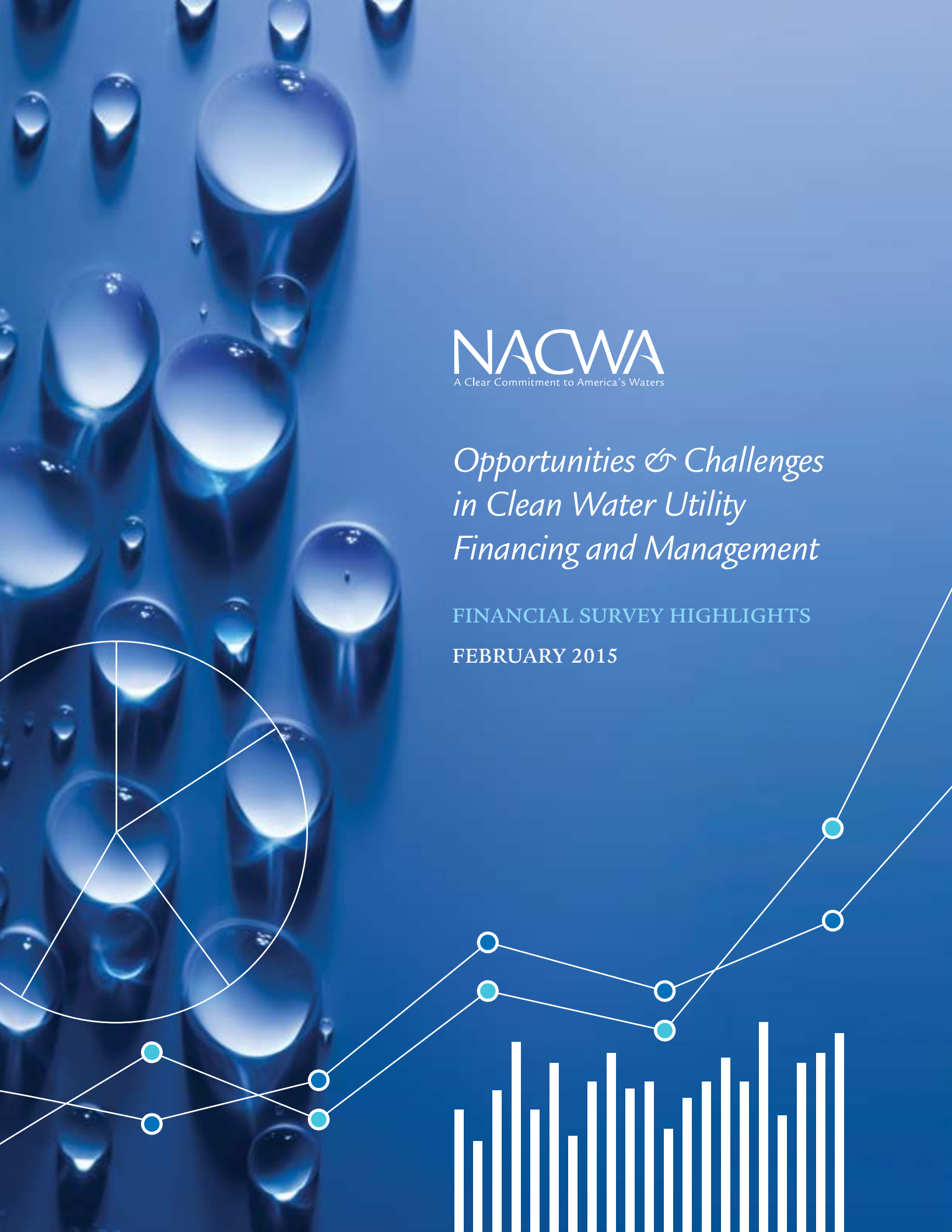

NACWA
A Clear Commitment to America's Waters

Opportunities & Challenges in Clean Water Utility Financing and Management

FINANCIAL SURVEY HIGHLIGHTS

FEBRUARY 2015

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Opportunities & Challenges in Clean Water Utility Financing and Management

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CONTENTS

PREFACE

What is the Financial Survey? Since 1981, the National Association of Clean Water Agencies (NACWA) has performed a triennial financial survey of its membership to provide utilities, government officials, and the public, a comprehensive knowledge base on financing, rates, staffing and key utility management initiatives of U.S. clean water utilities. The survey gathers information from over 100 clean water utilities and represents one-third of the sewered population in the United States. The 2014 NACWA *Financial Survey* is the eleventh triennial report to be published since the original development of the survey.

Why is it important? The NACWA *Financial Survey* is a unique source of information on clean water utilities, their financials, rates and billing, staffing, and energy use and cost. This information can be used by utilities and others to guide national, state and local policy development through comparative analysis and tracking of national trends.

How are survey results provided? NACWA publishes three different products summarizing the results of the *Financial Survey*. This published Executive Highlights document provides overarching summary information for utility Board members and other high ranking officials, and/or the public. An electronic version of the full report (*see www.nacwa.org*) provides more extensive analyses for each survey question and can be used as a reference tool by utility analysts and decision-makers. An electronic spreadsheet is also made available for those utilities and researchers that wish to perform their own custom analyses for internal performance tracking.

INTRODUCTION

There is an evolving landscape in the water sector that is redefining the role of clean water utilities in protecting our nation's waterways and as a provider of a community service. Over the past 30 years, clean water utilities have enjoyed major success in reducing pollutant loadings, minimizing sewer overflows, developing new technologies and building capacity. Now, no longer satisfied with just compliance with the Clean Water Act (CWA), clean water utilities are exploring new and innovative ways to improve the economic, social and environmental footprint of their operations.

Today's utility managers are expected to be both environmental and fiscal stewards. Enhancing infrastructure, optimizing plant and institutional performance to meet clean water goals, all while ensuring that public funds are effectively and efficiently spent, will continue to be a daily balancing act for utility managers. Interest in moving beyond compliance and enhancing the utility's triple bottom line are driving the industry toward the Utility of the Future.

Historic challenges remain, however, including rising costs due to inflationary pressure, regulatory requirements, legacy replacement costs and changing community needs. The *Financial Survey* documents many of these rising cost pressures, the resulting impacts on rates and financing, and actions that utilities are taking to optimize operations and agency wide management.

A total of 122 clean water agencies representing over 82 million people served by centralized wastewater treatment responded to the 2014 *Survey*. The statistics detailed in the *Survey* are largely drawn from the 2013 to mid-2014 timeframe, and follow trends in revenues, expenditures, rates, staffing, and energy use, as in previous surveys. New survey questions concerning total maximum daily loads (TMDLs), consent decrees, post-employment liabilities, financial policy targets, use of affordability programs, reclaimed water use, and resource recovery efforts help to understand the opportunities and competing pressures faced by today's clean water utility.

KEY FINDINGS

Much has changed in the financial landscape since the first financial survey was conducted in 1981; for example:

- The average annual sewer service charge was less than $100 compared to $435 in 2013.
- Federal and state grant funding comprised 15 percent of utility financing (1990 data), while grants made up less than one percent of financing in 2013.
- Nearly 15 percent of flows were treated to less than secondary levels, while only 4 percent of flows are treated to less than secondary levels in 2013.
- Average operation and maintenance costs were less than $500 per million gallons treated (1990 data) compared to nearly $2,500 in 2013.
- Residential volume rates averaged less than $1.00 per 1,000 gallons, compared to $4.25 in 2013.
- The overall U.S. population has grown from 230 million to 316 million from 1981 to 2014, with nearly all of this increase in urban areas (i.e., requiring centralized wastewater treatment), growing at an average of 1.3 percent per year.[1]

Five key findings emerge from the 2014 NACWA *Financial Survey*. The results show that while the overall fiscal health of U.S. clean water utilities remains strong, increasing requirements, costs, increasing replacement requirements and capital needs, coupled with rising rates are putting pressure on rate affordability.

1. TMDLs and court orders impact a broad range of clean water utilities with additional costs

Nutrient TMDLs and consent decrees significantly impact clean water utilities, with nearly one-third of respondent agencies under a consent decree, and one-third of treatment plants subject to a TMDL. Court-ordered annual compliance costs are equivalent to 10 percent of total respondent utility expenditures, and nearly one-third of treatment plants are subject to a TMDL implying additional treatment or pollution prevention costs, and higher capital needs in the future.

2. Expenditure increases moderated from 2010 to 2013, but capital needs remain high

From 2010 to 2013, total expenditures increased at little more than one percent per year, possibly due to a slow economy, the adoption of more efficient operational practices and a reduction in capital expenditure. From 2010 to 2013, total capital expenditures decreased for 32 utility respondents. This decrease was not entirely unexpected given the drop in construction across all infrastructure sectors during the recession and the slow rebounding of the economy over the last several years.

Conversely, aging infrastructure, growing populations and stricter treatment requirements continue to push reported capital needs upwards with five-year needs rising nearly 10 percent[2] since the 2011 *Survey*. A total of 83 agency respondents reported $25.7 billion in five-year capital improvement needs for 2014-2018, with an average per capita five-year need of $546.

3. High credit ratings and moderated use of debt financing reflect the financial strength of utilities

Long-term debt increased at a little over one percent per year from 2010 to 2013, while debt service expenditures increased at 4 percent per year in this same period, both moderating over previous trends. Twenty-one (21) out of 81 respondents received the highest "AAA" rating from S&P, Moody's or Fitch rating services. No major shifts in clean water utility credit ratings from 2011 are reported with over 90 percent of all respondents receiving better than an "A+/A1" rating (i.e. above average creditworthiness). Bond financing continues to be the dominant source of capital funding. Federal programs, such as the State Revolving Loan Funds, are funding a small portion of infrastructure spending at the local level, though an

1 U.S. Census Bureau (2014). National and urban population estimates [statistics]. (www.census.gov). (www.census.gov/population/censusdata/urpop0090.txt). (www.census.gov/geo/reference/ua/urban-rural-2010.html)

2 Fifty-four (54) common respondents report that total five-year needs increased from $16.2 billion to $17.7 billion from 2010 to 2013, i.e., a 9.3% increase.

additional federal tool, the Water Infrastructure Financing and Innovation Act (WIFIA), was created in 2014 by the Water Resources Reform and Development Act (WRRDA).

4. Residential charges continue to outpace inflation and will exceed, on average, $500 per year by 2016

The 2013 data indicate that the average residential service charge continues to increase faster than the rate of inflation as measured by the U.S. Consumer Price Index, nearly doubling inflation from 2010 to 2013. Projections from the 2013 NACWA *Index* indicate that the average single-family residential service charge will continue to increase at 5 percent per year through 2018, and will exceed $500 per year in 2016, a $100 increase from 2012.

5. Utilities strive to continually improve performance, minimize waste and maximize resource recovery

The *Survey* indicates that a majority of utilities are planning and/or implementing environmental or quality management programs, and that the adoption of asset management systems continues to increase with nearly 90 percent of respondents reporting the use of an asset management system. Efforts to go "green" and reduce costs are highlighted by the near universal implementation of high efficiency motors, lighting, and HVAC for plant operations, buildings, and administrative offices, as well as the increasing number of utilities generating electricity onsite. This move toward the Utility of the Future will continue to impact the future of the water industry. Nearly two-thirds of respondents indicated that they have completed or are planning to complete projects to generate electricity on site using biogas, while 35 percent of survey respondents indicated that they are generating or planning to generate electricity with solar, wind or hydropower. From 2010 to 2013, a 20 percent increase in electricity production from the use of biogas was reported by common respondent agencies.

1. COST DRIVERS FOR THE CLEAN WATER COMMUNITY

Inflationary cost pressure, increasing mandates, and growing community needs (i.e., population growth and demographic shifts) present common challenges for utilities to balance in prioritizing both short and long-term water quality investments, services, and rates. Population growth alone accounts for potential additional capacity needs and may account for increases in operation and maintenance costs of up to $2 billion per year[3], though service population increases generally also translate to increased user revenues.

Growing demand for repair and replacement of existing infrastructure (legacy infrastructure costs) to maintain compliance and current service levels, together with increasing CWA mandates, present the most direct and substantial cost implications for clean water agencies.

Among the mandates facing clean water agencies, ongoing federal enforcement efforts to address sewer overflows and regulatory requirements to address impaired waters, were both highlighted for the first time in the 2014 *Survey*. Together, these mounting mandates and other cost drivers, such as increasing (in some cases dramatically) retirement obligations[4], are leading clean water agencies to explore creative solutions, including potentially lower-cost options for addressing wet weather such as green infrastructure, and innovative funding options including century bonds and public-private partnerships.

1.1 Total Maximum Daily Loads Impacting Nearly One-Third of Plants

Total maximum daily loads (TMDLs) are mandated by Section 303(d) of the Clean Water Act and are developed by States[5] to determine the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Approximately 65,000 TMDLs[6] have been developed nationwide over the past 20 years.

The implications of TMDLs for clean water utilities include more stringent effluent requirements as a result of wasteload allocations, and the potential need for additional treatment infrastructure. The 2014 *Survey* was the first year that information on TDMLs was requested in the survey questionnaire.

The utilities responding to the 2014 *Survey* are known to operate 230 treatment plants. Nearly one-third of these plants (73 out of 230) are subject to a TMDL, and combined have a hydraulic capacity of 3.0 billion gallons per day. Figure 1 below shows the frequency of regulated parameters in TMDLs affecting these 73 plants including:

A third of the plants represented in the NACWA Survey are subject to a TMDL, with nutrients the most frequently limited parameters.

- One-half (50%) of TMDLs include limitations for nutrients (i.e., nitrogen and phosphorus compounds)
- One-quarter (25%) of TMDLs include limitations for bacteria
- One-quarter (25%) of TMDLs include limitations for solids.

3 National Association of Clean Water Agencies (2012). NACWA *Financial Survey Highlights*, Washington, DC.

4 The California Public Employees Retirement System (Calpers) approved an employer contribution rate hike of 50 percent over several years beginning in FY2015/16. Source: Christie, Jim (April 17, 2013). UPDATE 2-Calpers approves employer rate hikes of up to 50 pct. Reuters. (http://www.reuters.com/article/2013/04/17/calpers-contributionrates-idUSL2N0D41UO20130417)

5 i.e., States, territories, or authorized tribes.

6 U.S. Environmental Protection Agency. (2014). *New Vision for the CWA 303(d) Program – An Updated Framework for Implementing the CWA 303(d) Program Responsibilities.* (http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/programvision.cfm)

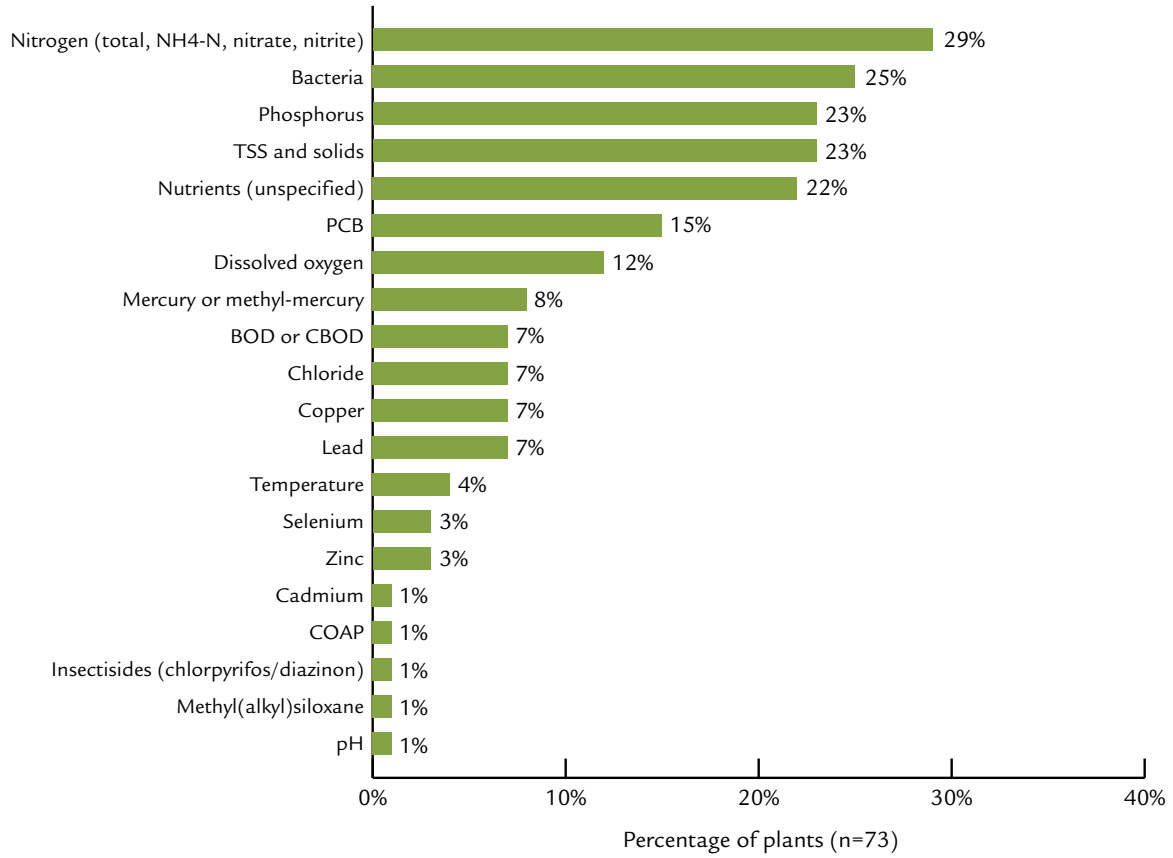


FIGURE 1: Frequency of TMDL parameters

Implementation of TMDLs can involve multiple identified sources of loadings, and in some cases, result in the trading of load allocations (i.e., facilities with high treatment costs can purchase credits from facilities with lower treatment costs within the same affected watershed). Thirteen of 73 plants subject to a TMDL (18%) are using a form of trading in the states of Idaho, Nevada, Oregon, and Virginia to address surface water impairments.

1.2 Improved Treatment Level Performance Reflects Increasing Regulatory Stringency

In response to increasing regulatory requirements and water quality needs, clean water utilities nationwide continue to expend significant resources to upgrade and expand their treatment plants. Over the past 18 years, the capacity and volumes of flow treated to levels above secondary treatment standards (via biological nutrient removal or tertiary treatment processes) has increased three-fold (Figure 2), and now comprises nearly 40 percent of all flows treated by *Survey* respondents.

Data suggest that advanced treatment capacity has tripled from 1995 to 2013.

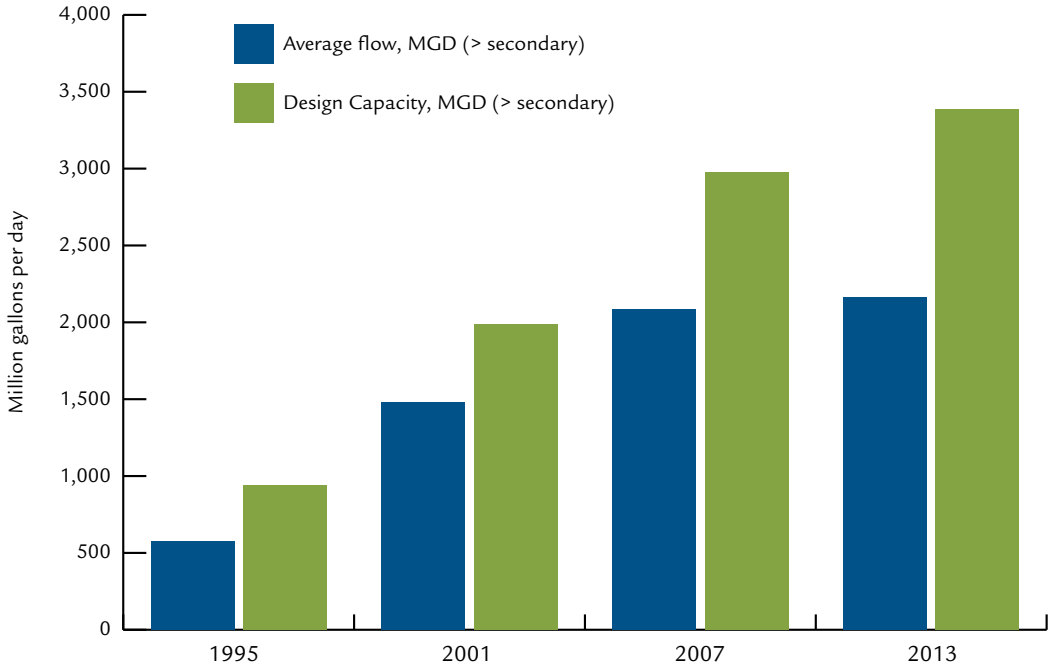


FIGURE 2: Average flows treated and design flows greater than secondary levels (35 common utility respondents)

1.3 Consent Decrees a Major Cost Driver for Many Utilities

As a result of litigation, a number of utilities have entered into negotiated Federal, state, or private citizen settlements approved by the Court (i.e., consent decrees). These court-ordered requirements to enhance or improve utility collection and treatment systems generally comprise of multi-year, capital intensive projects, and may include additional operational and maintenance requirements intended to enhance the performance.

Thirty-three (33) agencies (27 percent of respondents) reported that their agency is operating under a Federal or state consent decree[7]. Twenty-three (23) agencies reported a total cost of compliance of $40 billion from 1985 to 2035. Major focus areas and estimated compliance costs for each area include:

1) $29 billion for combined sewer overflow (CSO) and sanitary sewer overflow (SSO) abatement
2) $7 billion for enhanced treatment plant levels
3) $4 billion for collection system improvements (I/I abatement, pump stations) and plant expansion.

Estimated annual consent decree compliance costs for 19 agencies represent over 10 percent of annual reported expenditures for all survey respondents.

Consent decrees that were reported range from a start date in 1985 and an end date of 2035. Time periods for consent decrees ranged from three to 35 years, with a median of 17 years[8].

The aggregate reported cost of compliance with Federal and state consent decrees for 19 clean water agencies (representing 29 million people served), is over $1.7 billion per year through 2016 (over 10 percent of reported annual expenditures for all 122 survey respondents), and remains above $1.2 billion a year for eleven agencies through 2025 (Figure 3).

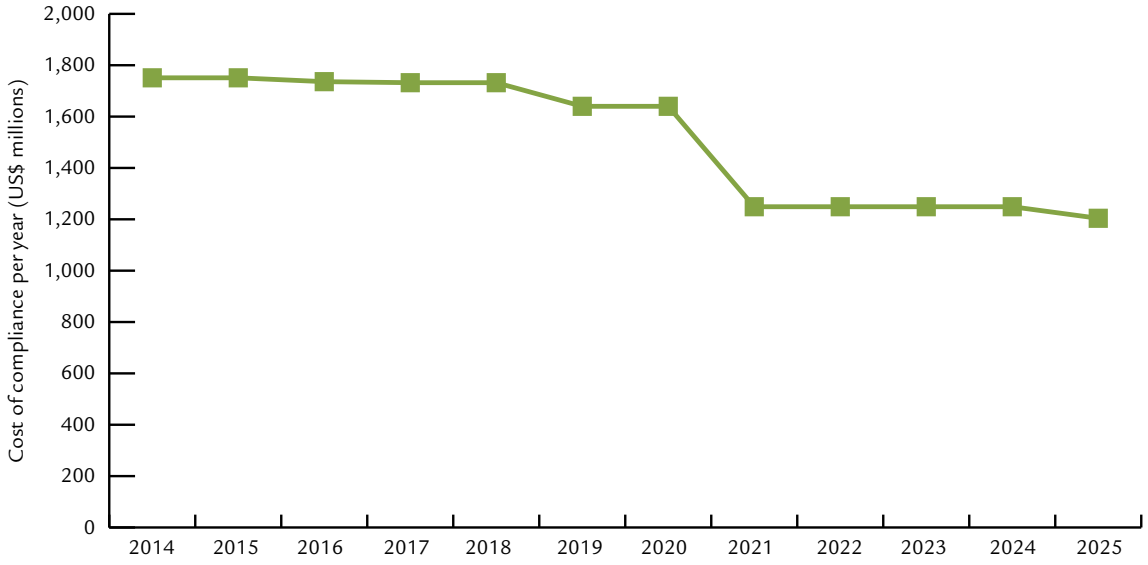


FIGURE 3: Annual cost of compliance for 19 agencies operating under consent decrees (2014-2025)

7 Twenty (20) agencies are operating under a Federal decree, ten agencies are under a state consent decree, and three agencies reported operating under both a Federal and state consent decree.

8 Twenty-two (22) agencies reported definitive periods for their consent decrees ranging from three to 35 years, with an average of 16 years (median 17 years). Three agencies reported an end date of 2035. Four agencies report no end date for their consent decree.

2. FINANCIAL TRENDS AND PRESSURES

Overall, the financial health of the nation's clean water utilities, as a sector, remains strong, though the mounting challenges are not insignificant. The 2014 *Survey* highlights some of these challenges, including continued increases in operation and maintenance costs and legacy capital infrastructure needs, as well as rising long-term debt, though these increases were smaller than the trends in past surveys. Rising personnel costs are being impacted mostly by the increasing cost of benefits such as healthcare, employee retirement or other post-employment benefits. Chemicals and electricity costs also are increasing, though utility efforts to reduce energy needs or generate electricity onsite may slow electricity cost increases in the future.

Capital spending across the U.S. decreased for the clean water utility sector from 2010 to 2013 as evidenced by both *Survey* data and construction information obtained from the U.S. Census Bureau. This decrease was not entirely unexpected given the drop in construction across all infrastructure sectors during the recession and the slow rebounding of the economy over the last several years. With growing capital needs due to aging infrastructure, population increases, and increasingly stringent court-ordered or regulatory requirements, it is likely that this trend will be reversed. In fact, 2014 data on construction spending[9] already shows a reversal of this trend.

2.1 Expenditure Trends Reflect Downturn in U.S. Economy

Overall, *Survey* respondents reported $16.1 billion in expenditures for 2013, with an average per capita[10] annual expense of $245. From 2010 to 2013, total clean water utility expenditures (i.e., capital, O&M, and debt service) increased by only 4 percent which contrasts with previous trends when expenditures rose 18 to 25 percent in a three year time period[11].

Capital expenditures for 82 common utility respondents to the 2011 and 2014 *Surveys* decreased by 11 percent, potentially suggesting either a lull in capital construction or effective competitive pricing practices. Forty percent of respondent utilities reported a decrease in capital expenditures from 2010 to 2013. Confirming this trend, the U.S. Census Bureau also estimates a 12 percent decrease in seasonally-adjusted construction for clean water utilities, dropping from $24.2 billion to $21.3 billion nationwide from 2010 to 2013[12].

Capital expenditure decreased 11 percent for common agency respondents from 2010 to 2013.

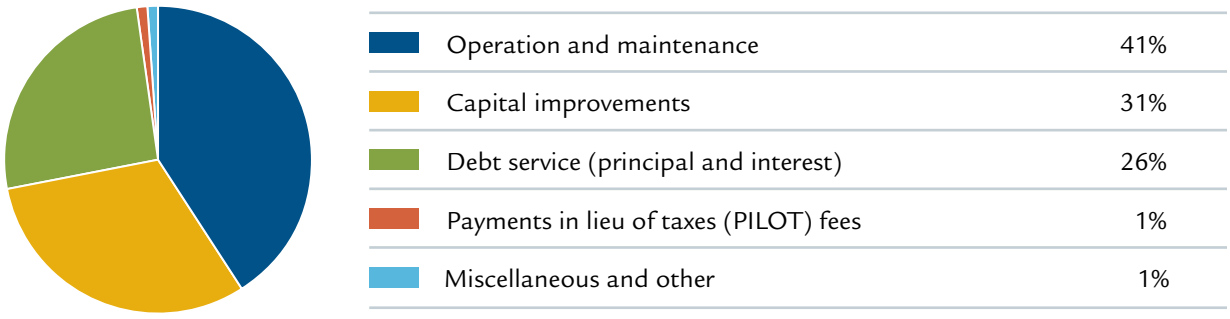


FIGURE 4: Expenditure breakdown - $16.1 billion, 2013 (114 utility respondents)

9 U.S. Census Bureau. (2014). *Seasonally-adjusted construction spending for sewage and waste disposal – 12-month differences starting in May 2014* [statistics]. (https://www.census.gov/econ/currentdata).

10 Per person served by the clean water agency.

11 National Association of Clean Water Agencies (2012). *2011 NACWA Financial Survey* (p. 42), Washington, DC.

12 U.S. Census Bureau. (2014). *Seasonally-adjusted construction spending for sewage and waste disposal – December 2010 to December 2013* [statistics]. (https://www.census.gov/econ/currentdata).

Figure 4 shows the breakdown of 2013 utility expenditures for 114 utility respondents. Since 2007, there has been relatively little change in expenditure breakdowns. In proportion to total costs, operation and maintenance costs have remained steady at 41 percent of total expenditures since 2007, while debt service costs .have fluctuated between 26 to 28 percent of total expenditures, and capital expenses between 28 to 31 percent of expenditures.

Forty-one percent (41%) of total expenditures are dedicated to operation and maintenance.

2.2 Operation and Maintenance Costs Continue to Rise

Operation and maintenance (O&M) costs include recurrent costs necessary for management and daily operation of utility facilities, and include costs such as: staff salaries (and benefits), supplies, electricity, chemicals, and inter-departmental or contracted services. A total of 108 survey respondents reported $5.4 billion in O&M costs for wastewater collection and treatment services in 2013. Staff salaries and benefits comprised a majority of O&M costs ($2.5 billion), followed by private sector services ($810 million), and electric power ($470 million) for 108 respondent utilities (Table 1).

Personnel costs comprise nearly 50 percent of operation and maintenance expenditures.

TABLE 1: Operation and maintenance cost category breakdown, 2013 (108 utilities, $5.4 billion)

Expenditures	2013
Personnel costs (wages, salary and benefits)	47%
Private sector services	15%
Electric power	9%
Services provided by other departments[13]	8%
Supplies and materials	6%
Chemicals	5%
Other utilities	3%
Utility management[14]	1%
Other	6%
Total	100%

13 Services performed by another department including: finance, human resources, payroll, legal services, billing, fleet management, etc.

14 Permit fees, public relations, travel expenses, bad debt expense, utility membership fees, PILOT or franchise fees, staff training, etc.

A performance metric used by more than half of respondent utilities for assessing operation and maintenance costs is O&M cost per million gallons treated. This metric is used over time to track internal cost performance or is compared with utilities of similar size/service levels to determine the overall cost efficiency of the organization. In 2013, the average O&M cost per million gallons treated for 97 respondent[15] utilities was $2,406. Trend data indicate that O&M expenditures have increased on average 6.2 percent per year since 1998, and averaged 4.7 percent per year between 2010 and 2013 (Figure 5)[16].

Operation and maintenance expenditures per volume treated rose over six percent per year from 1998 to 2013.

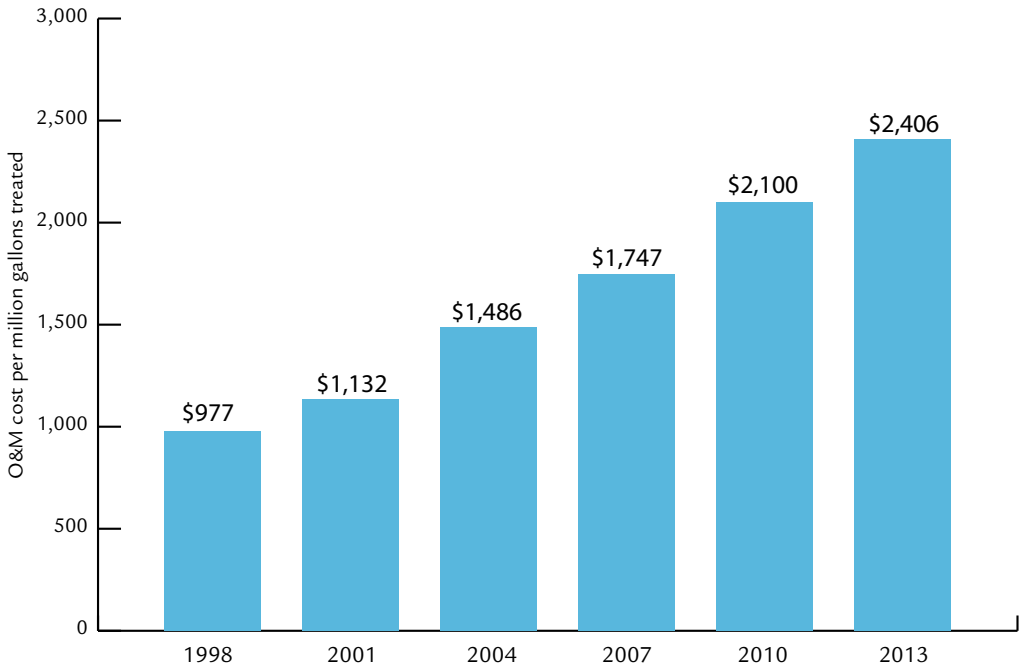


FIGURE 5: Operation and maintenance cost per million gallons treated (1998-2013)

15 These 97 respondents provided both O&M cost data and average flow rate data for 2013. The types and service levels of these utilities varied from wholesalers to retailers, and include secondary to tertiary treatment levels.

16 Average of all respondents, which ranged from a low of 86 (2007) to a high of 123 (2004) depending on the year. The median values for 1998 to 2013 show a similar increasing trend.

2.3 Chemical and Electricity Costs Remain a Major Component of O&M Spending

Disinfection and other wastewater treatment chemicals, as well as electricity to operate pump stations, in-plant pumps, aeration, solids handling equipment, and other devices comprise a significant proportion of clean water utility operating costs. In 2013, over $730 million was spent on chemicals and electricity at 106 respondent utilities (14 percent of total O&M cost).

Chemical and electricity costs comprise 14 percent of total O&M costs and continue to rise, but at a slower pace than in past survey cycles.

Average electricity and chemical costs per million gallons treated were $203 and $110, respectively in 2013. Trends indicate that average electricity costs per million gallons treated have risen on average 5.3 percent per year from 1998 to 2013, though more slowly at 2.4 percent per year from 2010 to 2013 (Figure 6). Similarly, chemical costs per million gallons treated have risen on average 6.2 percent per year from 1998 to 2013, but only 0.7 percent per year from 2010 to 2013 (Figure 6).

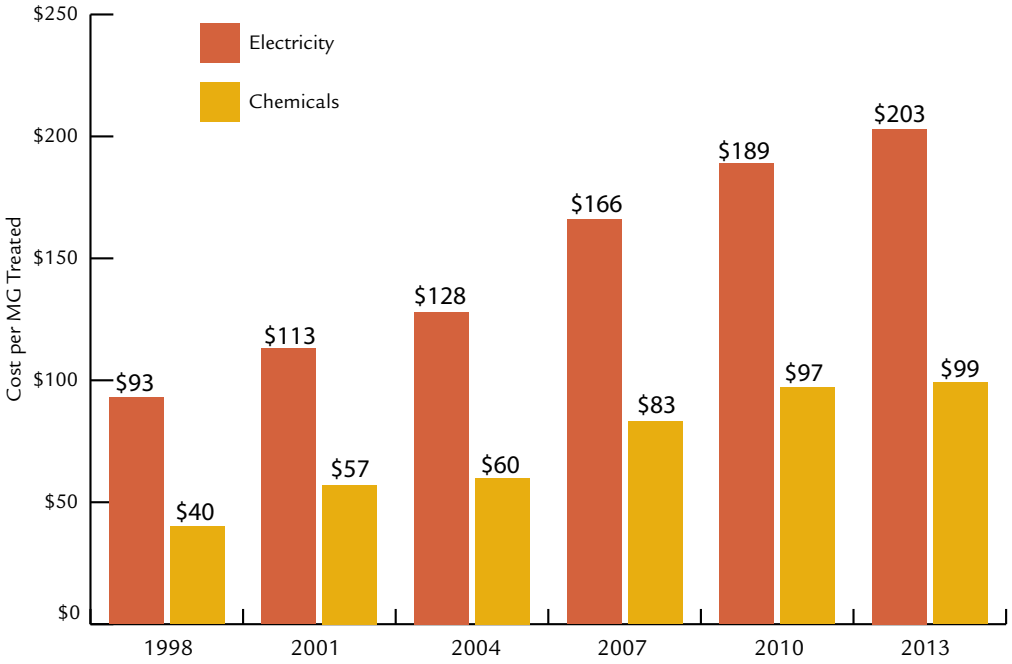


FIGURE 6: Chemical and electricity costs per million gallons treated (1998-2013)

2.4 Personnel Costs Top the List of O&M Expenditures

Personnel costs comprised more than 47 percent of total operation and maintenance (O&M) expenses and 20 percent of all agency expenses in 2013. By comparison, personnel costs comprised 45 and 46 percent of O&M expenses in 2007 and 2010, respectively, indicating a slight upward trend, mainly due to reported cost increases in employee benefit programs. While wages and salary increased, on average, a little more than one percent per year from 2010 to 2013, reported benefit expenditures increased, on average, nearly eight percent per year[17].

Salaries

From 2010 to 2013, salaries increased, on average, 1 to 3 percent per year for most reported utility staff positions, reflecting low overall inflation rates and potentially low cost of living salary adjustments. During this same time period, the consumer price index rose on average 2.2 percent per year and the average wages and salaries of state and local government employees increased 1.5 percent per year.[18]

Salaries increased on average 1 to 3 percent per year for clean water utility staff positions.

This trend contrasts with the period from 2007 to 2010, when salaries increased from 3 to 5 percent per year for most staff positions, despite a lower overall inflation rate.[19] For example, the median salary for plant operators (entry level) increased 14 percent from 2007 to 2010, but only 3 percent from 2010 to 2013 (Table 2).

Budget analysts (senior level) received the lowest median salary increase of all job positions – 0.5 percent from 2010 to 2013. Mechanics (both entry and senior level) received the highest median salary increases from 2010 to 2013 – 8.0 and 9.1 percent, respectively.

TABLE 2: Median salary increases by job position and level (abridged version)

Position	Common respondents	Median salary 2010 ($)	Median salary 2013 ($)	3-Year Increase (%)
Budget Analyst – Entry Level	37	$50,200	$52,254	4.1%
Budget Analyst – Senior Level	39	$81,068	$81,493	0.5%
Civil Engineer – Entry Level	60	$57,150	$58,885	3.0%
Civil Engineer- Senior Level	64	$87,577	$92,491	5.6%
Operator – Entry Level	77	$39,520	$40,874	3.4%
Operator - Senior Level	78	$57,750	$62,008	7.4%
Plant Superintendent – Entry Level	54	$69,203	$71,856	3.8%
Plant Superintendent - Senior Level	67	$95,000	$99,694	4.9%
Mechanic – Entry Level	57	$40,164	$43,805	9.1%
Mechanic - Senior Level	60	$57,084	$61,655	8.0%
Field Crew – Entry Level	61	$35,402	$36,275	2.5%
Field Crew – Senior Level	59	$49,241	$53,435	8.5%

17 Among 71 and 68 common respondents for salaries and benefits, respectively.

18 U.S. Bureau of Labor and Statistics. (2014). *Average hourly employee cost for state and local government workers, December 2010 – December 2013* [statistics]. (http://www.bls.gov/ncs/ect/sp/ececqrtn.pdf).

19 The inflation rate, as measured by the consumer price index, increased on average 1.7 percent per year from 2007 to 2010. Source: U.S. Bureau of Labor and Statistics (2014). *Historical Consumer Price Index for All Urban Consumers (CPI-U): U.S. City average, all items.* (http://www.bls.gov/cpi/cpid1411.pdf).

Post-employment benefits

In addition to salaries, many utility employees earn benefits over their years of service that will not be received until their employment ends due to retirement or other reasons. The 2014 *Survey* requested information concerning pension plans and other post-employment benefits (OPEB) plans, such as group health care. This is the first time these data have been requested in the *Survey*, thus only an aggregate data snapshot (Table 3) is provided. Future surveys may be able to provide more in-depth information on post-employment benefit trends.

Plan types

The majority (90 percent) of utility respondents implement defined benefit plans for both pensions and OPEB that specify the amount of benefits to be provided to employees after the end of their employment. Less than one-half of respondent utilities use pension contribution plans that specify only the amount contributed by the employer to a plan member's account, but do not specify the amount of benefits that employees will receive (e.g., Individual Retirement Accounts, or 401(k) plans). Many respondent utilities (35 percent), however, use both types of pension plans, and some have switched to defined contribution plans for all new employees.[20]

Financing method

Most respondent utilities (87 percent)[21] report using an actuarial method to finance pension plans. This approach entails paying into a pension plan/fund an amount that is expected to be sufficient, if invested, to finance the benefits of employees after they are no longer working for the utility. For OPEB however, more than one-half of utility respondents (57 percent) report using the pay-as-you-go method. This approach entails paying an amount each year equal to the benefits distributed or claimed in that year. A few respondent utilities (8 percent) report using both approaches for OPEB.

Financial reporting

As per the Governmental Accounting Standards Board (GASB)[22], costs associated with pension and OPEB benefits must be reported as costs as these benefits are earned. This means that the cost of these future benefits is factored into the cost of providing utility services for today's customers. Accounting standards for pensions were issued in 1994 and for OPEB in 2004, with more recent additional regulations[23] to require that these obligations appear as net liabilities in employer financial statements starting in fiscal years ending after June 30, 2014. These regulations as well as economic factors, have highlighted large unfunded retirement liabilities that governments and public agencies alike must take into account and plan for in future budgeting.

Accrued liabilities for benefits already earned in the past, amounted to $19.5 billion in pensions (for 35 utilities) and $3.7 billion in OPEB costs (for 43 utilities). Overall average funded ratios[24] (i.e., assets valuation / accrued liabilities) for pensions and OPEB liabilities are 67 percent and 14 percent, respectively, which reflects the mostly actuarial funding approach for pensions versus pay-as-you-go funding for OPEB.

20 Metro Wastewater Reclamation District. *Comprehensive Annual Financial Report for the Years Ended December 31, 2012 and 2011*, (p. II-36). Denver, CO.

21 Calculated from a total of 61 respondents to this question.

22 Governmental Accounting Standards Board (GASB). *Statement Nos. 25, 27, 43, 45, 67 and 68*. Washington, DC. (http://www.gasb.org).

23 Governmental Accounting Standards Board (GASB). *Statement Nos. 67 and 68*. Washington, DC. (http://www.gasb.org).

24 For respondent utilities

TABLE 3: Aggregate summary of retirement and post-employment benefits

	Pension	OPEB
Plan types		
Utility respondents	75	43
Defined benefit plan (% of utilities using)	90%	88%
Defined contribution plan (% of utilities using)	40%	19%
Both defined benefit and contribution plans (% of utilities)	35%	5%
Coverage		
Utility respondents	78	63
Retirement	100%	10%
Post-employment life insurance (% of utilities providing)	60%	24%
Post-employment disability (% of utilities providing)	59%	11%
Post-employment healthcare (% of utilities providing)	13%	98%
Financing method		
Utility respondents	61	60[25]
Actuarial approach (% of utilities using)	87%	52%
Pay-as-you-go (% of utilities using)	13%	57%
Financial reporting		
Utility respondents	35[26]	43[27]
Asset valuation (millions $)	13,139	515
Accrued liability (millions $)	19,483	3,719
Funded ratio (of totals above)	67%	14%
Funded ratio (range / average)	50-100% / 74%	0-79% / 14%
Covered payroll (millions $)	2,892	3,232
Annual cost (millions$)	628	410

2.5 Capital Needs Continue Rapid Rise

Aging infrastructure, growing populations and stricter treatment requirements continue to push capital needs upwards with five-year needs rising nearly 10 percent[28] since the 2011 *Survey*. A total of 83 agency respondents reported $25.7 billion in five-year capital improvement needs for 2014-2018, with an average per capita five-year need of $546. The distribution of five-year capital needs (Figure 7) shows that:

- The **highest five-year capital needs** are for replacement and repair of existing sewers, pump stations, and treatment facilities (42 percent of total needs) – similar to results reported in 2011 Financial Survey;
- **Advanced treatment capital needs** remain 10 percent of total needs, despite new and increasingly stringent permit requirements (as compared to 2011 NACWA *Financial Survey*), and;
- **Capital needs for new collector sewers**[29] increased from 3 to 7 percent of total needs since 2011.

Legacy replacement/rehabilitation tops clean water infrastructure needs, while overall needs rise 10 percent from 2011 to 2013.

25 Five utilities indicated using both an actuarial and pay-as-you-go approach, thus percentages do not add to 100 percent.

26 Excludes four utilities that reported on large cost sharing pension plans

27 Excludes three utilities that reported on large cost sharing OPEB plans

28 Fifty-four (54) common respondents report that total five-year needs increased from US$16.2 billion to US$ 17.7 billion from 2010 to 2013.

29 Defined here as pipes used to collect and carry wastewater from a sanitary or industrial wastewater source to an interceptor sewer that will convey the wastewater to a treatment facility. The needs in this category include the costs of constructing new collector sewer systems and appurtenances.

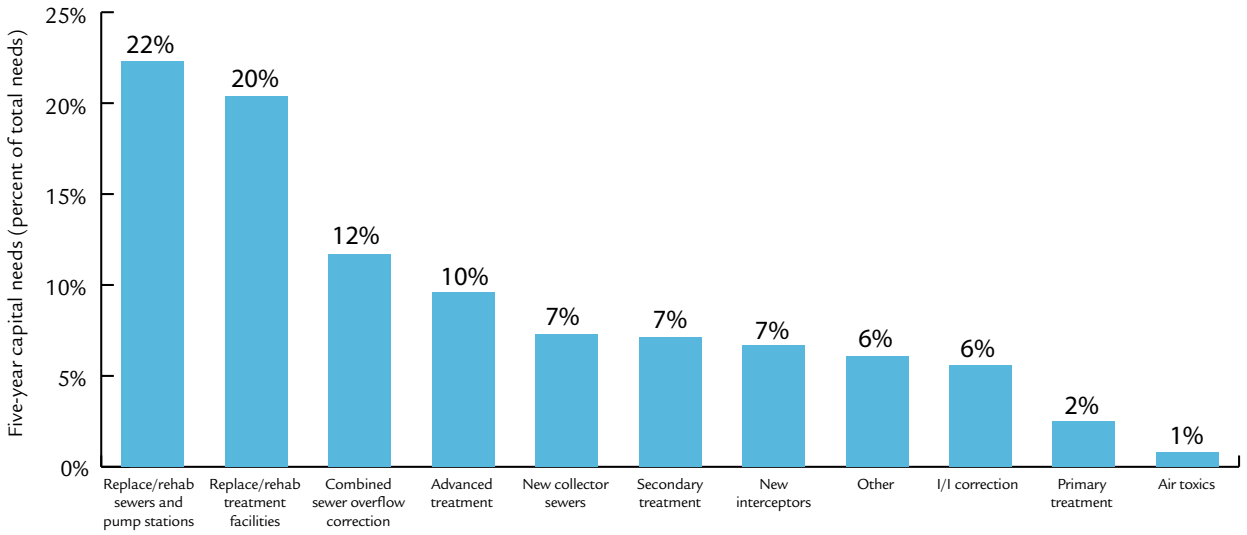


FIGURE 7: Distribution of capital needs ($25.7 billion, 83 agency respondents)

2.6 Long-term Debt Growth Moderates Slightly

Total long-term debt as of January 1, 2014 for 107 responding agencies was reported at $55 billion with an average per capita debt of $731. Revenue bonds continue to be the preferred debt financing source representing 71 percent of total debt, while15 percent of debt is from state revolving loan funds, and 9 percent in general obligation bonds and other financing instruments (Figure 8). From 2010 to 2013, long-term debt increased by only 4 percent, as compared to 24 percent from 2008 to 2011.

Long-term debt increased by four percent from 2010 to 2013.

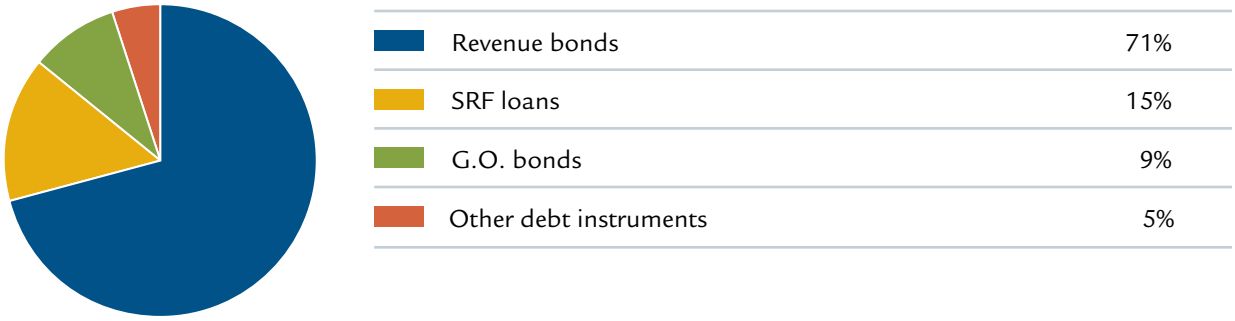


FIGURE 8: Breakdown of outstanding long-term debt on January 1, 2014 ($55 billion, 107 agencies)

Debt service payments, which are comprised of both loan principal and interest payments, are directly affected by overall debt levels. While overall debt levels rose slightly from 2010 to 2013 (i.e., 4 percent increase), there was a more significant increase in debt service levels (i.e.,13 percent increase) – potentially due to differences in repayment terms between existing and newly issued debt. Other debt instruments, including federal programs, such as the State Revolving Loan Funds, are funding a small portion of infrastructure spending at the local level. An additional federal tool, the Water Infrastructure Financing and Innovation Act (WIFIA), was created in 2014 by the Water Resources Reform and Development Act (WRRDA).

2.7 Financial Statements Remain Strong

Clean water utility balance sheets for the end of fiscal years 2007, 2010 and 2013 indicate that utilities continue to finance a large proportion of their assets through long-term debt. Aggregated respondent financial statements for 44 clean water utilities with nearly $42 billion in assets show that:

- The **average debt ratio** (total liabilities divided by total assets) rose only slightly from 0.43 to 0.45 between 2010 and 2013 indicating slightly increasing indebtedness (debt ratios greater than 0.5 indicate that an operation's assets are financed primarily through debt);
- The **average current ratio** liquidity measure (current assets divided by current liabilities) fell from 3.5 in 2007 to 2.8 in fiscal years 2010 and 2013 indicating continuing strength in the ability to pay short-term obligations (current ratios above 1.0 indicate that short-term obligations can be met with readily available current assets), and;
- The **average operating ratio** (operating revenue divided by operating expense) increased slightly from 1.5 in both 2007 and 2010, to 1.7 in 2013,[30] indicating that despite rising operations costs, utilities continue to generate adequate revenue to cover operational expenses.

2.8 Bond Ratings Reflect Strong Financial Position

Municipal bond ratings used to establish credit worthiness in the investment market provide another measure of fiscal health. Twenty-two (22) out of 81 respondents use more than one rating service, with Standard and Poor's ratings being most prevalent and used by 63 percent of all respondents. Survey respondent utilities continue to receive very strong credit ratings from all three major rating services.[31] Twenty-one (21) out of 81 respondents received the highest "AAA" rating from S&P, Moody's or Fitch rating services (Figure 9). No major shifts in clean water utility credit ratings from 2011 are reported with over 90 percent of all respondents receiving better than an "A+/A1" rating (i.e., above average creditworthiness).

Clean water utilities continue to maintain high credit ratings.

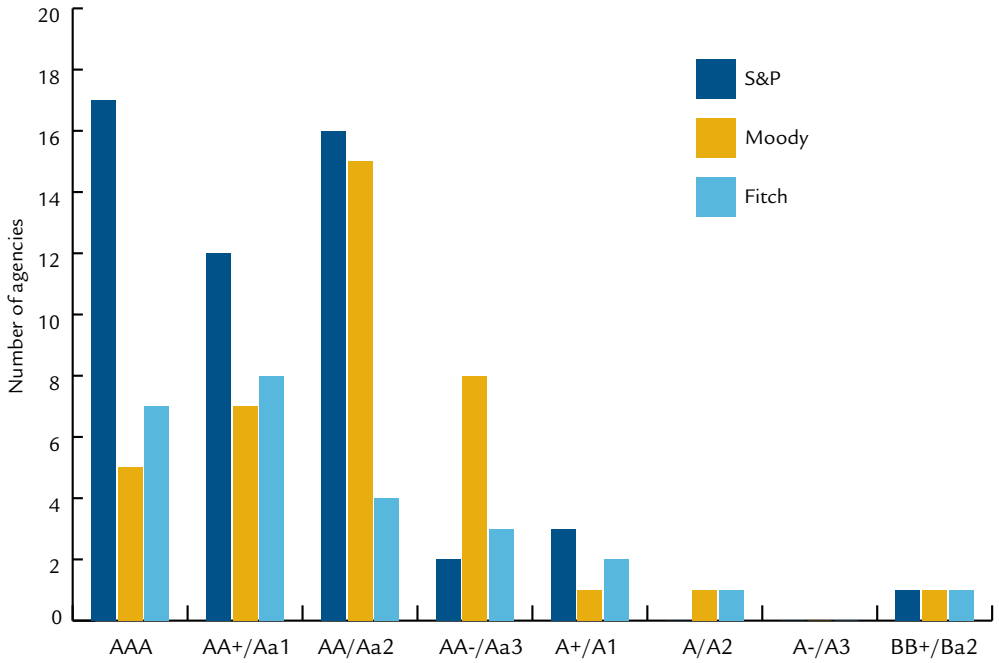


FIGURE 9: Credit ratings, 2014

30 For 38 common respondents that completed the Statement of Revenues and Expenses in the 2008, 2011, and 2014 NACWA *Financial Surveys*.

31 Standard and Poor's (S&P), Fitch, and Moody's.

3. OPTIMIZED UTILITY MANAGEMENT AND OPERATIONS

Use of continual improvement approaches, asset management and performance benchmarking are examples of how utilities are optimizing their management approaches to provide better information for daily and long-term decision-making. Coupled with operational initiatives such as energy efficiency, green power generation, reclaimed water reuse, and resource recovery, utilities are well-placed to continue their role as environmental stewards, delivering high levels of service, assuring efficiency in costs, and ensuring the sustainability of utility operations.

3.1 Utility Management Initiatives Improving Sustainability of Operations

Environmental and quality management programs including the Utility of the Future concept are increasingly being used by clean water utilities to help improve organizational and operational performance, and as communication tools to promote program efforts and successes to a wider audience. Rebranding agencies to better represent the important role they play in a community is also a growing trend. Seventy-four (74) out of 122 respondents (61 percent) are planning or currently implementing environmental or quality management programs at their utility.

Among several management programs, the National Environmental Laboratory Accreditation Program was cited most often as being implemented with 30 percent of respondents currently implementing or considering participation[32]. Other initiatives/programs where utilities are planning or considering participation include:

Nearly two-thirds of utility respondents implement an environmental/quality management system or framework.

- "Ten Attributes of Effectively Managed Water Sector Utilities" program/continual improvement approach;
- Utility of the Future and Energy Roadmap Programs at the Water Environment Federation;
- National Biosolids Partnership (NBP) Environmental Management System (EMS), and;
- American Water Works Association (AWWA) / Water Environment Federation (WEF) Qualserve program.

International Organization for Standardization (ISO) 9000 and 14000 quality standards also generate interest with nearly 15 percent of responding agencies considering or participating in one of these programs.

32 Twenty-five percent (25%) of utilities reported implementation of NELAP, while 5 percent are considering participation.

3.2 Wastewater Reuse, Biosolids Recycling and Other Material Recovery Efforts on the Rise

Clean water utilities have long recognized the benefits of resource recovery and reuse. Reclaiming treated wastewater to reduce the strain on scare water resources, using biosolids as a soil amendment to reduce environmental impact and disposal costs, or recovering waste heat to reduce power needs or reduce electricity costs are prime examples of where clean water utilities go beyond their core objectives of collecting and treating domestic and industrial waste streams.

Recognition of these efforts and emerging technologies for resource recovery are outlined in "The Water Resources Utility of the Future: A Blueprint for Action" (a.k.a. Blueprint) released jointly by NACWA, the Water Environment Research Foundation (WERF), and the Water Environment Federation (WEF) in 2013. In the *Blueprint,* a vision for the utility of the future (UOTF) is outlined, whereby clean water utilities transform themselves in to managers of valuable resources, and seek to deliver maximum environmental benefits at least cost to society. While some of this thinking is already occurring in the industry as outlined in some of the following *Survey* results, the *Blueprint* outlines barriers, potential incentives, and actions to catalyze even more innovation and transformation.

Wastewater Reuse

Forty (40) out of 122 utilities (33 percent) indicate that all or a portion of treated flows are reclaimed[33]. Reclaimed flow totaled nearly 300 MGD and comprised 3.2 percent of total plant flow (9,336 MGD) for all 122 respondent utilities. Since 2001, the overall percentage of treated flows reclaimed has ranged from 2.4 to 3.2 percent among survey respondents. A majority of reclaimed flows are used for groundwater recharge and landscaping (Figure 10). The effects of current significant drought across the country and especially in the west are expected to result in substantial changes in policy and future uses of reclaimed water in the coming years.

Nearly one-third of reported reclaimed flows are used for groundwater recharge.

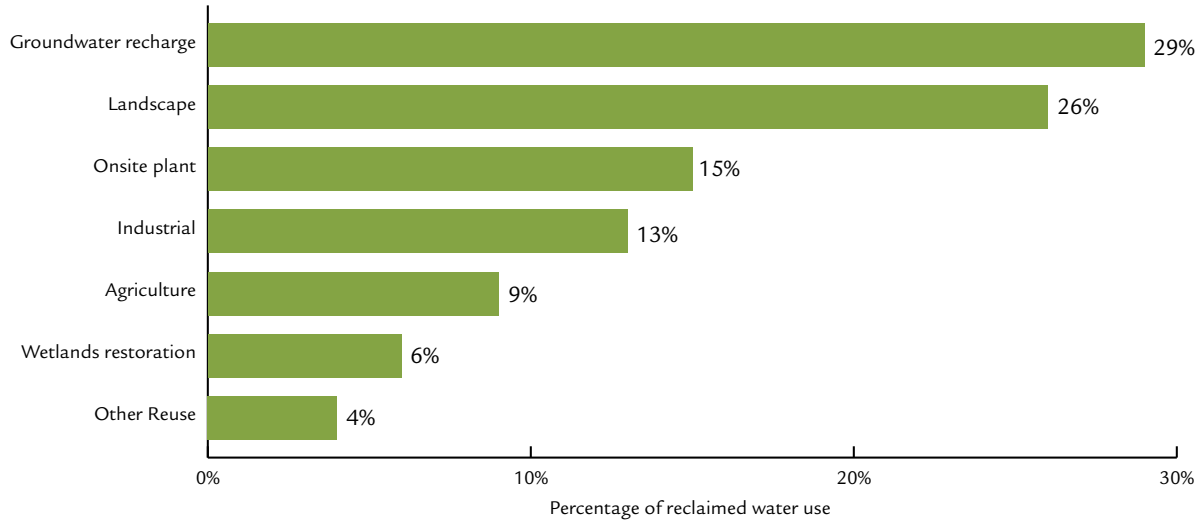


FIGURE 10: Reclaimed water uses (298 MGD, 40 agency respondents)

33 The percentage of treated flow reused for the 40 respondent utilities ranged from 0.04 to 100 percent (2 utilities reclaimed all treated flows), with a median wastewater reuse of 5 percent among the 40 respondents.

Biosolids Recycling and Energy Production from Biogas

Biosolids are widely recognized as valuable resources to recover nutrients and energy. Recovering heat and the use of biogas (to generate electricity) from anaerobic digestion of biosolids reduces both energy use and costs. Over one-quarter (32 out of 122) of utility respondents provided an estimate of the amount of electricity produced using biogas, and 20 common utility respondents report an overall 19 percent increase in electricity production from the use of biogas from 2010 to 2013. Many utilities produce a significant amount of total energy needs from these heat and power recovery processes.

A breakdown of reuse and disposal options for biosolids is shown in Figure 11 for 111 respondents. Results indicate that over one-third of the total quantity of biosolids beneficially reused or disposed by respondent utilities is applied to land, and nearly one-quarter is either pelletized or composted for use as soil amendments or fuel.

Over 50 percent of biosolids are land-applied in bulk or composted and/or pelletized.

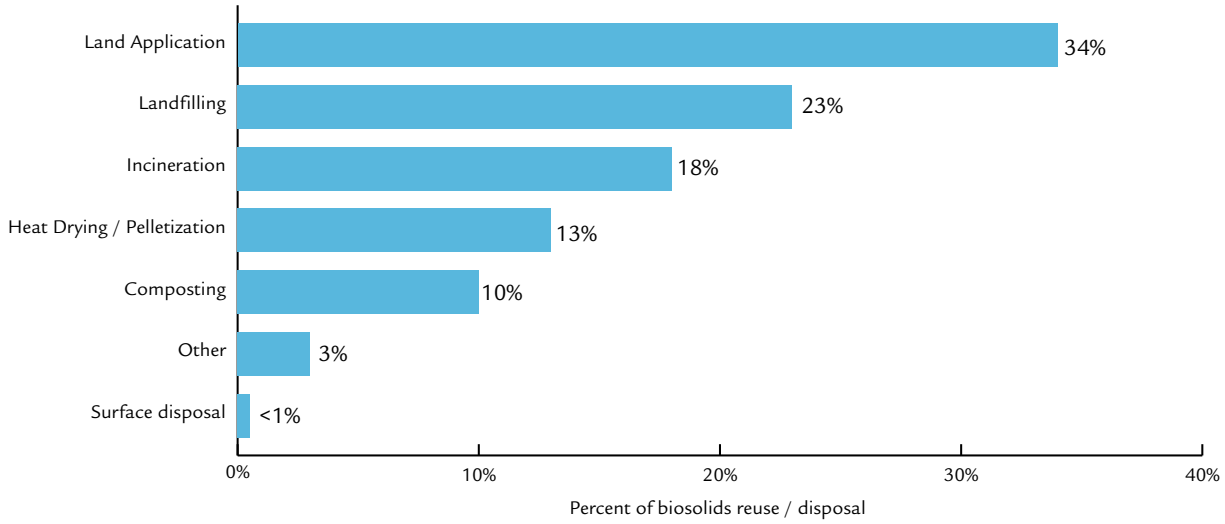


FIGURE 11: Biosolids reuse/disposal methods (111 respondents, 5,350 dry tons per day)

Other Materials Recovery

Based on the responses of surveyed utilities, the implementation of technologies to recover nutrients and metals from domestic waste streams, and developing fuels from residual biosolids, is relatively emergent and will continue to develop as evolving technologies and markets support these efforts. An exception, as noted above, is that many utilities practice bulk land application of treated biosolids as a fertilizer/soil conditioner, and nearly one in five respondent utilities indicated that biosolids pelletization is being implemented or planned.

Other resource recovery efforts are just beginning to be researched and implemented in the United States. Phosphorus compound (e.g., struvite) recovery efforts were cited by eight utility respondents (7% of all respondents). Two respondents indicated efforts to recover metals and one utility indicated efforts to convert biosolids to fuel oil. None of the respondent utilities reported activities associated with: ammonia recovery, nitrogen recovery, bioplastics production, algal biomass to fuel production, or biosolids solid fuel to replace coal.

3.3 Energy Efficiency and Conservation/Production Practices Continue to Grow

To minimize environmental impacts, and reduce energy costs, clean water utilities are achieving energy and cost reductions and environmental benefits through a variety of energy saving techniques. A large proportion of utilities have already implemented one or more of these techniques at their plants, and a significant proportion plan to do so in the future (Table 4).

TABLE 4: Energy conservation or cost reduction methods implemented and planned

Energy Conservation or Cost Reduction Method	Percent of Agencies that Have Completed Projects	Percent of Agencies that Have Planned Projects
Installation of high-efficiency pumps, motors, & variable frequency drives	81%	24%
Use of efficient lighting, HVAC for plant and administrative buildings	76%	19%
Using SCADA systems to monitor and optimize energy needs	68%	21%
Other plant process modifications to reduce energy use	50%	24%
Reduction of I/I to reduce plant flows	48%	22%
Electricity generation – (biogas fueled engine, microturbine, fuel cell)	41%	23%
Optimized purchasing strategies & load shifting to reduce peak demand	40%	13%
Heat recovery	39%	17%
Installation of equalization basin(s) to reduce peak demand	27%	13%
Electricity generation – (solar, wind turbine, hydropower)	22%	13%

Efforts to go "green" and reduce energy costs are highlighted by the use of high efficiency motors, lighting, and HVAC for plant operations, buildings, and administrative offices, where over 95 percent of respondent utilities use or are planning to use these systems.

The number of utilities generating electricity onsite is increasing. Nearly two-thirds of respondents indicated that they have completed or are planning to complete projects that will generate electricity on site using biogas, while 35 percent of survey respondents indicated that they are generating or planning to generate electricity with solar, wind or hydropower. Recent guidance, like the WEF Energy Roadmap, has added information and techniques to assist utilities in moving forward to reduce reliance on purchased power.

Overall, 44 out of 60 agencies responding to this question (i.e., more than 70 percent of utility respondents) reported that electricity is generated onsite. Of these, the median percentage of electricity needs generated onsite was 25 percent. Thirteen common respondents to the 2007, 2010, and 2013 surveys report that the percent of electricity needs generated onsite rose from 38 percent in 2007 to 41 percent in 2010, to 44 percent in 2013.

3.4 Performance Benchmarking Helps Utilities Track, Measure Progress

Either as a product of utility management initiatives, financial policies, or disparate performance measurement efforts, nearly two-thirds of utilities now report using one or more performance benchmarks (Figure 12). These benchmarks can be used to assess operational performance and trends, compare with industry averages, and/or compare with other similar size/service level utilities. Figure 12 shows the frequency of common performance benchmarks in four categories including: staffing, energy and reuse, operations and performance, and financials.

Over 60 percent of agency respondents reported the use of one or more performance benchmarks in 2014.

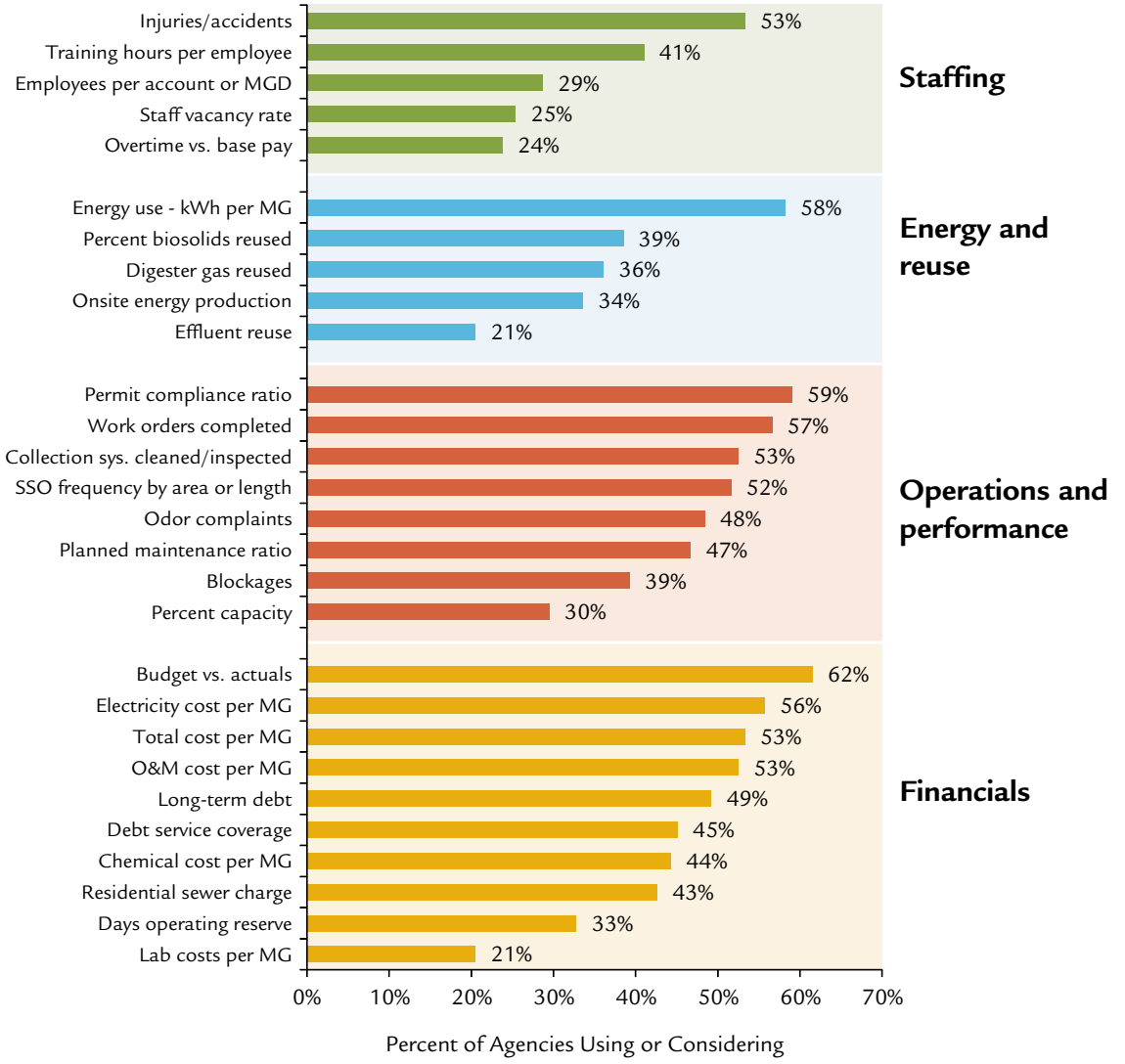


FIGURE 12: Percent of agencies using selected performance benchmarks

The percentage of utilities using performance benchmark tools did not increase from 2011 to 2014, though only 50 percent of respondent utilities reported using benchmarks in 2008. Five benchmarks that are being increasingly used[34] since 2011:

- Planned maintenance ratio (36% to 47% of agency respondents using)
- SSO frequency by area or length (wet/dry) (42% to 52% of agency respondents using)
- Percent biosolids reuse (30% to 39% of agency respondents using)
- Training hours per employee (32% to 41% of agency respondents using)
- Days operating reserve (25% to 33% of agency respondents using).

34 "Increasingly used" to indicate more than 8 percent increase in number of agencies using benchmark.

3.5 Asset Management Program Adoption Continues

Asset management programs provide vital information for scheduling and prioritizing operation and maintenance activities as well as long-term capital improvement efforts. Adoption of asset management systems continues to increase with 89 percent of utility respondents reporting the use of asset management, as compared to 85 percent in 2011 and 60 percent in 2005. Other asset management trends include:

Nearly 90 percent of utility respondents have adopted an asset management program, and there exists a high level of asset inventory information (e.g. lifespan and costs), but less information on asset condition and performance.

- Staffing for asset management has improved, with 70 percent of agencies having staff dedicated to asset management activities, as compared to 60 percent in 2011;
- More respondent utilities (75 percent) use their asset management programs to provide information for their capital improvement program, as compared to 68 percent in 2011;
- More respondent utilities (61 percent) use asset management systems to support the modified approach described in Government Accounting Standards Board (GASB) Statement 34, as compared to 57 percent in 2011;
- The proportion of planned versus reactive maintenance is 67 to 33 percent, respectively – remaining unchanged since 2008.

Figure 13 below provides a snapshot of the degree to which respondents have implemented asset management programs in two broad categories: asset inventory and asset condition[35]. Asset inventories, including replacement and O&M cost estimates, are reported at an average of 75 percent complete, while the assessment of assets is estimated to be 49 percent complete on average.

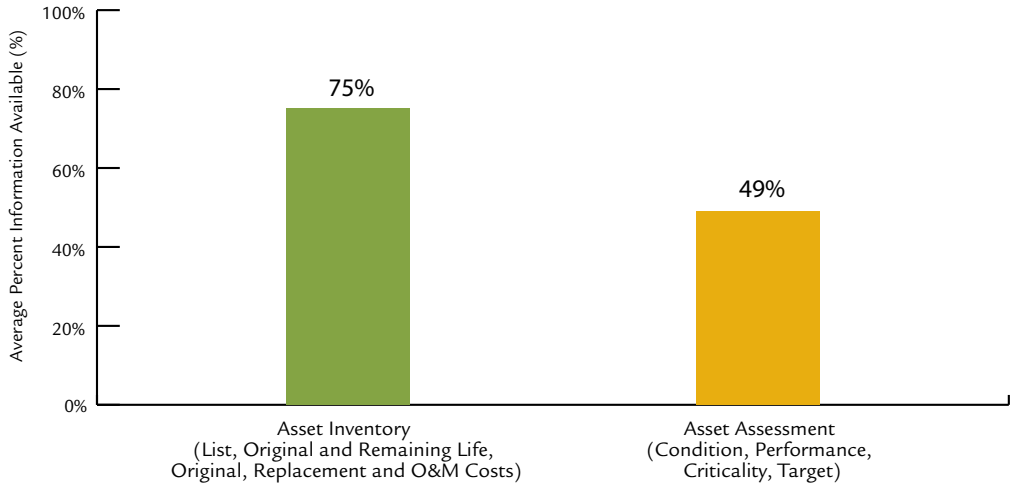


FIGURE 13: Extent of asset management program implementation

35 Asset inventory refers to information on original life span, remaining life, original cost, replacement cost, O&M cost and rehabilitation cost. Asset assessment refers to condition assessment, performance assessment, criticality analysis, and target condition.

4. SUSTAINABLE RATES AND CHARGES

Sewer service charges, based on a rate or cost per unit of consumption, a fixed charge or tax, or some combination thereof, are the primary revenue source for NACWA's members. Unlike the early days of the CWA when the Federal government made significant investments in the nation's water infrastructure, today's repairs, legacy replacement needs and upgrades are almost entirely paid for by the utilities' ratepayers. Keeping charges sustainable and affordable will remain a challenge into the future, especially with accelerating cost increases. Identifying new and unrealized revenue sources to augment user charge revenue could help reduce rate and charge increases and minimize their impact on lower or fixed-income ratepayers. These new sources can include the recovery of valuable resources from the waste stream that can be sold or utilized.

Average residential charges for sewer service have outpaced the rate of inflation for more than a decade, reflecting increased costs of providing services and increasing infrastructure needs to continue at current levels of or improve performance. Other residential fees and volume charges for industrial users have also been on the rise. Recognizing the impact increased rates can have on lower or fixed-income residents, a majority of survey respondents provide some form of assistance (e.g., extending bill payment time, reduced rates, etc.) to those customers that have difficulty paying their bill. Respondent utilities indicated that approximately two percent of customers[36] utilize some form of assistance in paying their bill.

The issue of affordability has received significant attention over the last decade and NACWA has advocated that the method for assessing financial capability needs revising.[37] The U.S. Environmental Protection Agency's (EPA) *Integrated Planning Framework*[38], published in June 2012, and the recently released Financial Capability Framework are important tools that may help utilities prioritize and sequence CWA investments to minimize affordability concerns. However, the growing infrastructure needs documented in the *Survey* and the resulting rate increases necessary to meet those needs, will no doubt remain an important consideration for all clean water utilities.

36 Two percent is the median value reported by 24 respondent utilities. The range was 0.3 to 18 percent of customers using some form of assistance among these 24 utilities.

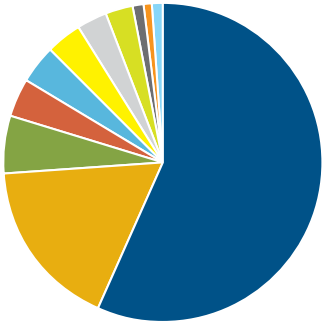
37 National Association of Clean Water Agencies. (May 2013). *The Evolving Landscape for Financial Capability Assessment, Clean Water Act Negotiations and the Opportunities of Integrated Planning*, Washington, DC. (www.nacwa.org).

38 U.S. Environmental Protection Agency. (June 2012). *Integrated Municipal Stormwater and Wastewater Planning Approach Framework* [Office of Water, Memorandum]. Washington, DC.

4.1 Sources of Utility Revenue

Over 75 percent of utility revenues are generated directly from system users via user charges, taxes, fees, and assessments. Repayable (by system users) debt financing through bonds, state revolving fund loans, and other debt instruments comprise over 20 percent of revenue. Other sources of revenue, including capital grants, earned interest, and product sales contribute less than one percent of total utility revenues (Figure 14).

Revenue generated through residential and industrial user charges comprises the largest revenue source at nearly 60 percent of all revenue.

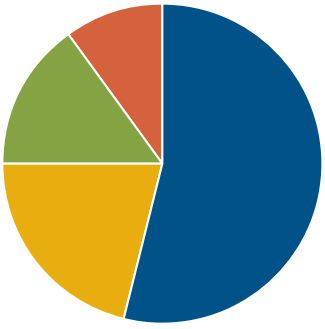


User charges	59%
Debt financing	18%
Taxes	6%
Federal/state grants and loans	4%
Reserves	4%
Assessments	4%
Hookup Fees	3%
Other	2%
Developer	<1%
Interest earned	<1%
Product sales	<1%

FIGURE 14: Sources of revenue, 2013 ($15.3 billion, 111 agency respondents)

4.2 Distribution of Rate Structure Types

As in past surveys, the 2014 NACWA *Financial Survey* shows that nearly all NACWA agencies depend heavily on user service charges, and that rate structures for these charges are diverse. Agencies can use any one or a combination of fixed/flat charges, volume-based charges, and tax-based charges. Figure 15 shows a breakdown of rate structures used by 2014 *Survey* respondents and highlights that a majority of clean water utilities (54 percent) use a combination of a flat charge with a volume charge.



Flat and volume charge	54%
Volume charge only	21%
Flat charge only	15%
Tax rate with flat/volume charge	10%

FIGURE 15: Type of rate structures implemented at clean water agencies

4.3 Average Sewer Service Charges Increase at Nearly Double the Inflation Rate

Because of the variation of rate structures implemented, the average annual single-family residential sewer service charge, inclusive of collection and treatment charges, provides a consistent benchmark to measure the price of service and changes in the price of service among clean water agencies nationwide.

NACWA performs an annual survey on changes in residential sewer service rates, called the NACWA *Service Charge Index (Index)* to supplement the data in the *Financial Survey*. The NACWA *Index* measures the year-to-year percent change in residential sewer charges and has tracked the national trends in residential service charges since 1985. The 2013 data indicate that the average residential service charge continues to increase faster than the rate of inflation as measured by the Consumer Price Index, nearly doubling inflation from 2010 to 2013. Projections from the 2013 NACWA Index indicate that the average single-family residential service charge will exceed $500 per year in 2016, a $100 increase from 2012 (Figure 16).

In 2013, the national average annual residential sewer service charge was $435.

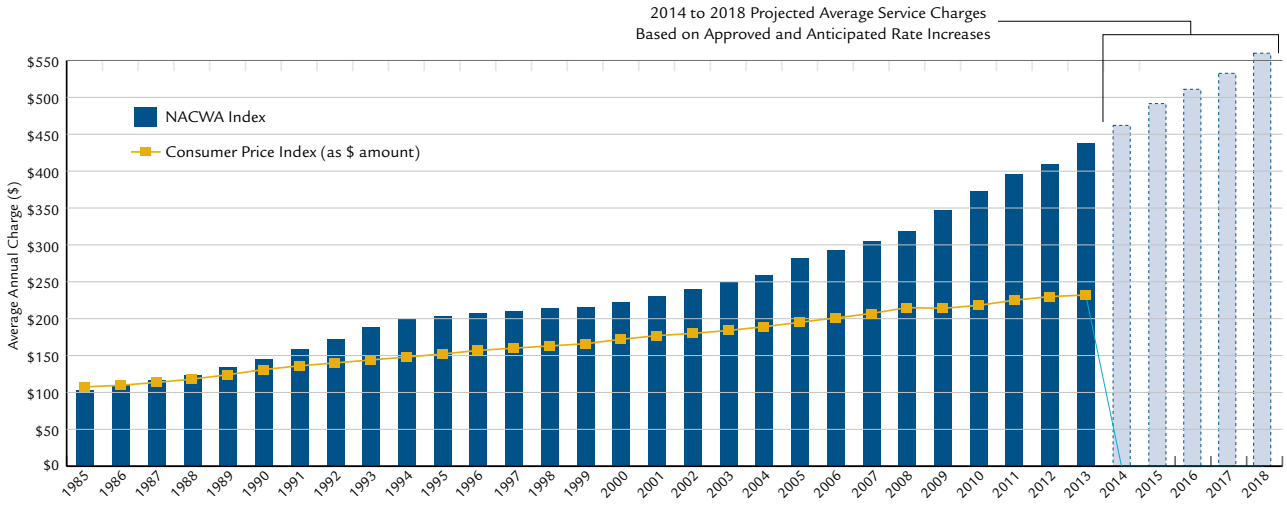


FIGURE 16: Historical and Project Average Single-Family Residential Service Charge (1985-2018)[39]

39 National Association of Clean Water Agencies (2014). 2013 NACWA *Service Charge Index*, Washington, DC. (www.nacwa.org).

4.4 Trends for Fixed Charges and Volume-Based Rate Components

Most utilities (90%) adjust their rates annually or biennially to ensure operational costs are adequately recovered. Increased costs of advanced treatment, reductions in water use, large legacy replacement costs and increasing pension and employee healthcare costs have continually pushed average residential rates upwards. Both flat and volume-based components of residential rate structures have increased at least 15 percent since 2010.[40] Figure 17 shows the changes in fixed charge and volume-based rate components from 2010 to 2013.

Individual components of residential rate structures increased 15 to 22 percent from 2010 to 2013.

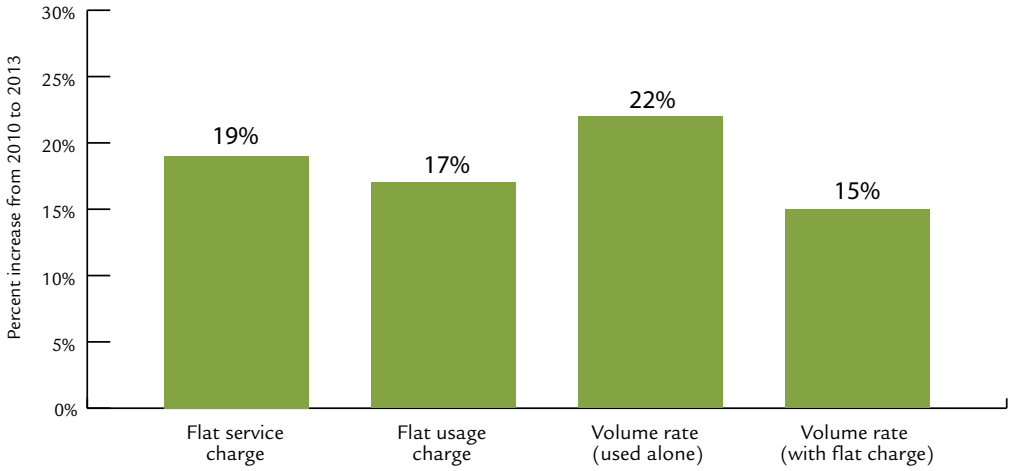


FIGURE 17: Percent increases in flat and volume-based rate components (2010 to 2013)

The average fixed rate for service and billing (i.e., flat service charge) in 2013 was $125. The rate has increased an average of 6 percent per year over the last three years. The average volume rate for residential customers (when combined with a flat charge) has steadily risen from $2.36 to $4.42 per 1,000 gallon from 2001 to 2013 — an average increase of 5.4 percent per year (Figure 18).

Residential volume rates have increased, on average, 5.4 percent per year from 2001 to 2013.

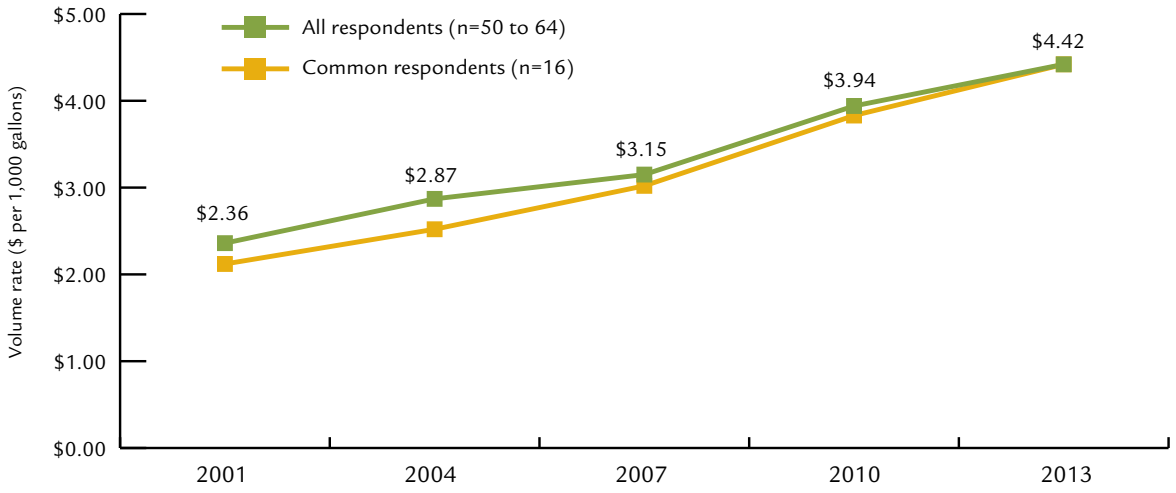


FIGURE 18: Increase in residential volume rates ($ per 1,000 gallons) when used with a flat charge

40 Average increase of common respondents.

4.5 Industrial User Charges Also Impacted by Rising Costs

Industries discharging to the sewer system are also impacted by the rising cost of wastewater collection and treatment. While utility rates structures for commercial and industrial discharges are more diverse than residential rate structures, most agencies require that industrial discharges pay a volume-based charge and applicable extra strength charges for high strength waste. High strength charges are generally expressed as a cost per quantity discharged ($ per pound) in excess of a threshold concentration level. The most common parameters for high strength charges are biochemical oxygen demand (BOD) and suspended solids (SS). Figure 19 shows the changes in the industrial volume-based charge and extra strength charges from 2001 to 2013.

While industrial volume-based rates increased over 20 percent[41] from 2010 to 2013, extra strength charges for BOD and suspended solids remained relatively stable.

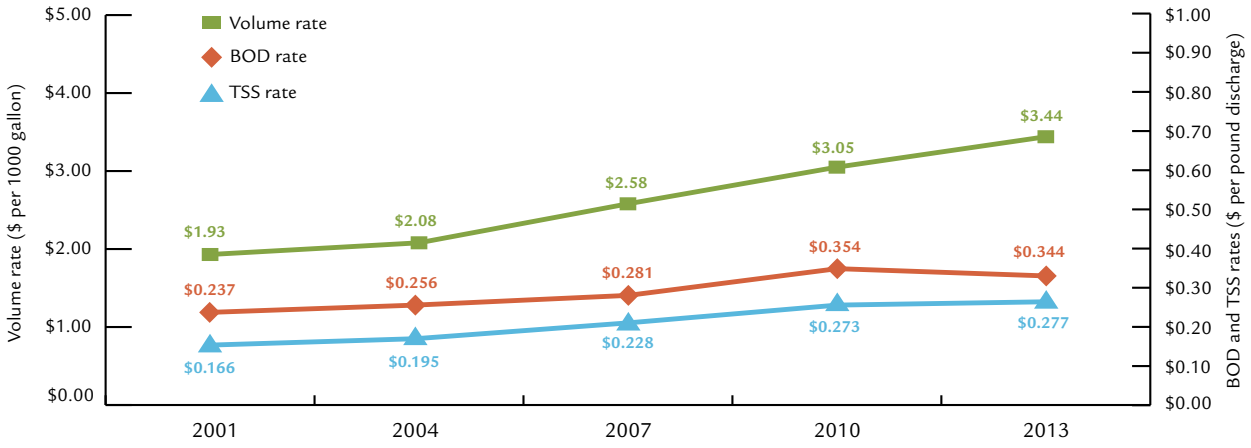


FIGURE 19: Change in industrial user charges 2001-2013 (22 common agency respondents)

41 Change in volume-based rate from 2010 to 2013 was reported at over 20 percent for 58 common respondent utilities to the 2011 and 2014 NACWA *Financial Surveys*. Chart shows responses of 22 utilities that reported to all NACWA surveys between 2002 and 2014. Volume rate change shown in chart from 2010 to 2013 is 13 percent.

4.6 Residential Connection and Hookup Fees for New Customers

In addition to monthly or less frequent sewer service charges, new customers can be charged connection fees (i.e., the cost of connecting a house lateral and impact fees (i.e., one-time fees used to offset capital improvements associated with the expansion of the system).

- **Average residential connection fees** increased 7 percent from 2010 to 2013 – or more than 2 percent per year. One-half (24 out of 49 common respondents) had no change in their residential connection fees from 2010 to 2013.
- **Average residential / facility impact fees** increased 8 percent from 2010 to 2013, or nearly 3 percent per year. One-half (15 out of 30 common respondents) had no change in their residential facility / impact fee from 2010 to 2013.

4.7 Community Assistance Programs Help Low Income Residents Pay Utility Bills

Recognizing that rising service charges impact customers in different ways, two-thirds of respondent utilities (80 out of 122) reported that there is a program available for those customers that have difficulty in paying their bill. The most common form of assistance is payment plans whereby customers receive extended payment periods. Alternatively, lifeline rates (reported to be used by 20 percent of utilities) provide low-income qualifying customers with reduced rates or bill discounts (Figure 20).

Extended payment plans are the most common form of utility bill payment assistance.

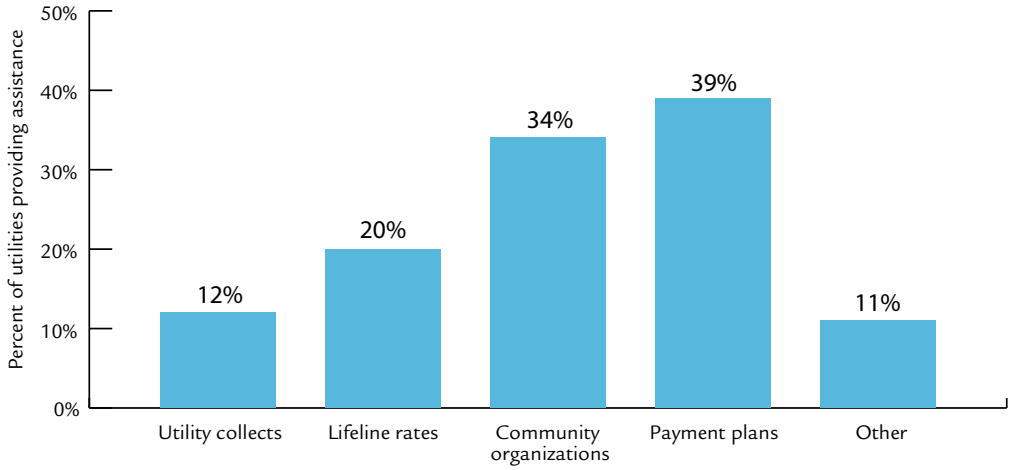


FIGURE 20: Use of community assistance programs (percent of utilities using)

Twenty-four agencies estimated the percentage of customers using some form or payment assistance. The range of customer assistance provided was 0.3 to 18 percent of all customers with a median of 2 percent of customers using some form of payment assistance.

CONCLUSION

Clean water utilities continue to work diligently to provide high quality services to their customers and optimize management and performance, despite increasing cost pressures and mounting regulatory obligations. Utility balance sheets and bond ratings continue to show strong financial position. Looking forward, however, there are some indications that expenditures, especially capital expenditure, may increase dramatically in the future. A combination of increasing court-ordered and regulatory requirements, aging infrastructure, especially legacy replacement requirements, coupled with a stronger economy and resurgence of overall construction spending, suggest the potential for dramatic increases in clean water utility infrastructure expenditures and long-term project financing over the next one to three years.

Optimizing O&M and management performance remains a strong priority for clean water utilities, with an increasing number of utilities exploring Utility of the Future-style initiatives, planning energy generation projects, implementing asset management systems and using performance indicators. Rising personnel costs, primarily due to rapidly increasing retirement and healthcare benefits expenses, may result in some utilities seeking additional opportunities to streamline these programs. Despite these and other optimization efforts, the average household cost for clean water services is projected to increase at nearly 5 percent per year from 2014 to 2018. These projections may increase, however, if some utilities decide to propose additional rate increases, which may have been stalled previously because of the 2008-2011 financial crisis.

The affordability and community financial impacts of rising rates will continue to be an issue over the long-term. Compliance costs directly affect rates, and EPA's recently released Financial Capability Framework[42] recognizes that demographic information and the financial position of the community are important factors in assessing how much burden a community handle. This is especially relevant as many agencies find it necessary to prioritize scarce rate payer dollars for multiple new and expanding regulatory requirements beyond providing basic wastewater collection and treatment services and maintaining their current infrastructure. Community assistance and affordability programs will likely see increased use in the next several years as ways to offset impacts on low income populations, and it will be important to explore additional legislative, regulatory and subsidy approaches to ensure the continued affordability of clean water services for all income levels.

NACWA's *Financial Survey* will continue to track these and other industry trends in order to provide clean water officials with valuable information and to help make informed decisions on investment and management issues.

42 U.S. Environmental Protection Agency. (November 2014). *Financial Capability Assessment Framework for Municipal Clean Water Act Requirements* [Office of Water, Memorandum]. Washington, DC. (http://water.epa.gov/polwaste/npdes/cso/upload/municipal_fca_framework.pdf).

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The complete 2014 *Financial Survey* report will be available in summer 2015 for purchase on NACWA's website at: *www.nacwa.org/pubs.*

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