

**COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION**

**IN THE MATTER OF:**

**ELECTRONIC APPLICATION OF KENTUCKY- )  
AMERICAN WATER COMPANY FOR AN )  
ADJUSTMENT OF RATES, A CERTIFICATE )  
OF PUBLIC CONVENIENCE AND NECESSITY )  
FOR INSTALLATION OF ADVANCED METERING )  
INFRASTRUCTURE, APPROVAL OF CERTAIN )  
REGULATORY AND ACCOUNTING )  
TREATMENTS, AND TARIFF REVISIONS )**

**CASE NO. 2023-00191**

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**DIRECT TESTIMONY OF MELISSA SCHWARZELL**

**June 30, 2023**

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1 **Q. Please state your name and business address.**

2 A. My name is Melissa Schwarzell. My business address is 1 Water Street, Camden, NJ,  
3 08102.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am employed by the American Water Works Service Company, Inc. (“AWWSC”). My  
6 title is Senior Principal, Finance.

7 **Q. Have you previously testified before the Kentucky Public Service Commission?**

8 A. Yes. I testified as a witness in Case No. 2012-00520, Case No. 2018-00358, and Case No.  
9 2022-00299 which were all Kentucky-American Water Company (“KAWC”) cases.

10 **Q. Have you previously filed testimony before any other regulatory commissions?**

11 A. Yes. I have also sponsored testimony before the utility regulatory bodies in Tennessee and  
12 Ohio for Tennessee-American Water Company and Ohio American Water, respectively.

13 **Q. Please state your educational and professional background.**

14 A. I received a Bachelor of Science degree from Ohio State University in 2001 and a Master  
15 of Business Administration, with a concentration in Finance, from Temple University in  
16 2020. I have completed NARUC Utility Rate School and the IPU Advanced Regulatory  
17 Program.

18 I have been employed by Service Company since 2009. Prior to my current role, I served  
19 as Senior Director Rates and Regulatory from January 2017 through June of 2019, leading  
20 a team focused on developing testimony, exhibits and work papers in support of various  
21 regulatory filings for the regulated subsidiaries of American Water. I also served as Interim  
22 Director of Rates for Kentucky and Tennessee from late 2018 through June of 2019,

1 providing leadership and support on rate and regulatory matters to those states. From  
2 February 2016 to January 2017, I served as Director of Investor Relations. In this role, I  
3 supported American Water's relationship with its shareholders, by developing public  
4 disclosures and communicating with institutional investors and equity analysts. From  
5 December 2014 to February 2016, I served as Manager of Regulatory Policy, providing  
6 research, communications, and business support on key water service issues and policy  
7 solutions. From February 2011 to December 2014, I held increasing levels of responsibility  
8 for rates and regulatory service to American Water's subsidiaries as a Financial Analyst  
9 Rates I, Financial Analyst Rates II, and Rates and Regulatory Analyst III. Prior to this, I  
10 began my career at American Water working as Executive Assistant to the Eastern Division  
11 Vice President of Finance. In this role, I provided labor budgeting, as well as analysis of  
12 labor costs, Service Company, revenues, and the general ledger.

13 Prior to joining American Water, I worked for the Bluegrass Area Agency on Aging,  
14 supporting social services programs for senior citizens in Central Kentucky. From 2001 to  
15 2003, I worked as a Financial and Administrative Assistant, supporting bookkeeping,  
16 website, and database development. In 2004 I was promoted to Program Specialist.

17 **Q. What are your current employment responsibilities?**

18 A. My duties as Senior Principal, Finance include the development of financial models to  
19 support forecasts and strategic decision making for a variety of stakeholders in the  
20 business. I also support select financial planning and analysis processes.

1 **Q. What is the purpose of your direct testimony in this proceeding?**

2 A. The purpose of my testimony is to introduce and support the Cost Benefit Analysis  
3 included in the Company’s application for a Certificate of Public Convenience and  
4 Necessity (“CPCN”) for Advanced Metering Infrastructure (“AMI”).

5 **Q. Please identify the analysis you are sponsoring and for which you will be providing**  
6 **testimony.**

7 A. Attached to the Application as Exhibit A is a comprehensive document, titled Kentucky-  
8 American Water Advanced Metering Infrastructure Deployment Plan, which supports  
9 KAWC’s request for a CPCN for AMI. I am responsible for the Cost Benefit Analysis  
10 (“CBA”) portion of that Exhibit.

11 **Q. Did you prepare the Cost Benefit Analysis (“CBA”)?**

12 A. I did.

13 **Q. What kind of information did you gather for the CBA?**

14 To prepare the CBA, I collected information on a variety of topics. These included  
15 information on KAWC’s metering equipment, labor workforce, service orders, and fleet.

16 • Metering equipment: The Company’s installed meter inventory was obtained as of  
17 May 23, 2023, with details on meter size, location, brand, and endpoint type. For  
18 the purposes of the CBA, only meters 2” and smaller were examined, as these are  
19 the meters replaced periodically when testing is required. Current prices for  
20 metering equipment and meter installation were also obtained.

21 • Labor: Current meter reading employee counts, recent service order volumes &  
22 times, recent historic wages for meter readers and field service representatives  
23 (“FSRs”) as well as recent historic labor-related costs and overhead factors were all

1           obtained. Average wages, wage growth rates, and overhead factors were assessed.  
2           Details are shown in Figure 10 of Exhibit A.

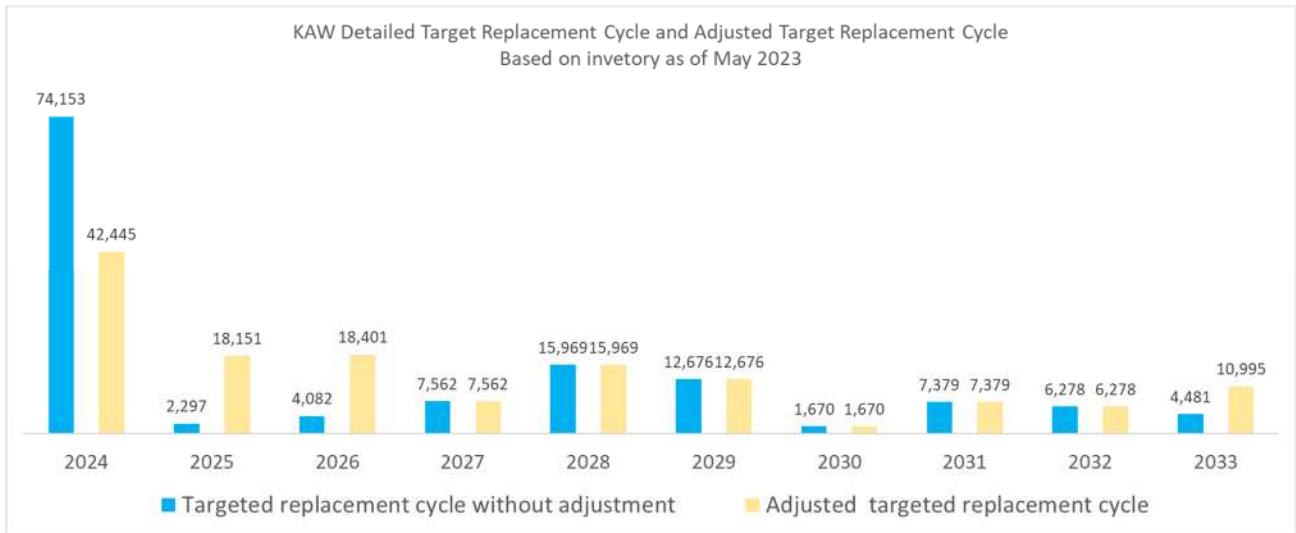
- 3           • Data on the Company’s fleet, especially light trucks (used by meter readers and  
4           FSRs), was also obtained, including quantity of vehicles, net book value, average  
5           mileage and average miles per gallon. Details are shown in Figure 11 of Exhibit A
- 6           • Material and installation labor pricing: Current material prices were obtained for  
7           meters, AMI endpoints, AMR endpoints and lids. Fixed network pricing is  
8           somewhat variable, depending on the cost of installation, but recent estimates and  
9           contract rates where available were used. Growth rates for the cost of goods were  
10          assessed based on the Bureau of Labor Statistics Consumer Price Index for all  
11          goods, using a 10-year compound annual growth rate (“CAGR”), ending with the  
12          period December 2022, which equaled 2.6%. All starting prices are shown in  
13          Figure 8 of Exhibit A.

14 **Q. How did you assess the meter and endpoint replacement quantities and timing for the**  
15 **model?**

16 A. I assessed the quantities and timing by examining the records and through collaboration  
17 with the engineering and operations teams.

18 First, the meter inventory was compared with the Company’s targeted cycle for scheduled  
19 meter replacement. For just under 98% of the meters examined (the 5/8” and 1” meters),  
20 the target is a 10-year cycle. For the remaining 2% of meters (the 1.5” and 2”), a  
21 replacement was targeted within 4 years for the purposes of the analysis. Without  
22 adjustment, following this cycle strictly would have resulted in the replacement of

1 approximately 74,000 meters in 2024, as these were at or past the 10-year mark, followed  
 2 by just a few thousand replacements in 2025 and 2026. Based on guidance from the  
 3 operations teams, this quantity of meter replacement in a single year was deemed to be  
 4 infeasible, and the initial batch of meter replacements was spread out instead, with a little  
 5 more than half completed in 2024, and the remaining volume spread into 2025 and 2026.  
 6 Additionally, adjustments were made for additional 5/8” meter replacement work still  
 7 expected in 2023. The quantities before and after adjustment are shown in the chart below.  
 8 The adjusted quantities were used in the CBA.



9  
 10 **Q. How did you determine the lid replacement quantities for the CBA model?**

11 A. Based on consultation with operations, new lids were presumed to be required for AMI  
 12 meter installations, so one lid is included for each meter in the first replacement cycle.<sup>1</sup>

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<sup>1</sup> For the purposes of cost / benefit modeling, a conservative assumption is made that lids are replaced 1 to 1 with applicable meter replacements. In reality, many meter pits in Kentucky are dual set, meaning there are two meters in one pit. In these instances, only one lid would need to be purchased.

1 For Automated Meter Reading (“AMR”) installations, new lids were expected to be  
2 required when Mueller (Hersey) brand meters were being replaced. There are  
3 approximately 35,000 of these meters currently installed, and they are expected to be  
4 replaced in 2024, so for AMR scenarios, these investments are accounted for. Charts that  
5 compare modeled meter and lid replacements, in thousands, can be found in Figures 6 and  
6 7 in Exhibit A.

7 **Q. For the Hybrid AMI model, how did you determine the quantity and coverage of**  
8 **collectors?**

9 A. The quantity and coverage of collectors was determined based on a propagation study  
10 completed by Neptune Technology Group. The propagation study determined how many  
11 collectors would be required, if installed on the Company’s existing assets, in order to  
12 achieve coverage. The best view Neptune provided was that 50 collectors would be  
13 required in order to provide just 24% daily coverage of the Company’s meters,  
14 approximately 75% of which had a Neptune AMR endpoint capable of delivering a read to  
15 the collector. It was presumed that these 50 collectors could be installed over a period of  
16 3 years, to create AMI enabled coverage for approximately 18% of meters (24% x 75%).

17 **Q. How did you determine the method for calculating benefits?**

18 A. Before discussing labor benefits, it’s important to note that the Company is measuring the  
19 financial benefit of reduced demand for certain kinds of labor. This measured benefit does  
20 not necessarily equate to a reduced workforce because it is expected that resources can be  
21 redeployed to other high value work, such as achieving meter reading and other service  
22 orders targets in the near term, accommodating the demands of a growing customer base

1 in the long term, and on a continual basis, seeking operational and customer service  
2 improvements.

3 That said, based on consultation with the operations team, assumptions were made that the  
4 demand for full-time meter reading positions would eventually go away, once AMI was  
5 fully implemented. So, the full meter reading benefit is based on the eventual elimination  
6 of the current seven full time meter reading positions. Because the program will follow a  
7 periodic replacement schedule, as opposed to targeting certain routes for replacement, the  
8 meter reading benefits are not modeled to begin until the system would be almost fully  
9 converted to AMI, beginning in year 10 (2033).

10 The operations team was likewise consulted to assess potential improvements to service  
11 order demand based on new technology. KAWC anticipates that it will see significantly  
12 reduced demand for service orders that are solely related to obtaining a meter reading (such  
13 as when customers are moving into or out of a premise, or to confirm or reattempt a read  
14 for billing purposes). KAWC also expects that AMI can reduce the frequency of  
15 consecutive estimate type orders, given the increased opportunities to obtain a read prior  
16 to the close of the billing window. Finally, KAWC also expects reductions in the generation  
17 of field service orders aimed at investigating reads, consumption patterns, problems with  
18 meters, checking for leaks, and examining zero usage incidences, given the opportunities  
19 to complete this work without a truck roll. Unlike meter reading benefits, which KAWC  
20 expects may require nearly complete AMI saturation of meter reading routes to be  
21 achieved, field service work benefits are expected to increase in real time, with every meter  
22 installed. Consequently, these benefits increase in the CBA model in line with the  
23 increases in AMI enabled meters.



1 **Q. What other key cost drivers were used for calculating the CBA?**

2 A. Other cost drivers include the property tax rate, the pre-tax rate of return on the investment,  
3 the gross ups for uncollectibles and utility regulatory assessment fees, and the pace at which  
4 the cost of the investment is recognized over time (depreciation). A property tax rate of  
5 1.39% was used on the balance of net plant. This is designed to align with the Company's  
6 forecasted property tax expense rate in this proceeding. Likewise, the pre-tax rate of return  
7 used in the CBA is based on the forecasted capital structure and rates of return shown on  
8 Exhibit 37 J (52.45% common equity ratio, 10.75% cost of equity, 47.55% debt and  
9 preferred stock ratio, at a composite 4.69% rate.) Income tax rates for gross up were  
10 assumed to be 21% for federal tax and 5% for state tax. Lastly, uncollectible expense and  
11 utility regulatory assessment fees were calculated using a 0.75% rate, similar to the revenue  
12 gross ups found in Exhibit 37 H. For recognizing the cost of the investment over time, a  
13 10% depreciation rate was used for the CBA, in order to match the costs of the investment  
14 over time with the benefits generated by the investment. To avoid undue refinement, this  
15 rate was applied to the entire capital investment, and no breakout was made to allocate  
16 portions of investment to cost of removal (which does not depreciate) vs. Utility Plant in  
17 Service ("UPIS").

18 **Q. Are there other methodologies that are noteworthy and relevant to the calculation of**  
19 **the CBA?**

20 A. A few additional notes can be made about the CBA calculation. A half year or averaging  
21 principle was used for calculating annual costs and benefits in the model. Depreciation  
22 expense was calculated in net of presumed retired property, which is generally consistent

1 in all scenarios for the first 10 years, except for the retirement of lids, and which after the  
2 first 10 years is based on the value of the first 10 years' investment. Deferred taxes are  
3 calculated based on life vs. book depreciation and are included in the rate base. Rate base  
4 values reflect starting balances of UPIS and accumulated depreciation for meter  
5 infrastructure and are common to all scenarios, thus they do not produce differences in the  
6 findings.

7 **Q. Nominal dollars are sometimes described in Exhibit A. Can you explain this?**

8 A. Yes. All calculations were made in nominal dollars. This means that the future prices for  
9 labor and materials do reflect inflation over time. The figures represent the actual expected  
10 cost or benefits in future periods, at prices and wages that are higher than today's. This can  
11 be helpful to see the expected cost benefit relationship at any given point in time.

12 **Q. Net present value is also sometimes described in Exhibit A. Can you explain this?**

13 A. Yes. "Net Present Value" or "NPV" is a method of attempting to determine the value of a  
14 future sum of money to an investor today. It involves discounting future cash flows based  
15 on an assumed rate of expected return.

16 In this case, we are using a utility customer type view of costs and benefits, by spreading  
17 the cost of the investment over time and recognizing annual expense-type benefits as they  
18 would occur (much like would happen in a revenue requirement calculation). To derive an  
19 NPV, each year's net costs and benefits to customers are discounted using the utilities'  
20 proposed rate of return, to arrive at 2024 present value. This makes early costs and benefits  
21 more impactful and later costs and benefits less impactful.

1 **Q. What were the findings of the financial analysis?**

2 A. There are several findings:

3 1) AMI for each brand evaluated is generally more capital intensive, especially in  
4 early years when lids are required, relative to the same brand's AMR / Existing  
5 Tech solution.

6 2) AMI creates benefits relative to the current state for KAWC operations, whereas  
7 AMR / Existing Tech is the current state for KAWC and isn't anticipated to produce  
8 operational or customer service benefits.

9 3) When costs and benefits are netted, AMI Badger becomes the least cost solution  
10 after year 11, once AMI meter reading benefits begin in full. It is modeled to remain  
11 least costly in the years that follow. This can be seen in Figure 12 of Exhibit A

12 4) When costs and benefits are netted in the first 10 years, AMR / Existing Tech  
13 Badger is least cost, followed by AMI Badger and AMR/ Existing Tech Neptune.  
14 This can be seen in Figure 12 of Exhibit A.

15 5) On a net present value basis, AMR / Existing Tech Badger has the lowest cost net  
16 of benefits, followed by AMI Badger, then AMR / Existing Tech Neptune, AMI  
17 Neptune and AMI Neptune Hybrid. These can be seen in Figure 13 of Exhibit A.

18 On a net present value basis, the difference between AMI Badger and the lowest  
19 figure (AMR Badger) is \$3.1mm over the course of 20 years, or approximately  
20 \$150,000 / year. This is not particularly material. For context, \$150,000 is just

1 over 1/10 of a percent of the company's revenue requirement of \$142mm, as shown  
2 in Exhibit 37A.

3 **Q. Do these findings fully capture all of the potential benefits of AMI?**

4 A. No. The CBA focuses on the largest and most measurable financial benefits related to  
5 utility operations (meter-reading labor, field service labor and vehicle costs). Other  
6 expected AMI benefits not measured in the CBA include:

7 • Reduced call handling costs, given increased customer access to usage data through  
8 online tools;

9 • Identification of hidden customer-side leaks or plumbing failures more rapidly,  
10 which should reduce costs associated with:

11 ○ production expenses (e.g. chemicals and fuel & power)

12 ○ leak adjustments

13 ○ high bills

14 ○ property damage from burst pipes;

15 • Reduced greenhouse gas emissions due to fewer truck rolls and less water  
16 production; and

17 • Increased employee and public safety, which has more value than can be adequately  
18 expressed in dollars and cents.

1 **Q. Should cost net of benefits be the only consideration in the CPCN?**

2 A. No. Consistent with previous Kentucky Public Service Commission findings, selection of  
3 a proposal that ultimately costs more than an alternative does not necessarily result in  
4 wasteful duplication,<sup>2</sup> and this is especially true when the “next to least cost” alternative is  
5 only marginally more expensive than that alternative.

6 **Q. What is your recommendation?**

7 A. The findings of the CBA support the approval of the CPCN. The cost benefit relationship  
8 offered by Badger AMI delivers a solution that is among the least cost of the reasonable  
9 alternatives evaluated by KAWC and only marginally more expensive than AMR Badger.  
10 And beyond the benefits measured in the CBA, AMI unlocks the potential for a variety of  
11 additional customers service, safety, operational and financial benefits.

12 It is also clear given the deployment approach, whereby cellular AMI will be installed for  
13 normal, scheduled, periodic replacements or in instances of damaged or broken equipment,  
14 that there is a need for the investment and no wasteful duplication. Unlike other AMI  
15 deployments in the state, KAWC is not planning to accelerate the replacement of all meter  
16 reading equipment regardless of its age or condition. Rather, KAWC is merely planning  
17 to transition to an updated technology for meter reading equipment as it completes meter  
18 and endpoint replacements in the normal course of business. My recommendation is that  
19 the CPCN be approved.

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<sup>2</sup> September 22, 2021 order in Case No. 2021-00095, page 4.

1 Q. Does this conclude your direct testimony?

2 A. Yes.

VERIFICATION

STATE OF NEW JERSEY )  
 ) SS:  
COUNTY OF CAMDEN )

The undersigned, Melissa Schwarzell, being duly sworn, deposes and says that she is the Senior Principal, Finance, for American Water Works Service Company, Inc., that she has personal knowledge of the matters set forth in the accompanying the accompanying testimony for which she is identified as the responsible witness, and that the answers contained therein are true and correct to the best of her information, knowledge and belief.

  
\_\_\_\_\_  
Melissa Schwarzell

Subscribed and sworn to before me, a Notary Public in and before said County and State,  
this 23 day of June, 2023.

  
\_\_\_\_\_  
Notary Public

My Commission Expires:

4/15/2025

