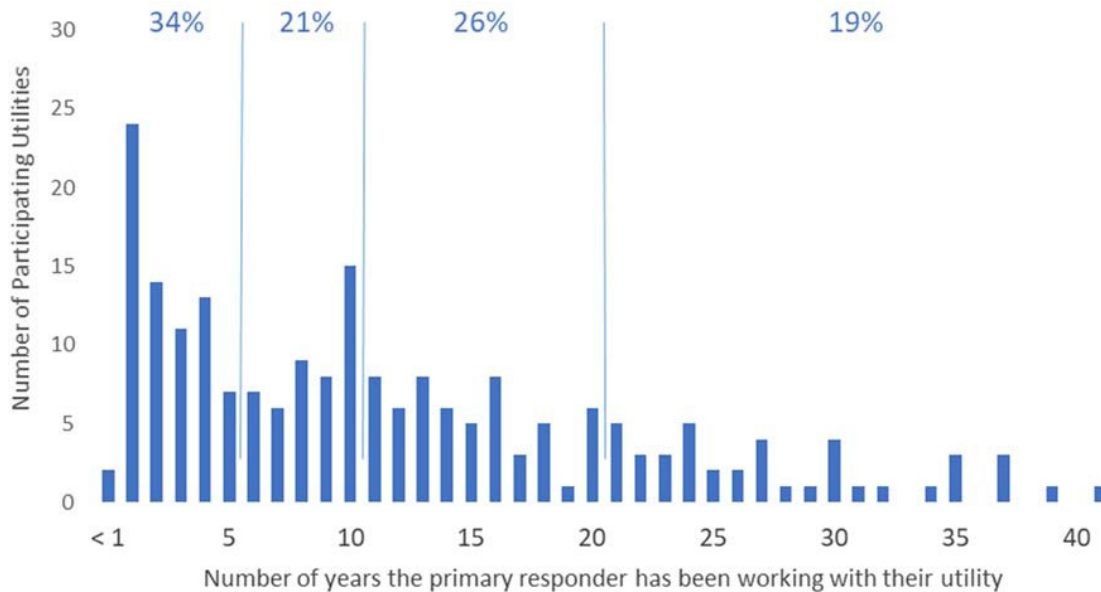


RESPONDENT INFORMATION

Over one-third of primary survey respondents are the **manager of their utility** (n = 215).



66 percent of the primary survey respondents have worked at their utility for more than 5 years (n = 213).

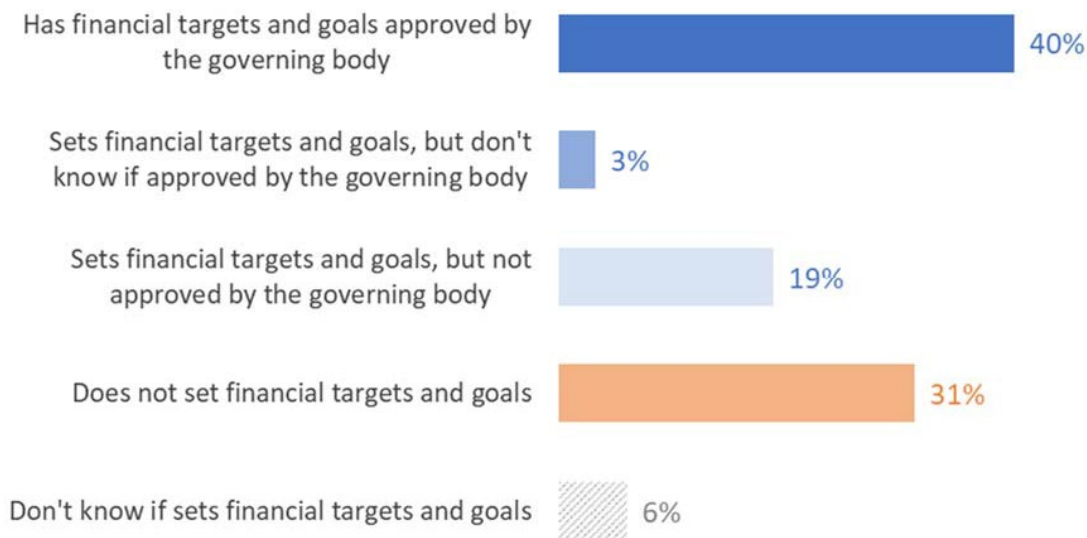


FINANCIAL PLANNING

5) Does your utility set specific financial targets and goals (such as a minimum reserve balance, debt service coverage ratio, or maximum debt-per-customer level)? These may be just internal targets and goals, not necessarily approved by the governing body.

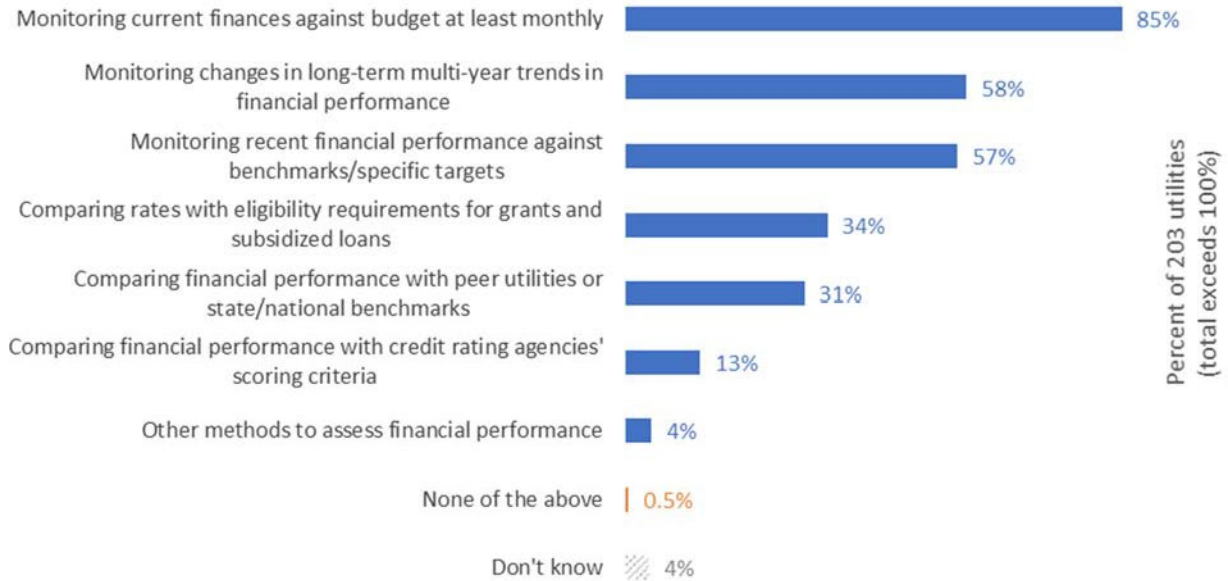
6) Are these financial targets and goals approved by the governing body (i.e. city council, county commissioners, board of directors, etc.)?

Over 62 percent of utilities set specific financial targets and goals. Most have the targets and goals approved by the governing body (n = 216).



7) How does your utility assess its financial performance (revenues, expenses, etc.)? Select all that apply.

The great majority of utilities monitor their finances against the budget at least monthly. Most are also comparing their financial performance to long-term trends and against benchmarks. Some are looking at their performance versus peer utilities or state / national benchmarks, while relatively few are focusing on credit rating agencies' scoring criteria.

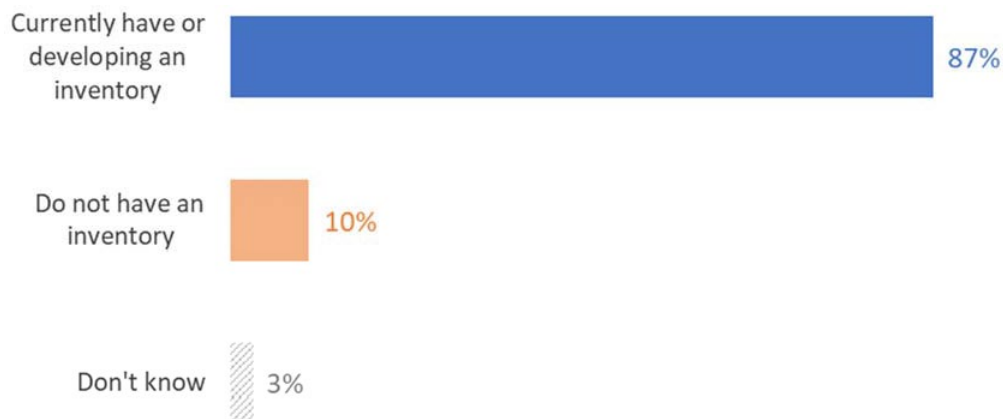


Other: Monitoring the current year's finances against the budget at least quarterly | Revenue versus Expense evaluation quarterly | Annually audited financial statements | Monitor usage of top ten users monthly | Annual audit | Linking rates projections to financial performance metrics to project the impact of rate adjustments on financial condition | Monitor current budget to budget quarterly | EFC Dashboard | Periodic outside financial review of status and rate structure. About every 5 years.

ASSET MANAGEMENT

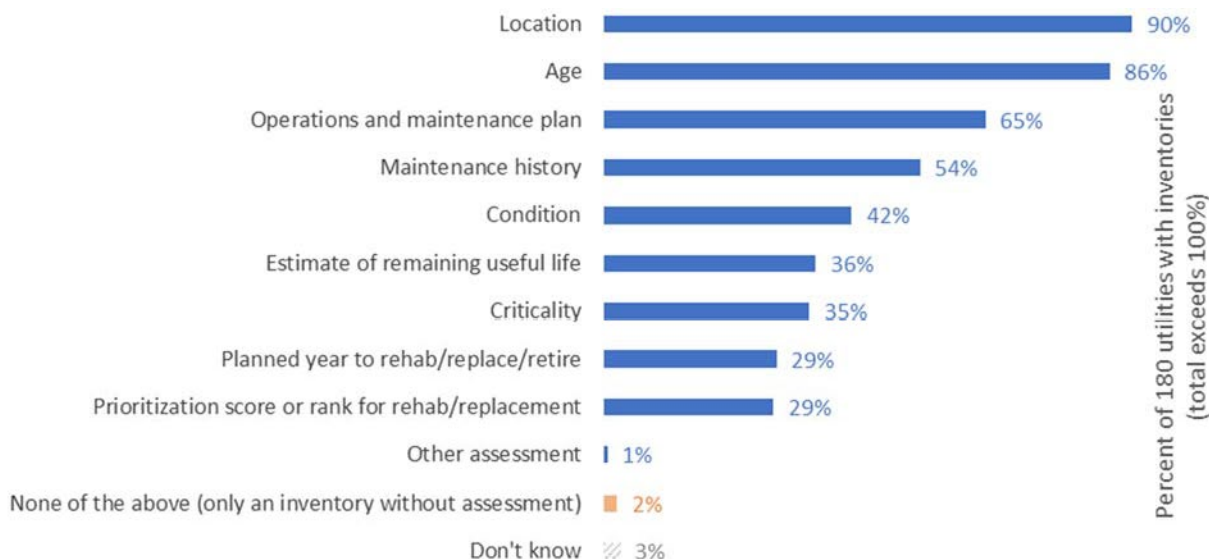
8) Does your utility have a list or inventory of your utility's key assets (pipes, pumps, etc.)?

Eighty-seven percent of utilities have or are currently developing an inventory of their key assets (such as pipes and pumps) (n = 215).



9) Does your utility have an assessment of the following for individual assets on the inventory? Select all that apply.

For utilities with asset inventories, location is the most likely information to be recorded, followed by asset age, operations and maintenance plan, and maintenance history. Very few (two percent) utilities have inventories without any additional information, although less than 30 percent include the planned year or prioritization rank for rehabilitating, replacing, or retiring assets.



Includes 180 of the 188 utilities that currently have or are developing an inventory of the utility's key assets.

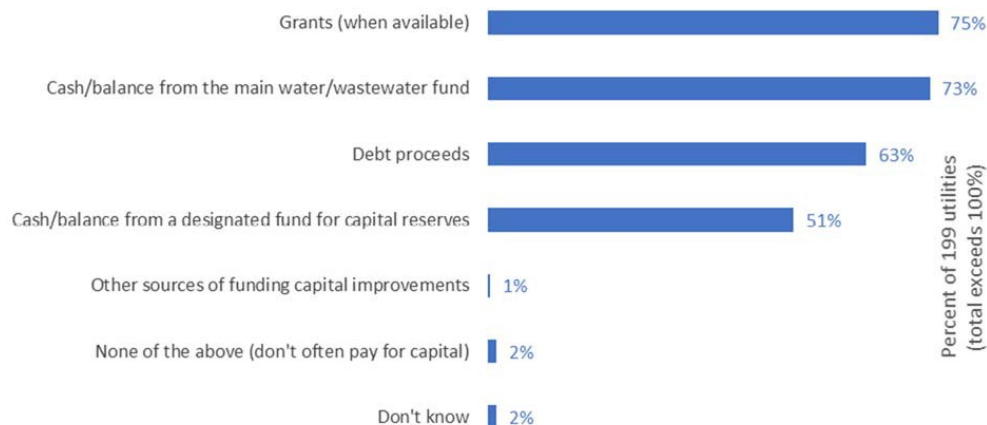
Other: Please note that the City does not have all relevant information listed above for all assets. Part of its ongoing efforts is to establish better information regarding age, location, maintenance history, condition, criticality, approximate remaining useful life and plan replacement year for all assets, both vertical and horizontal.

CAPITAL PLANNING AND FUNDING

The following questions relate to how utilities plan for and pay for capital infrastructure improvements (rehabilitation, replacement, expansion, etc.) in the future (i.e. not debt payments being made for past investments). Capital improvements do not include typical annual repair and maintenance.

10) How does your utility typically pay for capital improvements? Select all that apply.

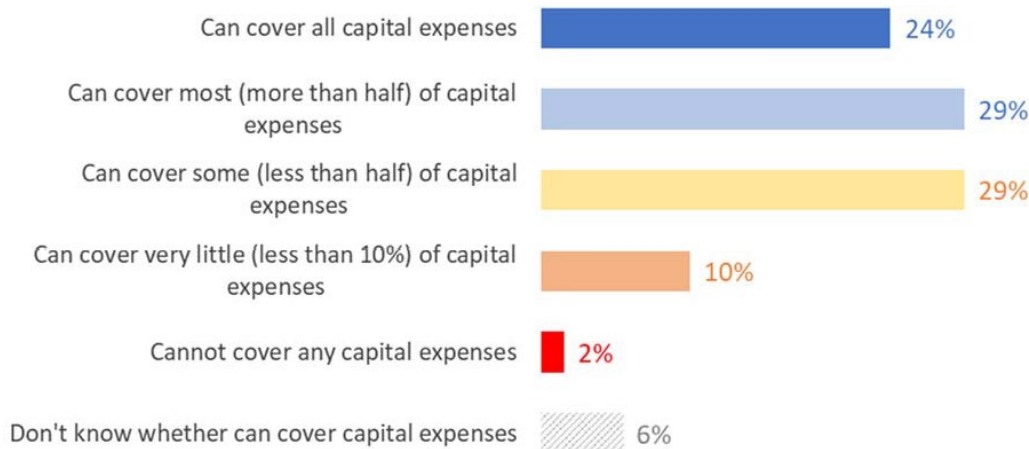
Fifty-one percent of responding utilities have a fund designated for capital reserves.



11) Complete the following: "Using all of the sources above (*excluding* grants), our utility is generally able to comfortably cover _____ of the planned capital improvements and unplanned/emergency capital improvements during the year."

The majority of utilities (53 percent) are generally able to comfortably cover more than half of their planned capital improvements and unplanned/emergency capital improvements during the year.

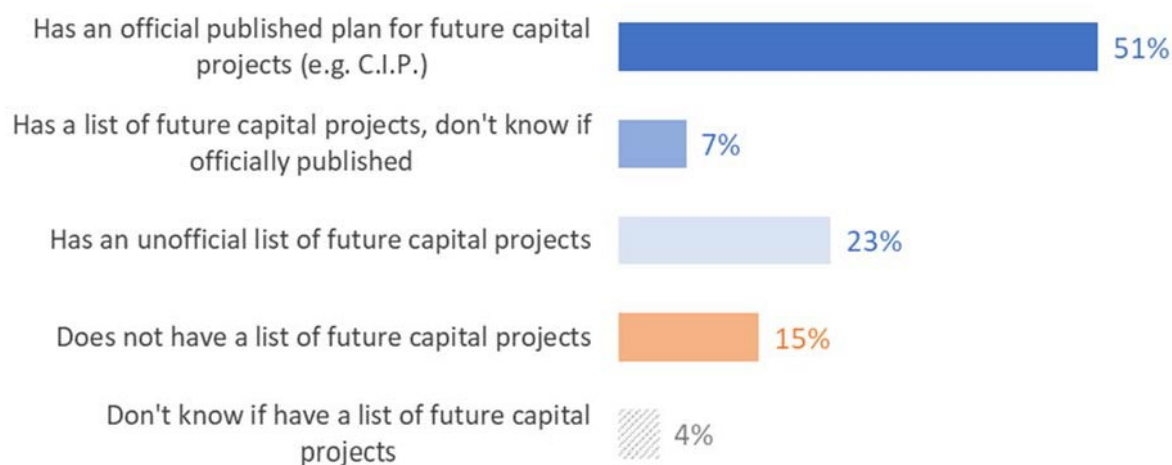
Twenty-four percent responded that they can cover all of their capital expenses (n = 195).



12) Has your utility identified a list of potential future capital projects (e.g. in an official or unofficial capital planning document)?

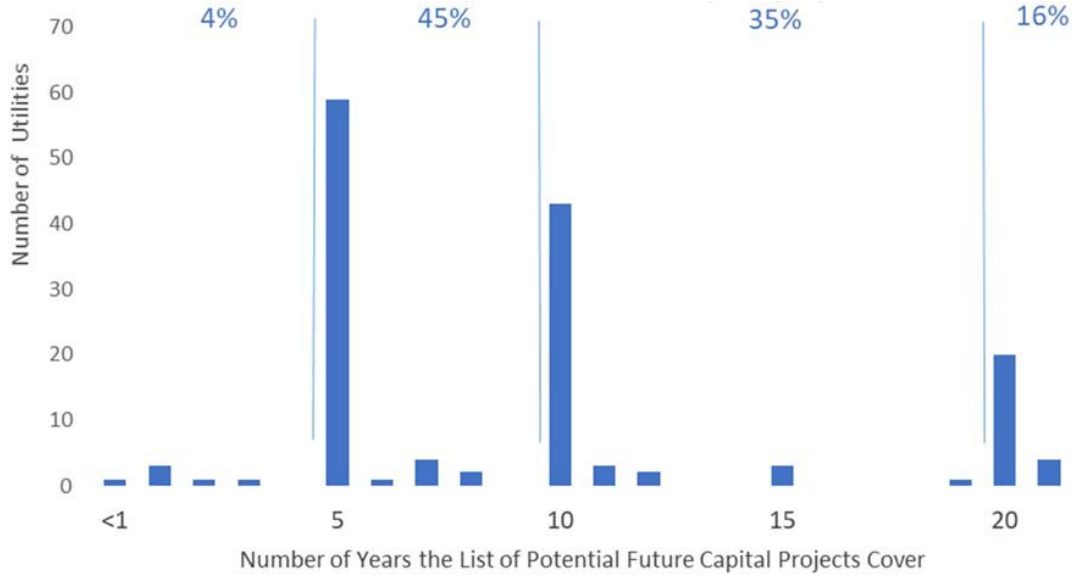
15) Has this list or a version of this list of future capital projects been put into an official published plan (e.g. a Capital Improvement Plan)?

Most (81 percent) responding utilities have an official or unofficial list of potential future capital projects (n = 208).



13) How many years does this list/capital planning document cover? If your utility has multiple lists or documents, please enter the number of years in the one with the longest time horizon.

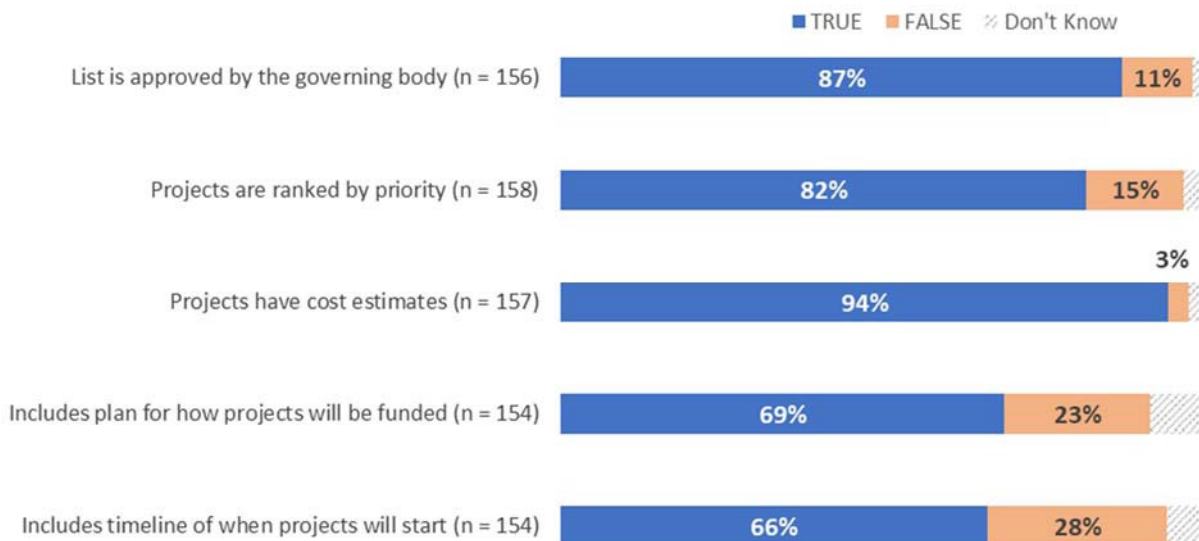
Fifty-one percent of the capital plans / capital planning lists have a long (> 10 year) planning period.



Includes 146 of the 167 utilities that have a list of potential future capital projects.

14) Which of these statements are true about the list of future capital projects (whether in an official or unofficial document)?

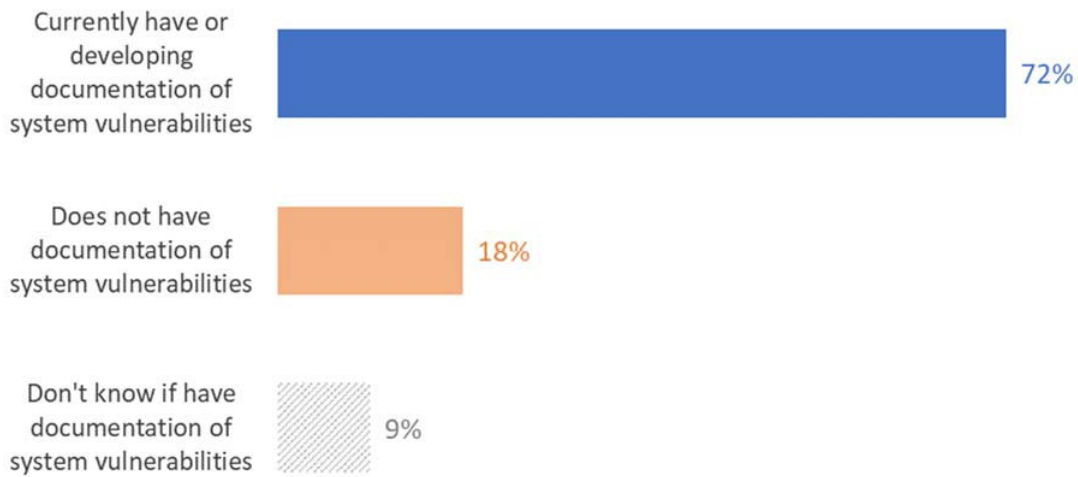
The large majority of capital plans / capital planning lists include detailed information such as cost estimates (94 percent), priority rank (82 percent), how projects will be funded (69 percent), and / or a timeline of when projects will start (66 percent).



DISASTER / EMERGENCY / RESILIENCY PLANNING

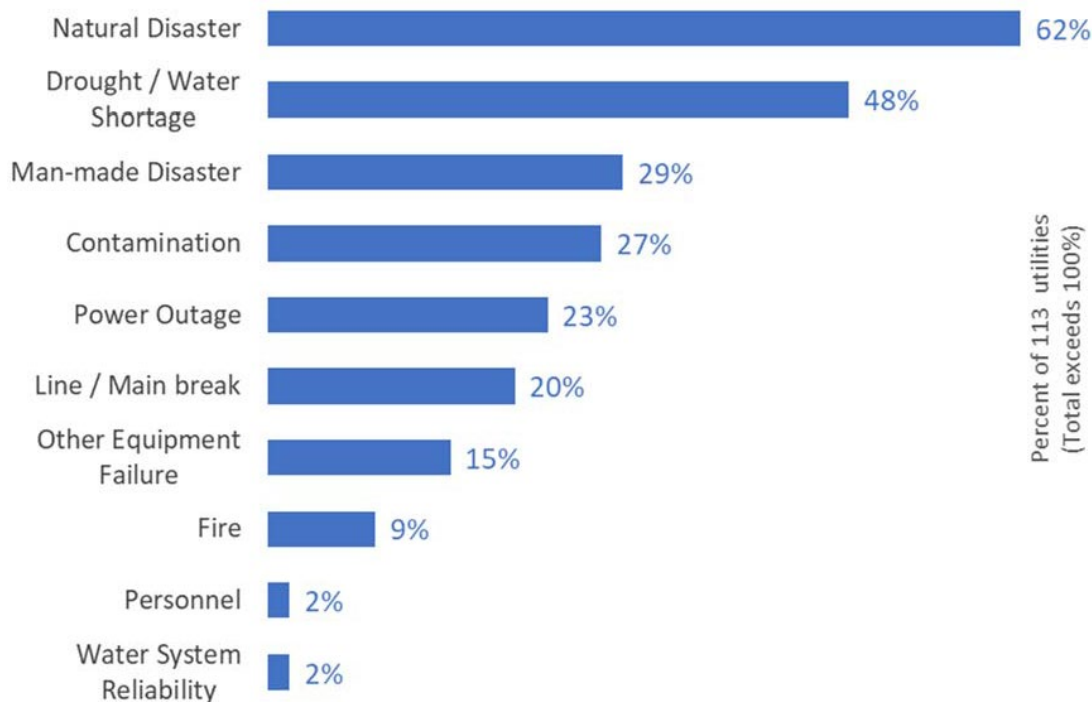
16) Has your utility documented different types of threats or emergencies your system might be vulnerable to (e.g. drought, natural disaster, contamination, main breaks, cyber security threat, etc.)? If your utility has a document identifying how to deal with at least one type of threat, please answer "Yes".

Seventy-two percent of utilities have or are currently developing documentation of at least one type of system vulnerability (n = 207).



17) What types of threats or emergencies has your utility documented and planned for? Please type a short list, or feel free to copy and paste links to relevant documents online. Skip if you are unsure.

System vulnerabilities utilities have documented include natural disasters (62 percent), drought / water shortage (48 percent), and man-made disasters (29 percent).



18) Which vulnerability assessments does your utility have for each type of threat? Select all that apply.

Nearly half of utilities assess threat probabilities, and more than half assess the consequence / severity of threats.

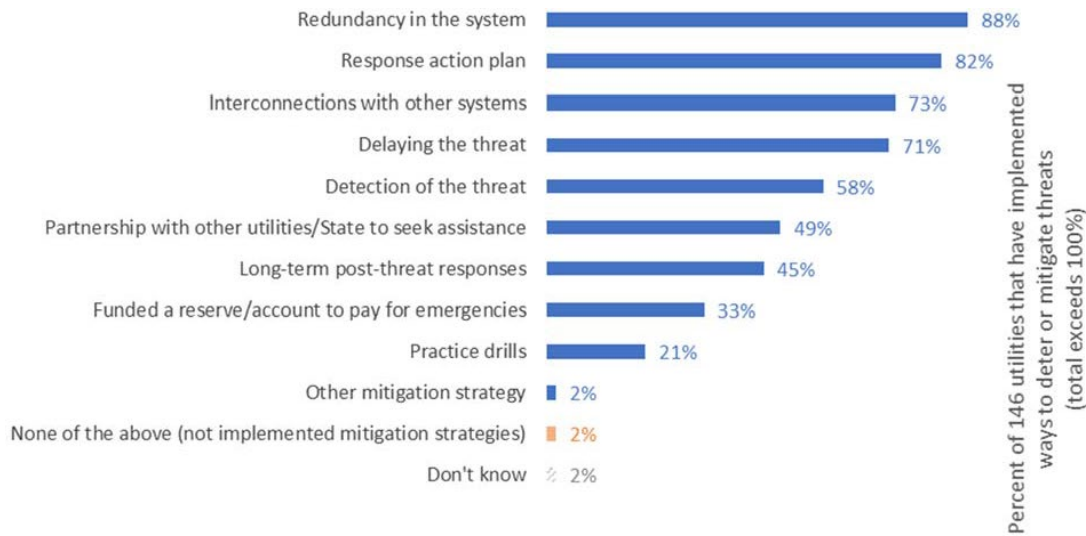


Includes 142 of the 150 utilities that currently have or are developing documentation of threats and emergencies to which the systems might be vulnerable.

Other: Priority Level.

19) Has your utility implemented any of the following ways to deter or mitigate the threats? Select all that apply.

Utilities are deterring or mitigating threats through redundancy in the system (88 percent), response action plans (82 percent), and interconnections with other systems (73 percent).



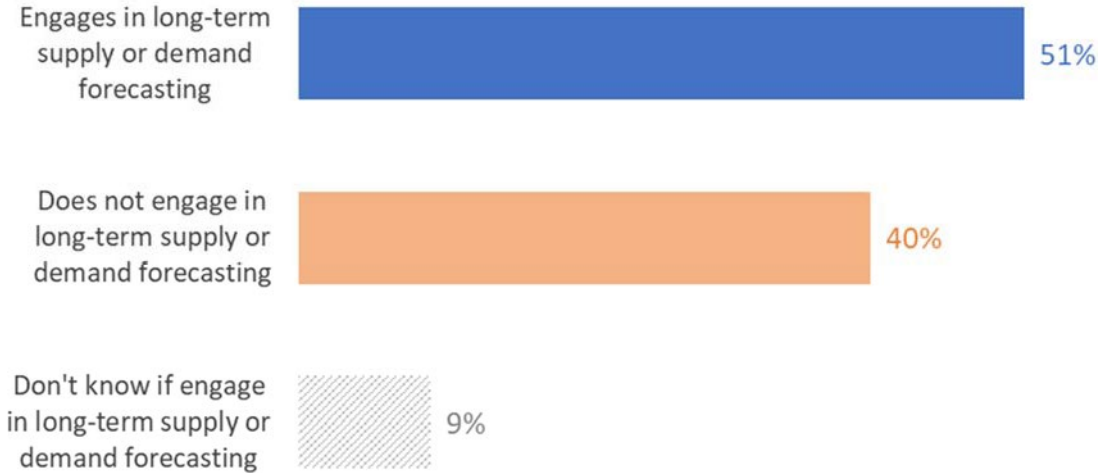
Includes 146 of the 150 utilities that currently have or are developing documentation of threats and emergencies to which the systems might be vulnerable.

Other: Table Top Exercises | Insurance | Participation in DHS programs and the Water Information Sharing and Analysis Center (WaterISAC).

LONG RANGE WATER AND WASTEWATER RESOURCES PLANNING

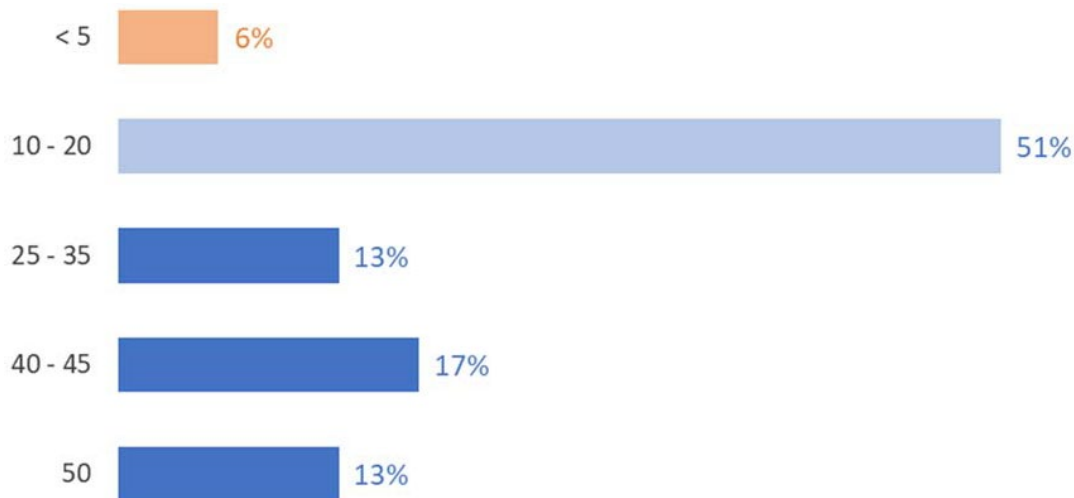
20) Does your utility engage in long-term supply or demand forecasting (more than 10 years)?

Approximately half of all utilities engage in long-term supply or demand forecasting (n = 205).



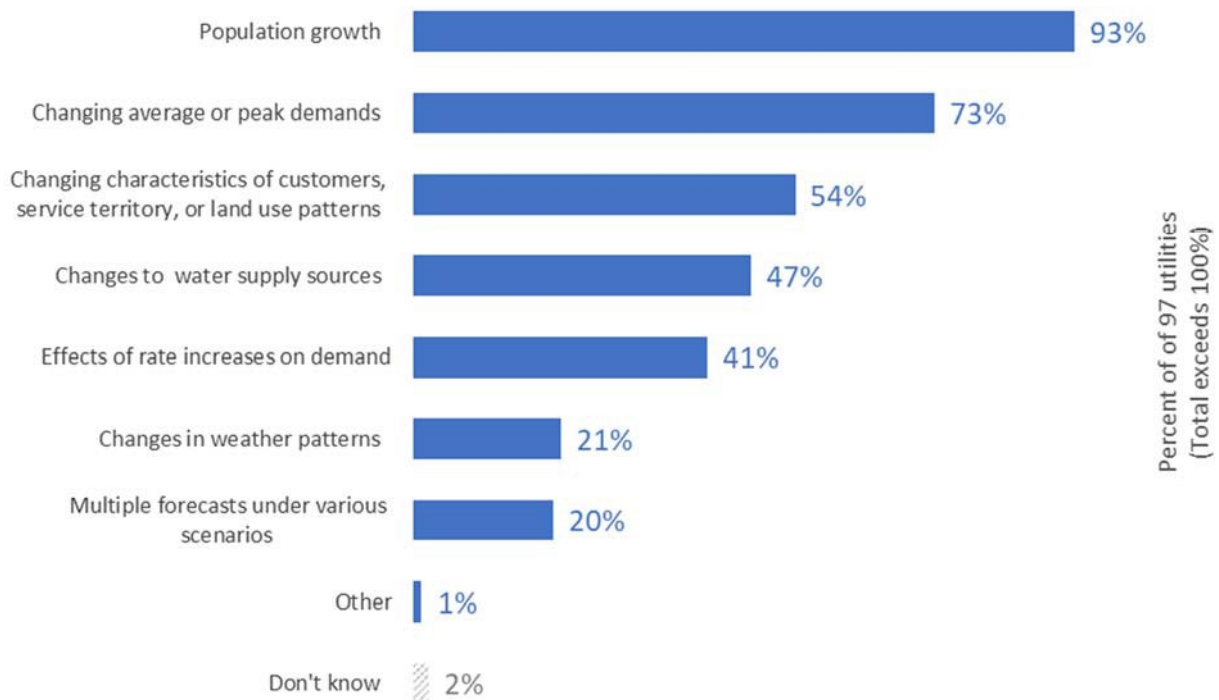
21) How many years out does your utility forecast demand and supply? If your utility has multiple forecasts, please enter the number of years in the one with the longest time horizon.

Demand and supply forecasts go out 10 to 20 years for half of all utilities (n = 87).



22) Which of the following does your utility's forecasting consider? Select all that apply.

Utilities' forecasting considers population growth (93 percent), demand (73 percent), and customer / territory / land use characteristics (54 percent).



Other: Improvements in water use fixtures, equipment and appurtenances.

PLANNING EFFORTS

For the purposes of this survey, we considered utilities to have some elements of the following plans based on these criteria.

If a utility sets specific financial targets and goals (such as a minimum reserve balance, debt service coverage ratio, or maximum debt-per-customer level) then it has elements of a **financial plan**: a plan to ensure that the performance of the utility fund meets or exceeds identified financial targets and goals.

If a utility has a list or inventory of key assets (pipes, pumps, etc.) then it has elements of an **asset management plan**: a long-range plan identifying how the existing assets will be managed, and when they will be replaced or rehabilitated. An inventory of key assets is a critical element of asset management plans.

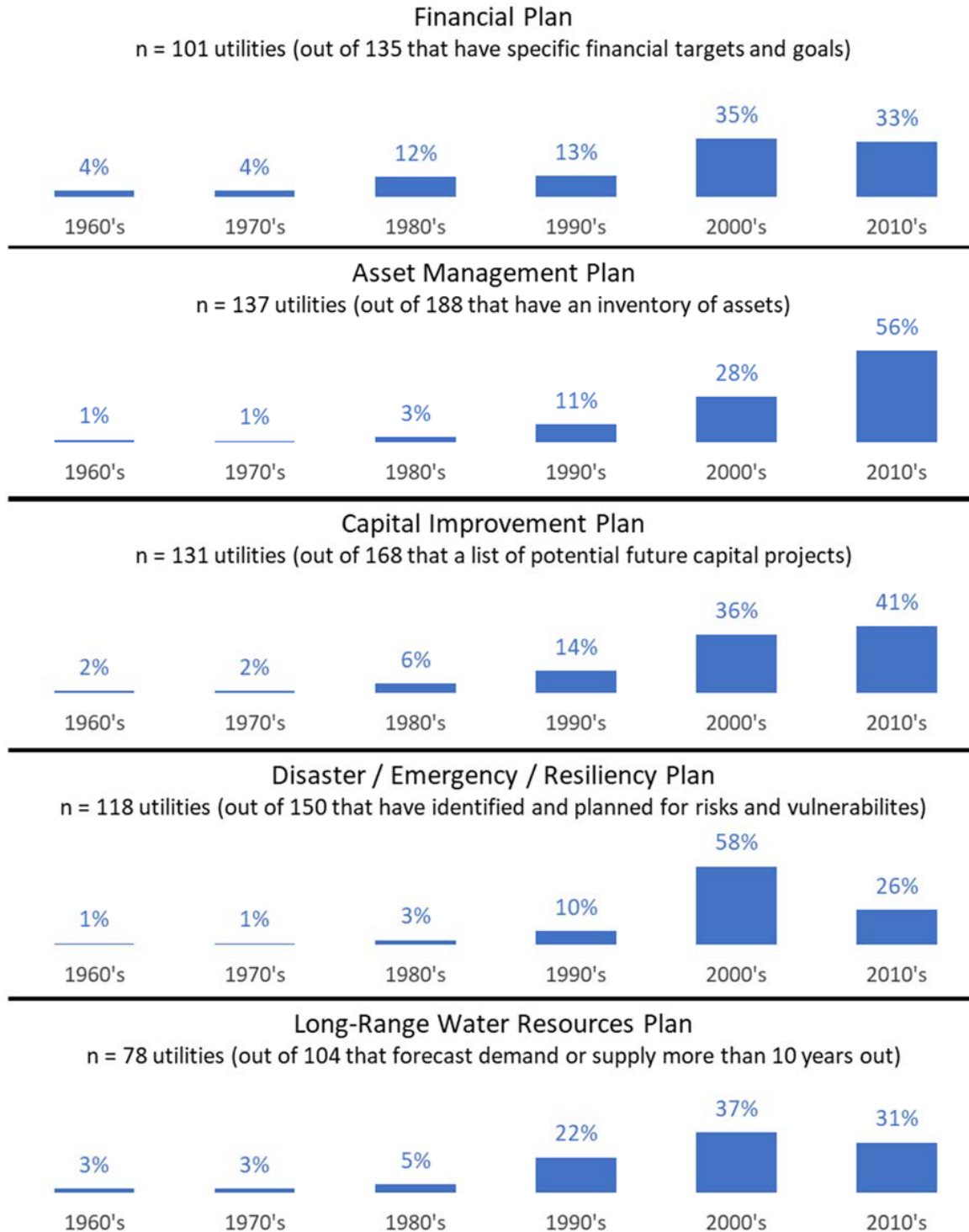
If a utility has identified a list of potential future capital projects (e.g. in an official or unofficial capital planning document) then it has elements of a **capital improvement plan**: a plan that identifies capital projects to be completed in the next few years.

If a utility has documented different types of threats or emergencies the system might be vulnerable to (e.g. drought, natural disaster, contamination, main breaks, cyber security threats, etc.) and has a document addressing at least one type of threat, it has elements of a **disaster / emergency / resiliency plan**: identification of risks and vulnerabilities to the utility's functions, and a course of action to mitigate the risks.

If a utility engages in long-term supply or demand forecasting (more than 10 years), then it has elements of a **long-range water resources plan**: an assessment of water supply needs and/or wastewater demands long in the future (more than 10 years) and the ability of the utility to meet those needs.

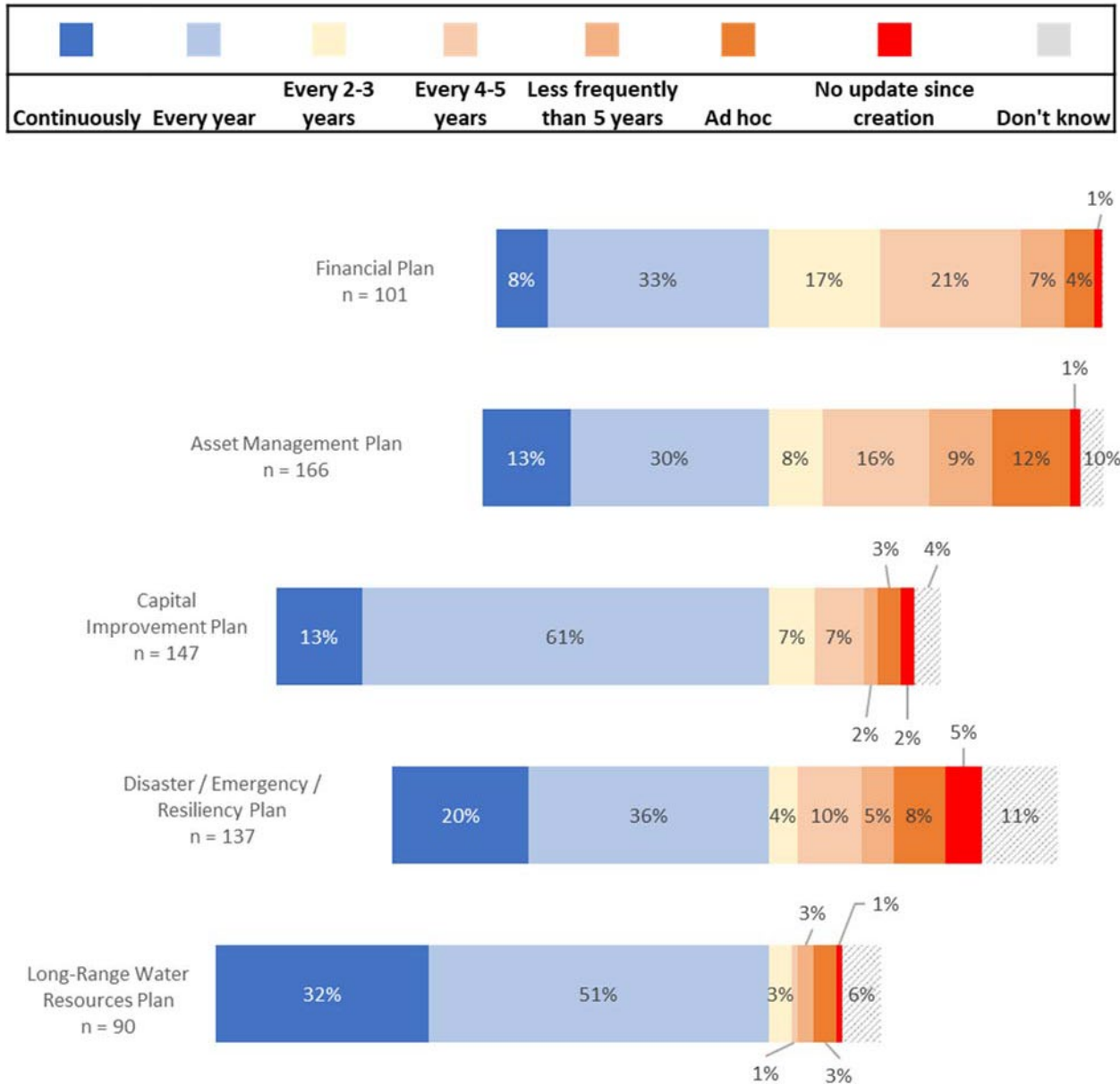
23) What year did your utility begin creating each type of plan? An approximation is fine if you do not know the exact year.

Utilities are most likely to have begun financial, capital improvement, and disaster / emergency / resiliency, and long-range water resources plans in the 2000's, while they were most likely to have begun asset management and capital improvement plans in the 2010's.



24) How often does your utility update or plan to update each of these plans?

Utilities are most likely to update plans of all types every year, with the majority updating their capital improvement and long-range water resources plans annually.



25) In the past three years, how has the public generally been involved in most of your utility's planning efforts? Select all that apply.

More than half of all utilities invited the public to comment on planning efforts in the past three years.

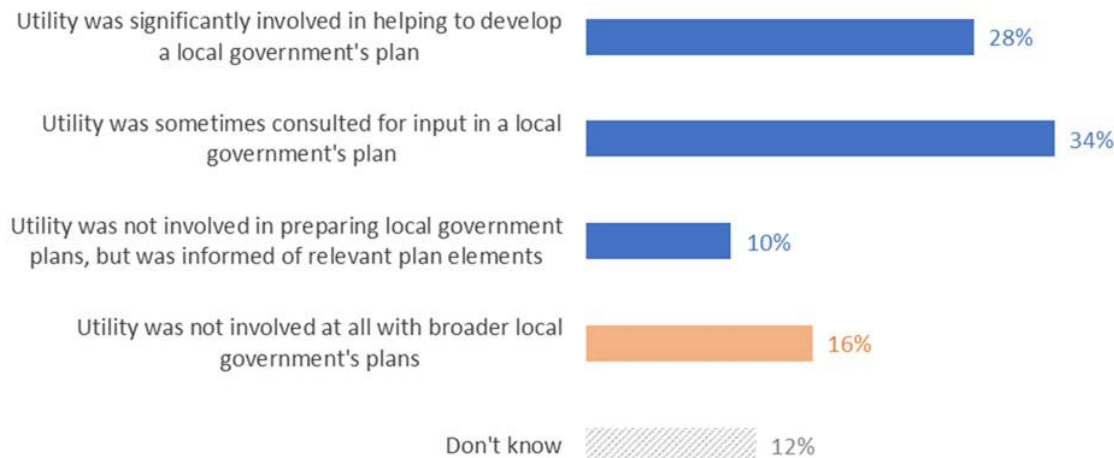


Excludes 7 utilities that did not conduct any planning efforts in the past 3 years.

Other: Water Advisory Committee Annual Review | by quarterly newsletter | Informed at council meetings | Water & Sewer Advisory Committee | Input and Information available on Town Website | Public Hearing & Comment Period for Budget Adoption | Local utility advisory Board with public members | cost/benefit analysis of e-read metering, consolidation of rates 2016 to impact least capable least and highest users most | 2 meetings held to inform public of planned improvements and rate increase. | We are just beginning our planning efforts not sure of the publics role at this time.

26) What role did your utility play in any of the broader (non-water and non-wastewater) planning efforts of the local governments your utility operates within the boundaries of (such as the Municipality's/County's comprehensive plan, transportation plan, land use plan, housing plan, economic development plan, strategic plan, etc.)?

Utilities sometimes play a role in the broader (non-utility) planning efforts of the local governments served by the utility (n = 173).



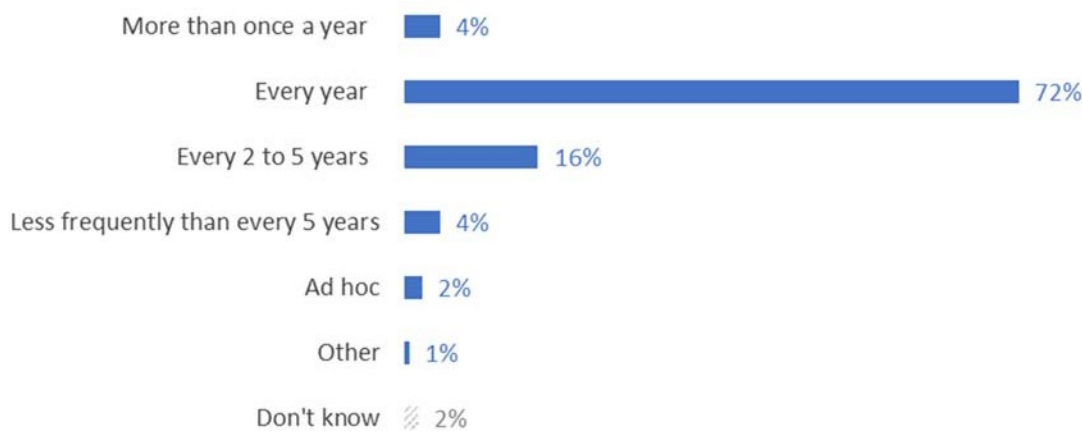
Excludes 11 utilities that operated in areas where the local governments did not conduct any broader planning efforts.

REVIEWING RATES

In the following questions, we made a distinction between reviewing rates and raising rates charged to customers. Reviewing rates is the process of studying a utility's costs and revenues and determining whether the customer rates need to be adjusted. Raising (or increasing) rates means that the utility actually increased the customer rates. The governing body is the group of individuals who have the ultimate responsibility of approving a rate increase. For example, the city council, county commissioners, board of directors, NC Utilities Commission, etc.

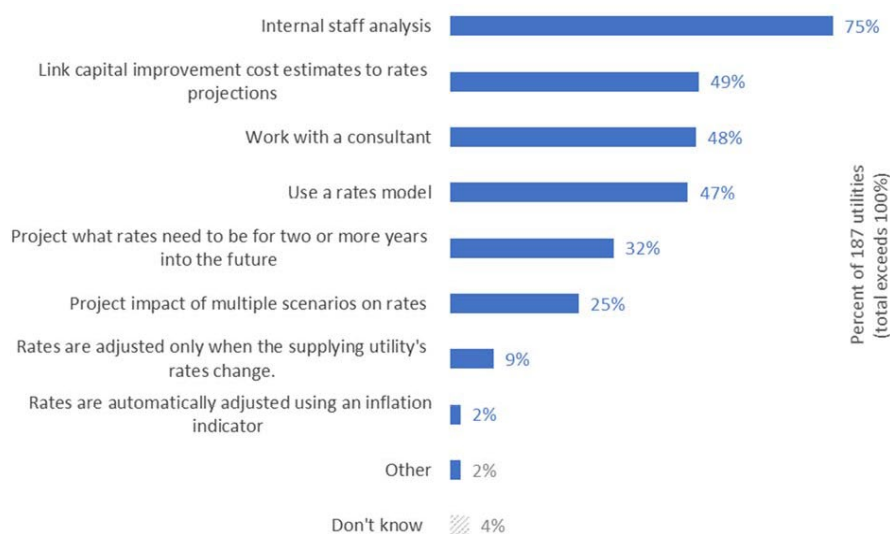
27) What best describes how often your utility reviews its customer rates?

The great majority of utilities review their rates annually (n = 191).



28) When your utility conducts a review of its rates, how does it project rates for future years? Select all that apply.

Internal staff analysis is the method used most to project future rates.

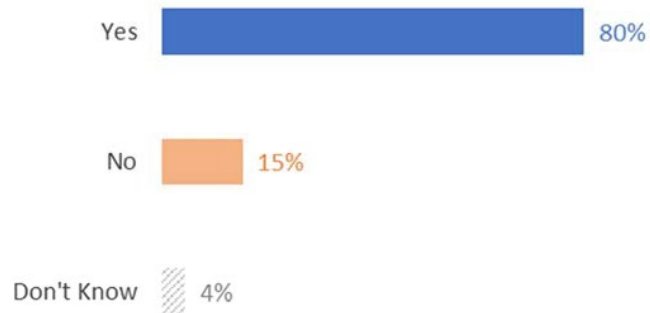


Excludes 3 utilities that do not project rates

Other: LGC recommendation | Rates are increased each year to maintain funds for repair & maintenance | EFC Rate Dashboard | Adjusted as necessary to account for population growth, operational cost increases, capital needs. Rates may be adjusted downward if justified.

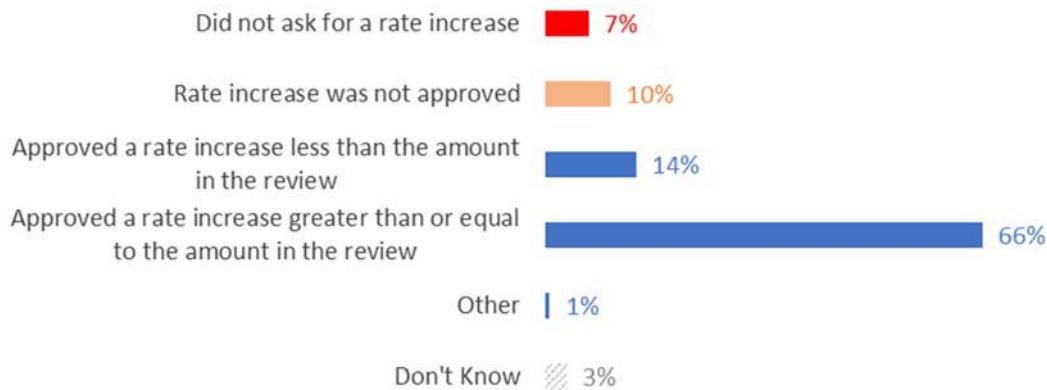
29) The utility's last rates review showed a need to increase at least some rates.

Eighty percent of utilities' rate reviews showed a need to increase rates (n = 189).



30) What was the outcome after the last rates review (which showed a need to raise rates)?

Of utilities who reported a need to raise rates, 66 percent approved a rate increase greater than or equal to the amount recommended in the rates review (n = 152).

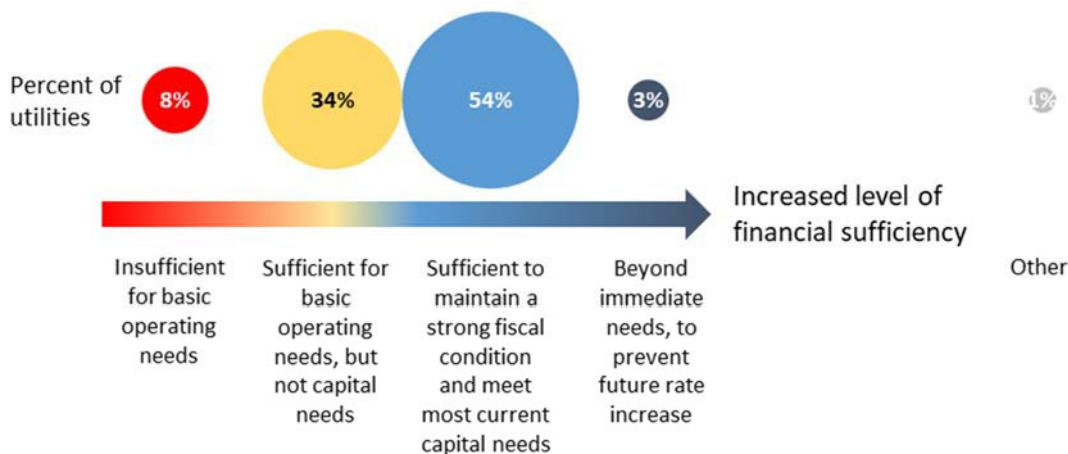


Includes only those utilities who reported a need to increase rates based on their most recent review.

Other: Council has no say in the annual water rate increase. They're automatically applied.

31) Which statement best describes the rates that were last proposed to the governing body for approval?

The rates last proposed to the governing body were **sufficient to maintain a strong fiscal condition and meet most current capital needs** for the majority of utilities (n = 168).

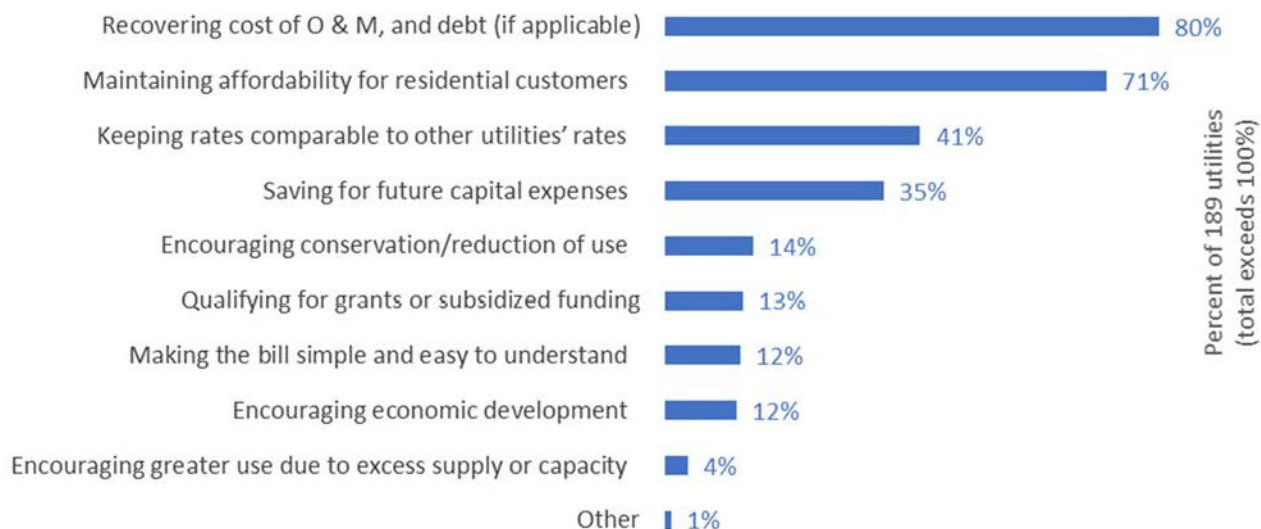


Excludes 16 utilities that answered "don't know".

Other: Proposing small steady rate increases instead of large jumps when capital needs hit.

32) Please **select up to 3** of the following objectives that most influence your utility's rates and/or rate structure.

Recovering the cost of operations and maintenance and debt (80 percent), maintaining affordability for residential customers (71 percent), and keeping rates comparable to other utilities' rates (41 percent) are the most common objectives that influence rates.



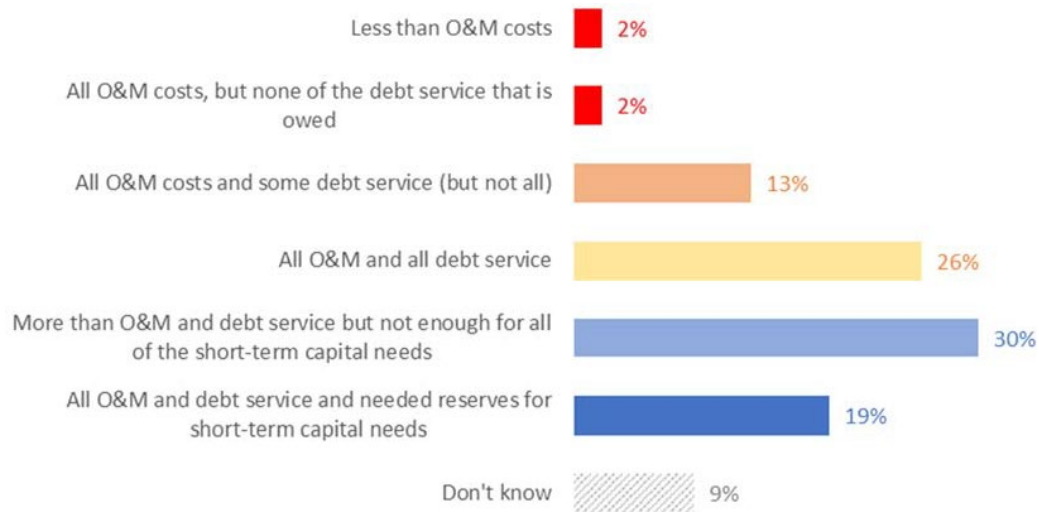
Utilities were asked to select the top 3 options.

Other: Maintain adequate service levels | Sustainability with an eye towards self-sufficiency.

CURRENT REVENUES

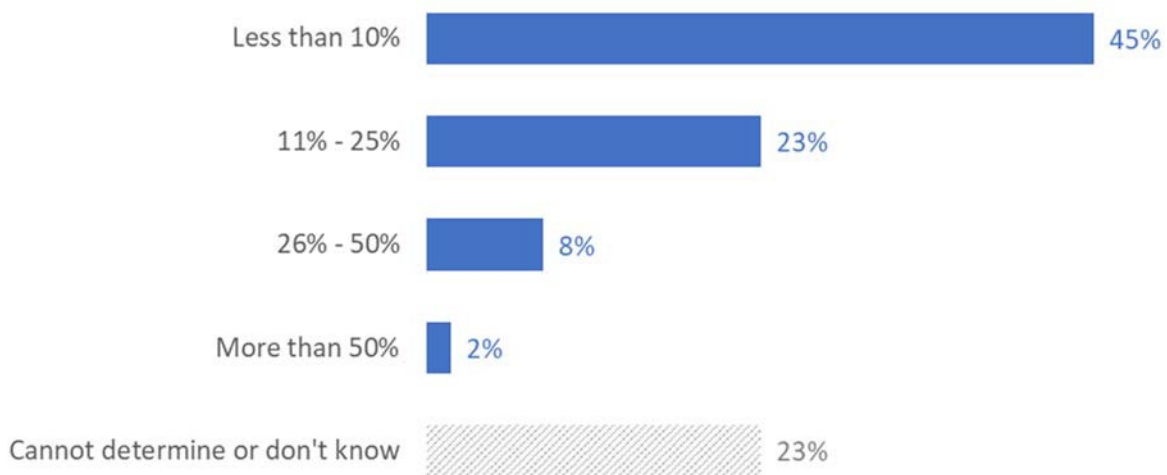
33) For this current Fiscal Year, how much will your utility's rates and fees cover in terms of expenses? *Select the minimum point that the utility's revenues will be able to cover.*

Nearly half of utilities anticipate **generating enough revenue for some capital needs** (n = 192).



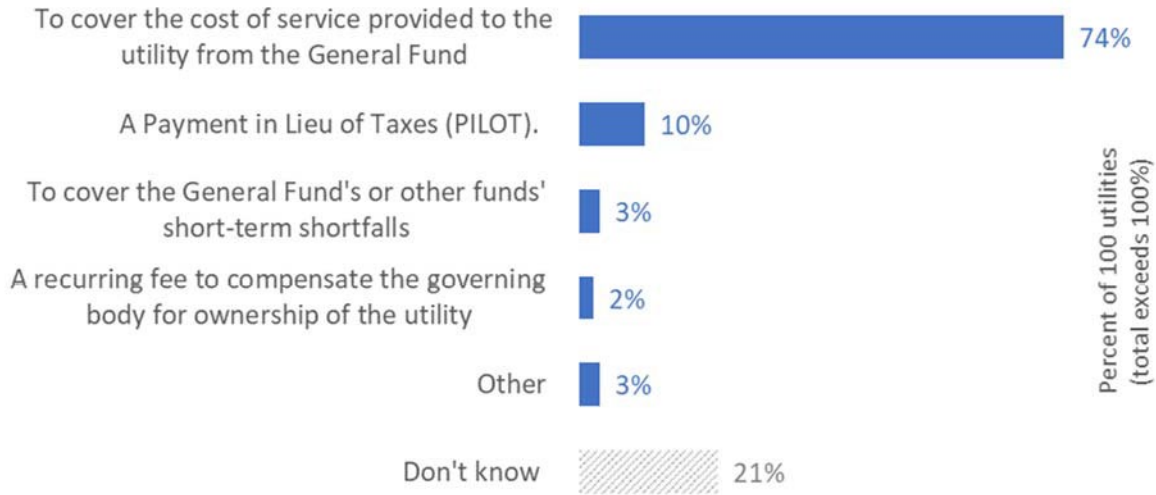
34) What percentage of your utility's total annual revenue is normally billed to your 5 largest non-wholesale customers (i.e. the five largest industrial or commercial customers, but NOT sales to other utilities)?

Utilities are most likely to bill **less than ten percent of their total annual revenue to their five largest non-wholesale customers** (n = 190).



35) **Municipalities and Counties only:** Does your utility transfer funds from the water/wastewater Enterprise Fund to other non-system governmental funds (e.g. the General Fund) for any of the following reasons? Select all that apply.

Covering the cost of service provided to the utility from the General Fund is the reason most cited for transferring funds from the Enterprise fund to other non-system governmental funds.



Utilities were asked to select the top 3 options.

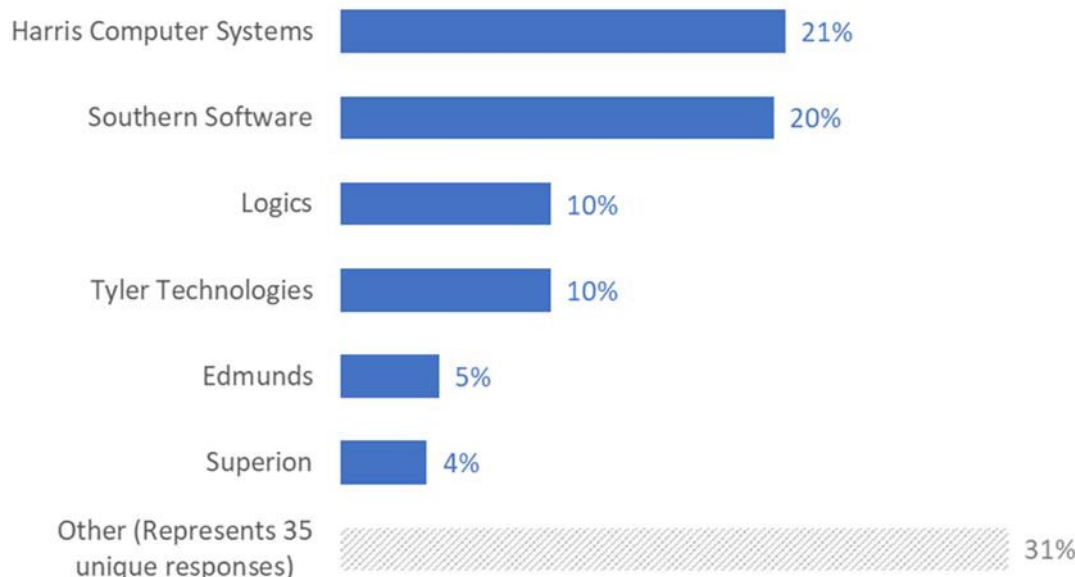
Excludes 66 utilities that do not transfer funds and 21 utilities that are not a municipality or county.

Other: Reimburse General Fund for previous transfers into water/sewer fund | Management fee paid to general fund | Recycles/Trash revenues transferred from enterprise fund to General fund.

CURRENT BILLING PRACTICES

36) What billing and collection software, if any, does your utility use (indicate brand name)?

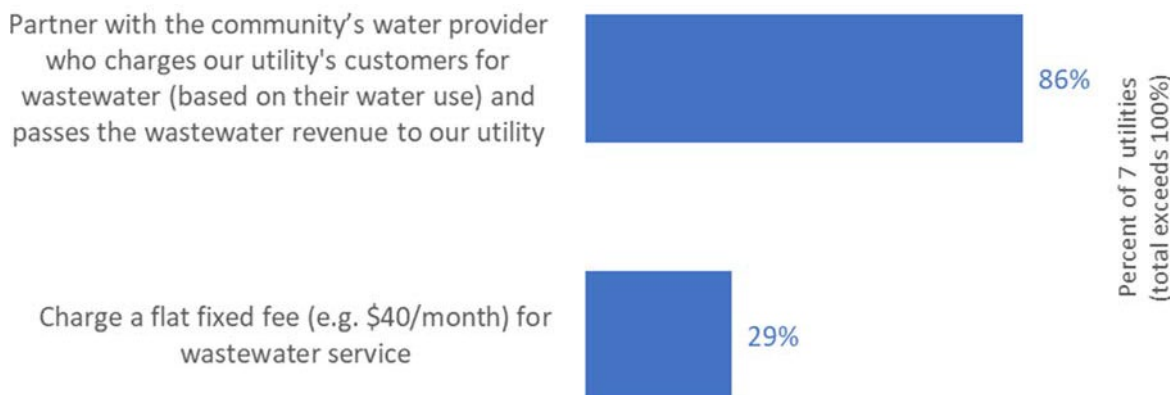
Utilities are using a **wide variety of billing and collection software**, with **Harris Computer Systems and Southern Software** being the top two types of software (n = 171).



Other: New World Systems | QS1 | RVS | Quickbooks | In-house/Contracted | CSI | Springbrook | RT Software Service | Black Mountain | HTE | Ampstun | SoftWater by InteData | Eden | Alpha - thru HCCOG | United Systems Technology Inc. | Daffron | SouthData | Hansen Banner | enQuesta by Software & Systems, Inc. | QuikWater | Muni-Link | Rural Billing | Softline Data, Inc. UBmax | Greentree | Linux | Oracle | ATS | Cogsdale | AS 400 | Water Solutions | ACS | Masterlinx | Microsoft Dynamics GP | Peoplesoft.

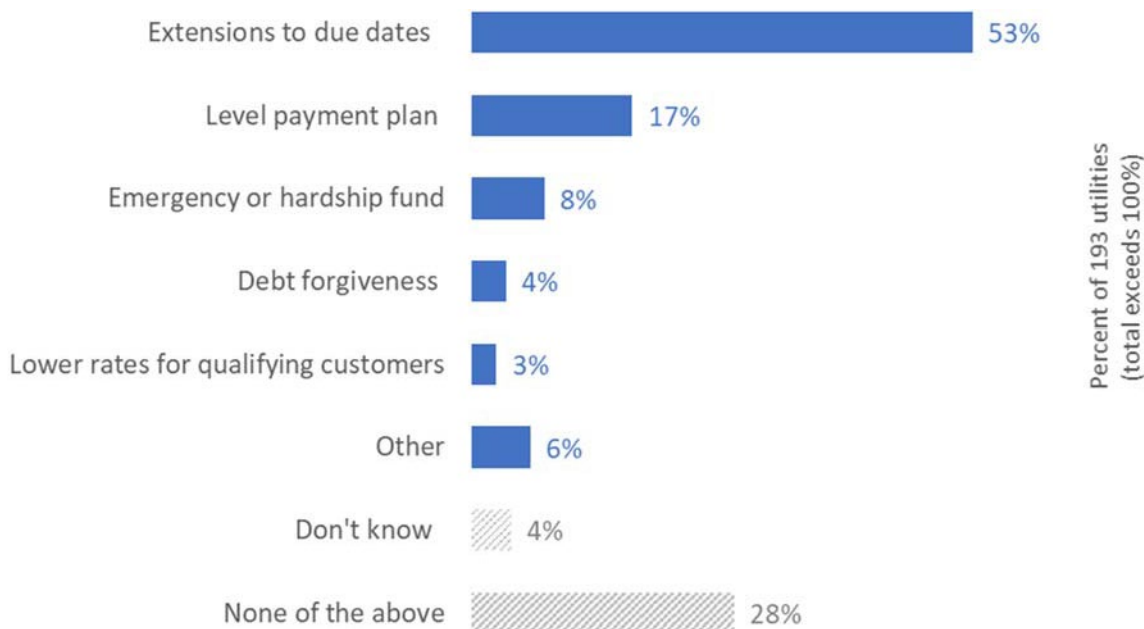
37) How does your utility calculate and send bills to customers for wastewater service? Select all that apply.

The majority of **wastewater-only systems partner to calculate and bill customers for service.**



38) Does your utility have any of the following programs or services to assist customers with financial hardships? Select all that apply.

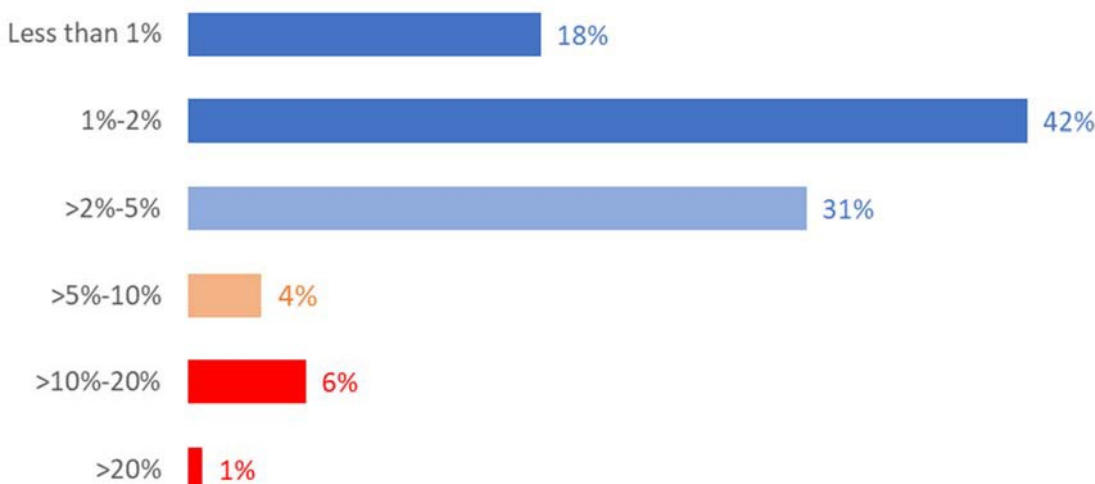
Extending bill due dates is the most frequently provided service to assist customers with financial hardships.



Other: Hardship payment plans for distressed accounts | Contract with local agency to assist hardship situations | One time per year adjustment | We refer to several social programs that will pay bill | Church assistance | We give the customer a referral to area assistance | Direct customers to agencies that can provide financial assistance | Work With Customer individually | We refer them to outside agencies that can provide assistance | We work with customers on a case by case basis | one time consideration eligible once every 2 years | Any exceptions go thru Town Manager.

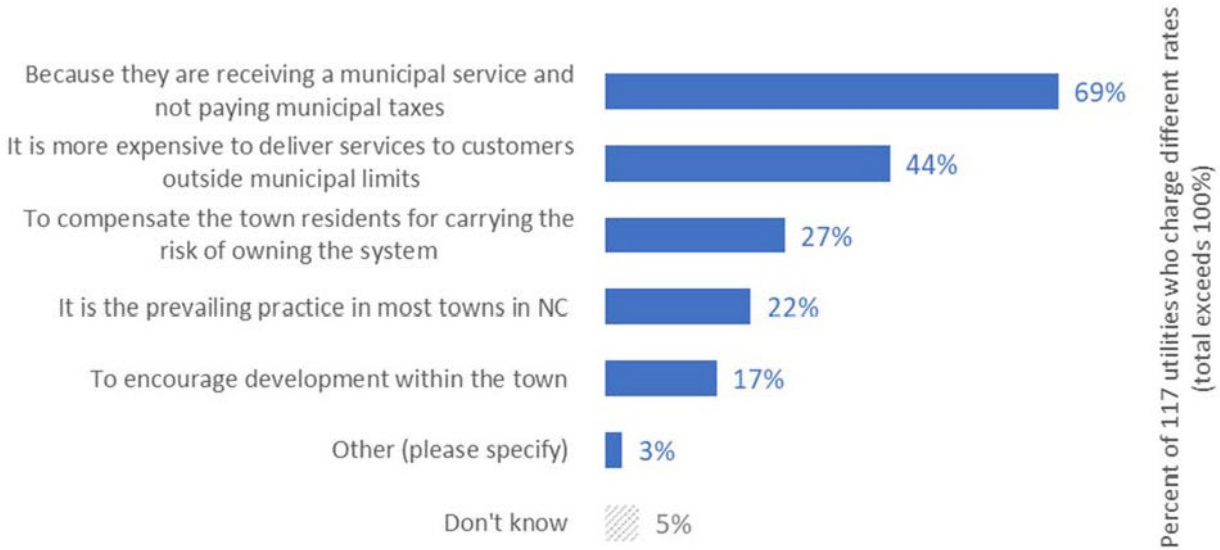
39) At any given time, on average, what approximate percentage of customers are typically cut off from service due to non-payment?

Forty-two percent of utilities report that they routinely have one to two percent of customers cut off due to non-payment (n = 137).



41) (For utilities that charge different rates for residential customers outside the municipal limits than those inside municipal limits:) If someone from outside the municipal limits asks why they are charged different rates, what is/are the reason(s) that your utility provides them? Select the main 1, 2 or 3 responses.

The main reason provided to customers for charging different rates is that **outside customers are receiving a municipal service but do not pay municipal taxes.**

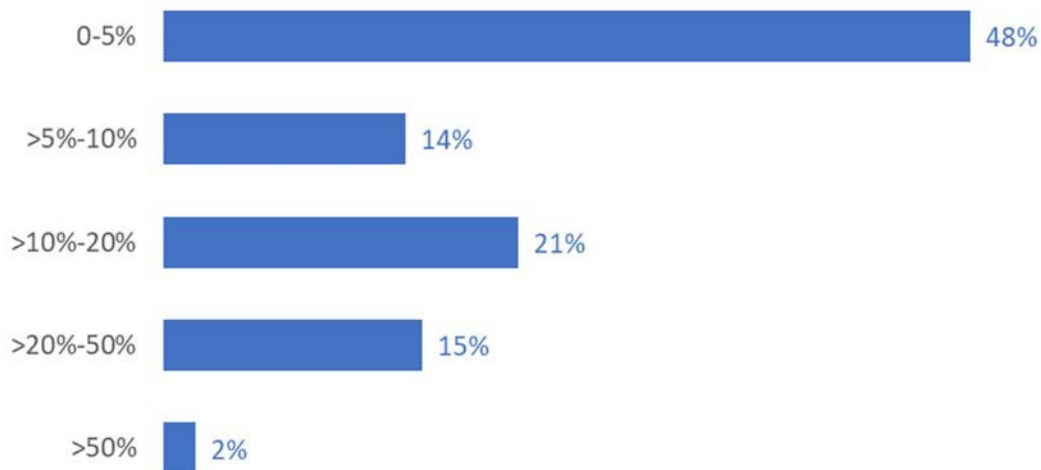


Utilities were asked to select the top 3 options.

Other: Depends on who answers the question | To pay off debt service as systems were taken over by the municipality. We are in the process of moving to a regional rate for all customers.

42) Please estimate the approximate percentage of residential customers who live outside your municipal limits (please exclude customers of your utility's wholesale providers/wholesale customers).

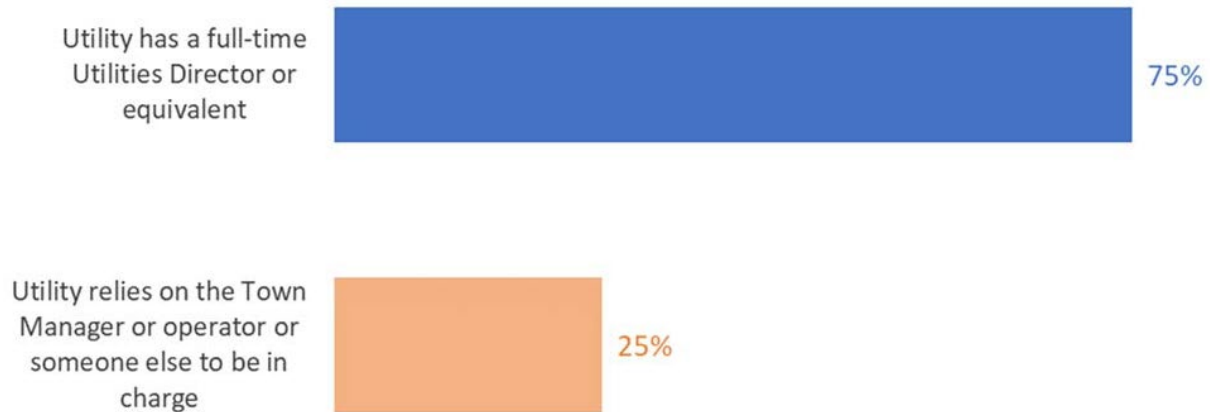
Ten percent or less of customers live outside municipal limits for the majority of utilities (n = 105).



UTILITY INFORMATION

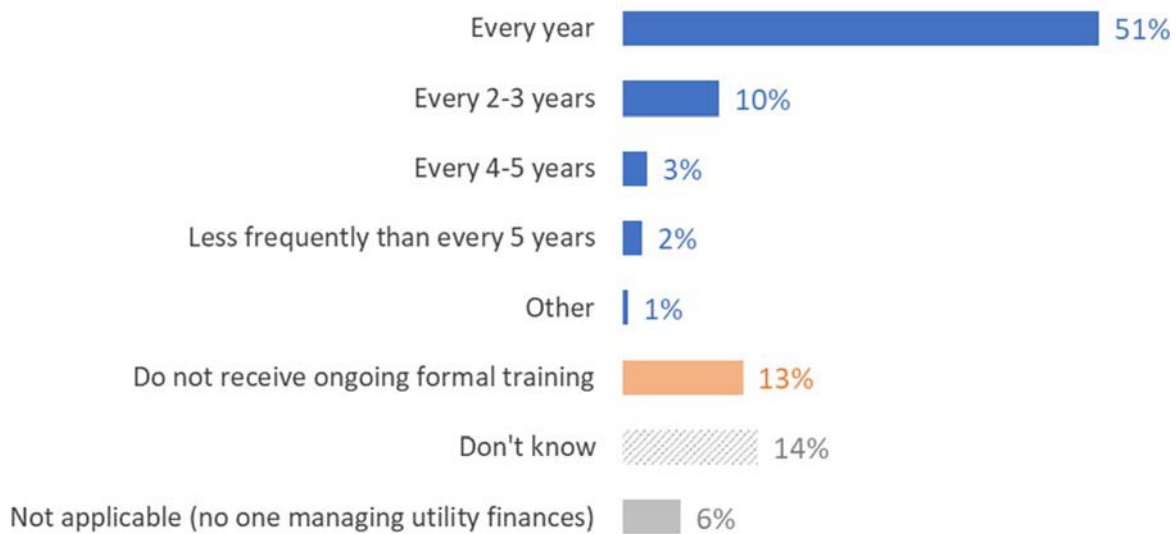
43) Does your utility have a full-time Utilities Director or its equivalent (as opposed to a Town Manager or operator who is in charge of the utility)?

Seventy-five percent of utilities have a full-time Utilities Director or the equivalent (n = 199).



44) How often do the person(s) responsible for managing your utility's finances (e.g. Finance Director, Business Manager, Billing Manager, etc.) receive ongoing formal financial training?

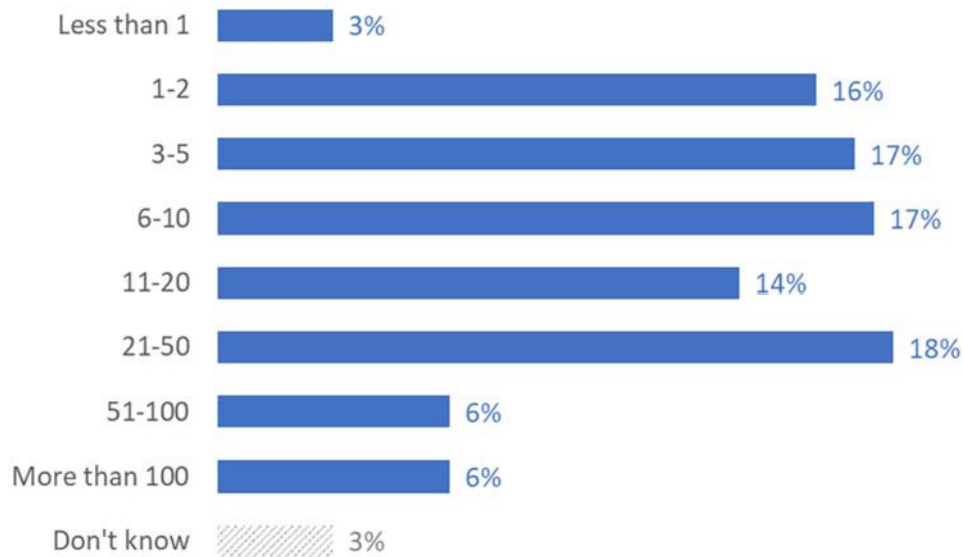
Employees responsible for managing the utility's finances receive formal financial training at least every three years in the majority of utilities (n = 194).



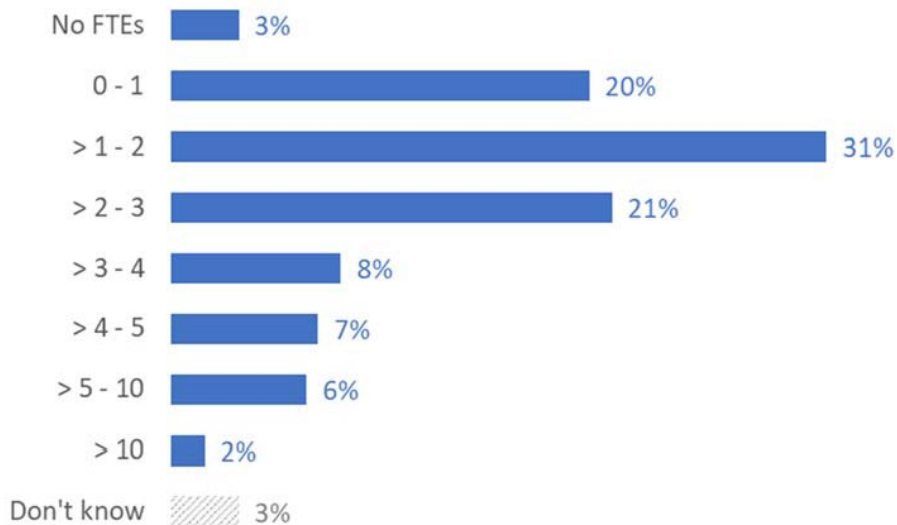
Other: Quarterly | Only when needed | New Director received training first year, not sure what future years hold.

45) Please estimate the approximate number of full-time equivalent employees (FTEs) that work for your utility.

The majority of utilities have ten or fewer FTE employees (n = 196).



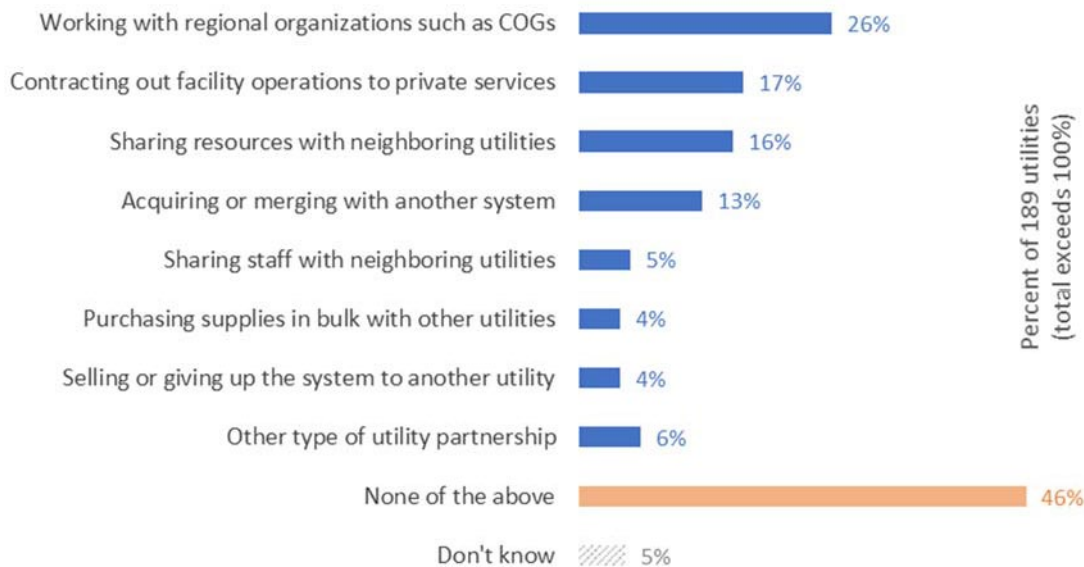
This translates into two or fewer FTE employees per 1000 customers served (n = 189).



Excludes 7 utilities who reported "More than 100 FTEs"

46) Is your utility currently engaging in or considering any of the following? Select all that apply.

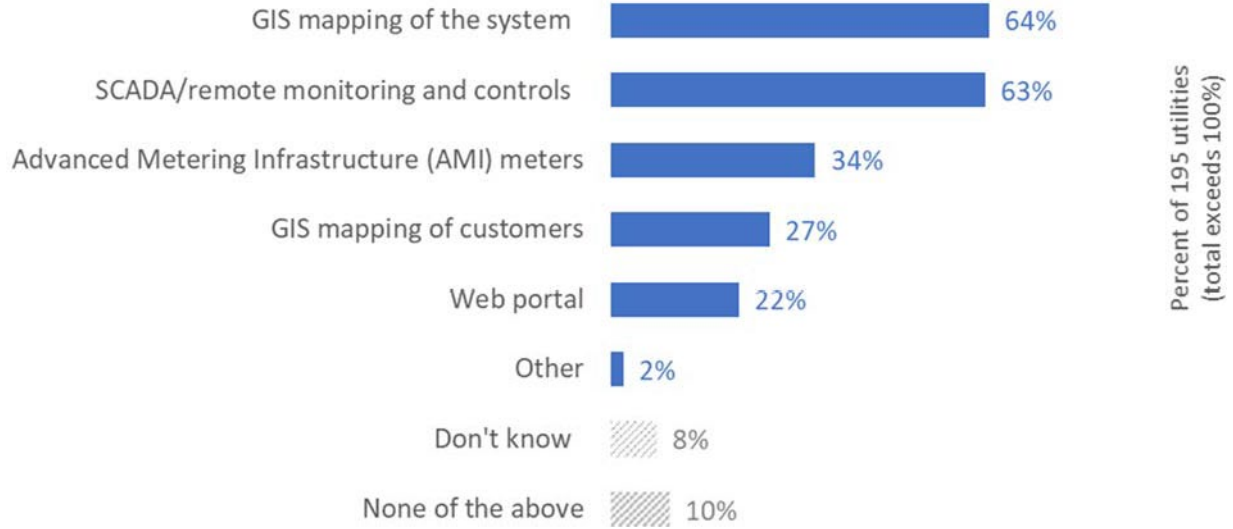
Utilities are **currently engaging in or considering partnership activities** such as working with regional organizations (26 percent), contracting out facility operations to private services (17 percent), and sharing resources with neighboring utilities (16 percent). This excludes interconnections and wholesale purchase / sale agreements for water or wastewater treatment and delivery between utilities.



Other: Co-owned regional plants | Currently negotiating a regionalization agreement to own/ maintain joint assets | Coordinating with interconnected systems for regulatory compliance | Joint Funding of Data Collection and Research | Regional Wastewater Treatment Agreements | Considering inter-local agreement for joint operation of new water treatment facility | Provide billing and maintenance operations for other utilities | Have interconnections with neighboring systems to buy/sell water | Purchase water from County | Collaborative Water Resource Planning | Council is considering participating in a Water Authority -- Early Stage of Research | Partnership in water plant ownership and O&M | Emergency water connections.

47) What technologies is your utility currently implementing or will start deploying within a year? Select all that apply.

GIS mapping and SCADA / remote monitoring and controls are the technologies most frequently being implemented.



Other: Online bill pay option | Fleet tracking, mobile work management, central work order management system, virtualized servers, phone IVR and web payment system | Considering the other 3, will implement next fiscal year if Board approves budget | Lucity (Work Order Management System).