Exhibit No. 450

CCM – Exhibit 450
Testimony of Roger D. Colton
Direct Testimony
File No. WR-2024-0320

Exhibit No: _____

Rate Design Issue(s):

- Energy Bill Affordability
- Universal Affordability Tariff (UAT)
- UAT Cost Recovery
- Revenue Stabilization Mechanism (RSM)

Sponsoring Party:
Consumers Council of Missouri

DIRECT TESTIMONY OF

ROGER D. COLTON

(Rate Design)

Case No. ER-2024-0320

Filed: December 20, 2024

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Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. My name is Roger Colton. My address is 34 Warwick Road, Belmont, MA 02478.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?

A. I am the owner of the firm Fisher Sheehan & Colton, Public Finance and General Economics of Belmont, Massachusetts. In that capacity, I provide technical assistance to a variety of federal and state agencies, consumer organizations and public utilities on rate and customer service issues involving water/sewer, natural gas and electric utilities.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of the Consumers Council of Missouri (CCM).

Q. PLEASE DESCRIBE YOUR PROFESSIONAL BACKGROUND.

A. I work primarily on low-income utility issues. This involves regulatory work on rate and customer service issues, as well as research into low-income usage, payment patterns, and affordability programs. At present, I am working on various projects in the states of New Hampshire, Massachusetts, Connecticut, New Jersey, Pennsylvania, Ohio, Michigan, Wisconsin, Missouri, Montana, and Washington, as well as in the Canadian province of British Columbia. My clients include state agencies (e.g., Pennsylvania Office of Consumer Advocate, Maryland Office of People's Counsel, Connecticut Office of Consumers Counsel), federal agencies (e.g., the U.S. Department of Health and Human Services), community-based organizations (e.g., Consumers Council of Missouri, Nova Scotia Energy Poverty Task Force, Sierra Club), and public and private utilities (e.g., BC Hydro, Toledo Water).

Examples of my work include my current projects to assist the Connecticut Office of Consumers Counsel in the annual generic review of the low-income affordability initiatives of that state's utilities by the Public Utilities Regulatory Authority. I am also assisting the Massachusetts Attorney General's Office in the generic investigation by the Department of Public Utilities into the design of low-income affordability programs. I am currently under contract to develop a universal service plan for BC Hydro. I am consulting for the New Hampshire Department of Energy, which administers that state's Electricity Assistance Program ("EAP"), in the proceeding before the New Hampshire Public Utilities Commission to review the EAP. A brief description of my professional background is provided in Exhibit RDC-1.

Not all of my work involves rate case testimony. In addition, I engage in work throughout the United States and Canada. For example, in 2022, I drafted, under contract to the City of Toledo (OH), a Water Affordability Plan for that city. In May of 2022, I completed a detailed report examining the affordability of water service in Knoxville (KY) for a community-based organization, Knoxville Water and Energy for All. In 2020, I represented a coalition of major national consumer organizations to comment on the Environmental Protection Agency's proposed framework by which to judge community financial capability. I have recently completed a project with the Natural Resources Defense Council to develop a tool by which to assess the financial impact of differing types of low-income bill assistance for water utilities. I also continue to be "Of Counsel" to the National Coalition for Legislation on Affordable Water. A brief description of my professional background is provided in Exhibit RDC-1.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. After receiving my undergraduate degree in 1975 from Iowa State University, I obtained further training in both law and economics. I received my law degree in 1981 from the University of Florida. I received my Master's Degree in Regulatory Economics from the MacGregor School at Antioch University in 1993.

Q. HAVE YOU EVER PUBLISHED ON PUBLIC UTILITY REGULATORY ISSUES?

A. Yes. I have published three books and more than 80 articles in scholarly and trade journals, primarily on low-income utility and housing issues. I have published three times that number of technical reports for various clients on energy, water, telecommunications and other associated low-income utility issues. My most recent publication was a chapter in a 2018 book published by the London-based Edward Elgar Publishing, which was titled "Energy Justice: US and International Perspectives." My chapter, "The equities of efficiency: distributing energy usage reduction dollars," set forth a methodology grounded in law and economics by which to objectively measure whether utility investments in energy efficiency are being equitably distributed.

Q. HAVE YOU EVER TESTIFIED BEFORE THIS OR OTHER UTILITY COMMISSIONS?

A. Yes. I have testified before the Missouri Public Service Commission ("MPSC" or "Commission") on several occasions over the past 35 years on issues affecting universal service and customer service. Most recently, I testified on behalf of the National Housing Trust in Docket EU-2020-0350 regarding that utility's response to COVID. In addition, I have testified before the MPSC in:

- Docket EU-2020-0350, regarding Missouri Gas Energy, on behalf of the Office of Peoples Counsel;
- Docket EM2000-292, regarding the merger of UtiliCorp with St. Joseph Light & Power, on behalf of the Missouri Department of Natural Resources; and
- Docket EM2000-369, regarding the merger of UtiliCorp with Empire District Electric, on behalf of the Missouri Department of Natural Resources.

With respect to water utilities in particular, I have testified on behalf of the Pennsylvania Office of Consumer Advocate regarding Pennsylvania-American Water Company rate cases in numerous years. I testified before the Illinois Commerce Commission on behalf of Legal Action of Chicago regarding the request of Illinois-American Water Company for increased rates in 2024. In addition, I have testified in rate cases involving the Philadelphia Water Department, the Pittsburgh Water and Sewer Authority, and Aqua PA on numerous occasions.

Overall, in my career I have testified before state utility regulatory commissions on over 340 occasions regarding utility issues affecting low-income customers and customer service. I have testified in regulatory proceedings in 43 states and various Canadian provinces on a wide range of utility issues. A list of the jurisdictions in which I have testified as an expert witness is listed in Exhibit RDC-1.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my Direct Testimony in this proceeding is to examine:

- the affordability of the Missouri-American Water Company's ("MAWC") rates, as presented in MAWC's direct testimony;

- the reasonableness of MAWC's proposed low-income discount rates; and

- the reasonableness of MAWC's proposed revenue decoupling proposal.

Q. PLEASE SUMMARIZE THE RECOMMENDATIONS YOU MAKE THROUGHOUT YOUR TESTIMONY.

A. Based on the contents of MAWC's direct testimony, data request responses cited herein, along with data and analysis I present throughout my testimony, I recommend as follows:

- MAWC's proposed low-income tiered UAT discount should be found to be a reasonable action and should be approved.

- The three discount tiers that MAWC proposes should be adopted for the income tiers which MAWC addresses;

- A fourth discount tier of 15% for water and wastewater customers with income at 150% to 200% FPL should be approved in addition to the recommended discount proposed by MAWC; and

- The four-tiered discount should be explicitly extended to wastewater bills in addition to being offered for water service.

In addition, I recommend that:

- While the Company should be permitted to recover the full costs of the UAT, it should not be permitted to recover those costs through its proposed Revenue Stabilization Mechanism ("RSM").

- The Company should be allowed to defer the net, incremental costs of the UAT for recovery in a future rate proceeding. This future rate recovery, however, requires as a precondition that the Company be directed to work with the Commission Staff, with CCM, with the Office of the Public Counsel, and with other stakeholders who have an interest in participating, to mutually develop the offsets that will be applied to ensure that rates will only reflect the net incremental costs of the UAT.

I finally offer three alternative recommendations with respect to the proposed RSM:

1. First, overall, I recommend that the RSM mechanism proposed by MAWC be denied. The RSM mechanism is inherently flawed in that it adjusts for changes in

revenues without taking into account corresponding changes in expenses. In this regard, MAWC is simply in error when it asserts that changes in revenues on a between-rate-case basis will *ipso facto* have an impact on earnings. Earnings are affected by changes in expenses as well as changes in revenue.

2. If the RSM mechanism is not disapproved in its entirety, MAWC customers taking service under the UAT should be exempted from the RSM. As Mr. Rea's own data shows, low-income customers are neither the customers with high usage nor the customers with substantial seasonal variation in their consumption.

3. Third, if the RSM mechanism is not disapproved in its entirety, and if MAWC customers are not exempted from the RSM, the recovery of RSM revenues from UAT participants should be subject to the same UAT discounts that are applied to all other UAT volumetric bills. Without doing this, what the RSM effectively does is not simply to take bills from higher income customers and to transfer those revenues to low-income customers (as explained above), but it compounds that unjust result by transferring billed revenue from higher income customers to lower income customers on an undiscounted basis.

This is a summary of my recommendations. Each recommendation is presented in more detail in the body of my testimony.

Part 1. The Affordability of MAWC Water and Wastewater Service.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I assess the reasonableness of the affordability analysis presented by MAWC witness Charles Rea. I discover substantive shortcomings in Mr. Rea's analysis "enterprise" level analysis of the affordability of MAWC water bills.

Q. PLEASE EXPLAIN WHY PAYING PARTICULAR ATTENTION TO THE AFFORDABILITY OF WATER AND WASTEWATER SERVICE IS IMPORTANT IN THIS RATE PROCEEDING.

A. Water service in today's world is an essential human need. Water is needed not only for drinking, but also for cooking and sewer needs. A 2022 White Paper by the U.S. Water Alliance states that "for every community in our country, the availability of safe drinking water and wastewater services is a precondition for public health and prosperity."[1] Water is vital to maintaining hygiene and health. The lack of water has particularly negative impacts on children, the elderly, women, and persons suffering from an illness or chronic health concern. As one recent study noted:

> Dehydration can create threatening chemical imbalances for elderly people. Women who are menstruating need water to properly cleanse themselves, and mothers who are nursing need water to maintain their milk supply and their health. Some people with chronic illness need clean water in order to run and wash personal medical equipment.[2]

A recent study published in the American Journal of Preventative Medicine concluded that "Water shutoffs pose a real threat to human health because the lack of adequate sanitation can cause diseases to spread and allow people to become sick."[3] A 2010 report for the Water Research Foundation (the research arm of the American Water Works Association, AWWA) concluded that "A final consideration of importance to water utilities is the relationship of payment problems to health issues. . . Potential impacts

[1] Hara, Willette and Simonson (2022). Making Water a Public Good: The Bigger Picture of Water Affordability, at 1, US Water Alliance.

[2] Jones and Moulton (2016). The Invisible Crisis: Water Unaffordability in the United States, at 11, Unitarian Universalist Service Committee, Cambridge: MA; see also, Bipartisan Policy Center (September 2017). Safeguarding Water Affordability, at 7.

[3] Zhang et al (2021). Water Shutoff Moratoria Lowered COVID-19 Infection and Death Across U.S. States, 2021 American Journal of Preventative Medicine.

relate to many of the same public health endpoints targeted by Safe Drinking Water Act standards such as effects on children and the unborn."[4]

The fundamental need for affordable water is recognized not only by laws relating to the protection of children, but also by laws relating to the habitability of homes. In 21 states, a parent's inability to provide running water in the home can be considered "child neglect."[5] The lack of running water and sanitation is generally considered by public health inspectors to make a home uninhabitable.[6]

A. The Ongoing Adverse Impacts of Inflation.

Q. IS THERE A PARTICULAR CONCERN ABOUT THE IMPACTS OF HIGHER MAWC BILLS IN TODAY'S ECONOMIC ENVIRONMENT?

A. Yes. Inflation in today's economic environment is disproportionately affecting lower-income households. Given the Commission's obligation to balance the interests of investors and ratepayers in setting a reasonable return on equity, the Commission should consider the greater adverse impacts that inflation has imposed on low-income ratepayers when setting rates.

Q. HOW DOES INFLATION HAVE A PARTICULARLY ADVERSE IMPACT ON LOWER INCOME HOUSEHOLDS?

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[4] Cromwell, et al. (2010). Best Practices in Customer Payment Assistance Programs, at xxii, Water Research Foundation: Washington D.C. (hereafter "Best Practices").

[5] Id., at 34.

[6] Id., at 32 – 33.

A. The impact of inflation is felt most severely by low-income households. Research by the U.S. Department of Labor's Bureau of Labor Statistics, the agency that calculates and reports the "rate of inflation" (i.e., the Consumer Price Index ["CPI"]) each month, reports that "consumers with different incomes experience inflation quite differently."[7] According to this BLS research, households earning lower incomes spend a higher share of their household budget on household necessities such as rent, food and medical care.

Table 1. Household budget shares of expenditure items for lowest and highest income quartiles, 2017–2018[8]

Expenditure	Lowest Income Quartile	Highest Income Quartile
Rent (including owner's equivalent rent	34.93%	27.93%
Food at home	9.44%	6.58%
Medical care	8.36%	8.09%
Household utilities	4.36%	2.73%
Motor fuels	3.46%	3.42%
Motor vehicle operation	3.44%	3.40%
Telephone service	2.32%	2.00%

While low income households pay more of their budgeted income for this basket of essential goods, it is also important to note that the BLS researchers found that "prices for motor fuel, medical care, fuel and utilities, and shelter rose faster than the overall average. . ."[9] Thus, "[b]ecause the lowest income households dedicate more of their

[7] Klick and Stockburger (December 2022). Spotlight on Statistics: Inflation Experiences for Lower and Higher Income Households, U.S. Department of Labor, Bureau of Labor Statistics, available at https://www.bls.gov/spotlight/2022/inflation-experiences-for-lower-and-higher-income-households/home.htm

[8] Id.

[9] Id.

spending on these categories," the BLS researchers found, "their overall inflation rates grew faster than higher income households."

Table 2. Average price change by item, 2005–2020
(Starred ("*") items are defined by BLS to be household necessities)

Item	2005–2020 average 12-month change (%)
Tuition, other school fees, and childcare	4.03
Motor Fuel*	3.45
Medical Care*	3.28
Rent*	3.06
Food away from home	2.86
Fuel and utilities*	2.71
All items	2.00
Food at home*	1.89
Lodging away from home	1.16
Recreation	0.74
New and used motor vehicles	0.43
Apparel	-0.10
Telephone services*	-0.20

The Federal Reserve Bank of Dallas similarly found that:

> Families have grappled with surging prices over the past 18 months, as the cost of meeting basic needs rose. Consumer prices were 7.1 percent higher in November 2022 than one year earlier.
>
> Although inflation may have peaked, prices remain elevated, with food costs up 10.6 percent, gasoline rising 10.1 percent, rent increasing 7.9 percent and medical care services up 4.4 percent.

> Drawing upon recent household survey data, we show that high inflation is disproportionately hurting low-income households, including Black and Hispanic households and renters.[10]

Q. DO LOW-INCOME HOUSEHOLDS HAVE THE SAME TOOLS AS NON-LOW-INCOME TO ADAPT TO HIGHER PRICES RESULTING FROM INFLATION?

A. No. The Federal Reserve researchers found that lower income households have fewer ways to respond to the impacts of high inflation. They explained:

> Prior research suggests that inflation hits low-income households hardest for several reasons. They spend more of their income on necessities such as food, gas and rent—categories with greater-than-average inflation rates—leaving few ways to reduce spending. When prices rise, middle-income households may react by consuming cheaper goods and buying more generic brands. Low-income households do not have the same flexibility; in many cases, they are already consuming the cheapest products.
>
> Additionally, many low-income households lack the ability of higher-income households to stock up when prices are discounted, buy in bulk and save, delay purchases if there is an opportunity to save in the future or buy more cheaply online. Low-income households are also likely to have smaller cash buffers to tide them over a period of high inflation.

The data is clear and it is consistent. Lower income families expend a greater share of their income on necessities (which tend to have higher inflation rates); have smaller financial cushions to mitigate the impact of inflation; and may have less of an ability to switch to lower-priced alternatives. As Lael Brainard, a member of the Board of Governors of the Federal Reserve System, concluded, "All Americans are confronting

[10] Jayashankar and Murphy (January 2023). High inflation disproportionately hurts low-income households, Federal Reserve Bank of Dallas, available at https://www.dallasfed.org/research/economics/2023/0110#:~:text=Low%2Dincome%20households%20most%20stressed,few%20ways%20to%20reduce%20spending%20.

higher prices, but the burden is particularly great for households with more limited resources."[11]

Q. WHAT DO YOU CONCLUDE?

A. The Commission is obligated to balance the interests of investors and ratepayers in setting reasonable rates. That balancing might occur in setting a return on equity. It should also occur in deciding upon rate design issues involving the fixed monthly customer charge, I considering the proposed revenue decoupling mechanisms, and in reviewing other issues. In so doing, the Commission should take into account not merely the affordability impacts of MAWC's request for higher rates, but also the greater adverse impacts that inflation has imposed on low- and moderate-income ratepayers as I have discussed above.

B. Lessons from the U.S. Census Bureau's PULSE Household Survey.

Q. IS THERE STATE-SPECIFIC DATA THAT DOCUMENTS THE DIFFICULTIES THAT CONSUMERS CONTINUE TO FACE IN PAYING HOUSEHOLD EXPENSES, INCLUDING UTILITY BILLS?

A. Yes. The U.S. Census Bureau continues to pursue what it refers to as its periodic "Household PULSE Survey" ("HPS"). While the HPS does not provide data specific to utility service territories, it does provide information specific to Missouri. At the time I write this Testimony, the most recent HPS data collection was for the period August 20, 2024 through September 16, 2024.

[11] Brainard (April 2022). Variations in the inflation experiences of households, available at https://www.federalreserve.gov/newsevents/speech/brainard20220405a.htm

The most recent HPS results for Missouri show that fewer than 8% of Missouri households with income exceeding $100,000 had either a “somewhat difficult” or “very difficult” time paying their usual household expenses in the summer of 2024. In contrast, between 17% and roughly 30% of Missouri households with income less than $50,000 had a “very difficult” time in paying their usual household expenses. While 36.3% of households with income less than $25,000 had a very difficult time, only 10.1% of households with income of $100,00 to $149,999, and only 2.0% to 7.2% of households with income of $150,000 and above did so. In contrast, while 87% of households with income of $200,000 and above, and 90% of households with income between $150,000 and $200,000 had no difficulty at all (or little difficulty) in paying their usual household expenses, only 50% of households with income less than $25,000 and only 48% of households with income between $25,000 and $49,999 had no difficulty at all (or little difficulty) in paying their usual household expenses.

Table 3. Difficulty in Paying Usual Household Expenses in the Last Seven Days (August 20, 2024 – September 16, 2024) (Missouri)[12]

	Not at all difficult	A little difficult	Somewhat difficult	Very difficult
Less than $25,000	20.5%	29.3%	13.9%	36.3%
$25,000 - $34,999	27.6%	33.7%	16.7%	22.1%
$35,000 - $49,999	19.0%	29.0%	35.1%	16.9%
$50,000 - $74,999	33.2%	23.2%	21.0%	22.6%
$75,000 - $99,999	37.1%	35.8%	15.9%	11.2%
$100,000 - $149,999	35.8%	46.6%	7.5%	10.1%
$150,000 - $199,999	66.0%	24.0%	8.0%	2.0%
$200,000 and above	68.4%	18.4%	5.9%	7.2%

This HPS data helps to paint a clear picture of the context within which the affordability of MAWC rates should be viewed. The economic difficulties faced by low- and moderate-income households have not ended as the economic crisis associated with the COVID-19 health pandemic winds down. The economic difficulties facing the customers of MAWC continue today.

Q. DOES THE HPS PROVIDE ADDITIONAL INSIGHTS INTO THE IMPACT OF HIGHER PRICES ON MAWC CUSTOMERS?

A. Yes. The same HPS measures the "stress" experienced by Missouri households as a result of increasing prices. The data set forth in the Table below shows that this stress is not exclusively a "low-income" phenomenon. On the one hand, between 44% and 50% of Missouri households with income less than $75,000 reported "price increases" to be "very stressful" in the fall of 2024. In contrast, the percentage of households reporting

[12] https://www.census.gov/data/tables/2024/demo/hhp/cycle09.html

price increases to be "not at all stressful" or only "a little stressful" was between 18% and 26% for households with income less than $50,000, while being between roughly 40% and 50% for households with income of $150,000 or higher.

Table 4. Stress Caused by Price Increases (August 20, 2024 – September 16, 2024) (Missouri)[13],[14]

	Very stressful	Moderately stressful	A little stressful	Not at all stressful
Less than $25,000	50.2%	30.9%	9.9%	8.1%
$25,000 - $34,999	41.5%	38.3%	19.4%	0.8%
$35,000 - $49,999	49.6%	23.4%	25.9%	0.3%
$50,000 - $74,999	44.1%	26.1%	19.7%	9.8%
$75,000 - $99,999	40.1%	31.9%	26.3%	1.7%
$100,000 - $149,999	46.2%	32.4%	17.6%	3.8%
$150,000 - $199,999	15.7%	44.9%	30.7%	8.7%
$200,000 and above	23.6%	26.5%	40.0%	9.8%

I find that the stress caused by increasing prices is real in Missouri. I find that while between 40% and 50% of households with income less than $150,000 reported that price increases were "very stressful," only 16% to 24% of households with income greater than $150,000 did so. The impacts of high prices on consumers should be a real concern to be considered by the Commission.

Q. HOW, IF AT ALL, DOES THIS "STRESS" AND DO THESE "BILL PAYMENT DIFFICULTIES" RELATE TO UTILITY BILL PAYMENTS IN PARTICULAR?

A. The HPS finally reports difficulties in paying home utility bills in the last twelve months for the State of Missouri. While the bill payment difficulties tracked in the HPS involve

[13] https://www.census.gov/data/tables/2024/demo/hhp/cycle09.html

[14] Totals may not sum to exactly 100% due to non-reporting by some households.

home energy bills, the difficulties provide insights into the affordability of water and wastewater bills as well. The lessons for Missouri are clearly the same as found with respect to the household stress imposed by high prices and the difficulties in paying "usual household expenses." The percentage of households with annual income of $150,000 or more having "never" found it to be necessary to reduce spending on other household necessities in the last twelve months in order to pay the home utility bills ranged from 85% to 95%, while fewer than half of households with income less than $25,000 reported "never" having to do so. While between roughly 30% and 40% of households with income less than $75,000 reported needing to reduce or forego spending on other basic household necessities in order to pay their utility bill "almost every month" or "some months," only 8% to 12% of households with income between $100,000 and $200,000, and 0% of households with income greater than $200,000 needed to do so.

Similarly, while between 20% and nearly 30% of households with income less than $75,000 reported being "unable to pay the full bill amount" in "almost every month" or in "some" months, only 3% to 6% of households with income of $100,000 or more reported such an inability to pay.

Table 5. Difficulties in Paying Home Energy Bills in the Last 12 Months
(August 20, 2024 – September 16, 2024) (Missouri)[15],[16]

Household reduced or forwent expenses for basic household necessities, such as medicine or food, in order to pay an energy bill

	Almost every month	Some months	1 or two months	Never
Less than $25,000	15.4%	28.1%	11.5%	45.0%
$25,000 - $34,999	6.2%	15.3%	9.8%	68.7%
$35,000 - $49,999	14.5%	25.5%	13.0%	46.6%
$50,000 - $74,999	16.9%	12.5%	9.3%	61.3%
$75,000 - $99,999	5.9%	9.8%	10.0%	74.3%
$100,000 - $149,999	3.5%	8.6%	15.5%	72.4%
$150,000 - $199,999	3.2%	4.6%	7.4%	84.8%
$200,000 and above	0.0%	0.0%	2.5%	97.5%

Household was unable to pay an energy bill or unable to pay the full bill amount

	Almost every month	Some months	1 or two months	Never
Less than $25,000	8.6%	19.0%	6.7%	65.6%
$25,000 - $34,999	5.0%	15.6%	6.5%	72.9%
$35,000 - $49,999	11.0%	9.8%	9.7%	69.0%
$50,000 - $74,999	6.6%	8.6%	14.9%	69.9%
$75,000 - $99,999	2.9%	3.8%	4.6%	88.7%
$100,000 - $149,999	1.6%	1.3%	8.5%	88.6%
$150,000 - $199,999	0.9%	2.1%	3.2%	93.8%
$200,000 and above	0.0%	6.1%	5.9%	87.3%

Q. WHAT DO YOU CONCLUDE?

A. Many, if not most, of the decisions which to the Commission face in this proceeding require a balancing of the interests of investors and ratepayers. In deciding upon issues

[15] https://www.census.gov/data/tables/2024/demo/hhp/cycle09.html

[16] Totals may not sum to exactly 100% due to non-reporting by some households.

ranging from a reasonable return on equity, to appropriate cost allocations, to rate appropriate rate designs, including the stabilization of returns through the proposed revenue decoupling mechanisms, the Commission should understand, and account for, the affordability impacts of MAWC's request for higher rates including the adverse impacts that inflation has imposed on ratepayers as I have identified above.

Part 2. The Impropriety of MAWC's "Enterprise Level" Affordability Analysis.

Q. PLEASE SUMMARIZE THE "ENTERPRISE LEVEL" AFFORDABILITY ANALYSIS PRESENTED BY MAWC WITNESS CHARLES REA?

A. MAWC witness Charles Rea presents a two-part affordability discussion. The first part includes what he refers to as an "enterprise level" affordability analysis, while in the second part, he refers to a "community level" analysis. In my discussion below, I address only the "enterprise level" affordability analysis. I find that Mr. Rea's ultimate conclusion, that "The Company's water and wastewater service has been, is, and is expected to continue to be affordable for the majority of its residential customers, including under the rates proposed in this case," is misleading at best. Even more so, Mr. Rea's conclusion in this regard is in error.

Moreover, Mr. Rea's effort to downplay both the breadth of unaffordability (i.e., the number of customers facing unaffordable bills) and the depth of unaffordability (i.e., the extent to which bills are unaffordable) should be dismissed. Mr. Rea seeks to downplay the lack of affordability in stating that "There will always be customers for whom water service is more affordable than for others depending on demographics and income levels." (Rea-DT, at 12). The question is not one of whether some customers have "more affordable" bills than others. The situation facing MAWC is one of significant

proportions of its customer base, along with substantial portions of its service territory, facing bills with Bill-to-Income Ratios which are untenably high.

Q. PLEASE SUMMARIZE REA'S "ENTERPRISE" AFFORDABILITY DISCUSSION.

A. MAWC witness Rea describes his "enterprise level" affordability study as one that "considers affordability of service at a high level over a multi-year period." (Rea-DT, at 5). He calculates an average water and wastewater bill by year for each year 2012 through 2024 and compares those bills to median household income ("MHI") for the same years. No calculation of combined bills was undertaken. Rea then takes these figures to generate a "Bill to Income ('BTI') ratio, which is defined as annual water bills divided by estimated annual household income." (Rea-DT, at 7) He asserts that "This view looks at average residential monthly bills for all customers over time compared to MHI for the Company's residential customer base." (Id.) He asserts further that "The purpose of the Enterprise-Level Analysis is to provide a high-level historical perspective on how the affordability of service has been trending over time and how it is expected to continue to trend under proposed rates." (Id.)

Q. WHAT DID MR. REA CONCLUDE BASED ON HIS "ENTERPRISE LEVEL" ANALYSIS?

A. Based on his analysis, Mr. Rea asserts that "[t]he Company's water and wastewater service has been, is, and is expected to continue to be affordable for the majority of its residential customers, including under the rates proposed in this case." (Rea-DT, at 5-6, and 22). He tries to soften that conclusion somewhat, in the same portion of his Direct Testimony, by acknowledging that "[t]here are, however, groups of customers for whom

affordability of water and wastewater service may be challenging." (Id.) I will address that second observation in more detail below.

A. The Impropriety of Using Median Household Income.

Q. WHAT IS THE FIRST FLAW IN MR. REA'S "ENTERPRISE LEVEL" AFFORDABILITY ANALYSIS?

A. Mr. Rea's enterprise level analysis is fundamentally flawed from the outset. The first and primary problem with Mr. Rea's enterprise level analysis is his reliance on Median Household Income ("MHI") as the basis for his assessments of affordability, and thus, for the conclusions he draws about affordability in MAWC's service territory. While I do not question his conclusion that bills at existing and proposed rates are at or below his target Bill-to-Income ("BTI") Ratio at MHI, I question the extent to which knowing that conclusion provides the Commission with any meaningful knowledge about the affordability of MAWC bills.

On a broad basis, the use of MHI has been almost universally criticized as the basis for an affordability analysis. To provide an overview of this criticism, consider the following:

- **Environmental Finance Center (University of North Carolina):**[17] "By definition, half of the households in a community will have an income less than MHI. Because these households have smaller incomes than the median household, they potentially face much greater affordability challenges. Thus, using percent MHI on its own can obscure the affordability issues that low-income households face within a service area. If the goal of the affordability analysis is to understand whether a utility or community should focus on mitigating affordability, then using the

[17] "Founded in 1998, the University of North Carolina at Chapel Hill Environmental Finance Center (UNC EFC) reaches local communities and state and federal programs by delivering applied training programs and technical assistance, resource and interactive tool development, and in-depth applied research on best and emerging practices." https://efc.sog.unc.edu/

percent MHI provides little insight compared to other more precise metrics. . . Focusing on the percentage that the median household pays can leave the impression that the customer base pays relatively little for water. Shifting the analysis to the impoverished threshold highlights a more realistic percentage for the families likely to have the most affordability challenges. ... using percent MHI alone can obscure the problem—leading utility managers or regulators to believe that they do not have any affordability concerns. Relying on percent MHI can mask the hardships faced by families that are most at risk of facing affordability issues.[18]

- **American Waterworks Association ("AWWA"):**[19] "MHI can be a highly misleading indicator of a community's ability to pay for several reasons. MHI is a poor indicator of economic distress and bears little relationship to poverty or other measures of economic need within a community. ... Given the relatively large percentage of households in the lower portions of the income distribution in many cities, it is important to examine the effect of rising water bills across the entire income distribution—and especially at the lower end—rather than simply at the median."[20]

- **AWWA/U.S. Conference of Mayors/Water Environment Federation:**[21] "A central issue in assessing affordability of federal water mandates is the reasonableness of community-wide MHI as a primary yardstick. MHI can be a highly misleading indicator of a community's ability to pay for several reasons. ... MHI is a poor indicator of economic

[18] Irvin (2017). Is Percent MHI the Best Way to Measure Affordability? Environmental Finance Center, University of North Carolina.

[19] "The American Water Works Association is an international, nonprofit, scientific and educational society dedicated to providing total water solutions assuring the effective management of water. Founded in 1881, the Association is the largest organization of water supply professionals in the world. Our membership includes over 4,300 utilities that supply roughly 80 percent of the nation's drinking water and treat almost half of the nation's wastewater." https://www.awwa.org/About-Us

[20] Stratus Consulting (2013). Assessing the Affordability of Federal Water Mandates, AWWA, U.S. Conference of Mayors and Water Environment Federation

[21] "The Water Environment Federation (WEF) is a not-for-profit technical and educational organization of more than 30,000 individual members and 75 affiliated Member Associations (MAs) representing water quality professionals around the world." https://www.wef.org/about/Governance/about/

distress and bears little relationship to poverty or other measures of economic need within a community."[22]

- **National Academy of Public Administration:**[23] "Not focused on the poor or most economically vulnerable users – Using MHI did not accurately reflect the impact on the most vulnerable households, the low-income users least able to absorb higher water bills. ... Clearly, MHI is too broad an income measure to reflect the impact of water rate increases on low-income users"[24]

Even the very publication which Mr. Rea cites as support for his use of a percentage of MHI criticizes the use of MHI as the basis for claims of affordability.[25] Indeed, Teodoro concludes that "[d]espite its widespread use, the %MHI approach is seriously flawed." He explains that:

> Perhaps the most frequent criticism of the %MHI standard is that its focus on median income misses the real subject of affordability concerns: poor households. The median-income household is unlikely to face serious water and sewer affordability problems in any but the smallest or most desperately poor communities. For low-income households, however, water and sewer services may force important economic tradeoffs. Measuring affordability as a function of an entire community's MHI obscures the effects of rate-setting on low-income customers, for whom utility leaders presumably have the greatest affordability concerns. Certainly, the tenor of public policy debates surrounding utility affordability suggests that low-income residential customers are the focus of alarm. As income

[22] AWWA/USCM/WEF (2013). Affordability Assessment Tool for Federal Water Mandates.

[23] "Established in 1967, the Academy responds to requests for assistance from Congress, federal agencies; and state, local and international government entities on issues of importance." The Academy is a Congressionally-chartered non-partisan 501(c)(3) nonprofit. ("The Senate Appropriations Committee, in a committee report on FY 2016 legislative language, directed the Environmental Protection Agency (EPA) to contract with the National Academy of Public Administration (the Academy) to conduct an independent study to create a definition of, and framework for, community affordability of clean water.")

[24] National Academy of Public Administration (2017). Developing a New Framework for Community Affordability of Clean Water Services, prepared for the U.S. Environmental Protection Agency.

[25] Rea-DT, at 11, n. 1.

> stratification in a community increases, the degree to which %MHI masks potential affordability problems increases.[26]

Conclusions like those above—that the use of an MHI in an affordability analysis "can obscure the affordability issues," "provides little insight," "obscures the problem," "can be […] highly misleading," "bears little relationship to poverty or other measures of economic need," does "not accurately reflect the impact on the most vulnerable households," "obscures the effects of rate-setting on low-income customers," and "masks potential affordability problems"—all lead to the conclusion that Mr. Rea's analysis based on MHI should not be used for decision-making in this proceeding.

Q. IS THERE AN EMPIRICAL BASIS FOR CONCLUDING THAT MR. REA'S USE OF MHI IS UNREASONABLE IN THIS PROCEEDING?

A. Yes. The circumstances facing the MAWC service territory reaffirms that the use of MHI as a basis for any finding of "affordability" is unreasonable in this proceeding. In the MAWC service territory, one reason the MHI is increasing is because the incomes at the ***higher*** income levels are increasing much faster than the incomes at the lower income levels. As a result, even if the distribution of income remains identical over time, the dollar level of MHI will increase.

The rise in income inequality is not unique to the MAWC service territory, even though that geographic area is what I focus my attention on below. One noted publication that tracks such inequality, the America's Health Rankings Annual Report produced by the

[26] Teodoro (2018). Measuring Household Affordability for Water and Sewer Utilities, Journal of the American Water Works Association, 110:1(13).

United Health Foundation,[27] reported in 2018 that, nationally, "income inequality has increased over the past 50 years in the United States with the top 20 percent of earners receiving approximately half of all U.S. income in 2017."[28] UHF reports "income inequality" by calculating the ratio of income at the 80th percentile to income at the 20th percentile. In Missouri, the Income Inequality Ratio (i.e., the ratio of mean income at the 80th percentile to the mean income at the 20th percentile) stood at 4.55, meaning that the mean income at the 80th percentile is more than 4.5 times higher than the mean income at the 20th percentile.

Chart 1 below shows what is happening in Missouri. The Chart compares the following dollar figures within the MAWC service territory: (1) the First Quintile (Q1)[29] of income (dashed line); (2) the Second Quintile (Q2) income (the second lowest income level) (dotted line); (3) the Fourth Quintile (Q4) (the second highest income level) (solid line); and (4) the Fifth Quintile (Q5) (solid line) (the highest income level). Chart 1 shows that while the Q4 and Q5 incomes in Missouri experience a noticeable increase from 2010 through 2022, the Q1 and Q2 incomes remain virtually flat. Increases in the MHI, in other words, demonstrate only that the incomes of higher income households are getting even higher relative to their lower income counterparts. An ongoing "affordability" as claimed by Mr. Rea do not demonstrate an ongoing affordability of MAWC bills so much as they demonstrate an increasing income disparity in the MAWC service territory.

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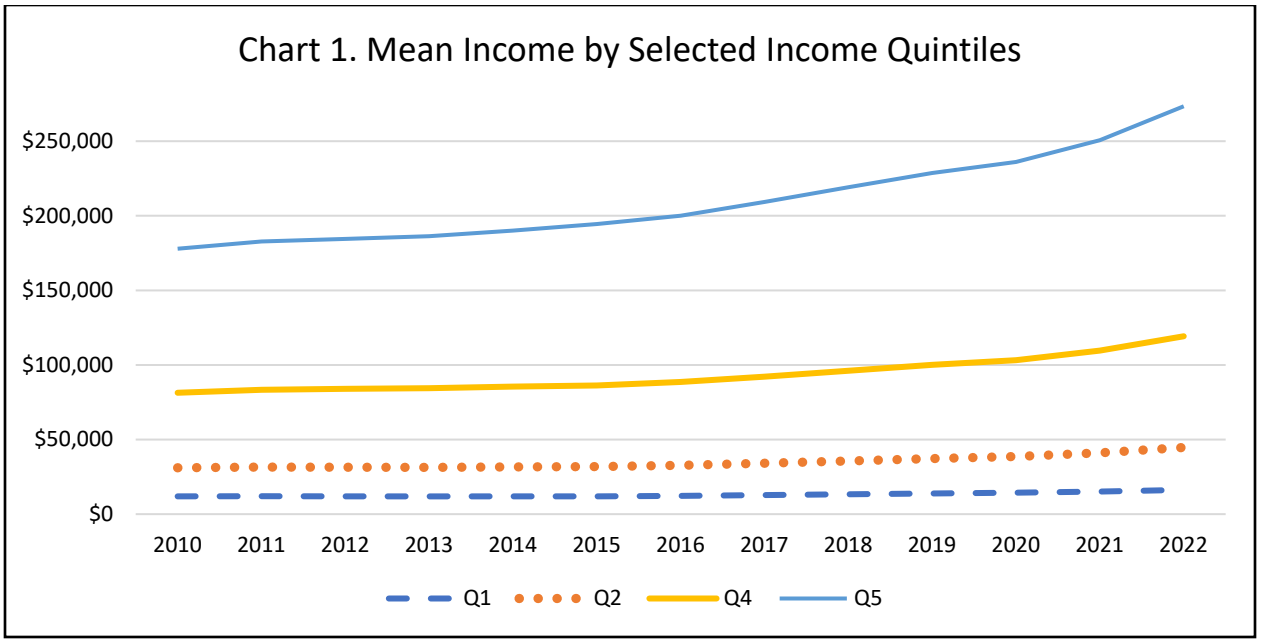
[27] https://www.americashealthrankings.org/learn/reports

[28] 2018 America's Health Rankings Annual Report, at 107.

[29] The Census Bureau rank orders income from lowest to highest by geographic area. It then divides that rank ordering into five equal parts. Each part of one-fifth is called a "quintile."



B. The Impropriety of Using Homeowner MHI as the Focus of an Affordability Analysis.

Q. ARE THERE OTHER PROBLEMS WITH MR. REA'S FOCUS ON HOMEOWNERS IN MR. REA'S ENTERPRISE LEVEL-ANALYSIS?

A. Yes. Mr. Rea compounds the inequities of his analysis by focusing primarily on the median household income of *homeowners*.[30] It is particularly inappropriate to use the Median Household Income of homeowners ("MHI-HO") as a basis for assessing the affordability of water service over time. When one considers the growth in MHI-HO over time, it would also be necessary to consider *why* MHI-HO is growing as it is and whether such growth represents a real improvement in financial circumstances. In fact, the growth in MHI-HO frequently does not represent an improvement in financial circumstances, but instead represents a growth in the underlying cost of housing.

[30] While Mr. Rea asserts that he uses the median household income not only of homeowners, but of renters of single family homes, that assertion is incorrect. While the Census Bureau reports median household incomes of renters in general, it does *not* report median incomes limited to renters of single-family homes in particular.

Q. DOESN'T MR. REA INCORPORATE THE MEDIAN INCOME OF TENANTS IN HIS AFFORDABILITY ANALYSIS?

A. No. Mr. Rea asserts that he incorporates the median income of households who are renting single family homes in his analysis. (Rea-DT, at 7) ("The MHI for the Company's service territory is a weighted average of the number of customers the Company serves in each community in the service territory and the median household income in each of those communities for owner-occupied and single-unit, renter-occupied homes as reported by data in the ACS based on the most recent year's available data. . .") Of the combined 687,696 units meeting these criteria (owner-occupied, renter-occupied single family homes) in the MAWC zip codes, however, only 87,737 (12.2%) are renter-occupied single family homes.[31] The renter-occupied single family homes, in other words, have little impact on the MHIs which Mr. Rea examines.

Q. WHY IS THE HOMEOWNER MEDIAN INCOME USED BY MR. REA IN HIS "ENTERPRISE LEVEL" AFFORDABILITY ANALYSIS GROWING AT A RATE SUFFICIENT TO KEEP MAWC RATES AFFORDABLE?

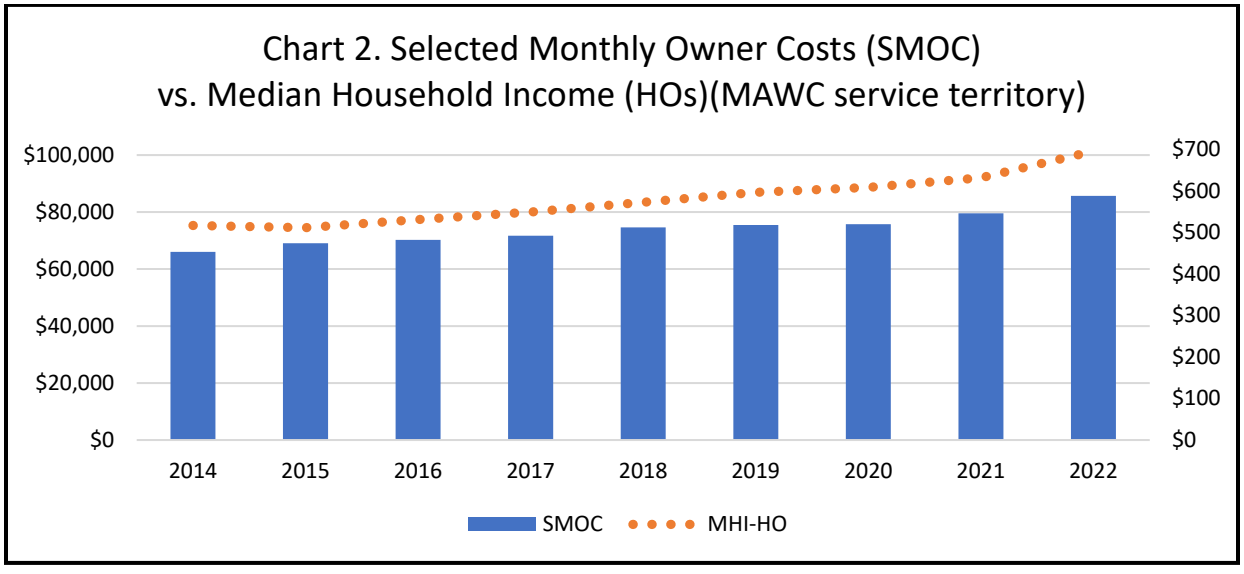
A. As a general rule, becoming a homeowner requires a household to have income that is sufficiently high so that the home purchase price is no more than 30% of income.[32] To the extent that housing values in a particular jurisdiction sharply increase, therefore, it

[31] American Community Survey (5-year data), Table B25032 (2022).

[32] The 30% standard applies across housing costs broadly – housing is generally considered "affordable" where the occupant is "paying not more than 30 percent of gross income for housing costs, *including utilities*." Mia Chapman, *What is Affordable Housing?,* Nat'l League of Cities (Jan. 8, 2024), https://www.nlc.org/article/2024/01/08/what-is-affordable-housing/; *see also* Nat'l Foundation for Credit Counseling, *How Much of Your Income Should Be Spent on Housing?* ("Housing costs should be no more than 30% of your gross income[,] includ[ing] … utilities like gas, electricity, water, and internet.")

requires an ever-increasing income for a household to afford to become a homeowner. The question is not merely one of the "affordability" of housing. The question is one of gaining access to the financing necessary to purchase the home with which to begin.

I have examined the zip codes that comprise the MAWC service territory. In doing so, I looked at both the Median Household Income (Homeowners) ("MHI-HO") for each year from 2014 through 2022 and the Selected Monthly Owner Costs ("SMOC") reported by the Census Bureau by year for the same time period. I calculated the growth in MHI-HO along with the growth in housing values. I found that the increase in SMOC (for households with mortgages) was matched by a corresponding substantial growth in the MHI-HO in that same time period (and vice versa). The data is set forth in the Chart below. As is evident, even though MHI-HOs remained relatively constant as housing costs remained constant, when housing costs began to trend upward in 2016, so, too, did the corresponding MHI-HOs. When housing values in the MAWC service territory jumped substantially in 2021 and 2022, the corresponding MHI-HO jumped substantially as well.



I conclude that Mr. Rea's analysis reaches the unreasonable conclusion that as homeownership becomes less and less affordable in the MAWC service territory, water bills using his analysis will correspondingly become more and more affordable given that higher incomes would be needed to become a homeowner.

Q. UPON WHAT DO YOU BASE YOUR CONCLUSION THAT HOMEOWNERSHIP IS BECOMING INCREASINGLY LESS AFFORDABLE IN THE MAWC SERVICE TERRITORY?

A. Table 6 below presents the number (and percent) of homeowners in the MAWC service territory, disaggregated by homeowners' annual incomes, for the years 2014 through 2022.[33] The data supports the conclusions I reach above and helps to explain why MHI-HO has been increasing in the MAWC service territory. As housing prices spiraled in the MAWC service territory, as I documented above, lower-income households were priced out of the housing market, leaving homeownership to be the province of higher income households. For example, on the one hand, while fewer than one-third of homeowners in 2014 had income of $150,000 or more, more than half had an income this high in 2022. On the other hand, while more than one-fifth (21.0%) of homeowners in the MAWC service territory had income less than $35,000 in 2014, by 2022, only 13% did. Even moderate-income households are being priced out of the homeowner market in the MAWC service territory. While, in 2014, nearly half (47.3%) of homeowners had income between $35,000 and $100,000, only 39.7% did by 2022.

[33] American Community Survey (5-year data), Table B25118 (2022).

The absolute numbers show the trends as well. The total number of homeowners in the MAWC service increased from 581,493 in 2014 to 603,960 in 2022. During that same time period, however, the total number of homeowners:

- With incomes less than $35,000 decreased by nearly 41,500 (122,064 – 80,595 = 41,469) (a decline of more than one-third);
- With income between $35,000 and $100,000 decreased by more than 35,000 (275,110 – 239,629 = 35,487) (a decline of more than one-eighth); and
- With income more than $100,000 increased by nearly 100,000, an increase of more than 50%.

In sum, it is clear that, when measured by reference to median homeowner income in the zip codes comprising the MAWC service territory, MAWC water bills may only appear to be affordable over time because housing is become increasingly less affordable, thus driving lower income homeowners out of becoming homeowners (the population which comprise the "direct" customers of MAWC).

Table 6 . Homeowner Income by Year (2014 – 2022)
(MAWC Service Territory)

	Total Hos	Total Less than $20,000	$20,000 - $34,999	$35,000 to $49,999	$50,000 to $74,999	$75,000 to $99,999	$100,000 or more
2014	581,493	52,067	69,997	73,456	114,024	87,630	184,319
		9.0%	12.0%	12.60%	19.60%	15.10%	31.7%
2015	577,790	50,441	68,252	73,555	113,809	87,304	184,609
		8.7%	11.8%	12.70%	19.70%	15.10%	31.9%
2016	576,355	47,846	66,128	72,080	112,266	87,274	190,761
		8.2%	11.5%	12.50%	19.50%	15.10%	33.1%
2017	579,662	45,259	63,590	70,308	112,040	86,769	201,696
		7.9%	11.0%	12.10%	19.30%	15.00%	34.8%
2018	580,445	42,907	59,982	67,795	107,514	87,287	214,960
		7.5%	10.3%	11.70%	18.50%	15.00%	37.0%
2019	584,151	40,673	57,543	64,950	105,958	86,820	228,207
		6.9%	9.9%	11.10%	18.10%	14.90%	39.1%
2020	592,487	39,021	55,791	64,514	105,601	88,825	238,735
		6.6%	9.5%	10.90%	17.80%	15.00%	40.3%
2021	600,918	37,850	51,729	60,502	105,140	88,154	257,543
		6.3%	8.6%	10.10%	17.50%	14.70%	42.9%
2022	603,960	34,920	45,675	56,788	97,054	85,781	283,742
		5.8%	7.6%	9.40%	16.10%	14.20%	47.0%

The Bill-to-Income Ratios for homeowners instead reflect the increasing unaffordability of housing in the MAWC service territory. Mr. Rea's conclusion that MWAC's water

bills have been, and will continue to be, affordable has no basis in data involving water bills. It instead merely reflects the increasing unaffordability of homeownership.

Q. WHAT DO YOU CONCLUDE FROM THE ABOVE?

A. Overall, basing an assessment of water affordability on the MHI-HO, as Mr. Rea has largely done, has the impact of asserting that as owner-occupied housing in a community becomes increasingly less affordable, thereby limiting ownership to increasingly higher income households in that community, water service becomes increasingly more affordable when measured by bills as a percentage of homeowner income. That conclusion does not reasonably flow, given that what is ***really*** being measured is only the affordability of water to an increasingly wealthier population.

Even if Mr. Rea's calculations are correct as a matter of arithmetic, his policy conclusion does not follow.

C. The Impropriety of Ignoring MAWC's ALICE Data.

Q. IS THERE ANY FINAL SHORTCOMING IN MR. REA'S TESTIMONY REGARDING THE OVERALL AFFORDABILITY OF MAWC RATES BASED ON HIS "ENTERPRISE LEVEL" ANALYSIS?

A, Yes. Aside from the unaffordability of MAWC's water and wastewater bills to lower-income households, as discussed in detail above, there are special challenges facing Missouri's ALICE customers as well. "ALICE" is the acronym used to describe Asset-

Limited, Income-Constrained, Employed ("ALICE") households with income above the Federal Poverty Level but below the cost of basics included in the ALICE Household Survival Budget. The ALICE budget tracks the cost of household necessities that matter most to ALICE households: housing, child care, food, transportation, health care, and basic technology. According to United for ALICE, the United Way research arm which addresses the economic issues facing ALICE households:

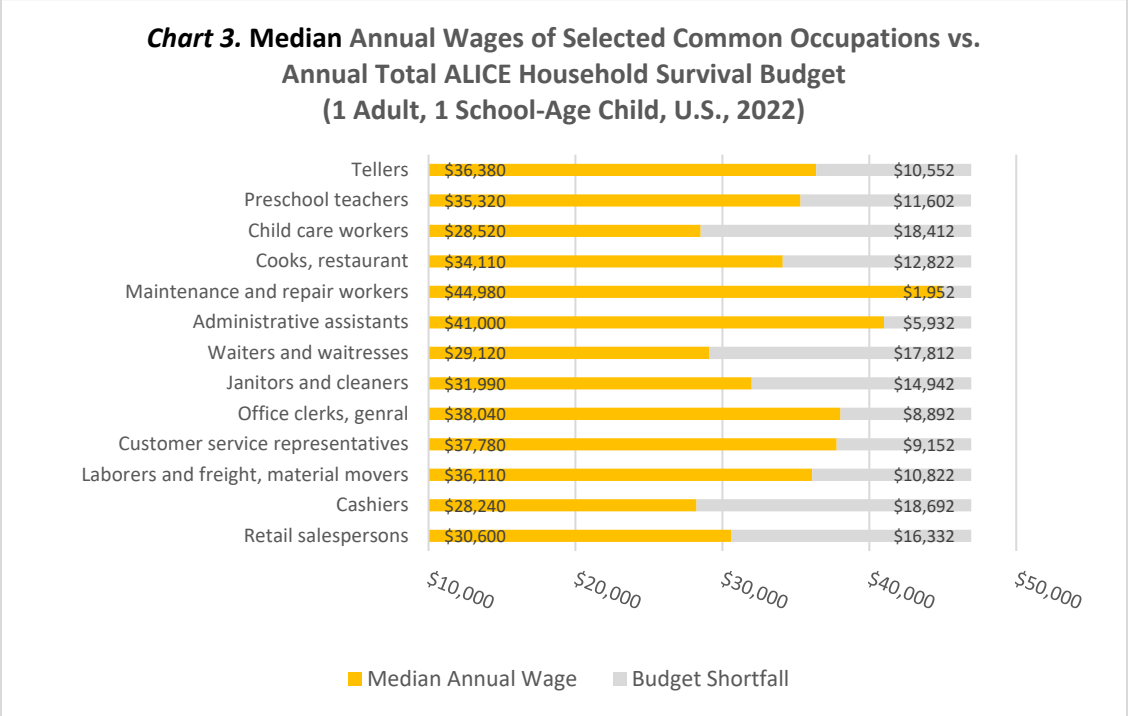
> The traditional measure of inflation, Bureau of Labor Statistics' Consumer Price Index (CPI), tracks a much larger basket of over 200 goods and services –items that financially insecure households can't afford on a regular basis, like full-service meals at restaurants, wine, major appliances, flights, and jewelry. Tracking cots over time using this larger basket alone can conceal important changes in the costs of basics.[34]

According to the 2024 ALICE report for the nation as a whole, the ALICE Essentials Index has consistently outpaced the broader CPI nationwide. Costs for both measures increased at a faster rate following the COVID-19 pandemic, peaking between 2021 and 2023. During this period, the ALICE Essentials Index increased at an annual rate of 7.3% compared to 6.1% for CPI. . ."[35] The 2024 ALICE report found that even in occupations where wages have grown faster than costs in recent years, wages started from such a low level that many workers are still not able to cover household essentials.[36]

Included among those "common occupations" are, for example, retail salespersons, cashiers, customer service representatives, janitors and cleaners, waiters and waitresses, administrative assistants, and cooks (restaurants), amongst others. The shortfalls between

[34] ALICE Essentials Index, at page 3, available at https://www.unitedforalice.org/essentials-index
[35] Id., at 3 - 4
[36] Id.., at page 7.

wages for a selection of these occupations and the ALICE Survival Budget (one adult, one school-age child) are set forth in the Figure below.



Q. HOW DOES THIS NATIONAL DATA COMPARE TO CIRCUMSTANCES IN THE MAWC SERVICE TERRITORY?

A. The ALICE data on state and county-specific wages documents that the national findings are equally applicable to the MAWC service territory. On November 5th, Missouri voters approved an increase in the state minimum wage to $13.75 beginning January 1, 2025.[37] In my assessment below, therefore, I assume a per-worker wage of $14/hour. This will somewhat overstate affordability since the most recent ALICE data calculating an ALICE Survival Budget is based on 2022 data. Incerases in the costs of household essentials in the past two years years would have driven the ALICE Essentials Budget even higher.

[37] Missouri Department of Labor and Industrial Relations (November 25, 2024), available at https://labor.mo.gov/news/press-releases/minimum-wage-set-increase-january-1

I examine the counties which MAWC identifies as having offices to help customers access bill payment assistance.[38] For each of those 15 counties, along with St. Louis City (which, for ease of reference, I will refer to as a "county" below), I identify the annual wage which ALICE has identified as necessary to support the ALICE Survival Budget. I explain the Survival Budget in more detail above. I have examined the ALICE Survival Budget for a 2-person, a 3-person, and a 4-person family. The data is set forth in Table 7 below.

The data shows that even when the required hourly wage to support the ALICE Survival Budget is lower (because a family has two workers rather than one), the minimum wage beginning on January 1, 2025 ($13.75/hour) is not sufficient in any of the study counties (again, listing St. Louis city as a "county" for purposes of this Table) to meet the 2022 ALICE Survival Budget for either a two-person or a four-person family. It is sufficient to meet the 2022 ALICE threshold in only ten of the sixteen "counties" for a three-person family.

The Table shows further that the geographic locations where the new minimum wage is *not* sufficient to meet the ALICE Survival Budget are those with the largest populations. While there may be fewer locations, there are far more households in those areas that do not have sufficient income to meet the ALICE Survival Budget. In the three largest jurisdictions (St. Charles and St. Louis counties, St. Louis city), the wage needed to be sufficient to meet the ALICE Survival Budget exceed the minimum wage.

[38] https://amwater.com/moaw/Customer-Service-Billing/Payment-Assistance-Options/

Table 7. Wage Needed at Selected HH Sizes to Meet ALICE Survival Budget by Selected Family Size (2022)
(minimum wage [rounded to $14] sufficient to meet ALICE Budget marked by dashed cells)

	No. Homeowners	2-person (1 worker, 1 child)	3-person (2 workers, 1 child)	4-person (2 workers, 2 children)
Chariton	2,591	$18.37	$12.67	$14.75
Jefferson	86,455	$22.53	$15.23	$17.57
Iron	3,821	$19.54	$13.02	$15.18
Cole	30,151	$20.21	$13.60	$15.86
Jasper	47,481	$20.03	$13.57	$15.80
Newton	21,991	$19.37	$13.11	$15.29
Audrain	8,968	$18.91	$12.95	$15.15
Platte	42,606	$27.10	$17.64	$20.45
Washington	9,032	$18.56	$12.73	$14.82
Pettis	16,696	$19.35	$13.11	$15.30
Buchanan	33,363	$22.43	$13.99	$16.13
St. Charles	156,381	$25.34	$16.91	$19.87
Warren	13,067	$22.01	$14.88	$17.05
St. Louis city	143,059	$24.58	$16.49	$19.56
St. Louis county	413,247	$25.27	$16.90	$19.94
Johnson	20,613	$19.80	$13.41	$15.60

Q. BRIEFLY SUMMARIZE WHAT THE ALICE DATA SHOWS.

A. The ALICE data supports a number of conclusions that are at odds with Mr. Rea's use of median household income –focused on homeowner median income—to support his broad conclusion that MAWC bills are generally affordable for the vast majority of Company customers based on his "enterprise level" analysis. First, the data documents that the unaffordability of MAWC bills is not exclusively a concern of low-income households. In addition to affordability problems facing low-income households, the lack of sufficient resources to pay household necessities extends upward, well into the "working poor"

population. The number of households in MAWC's service territory that would struggle to pay increased water and wastewater bills associated with this rate case because they have income lower than the ALICE income is substantial. Second, the data documents that Mr. Rea's testimony that there are merely "groups" of customers who face "challenges" with respect to MAWC bills is overly dismissive of the both the breadth and depth of unaffordability on the MAWC system. The number of customers who will face difficulties paying their MAWC bills it not only substantial, but is widely dispersed geographically throughout the Company's service territory as well.

Q. HOW IS THE AFFORDABILITY ANALYSIS YOU PRESENT ABOVE APPLICABLE TO THIS RATE PROCEEDING?

A. Mr. Rea does not use his "enterprise level" affordability analysis in seeking to assess, or to justify, his recommended low-income discount. Instead, Mr. Rea asserts that his "enterprise level" affordability analysis only "considers affordability of service at a high level. . ." (Rea-DT, at 5). His analysis has a sufficient number of problems, both conceptual and as applied, that it should not be used to assess the reasonableness of any aspect of MAWC's request for increased rates in this proceeding.

A consideration of affordability is a critical task to undertake within the structure of any utility rate case. As bills become increasingly unaffordable, the payment difficulties of those customers who face unaffordability become increasingly substantial as well. One impact of the unaffordability I identify is its impact on the operating costs (e.g., collection costs, working capital, uncollectible expenses) that are then normalized and passed on to other ratepayers. Also, MAWC's proposals, such as increasing the

residential customer charge, have disproportionate adverse effects on low-income customers who already are facing substantial unaffordability.

In addition, establishing a Return on Equity is fundamentally predicated on balancing customer and investor interests. It is necessary for the Commission to understand the customer interests in order to appropriately balance them against the competing investor interests. The obligation of the Commission in deciding on the appropriate ROE and the reasonable mix of debt and equity securities should balance customer and investor interests. (*FPC v. Natural Gas Pipeline Co.*, 315 U.S. 575, 606-607 - 608). Indeed, of the customer issues that are important drivers of the just and reasonable ROE determination, one of the most significant is the concern about affordability. If a sizable portion of customers cannot afford to pay the rates imposed by the Commission, the Commission can hardly be said to have approved just and reasonable rates. In addition, as MAWC adds more and more expensive plant, this increases rates, which may in turn put downward pressure on the just and reasonable ROE not for financial reasons, but because of affordability concerns.

In sum, the concerns I identify with respect to the unaffordability of MAWC rates can (and should) be considered in this rate case even outside the consideration of the specific proposals I advance with respect to specific low-income initiatives below.

D. The Impropriety of Mr. Rea's Enterprise Level Conclusions.

Q. DOES MR. REA DRAW APPROPRIATE CONCLUSIONS ABOUT AFFORDABILITY FROM HIS "ENTERPRISE LEVEL" AFFORDABILITY ANALYSIS?

A. No. Mr. Rea seeks to downplay the extent of unaffordability in the MAWC service territory. The most that he acknowledges is that "[t]here are, however, groups of customers for whom affordability of water and wastewater service may be challenging." (Rea-DT, at 6). He does not acknowledge how big those groups are. Nor does he acknowledge the depth of unaffordability in his phrase "*may be* challenging." (emphasis added).

According to Mr. Rea's "enterprise analysis," the average 2024 residential monthly water bill is $54.61 ($655.34/year), while the average monthly water bill is $78.61 ($943.28/year) for the FTP. Mr. Rea reports an average 2024 monthly wastewater bill of $53.26 ($639.12/year), while the average monthly wastewater bill is $66.38 ($796.59/year) for the FTP. The *combined* (water + wastewater) bills would thus be $1,294.44 in 2024 and $1,739.88 for the FTP.

Using an affordability of demarcation of 2% for water and wastewater, and 4% for combined service, Table 8 shows what income would be needed to achieve an affordable MAWC bill in 2024 and in the FTP. The Table shows that:

- A customer taking only water service would need to have an income of $32,766 in 2024 and $47,166 in the FTP for MAWC service to be affordable.
- A customer taking only wastewater service would need to have an income of $31,956 in 2024 and $39,828 in the FTP for MAWC service to be affordable.

- A customer taking combined water and wastewater service would need to have an income of $32,361 in 2024 and $43,497 in the FTP for MAWC service to be affordable.

Table 8. Income Needed to Achieve an Affordable MAWC Burden (2024 & FTP) (2% water or wastewater / 4% combined)

	Water	Wastewater	Combined
2024	$32,766	$31,956	$32,361
FTP	$47,166	$39,828	$43,497

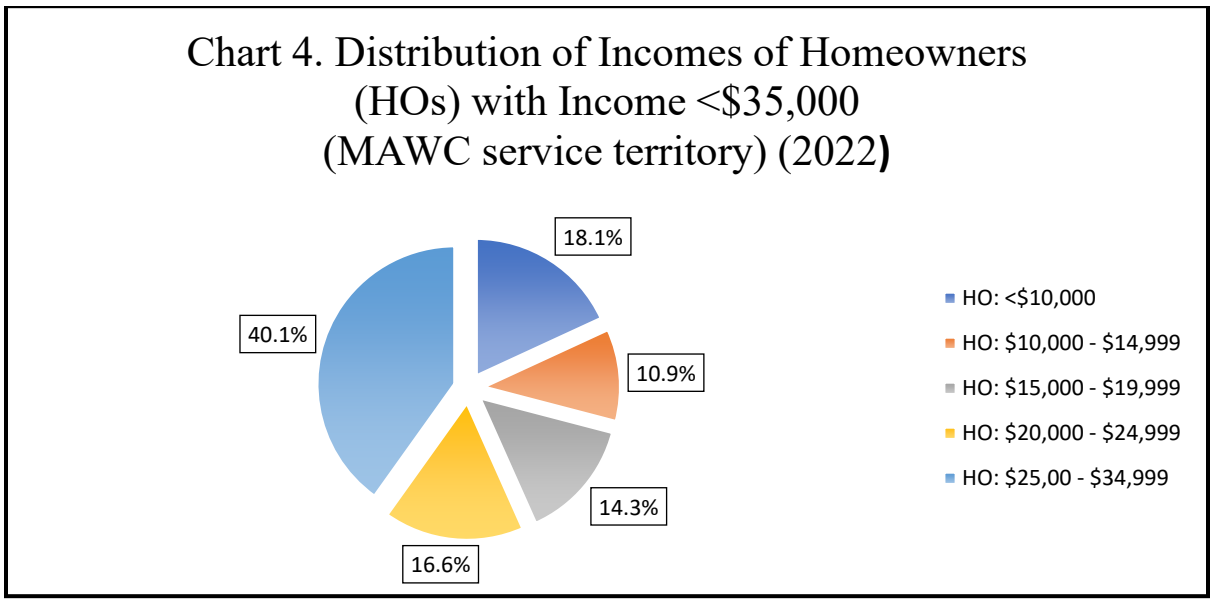
The data in Table 8 is significant because it can be used to assess the extent of affordability in the MAWC service territory. Census data[39] shows that in the zip codes in which MAWC provides water service, 13% of homeowners have income less than $35,000 and 23% have income less than $50,000. In the zip codes in which MAWC provides wastewater service, 15% of all homeowners have income less than $35,000 and nearly 25% have income less than $50,000.

Q. DOES MR. REA'S REFERENCE TO "GROUPS" OF CUSTOMERS FACING UNAFFORDABLE MAWC BILLS UNDERSTATE THE PREVALENCE OF THE BURDENS WHICH YOU IDENTIFY ABOVE?

A. Yes. Mr. Rea is dismissive of the significant extent of unaffordability when he references merely "groups" of customers who face "challenges." The chart below shows the distribution of households in the MAWC service territory by income ranges for households with annual income less than $35,000. As can be seen, within the total population of homeowners with annual income less than $35,000, nearly one-in-five

[39] American Community Survey, 5-year data (2022), Table B19001.

actually have income less than $10,000. Nearly 30% have annual income of less than $15,000, while three-of-five have annual incomes less than $25,000.



To seek to minimize the extent of unaffordability by referring to these substantial populations as mere "groups" of customers is to downplay the extent of unaffordability in the MAWC service territory.

Q. IS THE GEOGRAPHIC DISTRIBUTION OF INCOME IMPORTANT IN CONSIDERING AFFORDABILITY?

A. Yes. Just as important as the service area totals are the geographic distributions of these incomes resulting in unaffordable water service. The most recent Census data reports that of the 113 zip codes in which MAWC provides water service, the average (mean) annual income for households in the Second Quintile (Q2)[40] is less than $35,000 in 28 of them, and is less than $50,000 in 63 zip codes. The average income for the First Quintile

[40] The Census Bureau rank orders households in each geographic area by the lowest income to the highest income, and then divides that rank ordering into five equal parts. Each equal part is one "quintile." The Second Quintile (Q2) thus includes households between the 20th and 40th percentiles. It is the next to lowest income quintile.

(Q1) is less than $35,000 in 99 zip codes and less than $50,000 in 106 zip codes. The mean income is less than $50,000 for the Third Quintile (Q3) (40th to 60th percentiles) in 15 of MAWC's zip codes.

When Mr. Rea refers to "groups of customers" that may have MAWC bills that are "challenging," the "groups of customers" which Mr. Rea references represent not merely small clusters of water customers here and there in the MAWC service territory. They represent a substantial proportion of both water and wastewater customers.

Q. WHEN YOU REFER TO "UNAFFORDABLE" WATER AND WASTEWATER BILLS, WHAT LEVEL OF BURDENS ARE YOU REFERENCING?

A. Table 9 presents the water and wastewater burdens facing MAWC customers taking service from the Company for the years 2021 through the Future Test Period by selected income levels. The bills for each service are those average bills reported by Mr. Rea in his Direct Testimony and Exhibits (Exh. CBR-1, CBR-2). The Table shows that for customers with annual income less than $35,000:

- Water bills have been unaffordable since at least 2023; and
- Wastewater bills have been unaffordable since 2021.

Table 9, however, shows more than the mere presence of unaffordability. The Table shows that for households with annual income less than $10,000, Bill-to-Income ratios for water service in 2024 and in the FTP are from more than six to nearly ten times higher than an affordable burden. Even for households with income at between $20,000 and $25,000, water burdens in the FTP are more than two times higher than the affordable burden. For wastewater service, the Table shows that Bill-to-Income ratios are from 1.5 times to nearly two times higher than an affordable burden in the FTP. For households

with income less than $10,000, wastewater burdens are nearly eight times higher than the 2% burden which Mr. Rea, himself, defined as the demarcation of affordability.

Table 9.Water, Wastewater and Combined Service Burdens by Income (2021 – FTP) (Missouri American Water Company)

	A. (CBR-1) Water Bill	B. (CBR-2) Wastewater bill	C. (Col. A + Col. B) Combined Bill
2021	$518.40	$634.44	$1,152.84
2022	$557.64	$663.72	$1,221.36
2023	$645.96	$674.16	$1,320.12
2024	$655.32	$639.12	$1,294.44
FTP	$943.32	$796.56	$1,739.88

Water Burdens

	<$10,000	$10 - $14,999	$15 - $19,999	$20 - $24,999	$25 - $34,999
2021	10.4%	4.1%	3.0%	2.3%	1.7%
2022	11.2%	4.5%	3.2%	2.5%	1.9%
2023	12.9%	5.2%	3.7%	2.9%	2.2%
2024	13.1%	5.2%	3.7%	2.9%	2.2%
FTP	18.9%	7.5%	5.4%	4.2%	3.1%

Wastewater Service

	<$10,000	$10 - $14,999	$15 - $19,999	$20 - $24,999	$25 - $34,999
2021	12.7%	5.1%	3.6%	2.8%	2.1%
2022	13.3%	5.3%	3.8%	2.9%	2.2%
2023	13.5%	5.4%	3.9%	3.0%	2.2%
2024	12.8%	5.1%	3.7%	2.8%	2.1%
FTP	15.9%	6.4%	4.6%	3.5%	2.7%

Water and wastewater burdens at the rates sought by MAWC in this proceeding are more than "challenges" as referenced by Mr. Rea. When total housing affordability is defined to be 30% of income, requiring households to devote between 4% and nearly 20% of

income (and increasing) toward their water or wastewater service standing alone presents a serious affordability problem for MAWC customers.

Part 3. The Reasonableness of MAWC's Proposed UAT Discount.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I examine the proposed discount which Mr. Rea proposes for MAWC water service. Mr. Rea proposes that the "tiered discount" to be offered by MAWC would be:

- 75% both for the fixed monthly charge for basic water service and for the volumetric charge for customers with income at or below 50% of Federal Poverty Level;
- 55% both for the fixed monthly charge and the volumetric charge for customers with income above 50% of FPL and at or below 100% of FPL; and
- 25% both for the fixed monthly charge and the volumetric charge for customers with income above 100% of FPL and at or below 150% of FPL.

In his Direct Testimony, Mr. Rea does not identify or discuss a discount for wastewater service to be offered by MAWC.

In my discussion below, I recommend two moderate revisions of the Universal Affordability Tariff ('UAT") proposed by Mr. Rea. After discussing these modifications, I discuss the basis which Mr. Rea offers for the UAT. I agree with his conclusion that the UAT is supported by the empirical cost analysis which he presents. I offer a further discussion of the reasons why the UAT proposed by Mr. Rea, as revised, does not present

a problem of offering non-cost-based discriminatory rates. With the revisions I recommend, the UAT proposed by Mr. Rea on behalf of MAWC should be approved.

A. Proposed Modifications to MAWC's Proposed UAT Discounts.

Q. PLEASE EXPLAIN YOUR RECOMMENDATION WITH RESPECT TO THE UAT AS PROPOSED BY MR. REA?

A. I recommend that the UAT tiered discounts proposed by Mr. Rea be approved as presented. Mr. Rea demonstrates not only that the UAT tiered discounts have a cost-basis, but he demonstrates, as well, that his recommended discounts will have a positive impact on promoting affordability. To this extent, the low-income affordability issues I have identified above will be addressed by the proposed UAT. The UAT, however, is *not* designed to address affordability issues to, along with the reverse subsidies provided by, customers who have income only slightly above the 150% maximum income proposed by Mr. Rea. The UAT, as currently structured, is simply not designed to reach those customers.

Q. PLEASE EXPLAIN THE MODIFICATIONS THAT YOU RECOMMEND BE ADOPTED TO THE MAWC DISCOUNTS PROPOSED BY MR. REA IN THIS PROCEEDING.

A. The first modification I recommend for the proposed is to apply the UAT to wastewater service in addition to applying it to water service. According to Mr. Rea's Direct Testimony, on a percentage basis, there are fewer MAWC wastewater customers who receive an affordable bill than there are water customers who do. (Rea-DT, at 18). Mr. Rea testifies that while 16% of water customers will receive a bill greater than his demarcation of what is affordable, 19% of wastewater customers would. (Id.). When

broken down by income, Mr. Rea's Direct Testimony states that while 80% of water customers with income between $35,000 and $50,000 would receive an affordable bill, only 48% of wastewater customers would. (Id, Table 1, page 19). Even fewer customers with incomes even lower would receive an affordable bill. (Id.). At income of $20,000 to $25,000, while 34% of water customers would receive a bill of less than 2% of income, only 4% of wastewater customer would. Ultimately, Mr. Rea concludes that "There are. . .groups of customers for whom affordability of water and wastewater service may be challenging." (Id., at 22). He asserts that his information can "inform decision-makers about the size and scope of efforts that may be needed to help these vulnerable customers better afford water and wastewater service. . .[including but not limited to] customer assistance programs that may include customer grants, tariff discounts, levelized billing, and outreach programs." (Id., at 22).

Q. DOES MR. REA PRESENT A WASTEWATER UAT IN HIS DIRECT TESTIMONY THAT WOULD BE A COROLLARY TO THE UAT WHICH HE PROPOSES FOR WATER SERVICE?

A. Mr. Rea's Direct Testimony does not present or discuss a wastewater discount that would serve as a corollary to the water discount he recommends. Indeed, his testimony explicitly states that "The Company is proposing to offer a Universal Affordability Tariff ("UAT") which would provide discounted rates to participating customers that would assist with the affordability *of water service* for lower income customers." (Rea-DT, at 23) (emphasis added). He states that "The tariff offers discounts on both the basic 5/8" meter charge and the volumetric charges *for water service*." (Id., at 23) (emphasis added). The schedule of discounts Mr. Rea presents is limited to water service. (Id., at 23, Table

2). He concludes by asserting that "The driving principle behind the Company's proposed UAT is to provide all participating customers discounts such that the expected bill for Basic Water Service (50 gallons of water per household member per day) will be no more than 2% of their annual household income." (Id., at 24).

Company witness Svinland also emphasizes that the UAT proposed by the Company is applicable only to water service. He states: "the Company is proposing a Universal Affordability Tariff *for water service* that includes multiple tiers of discounts based on different levels of household income stated as multiples of the federal poverty level ("FPL"). The tariff offers discounts on both the basic 5/8" meter charge and the volumetric charges *for water service*. As explained by Mr. Svinland, the Company's proposed tiered discounts under this tariff will provide customers at each interval of FPL the opportunity to have "basic water service" under 2% of household income." (Svinland-DT, at 13) (emphasis added).

Q. IS MAWC PROPOSING TO OFFER A DISCOUNTED WASTEWATER SERVICE AS WELL?

A. MAWC's evidentiary presentation in this proceeding is confusing, at best, with respect to whether it proposes to offer a discounted wastewater service. As I note above, the entirety of MAWC's testimony addresses only the offer of a discounted *water* service. However, MAWC Schedules CAS-11 and 12, in its Proposed Pro Forma Rates, include a quantification of foregone wastewater revenue attributed to an income-qualified discount. MAWC states that "The service charge and usage discounts are included in the proforma revenues at proposed rates as a revenue reduction. (CCM-0041).

Q. WHAT DO YOU RECOMMEND?

A. I recommend that MAWC make explicit that it is offering an income-qualified wastewater discount at the same level as it is offering its income-qualified water discount. The discount would be: 75% for customers with income at 0% to 50% FPL; 55% for customers with income at >50% to 100 FPL; and 25% for customers with income at >100% to 150% FPL. I further recommend that the additional discount tier I discuss immediately below (>150% to 200% FPL) be applied to both water and wastewater service as well.

Q. WHAT IS YOUR SECOND RECOMMENDED MODIFICATION TO THE UAT WHICH MAWC IS PROPOSING IN THIS PROCEEDING?

A. I recommend that MAWC extend its proposed UAT to a fourth tier for customers with income greater than 150% FPL up to and including 200% FPL. This fourth tier would receive a discount of 15% on both service charges and volumetric charges for both water and wastewater service.

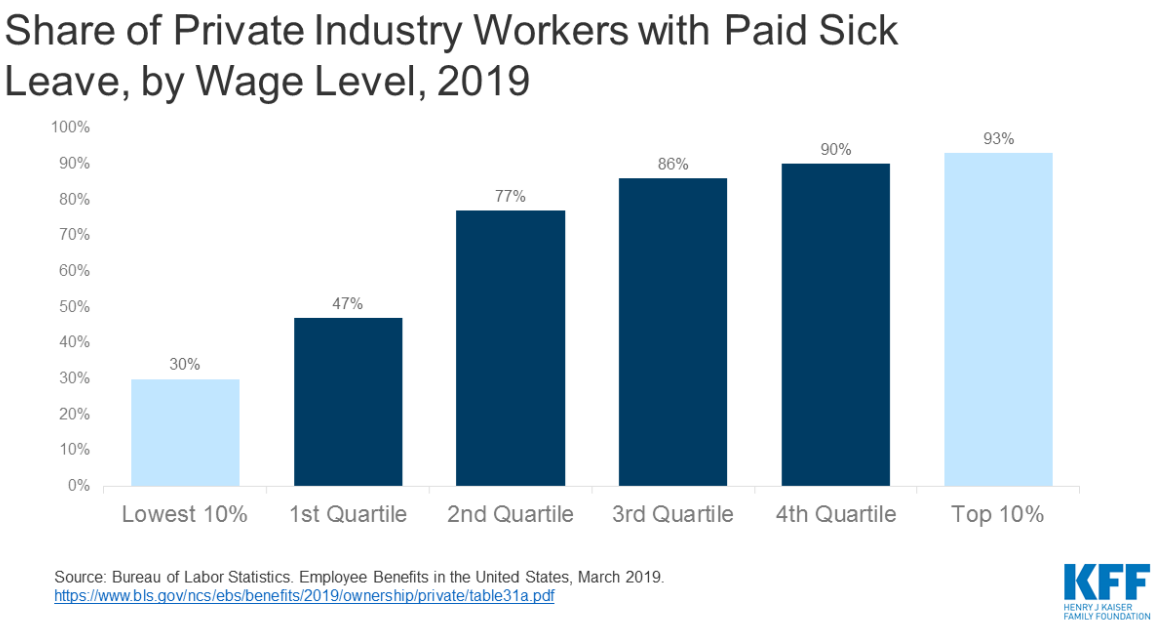
Q. IS EXTENDING THE UAT TO A FOURTH TIER CONSISTENT WITH THE DIRECT TESTIMONY OF MR. REA?

A. Yes. After noting that "affordability" is frequently defined as a Bill-to-Income Ratio of 2.0% to 2.5% for water service, and 4.5% for combined water/wastewater service, Mr. Rea goes on to testify that affordability is not a yes or no question. (Rea-DT, at 11). He states that "One can generally measure average bills against any given benchmark and come up with a yes or no answer, but affordability of service is a continuum. . ." (Id.) He then ignores that counsel, however, in limiting the proposed UAT to customers with income at or below 150% of FPL.

Q. WHAT IS THE BASIS FOR EXTENDING THE UAT DISCOUNTS TO A FOURTH TIER OF CUSTOMERS WITH INCOME GREATER THAN 150% FPL BUT AT OR BELOW 200% FPL?

A. One attribute of the income of households considered to be "low-income," is not merely the *level* of income, but also is what is known as the *fragility* of income. Low-income workers can have their ability to pay utility bills threatened due to unavoidable disruptions in their economic lives. A personal illness requiring time off or the illness of a child requiring time off generally represents a permanent loss of income. The jobs of low-wage workers simply do not provide the paid leave required to respond to such circumstances.[41] The Chart below, for example, shows the percentage of workers with paid sick leave by wage level as reported by the U.S. Census Bureau.

Figure 1



[41] Claxton and Levitt, Paid Sick Leave is Much Less Common for Lower-Wage Workers in Private Industry, Kaiser Family Foundation (Mar. 2020), https://www.kff.org/coronavirus-covid-19/issue-brief/paid-sick-leave-is-much-less-common-for-lower-wage-workers-in-private-industry/.

The vulnerabilities faced by low wage workers to economic disruptions due to the lack of paid leave have been well-documented.[42] The difference is particularly evident for women. The Kaiser Family Foundation reports that "across the board, low-income women and those with part-time employment are less likely to be offered any of these benefits compared to their higher income and full-time counterparts."[43] The KFF data is set forth in the Table below. KFF reports that "low-income mothers who must miss work when their child is sick are far more likely to lose pay (75%) compared to higher income mothers (33%)."

[42] *Id*. ("Among the 25% of private industry occupations with the lowest wages ($13.25 per hour or less) 47% have access to paid sick leave; for the 10% of private industry occupations with the lowest wages ($10.48 per hour or less), the percentage with access to paid sick leave falls to 30%. Workers in higher-wage occupations are much more likely to have access to this benefit. For example, 77% of private industry workers with occupations in the second wage quartile ($13.25 to $19.00 per hour) have access to paid sick leave, with the percentage rising up to 90% of private industry workers with occupations in the top wage quartile.") *See also* Usha Ranji, et al., *Coronavirus Puts A Spotlight On Paid Leave Policies*, Kaiser Family Foundation (Dec. 14, 2020), https://www.kff.org/coronavirus-covid-19/issue-brief/coronavirus-puts-a-spotlight-on-paid-leave-policies/; Chantel Boyens, et al., *Access to Paid Leave is Lowest Among Workers With the Greatest Needs*, Urban Inst. (July 2022), https://www.urban.org/sites/default/files/2022-07/Access%20to%20Paid%20Leave%20Is%20Lowest%20among%20Workers%20with%20the%20Greatest%20Needs.pdf.

[43] Usha Ranji, et al., *Difficulty Tradeoffs: Key Findings on Workplace Benefits and Family Health Care Responsibilities from the 2020 KFF Women's Health Survey*, Kaiser Family Foundation (Apr. 21, 2021), https://www.kff.org/womens-health-policy/issue-brief/difficult-tradeoffs-key-findings-on-workplace-benefits-and-family-health-care-responsibilities-from-the-2020-kff-womens-health-survey/.

Table 10. Working Women who are low-income or in part-time jobs are less likely to be offered employer benefits such as paid sick leave and parental leave				
	Paid Vacation	Paid Sick Leave	Paid Parental Leave	Paid Family and Medical Leave
Income				
<200% FPL	51%	46%	27%	28%
=>200% FPL	74%	73%	48%	45%
Work Status				
Part-time	37%	35%	20%	19%
Full-time	78%	75%	50%	48%

It is not, however, simply the lack of paid leave that presents situations leading to a potential inability to pay utility bills at a particular time. It is the lack of flexible work arrangements. One study reports that "many lower-wage workers are caring for multiple children, generally in homes where both parents are working or in single parent homes. Many also are providing care to elderly relatives or other family members with significant health conditions. Yet others have acute or chronic medical conditions themselves that often require medical treatment or time away from work. Thus, like higher-wage worker, many lower-wage workers need flexible scheduling, alternative start and end times, compressed workweeks, and the ability to work some hour at home (providing the job can be done at home)." [44] Nonetheless, "lower wage and lower-income

[44] Anna Danziger and Shelley Waters Boots, Urban Inst., Georgetown University Law Center, *Lower-Wage Workers and Flexible Work Arrangements*, at 3 (2008).

workers have fewer options and less access to flexible work arrangements than higher-wage and higher-income workers."[45]

I discussed the affordability needs of MAWC customers falling into this fourth income tier in detail above when I discussed the Census PULSE data along with the ALICE data for Missouri. Consistent with Mr. Rea's own discussion that affordability is not a yes/no toggle, a minimum level of assistance *is* appropriate to reflect the affordability needs of these households as reflected in their income fragility. Accordingly, I include a minimum, but appropriate, discount for households with income in the range of between 150% and 200% FPL.

Q. IS EXTENDING THE UAT TO A FOURTH TIER CONSISTENT WITH MR. REA'S COST-OF-SERVICE JUSTIFICATION FOR MAWC'S PROPOSED INCOME DISCOUNTS?

A. Yes. Mr. Rea offers a cost-of-service analysis based on his examination of usage patterns associated with incomes. His analysis, however, does not distinguish between customers based on increments of Federal Poverty Level. Rather, it is based on <u>*dollars*</u> of income. The definition of his "low-income group," in other words, does <u>*not*</u> include customers with income at or below 150% FPL, but rather includes "customers in communities or zip codes with median household incomes less than $50,000 per year." (Rea-DT, at 33). This is significant in that 100% of FPL in 2024 was $15,060 for a 1-person household; $20,440 for a 2-person household; and $25,820 for a 3-person household. Mr. Rea's "low-income group" would include customers with income up to 200% FPL for

[45] *Id.*

households with three or fewer household members. For a 3-person household, 200% FPL in 2024 would be $51,640 ($25,820 x 2). Using this 3-person household size as the cut-off is justified based on Mr. Rea's own data. According to his "community analysis," 344,069 of MAWC's 443,915 total water customers (78%) are households with three or fewer household members. (Rea Schedule CBR-1). Given that Mr. Rea's cost-of-service analysis of his "low-income groups" supports a discount for customers with income up to 150% FPL, therefore, it also supports a discount for customers with income up to 200% FPL.

Q. HAS THE STATE RECOGNIZED THE SIGNIFICANCE OF 200% FPL IN DEFINING CUSTOMERS IN NEED?

A. Yes. According to MAWC, beginning in June 2024, the State has mandated that MAWC increase its maximum income eligibility for hardship grants from 125% FPL to 200% FPL. (CCM-0038).

Q. WHAT DO YOU FIND AND RECOMMEND?

A. Based on the discussion I present above, MAWC should use a four-tiered discount for customers with income at or below 200% FPL, rather than Mr. Rea's proposed three-tiered program. In addition, MAWC should make explicit that it is proposing to extend its proposed discounts to include wastewater service in addition to including water service.

B. Further Cost-Justification for the Company's Proposed UAT Discount.

Q. DOES THE OFFER OF A PROPERLY TARGETED TIERED DISCOUNT CREATE BENEFITS TO MAWC, AS THE UTILITY?

A. Yes. It is important to understand the difference between *gross* program costs and *net* incremental program costs when considering the impacts of a low-income discount for MAWC customers. Gross program costs are determined by subtracting participant bills calculated using the MAWC discounts from participant bills calculated at standard residential rates. This calculation assumes that MAWC would have collected 100% of the billed revenue in the absence of the discount. In fact, however, MAWC would *not* collect 100% of its billed revenue in the absence of the low-income discount. Low-income customers experience substantial levels of arrearages. Low-income customers experience frequent service disconnections for nonpayment in the months outside of the winter shutoff moratorium. Low-income customers experience higher levels of uncollectibles. The actual *net* cost to ratepayers accruing from a low-income MAWC discount will be much less than the gross costs identified and discussed above.

Q. CAN YOU ILLUSTRATE THIS IMPACT?

A. Yes. Let's assume hypothetically that we have one customer who enrolls in the MAWC discount. The customer has a pre-discount annual bill of $1,000. Given a hypothetical 2022 one year collectability for low-income customers not enrolled in the discount of 55%, MAWC bills this customer $1,000 and collects $550 ($1,000 x 0.55 = $550).[46] In

[46] "Collectability" is the term that refers to the rate at which billed revenue is translated into actual receipts. For example, if a utility bills $1,000 and actually collects $400, it has a "collectability" of 40%.

this situation, the remaining $450 is included in base rates given that base rates are established based on the dollars of receipts collected.

Let us then assume, for purposes of illustration, that a discount is provided equal to $600 per year. The collectability improves from 55% to 85%. Given that discount, when the customer enrolls in the low-income discount, the bill at standard rates would remain at $1,000. However, the responsibility for paying that $1,000 is allocated between different ratepayers. Of the $1,000, $400 is billed to the discount participant with the remaining $600 billed to other customers through a deferred cost-recovery mechanism; the $600 is the gross cost of the program.[47]

Given the difference in the collectability rates, however, MAWC collects $340 of the $400 bill ($400 bill x 0.85 collectability). As can be seen, the reduction in actual receipts to the utility is ***much*** less than the amount of the low-income discount. While discount participants are provided a $600 discount off of their hypothetical $1,000 bill, the incremental cost to MAWC based on what it ***actually collects*** given the improved collectability rate is only $210 ($550 collected at standard rates[48] minus $340 collected at discount rate[49]). These improved collections will be captured in the normal course of a utility's rate case. They need not be separately identified for them to exist.

[47] The "gross cost of the program," in other words, is the difference between bills at the discounted rate and bills at standard residential rates. It assumes that 100% of the billed revenue would be collected in the absence of the discount.
[48] $1,000 bill x 0.55 collectability.
[49] $400 bill x 0.85 collectability.

Even setting aside any MAWC gains from a reduction in costs attributed to improved collections (e.g., credit and collection costs, working capital, bad debt), the revenue loss attributable to the discount is much less than the amount of the discount.

Q. HAS ANY WATER UTILITY BEEN FOUND TO ACHIEVE THIS IMPROVEMENT IN COLLECTABILITY FROM A LOW-INCOME DISCOUNT?

A. Yes. The Philadelphia Water Department ("PWD") has implemented a Tiered Assistance Program. Adopted unanimously by the Philadelphia City Council on November 19, 2015, the Philadelphia initiative was legislatively titled the Income-based Water Rate Affordability Program ("IWRAP").[50] IWRAP was implemented on July 1, 2017 and is operationally known as the Tiered Assistance Program ("TAP"). In Philadelphia, the City Council legislation directed that: "Monthly [TAP] bills shall be affordable for low-income households, based on a percentage of the household's income. . . ."[51] Each low-income customer's bill shall be "based upon each Customer's actual income" and "shall be charged in lieu of the Department's service, usage, and stormwater charges."[52]

The most important policy decision incorporated into this language is that bills "shall be affordable." The purpose of the Philadelphia legislation was not merely to provide "some" level of discount to low-income customers. Instead, the level of discount is

[50] Bill No. 140607-AA, amending Philadelphia Code, §19-1605, adopted by the City Council on November 19, 2015. Signed by the Mayor on December 1, 2015.

[51] Amended Philadelphia City Code, Section 19-1605(3)(a) (2017).

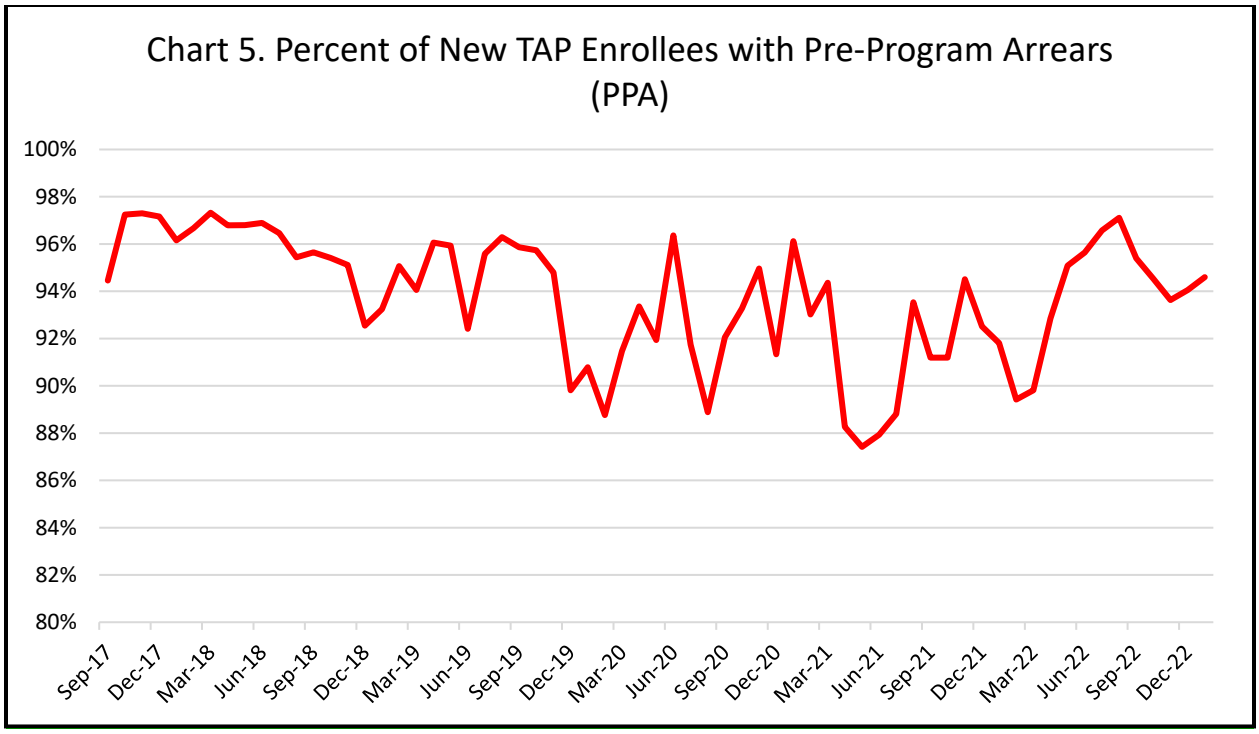
[52] Amended Philadelphia City Code, Section 19-1605(3)(a) (2017).

intended to result in an *affordable* bill for low-income customers. If a customer has a lower income (or a higher bill), the amount of assistance should be increased to reflect the increased dollars needed to make the bill affordable. This tiered approach is precisely what Mr. Rea proposes as part of his UAT.

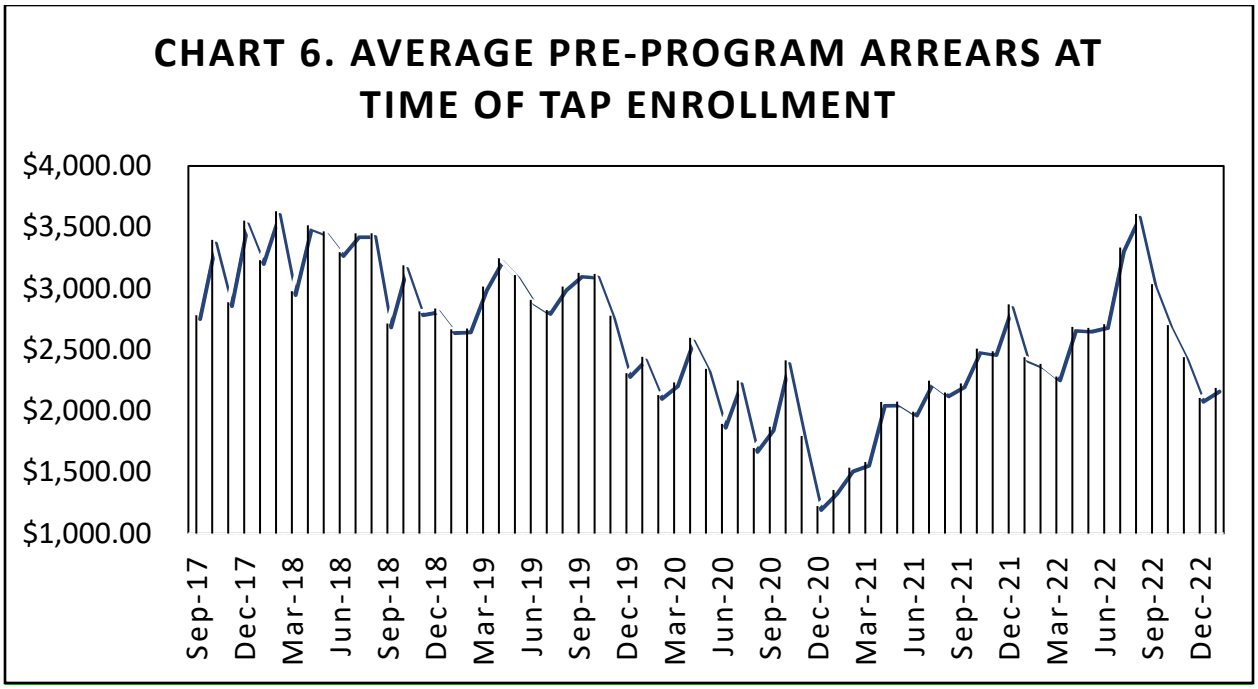
Q. WHAT IMPACTS ON LOW-INCOME PAYMENT PATTERNS HAS THE PWD PROGRAM GENERATED?

A. The PWD program has generated more complete payments on the part of low-income program participants. In looking at the question of "complete" bill payment for TAP program participants, the metric used below involves an examination of the percentage of bills paid at different points in time. The data compare the performance of TAP participants (who, by definition, are low-income) to the performance of low-income customer who did *not* participate in TAP (TAP non-participants).

When one examines the impact of Philadelphia's TAP, you need to start with what was happening *before* TAP came into being. That can be examined by looking at the percentage of low-income customers who enter TAP with a pre-existing arrears. This Figure shows that from the very beginning, low-income customers were not able to pay their bills before enrolling in TAP. Consistently close to 100% of TAP participants are entering the program with pre-existing arrears. That observation will be important time and time again, and will be referenced multiple times below.



Low-income customers who enrolled in TAP not only almost universally bring pre-program arrears into the program with them, but they bring *substantial* pre-program arrears into the program with them. The Figure below then shows the average pre-program arrearage balance that new TAP enrollees have had at the time of TAP enrollment. At the *lowest* point, new TAP enrollees brought nearly $1,500 of pre-program arrearages into the program at the time of enrollment. More typically, new TAP enrollees were bringing between $2,000 and $3,500 of pre-program arrearages into the program with them.



Low-income customers, in other words, were not just "a little" behind on their bills when they enrolled in TAP. Prior to their enrollment in TAP, these low-income customers had incurred not hundreds, but thousands of dollars in unpaid bills. These first two Figures above thus reveal the fallacy of those who argue that the "cost" of TAP is equal to the amount of the discount that is being provided. This fallacious argument assumes that 100% of low-income bills would have been paid in the absence of TAP. Clearly, however, the data shows that that would not be the case. These Figures also show the fallacy of people who argue the cost of TAP is "too high." Much, if not most, of these costs are *already* being borne by ratepayers in the form of unpaid bills.

Knowing that more than 90% of TAP participants enter the program with pre-existing arrears, the next question would be: "does TAP help low-income customers *improve* their bill payment patterns?" The Table below shows the percentage of bills paid by the 12-month mark after a bill is received (for TAP participants and for low-income customers not on TAP). It shows the same data (i.e., the percentage of bills paid) by the 24-month mark after a bill is received as well. For

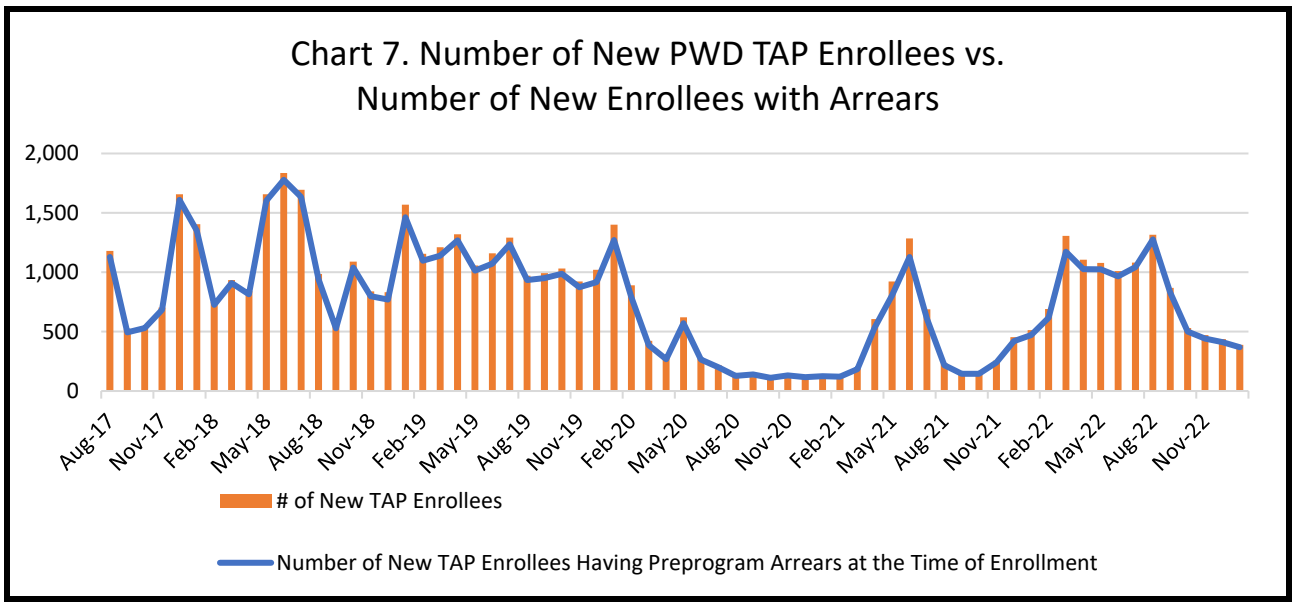
years prior to FY2018, of course, there was no TAP, so the numbers show only how much of a low-income bill is paid with*out* TAP.

Table 11. Completeness of Bill Payment (TAP and Non-TAP Low-Income [LI])

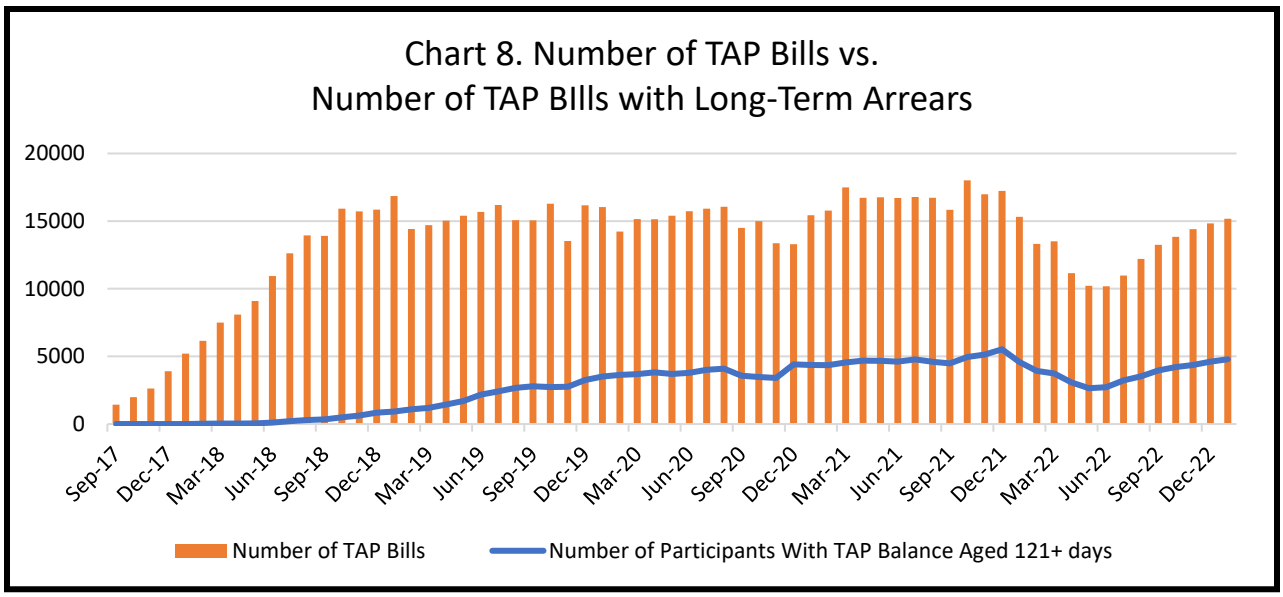
	Percent Paid in 0 – 12 Months		Percent Paid in 0 – 24 Months	
	TAP	Non-TAP LI	TAP	Non-TAP LI
FY22	72.50%	34.30%	N/A	N/A
FY21	72.47%	46.12%	83.83%	62.64%
FY20	72.80%	45.92%	87.13%	59.45%
FY19	72.03%	48.71%	87.89%	61.80%
FY18	73.13%	36.06%	95.69%	45.12%
FY17	No TAP	42.74%	No TAP	54.80%
FY16	No TAP	45.96%	No TAP	59.69%
FY15	No TAP	45.63%	No TAP	59.77%

At the 12-month mark, TAP customers have paid more than 70% of the bills they received. In contrast, at the 12-month mark, low-income customers *not* participating in TAP have paid only 36% (FY2018) to 46% (FY2021) of the bills they have received. At the 24-month mark, TAP customers are paying between 80% and 90% of the bills they have received. In contrast, low-income customers *not* participating in TAP have paid only 45% (FY2018) to 63% (FY2021) of the bills they received by Month 24.

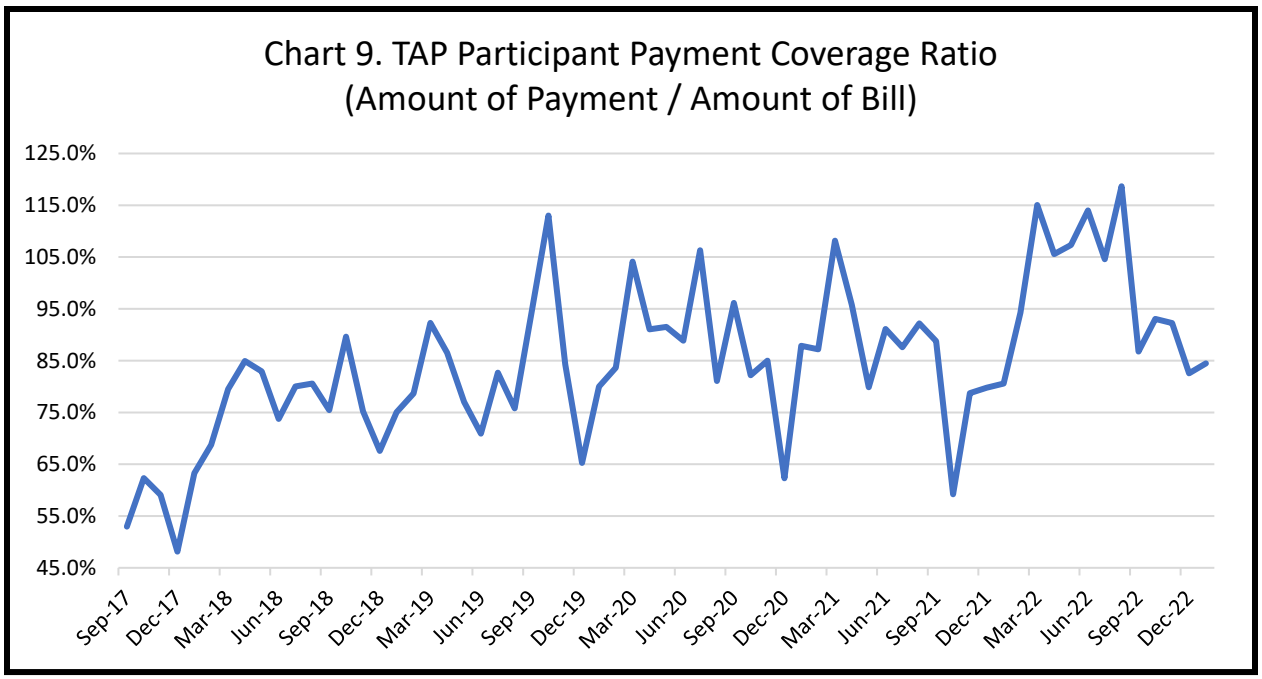
The next set of data compares the difference in low-income payment patterns before and after TAP participation as well. This Chart below shows the number of new TAP enrollees (the bars) compared to the number of new TAP enrollees with arrears (the line). As observed earlier, nearly all low-income customers enrolling in TAP bring unpaid bills with them.



In contrast, this lower Figure shows the number of TAP bills issued each month (the bars) against the number of TAP bills that were issued that carried a long-term (120+ days) unpaid balance at the time the bill was issued. TAP has not entirely eliminated unpaid bills by low-income customers. However, as can be seen, the improvement has been dramatic. One can see that the number (and percent) of TAP participants with an arrearage of 120 or more days appearing on their bill has levelled off at around 25% of the TAP population. While the availability of COVID-related emergency federal water assistance in 2021 helped bring those arrearages down even further, the proportion of low-income accounts with long-term TAP arrears over time relative to the proportion of low-income accounts entering TAP with pre-existing arrears is dramatically lower than the percentage of low-income customers enrolling in TAP with huge pre-existing arrears.



Finally, TAP payments substantially improve as measured by the "Payment Coverage Ratio" shown in the Chart below. The Payment Coverage Ratio is a simple ratio. It calculates the percentage of a bill that is being paid by placing the dollars of payments in the numerator and the dollars of bills in the denominator. The Chart below shows that TAP has taken that low-income population, nearly 100% of which was behind on their bill payments upon entering the program, and converted those low-income customers into reasonably good-paying customers. The Chart here shows two important things: (1) TAP customers are consistently paying 80% (or more) of their bills; and (2) the Bill Payment Coverage ratio demonstrates a noticeable *upward* trend. The longer a TAP participant remains on TAP, the better their bill payment patterns become.



The data in this Chart is even more compelling when viewed in conjunction with the immediately preceding Chart. The Chart above shows that those payments cover 85% or more of the TAP participant bills. That demonstrates one of two things on the part of TAP participants: (1) either TAP participants routinely make partial payments, which are made up by a subsequent payment; or (2) when a TAP participant gets behind by skipping a payment, that missed payment is subsequently made-up by a later payment. The fact that so few TAP participants experience long-term arrears documents this observation.

Q. WILL THE PROPOSED MAWC DISCOUNT IMPROVE THE TIMELINESS OF PAYMENTS AS WELL?

A. Yes. The affordable rate offered to income-qualified customers by PWD, as I discussed above, demonstrates that providing service at an affordable rate will improve the timeliness of payments by customers taking service under an affordable rate. The two Tables presented below present a comparison of how *quickly* TAP customers pay the PWD bills to how quickly low-income customers were paying their bills *before* TAP existed. First, look at the one-year mark. In Table 12 below, you can see that TAP participants consistently paid more than 72% of their bills by the end of 12-months.

Table 12. PWD's TAP Collectability at Identified Points in Time by Fiscal Year

Collectability at One-Year Mark					Collectability at Two-Year Mark			
FY18	FU19	FY20	FY21	FY22	FY18	FY19	FY20	FU21
73.1%	72.0%	72.8%	72.5%	72.5%	95.7%	87.9%	87.1%	83.8%

In contrast, when you look at the collectability in the years *before* TAP (Table 13), you can see that in two years (FY13, FY14), PWD received a 72% bill payment; even this, however, occurs only by the end of 48 months, not the end of 12 months. Moreover, in FY12, the 72% bill payment did not occur until the end of 60 months. In FY16, the 72% bill payment did not occur until the end of 84 months.

Table 13. Cumulative Collectability for Low-Income Customers in Pre-TAP Years

	0 – 12 MOS	12 – 24 MOS	25 – 36 MOS	37 – 48 MOS	49 – 60 MOS	61 – 72 MOS	73 – 84 MOS	85 – 96 MOS	>97 MONTHS
FY17	42.7%	54.8%	58.1%	61.3%	64.1%	69.2%	---	---	---
FY16	46.0%	59.7%	64.5%	66.8%	69.3%	71.2%	75.0%	---	---
FY15	45.6%	59.8%	65.7%	69.5%	71.3%	73.2%	74.8%	77.8%	---
FY14	46.6%	61.4%	67.6%	72.2%	75.1%	76.4%	77.7%	79.0%	81.5%
FY13	49.7%	64.2%	69.7%	74.3%	77.8%	79.9%	81.0%	82.0%	83.0%
FY12	46.3%	60.2%	65.2%	69.3%	72.9%	75.6%	77.3%	78.1%	79.0%

Remember, again, the TAP participant population is a population of low-income customers where every month, more than 90% of the customers enrolling in TAP were entering the program with pre-existing arrears. And those pre-existing arrears were in the thousands, not hundreds, of dollars for each new customer enrolling in TAP. In contrast, under TAP, 72% of the bill is being paid within 12 months.

An even more dramatic difference can be seen if you look at the percentage of bill paid by the end of two years. Under TAP, low-income participants paid between 84% (FY21) and 96% (FY18) of the bills by the end of two years. Before TAP, low-income customers *never* achieved an 84% percentage payment of their bills, even after eight years (>96 months).

Q. WHY IS THE IMPROVED TIMELINESS OF PAYMENTS IMPORTANT FROM A PROGRAM COST PERSPECTIVE?

A. The improved timeliness of payments from low-income customers will provide two important benefits to MAWC. First, improving the timeliness of payments reduces the lag days between the date of billing and the date of payment. As a result, it will reduce the working capital requirement of the utility that contributes to the level of rates charged to all customers. Second, given that working capital is a capital expenditure, it earns a rate of return, part of which is an equity return. The equity return is the "profit" of the utility on which it will pay an income tax. Accordingly, each dollar of reduced working capital will also generate a tax impact. Each $1 reduction in working capital will generate more than a $1 reduction in rates. These two impacts are particularly important because they can be realized in one of two ways. On the one hand, reducing the *level* of unpaid bills will generate a working capital reduction. All else equal, a $100 arrears will generate a

lower working capital requirement than a $150 arrears. On the other hand, reducing the *age* of unpaid bills (i.e., the number of days a bill is unpaid) will also generate a working capital reduction. All else equal, a $100 bill that remains unpaid for 60 days will generate a lower working capital requirement than a $100 bill that remains unpaid for 120 days.

Q. WHAT DO YOU CONCLUDE AND RECOMMEND?

A. Based on the data and discussion above, I find that adopting a low-income tiered discount for MAWC is a reasonable action for the Commission to approve. I find:

- The three tiered discount that MAWC proposes should be adopted for the income tiers which MAWC addresses;
- A fourth discount tier of 15% for water and wastewater customers with income at 150% to 200% FPL should be approved in addition to the recommended discount proposed by MAWC; and
- The four-tiered discount should be explicitly extended to wastewater bills in addition to being offered for water service.

Q. DO THE COST OFFSETS YOU IDENTIFY ABOVE FIND ANY BASIS IN THE TESTIMONY AND EXHIBITS OF MAWC IN THIS PROCEEDING?

A. Yes. In reaching this conclusion, I engaged in an analysis similar to that which Mr. Rea pursued in his analysis cost-justifying the UAT which he proposed. I began with the zip codes which comprise the MAWC service territory. I divided those zip codes into three income categories: (1) Group 1 is the high income group, comprised of those zip codes which have a median income of greater than $100,000; (2) Group 2 is the medium income group, comprised of those zip codes which have a median income of between

$50,000 and $100,000; and (3) Group3 is the low-income group, comprised of those zip codes which have a median income of $50,000 or less. (Compare Rea-DT, at 33).

I examine the Company's arrearage aging data for six different months, January, June and September of 2023, and January, June and September of 2024. (CCM-076, Attachments 1, 4, 9, 13, 16 and 21).[53] Two years of data were used to assess whether there might be a difference based on factors unique to a particular year.

Q. WHAT DATA DID YOU EXAMINE?

A. For each of the months I identify above, I examined the percentage of customers who have arrears that are 60 or more days old. I choose 60-day arrears to ensure that the accounts I am examining are not limited to customers who have missed only one payment, or who have made a payment, but who may have made that payment past the due date. The results are set forth in Table 14 below. The data shows the relationship between income and payment difficulties. In every month for each year, nearly three-of-ten customers in the Company's low-income zip codes were 60 days or more in arrears. In contrast, only one-in-six customers in medium income zip codes were 60+ days in arrears, while only one-in-twenty customers in the high income zip codes were. In every month for each year, the percentage of customers 60+ days in arrears in medium income zip codes was higher than the percentage of customers 60+ days in arrears in high income zip codes, while the percentage of customers in low-income zip codes was higher than the percentage of customers 60+ days in arrears in medium income zip codes.

[53] The attachments provided by MAWC were labelled confidential pursuant to "Rule 20 CSR 4240-2.135(2)(A).1, as it contains customer specific information." (CCM-0076). The cited rule protects individually-identifiable data. The confidentiality of the individually-identifiable data provided in the six cited attachments has been maintained. The data has been aggregated. No individual information is presented. No individually-identifiable information is evident in either the Table or the narrative discussion referencing the Table.

Table 14. Percentage of Accounts 60+ Days in Arrears by Zip Code and Income Tiers			
	High Income	Medium Income	Low-Income
Jan 2023	6.5%	20.9%	29.8%
Jun 2023	5.7%	17.0%	28.7%
Sept 2023	5.1%	15.7%	27.4%
Jan 2024	5,5%	16.7%	28.1%
Jun 2024	4.7%	15.0%	25.5%
Sept 2024	5.5%	16.7%	28.1%

The data in the Table above shows that while the precise numbers vary month-to-month, the variation is not substantial, and the payment patterns remain consistent over time.

Q. DOES MAWC HAVE DATA THAT IS COUNTER TO YOUR CONCLUSION THAT PAYMENT DIFFICULTIES IN THE COMPANY'S SERVICE TERRITORY ARE RELATED TO LOW-INCOMES AND THE LACK OF AFFORDABILITY OF WATER SERVICE?

A. No. The Company repeatedly conceded that it has not considered, let alone studied, the relationship between low-income status and payment difficulties. Consider:

- The Company could not provide the percentage of revenue that would be collected from low-income customers in the absence of it proposed discount program. (CCM-22).
- The Company has not considered, let alone studied, changes in payment patterns by participants in its proposed low-income discount. (CCM-23).
- The Company was asked for all literature prepared by or for the Company, or which the Company has reviewed, assessing the relationship between Bill to Income Ratios, as that term is used by Mr. Rea, and the extent to which, if at all, customers, in general, are having or would have difficulty paying their water bills. It could provide no such literature. (CCM-48).
- The Company was asked for all literature prepared by or for the Company, or which the Company has reviewed, assessing the relationship between Bill to

Income Ratios, as that term is used by Mr. Rea, and the extent to which, if at all, "customers. . .may be having trouble paying their utility bills." It could provide no such literature. (CCM-49).

- When asked for data specific to low-income customers, the Company could provide no data on (1) the number of residential disconnections for nonpayment; (2) the average arrears at the time of a residential disconnection for nonpayment; (3) the number of residential notices of disconnection for nonpayment; (4) the percentage of residential accounts in arrears; (5) the average arrearage of residential accounts in arrears; or (6) the number of residential accounts with a $0 balance on that month's bill. (CCM-75).

Q. HAS MAWC ACKNOWLEDGED OR INCORPORATED ANY COST-OFFSETS TO BE APPLIED AGAINST THE RECOMMENDED WATER AND WASTEWATER DISCOUNTS PROVIDED THROUGH ITS PROPOSED UAT?

A. No. MAWC asserts that "all costs of the program will be incremental costs. This includes payments to the Company's third party administrator and all discounts provided." (CCM-021). Moreover, the Company concedes that "there are no adjustments made in the Company's revenue requirement or revenue calculation related to any changes in payment patterns that may occur for customers participating in the Universal Affordability Tariff." (CCM-023). Not only has the Company made no adjustments to reflect reduced costs and/or enhanced revenues, it has not planned any effort to track such changes. (CCM-057, CCM-058). For example, "the Company does not track the collection rate at which billings are translated into receipts." (CCM-020).

C. UAT Cost Recovery.

Q. WHAT IS THE SIGNIFICANCE OF THIS DISCUSSION WITH RESPECT TO MAWC'S REQUESTED RATE RECOVERY FOR ITS UAT COSTS?

A. The *incremental* cost of MAWC's proposed UAT discount is not the amount of participant bills at standard residential rates minus the amount of participant bills at discounted rates. Instead, the incremental cost of the UAT discount that should be recovered in rates is the amount of participant bills that is not already included in rates. Only that portion of the discount that is not already included in rates should be separately recovered.

MAWC should be allowed recovery of the full costs of its UAT, but it should not be allowed to recover more than the full costs of the program. In this regard, MAWC's summary assertion that 100% of the discount is an incremental cost of the program (CCM-021) is simply wrong. Not all of the discount represents a new cost. A portion of the discount is simply moving costs from one bucket which is not currently being collected to a different bucket which would not be collected.

In addition, the Company should only be allowed to recovery the *net* costs of the UAT discount. The offer of the UAT discount will not only generate some level of increased costs (in the form of foregone revenue), but it will also generate some level of increased cost reductions (in the form of improved collectability and reduced expenses). The Company should not be allowed to collect the increased costs without also passing on the increased savings.

Q. WILL THE LEVEL OF NEW COSTS AND NEW SAVINGS BE THE SAME FROM ONE PERIOD TO ANOTHER?

A. No. The level of both the costs and the savings can be expected to vary from month-to-month and from year-to-year. The variation will occur not only based on the level of

UAT participation, but also on the mix of incomes within that level of participation. A 10,000 customer participation, for example, will impose different costs depending on what proportion of those 10,000 participants fall in each discount tier.

Q. WHAT DO YOU RECOMMEND?

A. For the reasons stated above, while the Company should be permitted to recover the full costs of the UAT, it should not be permitted to recover those costs through its proposed Revenue Stabilization Mechanism ("RSM"). The proposed RSM is not structured to consider either changes in the collectability of revenue or changes in expenses generated by the UAT. Indeed, the RSM is structured exactly to the contrary. It is based on dollars of billings rather than on dollars which are actually collected and would thus not account for enhanced revenues attributable to the UAT. It is also based on the revenue requirement established in the previous rate case rather, and would thus not account for reductions in expenses attributable to the UAT.

I recommend that the Company be allowed to defer the net, incremental costs of the UAT for recovery in a future rate proceeding. This future rate recovery, however, requires as a precondition that the Company be directed to work with the Commission Staff, with CCM, with the Office of the Public Counsel, and with other stakeholders who have an interest in participating, to mutually develop the offsets that will be applied to ensure that rates will only reflect the net incremental costs of the UAT.

Part 4. The Impact of MAWC's Proposed RSM on Low-Income Customers.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I examine the impact of MAWC's proposed RSM on low-income customers. I find that the proposed RSM will disproportionately adversely affect low-income customers. It should be disapproved.

Q. WHAT IS MAWC'S RATIONALE FOR THE PROPOSED RSM?

A. According to the Company:

> Seasonal weather conditions can cause water sales to either increase or decrease from expected going-forward levels, which, in turn, causes revenues to increase or decrease from expected going-forward levels. Hot dry summers tend to increase water sales, and cooler wetter summers tend to decrease water sales. Weather volatility in either direction causes volatility in revenues.

(Rea-DT, at 42).

Q. HOW WOULD THE RSM OPERATE?

A. According to Mr. Rea:

> The Company is seeking Commission approval of Authorized Revenues and production costs in this proceeding. Once approved, the RSM would then compare the Authorized Revenues to actual billed revenues for the residential, commercial, other public authorities (OPA) customer classes and Sale for Resale, and defer/accrue the difference, less the applicable change in production costs, on a monthly basis. . .The annual amount of metered revenues and the annual amount of expenses for all production costs would be prorated to monthly amounts. . .These monthly amounts would be reset in the next base rate case proceeding.

(Rea-DT, at 45). The Company would then:

> compare the actual metered revenues for the applicable customer classes to the Authorized Revenues for the applicable classes. The Company would also compare the actual production costs to the amount included in authorized rates or production costs associated with the applicable customer classes. If the actual revenues are less than the authorized revenues, the difference in the revenues less the production costs would be temporarily deferred to a regulatory asset. If the actual revenues are more than the authorized revenues,

> the difference in the revenues less the production costs would be temporarily deferred to a regulatory liability. The ending balance for each month would accrue interest at the Company's short-term borrowing rate.

(Id., at 45 – 46). The RSM would apply to water, but not to wastewater bills. (Id., at 39).

Q. HOW AND WHY WOULD THE RSM DISPROPORTIONATELY ADVERSELY AFFECT LOW-INCOME CUSTOMERS?

A. The RSM results in a transfer of costs from higher income customers to lower income households. This occurs because the actions that customers take to reduce water consumption, thus resulting in a readjustment of rates to that consumption which remains, are actions that are disproportionately taken by higher income households. I base this conclusion on the following observations.

First, as I discuss in more detail below, income is associated with different housing attributes. Higher income households in the MAWC service territory tend disproportionately to be homeowners. Moreover, higher income households in the MAWC service territory tend also disproportionately to live in single-family homes. As a result, in addition to having basic indoor water use, these customers will also tend disproportionately to have outdoor water use (and non-basic water consumption). This consumption is the consumption that would be more discretionary in nature and subject to reduction. As usage varies downward, the resulting unrecovered costs are passed on to that consumption which remains. The customers who will bear these costs are those who have irreducible consumption. These customers will most likely include lower-income customers.

Second, as I discuss in detail above, and as confirmed in the Direct Testimony of Mr. Rea, low-income households tend to have extremely high BTI Ratios. When households are devoting a high percentage of income to paying their basic bills, they will be less likely to invest in water conservation measures, even if those measures might be cost-effective in the long-term. These customers are not looking for ways to invest in water conservation measures. They are not buying new water-efficient appliances and are not purchasing homes with new water-efficient appliances.

Q. WHAT DOES MR. REA'S DATA SHOW WITH RESPECT TO USAGE AND INCOME?

A. Mr. Rea divides the customer base of American Water customers into high income, medium income, and low-income groups. Based on his empirical analysis of those different groups, he testifies that:

> data across the American Water footprint and specifically in the Missouri-American service territory shows that there is a positive correlation between household income and the seasonal use of water. This means that higher income households are more likely to have significant amounts of seasonal discretionary water use in the summertime and lower income households are much less likely to have significant amounts of seasonal water use and are therefore more likely to be Basic Water Service customers.

(Rea-DT, at 32). Mr. Rea continues on to testify with respect to Missouri customers in particular that:

> The data shows that residential customers in high income communities tend to be seasonal use customers at a significantly higher rate than residential customers in low income communities (48% versus 15%), and that seasonal use customers in high income customers use more than twice the amount of water than seasonal use customers in low income communities (184,370 gallons per month vs 76,540 gallons per month). . . The charts show that daily consumption over the course of the year tends to be more seasonal and

> more peaky in communities with higher incomes then in communities with lower incomes, which is consistent with the monthly usage characteristics for customers in these communities.

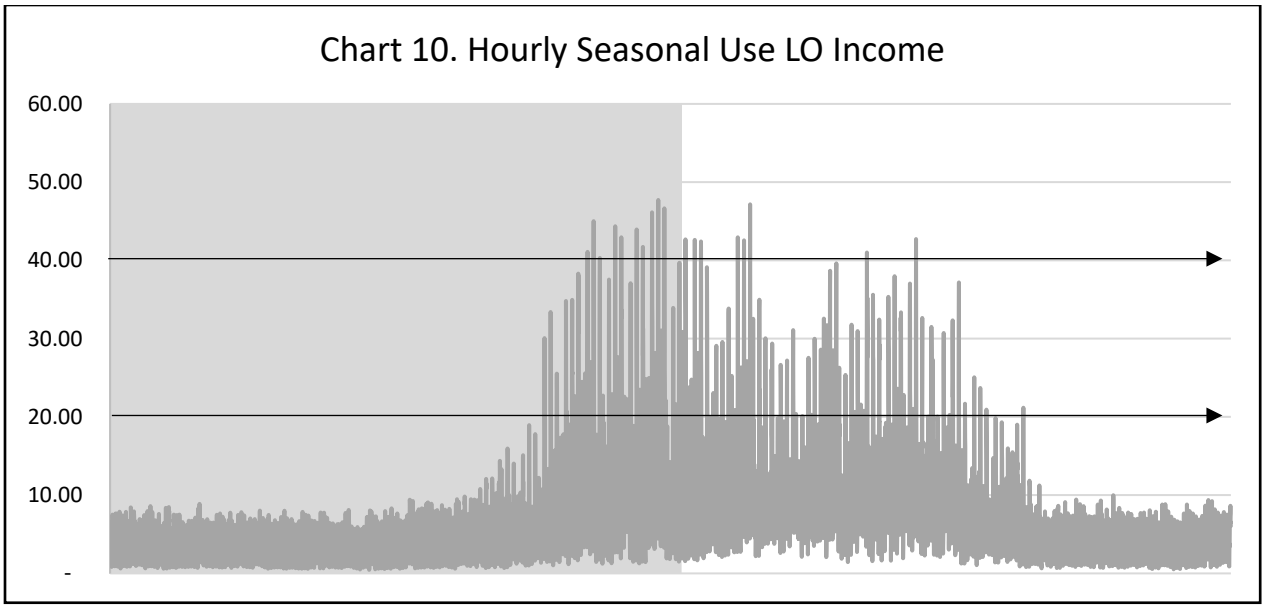
(Id., at 33 – 34).

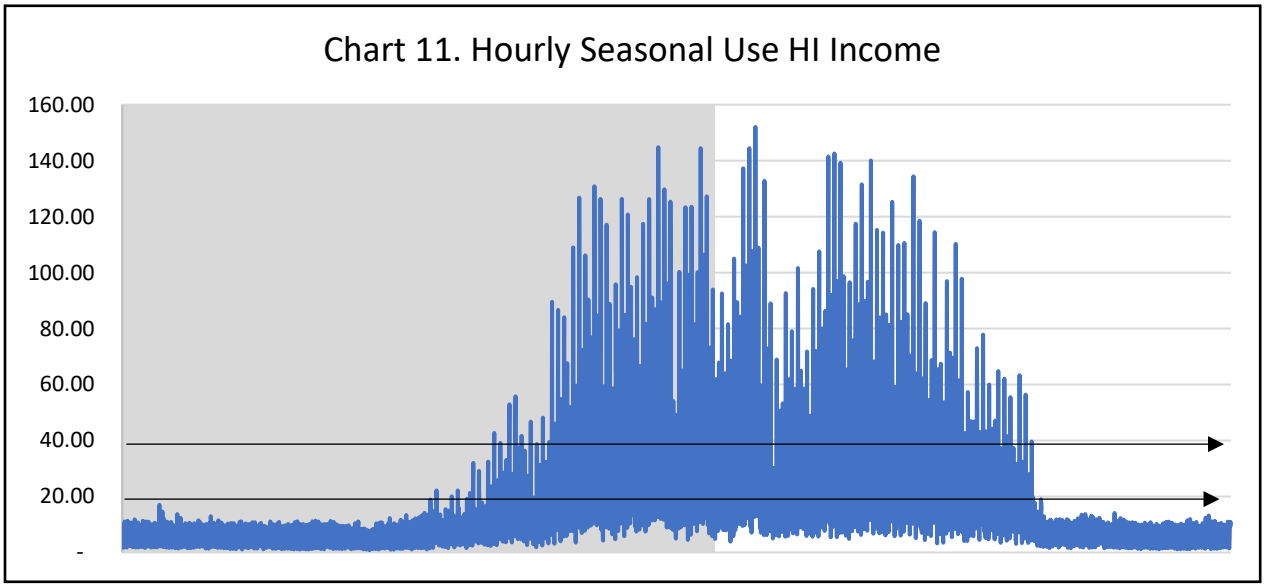
Q. WHY ARE THESE OBSERVATIONS BY MR. REA SIGNIFICANT FOR PURPOSES OF ASSESSING THE IMPACTS OF THE RSM?

A. The factors that contribute to the volatility of water consumption are more associated with higher income customers. Mr. Rea testifies:

> There are two primary factors that cause revenue volatility from year to year – seasonal weather conditions and the ongoing trends in declining usage. Seasonal weather conditions can cause water sales to either increase or decrease from expected going-forward levels, which, in turn, cause revenues to increase or decrease from expected going levels. Hot dry summers tend to increase water sales, and cooler wetter summers tend to decrease water sales. Weather volatility in either direction causes volatility in revenues.

(Rea-DT, at 42). Mr. Rea provided the hourly seasonal consumption estimates for low-income and for high-income households. The two charts below track those estimates. The horizontal lines drawn at 20 and 40 markers help to document the extent to which high income households have not merely *some* higher seasonal consumption, but *substantially* higher seasonal consumption as reported by the Company.





As is evident from the Company's own data, the seasonal consumption, as well as the potential for decreases in consumption, inhere in the high income customers rather than the low-income customers.

Q. HOW DOES THIS DISCUSSION RELATE TO MAWC'S PROPOSED RSM?

A. MAWC's proposed RSM in essence takes revenue that has historically been billed to all higher income, higher use, customers and, as more customers take steps to reduce their consumption (and thus reduce the revenue billed to them), or reduce their seasonal volatility, reallocates those dollars to the customers (and their consumption) that remain. The data above shows that the customers who are left behind by such a reallocation process are disproportionately low-income customers. In other words, MAWC proposes to take those revenues that had been billed to higher income households and to reallocate those dollars to those low-income households who do not have the financial capacity to pursue investments in water conservation measures and who were not the customers using the higher discretionary water consumption with which to begin.

Q. IS THERE ANY OTHER REASON WHY THE RSM OPERATION BREAKS DOWN AS APPLIED TO LOW-INCOME CUSTOMERS?

A. Yes. The RSM proposed by MAWC examines only one aspect of the ratemaking process, the determination of revenues. Rates, however, are not set simply through an examination of the level of revenues, but rather through an examination of the relationship between revenues and expenses.

With low-income customers in particular, reducing usage would not only reduce billed revenue, but would also reduce the expenses associated with billed revenue. In particular, reducing usage for low-income customers would reduce expenses associated with non-payment. I discussed the relationship between income and unpaid bills (aged 60 or more days) in detail above. I found that customers in low-income MAWC zip codes were two times more likely to be 60+ days in arrears than were customers in medium-income zip

codes, and five times more likely to be in arrears than customers in high-income zip codes (Table 14). In addition, low-income customers are more likely to be deeper in arrears than are high income customers. Using the same methodology I explained above (and as used by Mr. Rea in his examination of usage patterns), I find that low-income customers are not only more frequently in arrears, but they are also deeper in arrears. The data is set forth in the Table below.

Table 15. Average 60+ Days in Arrears by MAWC Zip Code and Income Tier

	High Income Zip Codes	Low-Income Zip Codes
Jan 2023	$113.32	$123.76
Jun 2023	$113.22	$144.61
Sept 2023	$124.55	$134.42
Jan 2024	$120.54	$145.02
Jun 2024	$109.53	$178.62
Sept 2024	$128.51	$153.39

The data in the Table above shows that the average balance 60+ days in arrears is consistently higher in MAWC's low-income zip codes than in MAWC's high-income zip codes. By reducing low-income usage, MAWC will not only reduce its revenue, but it will reduce its expenses associated with nonpayment as well.

Not only are more dollars in arrears on a per customer basis in MAWC's low-income zip codes, they are in arrears for longer periods of time. Table 16 below shows the percentage of accounts receivable that are, in fact, older than 150 days in arrears. The Table shows that low-income zip codes consistently have a higher percentage of arrears that are more than 150 days old. For example, in September 2024, while 1.0% of the accounts receivable in high income zip codes were older than 150 days, 10.7% of the

receivables in low-income zip codes were that old. One year earlier, while 1.4% of the accounts receivable in high income zip codes were older than 150 days, 11.7% of the receivables were that old.

The older arrears in the low-income zip codes are significant from two different perspectives. First, arrears that are greater than 150 days old are more likely to be deemed to be uncollectible. Second, a higher percentage of older arrears means that those arrears are, all else equal, imposing a higher working capital expense.

Table 16. Percentage of Dollars of Arrears that are 151+ Days in Arrears by Zip Code and Income Tiers

	High Income	Medium Income	Low-Income
Jan 2023	3.7%	7.7%	12.6%
Jun 2023	1.8%	6.5%	10.0%
Sept 2023	1.4%	6.2%	11.7%
Jan 2024	2.7%	7.9%	11.3%
Jun 2024	1.2%	6.1%	10.0%
Sept 2024	1.0%	5.9%	10.7%

Q. WHAT DO YOU CONCLUDE BASED ON THE ABOVE DISCUSSION?

A. Usage reduction is a particularly effective mechanism to use to control expenses because arrears do not have to be reduced to $0 in order to achieve expense reductions. For example, with working capital, MAWC would experience a reduction in expenses by decreasing the level of arrears; by decreasing the percentage of either accounts or billings in arrears; or by accelerating payments. A $200 arrearage imposes fewer working capital costs than a $300 arrearage all other things equal. Moreover, a 90-day arrears will impose fewer working capital costs than a 150-day arrears all other things equal. It does

not matter whether the usage reduction can be attributed to water conservation investments, to weather, or to some other cause. The results are the same.

By implementing the proposed RSM to take into consideration the reduction in revenue, without also considering the corresponding reduction in expenses, MAWC is not making an accurate adjustment to maintain a stability in earnings. While reductions in expenses are allocated to all customers, reductions in revenues are disproportionately allocated to those customers left behind (with no opportunity to engage in conservation). Accordingly, low-income customers will bear the costs imposed by the RSM without being allowed the corresponding savings.

Q. WHAT DO YOU RECOMMEND?

A. I offer three alternative recommendations.

1. First, overall, I recommend that the RSM mechanism proposed by MAWC be denied. The RSM mechanism is inherently flawed in that it adjusts for changes in revenues without taking into account corresponding changes in expenses. Changes in revenues, standing alone, do not have an impact on earnings. Earnings are affected by the combined changes in expenses and revenue. Allowing an adjustment to revenues without taking into account the corresponding offsetting changes in expenses is inappropriate.
2. If the RSM mechanism is not disapproved in its entirety, residential customers taking service under the UAT discount should be exempted from the RSM. As Mr. Rea's own data shows, low-income customers are neither the customers with high usage nor the customers with substantial seasonal variation in their consumption. Accordingly, they do not cause the revenue

volatility Mr. Rea has identified and should not be responsible for paying for that volatility.

3. Finally, if the RSM mechanism is not disapproved in its entirety, and if MAWC customers are not exempted from the RSM, the recovery of RSM revenues from UAT participants should be subject to the same UAT discounts that are applied to all other UAT volumetric bills. Without applying the UAT discount to the RSM, MAWC would thus effectively take revenues billed to higher income customers and transfer those revenues to lower-income customers on an undiscounted basis.

Q. DOES THIS COMPLETE YOUR TESTIMONY?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Missouri-American Water Company's Request for Authority to Implement General Rate Increase for Water and Sewer Service Provided in Missouri Service Areas.	))))	**File Nos. WR-2024-0320, et al**

AFFIDAVIT OF ROGER D. COLTON

I, the undersigned, being duly sworn, states that my name is Roger D. Colton, and that the foregoing Direct Testimony of Roger D. Colton, including attachments, was prepared by me on behalf of the Consumers Council of Missouri. This testimony was prepared in written form for the purpose of its introduction into evidence in the above utility case at the Missouri Public Service Commission.

I hereby swear and affirm that the attached testimony is true and correct to my best knowledge, information, and belief, and I adopt said testimony as if it were given under oath in a formal hearing.

Roger D. Colton

Subscribed and sworn to me this 19th day of December, 2024.

/s/
Notary Public

My commission expires: _____

HAN LI
MY COMMISSION EXPIRES MAY 15, 2031
NOTARY PUBLIC COMMONWEALTH OF MASSACHUSETTS

Attachments

Attachment RDC-1: Summary Vitae
Roger Colton
Fisher, Sheehan & Colton
Public Finance and General Economics
Belmont, MA
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EDUCATION:

J.D. (Phi Kappa Phi, Order of the Coif), University of Florida (1981)

M.A. (Regulatory Economics), McGregor School, Antioch University (1993)

B.A. Iowa State University (1975) (journalism, political science, speech)

PROFESSIONAL EXPERIENCE:

Fisher, Sheehan and Colton, Public Finance and General Economics: 1985 – present.

As a co-founder of this economics consulting partnership, Colton provides services in a variety of areas, including: regulatory economics, poverty law and economics, public benefits, fair housing, community development, energy efficiency, utility law and economics (energy, telecommunications, water/sewer), government budgeting, and planning and zoning.

Colton has testified in state and federal courts in the United States and Canada, as well as before regulatory and legislative bodies in more than forty (40) states. He is particularly noted for creative program design and implementation within tight budget constraints.

PROFESSIONAL AFFILIATIONS:

Past Chair:	Belmont Zoning By-law Review Working Committee (climate change)
Member:	Board of Directors, Massachusetts Rivers Alliance
Columnist:	Belmont Citizen-Herald
Producer:	Belmont Media Center: BMC Podcast Network
Host:	Belmont Media Center: Belmont Journal
Member:	Belmont Town Meeting
Vice-chair:	Belmont Light General Manager Screening Committee
Past Chair:	Belmont Goes Solar
Coordinator:	BelmontBudget.org (Belmont's Community Budget Forum)
Coordinator:	Belmont Affordable Shelter Fund (BASF)
Past Chair:	Belmont Solar Initiative Oversight Committee
Past Member:	City of Detroit Blue Ribbon Panel on Water Affordability
Past Chair:	Belmont Energy Committee
Member:	Massachusetts Municipal Energy Group (Mass Municipal Association)

Past Chair: Housing Work Group, Belmont (MA) Comprehensive Planning Process
Past Chair: Board of Directors, Belmont Housing Trust, Inc.
Past Chair: Waverley Square Fire Station Re-use Study Committee (Belmont MA)
Past Member: Belmont (MA) Energy and Facilities Work Group
Past Member: Belmont (MA) Uplands Advisory Committee
Past Member: Advisory Board: Fair Housing Center of Greater Boston.
Past Chair: Fair Housing Committee, Town of Belmont (MA)
Past Member: Aggregation Advisory Committee, New York State Energy Research and Development Authority.
Past Member: Board of Directors, Vermont Energy Investment Corporation.
Past Member: Board of Directors, National Fuel Funds Network
Past Member: Board of Directors, Affordable Comfort, Inc.
Past Member: National Advisory Committee, U.S. Department of Health and Human Services, Administration for Children and Families, Performance Goals for Low-Income Home Energy Assistance.
Past Member: Editorial Advisory Board, International Library, *Public Utility Law Anthology*.
Past Member: ASHRAE Guidelines Committee, GPC-8, *Energy Cost Allocation of Comfort HVAC Systems for Multiple Occupancy Buildings*
Past Member: National Advisory Committee, U.S. Department of Housing and Urban Development, Calculation of Utility Allowances for Public Housing.
Past Member: National Advisory Board: Energy Financing Alternatives for Subsidized Housing, New York State Energy Research and Development Authority.

PROFESSIONAL ASSOCIATIONS:

National Association of Housing and Redevelopment Officials (NAHRO)
National Society of Newspaper Columnists (NSNC)
Association for Enterprise Opportunity (AEO)
Iowa State Bar Association
Energy Bar Association
Association for Institutional Thought (AFIT)
Association for Evolutionary Economics (AEE)
Society for the Study of Social Problems (SSSO)
Association for Social Economics

BOOKS

Colton, *et al.,* ***Access to Utility Service***, National Consumer Law Center: Boston (4th edition 2008).

Colton, *et al.*, ***Tenants' Rights to Utility Service***, National Consumer Law Center: Boston (1994).

Colton, ***The Regulation of Rural Electric Cooperatives***, National Consumer Law Center: Boston (1992).

BOOK CHAPTERS

Colton (2018). The equities of efficiency: distributing energy usage reduction dollars, Chapter in Energy Justice: US and International Perspectives (Edited by Raya Salter, Carmen Gonzalez and Elizabeth Ann Kronk Warner), Edward Elgar Publishing (London, England).

JOURNAL PUBLICATIONS

Publications in industry and academic journals, primarily involving utility regulation and affordable housing. (list available upon request)

TECHNICAL REPORTS

200+ technical reports for public-sector and private-sector clients (list available upon request)

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