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Marke/Direct

Public Counsel

WR-2017-0285

DIRECT TESTIMONY

OF

GEOFF MARKE

Submitted on Behalf of
The Office of the Public Counsel

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2017-0285

**

**

Denotes Confidential Information
that has been redacted

December 13, 2017

PUBLIC VERSION

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OF
GEOFF MARKE
MISSOURI-AMERICAN WATER COMPANY
CASE NO. WR-2017-0285

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 **2017-0285?**

7 A. I am.

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

9 A. The purpose of my testimony is to articulate OPC's position on the issue of single-tariff
10 pricing of the Missouri American Water Company's ("MAWC") water districts and cost
11 allocation considerations associated with lead service line replacement.

12 OPC will respond to the Company's specific requests, including the decoupling mechanism
13 and proposed changes in the commercial and industrial classes in rebuttal testimony.

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

15 A. OPC opposes single-tariff pricing. In previous cases, Public Counsel has argued for
16 flexibility from strict district pricing when reasonably necessary based on considerations of
17 all relevant factors. In MAWC's last rate case (WR-2015-0301), OPC took the position that
18 further movement towards consolidated pricing was not warranted. That conclusion was
19 based on the following considerations:

- 1 • Water service is local;
- 2 • The principles of cost causation in rate making;
- 3 • Inappropriate price signals; and
- 4 • The potential for overinvestment, or “gold-plating” of future capital.

5 OPC presently supports the current zonal pricing and opposes single-tariff pricing.

6 **Q. What is your position on the cost allocation of lead service line replacement?**

7 A. OPC believes that the present recovery of customer-side lead service lines is unlawful.

8 **II. WATER SERVICE IS LOCAL**

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

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

¹ American Water Works Company, Inc. Form 10-K. p. 10
<http://ir.amwater.com/Cache/29123208.PDF?Y=&O=PDF&D=&FID=27943982&T=&OSID=9&IID=4004387>

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

1 (and political) nature of the service and system itself remains a stark contrast to electric and
2 gas.³

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

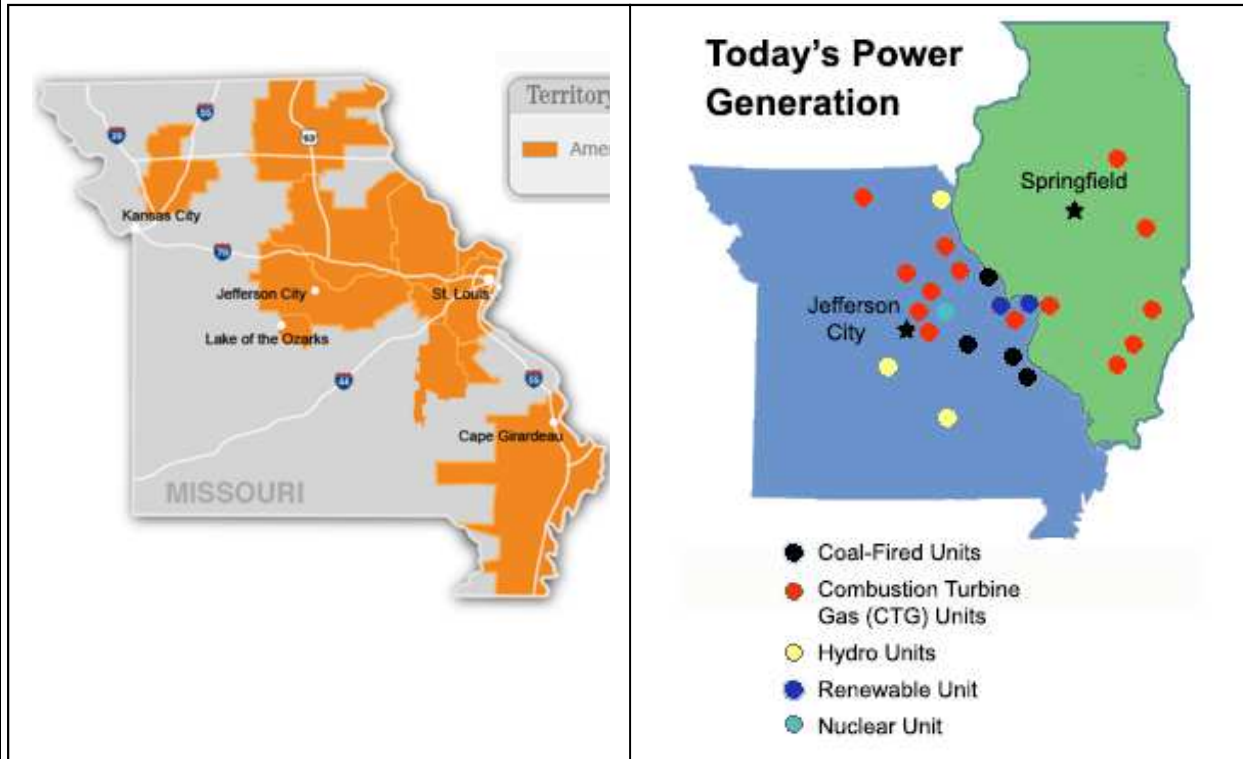
16 **Q. Please continue.**

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

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>

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}

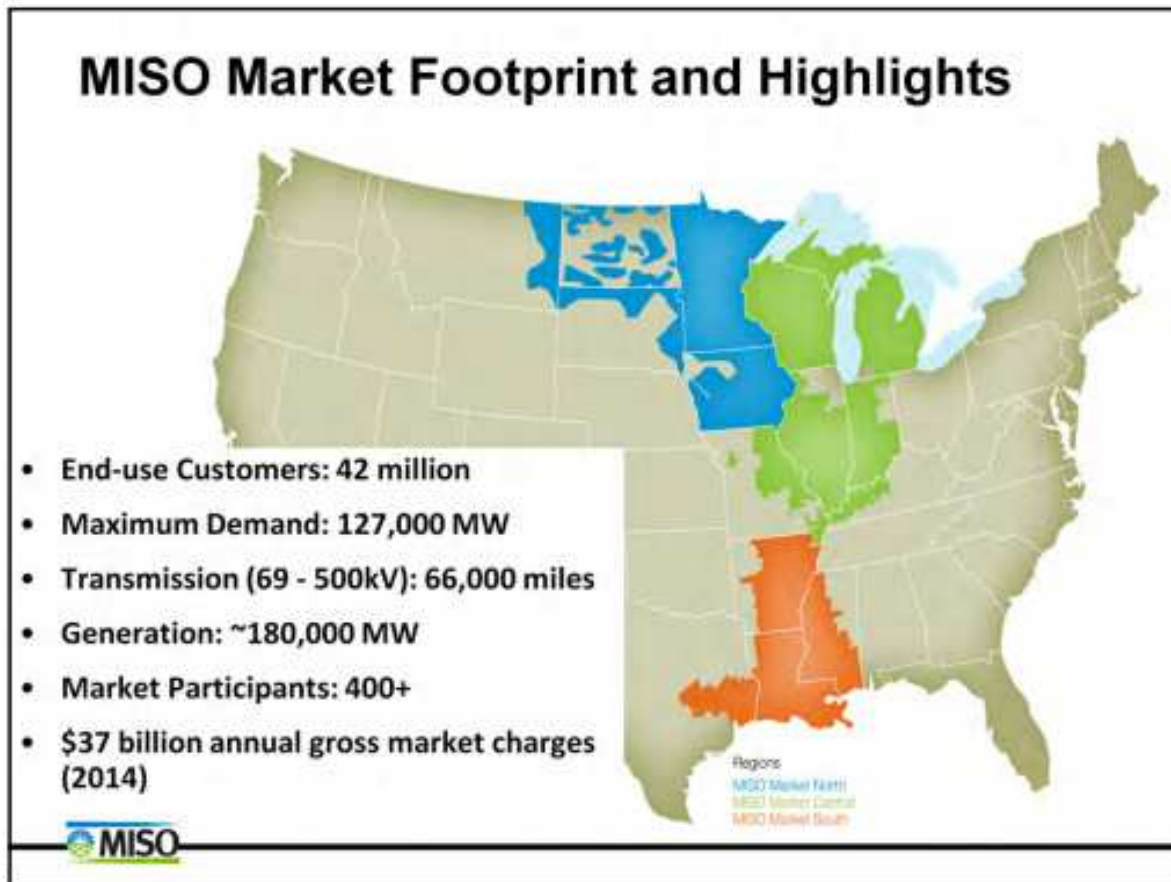


14 Even then, Figure 1 is not illustrative of the regional interconnection available through the
15 Midcontinent Independent System Operator (MISO), which acts as a marketplace operator
16 for wholesale power throughout the entire footprint seen in Figure 2.

⁵ Ameren Missouri (2016) Work with Economic Development <https://www.ameren.com/business-partners/ec-dev/work-with-us>

⁶ Ameren Missouri (2016) Today's Power Generation. <https://www.ameren.com/missouri/my-business/uew/todays-generation>

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

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

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

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

7 customers. Treating MAWC customers as if they function under the same market

8 conditions or have the same resource flexibility as Ameren Missouri customers runs

9 counter to the manner MAWC 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. Nor are they connected within the present zones. Moving to single-tariff pricing would
3 only serve to further minimize the cost causative principles utilized in setting rates. For
4 example, there is more than 260.9 miles between St Joseph and St. Louis or 300 miles by
5 car.⁹ The result is that any improvement made to plant on one discrete system does not
6 produce a tangible service benefit to any other MAWC ratepayer on a different system.

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

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

9 A. Cost causation suggests that the cost causer pays the cost it imposed on the utility system.
10 This is what is known as cost-based rates, which are designed to prevent unjust or undue
11 discrimination between rate classes or customers. Because single tariff pricing merges non-
12 contiguous systems the cost-causation principle is diminished, if not entirely abandoned.
13 Under a single tariff pricing design the approved rates would not accurately reflect the costs
14 caused by the customer who would pay them. The emphasis on “costs” in this argument is
15 usually confined to large capital investment costs that service only the local system and not
16 common costs such as billing. This argument can be seen in how MAWC has explained its
17 “rates” to customers through the Company’s website.

18 In MAWC’s last rate case (WR-2015-0301), the Company’s Rates Information page stated
19 the following:

20 Missouri American Water rates are based on the true cost of providing water service
21 to our customers. Rates vary based on the cost of providing service in each of the
22 communities we serve.¹⁰

⁹ Distance between cities (2017) Distance from Saint Louis, MO to Saint Joseph, MO. <https://www.distance-cities.com/distance-saint-louis-mo-to-saint-joseph-mo>

¹⁰ WR-2015-0301. Direct Testimony of Geoff Marke p. 15, 3-6.

1 This cost-causative position has been abandoned and replaced with a new website titled
2 *Water Rates Q&A: What you need to know* which now states:

3 **IS THE REQUEST THE SAME FOR ALL OPERATIONS IN THE STATE?**

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

9 **Q. Are gas and electric industries comparable to water?**

10 A. No. For reasons that have already been articulated.

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

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

17 **IV. INAPPROPRIATE PRICE SIGNALS**

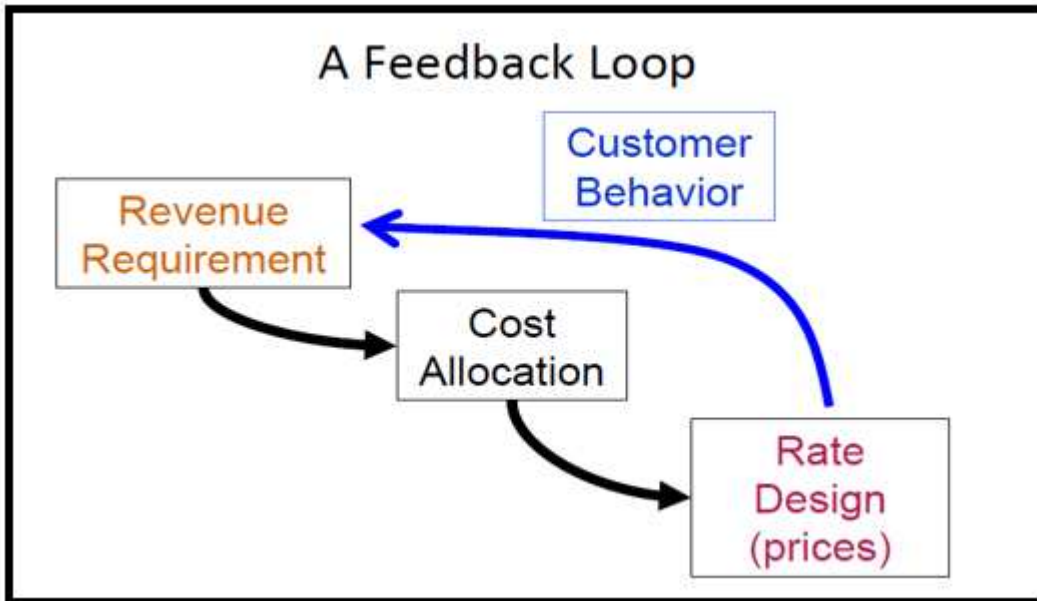
18 **Q. Please explain how it is an inappropriate price signal to ratepayers.**

19 A. Ratepayers respond to prices. Therefore, how rates are designed will impact ratepayer
20 behavior and future outcomes. For example, we know we can expect a different response to a
21 high customer charge and a low volumetric charge than from a low customer charge and a
22 high volumetric charge, even if the two are designed to produce equal revenues in the short
23 run. In the long run, the design that is chosen will direct future costs because the price signal

¹¹ Missouri American Water (2017) Customer Q&A. <https://amwater.com/moaw/customer-service-billing-your-water-rates-customer-q-a>

1 functions as a feedback loop designed to influence customer behavior. This is illustrated in
2 figure 3:

3 Figure 3: Feedback loop of rate design price signals



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

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

15 A. No. Today, I receive my water from a distribution system located in Jefferson City, pumped
16 by a water treatment plant several miles from my house with water taken from the Missouri

1 River. The cost of my service however is borne, in part, by the customers in St. Louis and St.
2 Charles County who have not “caused” any of the aforementioned “costs” in providing my
3 water service and who receive their water from a different distribution system, water
4 treatment plant and potentially different water source (St. Louis ratepayers water source
5 includes both the Missouri and Meramec rivers). Ratepayers in the Joplin and St. Joseph
6 zones cause entirely different costs to provide safe and adequate water service undermining
7 the cost causative principle even more.

8 **Q. Is the cost of service the same between customers within a district in a given zone?**

9 A. No. Roughly speaking, there will be variations among customers in any given locale. For
10 example, a MAWC customer on top of a large hill far away from a water treatment plant
11 would most likely require greater costs to provide service than a customer at the bottom of a
12 hill close to a water treatment plant.

13 **Q. Are the inequities of the cost of service for ratepayers in separate districts or zones**
14 **comparable to the inequities of the cost of service for ratepayers in the same district?**

15 A. No. Clearly, the costs of a separate water treatment plant, distribution system and water
16 source would be more expensive than the cost difference of providing service to customers in
17 the same district. Stated differently, the underlying cost causative similarities are stronger
18 when examining ratepayers located in different parts of Jefferson City than they are when
19 comparing Jefferson City ratepayers to St. Louis ratepayers (same zone), let alone with Joplin
20 or St. Joseph ratepayers (different zones). A movement to single tariff pricing would
21 effectively constitute a dramatic departure from cost causative principles.

22 **V. OVERINVESTMENT OF FUTURE CAPITAL**

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

24 A. Yes, this phenomenon, known as the Averch-Johnson and Willisz (A-J-W) effect, or what is
25 colloquially known as “gold plating,” reflects a utility’s tendency to expand its rate base,
26 regardless of the optimal level of capital investment. MAWC’s objective for shareholders is to

1 maximize profits, which occurs by maximizing capital investments and the associated return.
2 The Commission’s objective is to ensure the private sector provides safe, clean water at the
3 lowest cost to the users and the state while permitting utilities to earn a fair return on their
4 shareholder’s investment. In satisfying their obligation to provide safe and reliable service to
5 their ratepayers, MAWC has an incentive to invest in capital improvements rather than O&M
6 expenses, even if a capital improvement represents a sub-optimal solution as compared to non-
7 capital production factors. Unlike O&M expenses, capital expenditures provide a rate of return
8 to their shareholders when ultimately included in rate base—this bias towards capital
9 investment can lead to “gold plating” of water systems. A single-tariff rate design enables this
10 behavior.

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

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

14 Aqua Missouri argues that Staff’s concerns regarding overinvestment are
15 overblown in light of the fact that the vast majority of Aqua’s [sic] Missouri’s
16 capital improvements are tied to environmental compliance mandates.
17 Assuming that such environmental compliance measures are mandated by
18 state and/or federal authorities, **Staff would argue that single-tariff pricing**
19 **is not necessary to facilitate these mandatory improvements**. Staff is
20 unaware of, and would be shocked to encounter, any situation in the past
21 where Aqua Missouri has not had sufficient capital necessary to meet
22 environmental compliance requirements (emphasis added).¹²

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

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

1 Table 1: Difference in 5-year Capital Investment Plan filed on 1-24-2017 with Aiton Direct

2 Testimony filed May 1, 2017 **

3

4 **

5 **Q. Did the Company's filed five-year capital investment plan alleviate OPC's concern**
6 **about overinvestment?**

7 A. No. Based on the huge discrepancies in a five months it appears as though the filing
8 requirement was merely a regulatory formality on the Company's part. The large difference
9 between the two plans is disconcerting and raises many questions that will no doubt be
10 explored in this rate case. The concern regarding potential overinvestment and the Company's
11 ability to mute those price signals has not been alleviated.

1 **VI. COST ALLOCATION OF LEAD SERVICE LINE REPLACEMENT**

2 **Q. What is OPC's position on lead service line replacement?**

3 A. OPC's believes the current practice is unlawful. My direct testimony revenue requirement,
4 as well as the attachments to that testimony which include my filed testimony in the WU-
5 2017-0296, speak to the many concerns and still unanswered questions that surround this
6 issue. We are presently evaluating what the appropriate next steps should be for our Office.

7 **Q. Could you please provide some context for the total cost that could be at issue?**

8 A. Yes. In my rebuttal testimony in WU-2017-0296 I spoke at length to the only two cited
9 numbers/sources provided by the Company which includes an in-house estimate based on
10 historical tap records by the Company and the American Water Works Association 2016
11 study. To be clear, OPC believes these are numbers are best guesses. The actual number of
12 lead service lines would likely have a very large margin of error. The lead service line costs
13 and numbers have been updated based on MAWC's live testimony; specifically, an
14 amendment to the "high" average estimate to \$6,000. Table 2 includes those figures as well
15 as the rate request in this case.

1 Table 2: Projected Lead Service Line Replacement Costs in WU-2017-0296 and Rate Increase

2 Request in WR-2017-0259

Category WU-2017-0296	# of service lines	MAWC low/high Estimated Cost	Total Cost
MAWC territory estimate	30,000 ¹⁴	\$3,000 per unit	\$90,000,000
MAWC territory estimate	30,000	\$6,000 per unit	\$180,000,000
AWWA Missouri estimate	330,000 ¹⁵	\$3,000 per unit	\$990,000,000
AWWA Missouri estimate	330,000	\$6,000 per unit	\$1,980,000,000
Category WR-2017-0259			Total Cost
MAWC Current Authorized Rate Base			\$1,134,341,492 ¹⁶
MAWC Revenue Requirement Rate Increase Request (historic)			\$74,700,000 ¹⁷
MAWC Total Request (future)			\$492,600,000 ¹⁸

3 The Commission should note that these are not trivial costs. At the high end, lead service
 4 line costs are approximately double the Company's current authorized rate base.

5 **Q. What would single-tariff pricing mean in regards to the cost allocation of lead service
 6 line replacements?**

7 A. It would potentially socialize those individual lead service line costs out to all ratepayers.
 8 Whether those costs would be socialized out across all rate classes (commercial, industrial,
 9 etc...) and at what amounts would be additional questions that would need to be addressed.

10 **Q. Would single-tariff pricing have an impact on future acquisitions?**

11 A. Yes. If single-tariff pricing were to move forward future acquisitions would no doubt
 12 increase.

¹⁴ WU-2017-0296. Missouri American Water Application and Motion for Waiver

¹⁵ Cornwell, D.A. et al. (2016) National Survey of Lead Service Line Occurrence. Journal of American Water Works Association. April http://media.mlive.com/news_impact/other/jaw201604cornwell_pr.pdf

¹⁶ WR-2015-0301 Missouri Public Service Commission Staff Auditing Department-True Up: Staff Accounting Schedules 3/4/2016. Missouri-American Water Company Total Company.

¹⁷ WR-2017-0259 Direct Testimony of Cheryl D. Norton, p. 4 21-24.

¹⁸ Ibid.

1 **Q. Would approval of the Company's proposed lead service line replacement program in**
2 **combination with a single-tariff pricing have an impact on future acquisitions?**

3 A. I believe it would essentially lead to a complete privatization of water service in Missouri.

4 **Q. How would this impact St. Louis County ratepayers?**

5 A. St. Louis County ratepayers would be unfairly exposed to costs they have not caused.
6 Particularly as it involves lead service line replacements.

7 **Q. Please explain.**

8 A. St. Louis County has had an ISRS in place for over a decade at this point. That means mains
9 have been replaced at an accelerated rate with customer-side lead service lines being passed
10 over during that period (per industry standard). St. Louis County alone has borne the costs of
11 these replacements.

12 As it stands, the Company's plan is to replace lead service lines as they encounter them on all
13 future main replacements. Stated differently, there is no plan to reopen previous main
14 excavations to account for individual lead service lines that were previously passed over.
15 This means that large numbers of St. Louis County (all ISRS construction to date) ratepayers
16 who may have lead service lines would now pay the socialized costs for all future lead
17 service lines replacements in MAWC's current service territory as well as all future lead
18 service line replacements from future acquisitions but would not have their own service line
19 replaced until the next cycle of main replacements (many decades into the future).

20 **Q. Could you provide a hypothetical example of a lead service line-induced system**
21 **acquisition?**

22 A. Yes. The most obvious example would be St. Louis Metro. If the Commission were to
23 approve the Company's lead service line replacement plan *and* single-tariff pricing it would
24 be an unprecedented decision by a Commission in this country and lead to a full privatization
25 of water systems in Missouri (largely on the backs of St. Louis County ratepayers).

1 **Q. Are there other considerations beyond cost allocation?**

2 A. Absolutely. As articulated in my direct revenue requirement testimony, OPC has raised many
3 concerns and questions on this topic that still remain unanswered. The Company's plan in
4 WU-2017-0296 and now in the rate case is imprudent and void of necessary details.

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

6 A. Yes.

**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 No. WR-2017-0285

AFFIDAVIT OF GEOFF MARKE

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Geoff Marke, of lawful age and being first duly sworn, deposes and states:

1. My name is Geoff Marke. I am a Regulatory Economist for the Office of the Public Counsel.
2. Attached hereto and made a part hereof for all purposes is my direct testimony.
3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

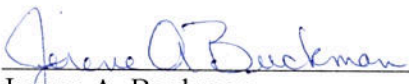


Geoff Marke
Chief Economist

Subscribed and sworn to me this 13th day of December 2017.



JERENE A. BUCKMAN
My Commission Expires
August 23, 2021
Cole County
Commission #13754037



Jerene A. Buckman
Notary Public

My commission expires August 23, 2021.