EXHIBIT

Exhibit No.:	OPC #10
Issue(s):	Demand-Side Management/ Supply-Side Management
Witness/Type of Exhibit:	Marke/Rebuttal
Sponsoring Party:	Public Counsel
Case No.:	WR-2015-0301

REBUTTAL TESTIMONY

OF

GEOFF MARKE

Submitted on Behalf of the Office of the Public Counsel

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2015-0301

February 11, 2016

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Missouri-American Water Company's Request for Authority to Implement a General Rate Increase for Water and Sewer Service Provided in Missouri Service Areas.	)))))	Case No. WR-2015-0301

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 rebuttal 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

Subscribed and sworn to me this 11th day of February 2016.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

JERENE A. BUCKMAN
My Commission Expires
August 23, 2017
Cole County
Commission #13754037

Jerene A. Buckman
Notary Public

My commission expires August 23, 2017.

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MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2015-0301

I. INTRODUCTION

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

A. Dr. Geoffrey Marke, Economist, Office of the Public Counsel (OPC or Public Counsel), P.O. Box 2230, Jefferson City, Missouri 65102.

Q. Are you the same Dr. Marke that filed direct testimony in WR-2015-0301?

A. I am.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of this rebuttal testimony is to respond to the revenue requirement direct testimony regarding:

- Demand-side management (DSM)
    - Division of Energy (DE) witness Martin R. Hyman
- Supply-side management (SSM)
    - DE witness Jane Epperson

Q. Please state OPC's position on the proposed DSM programs.

A. In previous electric and gas cases, Public Counsel has supported the inclusion of prudent cost-effective DSM programs. In those particular cases, ratepayer expenditures were acceptable based on a consideration of all relevant factors. After reviewing the available DSM literature for water utilities and DE's testimony, Public Counsel has determined that a ratepayer-funded DSM program is not presently warranted.

Q. Please state OPC's position on the proposed SSM programs.

A. Public Counsel has concluded that an additional ratepayer-funded infrastructure surcharge is not defensible. DE's proposed SSM mechanism amounts essentially, to a blank check for the Company with diminished regulatory oversight and increased risk to ratepayers. DE's proposal lacks company-specific cost justifications, includes inappropriate examples and will lead to an increased risk of overinvestment.

II. RESPONSE TO THE DIVISION OF ENERGY'S DEMAND-SIDE MANAGEMENT PROPOSAL

Q. Please explain Mr. Hyman's DSM proposal.

A. Mr. Hyman proposes that the Commission require the Company to promote demand-side efficiency end-use measures with expenditures targeting 0.5 percent of the annual average total revenue (approximately $1.55m), funded through a regulatory asset account that would be collected in future rate proceedings. No more than 20% (approximately $311k) of these expenditures would be allocated for program administration, marketing and evaluation purposes. Additionally, Mr. Hyman suggests that a collaborative be formed of any and all interested stakeholders to weigh in on how best to design, implement and evaluate the Company's DSM program.

Q. What does Mr. Hyman mean when he says DSM?

A. It is not entirely clear from the testimony. Generally, this term is reserved for electric utilities to signify a modification of consumer demand through the subsidization of energy efficiency measures, the deployment of demand or behavioral response programs, and/or conservation pricing, which is designed to result in the least-cost procurement of reliable service when compared to traditional supply-side generation to meet a system's expected load. On the electric side, DSM measures and programs historically have been judged either as a least-cost

resource based on integrated resource planning and/or are mandated through legislative actions (e.g., Energy Efficiency Resource Standards).[1]

In the context of this proposal, it appears as though Mr. Hyman is using the term DSM to refer to subsidies (rebates) for efficient end-use measures. Additionally, it appears as though he is defining energy efficiency savings as both savings from using less water—water efficiency—as well as savings from using less energy in water and wastewater measures—embedded energy.

Q. What is the basis for this proposal?

A. Mr. Hyman states that:

> Demand-side efficiency efforts **could** lead to a decrease in the need for future capital investments as customers place decreased strains on existing water infrastructure. Demand-side efficiency programs **could** also decrease operations and maintenance expenses in the short-run, such as fuel and purchased power expenses (emphasis added).[2]

And again later:

> **In the near term, customers participating** in demand-side efficiency programs will experience bill reductions from direct water and wastewater savings. **Longer term, all customers might** expect bill reductions due to decreased rate requests by the Company, since its operations and maintenance expenses and capital investments could decrease (emphasis added).[3]

The Commission should be cognizant of the conditional clause within Mr. Hyman's proposals. Regarding the first block quote, to OPC's knowledge, DE has not performed any

[1] ACEEE (2015) State Energy Efficiency Resource Standards (EERS) http://aceee.org/sites/default/files/eers-04072015.pdf
[2] WR-2015-0301 Direct Testimony of Martin R. Hyman p. 4, 11-14.
[3] WR-2015-0301 Direct Testimony of Martin R. Hyman p. 5, 2-5.

Company-specific resource planning analysis or applicable cost-effectiveness test to justify demand-side efficiency as a suitable least-cost resource that would result in deferment of future capital investments. That is, there are no assurances that DSM efforts will translate into benefits for all ratepayers; although DSM efforts will most assuredly result in increased costs for all ratepayers. Regarding the second block quote, it is important to note that energy efficiency rebates will result in overall rate increases, but participating ratepayers should see bill reductions. For non-participating customers it will result in both rate and bill increases.

The early justification for energy efficiency was based on a "no losers" concept, in which as long as the utility contribution required to implement the energy reduction was less than the marginal cost to supply the energy, non-participant customers would be better off even if they did not receive any of the incentive payments.[4] This is the "longer term" benefit argument Mr. Hyman alludes to but does not substantiate with Company-specific data at any point within his testimony. Absent any least-cost resource analysis, as well as any program implementation guidance, ratepayer-funded energy efficiency end-use subsidization likely will be subject to high levels of free ridership and diminished overall net savings.[5,6] Even then, without reliable metrics and appropriate cost-effectiveness testing, the payback period for any given measure largely would be unknown for participating customers.

Q. Why is it important to consider least-cost resource planning when considering DSM?

A. The decision to move forward with a rate-payer funded DSM program should be grounded on actual empirical evidence in the form of a feasibility (or potential) study to investigate the prospective impact of the specific actions against forecasts of water scarcity and/or capital investment deferment.

[4] Wirtshafter, R.M. (2012) The regulatory relationship between free ridership and equity for public goods programs. *ACEEE* http://aceee.org/files/proceedings/2012/data/papers/0193-000366.pdf
[5] US EPA. (2007) Guide to resource planning with energy efficiency. A resource of the national action plan for energy efficiency. http://www.epa.gov/sites/production/files/2015-08/documents/resource_planning.pdf
[6] Rivers, N. & M.L. Shiell (2015) Free-riding on energy efficiency subsidies: The case of natural gas furnaces in Canada. *Social Science Research Network*. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2667600

Any claim that DSM is a more sustainable and capable approach to managing the imbalance between supply and demand must be seen in the context of identifying the point at which it becomes more efficient to shift from water resource reinforcement (supply) to a DSM strategy for a given utility. Stated differently, what is the cost per gallon saved through energy efficiency measures, in comparison with alternative policies? Again, Mr. Hyman has provided none of that contextual analysis. Moreover, based on the conflicting data presented by MAWC in this case concerning customer usage, customer accounts, and Company revenue, it is doubtful that an accurate analysis could take place presently.

Q. Are there clear policy directives for water efficiency in Missouri?

A. Not explicitly for water utilities. Based on the Company's response to OPC data requests, there have been no conservation policies placed on MAWC ratepayers by local, state or federal governments from the date current rates went into effect (2012) to present (see GM-1). This is largely because water is not a scarce resource in Missouri, except in times of extreme drought. Compared to water-strained states out West, MAWC and its ratepayers benefit from being at the confluence of two of the largest rivers in the United States.[7,8] This is not to suggest that OPC does not value the efficient use of water; rather OPC offers that there is no cost justification that a ratepayer-funded DSM program is the most efficient policy option in which to maximize the conservation of water and the embedded energy used in servicing that water. As it stands, OPC cannot state with any confidence that saving a gallon of water is comparable to saving an equivalent amount of kWh (electricity) or therm (natural gas). Additionally, the value of that saved gallon of water will vary between class (source, conveyance, and treatment) and district due to a variety of factors, including the size of the water system, pumping requirements between geographic locations, and raw water characteristics.

[7]Missouri Department of Natural Resources (2015) Frequently Asked Missouri Water Resource Questions. http://dnr.mo.gov/pubs/pub1350.htm

[8] Kammerer, J.C. (1990) Largest Rivers in the United States. USGS. http://pubs.usgs.gov/of/1987/ofr87-242/

For illustrative purposes, consider for a moment that there are over 300 miles separating the districts of St. Louis Metro and St. Joseph. Hypothetically, if MAWC were to retrofit every toilet, showerhead and faucet for every St. Joseph ratepayer, those actions would still have no effect on deferring future capital investment in St. Louis. Again, this is because the water systems (stations, treatment, and distribution) are uniquely local. The water source, its abundance and its quality are all parochial. In the example above, even the electric provider to the water system, the cost of the energy from that provider, and its impact on the environment will differ considerably. Moreover, there may be situations where water usage should be promoted based on underutilized infrastructure in specific water systems to spur economic growth for local communities. [9,10]

Q. What did the Missouri State Energy Plan say about DSM programs for water utilities?

A. There are approximately one-and-a-half pages devoted to the concept of the water-energy nexus in the 311 page Missouri State Energy Plan. Within that page-and-a-half section, a single paragraph speaks to end-use water efficiency. It is as follows:

> End-use water efficiency is also seen as a way to capture energy efficiency savings. Promoting the efficient use of water by consumers, including water for domestic uses such as showers and laundry and water for watering and other outdoor purposes, is critical to ensuring that end use is appropriate. Water that is wasted is not only an ill-spent resource, but it is also a waste of significant resources in the form of energy used to treat and pump the water, as well as waste of water treatment chemicals and products to make the water potable. A study conducted by the California Energy Commission

[9] Downs, P (2014) St. Louis recruiters see water as a selling opportunity. St. Louis Post-Dispatch. http://www.stltoday.com/business/local/st-louis-recruiters-see-water-as-a-selling-opportunity/article_62200991-18d5-543b-8920-af49714907ef.html

[10] Lueck, J. (2015) Drinking water-making a splash in economic development? http://mobizmagazine.com/2015/08/17/drinking-water-making-a-splash-in-economic-development/

found that energy consumption associated with water end use is greater than the energy required for the supply and treatment of water.[11]

The plan makes no formal recommendation, nor does it opine on the appropriateness of utilizing ratepayer funding to promote end-use water efficiency. In fact, end-use water efficiency did not even make the summary of key points for the chapter in which it was referenced.

Q. Are ratepayer-funded water efficiency programs common in the United States?

A. No. Unlike electric or gas efficiency programs, ratepayer-funded water efficiency programs are rare and largely confined to local municipal systems that are experiencing or are susceptible to water shortage risks or are otherwise mandated by the local, county, or state governments.

In the nominal examples given, the budget and scope of those programs pales in comparison to the expenditures seen with electric energy efficiency programs. For example, Mr. Hyman cites California American Water Company's (CAWC) recently approved $5,950,302 three-year budget for DSM activities as an example of a ratepayer-funded water utility DSM program. That budget was justified in large part by one of the most severe droughts on record, as well as a government imposed conservation mandate of a 25% statewide reduction in potable urban water use by 2016.[12] Even within the context of that extreme example, CAWC's three-year budget is minimal when contrasted with the funding expenditures for electric energy efficiency measures in California. In just 2014 alone, those ratepayer energy efficiency funds exceeded $1.45 *billion*.[13]

[11] Missouri Division of Energy (2015) Missouri Comprehensive State Energy Plan. p. 92 https://ded.mo.gov/energy/docs/MCSEP.pdf

[12] Executive Department of the State of California (2015) Executive Order B-29-15. https://www.gov.ca.gov/docs/4.1.15_Executive_Order.pdf

[13] Cooper, A. TD Smith (2014) Electric Utility Customer-Funded Energy Efficiency Savings, Expenditures, and Budgets. *Edison Electric Institute.* http://www.edisonfoundation.net/iei/Documents/IEI_2015USEnergyEfficiency_2014Exp_FINAL.pdf

Q. Is there anything else the Commission should be aware of about the CAWC example?

A. Yes. In addition to the government-mandated conservation policies, CAWC utilizes an inclining block rate design and has a low-income customer class. The former is designed to encourage conservation through efficient price signals and the latter is in place to ensure adequate affordable service for the most vulnerable. Neither option has been offered as a recommendation to the Commission in this case by DE.

Q. Does Mr. Hyman provide examples of the potential savings from DSM programs?

A. Yes. Mr. Hyman provides one example. A Kansas City-based not-for-profit, *Bridging the Gap*, which was funded by the U.S. Department of Energy's (DOE) "BetterBuildings" initiative in 2013 to target seven neighborhoods in Kansas City.[14] Mr. Hyman states:

> An example of the potential for customer savings is the efficiency kits distributed through Bridging the Gap's "WaterWorks!" program. The kits included an efficient showerhead, faucet aerators, and toilet tank bank. According to the Bridging the Gap's final report on the program, **potential savings per kit amount to 20,000 gallons per year based on the manufacturer's estimate** (emphasis added).

The one-year, seven-neighborhood DOE-funded initiative is the only example given.

Q. What does a manufacturer's estimate mean?

A. The manufacturer's estimate (or engineering estimate) is the savings that are expected to occur for an "average home" under ideal settings. To be clear, there was no on-site verification to determine whether savings actually occurred in those seven neighborhoods. The study assumed that a household would use water at the exact same rate as they did prior to the installations without controlling for exogenous variables such as demographics, weather, the economy, and customer behavior (to name just a few) and that customers did not

[14] Bridging the Gap (2013). WaterWorks! https://www.bridgingthegap.org/waterworks/

remove the measure due to inadequate water flow or flushing ability. In other words, there was no evaluation.

This is in part because it is both difficult and expensive to determine accurate savings as a result of DSM initiatives. That being said, it is fairly well known and understood that current modeling approaches for engineer estimates often over-predict baseline energy usage, do not account for offsetting behavior, and thus overstate the savings that result from electric efficiency upgrades.[15,16,17,18] This has been found to be true for determining the impact of DSM efforts from water efficiency upgrades as well.[19,20,21]

Q. Are there empirical studies that verify savings from energy efficiency measures?

A. Yes. As the Commission is well aware, Ameren Missouri, KCPL and KCPL GMO are all required to produce annual EM&V reports for their respective Commissioned-approved Missouri Energy Efficiency Investment Act (MEEIA) programs. The EM&V process can vary significantly between any given utility, but the practice itself is considered commonplace on the electric-side. There are many EM&V-related reports, guidelines, and methodologies available publicly on the internet as they relate to electric programs (and to a much lesser extent, gas programs). In fact, the importance placed by regulators on verifying

[15] Blanchard J. et al. (2012) Actual and estimated energy savings comparison for deep energy retrofits in the Pacific Northwest. U.S. DOE PNNL-21870. http://www.pnnl.gov/main/publications/external/technical_reports/PNNL-21870.pdf

[16] Gerarden, T.D. et al. (2015) An assessment of the energy-efficiency gap and its implications for climate change policy. Fondazione Eni Enrico Mattei. http://www.econstor.eu/bitstream/10419/113927/1/NDL2015-028.pdf

[17] Fowlie M. et al. (2015) Do energy efficiency investments deliver? Evidence from the weatherization assistance program. Becker Friedman institute Research Repository. http://econresearch.uchicago.edu/content/do-energy-efficiency-investments-deliver-evidence-weatherization-assistance-program

[18] Schweitzer M. (2005) Estimating the national effects of the U.S. Department of Energy's weatherization assistance program with state-level data: A metaevaluation using studies from 1993 to 2005. http://weatherization.ornl.gov/pdfs/ORNL_CON-493.pdf

[19] Davis, L.W. (2008) Durable goods and residential demand for energy and water: evidence from a field trial. *RAND Journal of Economics*, Vol. 39, No.2 pp. 530-546. http://faculty.haas.berkeley.edu/ldavis/Davis%20RAND%202008.pdf

[20] Renwick, M.E. and R. Green (2000) Do residential water demand side management policies measure up? An analysis of eight California water agencies. *Journal of Environmental Economics and Management* Vol. 40, pp 37-55. http://www.kysq.org/docs/renwick.pdf

[21] Geller et al. (1983) Attempts to promote residential water conservation with educational, behavioral and engineering strategies. *Population and Environment*. 6.2: 96-112. http://link.springer.com/article/10.1007/BF01362290

energy and demand savings has become a specialized field unto itself, where 3rd-party private contractors are utilized regularly by utilities.

The same cannot be said about water utilities. Because of the lack of comparable ratepayer-funded DSM programs, most of the literature on the verification of savings from water measures is confined to isolated academic studies. A review of those studies suggests that water savings induced by DSM policies varies considerably, from significant to minimal.

An extreme example of water savings induced from efficient end-use measures includes a 2006 study where per capita water use was reduced by 49.7% in 30 homes in Tampa, Florida after being retrofitted with water efficient toilets, clothes washers, showerheads and faucets.[22] At the other end, there are a number of studies that suggest that behavioral offsetting actions by the consumer will undermine the effectiveness of high efficiency appliances. These studies strongly suggest that people engage in offsetting behavior when they know devices are causing conservation and/or the efficient devices are not operating at the expected performance level. For example, if a person knows that their showerhead is low-flow, they may take longer showers.[23] Other examples include, the "phantom flush" from hi-tech toilets[24] and the increased number of washing loads from efficient clothes-washers.[25]

Equally as important as verifying the raw water savings induced by these programs, is the cost per gallon saved in comparison with alternative policies. For example, the costs of toilet retrofit policies implemented in U.S. cities have ranged from less than $100,000 to replace

[22] Mayer et al (2004) Tampa Water Department residential water conservation study: The impacts of high efficiency plumbing fixture retrofits in single-family homes.
http://www.tampagov.net/sites/default/files/water/files/Efficiency/Tampa-Retrofit-Final-Report.pdf

[23] Stewart et al (2012) Showering behavioural response to alarming visual display monitors: Longitudinal mixed method study, *Behavioral Institute of Technology*.
http://www98.griffith.edu.au/dspace/bitstream/handle/10072/41733/70444_1.pdf?sequence=1

[24] Gauley, B. & J. Koeller (2010) Sensor-Operated plumbing fixtures: Do they save water? http://www.map-testing.com/assets/files/hillsborough-study.pdf

[25] Davis, L. (2006) Durable goods and residential demand for energy and water: evidence from a field trial. RAND Journal of Economics. Vol. 39, No. 2 pp. 530-546.
http://faculty.haas.berkeley.edu/ldavis/Davis%20RAND%202008.pdf

1,226 toilets in Phoenix Arizona to $290 million for 1.3 million toilets in New York City. These can be expensive programs, but in most cases no analysis is done.[26]

Other water-saving measures commonly included in programs easily could be substituted with items found around the home and do not necessitate additional ratepayer funds. These include the toilet tank bank—formerly known as a brick in an old toilet,[27] and leak detection tablets—aka, food dye.[28]

Q. Should pricing mechanisms be considered before non-pricing mechanisms?

A. Yes. Under the assumption that least-cost resource planning efforts confirm and/or explicit policy direction is given that conservation is to be prioritized above other considerations, then a properly drawn rate design likely will prove to be a more efficient mechanism in reaching a stated conservation goal than subsidizing low-flow showerheads or other end-use measures.

As a general economic rule, the more you charge, the less people use (at least for most goods). This is what makes water pricing such a compelling and convincing tool to use in advancing water conservation. Although the principle is simple, the actual design can be quite complex and time consuming.[29] For example, policymakers considering market-based approaches to water management should establish a basic nondiscretionary usage amount (or lifeline amount) for a typical household to ensure that water bills are not unduly burdensome for low-income households.

Conservation-induced pricing mechanisms and rate designs are largely beyond the intent of this testimony; however, many of these elements will be addressed in OPC's rate design rebuttal testimony. Regardless, the emerging theoretical and empirical evidence on effective

[26] U.S. General Accounting Office. (2000) Water Infrastructure: Water-efficient plumbing fixtures reduce water consumption and wastewater flows. http://www.gao.gov/new.items/rc00232.pdf
[27] http://www.single-family-home-remodeling.com/saving-water.html
[28] http://www.wikihow.com/Detect-Toilet-Leaks
[29] This is in part why, in direct testimony, Public Counsel proposed that the Commission consider opening a Rate Design docket specifically for MAWC following the conclusion of this case in which agreed to metrics are in place and further policy direction from the Commission is provided.

water conservation suggests that using prices to manage water demand is more cost-effective than implementing non-price conservation programs.[30,31]

Q. Please summarize OPC's position on DE's DSM proposal.

A. OPC recommends that the Commission reject DE's proposal as presently drafted. To be clear, OPC is not opposed to the concept of energy efficiency per se, but such programs should be grounded in empirical evidence and tied to explicit policy direction to be properly valued and justified. As it stands, investor-owned water utilities are not subject to the same level of scrutiny as the electric utilities. There are no resource planning requirements, there is no DSM enabling legislation (Missouri Energy Efficiency Investment Act), and the water systems themselves are all uniquely local, nullifying many of the benefits of economies of scale seen in both electric and gas. Finally, the opportunity cost in time, resources, and alternative policies should be considered alongside any singular approach.

Finally, to the extent that the Commission believes least-cost resource planning should be introduced as an element of regulatory oversight into MAWC's activities; OPC offers that key elements of that discussion are taking place under the direction of the Missouri Department of Natural Resources (MDNR), where development of a statewide water plan is currently underway.[32]

[30] Olmstead, S.M. & R.N. Stavins (2009) Comparing price and nonprice approaches to urban water conservation. *Water Resource Research*. 45. http://ageconsearch.umn.edu/bitstream/42919/2/66-08.pdf

[31] Worthington. A.C & M. Hoffman (2008) An empirical survey of residential water demand modeling. *Journal of Economic Surveys*. 22.5, 842-871. https://www.researchgate.net/profile/Andrew_Worthington4/publication/23522922_An_Empirical_Survey_of_Residential_Water_Demand_Modeling/links/0046351994b8ed3c01000000.pdf

[32] Missouri Department of Natural Resources (2016) State Water Plan. http://dnr.mo.gov/geology/wrc/statewaterplanMain.htm

III. RESPONSE TO THE DIVISION OF ENERGY'S SUPPLY-SIDE MANAGEMENT PROPOSAL

Q. Please explain Mrs. Epperson's SSM proposal.

A. Mrs. Epperson proposes that the Commission authorize a tracker for supply-side energy efficiency and water loss-reduction investments made in excess of $100M annually, with additional costs capped at $100M annually. Stated differently, the tracker would apply to costs related to supply-side energy efficiency and water loss reduction investments by the Company at $100 million to $200 million range annually.

Q. What kind of investments would the SSM include?

A. Mrs. Epperson provides three general supply-side infrastructure components, including: pumping stations, treatment facilities, and distribution systems (pipes and mains) that specifically look to minimize leakage of water. It is unclear how "energy efficient" investments in infrastructure would differ from environmental investments in supply-side infrastructure if the Company were to be authorized an Environmental Cost Adjustment Mechanism (ECAM). In fact, the proposal is all together silent on making any Company-specific recommendations beyond the three general supply-side infrastructure components.

Q. Does such a mechanism exist already?

A. Yes, in part. A similar mechanism is already in place for ratepayers in St. Louis County through the Infrastructure Replacement Surcharge (ISRS).

Q. Would costs associated with this tracker apply to St. Louis County?

A. Based on discussions with DE at the technical conference, it appears as though the tracker is designed for investments outside of St. Louis County. However, further confirmation is needed on this point as the presence of two infrastructure surcharges could lead to a double counting of investments.

Q. Does Mrs. Epperson provide any examples of Missouri-specific water utility centric supply-side energy efficiency upgrades?

A. Yes, she cites three examples within Missouri municipal water and wastewater systems where supply-side energy efficiency upgrades were undertaken including the:

- City of O'Fallon
  - $450,000 in upgrades
  - $53,000 in estimated savings per year
  - Funded in part by a $367,000 grant from the Missouri Department of Natural Resources (DNR)
- Pulaski County Sewer
  - DE loan program recipient
  - $11,211 in estimated savings
  - Loan amount and terms not stated
- City of Harrisonville
  - DE loan program recipient
  - $42,833 in estimated savings
  - Loan amount and terms not stated

Q. Are these appropriate examples?

A. Not from a cost standpoint. All three examples are not-for-profit municipal systems, and thus are eligible for low-interest government-sponsored loans or grants. Their inclusion is inappropriate as MAWC is a for-profit entity. The lack of regulatory oversight, favorable financial terms and relative scale of the project size and costs are not transferable.

Keep in mind, Mrs. Epperson is proposing that a tracker be placed on "energy efficiency supply-side" costs in excess of $100 million and up to an additional $100 million annually with no attempt to estimate cost savings for ratepayers. It also should be noted that it is unclear if the estimated savings, in the examples above, are based on engineering estimates or average financial savings incurred since completion (or some other estimate).

Q. Does Mrs. Epperson provide any examples of leak detection programs or audits?

A. Yes. Mrs. Epperson cites a jointly-delivered pilot program undertaken by Southern California Edison (an investor-owned electric utility) and three small-sized municipal water utilities in Southern California that was conducted over an 18-month period at a total cost of $300,000. The study concluded that around one third of the water losses through distribution pipes could be cost-effectively prevented.

Q. Is this an appropriate example?

A. No. The level of leakage in the distribution system of three municipals in Southern California coupled with California electric prices and California drought conditions does not seem to be in any way transferrable to the individual or collective MAWC water and wastewater districts. Moreover, it appears as though this study was done primarily as a cost-justification for the electric company not the municipal water systems.

Q. Is there a difference?

A. There could be. In short, it is a matter of determining which type of ratepayer (or taxpayer) shoulders the subsidization. It is not always a clear win-win situation for the entities involved. For example, if the water utility can opt-out of paying the monthly energy efficiency cost recovery mechanism surcharge because of enabling statutory language, it may be more prudent to finance an efficiency investment without the benefit of a rebate. This is because the costs incurred on a going forward basis by being locked into an increasingly larger surcharge from the electric provider could outweigh the out-of-pocket expenses saved through the rebate.

Q. Is MAWC in a similar position?

A. Potentially. Because of the Company's size and energy use, specific MAWC districts can opt-out of having to pay the MEEIA surcharge. Therefore, a unique position is created where electric ratepayers (Ameren Missouri and KCPL GMO) benefit from having

MAWC participate in MEEIA but MAWC ratepayers may be better off by having the Company opt-out entirely.

Q. Has MAWC participated in the available MEEIA programs?

A. Yes and no. According to the Company's response to the Missouri Industrial Energy Consumers (MIEC) data request 5-0005 (GM-2), MAWC last received an incentive from Ameren Missouri on August 5, 2015 and is, therefore, "locked-in" for the next three years. However, according to MIEC data request 5-0003 (GM-3), the Company presently is seeking to opt-out with KCPL-GMO for its northwest Missouri operations. MAWC districts in the Empire Electric footprint are not eligible for MEEIA incentives.

It is important to note that one of the prerequisites for opting out of the MEEIA surcharge is the ability to demonstrate that the customer has a comprehensive DSM plan in place to achieve comparable savings, as stated in the Commission Rule 4 CSR 240-20.094(6)(A)3:

> The customer has accounts within the service territory of the electric utility that have, in aggregate across its accounts, a coincident demand of two thousand five hundred (2,500) kW or more in the previous (12) months, **and the customer has a comprehensive demand-side or energy efficiency program and can demonstrate an achievement of savings at least equal to those expected from utility-provided programs** (emphasis added).

Two points should be made in reference to the above information. First, and most pertinent to DE's proposal, MAWC ratepayers already have been paying for energy efficiency upgrades to the Company's supply-side infrastructure, whether in the form of a subsidized rebate from an electric provider or not. To suggest that the Commission needs to create an additional accounting mechanism to incentivize energy efficiency is incorrect. Second, further inquiry should be made on the prudency of MAWC's decision to participate in one MEEIA (at the end of the first cycle) and decision to opt-out of the other. This is especially important considering that future MEEIA surcharges will increase

on a going-forward basis if a second MEEIA cycle is approved and as the MEEIA-approved electric utilities begin collecting their performance incentives from cycle I over the next few years. Such an analysis also would help inform stakeholders on a going-forward basis in the context of future MEEIA proposals.

Q. Does DE's proposal amount to single-issue ratemaking?

A. Yes, DE's proposal would no doubt be burdensome for regulators to monitor, would expose ratepayers to considerable risk of paying for overinvestment, and is a violation of the matching principle—that customers who "use" an asset should pay for that asset at the time they use it is not authorized under current law to my understanding. Mrs. Epperson provides no Company-specific context for a proposal that is neither just nor reasonable.

Except as otherwise allowed by statute, rates are not based on single issues or single items of cost. Rather, the total cost of service is considered through the process of a general rate case. According to the Western District Court of Appeals:

> In reliance upon § 393.270.4, Missouri courts have traditionally held that the Commission's "determination of the proper rate for [utilities] is to be based on all relevant factors rather than on consideration of just a single factor." ***Midwest Gas Users'***, 976 S.W.2d at 479. Thus, when a utility's rate is adjusted on the basis of a single factor, without consideration of all relevant factors, it is known as single-issue ratemaking. *See id.* Single-issue ratemaking is generally prohibited in Missouri "because it might cause the [Commission] to allow [a] company to raise rates to cover increased costs in one area without realizing that there were counterbalancing savings in another area." *Id.* at 480.[33]

Commissions rely on regulatory lag as an important tool for motivating utilities to act efficiently. Rational utility management, as a general rule, would exert minimal effort in

[33] State of MO. ex rel. Pub. Counsel V. MO Pub. Serv. Commission, 397 S.W. 3d 441, 448 (MO. Ct. App. W.D. 2012) https://www.courts.mo.gov/file.jsp?id=59265

controlling costs if it has no effect on the utility's profits. OPC witness Charles R. Hyneman's rebuttal testimony will speak at greater length on the importance of regulatory lag and the threat that single-issue ratemaking places on ratepayers in his rebuttal testimony.

Similar to the previous proposal Mr. Hyman made regarding DSM investment, OPC is not opposed to proper investment of capital. OPC is opposed to multi-million dollar requests from ratepayers without any empirical support or cost justification. Proposals like these run the heightened risk of overinvestment. Much like the DSM proposal, the SSM proposal appears to be placing the cart before the horse.

Q. Does this conclude your testimony?

A. Yes.

DATA INFORMATION REQUEST
Missouri-American Water Company
WR-2015-0301 / WR-2015-0302

Requested From: Tim Luft
Date Requested: 8/27/15

Information Requested:

Please provide a copy of any and all documents pertaining to any local government conservation policies that have been in effect in MAWC's service territory from the date current rates went into effect to present.

Requested By: Jere Buckman – Office of Public Counsel – jere.buckman@ded.mo.gov

Information Provided:

No local government conservation policies have gone into effect in MAWC's service territory since the last rate case.

DATA INFORMATION REQUEST
Missouri-American Water Company
WR-2015-0301 / WR-2015-0302

Requested From: Tim Luft
Date Requested: 8/27/15

Information Requested:

Please provide a copy of any and all documents pertaining to any state government conservation policies that have been in effect in MAWC's service territory from the date current rates went into effect to present.

Requested By: Jere Buckman – Office of Public Counsel – jere.buckman@ded.mo.gov

Information Provided:

No local government conservation policies have gone into effect in MAWC's service territory since the last rate case.

DATA INFORMATION REQUEST
Missouri-American Water Company
WR-2015-0301 / WR-2015-0302

Requested From: Tim Luft
Date Requested: 8/27/15

Information Requested:

Please provide a copy of any and all documents pertaining to any federal government conservation policies that have been in effect in MAWC's service territory from the date current rates went into effect to present.

Requested By: Jere Buckman – Office of Public Counsel – jere.buckman@ded.mo.gov

Information Provided:

No local government conservation policies have gone into effect in MAWC's service territory since the last rate case.

DATA INFORMATION REQUEST
Missouri-American Water Company
WR-2015-0301

Requested From: Tim Luft
Date Requested: 11/24/15

Information Requested:

If MAWC qualifies for opt-out status pursuant to Commission Rule 4 CSR 240-20-094(6), and has not applied for opt-out status, please explain in detail, including all analyses, why MAWC has not sought opt-out status.

Requested By: Edward Downey – Bryan Cave – efdowney@BryanCave.com
For MIEC – (Missouri Industrial Energy Consumers)

Information Provided:

MAWC could possibly qualify for opt-out status for the St. Louis County District under Commission Rule 4 CSR 240-20-094(6)(A)1, but based on Rule 4CSR 240-20-094(6)(I), MAWC must participate in the program funding for three years after receiving the last incentive. MAWC received an incentive from Ameren on August 5, 2015.

DATA INFORMATION REQUEST
Missouri-American Water Company
WR-2015-0301

Requested From: Tim Luft
Date Requested: 11/24/15

Information Requested:

In reference to Commission Rule 4 CSR 240-20-094(6), Provision for Customers to Opt-Out of Participation in Utility Demand-Side Programs, does MAWC qualify to opt-out with any of its electric utilities in Missouri? If yes, under what provision, and has MAWC requested to opt-out? Please provide all analyses MAWC has performed regarding the opt-out position.

Requested By: Edward Downey – Bryan Cave – efdowney@BryanCave.com
For MIEC – (Missouri Industrial Energy Consumers)

Information Provided:

MAWC is presently seeking to opt-out with KCP&L – Greater Missouri Operations in northwest Missouri. However, no approval has been given as of 12/3/15.

The provision of eligibility would be the criteria under Missouri Rule 4 CSR 240-20.094(6)(A)3, which states, "The customer has accounts within the service territory of the electric utility that have, in aggregate across its accounts, a coincident demand of two thousand five hundred (2,500) kW or more in the previous twelve (12) months, and the customer has a comprehensive demand-side or energy efficiency program and can demonstrate an achievement of savings at least equal to those expected from utility-provided programs." MAWC has provided the attached information for review. See MIEC 5-0003_Attachment 1 through MIEC 5-003_Attachment 6.