

BEFORE THE
PHILADELPHIA WATER, SEWER AND STORM WATER RATE BOARD

IN THE MATTER OF THE
PHILADELPHIA WATER)
DEPARTMENT’S PROPOSED)
CHANGE IN WATER, WASTEWATER) **Fiscal Years 2024-2025**
AND STORMWATER RATES AND)
RELATED CHARGES)

DIRECT TESTIMONY
OF
LAFAYETTE K. MORGAN, JR.
AND
JENNIFER L. ROGERS

ON BEHALF OF THE
PUBLIC ADVOCATE

April 13, 2023

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1 **I. INTRODUCTION**

2 **Q. MR. MORGAN, PLEASE STATE YOUR NAME AND BUSINESS**
3 **ADDRESS.**

4 A. My name is Lafayette K. Morgan, Jr. My business address is 10480 Little Patuxent
5 Parkway, Suite 300, Columbia, Maryland, 21044. I am a Public Utilities Consultant
6 working with Exeter Associates, Inc. (“Exeter”). Exeter is a consulting firm
7 specializing in issues pertaining to public utilities.

8 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
9 **QUALIFICATIONS.**

10 A. I received a Master of Business Administration degree from The George Washington
11 University. The major area of concentration for this degree was Finance. I received a
12 Bachelor of Business Administration degree with concentration in Accounting from
13 North Carolina Central University. I was previously a CPA licensed in the State of
14 North Carolina; however, in 2009, I elected to place my license in an inactive status as
15 I focused on start-up activities for other business interests.

16 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.**

17 A. From May 1984 until June 1990, I was employed by the North Carolina Utilities
18 Commission (“NCUC”) - Public Staff in Raleigh, North Carolina. I was responsible for
19 analyzing testimony, exhibits, and other data presented by parties before the NCUC. I
20 had the additional responsibility of performing the examination of books and records
21 of utilities involved in rate proceedings and summarizing the results into testimony and
22 exhibits for presentation before the NCUC. I was also involved in numerous special
23 projects, including participating in compliance and prudence audits of a major utility,
24 and conducting research on several issues affecting natural gas and electric utilities.

25 From June 1990 until July 1993, I was employed by Potomac Electric Power
26 Company (“Pepco”) in Washington, D.C. At Pepco, I was involved in the preparation

1 of the cost of service, rate base and ratemaking adjustments supporting Columbia's
2 requests for revenue increases in the State of Maryland and the District of Columbia.

3 From July 1993 through 2010, I was employed by Exeter as a Senior Regulatory
4 Analyst. During that period, I was involved in the analysis of the operations of public
5 utilities, with emphasis on utility rate regulation. I reviewed and analyzed utility rate
6 filings, focusing primarily on revenue requirements determination. This work involved
7 natural gas, water, electric, and telephone companies.

8 In 2010, I left Exeter to focus on start-up activities for other ongoing business
9 interests. In late 2014, I returned to Exeter, continuing to work in a similar capacity as
10 prior to my hiatus.

11 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY**
12 **PROCEEDINGS ON UTILITY RATES?**

13 A. Yes. I have previously presented testimony and affidavits on numerous occasions
14 before the Colorado Public Utilities Commission; Georgia Public Service Commission;
15 Illinois Commerce Commission; Kansas Corporation Commission; Kentucky Public
16 Service Commission; Louisiana Public Service Commission; Maine Public Utilities
17 Commission; Maryland Public Service Commission; North Carolina Utilities
18 Commission; Corporation Commission of Oklahoma; Pennsylvania Public Utility
19 Commission; Philadelphia Water, Sewer and Storm Water Rate Board; Philadelphia
20 Gas Commission; Public Utilities Commission of Rhode Island; Public Service
21 Commission of South Carolina; Vermont Public Service Board; Virginia Corporation
22 Commission; West Virginia Public Service Commission; and the Federal Energy
23 Regulatory Commission. My resume is attached hereto as Appendix A.

24 **Q. MS. ROGERS, PLEASE STATE YOUR NAME AND BUSINESS**
25 **ADDRESS.**

1 A. My name is Jennifer L. Rogers. My business address is 10480 Little Patuxent Parkway,
2 Suite 300, Columbia, Maryland, 21044. I am the Lead Economist working with Exeter.

3 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
4 **QUALIFICATIONS.**

5 A. I received a Master of Arts degree in Economics from Northeastern University. I also
6 have a Bachelor of Arts degree in Economics with a minor in Environmental Studies
7 from St. Mary's College of Maryland.

8 I also attended the 42nd Eastern National Association of Regulatory Utility
9 Commissioners ("NARUC") Utility Rate School in 2014, and in 2022 completed the
10 Institute of Public Utilities Accounting and Ratemaking Course as well as EUCI's
11 Electric Cost-of-Service Course.

12 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.**

13 A. I have been employed with Exeter since 2009, initially as a Research Assistant before
14 being promoted to Economist and then Senior Economist. I am now the Lead
15 Economist for the firm. At Exeter, I review utility rate filings and provide analysis of
16 revenue requirement issues. I also evaluate and forecast power supply requirements,
17 costs, and renewable energy needs; provide bill and rate analysis; and review energy
18 use, scheduling, and scheduling deviation data for clients. In addition, I conduct utility
19 service assessments to identify areas for potential utility cost savings, providing
20 detailed analysis of supply contracts, energy use, and a review of billing practices.

21 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY**
22 **PROCEEDINGS ON UTILITY RATES?**

23 A. Yes. I have previously presented testimony before the Pennsylvania Public Utility
24 Commission, the Maryland Public Service Commission, and the Public Utility
25 Commission of Texas. My resume is attached hereto as Appendix B.

26 **Q. ON WHOSE BEHALF ARE YOU APPEARING?**

1 A. We are presenting testimony on behalf of the Public Advocate.

2 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
3 **PROCEEDING?**

4 A. Exeter has been retained by the Public Advocate to assist in the evaluation of the
5 Formal Notice of proposed increases in rates and charges submitted by Philadelphia
6 Water Department (“PWD” or “Department”). In this testimony, we present our
7 findings on behalf of the Public Advocate regarding the overall revenue increase the
8 Department is requesting for its water and wastewater operations for its Rate Period
9 (Fiscal Years [“FY”] 2024 and 2025). Our colleague, Mr. Jerome D. Mierzwa, will
10 present the Public Advocate’s recommendations regarding rate design and class cost of
11 service issues. In addition, Roger D. Colton will present the Public Advocate’s
12 recommendations regarding policy and/or operations improvements for which
13 projected or anticipated revenue or cost impacts may be ascertained.

14 **Q. HAVE YOU PERFORMED AN EXAMINATION AND REVIEW OF**
15 **THE DEPARTMENT’S TESTIMONY AND EXHIBITS?**

16 A. Yes. We have reviewed the Department’s testimonies, exhibits, and its rate filing, as
17 well as its responses to data requests.

18 **Q. HAVE YOU PREPARED SCHEDULES TO ACCOMPANY YOUR**
19 **TESTIMONY?**

20 A. Yes. We have prepared Schedules LM_JR-1 through LM_JR-5. Schedule LM_JR-1 is
21 reflective of an adjusted Table C-1A, which was provided in the Rate Board's Financial
22 Model (the Simple Model). It presents the Department’s revenue requirement and
23 operating results after reflecting the various adjustments that we have recommended
24 on behalf of the Public Advocate. Schedule LM_JR-2 presents a summary of the
25 Department’s various sales and revenue receipts after reflecting the adjustments we
26 have proposed. Schedule LM_JR-3 presents a summary of the Department’s operating

1 expenses after reflecting the adjustments we have proposed. Schedule LM_JR-4
2 summarizes the Department’s capital expenditures, debt, and debt service. Schedule
3 LM_JR-5 provides a summary of the Rate Stabilization Fund balance and shows the
4 Department’s performance relative to the various covenants after reflecting the
5 adjustments we have recommended.

6 **Q. HOW IS THE REMAINDER OF YOUR TESTIMONY**
7 **ORGANIZED?**

8 A. First, we provide a summary of the rate relief PWD requests and a brief statement of
9 our conclusions. Next, we identify policy considerations that the City of Philadelphia
10 (“City”), the Department, and the Rate Board need to begin exploring seriously to
11 mitigate the impact of future rates that will be charged to customers. We then provide
12 an overview of the test year data considerations relative to PWD’s proposed cost of
13 service and rate increase. We then briefly describe PWD’s accounting practices and
14 how they impact the Department’s rate increase request and discuss general concerns
15 regarding the data on which the revenue requirement is based. Finally, we undertake a
16 more technical review of certain projections and assumptions included in PWD’s filing,
17 proposing specific changes where appropriate.

18 **II. SUMMARY AND RECOMMENDATIONS**

19 **Q. PLEASE SUMMARIZE THE RATE RELIEF REQUESTED BY THE**
20 **DEPARTMENT IN ITS FILING.**

21 A. In this proceeding, the Department is requesting increases in rates for FY 2024 and FY
22 2025. As indicated in the testimony of Randy E. Hayman, Philadelphia Water
23 Department Statement No. 1, the Department is seeking an \$80.412 million rate
24 increase in FY 2024 and a \$62.977 million increase in FY 2025. Based on our analysis,

1 the requested increase should be reduced to \$47.147 million in FY 2024 and \$45.410
2 million in FY 2025.

3 **Q. PLEASE SUMMARIZE YOUR FINDINGS AND**
4 **RECOMMENDATIONS.**

5 A. We have reviewed the Department’s rate increase filing, reviewed and analyzed the
6 responses to the data requests that were served on the Department, and examined the
7 electronic spreadsheets supporting its claim for a rate increase. Based on our review,
8 we recommend the Board not approve the increase in rates as filed by the Department.
9 Instead, we are recommending adjustments to the cost of service, as presented by the
10 Department, to reduce costs that appeared to be excessive and to reflect certain costs at
11 a more reasonable level. These adjustments are described in our testimony.

12 **III. POLICY CONSIDERATIONS**

13 **A. Stormwater Infrastructure and Management Funding**

14 **Q. PLEASE EXPLAIN THE CHALLENGE OF ADDRESSING**
15 **STORMWATER RUNOFF AND PROVIDE SOME BACKGROUND**
16 **AND CONTEXT WITH RESPECT TO THE FUNDING OF PWD’S**
17 **STORMWATER INFRASTRUCTURE AND MANAGEMENT**
18 **SYSTEM.**

19 A. Historically, Combined Sewer Overflows (“CSOs”) were identified as the release of
20 untreated domestic, commercial, and industrial wastewater and wet weather water that
21 contained many different types of contaminants. CSO discharges are known to cause a
22 variety of adverse impacts on the environment including the physical characteristics of
23 surface waters, the viability of aquatic habitats, and are a contributor of impaired water.
24 The agencies that protect the environment—the U.S. Environmental Protection Agency
25 (“EPA”) and the Pennsylvania Department of Environmental Protection (“DEP”)—
26 adopted policies that subjected CSOs to the National Pollutant Discharge Elimination
27 System (NPDES) permit requirements and to the Clean Water Act (“CWA”).

1 The majority of PWD’s wastewater system is a combined sewer and stormwater
2 system. The current system design often allows overflows of billions of gallons of
3 stormwater and diluted sewage into local waterways each year during wet weather
4 when the flow of untreated water exceeds PWD’s capacity to treat water before
5 allowing it to flow into the waterways.

6 State and federal regulations currently limit the amount of pollutants that flow
7 into the waterways. The City of Philadelphia adopted the Green City, Clean Waters
8 (“GCCW”) plan in 2011 as part of the Consent Order Agreement (“COA”) signed
9 between the City of Philadelphia and the Pennsylvania Department of Environmental
10 Protection to meet the City’s obligation under the Clean Water Act and reduce pollution
11 resulting from combined sewer overflows. GCCW is a 25-year plan to reduce the
12 volume of stormwater entering the combined sewer system using green infrastructure,
13 and to expand stormwater treatment capacity with traditional infrastructure
14 improvements. In 2021, the implementation cost of this plan was updated to an estimate
15 of \$4.5 billion. Under the current regulatory policy, PWD customers are bearing the
16 cost of implementing the GCCW and related programs. The two current grant programs
17 that target non-residential private properties are the Stormwater Management
18 Incentives Program (“SMIP”) and the Greened Acre Retrofit Program (“GARP”). Prior
19 to the COVID-19 pandemic, \$25 million was included in the cost of service to carry
20 out these programs. That amount has since been reduced by \$5 million. The programs
21 target the reduction of impervious surfaces and provide credits or grants to pay for the
22 design and construction of stormwater retrofit projects on non-residential properties or
23 reduce stormwater bills.

24 The control and processing of stormwater has broader environmental and
25 societal benefits. Stormwater runoff has been identified as the number one cause of

1 pollution to rivers and streams, the source of drinking water. When it rains or snows,
2 stormwater runoff pollutes rivers with fertilizers, oil, and sediment, and destroys
3 valuable aquatic and riparian habitat. Because the source of stormwater is an act of
4 nature, the costs of its treatment do not completely correspond with the demands that
5 PWD customers place on the City's water and wastewater infrastructure. As a result,
6 PWD customers should not be burdened with the full responsibility for paying for the
7 City's efforts to address stormwater runoff. Currently, impervious areas such as streets
8 and sidewalks contribute to stormwater runoff that is handled by PWD's wastewater
9 system, and the costs to treat that water are being recovered fully from PWD customers.
10 In short, it is the City's responsibility to bear the cost to control and treat stormwater
11 that is discharged into the waterways from within the confines of the City.

12 **Q. WHY ARE YOU RAISING THIS ISSUE NOW?**

13 A. We are raising this issue because the cost of addressing the volume of stormwater
14 entering PWD's sewer and wastewater system, and the cost of expanding PWD's
15 stormwater treatment capacity and infrastructure improvements to handle stormwater
16 runoff, have a direct impact on the rates charged to PWD's customers. The majority of
17 the costs to address the stormwater treatment is currently being funded by debt
18 financing. This means that the cost of the program is being recovered through rates
19 collected from customers. One of the drivers of the frequent rate cases filed by PWD
20 is the need to secure financing for capital projects, such as the wastewater
21 infrastructure, and maintaining compliance with debt covenants. Every time PWD
22 increases its outstanding debt, the required income to remain in compliance with its
23 Debt Service Coverage ("DSC") changes. For the last several years, this has meant
24 increases in the rates charged to customers.

1 Furthermore, unless the approach to stormwater overflow remediation funding
2 is altered, the costs of maintaining green stormwater infrastructure will continue to be
3 charged to PWD customers as O&M expenses. O&M costs associated with maintaining
4 this infrastructure are expected to increase year-after-year with the capital investments
5 needed to comply with the COA.

6 Developing another approach for funding the cost of stormwater handling is
7 necessary because as the Department continues to expend funds to comply with the
8 COA, PWD's rates will become even higher and negatively impact customer
9 affordability for a service that is vital to human existence. As stated earlier, the broader
10 societal and environmental impacts, and the City's responsibility for the discharge of
11 stormwater in the environment, make it unfair to burden water and sewer customers
12 with the costs of meeting the City's obligations.

13 **Q. ARE YOU SUGGESTING A SHIFT IN THE COST**
14 **RESPONSIBILITY FROM PWD TO THE CITY?**

15 A. Yes. While there are a number of program designs that can be used to recover the cost
16 of stormwater runoff, the first step in the process is to determine who bears the
17 responsibility for covering the costs. We believe that the costs recovery should be borne
18 by the City rather than only the customers of PWD.

19 **Q. ARE THERE OTHER JURISDICTIONS WHERE THE CITY IS**
20 **RESPONSIBLE FOR COST RECOVERY?**

21 A. Yes. The City of Durham, North Carolina assesses a Stormwater Utility Fee. The fee
22 is based on the total amount of impervious surface on an individual lot or parcel and is
23 assessed on the property owners. It is not a rate or charge connected to the delivery of
24 drinking water or treatment of household wastewater.

25 The City of Atlanta voters approved the Municipal Option Sales Tax
26 ("MOST"). The MOST is used to help ensure the reliability of the city's water and

1 sewer infrastructure and fund stormwater projects, allowing for improved water
2 quality, better flood management, and compliance with clean water laws. Therefore,
3 the cost of the stormwater infrastructure is borne by taxpayers, including tourists, who
4 visit the city and purchase goods there.

5 Arlington County in Virginia recently changed how its stormwater program
6 fund is funded. The program is funded through a Sanitary District Tax on each property's
7 real estate assessment. The fee is based upon the amount of impervious surface on the
8 surface of a property.

9 This is not a complete list of municipalities where the stormwater cost recovery
10 is not borne by the utility's ratepayers. The point here is to recognize that the suggestion
11 that stormwater cost recovery be shifted from PWD is not a novel idea, but rather
12 recognizes that treating stormwater, and remediating overflows, produces significant
13 environmental benefits that extend beyond the delivery of clean drinking water.

14 **Q. WHAT DO YOU RECOMMEND?**

15 A. We recommend that the Board explicitly recognize that continuing to fund the City's
16 stormwater remediation program through customer rates and charges represents a
17 significant threat to long-term affordability of life-essential water service for
18 Philadelphians. We further recommend that the Board direct PWD to provide quarterly
19 reports detailing its efforts to work with the City Administration, City Council and
20 other stakeholders to implement a funding approach to stormwater remediation that
21 relies upon non-ratepayer revenues, including tax and other City revenues, as well as
22 state and federal infrastructure funding.

1 **IV. RATE CASE COST OF SERVICE**

2 **A. Development of Adjustments to Rate Increases**

3 **Q. HOW HAVE YOU DEVELOPED YOUR RECOMMENDATIONS**
4 **FOR THE RATE INCREASE SOUGHT BY THE DEPARTMENT?**

5 A. As indicated in the Department’s filing, the testimony submitted by Black & Veatch
6 Management Consulting, LLC (“Black & Veatch”) provides the cost of service on
7 which the proposed rates are based. The study period used in that cost of service study
8 covers FY 2023 to FY 2028. While the study period covers a six-year period, the
9 specific rate increases being sought by the Department are to become effective in FY
10 2024 and FY 2025. Therefore, the focus of our analysis is primarily to ensure that any
11 rate increase granted during those fiscal years is justified. Consequently, we have not
12 considered any of the years beyond FY 2025, nor have we made recommendations that
13 affect those years. However, to be clear, we have used the same projection period as
14 the Department in determining the revenue requirements for each proposed rate
15 increase.

16 To produce our calculations, we employed the use of two electronic spreadsheet
17 models that were not developed by us. First, we used Black & Veatch’s proprietary
18 model. This model was used to assess the claims and the assumptions underlying the
19 Department’s requested rate increase to derive the adjusted cost of service. After
20 obtaining the cost of service from the Black & Veatch model, we entered the data into
21 the simplified cost of service model that was developed for the Board’s use. The
22 simplified model demonstrates the effect of our proposed adjustments on the
23 Department’s proposed rate increase. It is based upon the use of these two models that
24 we have calculated the reduction in the Department’s requested increase. Although we

1 used these models to make our recommendations, we do not attest to the accuracy of
2 the algorithms used therein.

3 **Q. WHAT IS THE PURPOSE OF THE TEST YEAR IN A**
4 **RATEMAKING PROCEEDING?**

5 A. The test year or test period consists of 12 or more consecutive months and is assumed
6 to be representative of normal operations. Under standard ratemaking practice, the
7 revenues and expenses that are projected to occur during that 12-month period are used
8 as the basis for determining whether there is a need for incremental revenues. Hence,
9 test period revenues and costs must be adjusted to normalize non-recurring items, to
10 annualize new costs and/or revenues, and to normalize costs or revenues that may occur
11 infrequently (e.g., every two years, every five years, etc.).

12 It should be noted that the rates that are derived from the test year remain in
13 effect, not just for the test year, but for all subsequent years until new rates from a future
14 rate case become effective. This is an important distinction between ratemaking and
15 budgeting. Since rates could be in effect for an indefinite period of time, it is extremely
16 important that the test year financial data are representative of the utility's normal
17 operating conditions. It is also important that both adjusted and unadjusted test year
18 data meet the widely accepted regulatory principle of being "known and measurable."
19 To be considered as "known and measurable," the probability of the revenue or cost
20 and the amount of any change must be known with certainty.

21 **B. Accounting Practices Overview**

22 **Q. PLEASE SUMMARIZE HOW THE DEPARTMENT'S**
23 **ACCOUNTING BOOKS ARE MAINTAINED.**

24 A. The Department keeps its books on what is termed a "legally enacted" or "modified
25 accrual" basis. In general, a legally enacted basis is equivalent to a cash basis. Under
26 this basis, revenues are recorded when they are received, rather than when the customer

1 is billed or service is rendered. Expenses are recorded on an encumbrance basis, which
2 is similar to the accrual basis (i.e., recorded when the payment obligation is incurred).

3 **Q. WHY IS THE DEPARTMENT'S BASIS OF ACCOUNTING**
4 **SIGNIFICANT?**

5 A. From a ratemaking perspective, there are two considerations that come to mind. First,
6 since revenues are recorded when they are received, there is no provision on the
7 Department's books for bad debts or uncollectible accounts from service revenues.
8 Therefore, as we will discuss later in this testimony, in forecasting future revenues for
9 ratemaking purposes for the Department, a major consideration is the portion of billed
10 revenue that is expected to be collected based upon historical experience. Second, it is
11 accepted ratemaking practice for utilities to normalize non-recurring or extraordinary
12 expenditures both on their books and for ratemaking purposes. The rationale is to
13 spread costs over the periods that benefit from the expenditure or to prevent over-
14 collection of costs. For example, the expenses incurred for presenting a rate case (legal,
15 consultants, etc.) are usually normalized to reflect a reasonable filing period between
16 rate cases.

17 **Q. ARE THERE ANY GENERAL CONCERNS YOU HAVE**
18 **REGARDING THE DATA ON WHICH THE REVENUE**
19 **REQUIREMENT IS BASED?**

20 A. Yes. Since the revenue requirement is based on fully forecasted test years, the budget
21 provides certain data on which the cost of service is based. It is important to understand
22 that there is a difference of perspective between ratemaking purposes and budget
23 purposes, particularly for budgeting in governmental accounting. For governmental
24 accounting, the budgets are recorded. In other words, a journal entry is made in the
25 accounting books and records to adopt the annual budget at the beginning of the fiscal
26 year. Hence, the recorded budget acts as a control on revenues and expenditures. As a

1 result, in the governmental accounting setting, one would expect that budget
2 projections are conservative. In other words, within a relevant range, conservative
3 budgets are likely to project expenses that are on the high side and revenues that are on
4 the low side. The effect of this budgeting methodology on ratemaking is twofold.

5 First, there is a tendency for revenues to be understated and expenses
6 overstated. The primary concern when adopting a budget in each year is to ensure that
7 revenues are not under-collected and expenditures do not exceed the level in the
8 recorded budget. Therefore, the focus of budgeting techniques is to ensure the financial
9 operating results for each specific fiscal year will meet a specific objective. In general,
10 a primary financial objective for the Department is to meet debt service coverage ratios
11 stated in bond indentures. As a result, a booked expense that would normally be
12 amortized for ratemaking purposes is, therefore, overstated in the year that the expense
13 is incurred. Since expenses are overstated, net income (revenues minus expenses) is
14 understated and the income available to meet bond-related debt service coverage ratios
15 is similarly understated. As stated above, this type of accounting has the effect of
16 overstating the revenue requirement for the initial test year and beyond if such
17 expenditures are not adjusted for ratemaking purposes.

18 Second, because the focus of budgeting is one fiscal year at a time, there is no
19 attempt to normalize one-time, non-recurring costs which are often included in the
20 budget. As a result, expenses can be overstated for ratemaking purposes. Normal
21 ratemaking practice seeks to determine costs on a normal ongoing level, rather than to
22 recover costs in one specific year. Since rates are not collected subject to refund, costs
23 should be established at a level that is more representative of normal operations.

1 C. **Specific Adjustments Based on Our Analysis**

2 Q. **PLEASE EXPLAIN THE SUBJECTS DISCUSSED IN THIS**
3 **SECTION OF YOUR TESTIMONY.**

4 A. In order to explain the basis for specific adjustments to the Department’s cost of
5 service, it is important to understand the manner in which the Department projects its
6 revenues and operations and maintenance (“O&M”) expenses. In the sections that
7 follow, we provide a brief explanation of the Department’s development of projected
8 revenues and O&M expenses. We then follow up on each of these explanations with
9 our specific adjustments to both revenues and expenses.

10 I. **Operating Revenues**

11 Q. **PLEASE EXPLAIN HOW THE DEPARTMENT DERIVED ITS**
12 **OPERATING REVENUES FOR THE RATE YEARS.**

13 A. The Department explains in Black & Veatch’s testimony, Statement 7, pages 11-12,
14 that operating revenues include retail water and sanitary sewer service and quantity
15 charges, stormwater management service charges, and extra-strength surcharge, as well
16 as wholesale contract customer water and sewer charges. For the retail operating
17 revenues, PWD projects gross billings and then applies collection factors. To project
18 water and sewer gross billings, for each fiscal year of the Study Period, the Department
19 applied the FY 2023 schedules of water and sewer services to the projections of number
20 of accounts, and billed water and sewer volumes. It also applied the FY 2023 schedules
21 of stormwater services to projections of the number of accounts, billable impervious
22 area, and billable gross area associated with the services. For applying collection
23 factors, the Department estimated the operating retail cash receipts by applying receipt
24 factors to the corresponding gross billings.

25 Regarding wholesale operating revenues, the only wholesale water customer at
26 present is Aqua Pennsylvania. Wholesale water revenues are projected using billed

1 water volume estimated based on the historical three-year average for Aqua
2 Pennsylvania. For wastewater, the Department projected revenues for wholesale
3 customers by applying the contracted rates per the latest agreements to estimated
4 wastewater billed volumes and loadings based on the historical three-year average for
5 each customer. Revenues under existing rates were adjusted to reflect hydraulic and
6 hydrologic modeling.

7 **Q. WHAT ADJUSTMENTS HAVE YOU MADE TO THE**
8 **DEPARTMENT’S OPERATING REVENUES?**

9 A. We have adjusted how the projection of operating revenues is calculated by adjusting
10 the billed volume per account values for water customers. The Department has used a
11 one-year period (FY 2022) to determine the sales volume per account. We have instead
12 revised the calculation of the sales volume per account to reflect a three-year average
13 covering FY 2020, FY 2021, and FY 2022. The use of a single year is too short a period
14 to develop the normalized volume going forward through FY 2023.

15 **2. Capital Improvement Program**

16 **Q. PLEASE EXPLAIN THE ADJUSTMENTS YOU HAVE MADE TO**
17 **THE CAPITAL IMPROVEMENT PROGRAM (“CIP”) COSTS.**

18 A. On Schedule BV-1, Table C-7, PWD presents a summary of its CIP. The table begins
19 with PWD’s approved capital budget to which inflation escalation and roll-forward
20 adjustments are added and cost contingencies are removed. The roll-forward
21 adjustments represent costs that may have been budgeted or appropriated in a prior year
22 but were not expended and are anticipated to be spent in the budget year in which they
23 are rolled over. It is not unusual for funds to be appropriated for a given budget year
24 but spent in a subsequent year.

25 We adjusted the CIP costs for two reasons. First, we have removed the inflation
26 escalation related to FY 2025 projects that was included by PWD. It is unreasonable to

1 include an allowance for inflation because when establishing the budget for a future
2 year, consideration is given to the fact that costs in the future period will be higher than
3 the current year. The inclusion of an inflation allowance is also inconsistent with the
4 Department's FY 2024 claims which do not include an inflation escalation.

5 The second adjustment we made to PWD's CIP claim is to recognize that a
6 portion of the FY 2024 and FY 2025 CIP costs will be rolled over in a subsequent year.
7 If those costs are not removed, the capital funding requirement will be higher than
8 needed because those funds will not be expended. This would result in higher rates to
9 customers on the system.

10 According to PWD, about a third of the FY 2023 CIP appropriations are likely
11 to be rolled over. However, the intent of our adjustment is to normalize the annual
12 amount that is rolled over. We considered a one-third amount to be too high relative to
13 the amounts presented as prior period rollover amounts in FY 2024 and FY 2025.
14 Therefore, we have used an average of the amounts to be rolled over from prior years
15 into FY 2024 and FY 2025.

16 **3. Expense Escalations**

17 **Q. WHAT ESCALATION FACTORS DID THE DEPARTMENT USE**
18 **TO ESCALATE THE O&M EXPENSES IN THE COST OF**
19 **SERVICE?**

20 A. The table below shows the various cost escalation factors that were used by the
21 Department.

Philadelphia Water Department Annual Escalation Factors		
	FY 2024	FY 2025
Labor Costs	3.25%	3.00%
Pension	0.20%	0.16%
Pension Obligations	12.97%	0.00%
Benefits	3.96%	4.51%
Power	0.00%	0.00%
Gas	0.00%	0.00%
Services	7.77%	6.70%
Public Property – Leases	2.79%	2.54%
Chemical Costs	0.00%	23.82%
Materials and Supplies	7.77%	6.70%
Equipment	10.12%	9.41%
Indemnities	0.00%	0.00%
Transfers	7.77%	6.70%

Source: Schedule BV-2, Table 1-7.

1 **Q. ARE YOU RECOMMENDING ANY CHANGES TO THE**
2 **DEPARTMENT’S ESCALATION FACTORS?**

3 A. Yes. We are recommending changes to the escalation factors applied to the categories
4 of Services, Materials and Supplies, Transfers, Chemical Costs, and Equipment.

5 **Q. HOW DID THE DEPARTMENT DETERMINE THE ESCALATION**
6 **FACTORS FOR SERVICES, MATERIALS AND SUPPLIES, AND**
7 **TRANSFERS?**

8 A. The Department applied an escalation factor to Services, Materials and Supplies, and
9 Transfers of 7.77% in FY 2024 and 6.70% in FY 2025. These values are based on the
10 Consumer Price Index (“CPI”) for the Philadelphia Area for 12-month and 24-month
11 historical periods, respectively.

12 **Q. DO YOU AGREE WITH THE DEPARTMENT’S ESCALATION**
13 **FACTORS USED FOR SERVICES, MATERIALS AND SUPPLIES,**
14 **AND TRANSFERS?**

1 A. No. The escalation factors used by the Department are based upon historical changes
2 in the CPI. The CPI, as used by the Department, is the general CPI for all items. We
3 have two concerns with the use of the general CPI. The general CPI includes food and
4 energy in the basket of goods and services. The general consensus is that these
5 components are known to be much more volatile, since demand for these goods
6 typically does not change much even as prices rise. Instead, we believe that if a
7 historical CPI is used for the escalation factor, it should be the core inflation rate which
8 excludes food and energy. Moreover, the core inflation rate is considered to be an
9 indicator of the underlying long-term rate of inflation.

10 The second concern we have with the use of the general CPI and the historical
11 inflation rate is that past inflation is not a good predictor of future inflation rates. For
12 instance, the inflation rate before the Federal Reserve's intervention was higher than
13 the current inflation rate. If past inflation was a good predictor of future inflation,
14 higher inflation would have been forecast for this year. Therefore, we disagree with the
15 Department's approach.

16 **Q. WHAT ESCALATION RATE ARE YOU RECOMMENDING?**

17 A. We are recommending the use of a forward-looking inflation rate. Therefore, we
18 recommend the use of the March 22, 2023 Federal Open Market Committee ("FOMC")
19 Core Personal Consumption Expenditures ("PCE") median inflation projections for
20 Calendar Years 2024 and 2025 of 2.6% and 2.1%, respectively. The core PCE Price
21 Index is an economic indicator that measures inflation by tracking the changes in prices
22 of goods and services purchased by consumers in the United States, excluding food and
23 energy costs. We have used the inflation projections because the inflation rate based on
24 historical data does not recognize the Federal Reserve's actions that have been designed
25 to reduce inflation, which are now beginning to show results.

1 **Q. HOW DID THE DEPARTMENT DETERMINE THE ESCALATION**
2 **FACTOR FOR CHEMICAL COSTS?**

3 A. Per Schedule BV-2, pages 1-16, attached to the Testimony of Black & Veatch,
4 Statement 7, the FY 2024 chemical costs were not applied an escalation factor since a
5 planned budget adjustment is incorporated instead, which according to the Department
6 is needed to cover additional expenses from recent contract bids and correspondence
7 with suppliers. The chemical costs escalation factor for FY 2025 is based on the 24-
8 month period Producer Price Index (“PPI”) for Industrial chemicals.

9 **Q. DO YOU AGREE WITH THE DEPARTMENT’S ESCALATION**
10 **FACTOR USED FOR CHEMICAL COSTS?**

11 A. No. Our primary disagreement with the Department’s projection is that it is based upon
12 past inflation rates. As we stated earlier, past inflation is not a good predictor of future
13 inflation. We have used the March 22, 2023 FOMC Core PCE inflation projections for
14 CY 2025 of 2.1%. The core PCE (or the Core Personal Consumption Expenditures)
15 Price Index is an economic indicator that measures inflation by tracking the changes in
16 prices of goods and services purchased by consumers in the United States, excluding
17 food and energy costs. We have used the general inflation rate projections because we
18 were unable to obtain a projected inflation rate that is specific to chemical costs. While
19 we believe the historical inflation rate is not appropriate for use, we believe it is
20 reasonable to recognize that there will be an inflationary impact on chemicals expense.

21 **Q. HOW DID THE DEPARTMENT DETERMINE THE ESCALATION**
22 **FACTOR FOR EQUIPMENT?**

23 A. Per Schedule BV-2, page 1-17, attached to the Testimony of Black & Veatch
24 Corporation, Statement 7, the FY 2024 escalation for Equipment is based on the most
25 recent 12-month period PPI for Construction Equipment and Machinery. FY 2025 is
26 based on the 24-month annual PPI for Construction Equipment and Machinery.

1 **Q. DO YOU AGREE WITH THE DEPARTMENT’S ESCALATION**
2 **FACTOR USED FOR EQUIPMENT?**

3 A. No. Our primary disagreement with the Department’s projection is that it is based upon
4 past inflation rates. As we stated earlier, past inflation is not a good predictor of future
5 inflation. We have used the March 22, 2023 Federal Open Market Committee
6 (“FOMC”) Core PCE median inflation projections for CY 2024 and CY 2025 of 2.6
7 percent and 2.1 percent, respectively. The core PCE (or the Core Personal
8 Consumption Expenditures) Price Index is an economic indicator that measures
9 inflation by tracking the changes in prices of goods and services purchased by
10 consumers in the United States, excluding food and energy costs. We have used the
11 general inflation rate projections because we were unable to obtain a projected inflation
12 rate that is specific to equipment. While we believe the historical inflation rate is not
13 appropriate for use, we believe it is reasonable to recognize that there will be an
14 inflationary impact on equipment expense.

15 **4. Construction Fund Balance**

16 **Q. WHAT ADJUSTMENT DO YOU RECOMMEND TO THE**
17 **CONSTRUCTION FUND?**

18 A. In their response to PA-X-5, the Department provided an updated amount for the
19 Construction Fund beginning balance. Accordingly, we have updated the Construction
20 Fund’s beginning balance consistent with the new information from PWD.

21 **5. Debt Service**

22 **Q. PLEASE EXPLAIN THE ADJUSTMENT YOU ARE**
23 **RECOMMENDING FOR THE BOND INTEREST RATE.**

24 A. PWD is claiming annual interest rates of 5.5% and 6.0% for new bond issuances for
25 FY 2024 and FY 2025, respectively. In comparison, the interest rate PWD used for FY
26 2023 issuance was 4.0%. In response to a Public Advocate data request, PWD correctly
27 indicated that interest rates have increased in recent months as the basis for the increase

1 in interest rates. According to PWD, its financial advisors had previously recommended
2 that using interest rates that were 1.0% higher than those used in the 2022 Special Rate
3 Proceeding was appropriate.

4 We have adopted, in part, the Department's financial advisors'
5 recommendation for the bond interest rates used in this proceeding. Therefore, for FY
6 2024 and FY 2025, we have increased the interest rate by 1.0% from the rate
7 experienced in FY 2023 and used the resulting 5.0% interest rate for FY 2024 and FY
8 2025 bond issuances.

9 **Q. WHY DID YOU NOT USE THE 5.5% AND 6.0% INTEREST RATES**
10 **THAT PWD USED IN ITS ANALYSIS?**

11 A. The recent increase in interest rates has been driven by the Federal Reserve's desire to
12 control inflation. Recent reporting in the press has indicated that the Federal Reserve's
13 action is making an impact on the level of inflation. However, there is another concern
14 that if the Federal Reserve raises rates too high and too fast, it could result in a
15 recession. Given this dynamic, we believe that it is speculative at this time to assume
16 that interest rates will grow at the pace the Department has reflected in its cost of
17 service. Therefore, we recommend a more moderate increase in the interest rates for
18 debt issuances.

19 **6. Interest Revenues**

20 **Q. WHAT ADJUSTMENT ARE YOU RECOMMENDING FOR**
21 **INTEREST INCOME?**

22 A. PWD has assumed a 1.0% interest rate for interest income earned on funds held by the
23 Department. During a period of rising interest rates, there is also a similar interest rate
24 on the funds that are held by businesses and individuals. As a matter of consistency,
25 we believe that, as it is acknowledged that the interest on borrowing is increasing, it is
26 also reasonable to recognize an increase in the interest rate for funds held institutions.

1 Therefore, we are recommending a .50% (50 basis points) increase in the interest paid
2 on funds held by PWD.

3 7. **Other Adjustments**

4 **Q. DO YOUR CALCULATIONS REFLECT ANY OTHER**
5 **ADJUSTMENTS?**

6 A. Yes, our schedules also incorporate the revenue and expense adjustments identified in
7 the testimony of Mr. Colton, as follows:

8

Description	2024	2025
Improved Collection of TAP Billings (Increase revenues under existing rates)	\$3,988,498	\$3,988,498
Improved Collection of TAP Credits (Increase revenues under existing rates)	\$4,926,821	\$4,926,821
Remove Lien Filing Fees for TAP (O&M adjustment)	(\$564,795)	(\$564,795)
Fund LICAP for PGW/PECO LIURP Customers (O&M adjustment)	\$1,129,500	\$1,129,500
Fund LICAP for TAP Customers (O&M adjustment)	\$600,000	\$600,000
PILOT Internal Plumbing Repair Program (O&M adjustment)	\$2,156,250	\$2,156,250
Increase UESF Funding (O&M adjustment)	\$3,000,000	\$3,000,000

9

10 **Q. DOES THIS COMPLETE YOUR DIRECT TESTIMONY?**

11 A. Yes, it does.

BEFORE THE
PHILADELPHIA WATER, SEWER AND STORM WATER RATE BOARD

IN THE MATTER OF THE
PHILADELPHIA WATER)
DEPARTMENT'S PROPOSED)
CHANGE IN WATER, WASTEWATER) **Fiscal Years 2024-2025**
AND STORMWATER RATES AND)
RELATED CHARGES)

SCHEDULES ACCOMPANYING THE

DIRECT TESTIMONY

OF

LAFAYETTE K. MORGAN, JR.

AND

JENNIFER L. ROGERS

ON BEHALF OF THE

PUBLIC ADVOCATE

April 13, 2023

EXETER

ASSOCIATES, INC.

10480 Little Patuxent Parkway, Suite 300
Columbia, Maryland 21044

PHILADELPHIA WATER DEPARTMENT
Revenue Requirement and Operating Results
For the Rate Years Ending June 30, 2024 and 2025
(\$000s)

Line No.	Description	2023	2024	2025
OPERATING REVENUE				
1a	Water Service - Existing Rates	296,994	299,391	302,121
2a	Wastewater Service - Existing Rates	<u>474,313</u>	<u>478,949</u>	<u>481,427</u>
3a	Total Service Revenue - Existing Rates	771,307	778,340	783,548
	Calc %			
	Year	Increase	Months Effective	
4a	FY 2023			
5a	FY 2024	7.42%	9.794	47,147
6a	FY 2025	6.61%	9.794	45,410
7a	FY2026	19.38%	9.794	
8a	FY2027	6.91%	9.794	
9a	FY2028	9.32%	9.794	
10a	Total Additional Service Revenue Required	-	47,147	103,563
11a	Total Water & Wastewater Service Revenue	771,307	825,487	887,111
11xa	Other Income (a)			
12a	Other Operating Revenue	29,601	38,579	38,629
13a	Debt Reserve Fund Interest Income	-	-	-
14a	Operating Fund Interest Income	1,882	3,134	3,354
15a	Rate Stabilization Interest Income	<u>1,365</u>	<u>2,009</u>	<u>2,004</u>
16a	Total Revenues	804,155	869,210	931,098
OPERATING EXPENSES				
17a	Total Operating Expenses	(564,671)	(608,146)	(633,133)
NET REVENUES				
18a	Transfer From/(To) Rate Stabilization Fund	5,000	100	600
19a	NET REVENUES AFTER OPERATIONS	244,484	261,164	298,565
DEBT SERVICE				
20a	Outstanding Bonds	(187,747)	(185,847)	(183,090)
21a	Pennvest Parity Bonds	(10,935)	(12,031)	(16,329)
22a	Projected Future Bonds	-	(16,075)	(42,044)
23a	Commercial Paper	(900)	(900)	(900)
24a	WIFIA		<u>(17)</u>	<u>(956)</u>
25a	Total Senior Debt Service	(199,582)	(214,869)	(243,318)
26a	TOTAL SENIOR DEBT SERVICE COVERAGE (L1	1.22	1.22	1.23
27a	Subordinate Debt Service	-	-	-
28a	Transfer to Escrow	-	-	-
29a	Total Debt Service on Bonds	(199,582)	(214,869)	(243,318)
30a	CAPITAL ACCOUNT DEPOSIT	(23,383)	(24,295)	(25,242)
31a	TOTAL COVERAGE (L19a/(L25a+L27a+L30a))	1.10	1.09	1.11

Line No.	Description	2023	2024	2025
RESIDUAL FUND				
32a	Beginning of Year Balance	16,102	15,095	15,079
33a	Interest Income	155	150	150
33ax	Plus:			
34a	End of Year Revenue Fund Balance	16,542	30,729	38,547
34x	Additional Rev Req Needed	0	(8,729)	(8,543)
35a	Deposit for Transfer to City General Fund (b)	1,945	1,999	2,026
35ax	Less:			
36a	Transfer to Construction Fund	(16,600)	(21,071)	(25,858)
37a	Transfer to City General Fund	(1,945)	(1,999)	(2,026)
38a	Transfer to Debt Service Reserve Fund	<u>(1,105)</u>	<u>(1,096)</u>	<u>(4,298)</u>
39a	End of Year Balance	15,095	15,079	15,078
RATE STABILIZATION FUND				
40a	Beginning of Year Balance (c)	138,989	137,760	133,625
41a	Deposit From/(To) Revenue Fund	(5,000)	(100)	(600)
42a	Deposit From/(To) TAP-R	<u>3,771</u>	<u>(4,036)</u>	<u>476</u>
43a	End of Year Balance	<u>\$ 137,760</u>	<u>\$ 133,625</u>	<u>\$ 133,501</u>

Calculation of Additional Service Revenue Required:

Total Operating Expenses, 17a	564,671	608,146	633,133
Total Senior Debt Service, 25a	199,582	214,869	243,318
CAPITAL ACCOUNT DEPOSIT, 30a	23,383	24,295	25,242
Transfer to Construction Fund, 36a	16,600	21,071	25,858
Transfer to Escrow, 28a	-	-	-
Change in Residual Fund	(58)	9,659	12,689
Add Rev Req to Maintain Residual Fund Bal	(0)	(8,729)	(8,543)
Subtotal	804,178	869,310	931,698
RSF Deposit From/(To) Revenue Fund, 41a	(5,000)	(100)	(600)
Other Op Revenue, DSRF + Operating + RSF I	(32,848)	(43,722)	(43,987)
Net Revenue Needs	766,330	825,487	887,111
Total Service Revenue - Existing Rates	771,307	778,340	783,548
Total Additional Service Revenue Required	(4,977)	47,147	103,563
Net Additional Service Revenue Required	(4,977)	47,147	103,563

(a) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund and reflects

projected contra revenue credits for Affordability Program Discounts (TAP Costs).

(b) Transfer of interest earnings from the Debt Reserve Account to the Residual Fund as shown in Line 35 to satisfy the requirements for the

transfer to the City General Fund shown on Line 37.

(c) FY 2023 beginning balance is estimated based on preliminary FY 2022 results.

PHILADELPHIA WATER DEPARTMENT
Projected Revenue Receipts
For the Rate Years Ending June 30, 2024 and 2025
(\$000s)

Line No.	Description	2023	2024	2025
1a	Water Sales Receipts	296,994	299,391	302,121
	Wastewater Sales Receipts			
2a	Sanitary Sewer	285,327	286,979	289,445
3a	Stormwater	188,987	191,970	191,982
4a	Subtotal Wastewater Service Receipts	474,313	478,949	481,427
5a	Total Water & Wastewater Receipts	771,307	778,340	783,548
5b	Net Change in Total Water & Wastewater Receipts	4,977	5,610	5,871
Other Income				
6a	Penalties	9,588	9,651	9,700
7a	Miscellaneous City Revenue	2,160	2,160	2,160
8a	Other	9,059	17,975	17,975
9a	State & Federal Grants	567	567	567
10a	Permits Issued by L&I	7,592	7,592	7,592
11a	Miscellaneous (Procurement)	335	335	335
12a	City & UESF Grants	300	300	300
13a	Affordability Program Discount Cost (a)	-	-	-
14a	Release from Debt Service Reserve (b)	-	-	-
15a	Other Operating Revenues	29,601	38,579	38,629
Interest Income				
16a	Debt Service Reserve Fund (c)	-	-	-
17a	Operating Fund	1,882	3,134	3,354
18a	Rate Stabilization Fund	1,365	2,009	2,004
19a	Total Interest Income	3,247	5,143	5,358
20a	Total Receipts	804,155	822,063	827,535

(a) Affordability Program Discounts represent anticipated lost revenue due to the Tiered Assistance Program (TAP).

Beginning in FY 2019, TAP Revenue Loss are recovered via the TAP Rate Rider Surcharge.

(a) FY 2023 and FY 2024 reflect TAP Credits based on the proposed 2023 Annual Adjustment. FY 2025 to FY 2028 reflect proposed TAP-R revenue requirement based on the proposed 2023 Annual Adjustment.

(b) Projected Release from Debt Reserve Fund based on outstanding and proposed debt service payments.

(c) Excludes deposit into Residual Fund for Transfer to City General Fund.

PHILADELPHIA WATER DEPARTMENT
Operating Expenses
For the Rate Years Ending June 30, 2024 and 2025
(\$000s)

Line No.	Description	2023	2024	2025
Water and Wastewater Operations				
1a	Personal Services	172,675	181,131	193,552
2a	Pension and Benefits	<u>143,762</u>	<u>149,631</u>	<u>158,182</u>
3a	Subtotal	316,437	330,761	351,735
Purchase of Services				
4a	Power	17,993	19,927	19,927
5a	Gas	6,934	8,250	8,250
6a	SMIP/GARP	25,000	20,000	20,000
7a	Other	<u>154,813</u>	<u>174,044</u>	<u>176,744</u>
8a	Subtotal	204,740	222,221	224,921
Materials and Supplies				
9a	Chemicals	36,926	52,679	53,785
10a	Other	<u>25,108</u>	<u>25,760</u>	<u>26,301</u>
11a	Subtotal	62,033	78,439	80,086
12a	Equipment	4,292	5,519	5,635
13a	Indemnities and Transfers	<u>10,854</u>	<u>11,017</u>	<u>11,151</u>
14a	Subtotal Expenses	598,357	647,958	673,529
15a	Liquidated Encumbrances	<u>(33,686)</u>	<u>(39,812)</u>	<u>(40,395)</u>
16a	Total Expenses	<u>\$ 564,671</u>	<u>\$ 608,146</u>	<u>\$ 633,133</u>

PHILADELPHIA WATER DEPARTMENT
Capital Improvement Program
For the Rate Years Ending June 30, 2024 and 2025
(\$000s)

Line No.	Description	2023	2024	2025
1	Engineering and Administration (a)	14,321	12,806	11,587
2	Plant Improvements	255,000	393,000	295,000
3	Distribution System Rehabilitation	123,060	157,100	240,100
4	Large Meter Replacement	5,000	5,000	5,000
5	Billing System		-	-
6	Storm Flood Relief	15,000	15,000	15,000
7	Reconstruction of Sewers	72,860	80,000	86,000
8	Green Infrastructure	83,000	90,000	90,000
9	Vehicles	12,000	12,000	12,000
10	Total Improvements	580,241	764,906	754,687
11	Inflation Adjustment (b)	-	-	30,188
12	Inflated Total	580,241	764,906	784,874
13	Rollforward Adjustments	(100,885)	82,940	56,614
14	Total Inflated Adjusted CIP Budget	479,356	847,846	841,488
15	Contingency Adjustment	(49,261)	(72,342)	(72,589)
16	Annual Encumbrances	430,095	775,504	768,900
17	Project Expenses (c)	337,627	513,964	606,056
17a	Adjustment to Project Expenses	-	(82,940)	(86,802)
17b	Adjusted Project Expenses	337,627	431,024	519,254
18	Annual Net Encumbrances	92,469	261,541	162,844

(a) Reflects shift in capital related salary costs from capital to operating budget.

(b) Allowance for inflation of 4.0 percent per year after fiscal year 2024.

(c) Reflects annual drawdown of capital budget appropriations based on project durations and annual encumbrances.

PHILADELPHIA WATER DEPARTMENT
Flow of Funds - Construction Fund & Debt Reserve Account
For the Rate Years Ending June 30, 2024 and 2025
(\$000s)

Line No.	Description	2023	2024	2025
Disposition of Bond Proceeds				
1a	Proceeds From Sale of Bonds	338,465	385,789	406,740
	Transfers:			
2a	Debt Reserve Fund (a)	8,500	-	-
3a	Cost of Bond Issuance (b)	1,965	2,806	2,959
4a	Refund Commercial Paper	-	-	-
5a	Construction Fund (c)	<u>328,000</u>	<u>382,983</u>	<u>403,782</u>
6a	Total Issue	338,465	385,789	406,740
Disposition of Commercial Paper				
7a	Proceeds From Commercial Paper	-	-	-
	Transfers:			
8a	Debt Reserve Fund (a)	-	-	-
9a	Cost of Issuance (b)	<u>-</u>	<u>-</u>	<u>-</u>
10a	Construction Fund (c)	-	-	-
11a	Total Issue	-	-	-
Construction Fund				
12a	Beginning Balance	523,680	614,573	720,294
13a	Transfer From Bond Proceeds	328,000	382,983	403,782
14a	Transfer From Commercial Paper Proceeds	0	0	0
15a	WIFIA Proceeds	0	9,063	20,772
16a	WIFIA Match Funding Proceeds	0	9,338	20,958
17a	Penn Vest Loan	54,874	83,354	78,438
18a	Capital Account Deposit	23,383	24,295	25,242
19a	Transfer from Residual Fund	16,600	21,071	25,858
20a	Interest Income on Construction Fund	<u>5,663</u>	<u>6,641</u>	<u>7,482</u>
21a	Total Available	952,200	1,151,318	1,302,825
22a	Net Cash Financing Required	<u>337,627</u>	<u>431,024</u>	<u>519,254</u>
23a	Ending Balance	614,573	720,294	783,571
Capital Program Net Encumbrances				
24	Beginning Balance	454,669	507,672	614,431
25	Annual Encumbrances (d)	390,629	577,611	575,956
26	Project Expenses (d)	<u>(337,627)</u>	<u>(470,851)</u>	<u>(541,037)</u>
27	Ending Balance	507,671	614,432	649,350
28	Allowance Commitments Prior to Bond Issue	<u>96,268</u>	<u>95,993</u>	<u>120,059</u>
29	Target Balance	603,940	710,424	769,409
Debt Reserve Fund				
30a	Beginning Balance	189,723	199,328	200,423
31a	Transfer From Bond Proceeds	8,500	-	-
32a	Transfer From Residual Fund (e)	1,105	1,096	4,298
33a	Debt Service Reserve Release	<u>-</u>	<u>-</u>	<u>-</u>
34a	Ending Balance	199,328	200,423	204,721
35a	Interest Income on Debt Reserve Fund	1,945	1,999	2,026

Capital Account Deposit Calculation - User

		10.525%		9.841%
		<u>2023</u>	<u>2024</u>	<u>2025</u>
A	Net Cash Financing Required	\$ 337,627	\$ 431,024	\$ 519,254
B	Cash Funded Capital Ratio	<u>11.8%</u>	<u>10.5%</u>	<u>9.8%</u>
C	Cash Funded Required	\$ 39,982	\$ 45,365	\$ 51,100
D	Residual Fund Deposits	<u>16,600</u>	<u>21,071</u>	<u>25,858</u>
E	Capital Account Deposits	\$ 23,383	\$ 24,295	\$ 25,242

(a) Amount of Debt Reserve Account estimated based on outstanding and proposed debt service payments.

(b) Cost of bonds issuance reflects actual cost in FY 2023, assumed 0.61 percent of issue amount in FY 2024 to 2025, and assumed 1.0% of issuance in FY 2026 to FY 2028.

(c) Deposits equal proceeds from sale of bonds less transfers to Debt Reserve Account and Costs of Issuance.

(d) Excluding PENNVEST and WIFIA.

(e) Transfer from Residual Fund to provide PENNVEST share of Debt Reserve Account requirement.

PHILADELPHIA WATER DEPARTMENT
Summary of Existing and Proposed Debt Service
For the Rate Years Ending June 30, 2024 and 2025
(\$000s)

Line No.	Description	2023	2024	2025
Revenue Bonds				
1a	Existing (a)	\$ 187,747	\$ 185,847	\$ 183,090
	<u>Proposed</u>			
	<u>Interest Rate</u>			
	<u>Bond Size</u>			
2a	Fiscal Year 2023 (c)	-	-	-
3a	Fiscal Year 2024 (c)		\$ 16,075	\$ 25,096
4a	Fiscal Year 2025 (c)			16,948
8a	Total Proposed	-	16,075	42,044
9a	Total Revenue Bonds	\$ 187,747	\$ 201,921	\$ 225,134
Pennvest Loans				
10a	Pennvest Loans - Parity Pennvest (d)	10,935	12,031	16,329
Commercial Paper				
11a	Commercial Paper	900	900	900
WIFIA				
12a	WIFIA	\$ -	\$ 17	\$ 956
13a	Total Senior Debt Service	199,582	214,869	243,318

(a) Projected debt service amounts include debt service for all Water and Wastewater Revenue Bonds and Revenue Refunding Bonds

issued prior to July 1, 2022 and the Water and Wastewater Revenue Bond Series 2022c (issued in August 2022).

(b) Projected debt service for the Water and Wastewater Revenue Bond Series 2022c (issued in August 2022) included with Existing Bonds.

authorization based on 5.50% interest rate;

and assume issuance during the first quarter of the fiscal year.

(d) Projected debt service amounts assume interest only payment for the first year of the bond authorization based on 6.00% interest rate;

and assume issuance during the first quarter of the fiscal year.

(e) Includes projected PENNVEST Loans.

PHILADELPHIA WATER DEPARTMENT
Projected Rate Stabilization Fund & Performance vs. Covenants
For the Rate Years Ending June 30, 2024 and 2025
(\$000s)

Line No.	Description	2023	2024	2025
RATE STABILIZATION FUND				
1a	Beginning Balance: Rate Stabilization Fund (a)	138,989	137,760	133,625
2a	Transfers From (To) Revenue Fund (b)	<u>(5,000)</u>	<u>(100)</u>	<u>(600)</u>
3a	Year-End Rate Stabilization Fund Balance (Line 1a + Line 2a)	137,760	133,625	133,501
4a	End- of year Balance in the Residual Fund	<u>15,095</u>	<u>15,079</u>	<u>15,078</u>
5a	Combined End- of year Balance	152,855	148,704	148,579
1989 General Bond Ordinance Covenants				
6a	Senior Debt Coverage (c)	1.22	1.22	1.23
6b	Line 6: General Ordinance Coverage of 1.20	YES	YES	YES
6c	Line 6: Rate Board Policy in Previous Proceeding: 1.30 Coverage	NO	NO	NO
6d	Line 6a: General Ordinance Coverage of 1.20	YES	YES	YES
6e	Line 6a: Rate Board Policy in Previous Proceeding: 1.30 Coverage	NO	NO	NO
7a	Total Debt Coverage (d)	1.10	1.09	1.11
7b	Line 7: General Ordinance Coverage of 1.00	YES	YES	YES
Insurance Covenants				
8a	Senior Debt Coverage from Current Revenues (e)	1.20	1.21	1.22
8b	Line 8: Insurance Minimum of 0.90	YES	YES	YES
O&M Actual to Budget Ratio				
9	Projected O&M Budget (f)	659,216	715,819	766,086
10	O&M Actual to Budget Ratio	90.8%	91.0%	91.1%
Rate Ordinance Requirements				
11	Projected Total Revenues (g)	799,178	886,128	972,880
12	Projected Total Appropriations (g)	898,723	990,721	1,085,029
13	Line 12 > line 11: Rate Ordinance Requirement Compliance (h)	YES	YES	YES
Cash Funding				
14a	Cash Funded Capital (i)	39,982	45,365	51,100
15a	Construction Fund	337,627	431,024	519,254
16a	Cash Funded Capital Ratio (j)	11.8%	10.5%	9.8%

APPENDIX A – Resume of Lafayette K. Morgan, Jr.

LAFAYETTE K. MORGAN, JR.

Mr. Morgan is an independent regulatory consultant focusing in the area of the analysis of the operations of public utilities with particular emphasis on rate regulation. He has reviewed and analyzed utility rate filings, focusing primarily on revenue requirements determination, accounting and regulatory policy and cost recovery mechanisms. This work has included natural gas, water, electric, and telephone utilities.

Education and Qualifications

B.B.A. (Accounting) – North Carolina Central University, 1983

M.B.A. (Finance) – The George Washington University, 1993

C.P.A. – Licensed in the State of North Carolina (Inactive status)

Previous Employment

1993-2010 Senior Regulatory Analyst
Exeter Associates, Inc.
Columbia, MD

1990-1993 Senior Financial Analyst
Potomac Electric Power Company
Washington, D.C.

1984-1990 Staff Accountant
North Carolina Utilities Commission – Public Staff
Raleigh, NC

Professional Experience

As a Staff Accountant with the North Carolina Utilities Commission – Public Staff, Mr. Morgan was responsible for analyzing testimony, exhibits, and other data presented by parties before the Commission. In addition, he performed examinations of the books and records of utilities involved in rate proceedings and summarized the results into testimony and exhibits for presentation before the Commission. Mr. Morgan also participated in several policy proceedings and audits involving regulated utilities.

As a Senior Financial Analyst with Potomac Electric Power Company, Mr. Morgan was a lead analyst and was involved in the preparation of the cost of service, rate base, and ratemaking adjustments supporting the Company's request for revenue increases in its retail jurisdictions.

As a Senior Regulatory Analyst with Exeter Associates, Inc., Mr. Morgan has been involved in the analysis of the operations of public utilities with particular emphasis on rate regulation. He has reviewed and analyzed utility rate filings, focusing primarily on revenue requirements determination, accounting and regulatory policy and cost recovery mechanisms. This work included natural gas, water, electric, and telephone utilities.

Expert Testimony
of Lafayette K. Morgan, Jr.

Kings Grant Water Company (North Carolina Utilities Commission, Docket No. W-250, Sub 5), 1984. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Northwood Water Company (North Carolina Utilities Commission, Docket No. W-690, Sub 1), 1985. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Emerald Village Water System (North Carolina Utilities Commission, Docket No. W-184, Sub 3), 1985. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

General Telephone Company of the South (North Carolina Utilities Commission, Docket No. P-19, Sub 207), July 1986. Presented testimony on the level of cash working capital allowance on behalf of the North Carolina Utilities Commission – Public Staff.

Heins Telephone Company (North Carolina Utilities Commission, Docket No. P-26, Sub 93), November 1986. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Carolina Power and Light Company (North Carolina Utilities Commission, Docket No. E-2, Sub 537), March 1988. Presented testimony on rate base, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Public Service Company of North Carolina, Inc. (North Carolina Utilities Commission, Docket No. G-5, Sub 246), August 1989. Presented testimony on rate base, cash working capital allowance, cost of service, and revenue and expense adjustments on behalf of the North Carolina Utilities Commission – Public Staff.

Conestoga Telephone and Telegraph Company (Pennsylvania Public Utility Commission, Docket No. I-00920015), September 1993. Presented testimony on cost of service on behalf of the Pennsylvania Office of Consumer Advocate.

Louisiana Power and Light Company (Louisiana Public Service Commission, Docket No. U-20925), February 1995. Presented testimony on rate base and working capital issues on behalf of the Louisiana Public Service Commission Staff.

South Central Bell Telephone Company – Louisiana (Louisiana Public Service Commission, Docket No. U-17949, Subdocket E), June 1995. Presented testimony on rate base and working capital issues on behalf of the Louisiana Public Service Commission Staff.

Expert Testimony
of Lafayette K. Morgan, Jr.

Apollo Gas Company (Pennsylvania Public Utility Commission, Docket No. R-00953378), August 1995. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Carnegie Natural Gas Company (Pennsylvania Public Utility Commission, Docket No. R-00953379), August 1995. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Tennessee Gas Pipeline Company (Federal Energy Regulatory Commission, Docket No. RP95-112), September 1995. Presented testimony rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Virginia-American Water Company (Virginia State Corporation Commission, Case No. PUE-950003), March 1996. Presented testimony on rate base and cost of service issues on behalf of the City of Alexandria.

GTE North, Inc. Interconnection Arbitration (Pennsylvania Public Utility Commission, Docket No. A-310125F0002), September 1996. Presented testimony on the determination of the appropriate resale discount on behalf of the Pennsylvania Office of Consumer Advocate.

United Cities Gas Company (Georgia Public Service Commission, Docket No. 6691-U), October 1996. Presented testimony on rate base and cost of service issues on behalf of the Office of Governor, Consumer Utility Counsel Division.

GTE North, Inc. (Pennsylvania Public Utility Commission, Docket Nos. R-00963666 and R-00963666C001), February 1997. Presented testimony on the determination of the appropriate resale discount on behalf of the Pennsylvania Office of Consumer Advocate.

Consumers Maine Water Company (Maine Public Utilities Commission, Docket No. 96-739), May 1997. Presented testimony on rate base, cost of service, and rate of return issues on behalf of the Maine Office of the Public Advocate.

Pennsylvania-American Water Company (Pennsylvania Public Utility Commission, Docket No. R-00973944), July 1997. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Pennsylvania-American Water Company – Wastewater Operations (Pennsylvania Public Utility Commission, Docket No. R-00973973), July 1997. Presented testimony on rate base, cost of service, depreciation, and rate design issues on behalf of the Pennsylvania Office of Consumer Advocate.

Expert Testimony
of Lafayette K. Morgan, Jr.

Jackson Purchase Electric Cooperative Corporation (Kentucky Public Service Commission, Case No. 97-224), December 1997. Presented testimony on rate base and cost of service issues on behalf of the Kentucky Office of the Attorney General.

Henderson Union Electric Cooperative Corporation (Kentucky Public Service Commission, Case No. 97-220), January 1998. Presented testimony on the return of patronage capital on behalf of the Kentucky Office of the Attorney General.

Green River Electric Corporation (Kentucky Public Service Commission, Case No. 97-219), January 1998. Presented testimony on the return of patronage capital on behalf of the Kentucky Office of the Attorney General.

Western Kentucky Gas Company (Kentucky Public Service Commission, Case No. 99-070), November 1999. Presented testimony on rate base and cost of service issues on behalf of the Kentucky Office of the Attorney General.

American Broadband, Inc. (Rhode Island Public Utilities Commission, Docket No. 2000-C-3), June 2000. Presented report and testimony on the Company's financing plan on behalf of the Rhode Island Division of Public Utilities and Carriers.

PPL Utilities (Pennsylvania Public Utility Commission, Docket No. R-00005277), October 2000. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

T.W. Phillips Oil and Gas Company (Pennsylvania Public Utility Commission, Docket No. R-00005459), October 2000. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Pike County Light & Power Company (Pennsylvania Public Utility Commission, Docket No. P-00011872), May 2001. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Vermont Gas Systems, Inc. (Vermont Public Service Board, Docket No. 6495), June 2001. Presented testimony on rate base and cost of service issues on behalf of the Vermont Public Service Department.

Community Service Telephone Company (Maine Public Utilities Commission, Docket No. 2001-249), July 2001. Presented joint testimony on rate base and cost of service issues on behalf of the Maine Office of the Public Advocate.

Expert Testimony
of Lafayette K. Morgan, Jr.

West Virginia-American Water Company (Public Service Commission of West Virginia, Docket No. 01-0326-W-42-T), August 2001. Presented testimony on rate base and cost of service issues on behalf of the Consumer Advocate Division.

Philadelphia Suburban Water Company (Pennsylvania Public Utility Commission, Docket No. R-00016750) February 2002. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Illinois-American Water Company (Illinois Commerce Commission, Docket No. 02-0690) January 2003. Presented testimony on cost of service issues on behalf of Citizens Utility Board.

Pennsylvania-American Water Company (Pennsylvania Public Utility Commission, Docket No. R-00027983), February 2003. Presented testimony addressing surcharge mechanism to recover security costs on behalf of the Pennsylvania Office of Consumer Advocate.

FairPoint New England Telephone Companies (Maine Public Utilities Commission, Docket Nos. 2002-747, 2003-34, 2003-35, 2003-36, and 2003-37), June 2003. Presented testimony on rate base and cost of service issues on behalf of the Maine Office of the Public Advocate.

Pennsylvania-American Water Company (Pennsylvania Public Utility Commission, Docket No. R-00038304), August 2003. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

PPL Electric Utilities Corporation (Pennsylvania Public Utility Commission, Docket No. R-00049255), June 2004. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Entergy Louisiana, Inc. (Louisiana Public Service Commission, Docket No. U-20925 RRF 2004), August 2004. Presented testimony on rate base and cost of service issues on behalf of the Louisiana Public Service Commission Staff.

Vectren Energy Delivery of Indiana (Indiana Utility Regulatory Commission, Cause No. 42598), September 2004. Presented testimony on O&M expense issues on behalf of the Indiana Office of Utility Consumer Counselor.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission, Docket No. R-00049656), December 2004. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Expert Testimony
of Lafayette K. Morgan, Jr.

Block Island Power Company (Rhode Island Public Utilities Commission, Docket No. 3655), April 2005. Presented testimony on cash working capital on behalf of the Rhode Island Division of Public Utilities & Carriers.

Verizon New England, Inc. (Maine Public Utilities Commission, Docket No. 2005-155), September 2005. Presented joint testimony with Thomas S. Catlin on rate base and cost of service issues on behalf of the Maine Office of the Public Advocate.

T.W. Phillips Oil and Gas Company (Pennsylvania Public Utility Commission, Docket No. R-00051178), May 2006. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Duquesne Light Company (Pennsylvania Public Utility Commission, Docket No. R-00061346), July 2006. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Company (Pennsylvania Public Utility Commission, Docket No. R-00061493), September 2006. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Southern Indiana Gas & Electric Co. (Indiana Utility Regulatory Commission, Cause No. 43112), January 2007. Presented testimony on rate base and cost of service issues on behalf of the Indiana Office of Utility Consumer Counsel.

PPL Electric Utilities (Pennsylvania Public Utility Commission, Docket No. R-00072155), July 2007. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Aqua Pennsylvania, Inc. (Pennsylvania Public Utility Commission, Docket No. R-00072711), February 2008. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company (Pennsylvania Public Utility Commission, Docket No. R-2008-2029325), October 2008. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

The Narragansett Bay Commission (Rhode Island Public Utilities Commission, Docket No. 4026), April 2009. Presented testimony on rate base and cost of service issues on behalf of the Rhode Island Division of Public Utilities and Carriers.

Expert Testimony
of Lafayette K. Morgan, Jr.

Maryland-American Water Company (Maryland Public Service Commission, Case No. 9187), July 2009. Presented testimony on rate base and cost of service issues on behalf of the Maryland Office of People's Counsel.

Monongahela Power Company & The Potomac Edison Company, both d/b/a Allegheny Power Company (West Virginia Public Service Commission, Case No. 09-1352-E-42T), February 2010. Presented testimony on rate base and cost of service issues on behalf of the West Virginia Consumer Advocate Division.

PPL Electric Utilities (Pennsylvania Public Utility Commission, Docket No. R-2010-2161694), June 2010. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Pawtucket Water Supply Board (Rhode Island Public Utilities Commission, Docket No. 4550), June 2015. Presented testimony on revenue requirements issues on behalf of the Rhode Island Division of Public Utilities and Carriers.

Columbia Gas of Pennsylvania (Pennsylvania Public Utility Commission, Docket No. R-2015-2468056), June 2015. Presented testimony on rate base and cost of service issues on behalf of the Pennsylvania Office of Consumer Advocate.

Indianapolis Power and Light Company (Indiana Utility Regulatory Commission, Cause No. 44576/44602), July 2015. Presented testimony on revenue requirements issues on behalf of the Indiana Office of Utility Consumer Counselor.

Public Service Company of Oklahoma (Corporation Commission of Oklahoma, Cause No. PUD 201500208), October 2015. Presented testimony on revenue requirements and environmental compliance rider issues on behalf of the United States Department of Defense and the Federal Executive Agencies.

Northern Indiana Public Service Company (Indiana Utility Regulatory Commission, Cause No. 44688), January 2016. Presented testimony on the company's electric division operating revenues, operating expenses and income taxes issues on behalf of the Indiana Office of Utility Consumer Counselor.

Philadelphia Water Department (Philadelphia Water, Sewer And Storm Water Rate Board, FY2017-2018 Rate Proceeding), March 2016. Presented testimony on revenue requirements issues on behalf of the Public Advocate.

Columbia Gas of Maryland (Public Service Commission of Maryland, Case No. 9417), June 2016. Presented testimony on rate base and cost of service issues on behalf of the Office of People's Counsel.

Expert Testimony
of Lafayette K. Morgan, Jr.

Chesapeake Utilities Corporation (Delaware Public Service Commission, PSC Docket No. 15-1734), August 2016. Presented testimony on rate base and cost of service issues on behalf of the Staff of the Delaware Public Service Commission.

Kent County Water Authority (Public Service Commission of Rhode Island, Docket No. 4611), September 2016. Presented testimony on rate base and cost of service issues on behalf of the Division of Public Utilities and Carriers.

Northern Utilities, Inc. (Maine Public Utilities Commission, Docket No. 2017-00065), August 2017. Assisted the Maine Office of Public Advocate (OPA) with Northern Utilities application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements, the utility's request to renew and modify its alternative rate plan, and its Targeted Infrastructure Replacement Adjustment.

Indiana Michigan Power Company (Indiana Utility Regulatory Commission, Cause No. 44967), November 2017. Presented testimony on rate base, operating revenues and operating expenses issues on behalf of the Indiana Office of Utility Consumer Counselor.

Emera Maine (Maine Public Utilities Commission, Docket No. 2017-00198), December 2017. Assisted the Maine Office of Public Advocate (OPA) with Emera Maine's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements, the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

UGI-Electric (Pennsylvania Public Utility Commission, Docket No. R-2017-2640058), April 2018. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Electric's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OCA, on accounting issues including test year revenue requirements, the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

Philadelphia Water Department (Philadelphia Water, Sewer And Storm Water Rate Board, FY2019-2020 Rate Proceeding), April 2018. Presented testimony on revenue requirements and the Department's three-year rate plan issues on behalf of the Public Advocate.

Westar Energy, Inc. (Westar Energy) and Kansas Gas and Electric Company (KGE), (Kansas State Corporation Commission, Docket No. 18-WSEE-328-RTS), May 2018. Presented testimony on revenue requirements on behalf on behalf of the Federal Executive Agencies.

Expert Testimony
of Lafayette K. Morgan, Jr.

Duquesne Light Company (Pennsylvania Public Utility Commission, Docket No. R-2018-3000124), June 2018. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Electric's application for an increase in rates. Presented testimony, on behalf of the OCA, on accounting issues including test year revenue requirements, the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

Bangor Natural Gas Company (Maine Public Utilities Commission, Docket No. 2018-00007), June 2018. Assisted the Maine Office of Public Advocate (OPA) Presented testimony, on behalf of the OPA, on the changes brought about by the Tax Change and Jobs Act of 2017.

SUEZ Water Pennsylvania, Inc. (Pennsylvania Public Utility Commission, R-2018-3000834), July 2018. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with SUEZ Water's application for an increase in rates. Presented testimony, on behalf of the OCA, on accounting issues including Rate Base, Operating Income, Inclusion of Costs Related to Expansion Territories and the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

Woonsocket Water Division (Public Service Commission of Rhode Island, Docket No. 4879), January 2019. Presented testimony on cost of service issues on behalf of the Division of Public Utilities and Carriers.

Central Maine Power Company (Maine Public Utilities Commission, Docket No. 2018-00194), January 2019. Assisted the Maine Office of Public Advocate (OPA) with Central Maine Power's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements, the utility's request to reflect the changes brought about by the Tax Change and Jobs Act of 2017.

Philadelphia Water Department (Philadelphia Water, Sewer and Storm Water Rate Board, 2019 Tiered Assistance Program Rate Rider Surcharge Rates Proceeding), May 2019. Presented testimony regarding the appropriate adjustments to the 2019 TAP-R determination. Presented testimony on behalf of the Public Advocate.

Newport Water Department (Public Service Commission of Rhode Island, Docket No. 4933), July 2019. Presented testimony on cost of service issues on behalf of the Division of Public Utilities and Carriers.

UGI-Gas (Pennsylvania Public Utility Commission, Docket No. R-2018-3006814), April 2019. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Gas' application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OCA, on accounting issues including Rate Base and Net Operating Income.

Expert Testimony
of Lafayette K. Morgan, Jr.

Columbia Gas of Maryland (Public Service Commission of Maryland, Case No. 9609), August 2019. Presented testimony on rate base and cost of service issues on behalf of the Office of People's Counsel.

Public Service Company of Colorado (Colorado Public Utility Commission, Proceeding No. 19AL-0268E), September 2019. Mr. Morgan provided testimony, on behalf of the Department of Energy and the Federal Executive Agencies, on accounting issues including test year revenue requirements, Rate Base and Net Operating Income.

Northern Utilities, Inc. (Maine Public Utilities Commission, Docket No. 2019-00092), September 2019. Assisted the Maine Office of Public Advocate (OPA) with Northern Utilities application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements and the utility's request to institute a Capital Investment Recovery Mechanism.

Citizens' Electric Company of Lewisburg (Pennsylvania Public Utility Commission, Docket No. R-2019-3008212), October 2019. Provided testimony on Plant in Service, Construction Work in Progress, Materials and Supplies, Customer Deposits, Depreciation Expense, Growth Factor, and The Tax Cuts and Jobs Act. Mr. Morgan provided testimony, on behalf of the Pennsylvania Office of Consumer Advocate (OCA).

Valley Energy, Inc. (Pennsylvania Public Utility Commission, Docket No. R-2019-3008209), October 2019. Provided testimony on Plant in Service, Construction Work in Progress, Materials and Supplies, Customer Deposits, Depreciation Expense, Growth Factor, and The Tax Cuts and Jobs Act. Mr. Morgan provided testimony, on behalf of the Pennsylvania Office of Consumer Advocate (OCA).

Wellsboro Electric Company (Pennsylvania Public Utility Commission, Docket No. R-2019-3008208), October 2019. Provided testimony on Plant in Service, Construction Work in Progress, Materials and Supplies, Customer Deposits, Depreciation Expense, Growth Factor, and The Tax Cuts and Jobs Act. Mr. Morgan provided testimony, on behalf of the Pennsylvania Office of Consumer Advocate (OCA).

Blue Granite Water Company (Public Service Commission of South Carolina, (Docket No. 2019-290-WS), January 2020. Assisted the South Carolina Department of Consumer Affairs. Presented testimony on accounting policy issues including test year revenue requirements.

UGI-Gas (Pennsylvania Public Utility Commission, Docket No. R-2019-3015162), May 2020. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Gas' application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OCA, on accounting issues including Rate Base and Net Operating Income.

Expert Testimony
of Lafayette K. Morgan, Jr.

Columbia Gas of Maryland (Public Service Commission of Maryland, Case No. 9644), July 2020. Presented testimony on rate base and cost of service issues on behalf of the Office of People's Counsel.

PECO Energy Company - Gas Division (Pennsylvania Public Utility Commission, Docket No. R-2020-3018929), December 2020. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with PECO-Gas' application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OCA, on accounting issues including Rate Base and Net Operating Income.

Philadelphia Water Department (Philadelphia Water, Sewer and Storm Water Rate Board, Fiscal Years 2022 - 2023 Rates Proceeding), March 2021. Presented testimony on revenue requirements and the Department's three-year rate plan issues on behalf of the Public Advocate.

Versant Maine (Maine Public Utilities Commission, Docket No. 2020-00316), April 2021. Assisted the Maine Office of Public Advocate (OPA) with Versant's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements.

Maine Water Company (Maine Public Utilities Commission, Docket No. 2021-00053), April 2021. Assisted the Maine Office of Public Advocate (OPA) with Maine Water Company's Request for Approval of Rate Increase and Rate Smoothing Mechanism Pertaining to The Maine Water Company Biddeford & Saco Division. Mr. Morgan provided testimony, on the authorization of the Rate Smoothing Mechanism.

UGI-Electric (Pennsylvania Public Utility Commission, Docket No. R-2021-3023618), May 2021. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with UGI-Electric's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OCA, on accounting issues including Rate Base and Net Operating Income.

Bangor Natural Gas Company (Maine Public Utilities Commission, Docket No. 2021-00024), June 2021. Assisted the Maine Office of Public Advocate (OPA) with Bangor Natural Gas' application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements.

Philadelphia Gas Works (Philadelphia Gas Commission, Fiscal Years 2021 - 2022 Operating Budget Proceeding), June 2021. Presented testimony on the reasonableness of the Fiscal Year 2022 Operating Budget on behalf of the Public Advocate.

Duquesne Light Company (Pennsylvania Public Utility Commission, Docket No. R-2021-3024750), June 2021. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with

Expert Testimony
of Lafayette K. Morgan, Jr.

Duquesne Light Company's application for an increase in rates. Presented testimony, on behalf of the OCA, on accounting issues including test year revenue requirements.

Columbia Gas of Maryland (Public Service Commission of Maryland, Case No. 9664), July 2021. Presented testimony on rate base and cost of service issues on behalf of the Office of People's Counsel.

Palmetto Wastewater Reclamation, Inc. (Public Service Commission of South Carolina, (Docket No. 2021-153-S), September 2021. Assisted the South Carolina Department of Consumer Affairs. Presented testimony on accounting policy issues including test year revenue requirements.

Maine Water Company (Maine Public Utilities Commission, Docket No. 2021-00289), November 2021. Assisted the Maine Office of Public Advocate (OPA) with Maine Water Company's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements.

City of Lancaster – Water Department (Pennsylvania Public Utility Commission, Docket No. R-2021-3026682), December 2021. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with the City of Lancaster – Water Department's application for an increase in rates. Presented testimony, on behalf of the OCA, on accounting issues including test year revenue requirements.

Maryland Water Service (Public Service Commission of Maryland, Case No. 9671), January 2022. Presented testimony on rate base and cost of service issues on behalf of the Office of People's Counsel.

Commonwealth Edison Company (Illinois Commerce Commission, ICC Docket No. 21-0607 & ICC Docket No. 21-0739 (consolidated)), February 2022. Provided testimony related to the review and evaluation of the rate effects of Commonwealth Edison's misconduct admitted in the Deferred Prosecution Agreement between the United States Attorney for the Northern District of Illinois and Commonwealth Edison. Provided testimony on behalf of the Office of the Illinois Attorney General, the City of Chicago, and the Citizens Utility Board.

Philadelphia Gas Works (Philadelphia Gas Commission, Fiscal Years 2022 - 2023 Capital Budget Proceeding), February 2022. Presented testimony proposing several adjustments to Philadelphia Gas Works' Fiscal Year 2023 Capital Budget on behalf of the Public Advocate.

Philadelphia Water Department (Philadelphia Water, Sewer and Storm Water Rate Board, 2022 Tiered Assistance Program Rate Rider Surcharge Rates Proceeding), March 2022. Presented testimony regarding the appropriate adjustments to the 2022 TAP-R determination. Presented testimony on behalf of the Public Advocate.

Expert Testimony
of Lafayette K. Morgan, Jr.

Philadelphia Water Department (Philadelphia Water, Sewer and Storm Water Rate Board, Fiscal Years 2023 Special Rate Proceeding), April 2022. Presented testimony that demonstrated Philadelphia Water Department's outperformance and proposed a sharing of the utility's outperformance earnings. Presented testimony on behalf of the Public Advocate.

Maine Water Company-Camden& Rockland Division (Maine Public Utilities Commission, Docket Nos. 2022-00056), June 2022. Assisted the Maine Office of Public Advocate (OPA) with Maine Water Company's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements.

Maine Water Company-Freeport Division (Maine Public Utilities Commission, Docket Nos. 2022-00057), June 2022. Assisted the Maine Office of Public Advocate (OPA) with Maine Water Company's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements.

Maine Water Company-Millinocket Division (Maine Public Utilities Commission, Docket Nos. 2022-00058), June 2022. Assisted the Maine Office of Public Advocate (OPA) with Maine Water Company's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements.

Maine Water Company-Oakland Division (Maine Public Utilities Commission, Docket Nos. 2022-00059), June 2022. Assisted the Maine Office of Public Advocate (OPA) with Maine Water Company's application for an increase in rates. Mr. Morgan provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements.

Columbia Gas of Pennsylvania (Pennsylvania Public Utility Commission, Docket No. R-2022-3031211), June 2022. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with Columbia Gas of Pennsylvania's application for an increase in rates. Presented testimony, on behalf of the OCA, on accounting issues including test year revenue requirements.

Philadelphia Gas Works (Philadelphia Gas Commission, Fiscal Years 2022 - 2023 Operating Budget Proceeding), June 2022. Presented testimony on the reasonableness of the Fiscal Year 2023 Operating Budget on behalf of the Public Advocate.

Columbia Gas of Maryland (Public Service Commission of Maryland, Case No. 9680), July 2022. Presented joint testimony on rate base and cost of service issues on behalf of the Office of People's Counsel.

Expert Testimony
of Lafayette K. Morgan, Jr.

Oncor Electric Delivery Company (Public Utility Commission of Texas, PUC Docket No. 53601), August 2022. Presented joint testimony on rate base and cost of service issues on behalf of the Department of Defense and Federal Executive Agencies.

Cheyenne Light, Fuel and Power Company d/b/a Black Hills Energy (Wyoming Public Service Commission, Docket No. 20003-214-ER-22), November 2022. Presented testimony, on behalf of Microsoft Corporation, on rate base and cost of service issues.

Central Maine Power Company (Maine Public Utilities Commission, Docket No. 2022-00152), December 2022. Assisted the Maine Office of Public Advocate (OPA) with Central Maine Power's application for an increase in rates. Provided testimony, on behalf of the OPA, on accounting issues including test year revenue requirements and the company's request for a multi-year rate plan.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission, Docket No. R-2022-3035730), January 2023. Assisted the Pennsylvania Office of Consumer Advocate (OCA) with National Fuel Gas Distribution Corporation's application for an increase in rates. Presented testimony, on behalf of the OCA, on accounting issues including test year revenue requirements.

Philadelphia Gas Works (Philadelphia Gas Commission, Fiscal Years 2022 - 2023 Capital Budget Proceeding), February 2023. Presented testimony proposing several adjustments to Philadelphia Gas Works' Fiscal Year 2024 Capital Budget on behalf of the Public Advocate.

Philadelphia Water Department (Philadelphia Water, Sewer and Storm Water Rate Board, 2023 Tiered Assistance Program Rate Rider Surcharge Rates Proceeding), March 2023. Presented testimony regarding the appropriate adjustments to the 2023 TAP-R determination. Presented testimony on behalf of the Public Advocate.

Philadelphia Water Department (Philadelphia Water, Sewer and Storm Water Rate Board, Fiscal Years 2024 - 2025 Rates Proceeding), April 2023. Presented testimony on revenue requirements and the Department's two-year rate plan issues on behalf of the Public Advocate.

Dayton Power and Light Company d/b/a AES Ohio (The Public Utilities Commission of Ohio, Case No. 22-900-EL-SSO), April 2023. Presented testimony addressing the recovery of deferred costs and regulatory assets as part of AES Ohio's Application for Approval of Its Electric Security Plan on behalf of the Office of the Ohio Consumers' Counsel.

Special Projects

Developed a Uniform System of Accounts and Financial Data Collection Template for five countries participating in the National Association of Regulatory Utility Commissioners (NARUC)/East Africa Regional Energy Regulatory Partnership. Also conducted training seminars and participated as a panel member addressing issues in the utility industry from the perspective of the regulator. This work was conducted by NARUC) and the United States Agency for International Development (USAID).

Other Projects

Texas Gas Transmission Corporation (Federal Energy Regulatory Commission, Docket No. RP93-106). Technical analysis and participation in settlement negotiations on cost of service, invested capital, and revenue deficiency on behalf of the Indiana Office of Utility Consumer Counselor.

Natural Gas Pipeline Company of America (Federal Energy Regulatory Commission, Docket No. RP93-36). Technical analysis and participation in settlement negotiations on cost of service, invested capital, and revenue deficiency on behalf of the Indiana Office of Utility Consumer Counselor.

Texas Gas Transmission Company (Federal Energy Regulatory Commission, Docket No. RP94-423). Technical analysis and participation in settlement negotiations on cost of service, invested capital, and revenue deficiency on behalf of the Indiana Office of Utility Consumer Counselor.

Lafourche Telephone Company (Louisiana Public Service Commission, Docket No. U-21181). Analysis and investigation of earnings and appropriate rate of return on behalf of the Louisiana Public Service Commission Staff.

Natural Gas Pipeline Company of America (Federal Energy Regulatory Commission, Docket No. RP95-326). Technical analysis and participation in settlement negotiations on cost of service, invested capital, and revenue deficiency on behalf of the Indiana Office of Utility Consumer Counselor.

Pymatuning Independent Telephone Company (Pennsylvania Public Utility Commission, Docket No. R-00953502). Technical analysis and development of settlement position in the Company's rate case on behalf of the Pennsylvania Office of Consumer Advocate.

Illinois Bell Telephone Company (Illinois Commerce Commission, Docket No. 96-0172). Technical analysis of the Company's annual rate filing pursuant to its Price Cap Plan on behalf of Citizens Utility Board.

Illinois Bell Telephone Company (Illinois Commerce Commission, Docket No. 97-0157).
Technical analysis of the Company's annual rate filing pursuant to its Price Cap Plan on behalf of Citizens Utility Board.

TDS Telecom (Pennsylvania Public Utility Commission, Docket Nos. R-00973892 and R-00973893). Technical analysis regarding rate base, cost of service, rate design, and rate of return, and assistance in settlement negotiations in the Company's rate case and alternative regulatory filing on behalf of the Pennsylvania Office of Consumer Advocate.

Appalachian Power Company (Virginia State Corporation Commission, Case No. PUE 960301).
Technical analysis regarding rate base and cost of service and assistance in settlement negotiations in the Company's rate case and alternative regulatory filing on behalf of the Virginia Office of the Attorney General.

Central Maine Power Company (Maine Public Utilities Commission, Docket No. 97-580).
Technical analysis regarding attrition and accounting issues in the Company's Transmission and Distribution unbundling proceeding on behalf of the Maine Public Utilities Commission Staff.

Illinois Bell Telephone Company (Illinois Commerce Commission, Docket No. 98-0259).
Technical Analysis of the Company's annual rate filing pursuant to its Price Cap Plan on behalf of Citizens Utility Board.

Maine Public Service Company (Maine Public Utilities Commission, Docket No. 98-577).
Technical analysis regarding attrition and accounting issues in the Company's Transmission and Distribution unbundling proceeding on behalf of the Maine Public Utilities Commission Staff.

Bangor Hydro-Electric Company (Maine Public Utilities Commission, Docket No. 97-596).
Technical analysis regarding attrition and accounting issues in the Company's Transmission and Distribution unbundling proceeding on behalf of the Maine Public Utilities Commission Staff.

TDS Telecom (Maine Public Utilities Commission, Docket Nos. 98-894, 98-895, 98-904, 98-906, 98-911, and 98-912). Technical analysis regarding accounting issues and access rate changes on behalf of the Maine Office of the Public Advocate.

Mid-Maine Telecom (Maine Public Utilities Commission, Docket No. 2000-810). Technical analysis regarding accounting issues and access rate changes on behalf of the Maine Office of the Public Advocate.

Unitel, Inc. (Maine Public Utilities Commission, Docket No. 2000-813). Technical analysis regarding accounting issues and access rate changes on behalf of the Maine Office of the Public Advocate.

Hydraulics International, Inc. (Armed Services Board of Contract Appeals, ASBCA No. 51285). Technical analysis and support relating to the Economic Adjustment Clause claim on behalf of the Air Force Materiel Command.

Tidewater Telecom and Lincolnville Telephone Company (Maine Public Utilities Commission, Docket Nos. 2002-100 and 2002-99). Technical analysis regarding accounting issues and access rate changes on behalf of the Maine Office of the Public Advocate.

TDS Telecom (Vermont Public Service Board, Docket No. 6576). Technical analysis regarding rate base, cost of service, and depreciation expense on behalf of the Vermont Department of Public Service.

CenterPoint Energy-Entex (Louisiana Public Service Commission, Docket No. U-26720, Subdocket A). Technical analysis regarding rate base and cost of service on behalf of the Louisiana Public Service Commission Staff.

CenterPoint Energy-Arkla (Louisiana Public Service Commission, Docket No. U-27676). Technical analysis regarding rate base and cost of service on behalf of the Louisiana Public Service Commission Staff.

Provided technical analysis and support on behalf of the Louisiana Public Service Commission Staff relating to CLECO Power LLC Rate Stabilization Plan.

Provided technical analysis and support on behalf of the Louisiana Public Service Commission Staff relating to CLECO Power LLC post-Katrina power purchases.

Provided technical analysis and support on behalf of the Louisiana Public Service Commission Staff relating to Entergy Louisiana LLC recovery of storm damage costs.

Westar Energy, Inc. (Westar Energy) and Kansas Gas and Electric Company (KGE), (Kansas State Corporation Commission, Docket No. 17-WSEE-147-RTS). Technical analysis regarding rate base and cost of service on behalf of the Federal Executive Agencies.

Westar Energy, Inc. (Westar Energy) and Kansas Gas and Electric Company (KGE), (Kansas State Corporation Commission, Docket No. 17-WSEE-147-RTS). Technical analysis regarding rate base and cost of service on behalf of the Federal Executive Agencies.

APPENDIX B – Resume of Jennifer L. Rogers

JENNIFER L. ROGERS

Ms. Rogers is the Lead Economist at Exeter Associates, Inc, with over a decade of experience in the energy industry. At Exeter, Ms. Rogers conducts reviews of utility rate filings and analysis of revenue requirement issues. She also evaluates and forecasts power supply requirements, costs, and renewable energy needs; provides bill and rate analysis; and reviews energy use, scheduling, and scheduling deviation data for clients. In addition, Ms. Rogers conducts utility service assessments to identify areas for potential utility cost savings, providing detailed analysis of supply contracts, energy use, and a review of billing practices.

Education

B.A. (Economics) – Saint Mary’s College of Maryland, 2007

M.A. (Economics) – Northeastern University, Boston, MA, 2009

Previous Employment

2009-Current	Exeter Associates, Inc. Columbia, MD	
	<ul style="list-style-type: none">• Lead Economist• Senior Economist• Economist• Research Assistant	2023-Current 2018-2022 2011-2017 2009-2010

2007-2008 Economics Research and Teaching Assistant
Northeastern University
Boston, MA

Professional Experience

Ms. Rogers’ work at Exeter is primarily related to analysis of revenue requirement issues in utility rate filings, analysis power supply acquisition, bill and rate analysis and forecasting, and utility service assessment. Ms. Rogers provides support to the U.S. Department of Energy’s Northern California national laboratories, generating cost simulations and power procurement models to forecast future power supply requirements and costs. In addition, Ms. Rogers reviews and tracks the Laboratories’ billing, energy use, scheduling, and scheduling deviation data. Ms. Rogers works with the U.S. Air Force Civil Engineer Center to complete utility service assessments to identify areas for potential utility cost savings, providing detailed analysis of energy usage, supply contracts, and a review of billing practices. Ms. Rogers also assists clients in reviewing utility rate filings, providing analysis on revenue requirement issues. Ms. Rogers’ work at Exeter has also included assisting in studies of variable generation forecasting, feed-in tariffs for renewable energy generation, and transmission cost allocation methodologies.

As a Research Assistant at Northeastern University, Ms. Rogers worked in the fields of industrial organization and labor economics, while her studies focused on economic modeling and policy analysis. Ms. Rogers developed surveys to be used in a longitudinal labor economics study, tutored undergraduate economics students, and provided research on a variety of economics-related topics.

Expert Testimony

Before the Pennsylvania Public Utility Commission, Docket No. R-2015-2462723, United Water Pennsylvania, Inc., 2015, on behalf of the Pennsylvania Office of Consumer Advocate. Testimony addressed revenue requirement issues.

Before the Maryland Public Service Commission, Case No. 9680, Columbia Gas of Maryland, Inc., 2022, on behalf of the Maryland Office of People's Counsel. Testimony addressed revenue requirement issues.

Before the Public Utility Commission of Texas, Docket No. 53601, Oncor Electric Delivery Company LLC, 2022, on behalf of the United States Department of Defense and the Federal Executive Agencies. Testimony addressed revenue requirement issues.

Before the Pennsylvania Public Utility Commission, Docket No. R-2022-3032764, Leatherstocking Gas Company, LLC., 2022, on behalf of the Pennsylvania Office of Consumer Advocate. Testimony addressed revenue requirement issues.

Publications and Consulting Reports

A Survey of Variable Generation Integration Charges, National Renewable Energy Laboratory, NREL Report No. NREL/TP-5500-57583, March 2013 (with Kevin Porter, Sari Fink, and Michael Buckley of Exeter Associates, and with B.-M. Hodge of NREL)

Survey of Variable Generation Forecasting in the West, National Renewable Energy Laboratory, NREL Report No. NREL/SR-5500-54457, April 2012 (with Kevin Porter).

Summary of Time Period-Based and Other Approximation Methods for Determining the Capacity Value of Wind and Solar in the United States, National Renewable Energy Laboratory, NREL Report No. NREL/SR-5500-54338, March 2012 (with Kevin Porter).

Long-Term Electricity Report for Maryland, prepared for the Maryland Department of Natural Resources Power Plant Research Program Pursuant to Executive Order 01.01.2010.16, December 2011, (with Steven Estomin, Kevin Porter, Christina Mudd, Emma Nicholson, Sari Fink, Michael Buckley, and Krista Ozarowski).

Alternative Energy Resource Market Assessment, National Association of Regulatory Utility Commissioners, A report for the Public Utility Commission of Ohio, September 2011

(with Kevin Porter of Exeter Associates, Inc., Ed Holt & Associates, Inc., and Sustainable Energy Advantage LLC)

Central Wind Power Forecasting Programs in North America by Regional Transmission Organizations and Electric Utilities: Revised Edition, National Renewable Energy Laboratory, NREL Report No. NREL/SR-5500-51263, March 2011 (with Kevin Porter).

A Survey of Transmission Cost Allocation Methodologies for Regional Transmission Organizations, National Renewable Energy Laboratory, NREL Report No. SR-5500-49880, February 2011 (with Kevin Porter, Sari Fink, and Christina Mudd).

The Relationship between Wind Generation and Balancing-Energy Market Prices in ERCOT: 2007–2009, National Renewable Energy Laboratory, NREL Report No. NREL/SR-5500-49415, November 2010 (with Kevin Porter and Emma Nicholson).

The Relevance of Generation Interconnection Procedures to Feed-in Tariffs in the United States, National Renewable Energy Laboratory, NREL Report No. NREL/SR-6A20-48987, October 2010 (with Kevin Porter and Sari Fink).

Transmission Cost Allocation Methodologies for Regional Transmission Organizations, National Renewable Energy Laboratory, NREL Report No. NREL/SR-550-48738, July 2010 (with Kevin Porter and Sari Fink).

Examples of Wind Energy Curtailment Practices, National Renewable Energy Laboratory, NREL Report No. NREL/SR-550-48737, July 2010 (with Kevin Porter and Sari Fink).

Status of Centralized Wind Power Forecasting in North America, National Renewable Energy Laboratory, NREL/SR-550-47853, April 2010 (with Kevin Porter).

“Bi-Monthly Transmission Updates,” of the National Wind Coordinating Collaborative, Prepared for National Renewable Energy Lab, August 2009 - June 2010 (with Kevin Porter).

“Maryland Power Plants and the Environment: A Review of the Impacts of Power Plants and Transmission Lines on Maryland’s Natural Resources, Maryland Power Plant Research Program, PPRP-CEIR-15,” January 2010 (with Steven Estomin, Christina Mudd, and Sari Fink of Exeter Associates, Inc. and contributing authors from Versar, Inc. and Environmental Resources Management).

“Wind Power and Electricity Markets,” Compiled for the Utility Wind Interest Group, August 2009 (with Kevin Porter and Sari Fink).