



**Teresa K. Harrold**  
Director, Corporate Counsel  
852 Wesley Drive | Mechanicsburg, PA 17055  
Phone: 717-550-1562 | Fax: 717-550-1255  
[teresa.harrold@amwater.com](mailto:teresa.harrold@amwater.com)

**VIA eFiling**

July 25, 2025

Matthew L. Homsher, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17105-3265

**In re: Pa. Pub. Util. Comm'n v. Pa. American Water Co.  
Docket Nos. R-2023-3043189, et al.**

Dear Secretary Homsher:

Consistent with the Pennsylvania Public Utility Commission's Opinion and Order entered July 22, 2024 in the above-referenced proceeding, attached please find Pennsylvania-American Water Company's Feasibility of Conducting a Customer Class Demand Study.

If you should have any questions, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Teresa Harrold", written over a white background.

Teresa K. Harrold

Attachment

cc: Certificate of Service  
Kenneth M. Kulak, Esq. w/Attachment **VIA** Email  
Mark A. Lazaroff, Esq. w/Attachment **VIA** Email  
Catherine G. Vasudevan, Esq. w/Attachment **VIA** Email  
Brooke E. McGlenn, Esq. w/Attachment **VIA** Email  
David P. Zambito, Esq. w/Attachment **VIA** Email  
Jonathan Nase, Esq. w/Attachment **VIA** Email

PENNSYLVANIA AMERICAN WATER COMPANY  
Mechanicsburg, Pennsylvania

FEASIBILITY OF CONDUCTING  
A WATER CUSTOMER CLASS DEMAND STUDY

JULY 2025

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC  
Mechanicsburg, Pennsylvania

PENNSYLVANIA AMERICAN WATER COMPANY

FEASIBILITY OF CONDUCTING  
A WATER CUSTOMER CLASS DEMAND STUDY

EXECUTIVE SUMMARY

Per the Pennsylvania Public Utility Commission's (PA PUC) Order at Docket No. R-2023-3043189, Pennsylvania American Water Company ("PAWC" or the "Company") committed to providing a feasibility study of conducting a water customer class demand study. Pursuant to this commitment, PAWC submits the following study of the feasibility and cost of conducting a customer class demand study including the timetable required to complete such a study. The feasibility analysis delineates the scope of the proposed report and an estimate of the total costs. Since the Company's prior demand study, hardware and software innovations have improved such that the Company has access to many more monitoring points at a much lower cost of equipment and manpower as compared to the prior demand study.

The customer class demand study, if conducted, would monitor three years of the most recent data available. The results of the demand study would then be presented to the PA PUC in advance of the Company's first base rate case after the completion of the study.

## SCOPE OF PROPOSED DEMAND STUDY

In order to analyze the cost of studying customer demands on PAWC's water system, a tentative scope of the study must be considered. The elements that define the scope of the study include the classification of customers selected for monitoring, the sample size of customers to be monitored, and the total number of customers selected for monitoring within each service area and classification. For reference, we have attached, as Exhibit A, a map showing PAWC's service areas in Pennsylvania.

The source of the usage data for the customer samples will be the Company's Advanced Metering Infrastructure ("AMI") Enabled Meters, which are installed on various customer accounts. The data will be analyzed using Amazon Web Service ("AWS") QuickSight software. This software is a cloud-based Business Intelligence ("BI") service that allows users to analyze data, create visualizations, and share insights across organizations. The software will create an AMI Dashboard in order to analyze data for the purposes of the demand study.

### **Data Description & Selection:**

- The underlying data for the AMI Data Dashboard is sourced from the Meter Data Management System stored in SAP Cloud for Energy ("C4E").
- AMI Enabled Meters are part of this dataset.
- The data is enriched with additional associated meter information (Company Code, Account Class).
- The data is transformed and required computations are performed through AWS QuickSight. The results of the ad-hoc analyses are displayed and visualized in the AMI Data Dashboard.

### Selection Criteria:

- AMI meters must have full meter data reads from the start date of the study through the end date. For purposes of this study, the first full 12-month period should be no earlier than September 1, 2023 to ensure sufficient full meter data reads.
- Company Code is selected. For purposes of this study, 1024 is selected, which corresponds to the Pennsylvania American Water Company.
- Meters are separated by Account Class Name, i.e., Residential, Commercial, Industrial, Other Public Authority (“OPA”), Sales for Resale (“SFR”) or Miscellaneous.
- An additional selection ‘Category,’ which is applicable to the Residential and Commercial classes only, can be selected as follows:
  - Residential - Small
    - Meter with cumulative usage read of 50,000 gallons or less in the selected year.
  - Residential - Large
    - Meter with cumulative usage read of greater than 50,000 gallons in the selected year.
  - Commercial - Small
    - Meter with cumulative usage read of 100,000 gallons or less in the selected year.
  - Commercial - Medium
    - Meter with cumulative usage read between 100,000 and 500,000 gallons in the selected year.
  - Commercial - Large

- Meter with cumulative usage read greater than 500,000 gallons in the selected year.
- Outliers
  - The outlier percentile removes the top and bottom percent of hourly consumption data from the selected account class. If set to 0, no outliers will be removed.
  - The removal of outliers is standard practice for customer consumption monitoring, as outliers are not representative of actual water usage patterns of the Company's customer base.

AMI meter data reads that satisfy the criteria would be included in the analysis. Currently, the Company has identified 36,168 small residential meters, 177 large residential meters, 2,165 small commercial meters, 36 medium commercial meters, 6 large commercial meters, 144 OPA meters, 67 industrial meters, and 3 SFR meters that meet the selection criteria. This amount of data across a broad base of customers would produce robust results for a demand study. As a note, the results from the small and large residential meters will be prorated based on overall usage to develop one set of demand factors for the residential class. The same process would be used for the small, medium and large commercial meters.

## **AWS QuickSight Dashboard**

The following are descriptions of the different tables and summary bins as displayed in the AWS QuickSight dashboard. This analysis would be performed for each customer class.

For purposes of this example, the selection used below are from Company Code 1024 (PAWC), Account Class is Residential, Category is Small, Period Selected is 12 months ending August 2024 and removing the top and bottom 5% Outliers.

### 1. Daily Usage

- Sum of all usage (in gallons) of selected class broken down by day

<b><i>Daily Usage</i></b>	
<b><i>Date</i></b>	<b><i>Total Usage</i></b>
<i>September 1, 2023</i>	7,959,687.14
<i>September 2, 2023</i>	6,668,714.02
<i>September 3, 2023</i>	5,246,098.98
<i>September 4, 2023</i>	3,937,723.92

### 2. Monthly Usage

- Sum of all usage (in gallons) of selected class broken down by month

<b><i>Monthly Usage</i></b>	
<b><i>Date</i></b>	<b><i>Total Usage</i></b>
<i>September 2023</i>	193,856,122.16
<i>October 2023</i>	185,560,935.90
<i>November 2023</i>	191,222,867.00
<i>December 2023</i>	200,073,944.28

3. Monthly Average

- Monthly Usage (in gallons) divided by sample size

***Monthly Average***

<b><i>Date</i></b>	<b>Total Usage</b>
<i>September 2023</i>	6,684,693.87
<i>October 2023</i>	6,185,364.53
<i>November 2023</i>	6,593,891.97
<i>December 2023</i>	6,669,131.48

4. Sample Size

- Number of meters within the given class selection prior to outlier removal

<b>Residential Sample Size:</b>	36,168
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5. Hourly Usage

- Sum of all usage (in gallons) of selected class broken down by date and hour

***Hourly Usage***

<b><i>Date</i></b>	<b>Hour</b>	<b>Total Usage</b>
<i>September 1, 2023</i>	0	155,855.34
<i>September 1, 2023</i>	1	117,446.50
<i>September 1, 2023</i>	2	111,787.78
<i>September 1, 2023</i>	3	123,963.96

6. Max Hourly

- For the selected period, the maximum hourly usage following outlier removal is identified along with the corresponding date and hour

7. Average Hourly

- Hourly Usage divided by the Sample Size

8. Hourly Ratio

- Max Hourly divided by Average Hourly

9. Max Daily

- For the selected period, the maximum daily usage following outlier removal is identified along with the corresponding date

10. Average Daily

- Daily Usage divided by Sample Size

11. Daily Ratio

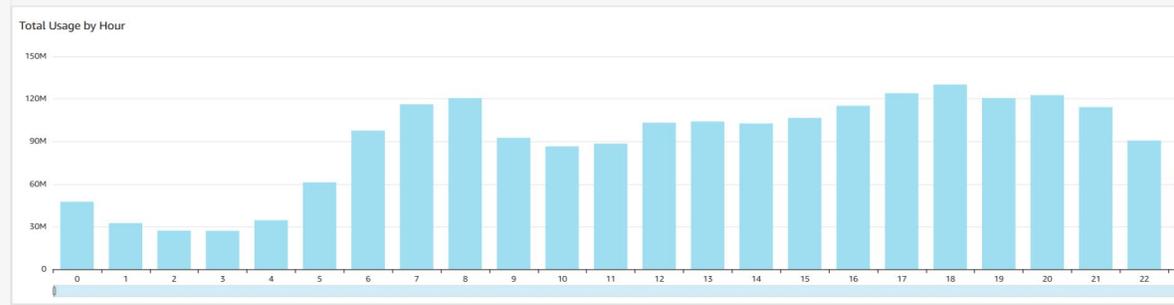
- Max Daily divided by Average Daily

Max Hourly  <b>497,022.86</b>  On Apr 20, 2024	Max Daily  <b>8,229,639.1</b>  On May 24, 2024
Average Hourly  <b>272,845.2</b>	Average Daily  <b>5,958,390.41</b>
Hourly Ratio  <b>1.82</b>	Daily Ratio  <b>1.35</b>

## Visualization:

### Total Usage by Hour

- Total usage for the selected class broken down by hour



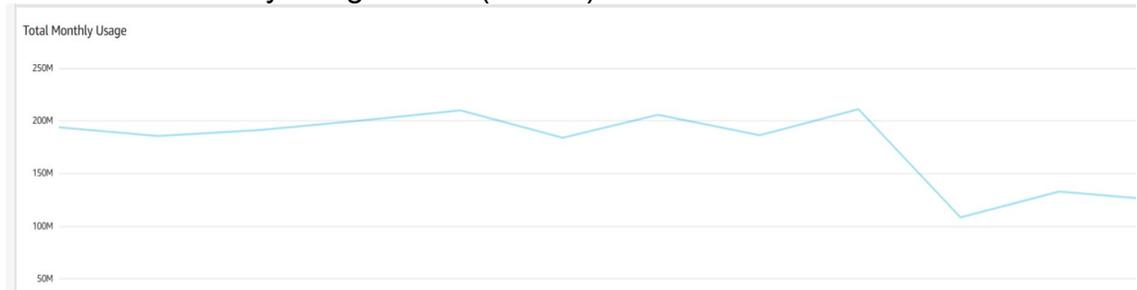
### Total Daily Usage

- Line graph visualizing total daily usage.
- Reflects Daily Usage Table (table 1)



### Total Monthly Usage

- Line graph visualizing total monthly usage
- Reflects Monthly Usage Table (table 2)



### Implementation and Data Analysis

If the demand study is to be undertaken, PAWC proposes that the study would utilize thirty-six months of data monitoring to ensure that periods of peak use are experienced for all classes. This study period could be extended depending on weather conditions during the summer months of the monitoring period. For example, if the summers are unusually wet, it is not likely that peak demands will be captured.

Demand data would be gathered continuously, and the AMI Data Dashboard would be updated as needed. A detailed analysis would be performed after sufficient data has been obtained. Such analyses will include the examination of observed peak consumption in relation to average consumption on both a coincident and non-coincident basis. The relationship of use during the observed period will also be compared to periods of system peak usage. Available results will be provided to the Joint Petitioners not less than 30 days before the filing of PAWC's first general base rate case after the completion of the study. After monitoring for a 36-month period, the demand study will be completed, and a final report will be issued. The report will summarize the results of the observed and adjusted data, make recommendations as appropriate, and set forth any conclusions that can be drawn from the data.

### Estimate of Cost

As the equipment and software needed to perform the study are already in use by the Company, the only additional cost would be consulting fees needed to oversee the project and create the final report. The estimated consultant cost for the data analysis phase and reporting is \$75,000.



**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

<b>PENNSYLVANIA PUBLIC UTILITY COMMISSION</b>	<b>:</b>	<b>DOCKET NOS.: R-2023-3043189 (Water)</b>
	<b>:</b>	<b>R-2023-3043190 (Wastewater)</b>
<b>v.</b>	<b>:</b>	
<b>PENNSYLVANIA-AMERICAN WATER COMPANY</b>	<b>:</b>	
	<b>:</b>	

**CERTIFICATE OF SERVICE**

I hereby certify and affirm that I have this day served a true and correct copy of **Pennsylvania-American Water Company’s Feasibility of Conducting a Water Customer Class Demand Study**, on the following persons, in the manner specified below, in accordance with the requirements of 52 Pa. Code Section 1.54:

**VIA ELECTRONIC MAIL**

Melanie Joy El Atieh  
Erin L. Gannon  
David T. Evrard  
Andrew J. Zerby  
Office of Consumer Advocate  
Forum Place – 5<sup>th</sup> Floor  
555 Walnut Street  
Harrisburg, PA 17101  
[OCAPAWC2023@paoca.org](mailto:OCAPAWC2023@paoca.org)  
*Counsel for OCA*

Carrie B. Wright  
Bureau of Investigation and & Enforcement  
Pennsylvania Public Utility Commission  
Commerce Keystone Building  
400 North Street, 2<sup>nd</sup> Floor  
Harrisburg PA 17120  
[carwright@pa.gov](mailto:carwright@pa.gov)  
*Counsel for I&E*

Steven C. Gray  
Rebecca Lyttle  
Office of Small Business Advocate  
Forum Place  
555 Walnut Street, 1<sup>st</sup> Floor  
Harrisburg, PA 17101  
[sgray@pa.gov](mailto:sgray@pa.gov)  
[relyttle@pa.gov](mailto:relyttle@pa.gov)  
*Counsel for OSBA*

Joseph L. Vullo  
Burke Vullo Reilly Roberts  
1460 Wyoming Avenue  
Forty Fort, PA 18704  
[jlvullo@bvrrlaw.com](mailto:jlvullo@bvrrlaw.com)  
*Counsel for Commission on Economic  
Opportunity*

Adeolu A. Bakare  
Charis Mincavage  
Ryan Block  
Kenneth Stark  
McNees Wallace & Nurick LLC  
100 Pine Street  
Harrisburg, PA 17101  
[abakare@mcneeslaw.com](mailto:abakare@mcneeslaw.com)  
[cmincavage@mcneeslaw.com](mailto:cmincavage@mcneeslaw.com)  
[rblock@mcneeslaw.com](mailto:rblock@mcneeslaw.com)  
[kstark@mcneeslaw.com](mailto:kstark@mcneeslaw.com)  
*Counsel for Pennsylvania-American Water  
Large Users Group*

Kurt J. Boehm  
Jody Kyler Cohn  
Boehm, Kurtz & Lowry  
36 East Seventh Street, Suite 1510  
Cincinnati, OH 45202  
[kboehm@bkllawfirm.com](mailto:kboehm@bkllawfirm.com)  
[jkylercohn@bkllawfirm.com](mailto:jkylercohn@bkllawfirm.com)  
*Counsel for Cleveland-Cliffs Steel*

Joan E. London  
Kozloff Stoudt  
2640 Westview Drive  
Wyomissing, PA 19610  
[jlondon@kozloffstoudt.com](mailto:jlondon@kozloffstoudt.com)  
*Counsel for Borough of St. Lawrence,  
Berks County*

Karen O. Moury  
Eckert Seamans Cherin & Mellott, LLC  
213 Market Street, 8<sup>th</sup> Floor  
Harrisburg, PA 17101  
[kmoury@eckertseamans.com](mailto:kmoury@eckertseamans.com)  
*Counsel for Victory Brewing Company*

Ria Pereira  
John Sweet  
Elizabeth Marx  
Lauren Berman  
The Pennsylvania Utility Law Project  
118 Locust Street  
Harrisburg, PA 17101  
[rpereira@pautilitylawproject.org](mailto:rpereira@pautilitylawproject.org)  
[jsweet@pautilitylawproject.org](mailto:jsweet@pautilitylawproject.org)  
[emarx@pautilitylawproject.org](mailto:emarx@pautilitylawproject.org)  
[lberman@pautilitylawproject.org](mailto:lberman@pautilitylawproject.org)  
[pulp@pautilitylawproject.org](mailto:pulp@pautilitylawproject.org)  
*Counsel for CAUSE-PA*

Sean M. Gallagher  
Gallagher Law Group  
110 East Diamond Street, Suite 101  
Butler, PA 16001  
[smgallagher@gallagher.legal](mailto:smgallagher@gallagher.legal)  
*Counsel for Cleveland-Cliffs Steel*

J. Chadwick Schnee  
Schnee Legal Services, LLC  
74 East Main Street, #648  
Lititz, PA 17543  
[chadwick@schneelegal.com](mailto:chadwick@schneelegal.com)  
*Counsel for Exeter Township*

Lauren M. Burge  
Eckert Seamans Cherin & Mellott, LLC  
600 Grant Street, 44<sup>th</sup> Floor  
Pittsburgh, PA 15219  
[lburge@eckertseamans.com](mailto:lburge@eckertseamans.com)  
*Counsel for Victory Brewing Company*

Jessica Eskra  
City of Scranton  
Law Department  
340 North Washington Avenue  
Scranton, PA 18503  
[jeskra@scrantonpa.gov](mailto:jeskra@scrantonpa.gov)  
*Counsel for City of Scranton*

Jacob D. Guthrie  
Assistant Consumer Advocate  
Office of Consumer Advocate  
Forum Place – 5th Floor  
555 Walnut Street  
Harrisburg, PA 17101  
[jguthrie@paoca.org](mailto:jguthrie@paoca.org)  
Counsel for OCA



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Teresa K. Harrold (Pa. No. 311082)  
Elizabeth Rose Triscari (Pa. No. 306921)  
Erin K. Fure (Pa. No. 312245)  
Pennsylvania-American Water Company  
852 Wesley Drive  
Mechanicsburg, PA 17055  
[elizabeth.triscari@amwater.com](mailto:elizabeth.triscari@amwater.com)  
717-550-1574  
[teresa.harrold@amwater.com](mailto:teresa.harrold@amwater.com)  
717-550-1562  
[erin.fure@amwater.com](mailto:erin.fure@amwater.com)  
717-550-1556

Dated: July 25, 2025

*Counsel for  
Pennsylvania-American Water Company*