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Rate Design
Marke/Direct
Public Counsel
WR-2020-0344

RATE DESIGN DIRECT TESTIMONY

OF

GEOFF MARKE

Submitted on Behalf of the Office of the Public Counsel

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2020-0344

December 9, 2020

**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) Case No. WR-2020-0344
Increase for Water and Sewer Service)
Provided in Missouri Service Areas)

VERIFICATION OF GEOFF MARKE

Geoff Marke, under penalty of perjury, states:

1. Attached hereto and made a part hereof for all purposes is my rate design direct testimony in the above-captioned case.

2. My answer to each question in the attached rate design direct testimony is true and correct to the best of my knowledge, information, and belief.

/s/Geoff Marke
Geoff Marke
Chief Economist
Office of the Public Counsel

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DIRECT TESTIMONY
OF
GEOFF MARKE
MISSOURI-AMERICAN WATER COMPANY
CASE NOS. WR-2020-0344 & SR-2020-0345

1 **I. INTRODUCTION**

2 **Q. Please state your name, title and business address.**

3 A. Geoff Marke, PhD, Chief Economist, Office of the Public Counsel (OPC or Public Counsel),
4 P.O. Box 2230, Jefferson City, Missouri 65102.

5 **Q. Are you the same Dr. Marke that filed direct testimony revenue requirement in WR-**
6 **2020-0344?**

7 A. I am.

8 **Q. What is the purpose of your direct testimony?**

9 The purpose of my testimony is to articulate my position on the issue of single-tariff pricing of
10 the Missouri American Water Company's ("MAWC") water districts.

11 **Q. What is your position on single-tariff pricing?**

12 A. I oppose single-tariff pricing. In previous cases, Public Counsel has argued for flexibility from
13 strict district pricing when reasonably necessary based on considerations of all relevant factors.
14 In MAWC's last rate case (WR-2017-0285), I took the position that further movement towards
15 consolidated pricing was not warranted. I based my conclusion on the following
16 considerations:

- 17 • Water service is local;
- 18 • The principles of cost causation in rate making;
- 19 • Inappropriate price signals; and
- 20 • The potential for overinvestment, or "gold-plating" of future capital.

21 I recommend that the Commission return to a zonal pricing scheme similar to what was in
22 place from 2015 to 2017 and strongly oppose further consolidation of St. Louis County. Any
23 additional water acquisition since the last rate case should be consolidated either in the Joplin

1 or St. Joseph system based on proximity to the nearest adjacent system (e.g., anything north
2 and including Jefferson City in St. Joseph and anything south of Jefferson City in the system).
3 Although far from ideal, this would allow for a reasonable sharing of costs that reflect
4 operations expenses and much more accurately characterize cost causative capital
5 expenditures. Finally, I strongly recommend that any water system with an infrastructure
6 system replacement surcharge (ISRS) remain separate from non-ISRS water systems.

7 **II. WATER SERVICE IS LOCAL**

8 **Q. Is it accurate to compare water systems to electric and gas?**

9 A. No, water systems differ considerably from electric and gas. The reason for this is that water
10 is extremely heavy and costly to transport, precluding the physical interconnection that could
11 lead to system consolidation and greater economies of scale that are seen in both electric and
12 gas. Unlike other public utilities, most water in the United States is supplied by publicly owned
13 and operated waterworks. In fact, roughly 84% of the community water and 98% of the
14 community wastewater systems are government-owned.¹ Because of the predominately local
15 feature of water, it is estimated that there are more water systems in the United States than
16 there are schools. In 2011, there were more than 152,000 water systems in service across the
17 country—more than all elementary, middle, high schools and post-secondary institutions
18 combined.² Although there are many factors that have been suggested as to why water and
19 wastewater systems remained publicly owned and operated as other natural monopolies
20 overwhelmingly were privatized in the late-19th and early-20th centuries, the local, physical
21 (and political) nature of the service and system itself remains a stark contrast to electric and
22 gas.³

¹ American Water Works Company, Inc. Form 10-K. p. 7 <https://sec.report/Document/0001410636-20-000040/>

² Kearney, M. et al. (2014). In times of drought: Nine economic facts about water in the United States. *The Hamilton Project: The Brookings Institute* p. 14
http://www.hamiltonproject.org/assets/files/nine_economic_facts_about_us_water.pdf

³ Masten, S (2004) Public Utility Ownership in 19th-Century America: The “Aberrant” Case of Water. *Journal of Law, Economics, and Organization* .Vol. 27, 3 p. 604-654. <http://jleo.oxfordjournals.org/content/27/3/604.abstract>

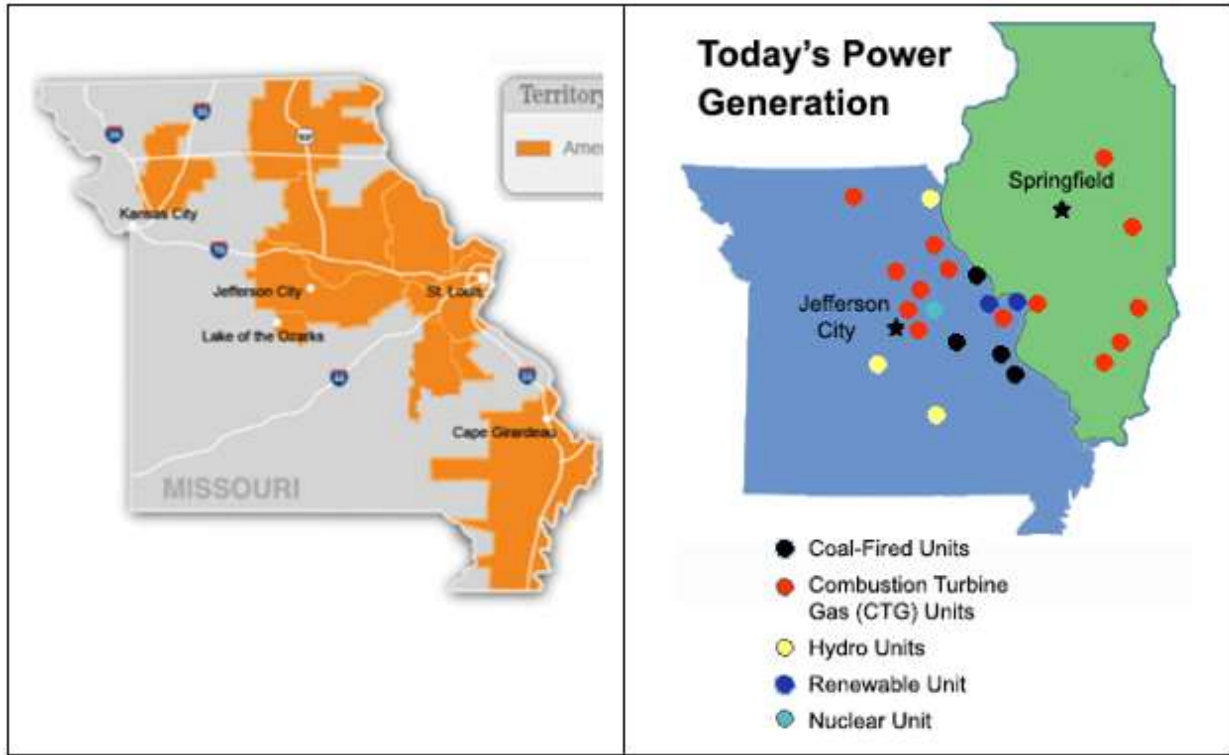
1 Comparisons between water systems and the interconnected electric grid⁴ or the U.S. natural
2 gas pipeline network do not reflect the operating market or the engineering realities of the
3 systems in which they provide service. This can be seen, in part, by the absence of any
4 comparable federal regulatory body over the water industry as well. For example, the Federal
5 Energy Regulatory Commission (FERC) is entrusted, in part, with jurisdiction of interstate
6 electricity sales and natural gas pricing and the Federal Communications Commission (FCC)
7 regulates interstate telecommunication. All three industries (electric, gas and
8 telecommunications) operate in a manner that necessitates additional federal economic
9 oversight in these natural monopoly operations. On the other hand, no federal agency exerts
10 economic regulatory policy over the water industry. The large number of water providers, the
11 local source of the water supply, and the dominance of public ownership distinguish the water
12 industry in fundamental ways. Water is local, and the cost in providing this service, and
13 consequently its usage, varies considerably based on location.

14 **Q. Why does the cost to provide water service vary depending on location?**

15 A. Variations between districts (or zones) are based in part on the accessibility and availability of
16 those sources of local water. Location matters in the water utility cost of service, for both the
17 quality of the product and for the availability of the resource in a manner that is not comparable
18 to electric or gas operations. For example, an Ameren Missouri customer in Jefferson City is
19 not dependent on the availability, treatment and distribution of Jefferson City fuel or generation
20 to power their lights. Figure 1 illustrates this by contrasting the Ameren Missouri's service
21 footprint with the location of Ameren Power Generation.

⁴ Actually three separate grids under the North American Electric Reliability Corporation: Eastern Interconnection, Western Interconnection and the Electricity Reliability Council of Texas Interconnection

1 Figure 1: Comparison of Ameren Missouri's service territory with the location of its power
2 generation^{5,6}

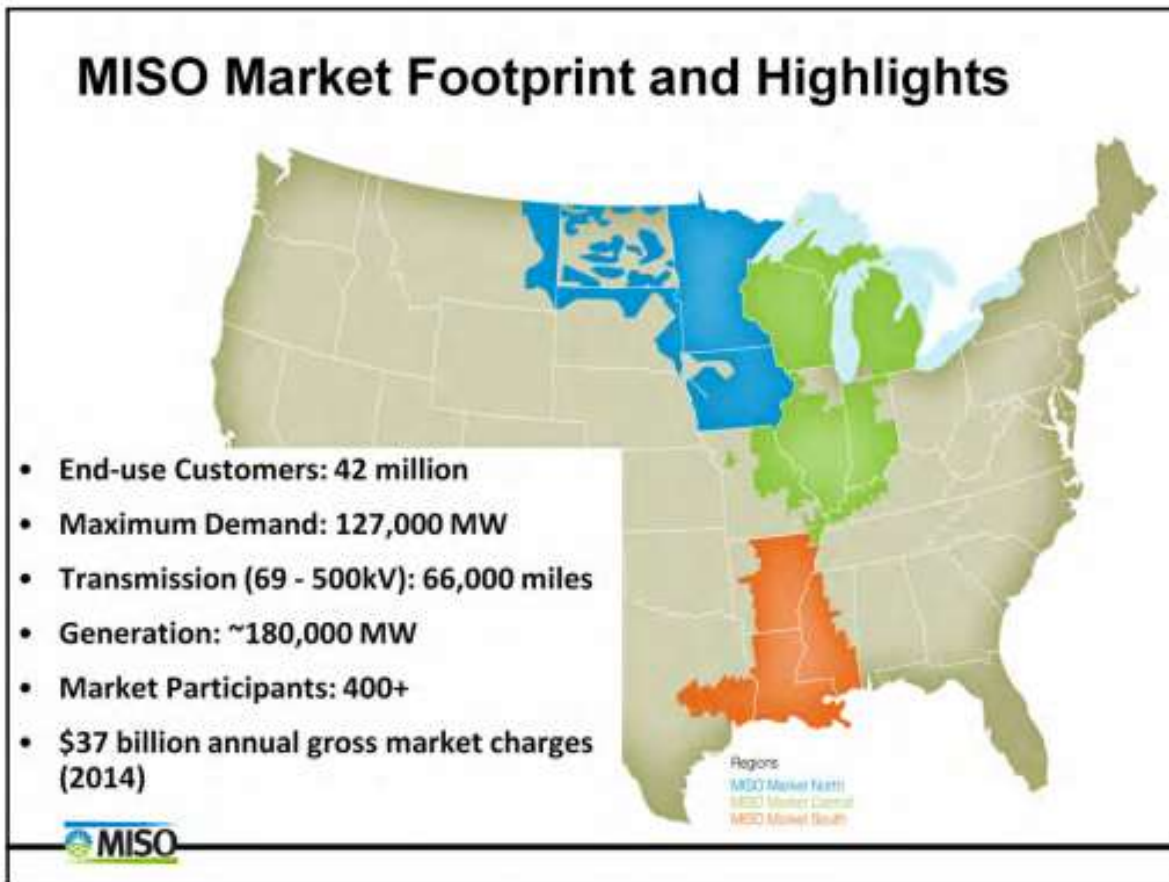


3
4 Even then, Figure 1 is not illustrative of the regional interconnection available through the
5 Midcontinent Independent System Operator (MISO), which acts as a marketplace operator
6 for wholesale power throughout the entire footprint seen in Figure 2.

⁵ Ameren Missouri (2020) Ameren Missouri Service Territory <https://www.ameren.com/missouri/company/about-ameren/service-territory>

⁶ Ameren Missouri (2016) Today's Power Generation. <https://www.ameren.com/missouri/my-business/uew/todays-generation> qtd from WR-2017-0285. Direct Testimony of Geoff Marke p. 4, 1-13.

1 Figure 2: MISO's Electric Power Market Footprint^{7 8}



2

3 In reality, Ameren Missouri customers have system-wide benefits as well as increased costs

4 that come with the electric grid and the MISO membership. This means that the generation

5 unit powering a customer's lights in Jefferson City may come from any power generating

6 plant within the MISO footprint. The same cannot be said for MAWC customers. Treating

7 MAWC customers as if they function under the same market conditions or have the same

8 resource flexibility as Ameren Missouri customers runs counter to the manner MAWC

9 actually operates.

⁷ Matlock, R. (2015) MISO Overview. <https://www.pca.state.mn.us/sites/default/files/aq-rule2-20u.pdf>

⁸ MISO's footprint extends into the province of Manitoba, Canada.

1 **Q. Are the present water zones of MAWC interconnected or at least close to one another?**

2 A. No. There are two tariffs. The first consists of an independent distribution and treatment plants
3 systems throughout the State of Missouri and then there is St. Louis County. Moving to single-
4 tariff pricing only further minimizes the cost causative principles utilized in setting rates. For
5 example, there are more than 260.9 miles between St Joseph and St. Louis or 300 miles by car.
6 This distance means that any improvement made to plant on one discrete system does not
7 produce a tangible service benefit to any other MAWC ratepayer on a different system. Instead,
8 the costs would be spread throughout all customers regardless of whether those customers
9 caused the costs incurred for the improvement. Thus, consolidating water rate tariffs is counter
10 to the ratemaking principles of cost causation, and can lead to over investment or “gold
11 plating”.

12 **III. THE PRINCIPLES OF COST CAUSATION IN RATE MAKING**

13 **Q. Please explain the principle of cost causation?**

14 A. Cost causation suggests that the cost causers pay the cost they impose on the utility system.
15 Employing cost causation into ratemaking is what is known as cost-based rates. Cost-based
16 rates are designed to prevent unjust or undue discrimination between rate classes or customers.
17 Because single tariff pricing merges non-contiguous systems the cost-causation principle is
18 diminished, if not entirely abandoned. Under a single tariff pricing design, the approved rates
19 do not accurately reflect the costs caused by the customer who would pay them. The disconnect
20 between cost-causation principles and MAWC’s approach to consolidate rate tariffs is shown
21 in how MAWC has historically explained its “rates” to customers through the Company’s
22 website.

23 Two rate cases ago (Case No: WR-2015-0301), the Company’s Rates Information page stated
24 the following:

1 Missouri American Water rates are based on the true cost of providing water service to
2 our customers. Rates vary based on the cost of providing service in each of the
3 communities we serve.⁹

4 This cost-causative position was abandoned and replaced in the last rate case with a website
5 titled *Water Rates Q&A: What you need to know* which now states:

6 IS THE REQUEST THE SAME FOR ALL OPERATIONS IN THE STATE?

- 7 • Yes. We believe all customers in the state in the same rate category should
8 receive the same service and pay the same rates. This is common in both gas
9 and electric industries.
- 10 • This creates economies of scale, meaning that investment costs can be spread
11 among a large group of customers, minimizing rate shock.¹⁰

12 Curiously, after the Commission approved further consolidation of its Missouri territory the
13 Company switched its website back again to emphasize a cost-causative position. MAWC's
14 "Your Water and Sewer Rates" now currently reads:

15 Water and Sewer rates are regulated by the Missouri Public Service Commission.
16 These rates are based on the actual costs of water treatment and delivery, and sewer
17 collection and treatment. . . .

18 Rates can vary based on the cost of providing service in each of the communities we
19 serve. Before it reaches your home or business, water is treated through an intricate
20 treating and testing process to help ensure it meets or surpasses rigorous drinking water
21 quality standards.¹¹

22 To be clear, MAWC's information that it conveys to the public is at odds with its proposed
23 pricing scheme.

⁹ WR-2015-0301. Direct Testimony of Geoff Marke p. 15, 3-6.

¹⁰ WR-2017-0285. Direct Testimony of Geoff Marke p. 7, 3-8.

¹¹ Missouri American Water (2020) Your Water & Sewer Rates. <https://www.amwater.com/moaw/Customer-Service-Billing/Your-Water-and-Sewer-Rates/>

1 **Q. Does single-tariff pricing minimize rate shock?**

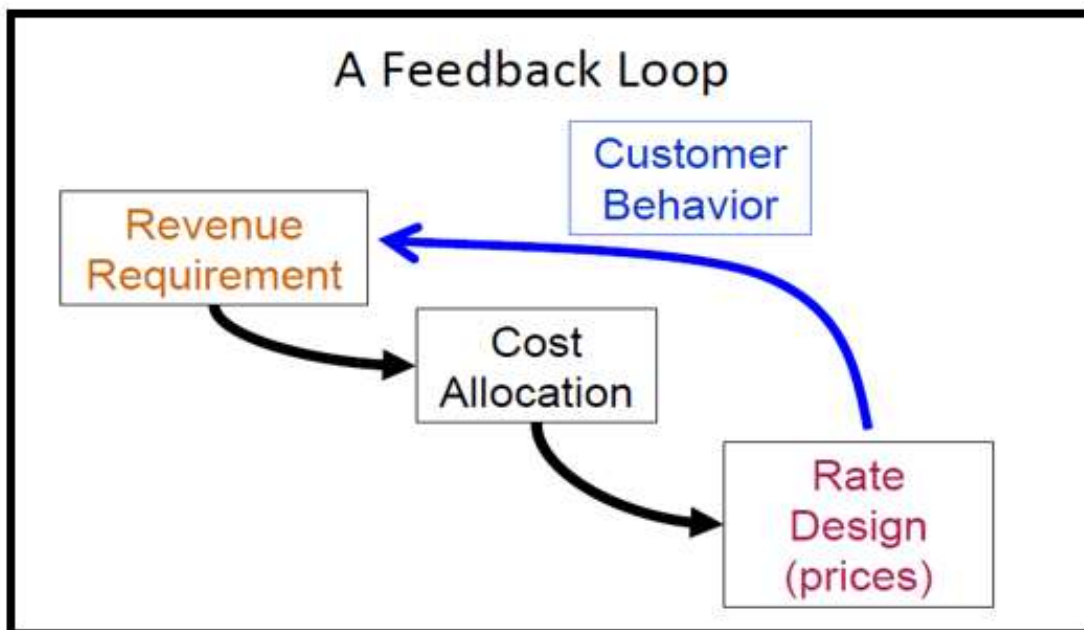
2 A. It can. However, single-tariff pricing is a pricing response, not a costing response to providing
3 service. As such, its adoption will send an inappropriate price signal and not reflect the true (or
4 even remotely accurate) cost of providing service. Abandonment of the cost causation
5 principle will produce unintended consequences in both the near and long-term and would
6 likely have larger implications outside of this rate case.

7 **IV. INAPPROPRIATE PRICE SIGNALS**

8 **Q. Please explain how it is an inappropriate price signal to ratepayers.**

9 A. Ratepayers respond to prices. Therefore, how rates are designed impacts ratepayer behavior
10 and future outcomes. For example, we know we can expect a different response to a high
11 customer charge and a low volumetric charge than from a low customer charge and a high
12 volumetric charge, even if the two produce equal revenues in the short run. In the long run, the
13 design that is chosen will direct future costs because the price signal functions as a feedback
14 loop designed to influence customer behavior. This is illustrated in figure 3:

15 Figure 3: Feedback loop of rate design price signals



16

1 Single-tariff pricing minimizes the cost allocation component by averaging out the allocation
2 of costs of service from each district to all ratepayers. Consumers in low-cost districts are
3 required to purchase water at prices that exceed the real cost of their consumption. Single-tariff
4 pricing, therefore, represents a “tax” which discriminates against systems that control their
5 costs and favor those that do not. Thus, a movement towards single-tariff pricing increases
6 consumption in high cost service areas and lowers consumption in the low cost service areas.
7 This is economically inefficient, potentially discriminatory, and an inconsistent policy position
8 based on how the Commission and the State has valued natural resources.

9 **Q. Is the cost of service the same between customers within a given zone today?**

10 A. No. Today, I receive my water from a MAWC distribution system located in Jefferson City,
11 pumped by a water treatment plant several miles from my house with water taken from the
12 Missouri River. The cost of my service however is borne, in part, by the customers in Joplin
13 and St. Joseph (both more than two hundred miles away in opposite directions) who have not
14 “caused” any of the aforementioned “costs” in providing my water service and who receive
15 their water from a different distribution system, different water treatment plants and different
16 water sources. Ratepayers in the Joplin and St. Joseph cause entirely different costs to provide
17 safe and adequate water service undermining the cost causative principle even more.

18 **Q. Is the cost of service the same between customers within a given distribution system?**

19 A. No. Roughly speaking, there will be variations among customers in any given locale. For
20 example, a MAWC customer on top of a large hill far away from a water treatment plant would
21 most likely require greater costs to provide service than a customer at the bottom of a hill close
22 to a water treatment plant. There is an even greater difference between the costs caused by
23 customers on the same distribution system relative to the costs difference between customers
24 are in completely separate distribution systems.

25 Stated differently, the underlying cost causative similarities are stronger when examining
26 ratepayers located in different parts of Jefferson City than they are when comparing Jefferson
27 City ratepayers to Joplin ratepayers (same zone), or Joplin to St. Louis County ratepayers

1 (different zones). A movement to a single tariff price would effectively constitute a dramatic
2 departure from cost causative principles.

3 **V. OVERINVESTMENT OF FUTURE CAPITAL**

4 **Q. Can a single-tariff pricing design lead to overinvestment of infrastructure?**

5 A. Yes, this phenomenon, known as the Averch-Johnson and Wellisz (A-J-W) effect, or what is
6 colloquially known as “gold plating,” reflects a utility’s tendency to expand its rate base,
7 regardless of the optimal level of capital investment. MAWC’s objective for shareholders is to
8 maximize profits, which occurs by maximizing capital investments and the associated return.
9 The Commission’s objective is to ensure the private sector provides safe, clean water at the
10 lowest cost to customers while permitting utilities to earn a fair return on their shareholder’s
11 investment. In satisfying their obligation to customers and shareholders, MAWC then has an
12 incentive to invest in capital improvements rather than O&M expenses, even if a capital
13 improvement represents a sub-optimal solution as compared to non-capital production factors.
14 Unlike O&M expenses, capital expenditures provide a rate of return to their shareholders when
15 ultimately included in rate base—this bias towards capital investment can lead to “gold
16 plating” of water systems. A single-tariff rate design enables this behavior.

17 **Q. Please explain how overinvestment can occur in capital improvements?**

18 A. Staff spoke at length on this issue in its Reply Brief from SW-2011-0103, which was replying
19 to Aqua Missouri (a former IOU operating in Missouri):

20 Aqua Missouri argues that Staff’s concerns regarding overinvestment are
21 overblown in light of the fact that the vast majority of Aqua’s [sic] Missouri’s
22 capital improvements are tied to environmental compliance mandates.
23 Assuming that such environmental compliance measures are mandated by
24 state and/or federal authorities, **Staff would argue that single-tariff pricing**
25 **is not necessary to facilitate these mandatory improvements.** Staff is
26 unaware of, and would be shocked to encounter, any situation in the past

1 where Aqua Missouri has not had sufficient capital necessary to meet
2 environmental compliance requirements (emphasis added).¹²

3 The Staff Reply Brief then addresses Aqua Missouri’s claim that any prudency issue could be
4 addressed in a general rate proceeding where capital investments could be reviewed and
5 challenged. Again, Staff states:

6 While technically true, proving that a company acted in an imprudent manner
7 regarding system overinvestment is a very difficult proposition. As pointed
8 out by Aqua Missouri, much of the investment that is made by the water and
9 sewer industries is closely related to environmental compliance. However, not
10 all investments made to meet environmental compliance mandates are
11 necessarily prudent or cost-effective. Environmental compliance mandates
12 (i.e. environmental regulations) focus largely on ends, as opposed to means.
13 In other words, these regulations generally dictate the results that must be
14 reached, not the methods that must be employed in reaching them. Engineers
15 often differ on what is technically appropriate and/or cost-effective solution to
16 an environmental compliance problem, i.e., the means necessary to meet the
17 required end. **A company that does not have a focus upon the localized**
18 **financial impacts of its decisions will have less incentive to keep costs,**
19 **environmental or otherwise, at a minimum.** Staff and other parties will have
20 the difficult task of proving that although some investment was necessary, the
21 specific undertaken was excessive, imprudent, or not cost-effective. Staff
22 would point out that as a practical consideration, most environmental
23 compliance measures are undertaken at the direction of the Missouri
24 Department of Natural Resources (“DNR”). Once DNR determines that

¹² SW-2011-0103. (1/12/2011) Reply Brief of the Staff of the Missouri Public Service Commission Item No. 283. In the Matter of the Review of Economic, Legal and Policy Considerations of District-Specific Pricing and Single-Tariff Pricing. p. 3-4.

1 system upgrades are necessary, DNR approves a company's proposed
2 compliance plans. **In Staff's opinion, these approvals are largely based**
3 **upon the technical feasibility of the proposed solutions and do not focus**
4 **upon the bottom line impact of these decisions on ratepayers.** Staff is not
5 involved in the compliance plan approval process and, therefore, often does
6 not have the practical ability to voice technical or economic opposition at the
7 time such decisions are made. As a result, Staff is left to argue that an
8 investment decision was imprudent, after having been approved by another
9 state agency. This is a very difficult task (emphasis added).¹³

10 I believe it is important to encourage proper investment, not overinvestment. By diminishing
11 the price signal of any given investment, ratepayers are exposed to an increased risk of
12 overpaying for systems they do not need.

13 **Q. Do you have any further comments to make on this topic?**

14 A. Yes. Speaking to the importance of maintaining separation between ISRS and non-ISRS
15 related systems, the Commission's Report and Order from Case No: WR-2017-0285 stated
16 that:

17 St. Louis County's unique circumstance makes it inappropriate to consolidate all
18 three water districts at this time. St. Louis County is subject to the ISRS, which is a
19 surcharge not recovered from other customers of MAWC, which can increase a
20 customer's bill by as much as ten percent of the Company-wide revenues.¹⁴

21 Nothing has changed about that fact since MAWC's last rate case. St. Louis County customers
22 continue to pay for their service that they cause. It would be categorically unjust and
23 unreasonable to make St. Louis County shoulder any other distribution systems costs when no
24 other system shares in St. Louis County's ISRS costs, and vice-versa.

¹³ Ibid. p. 4-5.

¹⁴ Case No. WR-2017-0285 Report and Order p. 30.

1 **Q. Does this conclude your testimony?**

2 A. Yes.