

**BEFORE THE
PHILADELPHIA WATER, SEWER AND STORM WATER RATE BOARD**

**In the Matter of the Philadelphia Water
Department's Proposed Change in
Water, Wastewater, and Stormwater
Rates and Related Charges**

*
*
* **Fiscal Years 2026 – 2027**
* **Rates and Charges to Become Effective**
* **September 1, 2025 and September 1, 2026**
*

Direct Testimony
Of
Roger D. Colton
On Behalf Of
The Philadelphia Public Advocate

May 1, 2025

Table of Contents

Part 1	The impacts of PWD’s proposed rate hikes on low- and moderate-income households	7
	A. The breadth and depth of water unaffordability in Philadelphia	9
	B. The unaffordability of water to moderate-income households	13
	C. The public and private costs of water unaffordability in Philadelphia	15
Part 2	Revenue adjustment for increased collection of TAP Rider revenues.	23
Part 3.	An expense adjustment for non-PWD City liens	29
	A. Excluding the costs of non-PWD expenses from water rates	30
	B. An additional basis for Rate Board decision	35
Part 4.	A TAP Rider to adjustment reflect conservation services	38
Part 5.	A revenue adjustment to reflect “Raise Your Hand”	46
Part 6.	A revenue adjustment for lost UESF hardship grants	54
Part 7.	A capital expense adjustment to reflect “Additional Subsidization”	60
Part 8.	PWD unlawfully considers the incomes\ of minors in delivering TAP rates	72
Exhibits		77

1 **Q. PLEASE STATE YOUR NAME AND ADDRESS FOR THE RECORD.**

2 A. My name is Roger Colton. My business address is 34 Warwick Road, Belmont, MA
3 02478.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I own the firm of Fisher Sheehan & Colton, Public Finance and General Economics of
6 Belmont, Massachusetts. In that capacity, I provide technical assistance to a variety of
7 federal and state agencies, consumer organizations and public utilities on rate and
8 customer service issues involving water/sewer, natural gas and electric utilities.

9 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

10 A. I am testifying on behalf of the Philadelphia Public Advocate.

11 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL BACKGROUND.**

12 A. I work primarily on low-income utility issues. This involves regulatory work on rate and
13 customer service issues, as well as research into low-income usage, payment patterns,
14 and affordability programs. At present, I am working on various projects in the states of
15 New Hampshire, Massachusetts, Connecticut, New Jersey, Pennsylvania, Florida, Ohio,
16 Wisconsin, Missouri, and Montana, as well as in the Canadian province of British
17 Columbia. My clients include state agencies (e.g., Pennsylvania Office of Consumer
18 Advocate, Maryland Office of People's Counsel, Connecticut Office of Consumers
19 Counsel), federal agencies (e.g., the U.S. Department of Health and Human Services),
20 community-based organizations (e.g., Consumers Council of Missouri, Nova Scotia

1 Energy Poverty Task Force, Sierra Club), and public and private utilities (e.g., BC Hydro,
2 Toledo Water).

3 Examples of my work include my current projects to assist the Connecticut Office of
4 Consumers Counsel in the annual generic review of the low-income affordability
5 initiatives of that state's utilities by the Public Utilities Regulatory Authority, as well as
6 to assist the New Jersey Office of Rate Counsel in the New Jersey Board of Public
7 Utility's generic review of that state's affordability programs. I am also assisting the
8 Massachusetts Attorney General's Office in the generic investigation by the Department
9 of Public Utilities into the design of low-income affordability programs. In the Spring of
10 2024, I authored a universal service plan for the province of Nova Scotia, while in the
11 Fall of 2024, I developed a universal service plan for British Columbia under contract to
12 BC Hydro. I am consulting for the New Hampshire Department of Energy, which
13 administers that state's Electricity Assistance Program ("EAP"), in the proceeding before
14 the New Hampshire Public Utilities Commission to review the EAP.

15 Not all of my work involves rate case testimony. In addition, I engage in work throughout
16 the United States and Canada. For example, I am currently working for the Missouri
17 Consumers Council to develop a water affordability program for the City of St. Louis. In
18 2022, I drafted, under contract to the City of Toledo (OH), a Water Affordability Plan for
19 that city. In May of 2022, I completed a detailed report examining the affordability of
20 water service in Knoxville (TN) for a community-based organization, Knoxville Water
21 and Energy for All. In 2020, I represented a coalition of major national consumer
22 organizations to comment on the Environmental Protection Agency's proposed
23 framework by which to judge community financial capability. I have recently completed

1 a project with the Natural Resources Defense Council to develop a tool by which to
2 assess the financial impact of differing types of low-income bill assistance for water
3 utilities. I also continue to be “Of Counsel” to the National Coalition for Legislation on
4 Affordable Water. A brief description of my professional background is provided in
5 Exhibit RDC-1.

6 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.**

7 A. After receiving my undergraduate degree in 1975 (Iowa State University), I obtained
8 further training in both law and economics. I received my law degree in 1981 (University
9 of Florida). I received my Master’s Degree (regulatory economics) from the MacGregor
10 School in 1993.

11 **Q. HAVE YOU EVER PUBLISHED ON PUBLIC UTILITY REGULATORY**
12 **ISSUES?**

13 A. Yes. I have published three books and more than 80 articles in scholarly and trade
14 journals, primarily on low-income utility and housing issues. I have published an equal
15 number of technical reports for various clients on energy, water, telecommunications and
16 other associated low-income utility issues. A summary of my publications is included in
17 Exhibit RDC-1.

18 **Q. HAVE YOU EVER TESTIFIED BEFORE THIS OR OTHER UTILITY**
19 **COMMISSIONS?**

20 A. Yes. I have testified in each Philadelphia Water Department general rate case since at
21 least 2005, including general rate cases before the Philadelphia Water, Sewer and Storm
22 Water Rate Board (hereafter, “Board” or “Water Board”). In addition, I routinely testify

1 on water affordability issues, including, for example, before the Pennsylvania Public
2 Utility Commission regarding rate cases involving Aqua PA, Pittsburgh Water and Sewer
3 Authority (PWSA), and Pennsylvania American Water Company; before the Illinois
4 Commerce Commission involving Illinois-American Water Company; and before the
5 Missouri Public Service Commission regarding Missouri American Water Company.

6 Overall, over the past 40 years, I have testified in more than 350 judicial and regulatory
7 proceedings in 43 states and various Canadian provinces. A list of the jurisdictions in
8 which I have testified is provided in Exhibit RDC-1.

9 **Q. PLEASE EXPLAIN THE PURPOSE OF YOUR DIRECT TESTIMONY.**

10 A. The purpose of my Direct Testimony is to review the following issues with respect to
11 PWD rates and its low-income assistance program:

- 12 ➤ To review the affordability implications of PWD's proposed rate hike;
- 13 ➤ To examine whether PWD has accurately incorporated improved collections
14 through the TAP Rider as ordered to be included in the 2023 Rate
15 Determination;
- 16 ➤ To examine whether PWD appropriately and reasonably applies TAP
17 payments to gain arrearage forgiveness when TAP arrears subject to
18 forgiveness have been subjected to a lien;
- 19 ➤ To examine the failure of PWD to reasonably implement the conservation
20 investments and targeting which PWD agreed to implement in settlement of
21 the 2024 TAP-R proceeding.
- 22 ➤ To examine whether PWD has included the revenue impacts of its "Raise
23 Your Hand" initiative in projecting revenues for the rate period;
- 24 ➤ To assess the revenue impact associated with lost UESF grant funding;
- 25 ➤ To examine the reasonableness of PWD claimed capital expenditures in light
26 of the availability of "additional subsidization" provided for by federal law;
27 and

- To review the unlawful inclusion of the incomes of non-adults in delivering TAP discounts.

Q. CAN YOU SUMMARIZE THE RECOMMENDATIONS YOU MAKE IN YOUR DIRECT TESTIMONY?

A. Yes. Based on the data and discussion in my testimony below, I recommend that the Rate Board:

- Direct PWD to continue to file its Quarter TAP Reports with the Rate Board with the existing contents, with the exceptions explicitly noted below.
- Adopt the same revenue adjustment approved in its 2023 Rate Determination to reflect the increased collectability of revenues billed through the TAP Rider.
- Direct PWD that when any TAP participant makes a payment so long as they have a pre-program arrears on their account not fully forgiven, that payment shall be applied to their account in a manner that would earn arrearage forgiveness pursuant to the TAP. No TAP participant payment shall be applied to pay a lien fee so long as the TAP participant has a preprogram arrears subject to the provisions of the TAP arrearage forgiveness program, unless explicitly directed by the TAP participant.
- Direct that no dollars of lien fees shall be included in the cost-of-service (or revenue requirement) to be paid by PWD ratepayers. This includes where a City department or entity, other than PWD, pays the fee to perfect liens and PWD then pays that other City department or entity.
- Approve a modification to the TAP Rider to reflect the impacts of LICAP conservation investments upon which the 2024 approval of the TAP Rider was preconditioned.
- In addition to continuing the existing quarterly reporting to the Rate Board regarding TAP, as recommended above, the Rate Board should require PWD to include in future quarterly reports the following monthly data elements about “Raise Your Hand”: (a) the month-end number of Raise Your Hand customers; (b) the number of nonpayment disconnect notices issued to Raise Your Hand customers; (c) the number of nonpayment disconnections to Raise Your Hand customers; (d) the number of reconnections after a disconnection to Raise Your Hand customers; (e) the number of bills issued to Raise Your Hand customers; (f) the number of payments received from (or on behalf of) Raise Your Hand

customers; (g) the dollars of bills for current service issued to Raise Your Hand customers; (h) The dollars of payments received from (or on behalf of) Raise Your Hand customers; (i) the total number of Raise Your Hand customers with arrears; (j) the total dollars of arrears billed to Raise Your Hand customers.

➤ Adopt the two revenue adjustments needed to reflect preserved revenues generated by the Raise Your Hand program to prevent nonpayment shutoffs.

➤ Direct PWD to find a substitute level of hardship funding to replace the hardship funds included in rates, but no longer being received from UESF, and regularly report to the Rate Board both the specific steps take to find replacement funding and the results of those steps.

➤ Direct PWD to file, within 60 days after a final Rate Determination in this proceeding, and monthly thereafter, a report with the Rate Board documenting the receipt of hardship fund grants received by PWD which are subject to matching grants made by PWD and applied to the accounts of income-eligible customers. This monthly reporting should include the following: (a) the monthly receipt of hardship funds by PWD customers; (b) the number of requests and/or inquiries for grant assistance, (c) the number of new applicants, (d) the number of new approvals, (e) the number of denied applications and denial reasons, (f) the number of accounts flagged for a hold pending payment (approved but not yet paid), and (g) the number of accounts receiving funds per month.

➤ Adopt a deferred rate mechanism through which PWD will allocate the dollars of decreased revenue requirement associated with the receipt of any PENNVEST loan with additional subsidization as that term is defined by federal statute. Pursuant to federal law, the dollars allocated to this deferred rate mechanism will be used for the exclusive benefit of the PWD customers in the disadvantaged community or communities, as that term is defined by federal statute and PENNVEST regulations, which the capital investment funded by the PENNVEST loan is structured to serve. The use of these dollars will be at the discretion of PWD, in consultation with the Public Advocate. In order to ensure that the financial benefits of the additional subsidization are flowed through to the relevant disadvantaged communities, any use of funds set aside in such a manner necessarily need to supplement and not supplant funds that would be set aside for these purposes in the absence of the loan.

➤ Direct PWD to adopt appropriate reporting procedures to the Rate Board to ensure that this principle of “supplementing, not supplanting” has been adhered to.

- Direct PWD to limit the income information sought in TAP applications, and used in setting TAP bills, to the income of “all adults” as required by the Philadelphia Code and PWD regulations.
- Adopt the following remedial action for the prior unlawful use of incomes for household members other than that of “all adults”: (1) First, PWD should enlist the services of an independent third-party auditor to audit all TAP denials for being over-income in the past three years to determine which, if any, of those denials was based on an unlawful consideration of incomes other than the income of adults. (2) Any household unlawfully denied eligibility for TAP should be immediately enrolled in TAP with the lawful TAP rates being charged for all future bills. (3) Any household unlawfully denied eligibility for TAP should have their bills during the audit period be redetermined at the appropriate and lawful rate with an appropriate adjustment being made. (4) All payments made during the audit period should be credited toward the forgiveness of pre-enrollment arrears. (5) Any charges imposed for nonpayment (e.g., late payment charge, disconnect/reconnect charge) should be refunded. (6) PWD should make a diligent effort to locate customers who were unlawfully denied entry into TAP, and accordingly charged unlawful rates, and are now no longer PWD customers. Appropriate refunds should be provided to these households, including the value of the unlawfully charged bills for current service, arrears forgiveness unlawfully denied, and charges for late or nonpayment payment unlawfully imposed.
- Direct these same remedies toward customers who were enrolled in TAP with incomes unlawfully determined to be higher than they should have been had incomes been limited to the income of adults. TAP bills should be recalculated based on the appropriate income and refunds issued; future TAP bills should be set at a level reflecting the appropriate income levels; all past payments should be applied against appropriate levels of TAP bills and appropriate adjustments made to earned forgiveness; and all charges for nonpayment imposed during the period in which TAP bills were set at unlawfully high amounts should be refunded. Moreover, PWD should make a diligent effort to locate customers who were enrolled in TAP, with incomes higher than allowed by the Philadelphia Code, who are no longer customers with appropriate refunds made to those households.

Part 1. The Impacts of PWD’s Proposed Rate Hike on Low- and Moderate-Income Households.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

1 A. In this section of my testimony, I document the impacts which PWD’s proposed rate hike
2 will have on low- and moderate-income customers in Philadelphia. These impacts
3 largely reflect the unaffordability of water (and sewer and stormwater)¹ service to PWD’s
4 customers. In my discussion below, I will first document the extent of water
5 unaffordability in Philadelphia. I will next consider the collections impact of that
6 unaffordability. I will finally consider the non-utility impacts on households arising from
7 the unaffordability of water.

8 **Q. WHAT RATE INCREASES ARE PWD CUSTOMERS FACING GIVEN THE**
9 **HIKES REQUESTED BY PWD IN THE CURRENT PROCEEDING?**

10 A. In its rate filing, PWD is requesting annual revenue increases to generate \$73.63 million
11 in FY 2026 (beginning September 1, 2025) and an additional \$58.86 million in FY 2027
12 (beginning September 1, 2026). According to PWD, at a usage of 430 cubic feet (3,217
13 gallons) of water per month, PWD rates will increase to a proposed bill of \$91.31 per
14 month in September 2025 (an increase of \$9.54/month or 11.7%). Bills would increase
15 an additional \$5.37/month, to \$96.68 (an additional increase of 5.9%) in September 2027.
16 Overall, therefore, PWD indicates it is seeking an increase of 18.2% over existing rates. I
17 note that, even if PWD’s request is approved, these calculated bill impacts will not be
18 experienced by PWD customers in the way PWD describes. Because PWD’s billing
19 system uses centum cubic feet (100 cubic feet) to calculate bills, a typical customer will

¹ Throughout my testimony, I will refer to these combined services as “water” service unless I explicitly note to the contrary or the context clearly indicates to the contrary.

1 receive monthly bills that are expressed in whole hundreds of cubic feet, e.g., 400 cf or
2 500 cf.² They will not receive bills for 430 cf.

3 **A. The Breadth and Depth of Water Unaffordability in Philadelphia.**

4 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
5 **TESTIMONY.**

6 A. In this section of my testimony, I evaluate the impact of PWD rates and charges, on a full
7 tariff basis, on low- and moderate-income Philadelphia households, using the
8 methodology I explain below. This evaluation is intended to support certain
9 recommendations I make, as well as the view of the Public Advocate that proposed
10 increases in PWD rates and charges should be carefully evaluated and only approved if,
11 and to the extent that, those charges would result in just and reasonable rates. The
12 assessment of rate affordability is essential to any such determination and the Board
13 should not make its determination solely based on PWD's claims of financial need, but
14 also by counter-balancing those claims to reflect the interests of customers who will face
15 hardship if rates are increased unnecessarily. Finally, note that my discussion of
16 unaffordability does not take into account the availability of discounts through the Tiered
17 Assistance Program or the Senior Discount, but is meant to assess impacts upon those
18 low income Philadelphia households in the absence of such assistance because there are
19 many, including those who pay for water as a part of rent, who cannot access water
20 affordability programs.

² PA-III-34.

1 **Q. PLEASE EXPLAIN THE DIFFERENCE BETWEEN THE DEPTH AND**
2 **BREADTH OF UNAFFORDABILITY?**

3 A. The “breadth” of unaffordability refers to the dispersion of unaffordability through the
4 City of Philadelphia. Unaffordability, for example, is “broader” if 25 of PWD’s zip
5 codes have unaffordable burdens than if 15 of PWD’s zip codes do. In contrast, the
6 “depth” of unaffordability measures by how much a bill is unaffordable. A bill which
7 represents a burden of 15% of household income, for example, has a deeper
8 unaffordability than a bill which represents a burden of 6% of household income. In both
9 instances, the bill is unaffordable. However, the 15% burden represents a deeper
10 unaffordable burden.

11 **Q. HOW HAVE YOU CONSIDERED THE AFFORDABILITY IMPACTS OF**
12 **THESE PROPOSED RATE INCREASES?**

13 A. I examine the affordability impacts of PWD’s proposed rate hike by looking at low-
14 income households on a zip code basis. Using Census data for Zip Code Tabulation
15 Areas (ZCTA)³ on the distribution of Poverty, I examined affordability for the following
16 Poverty ranges (below 50%, 50 – 74%, 75 - 99%, 100 – 124%, and 125 – 149%). Using

³ ZCTAs are nearly, but not quite, identical to Zip Codes. ZCTAs are used by the U.S. Census Bureau, while Zip Codes are creatures of the U.S. Postal Service. According to the U.S. Census Bureau: “ZIP Code Tabulation Areas (ZCTAs) are generalized areal representations of United States Postal Service (USPS) ZIP Code service areas. The USPS ZIP Codes identify the individual post office or metropolitan area delivery station associated with mailing addresses. USPS ZIP Codes are not areal features but a collection of mail delivery routes. The term ZCTA was created to differentiate between this entity and true USPS ZIP Codes.” For a generalized discussion of the differences between Zip Codes and ZCTA, See U.S. Census Bureau, *ZIP Code Tabulation Areas*, <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/zctas.html> (last visited March 31, 2023).

1 the average bill provided by PWD at proposed rates (at 4.3 ccf),⁴ I then calculated water
2 burdens at the mid-range of each Poverty range.⁵ In calculating PWD bill affordability, I
3 use “bill burdens” (sometimes referred to as Bill-to-Income Ratios). Bill burdens are a
4 simple ratio, with the annual bill placed in the numerator and the household income (by
5 zip code and Poverty range) placed in the denominator. For example, a household with an
6 average annual bill of \$832 (\$69.31/month x 12 months) and an annual income of
7 \$10,000 would have a water burden of 8.3% ($\$832 / \$10,000 = 0.0832$).

8 **Q. PLEASE EXPLAIN WHAT YOU FOUND WITH RESPECT TO THE DEPTH OF**
9 **UNAFFORDABILITY IN EACH RANGE OF POVERTY.**

10 A. In both FY26 and FY27, PWD burdens will exceed the affordable water bill burdens the
11 Board has adopted for the TAP program. The data is set forth in the Table below. PWD
12 burdens will reach 13% of income for customers with income below 50% of Poverty; will
13 reach nearly 6% of income for customers with income at 75% to 99% of Poverty; and
14 will remain at nearly 4% for customers with income at 125% to 149% of Poverty.

⁴ PWD’s information in this proceeding is inconsistent at best. PWD previously stated that the median monthly residential usage was three ccf *per household member*. (PA-VIII-9) (emphasis added). Using that PWD figure, an average monthly bill calculated at a usage of 4.3 ccf per month would imply that PWD customers have an average of fewer than 1.4 household members ($4.3 \text{ ccf/month} / 3 \text{ ccf/household member/month} = 1.4 \text{ household members}$). In contrast, in 2023, Census data reports an average of 2.18 persons per household in Philadelphia. American Community Survey, Table B25010 (1-year data), Philadelphia (2023).

⁵ There is one exception. My experience counsels that using the mid-point for 0 – 50% of Poverty sets an income unreasonably low. Accordingly, my “mid-point” for that Poverty range is set at 40%.

Table 1. PWD Burdens by FPL Level by Fiscal Year		
	FY2026 Proposed Rates	FY2027 Proposed Rates
<50% FPL	12.3%	13.0%
50% - 74% FPL	7.8%	8.3%
75% - 99%	5.6%	5.9%
100% - 124%	4.4%	4.6%
125% - 150%	3.6%	3.8%

Q. HAVE YOU HAD OCCASION TO CONSIDER THE BREADTH OF UNAFFORDABILITY IN EACH RANGE OF POVERTY?

A. Yes. It is clear that PWD's requested rate hikes are not only driving unaffordability deeper in Philadelphia, they are also spreading unaffordability more broadly throughout the City as well. As the Table above shows, the unaffordability of PWD rates reaches to all households in the City with income at or below 150% of Poverty Level. The unaffordability of PWD bills is not only ubiquitous, it is universal for households with income below 150% of Poverty Level (at average household sizes).

[Table 2](#) below further documents the breadth of unaffordability of PWD rates throughout the City. The Table shows the number of zip codes disaggregated by the average PWD burden in each zip code. As the Table shows, the least expensive PWD burden in Philadelphia for households with income less than 50% of FPL is more than 11% of income, with the most expensive burden exceeding 14%. Even when incomes increase to between 100% and 124% of FPL, PWD burdens primarily range between 4% and 6% of income (46 zip codes), well above an affordable level.

Table 2. Affordability Impacts of PWD Proposed Rates (FY2027) (count of PWD zip codes by average PWD burden within zip code)					
Bill Burden	0 – 50% FPL	50-74% FPL	75 – 99% FPL	100 – 124% FPL	125 – 150% FPL
3% - 4%	0	0	0	1	38
4% - 5%	0	0	0	38	10
5% - 6%	0	0	28	8	0
6% - 7%	0	0	16	1	0
7% - 8%	0	19	4	0	0
8% - 9%	0	21	0	0	0
9% - 10%	0	4	0	0	0
10% - 11%	0	4	0	0	0
11% - 12%	13	0	0	0	0
12% - 13%	14	0	0	0	0
13% - 14%	13	0	0	0	0
14%+	8	0	0	0	0
Total	48	48	48	48	48

B. The Unaffordability of Water to Moderate-Income Households.

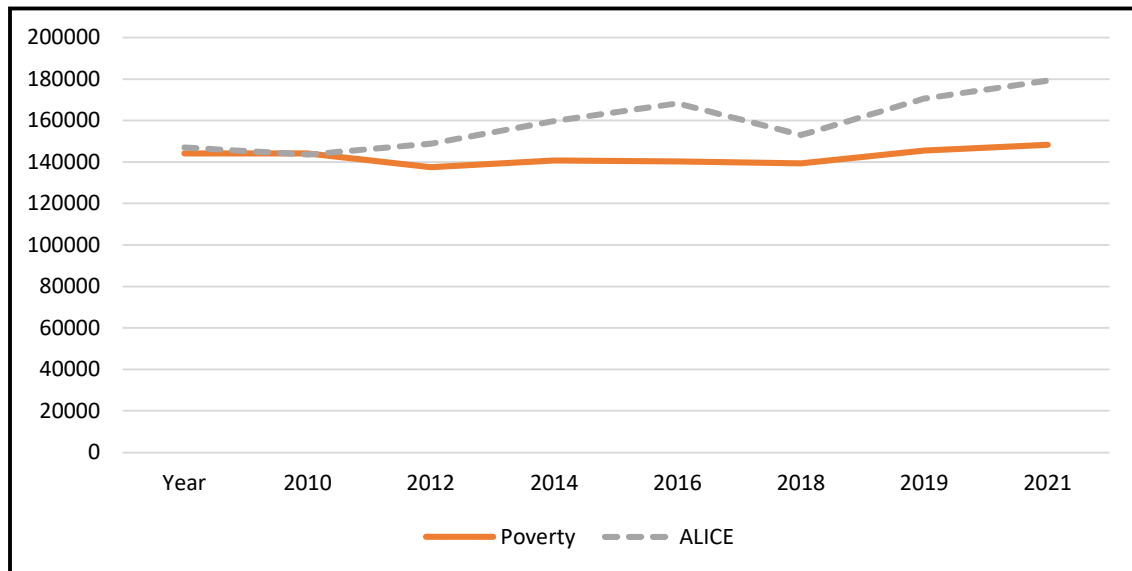
Q. HAVE YOU HAD OCCASION TO CONSIDER THE AFFORDABILITY OF WATER BILLS TO MORE MODERATE INCOME HOUSEHOLDS?

A. Yes. I have undertaken an examination of more moderate income households by examining ALICE (Asset Limited Income-Constrained, Employed) data for the County of Philadelphia. The income needed on a monthly, annual, and hourly basis by household composition is set forth in the Table below.

Table 3. Wages Needed to Meet ALICE Survival Budget by Household Composition			
Name	Monthly Total	Annual Total	Hourly Wage
Single Adult	\$2,418	\$29,016	\$14.51
One Adult One Child	\$3,996	\$47,952	\$23.98
One Adult One Childcare	\$4,655	\$55,860	\$27.93
Two Adults	\$3,567	\$42,804	\$21.40
Two Adults Two Children	\$6,168	\$74,016	\$37.01
Two Adults Two Childcare	\$7,684	\$92,208	\$46.10
Single Senior	\$2,842	\$34,104	\$17.05
Two Seniors	\$4,492	\$53,904	\$26.95

1 Given the wages identified in the Table above, a growing number of Philadelphia
 2 households fall below the ALICE threshold. Indeed, the number of households falling
 3 below the ALICE threshold is growing at a faster rate than the number of households
 4 below poverty. The ALICE data by year for 2010 through 2022 is shown in the Figure
 5 below. From 2010 through 2021, while the number of ALICE households (the dashed
 6 line) has increased from roughly 140,000 to 180,000, the number of Poverty households
 7 (the solid line) increased from roughly 140,000 to 150,000.

Figure 1. Number of Households Below Poverty and Below ALICE Threshold by Year (Philadelphia)



The increasing difficulties of moderate income households in Philadelphia is evident from the Philadelphia ALICE data.

C. The Public and Private Costs of Water Unaffordability in Philadelphia.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I explain why continuing access to safe and affordable water service is essential to an adequate quality of life in Philadelphia today. Water service in today's world is an essential human need. Water is needed not only for drinking, but also for cooking and sewer needs.⁶ A 2022 White Paper by the U.S. Water Alliance states that “for every community in our country, the availability of safe drinking

⁶ See generally, Turning Off the Tap: Massachusetts' Looking Water Affordability Crisis; see also, Read et al. (2021). Water Service Affordability in Michigan: A Statewide Assessment, Water Center, University of Michigan.

1 water and wastewater services is a precondition for public health and prosperity.”⁷ The
2 relationship between race and the loss of this essential service seems increasingly
3 difficult to deny.⁸

4 **Q. PLEASE IDENTIFY THE RELATIONSHIP BETWEEN ACCESS TO**
5 **AFFORDABLE WATER AND PUBLIC HEALTH.**

6 A. A recent study published in the American Journal of Preventative Medicine concluded
7 that “[w]ater shutoffs pose a real threat to human health because the lack of adequate
8 sanitation can cause diseases to spread and allow people to become sick.”⁹ A 2010 report
9 for the Water Research Foundation (the research arm of the American Water Works
10 Association), which I co-authored, concluded that “[a] final consideration of importance
11 to water utilities is the relationship of payment problems to health issues. . . Potential
12 impacts relate to many of the same public health endpoints targeted by Safe Drinking
13 Water Act standards such as effects on children and the unborn.”¹⁰

⁷ Hara, Willette and Simonson (2022). Making Water a Public Good: The Bigger Picture of Water Affordability, at 1, US Water Alliance.

⁸ See generally, Massachusetts Advisory Committee to the U.S. Commission on Civil Rights (December 2020); see also, Foltz-Diaz et al. (2014). The Color of Water: A Report on the Human Right to Water in the City of Boston, Massachusetts Global Action: Boston (MA) (water shutoffs in Boston may have a disproportionate impact on communities of color, even when controlling for income and other variables).

⁹ Zhang et al (2021). Water Shutoff Moratoria Lowered COVID-19 Infection and Death Across U.S. States, 2021 American Journal of Preventative Medicine.

¹⁰ Cromwell et al. (2010). Best Practices in Customer Payment Assistance Programs, at xxii, Water Research Foundation: Washington D.C. (hereafter “Best Practices”).

1 **Q. ARE THERE PARTICULARLY VULNERABLE HOUSEHOLDS?**

2 A. Yes. The lack of water has particularly negative impacts on children, the elderly, women,
3 and persons suffering from an illness or chronic health concern. As one study noted,
4 Dehydration can create threatening chemical imbalances for elderly people.
5 Women who are menstruating need water to properly cleanse themselves, and
6 mothers who are nursing need water to maintain their milk supply and their
7 health. Some people with chronic illness need clean water in order to run and
8 wash personal medical equipment.¹¹

9 **Q. ARE THERE HEALTH ISSUES BEYOND THE ISSUES YOU IDENTIFIED**
10 **ABOVE?**

11 A. Yes. The loss of water not only presents physical health problems, but also presents
12 threats to emotional well-being. Georgetown Law’s “fact-finding” report documented
13 that “people often experience a profound sense of shame surrounding the disconnection
14 of their water and their inability to pay.”¹²

15 The fundamental need for affordable water is recognized not only by laws relating to the
16 protection of children, but also by laws relating to the habitability of homes. In twenty-
17 one states, a parent’s inability to provide running water in the home can be considered

¹¹ Jones and Moulton (2016). *The Invisible Crisis: Water Unaffordability in the United States*, at 11, Unitarian Universalist Service Committee, Cambridge: MA; *see also*, Bipartisan Policy Center (September 2017). *Safeguarding Water Affordability*, at 7.

¹² Georgetown Law Human Rights Institute Fact-Finding Practicum (April 2013). “Tapped Out: Threats to the Human Right to Water in the United States,” at 35, Georgetown Law School: Georgetown (VA).

1 “child neglect.”¹³ The lack of running water and sanitation is generally considered by
2 public health inspectors to make a home uninhabitable.¹⁴

3 **Q. DOES THE LACK OF AFFORDABILITY MANIFEST ITSELF ONLY IN**
4 **TERMS OF THE LOSS OF WATER SERVICE DUE TO NONPAYMENT?**

5 A. No. The inability to afford water service does not merely manifest itself in the
6 nonpayment of water bills (and the possible loss of service appertaining thereto). The
7 paid-but-unaffordable bill is a common phenomenon. Even when people pay their water
8 bills, the unaffordability of service may force customers to make extraordinary trade-offs.
9 For example, the 2021 Water Affordability Plan I authored for Toledo (OH) found that
10 customers who paid their bills on time often resorted to measures such as borrowing
11 money, reducing spending on other life essentials, or foregoing necessary home or auto
12 repairs in order to have sufficient money to make those payments.¹⁵ The School for
13 Environment and Sustainability at the University of Michigan concurred. In a 2021
14 study,¹⁶ a University of Michigan research team undertook a study of low-income
15 experiences in Wayne, Oakland, and Macomb Counties. Of the 413 households who
16 participated, 74 had had their water shutoff in the past two years (18%). In addition, the
17 study found that 84% of residents reported cutting back on monthly expenses in order to

¹³ *Id.*, at 34.

¹⁴ *Id.*, at 32 – 33.

¹⁵ Colton (October 2021). Water Affordability Plan: City of Toledo (OH), at 71–90, prepared for the City of Toledo, Department of Public Utilities, Toledo Consumer Protection and Water Affordability Task Force.

¹⁶ School for Environment and Sustainability, University of Michigan (2021). Household Water Security in Metropolitan Detroit: Measuring the Affordability Gap.

1 pay their water bills, including 38% cutting back on medicines; 47% reducing medical or
2 dental care; 63% cutting back on the purchase of fresh produce; 82% cutting back on the
3 purchase of clothing; and 60% reducing their purchase of school supplies.¹⁷

4 Moreover, the unaffordability of water tends to be self-reinforcing. Unaffordable water
5 bills, for example, make it less likely that low-income customers will be able to afford
6 plumbing repairs to fix leaks that might further increase usage (and consequently, bills).¹⁸

7 **Q. IS THERE PHILADELPHIA-SPECIFIC DATA SHOWING THE HARMS TO**
8 **THE CITY AS A WHOLE ARISING FROM UNAFFORDABLE WATER BILLS?**

9 A. Yes. In May 2022, four professors at the University of Pennsylvania’s Perelman School
10 of Medicine published their research on *The Costs of Water Insecurity in Philadelphia*
11 (hereinafter “Costs of Water Insecurity”).¹⁹ These four Philadelphia medical professors
12 reported that the costs of water insecurity did not end with the cost to the affected
13 customer. Rather, the professors reported the costs included:

14 **Financial and employment costs:**

- 15 • Healthcare costs from mental and physical health impacts, part of which are paid
16 by individuals. The total estimated costs for mental health conditions to all
17 payers as \$302 per household per year.
- 18 • Money spent purchasing bottled water, paying a neighbor for a hose connection,
19 paying to shower at a gym or other facility, paying reconnection fees, paying
20 attorney fees to dispute shutoff and/or ramifications of it. The estimated cost of

¹⁷ Id., at 2.

¹⁸ Levine (2019). Promoting Affordability of Public Water and Sewer Service for Low-Income Households in New Jersey: Policy Options, at 9, prepared for Jersey Water works Asset Management and Finance Committee.

¹⁹ Laura A. Gibson, PhD , Eliza Kinsey, PhD, Christina A. Roberto, PhD, & Louise Russell, PhD (May 2022). *The Costs of Water Insecurity in Philadelphia*, Perelman School of Medicine, University of Pennsylvania.

1 purchased water varies from \$0.50 to \$1.25 per gallon, so from \$1950 to \$4950
2 per household per year.

- 3 • Time costs (e.g., lost labor, leisure, and home productive hours) of collecting
4 water.
- 5 • Missed work and loss of productivity and employment from physical and mental
6 health impacts.
- 7 • Accumulating debt (disconnected customer accounts continue to incur fees and
8 penalties)
- 9 • Diminished credit and dismantled borrowing potential.

10 **Family and Educational Costs**

- 11 • Children removed from homes by Child Protective Services or forced to relocate
12 away from family because of lack of water.
- 13 • Missed school days.
- 14 • Poor hygiene, which increases risk of children being bullied; some parents keep
15 kids home from school to prevent bullying.
- 16 • Reduction in spending on school supplies because parents need to make tradeoffs
17 to pay utility bills.

18 **Physical and Mental Health Costs**

- 19 • Increased psychological distress and mental health effects.
- 20 • Increased risk for infectious diseases and death among children and adults.
- 21 • Premature loss of life during Covid-19.
- 22 • Dehydration, which can disrupt cognitive function including concentration,
23 alertness, and short-term memory and negatively impact mood and organ
24 function.
- 25 • Increased risk for obesity, type 2 diabetes, and oral health problems, partly
26 because people substitute sugary drinks for water.

- Water shut offs create elevated health risks for certain vulnerable groups such as babies and children, older adults, people with disabilities, people with chronic diseases, pregnant people, nursing mothers, and women who are menstruating.

Q. DID THE *COSTS OF WATER INSECURITY REPORT* FIND OTHER PUBLIC AND PRIVATE COSTS ARISING FROM THE UNAFFORDABILITY OF WATER IN PHILADELPHIA?

A. Yes. In addition to the above findings, the Perelman School of Medicine researchers reported costs such as:

Housing costs: Housing loss because the house is uninhabitable without water, or a lien may be placed on an occupant for unpaid debt. This can lead to high penalties and interest, with some households facing tax foreclosure or renters evicted for not paying utility bills (if billed separately by the landlord).

Community Costs:

- Vacant homes that are abandoned following a water shut off.
- Increases in homelessness.
- Costs to health systems and payers for increases in hospitalization, ambulatory, and ER visits and prescription drugs driven by rises in infectious and chronic diseases (though some of these costs are borne by insurers, by state and federal governments, and, as noted above, by individuals).
- Tens of thousands of pro-bono hours for legal and community services.

City Costs:

- Costs of shut offs and reconnections, including staff time, travel, and materials.
- Children placed in foster care following a neglect finding for not having a utility service.

- Homelessness (as a result of eviction, foreclosure, not being able to stay in a water-less home).
- Public safety (including illegal, sometimes unsafe water reconnections).
- Macroeconomic impacts of lost productivity.

Q. WHAT DO YOU CONCLUDE?

A. Water cannot be viewed as just another commodity sold by a public agency, with access denied when customers find the cost to be unaffordable. PWD should acknowledge this “connection between affordability and public health as another compelling reason to go beyond normal commercial collections practices and help meet higher community goals in this area of service.”²⁰ Water utilities like PWD “must remain mindful that public health is their core business and there is as much health impact at stake in the manner in which they obtain revenue from low-income households as there is in treating the water to high standards.”²¹

Many decisions reached by the Rate Board involve policy choices. Taking into consideration the wide range of costs imposed by the unaffordability of water based on those policy decisions should be one function of the Rate Board.

²⁰ Best Practices, *supra*, at xxii.

²¹ Best Practices, *supra*, at 29.

Part 2. Revenue Adjustment for Increased Collection of TAP Rider Revenues.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY.

A. In this section of my testimony, I explain an adjustment to the revenues projected to be recovered by PWD in the fiscal years covered by the requested rates. PWD has failed to take into account the increased revenues it will generate by moving dollars of TAP discounts out of TAP bills and onto bills of non-TAP customers.

Q. WHY IS THE TRANSFER OF DOLLARS OUT OF TAP BILLS AND ONTO NON-TAP BILLS IMPORTANT FROM A RATEMAKING PERSPECTIVE?

A. PWD is a cash-flow utility. From the perspective of whether it is generating adequate revenues, the question is not the amount of dollars that it is billing to customers (“billings”), but rather the amount of dollars that it is actually collecting from its customers (“receipts”).²² PWD applies a “collection lag factor” to reflect the fact that it will not collect all of its billings. “The lag factor is calculated to recover only the anticipated receipts of the prorated revenue increase projected for the test year, recognizing the normally expected historical payment patterns.”²³

²² PWD Statement 7, at page 9 (“Because the Water Department uses receipts to calculate revenues, its ‘collection lag factor’ must be evaluated. The lag factor reflects a final adjustment to the cost-of-service rates to recognize the fact that there will be a proration of billings between the existing and proposed rates during the first month following the effective date of the rate increase, as well as the fact that not all the fiscal year billings are fully collected within that fiscal year.”)

²³ SCHEDULE BV-2: WATER & WASTEWATER COST OF SERVICE REPORT, at section 5-1 (February 18, 2025).

1 **Q. DOES PWD INCLUDE THE INCREASED REVENUE FROM MOVING**
2 **BILLINGS FROM TAP PARTICIPANT BILLS TO NON-TAP PARTICIPANT**
3 **BILLS?**

4 A. No. PWD’s testimony in this proceeding explicitly states:

5 As the Rate Board is aware, there is a separate proceeding to determine
6 surcharge rates to recover revenue loss in connection with the Tiered
7 Assistance Program (“TAP”). For the purposes of determining Base Rates,
8 TAP revenue loss is not included. Table C-1A: Base Rates (Schedule BV-1)
9 excludes revenue loss associated with TAP discounts and revenues associated
10 with TAP-R surcharge rates. The TAP discounts’ exclusion from the Base
11 Rates analysis is also shown on Line 13 of Table C-3: Projected Revenue
12 Under Existing Rates (Schedule BV-1).²⁴

13 Moreover, the PWD testimony in this proceeding includes, word-for-word, the identical
14 testimony upon which the Rate Board relied in 2023 to approve the adjustment proposed
15 below. The 2023 testimony quoted by the Rate Board stated: “TAP discounts and TAP-R
16 surcharge billings are excluded from the cost-of-service analysis.”²⁵ The 2025 testimony
17 states: “TAP discounts and TAP-R surcharge billings are excluded from the cost-of-
18 service analysis.”²⁶

19 The argument that TAP lost revenues need not be considered because they are addressed
20 in the TAP-R proceeding is the same argument advanced by PWD in the 2023 PWD rate
21 proceeding. The Rate Board, however, rejected that argument. The Hearing Examiner
22 held: “The Department admits that TAP discounts are not included as a revenue
23 requirement in base rates and suggests that they should be handled in the separate TAP-R

²⁴ PWD St. 7, at page 18 (emphasis added).

²⁵ PWD St. 7, at 12, quoted at Rate Determination, at 24.

²⁶ PWD St. 7, at 13.

1 annual reconciliations.... This suggestion is flatly rejected.”²⁷ The Rate Determination
2 upheld that Hearing Officer decision. The Board found: “We agree that higher
3 collectability resulting from the TAP program should be reflected in rates as a
4 reduction...to the Department’s proposed rate increases in both Fiscal Years 2024 and
5 2025. We also agree with the Public Advocate that this difference in collectability is not
6 addressed in the limited TAP-R proceedings.”²⁸

7 **Q. DO YOU HAVE ANY OTHER FOUNDATION FOR CONCLUDING THAT PWD**
8 **DID NOT MAKE THE ADJUSTMENT IN THIS PROCEEDING WHICH THE**
9 **RATE BOARD DIRECTED BY MADE IN 2023?**

10 A. Yes. PWD was asked to identify the place in the PWD COSS where the adjustment
11 approved by the Rate Board in its June 21, 2023 Rate Determination was carried forward
12 and included in the filing for this proceeding. PWD freely admits that it did not do so.
13 PWD responded that “The above referenced adjustment was not carried forward beyond
14 the establishment of FY2025 rates, as reflected revenues under existing rates. Please note
15 that such adjustment has not been proposed in this case or approved by the Rate Board
16 for the Rate Period (FY 2026 and FY 2027).”²⁹

17 Remember that the adjustment at issue here is not the adjustment which the Public
18 Advocate proposed in 2023, but which was disapproved, by the Rate Board. The

²⁷ Hearing Officer Report, at 56, May 30, 2023.

²⁸ Rate Determination, at 24, June 21, 2023.

²⁹ PA-VIII-44 (emphasis added).

1 adjustment at issue here is the one which the Rate Board directed be made in its 2023
2 Rate Determination.

3 **Q. PLEASE EXPLAIN THE BASIS FOR THE ADJUSTMENT WHICH THE RATE**
4 **BOARD ORDERED BE MADE IN 2023 BUT WHICH PWD DID NOT CARRY**
5 **FORWARD INTO THIS PROCEEDING.**

6 A. In order to understand increases in the collection of revenue attributable to TAP, it is
7 necessary to understand the two components of a low-income customer bill. When a
8 low-income customer enrolls in TAP, that customer's bill is essentially divided into two
9 parts. The first part remains a bill that is rendered to the low-income customer in the
10 form of a TAP bill. The second part is no longer rendered to the low-income customer
11 but is instead recognized as a TAP Credit and, as such, is billed to all other ratepayers
12 through the TAP Rider. If an illustrative low-income non-participant has a \$100 bill, for
13 example, when that customer enrolls in TAP, \$40 may be continued to be billed to the
14 customer as a TAP bill, with the remaining \$60 recognized as a TAP Credit and billed to
15 all other customers through the TAP Rider. The \$100 remains the same. That \$100 is
16 simply collected in different ways.

17 **Q. PLEASE FIRST ADDRESS THE PORTION OF THE BILL THAT REMAINS**
18 **REVENUE BILLED TO THE LOW-INCOME CUSTOMER.**

19 A. From a ratemaking perspective, PWD revenue that is billed to low-income customers is
20 estimated to be translated into receipts at the collection rate of low-income customers.
21 When those customers become TAP participants, however, that collection rate
22 substantially improves. Rather than collecting low-income bills at the TAP non-

1 participant rate, in fact, PWD will collect bills at the TAP participant rate. The difference
2 is substantial. TAP bills are collected at a far higher rate than non-TAP low-income bills.

3 **Q. DO YOU PROPOSE AN ADJUSTMENT FOR THIS FIRST PART OF THE TAP**
4 **BILL THAT YOU IDENTIFY?**

5 A. No. I proposed such an adjustment in the 2023 rate proceeding. The Rate Board,
6 however, disagreed with my findings and found that the increased collections were
7 already incorporated into rates. Consistent with that finding, I accept the 2023 holding of
8 the Rate Board and propose no corresponding adjustment in this proceeding.

9 **Q. IS THERE A SECOND WAY IN WHICH TAP INCREASES REVENUE**
10 **COLLECTED BY PWD?**

11 A. Yes. Increased revenue also flows to PWD from the treatment of TAP credits. The TAP
12 credits are those dollars that are not billed to TAP participants, but are instead billed to all
13 other ratepayers through the TAP Rider. The ratemaking treatment of increasing TAP
14 participation is that the TAP credits will be booked as “contra-revenues” and the recovery
15 of those revenues through the TAP Rider will be booked as revenues. If they had
16 remained in low-income bills at standard rates, however, the dollars that result in the
17 contra-revenues would have been collected at the low-income non-participant
18 collectability rate (i.e., customers had remained TAP non-participants). When those low-
19 income customers become TAP participants, a portion of their bills is transferred to other
20 ratepayers through the TAP Rider, and are thus collected at the collectability rate for
21 customers as a whole. PWD data shows that PWD collects a higher percentage of
22 revenues billed to customers as a whole than it collects from its low-income TAP non-
23 participants.

1 **Q. IN ADDITION TO BEING CONSISTENT WITH THE 2023 DECISION OF THE**
2 **RATE BOARD, IS MAKING THIS ADJUSTMENT CONSISTENT WITH**
3 **OTHER PRIOR WATER RATE BOARD PRECEDENT?**

4 A. Yes. In holding that PWD was not entitled to separately collect its arrearage forgiveness
5 through the TAP Rider in the 2021 Rate Determination, the Rate Board recognized the
6 relationship between PWD's collectability factors and the revenue requirement which
7 underlies PWD's request for increased rates.

8 As I testify above, in calculating the receipts which underlie its request for increased rates
9 in this proceeding, PWD does not take into consideration the increased collectability it
10 derives by moving bills collected from low-income customers to bills collected from all
11 customers through the TAP Rider. And PWD offers no testimony to explain why it has
12 ignored the holding of the Rate Board from the 2023 proceeding in developing its rate
13 request in this proceeding. The adjustment recommended above should accordingly be
14 adopted to avoid overstating the need for increased revenue through increased rates as
15 requested in this proceeding.

16 **Q. WHAT REVENUE ADJUSTMENT DO YOU RECOMMEND BE ADOPTED FOR**
17 **A REASONABLE TAP ENROLLMENT FIGURE?**

18 A. Determining the revenue adjustment that is warranted in this proceeding requires a
19 calculation. The components of that calculation are as follows:

- 20 ➤ PWD's estimated TAP participation rate in its current TAP-R filing,
21 beginning September 2025 and moving forward, is 60,827.
- 22 ➤ The Public Advocate's estimated TAP participation rate in the current TAP-R
23 proceeding, beginning September 2025 and moving forward, is 56,041.

- 1 ➤ The average monthly TAP credit per TAP participant estimated by PWD in its
2 TAP-R proceeding is \$54.62 (annual is thus $12 \times \$54.62 = \655). The total
3 TAP credit given the projected TAP participation rate will be \$39,868,449
4 ($\$54.62 \times 12 \times 60,827$).
- 5 ➤ The average monthly TAP credit per TAP participant estimated by the Public
6 Advocate in the TAP-R proceeding is \$47.72 (annual is thus $12 \times \$47.72 =$
7 $\$572.64$). The total TAP credit given the projected TAP participation rate will
8 be \$32,091,318 ($\$47.72 \times 12 \times 56,01$).
- 9 ➤ PWD estimates that the TAP credits collected through the TAP-R surcharge
10 will be collected at a rate of 96.99%. PWD reports that the collectability of
11 bills of low-income customers outside of TAP is 70.90%.

12 The additional revenue collected by PWD resulting from moving TAP discounts from
13 TAP non-participants to the TAP Rider is, under PWD's assumptions, thus \$10,401,678.
14 Under the Public Advocate's assumptions, however, the additional revenue collected by
15 PWD resulting from moving TAP discounts from TAP non-participants to the TAP Rider
16 is \$8,372,624.92 . I recommend the Board approve the revenue adjustment based on the
17 Public Advocate's assumptions to be consistent with the positions taken in the ongoing
18 TAP-R proceeding.

19 Since estimating a participation rate for FY27 will not occur until after the Board
20 establishes base rates, I recommend that this adjustment be continued through that Fiscal
21 Year as well.

22 **Part 3. An Expense Adjustment for Non-PWD City Liens.**

23 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
24 **TESTIMONY.**

25 A. In this section of my testimony, I explain why the costs which the City of Philadelphia
26 incurs when municipal debt is "automatically" lienied should be borne by the City, itself,

1 rather than by PWD ratepayers, including TAP participants. In the second sub-section
2 below, I address whether PWD should be allowed to serve as a collection agency for non-
3 water departments of the City.

4 **A. Excluding the Costs of non-PWD Expenses from Water Rates.**

5 **Q. DO YOU ADDRESS THE QUESTION OF TO WHAT EXTENT, IF AT ALL, THE**
6 **RATE BOARD SHOULD IMPOSE RESTRICTIONS ON LIENING THE UNPAID**
7 **BILLS OF TAP PARTICIPANTS?**

8 A. No. In this sub-section, I limit my discussion to whether the costs of filing municipal
9 liens should be imposed on PWD ratepayers. I conclude that these lien costs are not a
10 cost of providing water service and, as a result, should not be passed through to PWD
11 ratepayers.

12 **Q. PLEASE EXPLAIN THE BASIS FOR YOUR CONCLUSION THAT THE COST**
13 **OF PERFECTING A MUNICIPAL LIEN IS NOT A COST OF PROVIDING**
14 **WATER SERVICE.**

15 A. The cost of perfecting a lien is not a water-related expense. The cost is imposed not on
16 the Water Department but on the City's Law Department. The action which causes the
17 cost to be incurred is not under the direction or discretion of the Water Department. In
18 objecting to certain discovery requests by the Public Advocate in this proceeding, the
19 Water Department argued that the requests regarding lien fees were:

20 related to the **docketed municipal liens** and their disposition. To remain in
21 compliance with the Municipal Claims and Tax Lien Act, *the City (Law*
22 *Department)* automatically files liens with the First Judicial District every
23 quarter when the water debt reaches a threshold of \$1,000 and is more than
24 90 days old. *The lien fees are set by the court* and added to the customer's

1 account. Liens are handled by the Law Department and paid by the
2 Department of Revenue.³⁰

3 As even PWD concedes in its objection, “The requested information and documents are
4 not pertinent to the prospective rates and charges for the Rate Period (FY 2026 and FY
5 2027).”³¹ In addition, in its 2023 Rate Determination, the Rate Board cited PWD as
6 asserting that:

7 With respect to the proposal to utilize lien blockers on TAP participant
8 account[s], [PWD] noted that the City established its lien policy in
9 conjunction with its collaboration with the First Judicial District and as
10 implemented by the City’s Law Department, and the Rate Board cannot
11 change that policy.³²

12 As is evident in this quoted language, PWD does not establish the City’s lien policy.
13 Neither does PWD implement the City’s lien policy.

14 **Q. IS THERE ANY OTHER BASIS FOR YOUR CONCLUSION THAT THE LIEN**
15 **FEES SET BY THE COURT AT THE BEHEST OF THE LAW DEPARTMENT**
16 **ARE NOT WATER CHARGES THAT SHOULD APPEAR ON WATER BILLS?**

17 A. Yes. In addition to the Water Department, itself, admitting that these fees are “not
18 pertinent to” PWD’s rates and charges, the Water Department repeatedly concedes that it
19 plays no role in tracking who the charges are imposed on, what dollars the liens
20 purportedly secure, whether the dollars purportedly secured by the liens are actually

³⁰ PWD objection to PA discovery questions VIII-26, VIII-27, and VIII-28, filed March 25, 2025 (emphasis added).

³¹ Id.

³² 2023 Rate Determination, at 52 (emphasis added).

1 owed by the customer, or whether the dollars subject to the lien have been paid, forgiven,
2 or otherwise addressed. Consider:

- 3 ➤ PWD admits that it does not track either the number of liens vacated or
4 satisfied, or the dollars of liens vacated or satisfied;³³
- 5 ➤ PWD admits that it does not track whether TAP participants are
6 having liens placed on their water bills subject to forgiveness by the
7 Law Department;³⁴
- 8 ➤ PWD admits that it does not track whether liens are removed either for
9 being paid in full or for some other reason.³⁵

10 Indeed, PWD does not even know the total amount of lien fees billed to PWD
11 customers.³⁶ The lien fees, which are \$106.45 as set by the Court,³⁷ are added to a
12 customer's account balance and appear on a customer's bill.³⁸ Despite this, PWD states
13 that "lien fees appear on a TAP customer's bill but are not required to be paid as part of
14 the monthly payment."³⁹ Lien fees are "excluded from any enforcement efforts. The lien
15 fees are not subject to forgiveness pursuant to TAP."⁴⁰ The problem with this is that any
16 time a TAP participant pays the lien fee (even if not "required to be paid" and even if

³³ PA-VIII-26(a) – (d).

³⁴ PA-VIII-27.

³⁵ PA-VIII-28.

³⁶ PA-VIII-33. The response to this question, of course, should have been \$0. Lien fees are not billed to PWD but are instead billed to the Philadelphia Law Department.

³⁷ PA-VIII-33.

³⁸ PA-VIII-32.

³⁹ PAC-VIII-32(b).

⁴⁰ PA-VIII-32(a).

1 “excluded from any enforcement effort”), the payment would deny that TAP participant a
2 portion of their arrearage forgiveness. Paying \$106.45 is nearly the equivalent of a
3 current full tariff water bill at 7 ccfs, and so is likely significantly higher than most TAP
4 participants monthly TAP bills.⁴¹ Including this non-water charge on the bill, therefore
5 (even if it is not “required to be paid” and even if “excluded from any enforcement
6 effort”) has the effect of denying TAP participants forgiveness of a significant portion of
7 the pre-program arrears to which they are entitled.⁴²

8 Finally, liens filed by the Law Department with the Court are unrelated to the arrearage
9 forgiveness provisions mandated by the Philadelphia Code and implemented by PWD
10 regulations. The dollars subject to liens are not adjusted downward as TAP pre-program
11 arrears are forgiven through TAP and are thus no longer owed by the TAP participant.
12 According to PWD, once a lien is filed for a pre-program arrears, that lien remains in
13 place unless and until the total pre-program arrears has been forgiven.⁴³

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

15 A. I recommend that the Rate Board make the following decisions. First, the Rate Board
16 should direct PWD that when any TAP participant makes a payment so long as they have
17 a pre-program arrears on their account not fully forgiven, that payment shall be applied to
18 their account in a manner that would earn arrearage forgiveness pursuant to the TAP. No

⁴¹ PWD St. 7, Sch. BV-1, Table C-4. According to Schedule BV-3 in the TAP-R proceeding, TAP participants’ average monthly consumption is 679 cf.

⁴² TAP participants earn forgiveness for 1/24th of their preprogram arrears for each complete payment they make.

⁴³ PA-VIII-25.

1 TAP participant payment shall be applied to pay a lien fee (remember that lien fees are
2 not “required to be paid,” are not “subject to enforcement,” and have been set by the Law
3 Department on behalf of the City rather than by PWD) so long as the TAP participant has
4 a preprogram arrears subject to the provisions of the TAP arrearage forgiveness program,
5 unless explicitly directed by the TAP participant.⁴⁴ In this fashion, an inter-agency
6 agreement between the Law Department and the Court to set the level of charge, and an
7 inter-Departmental agreement between the Law Department and PWD to include that
8 charge on a customer’s water bill (even if not “required to be paid” and even if not
9 “subject to enforcement”) cannot be used in contravention of the full and effective
10 implementation of the TAP arrearage forgiveness program required by Philadelphia Code
11 and implemented by PWD regulations.

12 Second, no dollars of lien fees shall be included in the cost-of-service (or revenue
13 requirement) to be paid by PWD ratepayers. PWD asserts that it “has not paid any lien
14 filing fees to perfect liens on residential accounts” as well as that it “has not paid any lien
15 filing fees to perfect liens on TAP accounts.”⁴⁵ If true, that leaves in limbo who does pay
16 the fees to perfect liens, either on residential accounts generally or on TAP accounts in
17 particular. The PWD discovery response appears to be a hyper-technical response,
18 excluding the situation where a City department or entity, other than PWD, pays the fee
19 to perfect liens and PWD then pays that other City department or entity. It also leaves
20 open the question of who pays the fee to perfect a lien under the circumstances described

⁴⁴ I have been informed by counsel, for example, that modifications to PHFA loans may be beneficial to a homeowner, which modifications would require, as a precondition, a lien for unpaid PWD bills to be satisfied.

⁴⁵ PA-VIII-23.

1 by PWD: “When pre-TAP arrears are forgiven, any lien fees for pre-TAP debt that were
2 charged to the customer will be abated.”⁴⁶ It finally leaves open the question of who pays
3 the fee to perfect the lien under the circumstances described by PWD: “When the TAP
4 participant earns forgiveness of the debt amount underlying the lien, the lien is
5 vacated.”⁴⁷

6 **B. An Additional Basis for Rate Board Decision.**

7 **Q. IS THERE AN EASIER WAY FOR THE RATE BOARD TO ADDRESS THE**
8 **PROBLEMS YOU HAVE IDENTIFIED ABOVE?**

9 A. Yes. I understand that the Rate Board previously held in its 2023 Rate Determination
10 that it has no authority over the City’s decision on whether liening is appropriate. That
11 does not mean, however, that PWD should be allowed to serve as a collection agent for
12 the courts. I have been advised by Counsel for the Public Advocate that the City has
13 asserted that liens are filed on behalf of the City, not on behalf of PWD. Additionally,
14 lien filing fees are not imposed on PWD, but rather upon the City. Finally, PWD bills
15 customers for a cost that the City has not even yet been billed by the Court, and
16 retroactively applies customer payments to cover that cost. I do not believe it is
17 appropriate for PWD’s bills for life-essential water service to include costs PWD has not
18 incurred, which are not required to be paid and not subject to enforcement, and which are
19 attributable to actions taken by another City department unrelated to the provision of
20 water service.

⁴⁶ PA-VIII-36.

⁴⁷ PA-VIII-25, PA-VIII-38.

1 Collecting revenue from a TAP participant, and applying those payments to pay a fee that
2 was not yet due when the payment was made should be deemed not only unreasonable,
3 but unlawful. Payment of the fee is not “due” unless and until the customer pays the
4 underlying amount to satisfy the lien. The payments of TAP participants are clearly not
5 meant to “satisfy the lien,” but rather to earn the arrearage forgiveness to which they are
6 entitled by Philadelphia law. This discussion clearly supports the relief I recommend
7 above. However, based on this data and discussion above, I recommend further that the
8 Rate Board should also determine that PWD bills should not be used as collection
9 mechanisms for bills not rendered to PWD.

10 **Q. HASN'T THE RATE BOARD PREVIOUSLY DETERMINED THAT IT DOES**
11 **NOT HAVE THE JURISDICTION TO ORDER PWD TO ADOPT A LIEN**
12 **BLOCKER?**

13 A. Yes. In its 2023 Rate Determination, the Rate Board held that it did not have the
14 authority to direct PWD to adopt a lien blocker (for TAP customers or otherwise).⁴⁸ The
15 recommendation above does not involve the Rate Board interfering in any way with the
16 City's decision to place a lien. My recommendation above only involves the Rate Board
17 saying that PWD bills should not be used to collect non-PWD debts. Moreover, my
18 recommendation is that payments by PWD customers certainly should not be
19 retroactively applied to pay bills to the City which have not been rendered to the City at
20 the time the payment was made.

⁴⁸ 2023 Rate Determination, at page 53 (“We have no authority over the City's determination of whether liening is appropriate.”)

1 **Q. WHAT DO YOU CONCLUDE?**

2 A. The use of liens to secure the unpaid balances of TAP participants whose unpaid balances
3 are subject to forgiveness through TAP is an unfair and costly mechanism for the City to
4 use to secure its debts. The activity of filing a lien is not an action that is taken by PWD,
5 but is rather an action taken by the Law Department (City's lien policy "as implemented
6 by the City's Law Department"). The costs of filing those liens are a cost billed to the
7 City, not a cost charged to PWD ratepayers. Moreover, the only reason the City has
8 avoided the ongoing costs necessary to prevent enforcing a lien for an amount that has
9 been reduced by the forgiveness of pre-program TAP arrears is to avoid keeping the
10 records needed to track liened amounts against the portions of those amounts that have
11 been forgiven.

12 Whether or not the Rate Board has the authority to make decisions about whether or
13 when to perfect liens on TAP debt subject to forgiveness, the Rate Board certainly has the
14 authority and obligation both to ensure the appropriate implementation of TAP rates
15 under its jurisdiction and to ensure that only just and reasonable costs are included in
16 rates and charges. Accordingly, I conclude that the remedies which I have set forth above
17 --(1) to direct that no TAP participant payments are applied, in the ordinary course, to a
18 lien cost or to any dollar amount other than past, current or future bills that would earn
19 arrearage forgiveness; and (2) to disallow the use of PWD bills as a collection mechanism
20 for bills not rendered to PWD-- are not only necessary, but are well within the Rate
21 Board's jurisdiction to direct.

1 **Part 4. A TAP Rider Adjustment to Reflect Conservation Services.**

2 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
3 **TESTIMONY.**

4 A. In this section of my testimony, I explain why the Rate Board should make an adjustment
5 to the TAP surcharge to account for reductions in TAP credits associated with the
6 reasonable delivery of conservation investments directed toward high use TAP
7 participants.

8 **Q. HAS PWD PREVIOUSLY AGREED TO PROVIDE CONSERVATION**
9 **ASSISTANCE TO TAP CUSTOMERS?**

10 A. Yes. In the Settlement of the 2024 TAP-R proceeding, PWD agreed to the following:

11 The Department and the Public Advocate also agree that new TAP
12 participants will be the focus of customer conservation efforts through
13 programs such as the Low Income Conservation Assistance Program
14 (LICAP) and that all TAP participants will be encouraged to participate in
15 LICAP through *greater* outreach efforts and incentives to participate. The
16 Department will *develop* strategies to *reach high usage TAP participants* in
17 order to deploy available water conservation and leak repair assistance.⁴⁹

18 Moreover, the Settlement agreement provided that “*new TAP participants* will be the
19 focus of customer conservation efforts through programs such as the Low Income
20 Conservation Assistance Program (LICAP)”⁵⁰

⁴⁹ 2024 TAP-R Reconciliation Proceeding, at para. 36 (emphasis added).

⁵⁰ Id. (emphasis added).

1 Finally, the Settlement provided that “Joint Petitioners agree that [...] the Settlement,
2 upon Rate Board approval, will be fully enforceable according to its terms. . .”⁵¹ The
3 emphasized language indicates key terms in the Settlement agreement. The fact that
4 PWD agreed to pursue “greater outreach efforts” and to provide “greater. . .incentives to
5 participate” clearly indicates that there should be an increase in the outreach and
6 incentives. Simply to use the same outreach and incentives that existed prior to the
7 settlement would not be employing “greater” outreach and incentives. The fact that PWD
8 agreed to “develop” strategies to reach high usage TAP participants clearly indicates that
9 efforts to reach high usage TAP participants are to involve new strategies to reach these
10 high use TAP participants. Simply to continue the use of the same strategies that existed
11 prior to the Settlement would not be “developing” strategies.

12 Finally, the Settlement did not rely solely on the opinion of PWD on whether PWD was
13 employing greater outreach efforts, employing greater incentives, or developing
14 strategies to reach high use TAP participants. Instead, the Settlement provided that it was
15 “fully enforceable.” This makes sense given that the Settlement provision was a
16 condition of the approval of the TAP-R rates in that 2024 Settlement.

17 **Q. DOES THE RATE BOARD HAVE THE AUTHORITY TO ADOPT REMEDIAL**
18 **STEPS IN THE ABSENCE OF PWD COMPLIANCE WITH THE SETTLEMENT**
19 **OF ITS 2024 TAP-R PROCEEDING.**

20 A. Yes. The issue of compliance does not implicate whether the Rate Board would have had
21 the authority to direct PWD to engage in these actions in the absence of PWD agreement.

⁵¹ Id., at para. 40.

1 The fact is, however, that PWD did agree to undertake these actions as a condition of the
2 approval of TAP-R rates in the 2024 TAP-R proceeding, and PWD did agree that the
3 conditions upon which the approval of the TAP-R rates was predicated would be “fully
4 enforceable.” The question now is not whether or not PWD would agree to undertake
5 these actions in this proceeding. The only question is whether it complied with the pre-
6 conditions on which approval of the 2024 TAP-R rates were granted.

7 **Q. WHAT HAS PWD DONE IN COMPLIANCE WITH ITS AGREEMENT IN THE**
8 **2024 TAP-R SETTLEMENT?**

9 A. PWD has failed to comply with the terms of the 2024 Settlement. As to incentives, PWD
10 explicitly acknowledges that “the existing incentive is risk of being dropped from TAP
11 for refusing water conservation assistance. No other incentives have been adopted since
12 the settlement of the 2024 TAP-R proceeding.”⁵² As to developing “greater outreach
13 efforts,” PWD states that it relies on language in the TAP Approval Letter and the
14 Customer Responsibilities section of the TAP Prequalification Approval Letter.”⁵³
15 Neither of these was developed subsequent to, let alone pursuant to, PWD’s compliance
16 with the actions it agreed to undertake as a condition of approval of the 2024 TAP-R
17 rates.

18 Finally, PWD has undertaken no effort to develop new strategies to reach “high use”
19 TAP participants. The only “strategy” used by PWD is the pre-existing language directed

⁵² PA-VIII-5.

⁵³ PA-VIII-4, Attachment A and B.

1 to all TAP participants, whether or not they are “high use.”⁵⁴ Despite agreeing to efforts
2 to identify “high use” customers, PWD has made no effort to track expenditures
3 disaggregated by water conservation and leak repair.⁵⁵ Indeed, PWD does not attempt to
4 identify high usage attributable to leaks. Instead, PWD defines “for purposes of
5 conservation efforts” (which would be separate from leak repair identification and
6 remediation) a TAP participant who has water usage per household member greater than
7 the estimated median per household member monthly water usage in the PWD area.⁵⁶

8 **Q. HAS PWD FOCUSED ITS LOW-INCOME CONSERVATION EFFORTS ON**
9 **“NEW TAP PARTICIPANTS” AS IT AGREED TO DO IN THE 2024 TAP-R**
10 **SETTLEMENT?**

11 A. No. As discussed above, PWD has developed no new strategies to reach high use TAP
12 participants, let alone its high use TAP participants that are new participants, since the
13 time it agreed to do so in Settlement of its 2024 TAP-R proceeding. Between July 2024
14 and January 2025 –actions taken prior to the PWD Settlement agreement obviously
15 cannot be said to have been taken pursuant to the Settlement agreement— CMC (PWD
16 LICAP contractor) provided “conservation assistance” to 815 “high use” TAP
17 participants (as “high use” was defined above). The number of TAP participants
18 receiving conservation assistance is set forth in the Table below. Despite its agreement to
19 focus on new TAP participants, however, PWD has no idea of how many of these

⁵⁴ PA-VIII-7.

⁵⁵ Id.

⁵⁶ PA-VIII-9.

customers were new TAP participants.⁵⁷ Moreover, as I discuss above, PWD has no idea of how many customers received its basic conservation kit and how many received leak repair assistance.

Table 4. Number of Customers Served through LICAP by Month (FY 2025 YTD)⁵⁸

Month	Unique Customers
Jul-24	128
Aug-24	137
Sep-24	91
Oct-24	104
Nov-24	90
Dec-24	99
Jan-25	166

Q. CAN YOU PLACE THE NUMBER OF CUSTOMERS SERVED WITH LICAP ASSISTANCE IN CONTEXT OF HOW MANY HIGH USE CUSTOMERS WERE IN NEED OF SUCH ASSISTANCE?

A. Yes. From March 2024 through February 3, 2025, more than 24,000 high use TAP participants were referred to CMC for conservation assistance. I go back to March 2024, rather than beginning in July 2024 because presumably a customer referred in a prior month would remain eligible to receive LICAP assistance, whether or not that customer was served in the same month in which they were referred. As the data shows, so far in FY2025, PWD has served only 3.4% of the high use TAP participants which were referred for conservation assistance ($815 / 24,034 = 0.034$).

⁵⁷ PA-VIII-16.

⁵⁸ PA-VIII-16.

Table 5. Number of “High Use” TAP Recipients Referred for Conservation Assistance by Month

Month of Referral	No. of “High Use” TAP Participants Referred
3/3/2024	2,405
4/3/2024	4,000
5/3/2024	4,000
6/3/2024	4,000
7/3/2024	3,593
8/3/2024	1,375
9/3/2024	1,051
10/3/2024	1,407
11/3/2024	774
12/3/2024	497
1/3/2025	407
2/3/2025	525

**Q. WOULD PWD’S COMPLIANCE WITH THE SETTLEMENT OF THE 2024 TAP-
R PROCEEDING REDUCE THE COST OF TAP?**

A. Yes. Since bills to TAP participants are based on household income rather than on usage, each one dollar of bill reduction (at standard rates) to a TAP participant would result in a one dollar reduction in the TAP credits needed to reduce that participant’s bill to the affordable percentage of income dictated by the program. If a program participant’s TAP bill is \$40/month, in other words, and the participant’s bill at standard rates would have been \$75/month (meaning that TAP pays a credit of \$35/month), if targeted water conservation reduces the bill at standard rates to \$65 (rather than \$75), total TAP costs will be reduced by \$10/month (\$120/year).

1 PWD agreed (in a “qualified” way) that “each dollar of reduction from a water bill for a
2 TAP participant results in a dollar decrease in TAP credits to be charged to ratepayers.”⁵⁹
3 The “qualification” that PWD placed on its agreement, however, doesn’t make much
4 sense. PWD asserted that “since there is no price signal for TAP customers (as their bills
5 are based upon income level), there is no guarantee that reduction in their water bills will
6 result in actual savings / reductions in TAP credits.”⁶⁰

7 That “qualification,” however, mixes up a number of arguments, resulting in a
8 nonsensical result. The question is not whether a TAP participant’s bill will go up
9 because of the TAP program. The question is whether TAP credits would be reduced as
10 a result of conservation efforts. Even if a TAP participant would increase their usage
11 (and thus their non-TAP bill) because of the lack of “price signals,” and there is
12 absolutely no evidence in the TAP or any other percentage of income program that this
13 occurs,⁶¹ that does not detract from the conclusion that such a customer would have lower
14 TAP credits after conservation (or leak repair) than they would have had before
15 conservation (or leak repair). Reducing a TAP participant’s bill through conservation
16 will, without qualification, result in a dollar-for-dollar decrease in the TAP credits
17 charged to other ratepayers.

⁵⁹ PA-VIII-15.

⁶⁰ Id.

⁶¹ Over the past thirty years, the question of whether Percentage of Income Programs (PIPs) result in higher usage due to the lack of “price signals” has been repeatedly studied. Not one single study looking at the issue has found this to have occurred.

1 **Q. WHAT CONCLUSION DO YOU REACH AS TO AN APPROPRIATE REMEDY**
2 **TO ADDRESS THE FAILURE OF PWD TO COMPLY WITH THE**
3 **SETTLEMENT OF THE 2024 TAP-R PROCEEDING?**

4 A. First, I conclude that the Rate Board must adopt some remedial action. This is necessary
5 first to preserve the sanctity of the Rate Board's own authority. When the Rate Board
6 approves a condition, or establishes a prerequisite, as an element of its approval of a level
7 of rates, PWD cannot be allowed to simply ignore that condition or prerequisite. When
8 the condition of the approval of a higher level of rates is for PWD to undertake new or
9 additional actions, PWD cannot be allowed to pocket the higher rates and then otherwise
10 continue to do what it had already been doing. While this authority to enforce its own
11 rate orders seems inherent in the Rate Board's jurisdiction, in this instance, it was made
12 explicit by a joint agreement that the Settlement would be "fully enforceable."

13 Second, enforcing the terms of a Settlement is needed to ensure that potential settlement
14 proposals are meaningfully explored in PWD rate proceedings. If one party may ignore
15 the Settlement terms that have been proposed to and adopted by the Board in its rate
16 determinations, there is little reason why the other party should engage in future
17 Settlement negotiations.

18 Having made that observation, PWD presents a more difficult situation than does an
19 investor-owned utility. There is, for example, no investor return that could be modified
20 as a consequence of a failure to abide by a settlement. What I recommend, therefore, is
21 that the Rate Board modify the TAP-R surcharge to reflect a conservation adjustment.

1 The TAP-R Rider should be modified to include a term “CA” (Conservation
2 Adjustment), which should be subtracted from the (C) term. “CA” should be defined as
3 follows: A dollar amount calculated by multiplying the projected number of TAP
4 participants proposed in the TAP-R reconciliation proceeding x 0.12 x (average monthly
5 TAP use⁶² x 1.25 x 12) x 0.15 x the combined water consumption charge for the second
6 usage block (over 2 mcf) and sewer consumption charge.” Within this calculation:

- 7 ➤ the 0.12 is equal to the percentage of TAP participants to be treated by PWD with
8 conservation;
- 9 ➤ 1.25 is the adjustment to average monthly TAP credits to reflect PWD’s
10 agreement in the 2024 TAP-R settlement to focus conservation on high use TAP
11 participants;
- 12 ➤ 0.15 is the percentage usage reduction expected to be achieved through the
13 conservation which PWD agreed in the 2024 TAP-R settlement to deliver.

14 Since the Board is presently determining the TAP-R for FY 2026 in an ongoing
15 proceeding, my recommendation is that Board’s rate determination modify the TAP-R
16 Rider as described above, effective for FY 2027’s TAP-R reconciliation proceeding.

17 **Part 5. A Revenue Adjustment to Reflect “Raise Your Hand.”**

18 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
19 **TESTIMONY.**

20 **A.** In this section of my testimony, I explain why there should be a revenue adjustment to
21 reflect the increased revenue PWD generates through its “Raise Your Hand” initiative.

⁶² “Average monthly TAP use” refers to the average usage of all TAP participants, combined. For example, if there are an average of 60,000 TAP participants with an average use of 6 ccfs, average monthly TAP use is 360,000 ccfs.

1 By forgoing shutoffs of certain customers, PWD has preserved a revenue stream that it
2 otherwise would have lost. Those additional revenues should be reflected in rates.

3 **Q. PLEASE EXPLAIN THE “RAISE YOUR HAND” INITIATIVE.**

4 A. In April 2024, PWD began enrolling customers in its “Raise Your Hand” initiative.⁶³
5 According to the Quarterly Reports filed with the Rate Board pursuant to the 2024-2025
6 Rate Determination, the goals of the “Raise Your Hand” initiative include “to avoid water
7 shutoff to certain households (those with children, elderly, or disabled individuals). . .”⁶⁴

8 **Q. HAS THE “RAISE YOUR HAND” INITIATIVE ADVERSELY AFFECTED THE**
9 **COLLECTABILITY OF BILLS BY PWD?**

10 A. No. Indeed, according to Raftelis, the “total percent collected” for payments of less than
11 twelve months was somewhat higher in FY2024 (83.69%) than it was in FY2023
12 (83.23%).⁶⁵ Of the non-stormwater only billings, the FY24 total percent collected was
13 also somewhat higher than it was in FY23 (84.16% in FY24 vs. 83.64% in FY23).⁶⁶
14 Since Fiscal Year 2025 is not yet complete, the collectability factor for FY2025 has not
15 yet been determined.

16 **Q. HAS PWD TRACKED THE IMPACT ON BILLS AND PAYMENTS**
17 **ASSOCIATED WITH THE “RAISE YOUR HAND” PROGRAM?**

⁶³ PA-VIII-18

⁶⁴ See e.g., PWD (July 26, 2024), Quarterly Report To the Rate Board as Required by the FY2024-2025 Rate Determination, at page 15; see also, PWD (January 24, 2025), Quarterly Report To the Rate Board as Required by the FY2024-2025 Rate Determination, at page 13.

⁶⁵ PWD St. 6, Exh. RFC-7, at page 1 of 4.

⁶⁶ Id.

1 A. No. PWD was asked to provide the following information about the participants in
2 “Raise Your Hand”:

- 3 ➤ The number of bills issued to “Raise Your Hand” customers;
- 4 ➤ The number of payments received from (or on behalf of) “Raise Your Hand”
5 customers;
- 6 ➤ The dollars of bills for current service issued to “Raise Your Hand”
7 customers;
- 8 ➤ The dollars of payments received from (or on behalf of) “Raise Your Hand”
9 customers.

10 For each such request, PWD responded that “after reasonable investigation, no reports
11 exist responsive to these requests.”⁶⁷

12 Moreover, PWD was asked to provide the following information about the participants in
13 “Raise Your Hand”:

- 14 ➤ The total number of “Raise Your Hand” customers with arrears; and
- 15 ➤ The total dollars of arrears billed to “Raise Your Hand” customers.

16 In response to both of these questions, too, PWD responded that “after reasonable
17 investigation, no reports exist responsive to these requests.”⁶⁸

18 **Q. DOES PWD KNOW THE TOTAL NUMBER OF “RAISE YOUR HAND”**
19 **CUSTOMERS ON ITS SYSTEM AT ANY GIVEN TIME?**

20 A. It does not appear so. PWD was asked to provide “the number of month-end ‘Raise Your
21 Hand’ customers” for the most recent twelve months available. Rather than providing

⁶⁷ PA-VIII-18(E), PA-VIII-18(F), PA-VIII-18(G), PA-VIII-18(H).

⁶⁸ PA-VIII-18(K), PA-VIII-18(L).

that number, all PWD could provide was the number of “Raise Your Hand” customers added in particular months.⁶⁹ The number of “Raise Your Hand” customers added, by month, is set forth in the Table below.

Table 6. “Raise Your Hand” Customers Added by Month/Year ⁷⁰			
Month/Year	Number Added	Month/Year	Number Added
02 / 2023*	0	02 / 2024 ⁷¹	1
03 / 2023*	0	03 / 2024	191
04 / 2023	7	04 / 2024	539
05 / 2023	511	05 / 2024	416
06 / 2023	813	06 / 2024	376
07 / 2023	625	07 / 2024	242
08 / 2023	469	08 / 2024	309
09 / 2023	268	09 / 2024	105
10 / 2023	168	10 / 2024	224
11 / 2023	82	11 / 2024	112
Total 2023 ⁷²	2,943	Total 2024	2,515

Q. HAS PWD UNDERTAKEN ANY EVALUATION OR ASSESSMENT OF THE IMPACT OF THE “RAISE YOUR HAND” INITIATIVE ON SHUTOFFS OR COLLECTIONS?

A. With one exception, no. Not only has PWD engaged in no such analysis, PWD objected to requests for information that would allow for such an evaluation or assessment as “unrelated to the proposed changes in PWD rates and charges as set forth in the rate

⁶⁹ PA-VIII-18(A).

⁷⁰ PA-VIII-18(A).

⁷¹ No explanation was provided for why data for January 2024 and December 2024 was not provided.

⁷² No explanation was provided for why data for December 2023 was not provided.

1 filing. . .”⁷³ Amongst the information PWD asserted was “unrelated to the proposed
2 changes in PWD rates and charges” were requests for data on the number of
3 disconnections and reconnections; the number of bills and payments; the dollars of bills
4 and payments; and the total number of “Raise Your Hand” customers in arrears (and the
5 dollars of those arrears).⁷⁴ PWD objected to providing information which would allow
6 any “before and after” comparison of the dollars being collected, as well as information
7 that would allow a comparison of the payment performance of “Raise Your Hand”
8 customers compared to the payment performance of other residential customers not in
9 “Raise Your Hand.”⁷⁵

10 Clearly, however, without such information, it is not possible for PWD or the Rate Board
11 to assess the cost and revenue impacts of providing shutoff protections to these customers
12 in the absence of the requested data. Neither the Board nor PWD could assess the cost
13 and revenue impact of “Raise Your Hand” without knowing the number and dollars of
14 bills and payments, or the number of accounts in arrears (along with the dollars of
15 arrears). For a cash flow utility, the number of accounts in arrears (along with the dollars
16 of arrears) is important in that both metrics indicate the rate at which billings are being
17 translated into receipts.

⁷³ Philadelphia Water Department Objections to the Information Requests Propounded by the Public Advocate (Set II), February 21, 2025) (hereafter PWD Objections).

⁷⁴ PA-II-12.

⁷⁵ PA-II-12, PA-II-13, PA-II-14, PA-II-16, PA-II-17.

1 **Q. HAS “RAISE YOUR HAND” INCREASED PWD EXPENSES BY CAUSING AN**
2 **INCREASE IN UNCOLLECTIBLES?**

3 A. No. When asked about the impact of “Raise Your Hand” on uncollectibles, PWD
4 expressly stated both that “A. No residential dollars have been written off as uncollectible
5 as a result of the “Raise Your Hand” program. [and] B. No residential accounts have been
6 written off as uncollectible as a result of the “Raise Your Hand” program.”⁷⁶

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

8 A. It is probably too late at this point for PWD to generate data to allow a comparison of the
9 payment performance of “Raise Your Hand” customers before and after these customers
10 began their participation in the “Raise Your Hand” initiative. However, the Rate Board
11 should insist that PWD collect and publicly report such data in the future. I recommend
12 that in addition to continuing the existing quarterly reporting to the Rate Board regarding
13 TAP, the Rate Board require PWD to include in future quarterly reports the following
14 monthly data elements about “Raise Your Hand”:

- 15 ➤ The month-end number of Raise Your Hand customers;
- 16 ➤ The number of nonpayment disconnect notices issued to Raise Your Hand
17 customers;
- 18 ➤ The number of nonpayment disconnections to Raise Your Hand customers;
- 19 ➤ The number of reconnections after a disconnection to Raise Your Hand
20 customers;
- 21 ➤ The number of bills issued to Raise Your Hand customers;

⁷⁶ PA-II-17.

- The number of payments received from (or on behalf of) Raise Your Hand customers;
- The dollars of bills for current service issued to Raise Your Hand customers;
- The dollars of payments received from (or on behalf of) Raise Your Hand customers;
- The total number of Raise Your Hand customers with arrears; and
- The total dollars of arrears billed to Raise Your Hand customers.

Each of these data elements is a critical factor to use in assessing the cost and revenue impacts to PWD accruing from the “Raise Your Hand” initiative.

Q. IS THERE AN IMMEDIATE REVENUE ADJUSTMENT THAT SHOULD BE MADE IN THIS RATE PROCEEDING ATTRIBUTABLE TO “RAISE YOUR HAND”?

A. Yes. The “Raise Your Hand” initiative was begun in April 2023.⁷⁷ As I discuss above, given collections performance in FY2024, Raise Your Hand did not negatively affect collections performance. One impact of “Raise Your Hand” is to preserve a revenue stream for PWD rather than have service disconnected with the resulting loss of sales and thus loss of revenues. There are two revenue adjustments I thus recommend for PWD.

First, there is the preservation of revenues attributable to customers who would have been disconnected and subsequently reconnected. As I note above, PWD has refused to collect information on the disconnection and reconnection of “Raise Your Hand” customers.

Accordingly, I have looked at the reconnection rates for Pennsylvania’s Class A water utilities. I examined the three years 2019, 2022, and 2023 (excluding the COVID years

⁷⁷ PA=VIII-18.

1 of 2020 and 2021). The average reconnection rate for this three year period is 70.50%.⁷⁸
2 Assuming one-month of lost revenue for each disconnection and reconnection of “Raise
3 Your Hand” customers, the revenue that would have been lost due to a customer being
4 off-system, but is otherwise preserved by “Raise Your Hand,” reaches \$477,186. This
5 additional revenue collection has not been incorporated into PWD’s calculation of rates
6 in this proceeding, but should be. The first revenue adjustment I recommend is to add this
7 \$477,186 to PWD revenues in FY 2026. I recommend this adjustment recur in FY 2027.

8 **Q. WHAT IS THE SECOND REVENUE ADJUSTMENT THAT YOU**
9 **RECOMMEND?**

10 A. The second revenue adjustment I recommend involves the revenue preserved by avoiding
11 the disconnection of service to customer that are not reconnected. Given the average
12 reconnection rate identified above (70.50%), that necessarily implies an average rate of
13 disconnections that are not reconnected of 29.5%. Real estate data in Philadelphia has
14 reported that the typical vacancy period for a housing unit in the City is roughly three
15 months. Given that three month vacancy with the loss of water use (and thus sales and
16 revenues during that period), the lost revenue to PWD for a unit that is disconnected and
17 not reconnected would reach \$599,085. Because “Raise Your Hand” halts the
18 disconnection before it occurs, this revenue would not be lost given the operation of the
19 program. This \$599,085 of preserved revenue, which is not accounted for in the PWD
20 revenue projections, should be assigned to PWD in FY2026 and FY2027.

⁷⁸ To “check” whether Philadelphia, with its unique demographics, could be expected to generate different reconnection rates, I compared the Class A water reconnection rates to the PGW reconnection rates for the same years. The PGW reconnection rates were virtually identical (69.63%).

1 **Q. DOES PWD KNOW THE NUMBER OF “RAISE YOUR HAND” PARTICIPANTS**
2 **THAT WOULD HAVE BEEN DISCONNECTED IN THE ABSENCE OF THE**
3 **“RAISE YOUR HAND” INITIATIVE?**

4 A. The Public Advocate specifically asked PWD to provide the number of residential
5 customers whose service, in the absence of having been identified as a “Raise Your
6 Hand” customer, would have been disconnected for nonpayment.⁷⁹ PWD objected to
7 providing this data on the grounds that a question about avoiding disconnections, and the
8 loss of revenue associated with such disconnections, was “unrelated to the proposed
9 changes in PWD rates and charges as set forth in the rate filing.”⁸⁰ Nonetheless, as I
10 noted above, the goal of “Raise Your Hand” is to “to avoid water shutoff.” I have,
11 therefore, attributed one (but only one) shutoff per year to each “Raise Your Hand”
12 participant for FY2025. The fact that PWD asserts that avoided shutoffs are “unrelated”
13 to rates is evidence, unto itself, that PWD has not incorporated avoided revenue loss into
14 its proposed rates in this proceeding.

15 **Part 6. A Revenue Adjustment for Lost UESF Hardship Grants.**

16 **Q. PLEASE DESCRIBE THE PURPOSE OF THIS SECTION OF YOUR**
17 **TESTIMONY.**

18 A. The purpose of this section of my testimony is to address PWD’s response, or lack
19 thereof, to the loss of hardship grant funding from Philadelphia’s Utility Emergency
20 Service Fund (UESF). UESF funding has virtually disappeared for PWD. Despite this

⁷⁹ PA-II-16.

⁸⁰ PWD Objections, at page 6.

1 loss, PWD disclaims any knowledge of what to expect from UESF. This lack of
2 knowledge, and the lack of any proactive response, occurs despite the fact that PWD has
3 a senior staffperson who sits on the Board of Directors of UESF.

4 **Q. PLEASE EXPLAIN THE AVAILABILITY OF HARDSHIP FUNDS PROVIDED**
5 **THROUGH UESF.**

6 A. According to PWD, UESF provides financial assistance to low-income individuals and
7 families who are facing utility service termination or who have had their utility service
8 terminated. PECO and PWD match each dollar provided by UESF.”⁸¹ The number of
9 PWD accounts receiving a UESF grant, along with the cumulative dollars of grants
10 received, is set forth in [Table 7](#)~~Table 7~~ below.

⁸¹ PA-VII-1.

Table 7. Receipt of UESF Hardship Grants by PWD Since July 2023					
UESF (FY24)			UESF (FY25 / YTD 02-28-25)		
Month	Count	Amount	Month	Count	Amount
July 2023	30	\$22,660.56	July 2024	0	\$0.00
August 2023	0	\$0.00	August 2024	18	\$9,799.39
September 2023	1	\$500.00	September 2024	28	\$9,435.90
October 2023	0	\$0.00	October 2024	0	\$0.00
November 2023	0	\$0.00	November 2024	0	\$0.00
December 2023	0	\$0.00	December 2024	11	\$3,270.66
January 2024	0	\$0.00	January 2025	13	\$3,615.08
February 2024	0	\$0.00	February 2025	0	\$0.00
March 2024	0	\$0.00	March 2025	0	\$0.00
April 2024	0	\$0.00	April 2025	0	\$0.00
May 2024	0	\$0.00	May 2025	0	\$0.00
June 2024	0	\$0.00	June 2025	0	\$0.00
TOTAL	31	\$23,160.56	TOTAL	70	\$26,121.03

1 UESF has entered into a contract with the City of Philadelphia under which UESF is
 2 provided a grant of \$500,000 to, in turn, distribute as hardship grants to income-eligible
 3 PWD customers.⁸² For each grant provided by UESF, PWD will apply matching dollars
 4 to the recipient's account.

⁸² PA-VII-8, Attachment.

1 **Q. PLEASE EXPLAIN WHAT YOU MEAN WHEN YOU SAY THAT UESF**
2 **GRANTS HAVE VIRTUALLY DISAPPEARED.**

3 A. Despite the City's \$500,000 grant, as the Table above shows, the grants that, in turn, have
4 been made by UESF to PWD reached only \$23,161 in FY2024 and only \$26,121 (year-
5 to-date through February 28, 2025) in FY2025. Despite the reduction in UESF grants in
6 FY2024 and FY2025, PWD merely assumes that that it will receive \$300,000 in UESF
7 funding in FY2026 and FY2027.⁸³ This assumption is made despite PWD's disclaiming
8 any knowledge about the source of UESF grant funding or the distribution of that grant
9 funding.

10 **Q. GIVEN THIS DECLINE IN GRANT FUNDING TO ITS CUSTOMERS, WHAT**
11 **DOES PWD KNOW ABOUT THE SOURCE OF FUNDING TO UESF AND/OR**
12 **THE DISTRIBUTION OF FUNDS BY UESF?**

13 A. PWD disclaims any knowledge of either the source of UESF funding⁸⁴ or the distribution
14 of UESF funding.⁸⁵ Requests for information, PWD said, must be directed to UESF
15 notwithstanding the fact that PWD has a senior staffperson on the Board of UESF.
16 Moreover, despite the fact that UESF receives funding from the City of Philadelphia to
17 distribute to PWD, PWD has found no reason to inquire why it has provided \$500,000 a
18 year in funding to UESF and received less \$30,000 a year back in grants.⁸⁶

⁸³ PA-VII-10.

⁸⁴ PA-VII-2.

⁸⁵ PA-VII-3, PA-VII-5, PA-VII-6.

⁸⁶ PA-VII-6, PA-VII-7, PA-VII-8.

1 **Q. HAS PWD MADE ANY PLANS ON HOW TO REPLACE THE FUNDING**
2 **WHICH PWD NO LONGER RECEIVES FROM UESF?**

3 A. No. When asked to provide a detailed explanation of the means, if any, by which PWD
4 will replace those dollars for purposes of providing grants, PWD had no response. It
5 merely stated that “the expectation is that PWD will see the amounts of grants per the
6 UESF agreement.”⁸⁷ PWD said that it “does not assume an elimination of UESF
7 grants.”⁸⁸ Given that PWD assistance is provided only as a matching grant to funds which
8 UESF grants, to not plan for what it will do when those grants are reduced from \$300,000
9 to less than \$30,000 is irresponsible.

10 **Q. WHAT DO YOU CONCLUDE?**

11 A. The treatment of UESF grants in the PWD rate filing is unsupported. PWD’s expectation
12 to continue to see UESF grants at contracted levels is at odds with the fact that actual
13 experience in the past two years indicates that expectation has no basis. In reality, PWD
14 states that “the FY 2025 budgeted amount for “matching grants” is approximately
15 \$300,000 and projected to remain constant for FY 2026 and FY 2027.”⁸⁹ This budgeted
16 amount remains constant even though UESF grants have virtually disappeared in the past
17 two years.

⁸⁷ PA-VII-12.

⁸⁸ PA-VII-13.

⁸⁹ PA-VII-10(A) (emphasis added).

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

2 A. I recommend that PWD be directed to find a substitute level of hardship funding to
3 replace the hardship funds included in rates, but no longer being received from UESF and
4 regularly report to the Rate Board both the specific steps taken to find replacement
5 funding and the results of those steps. Including hundreds of thousands of dollars in
6 contributions to UESF with the expectation that those dollars will be returned in grants,
7 but, in fact, receiving only \$23,000 in FY2024, and \$26,000 (YTD FY2025, 2-28-25)
8 back in grants, is not the basis for reasonable rates. Moreover, I recommend the Rate
9 Board direct PWD to file, within 60 days after a final Rate Determination in this
10 proceeding, and monthly thereafter, a report with the Rate Board documenting the receipt
11 of hardship fund grants received by PWD which are subject to matching grants made by
12 PWD and applied to the accounts of income-eligible customers. Finally, this monthly
13 reporting should include the following: (1) the monthly receipt of hardship funds by
14 PWD customers; (2) the number of requests and/or inquiries for grant assistance, (3) the
15 number of new applicants, (4) the number of new approvals, (5) the number of denied
16 applications and denial reasons, (6) the number of accounts flagged for a hold pending
17 payment (approved but not yet paid), and (7) the number of accounts receiving funds per
18 month. Such reporting is necessary to ensure that PWD customers are receiving the

1 revenue which PWD “expects” to receive given the revenue being provided to UESF for
2 distribution as grants.

3 **Part 7. A Capital Expense Adjustment to Reflect “Additional Subsidization.”**

4 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
5 **TESTIMONY.**

6 A. In this section of my testimony, I explain why the Rate Board should take action to
7 reflect PWD capital expenditures funded through either the Drinking Water State
8 Revolving Fund (DWSRF) or the Clean Water State Revolving Fund (CWSRF) when
9 funding through either of those sources involves “additional subsidization” as defined by
10 federal law.

11 **Q. PLEASE EXPLAIN WHAT “ADDITIONAL SUBSIDIZATION” IS PURSUANT**
12 **TO FEDERAL LAW.**

13 A. “Additional subsidization” involves federal funding provided to state revolving funds
14 (either the DWSRF or the CWSRF) which, in turn, is loaned to local water agencies with
15 forgivable principal. Under “additional subsidization,” in other words, a water agency
16 such as PWD not only receives the reduced interest rate loan through the SRF, but
17 receives principal forgiveness as well. In appropriating money for either the CWSRF or
18 DWSRF, Congress frequently dictates what proportion of the appropriation is to be
19 distributed with “additional subsidization.” Pursuant to federal law, additional
20 subsidization is to be reserved for “disadvantaged communities” (DAC).

21 **Q. DOES PWD HAVE THE DISCRETION ON WHEN TO RECEIVE LOANS WITH**
22 **ADDITIONAL SUBSIDIZATION OR FOR HOW MUCH?**

1 A. No. The discretion on when to approve loans subject to additional subsidization does not
2 lie with PWD. That discretion instead resides with the State through either the DWSRF
3 or the CWSRF. However, PWD can (and should) take a proactive role in seeking out
4 loans with additional subsidization. Nonetheless, the ultimate decision-making authority
5 does not rest with PWD. Simply because PWD may apply for such a loan does not mean
6 that PWD will receive such a loan (i.e., a loan with additional subsidization).

7 **Q. HAS THERE BEEN SUBSTANTIAL FUNDING PROVIDED FOR LOANS WITH**
8 **“ADDITIONAL SUBSIDIZATION” FOR THE RATE PERIODS COVERED BY**
9 **THIS RATE PROCEEDING?**

10 A. Yes. The Bipartisan Infrastructure Law (BIL) was passed on November 15, 2022.
11 Through the BIL, Congress provided \$2.603 billion for additional DWSRF funding in
12 FY2026, 49% of which was required to be provided with additional subsidization. BIL
13 also provided \$15 billion for lead service line replacement, 49% of which was to be
14 provided with additional subsidization.

15 **Q. IS ADDITIONAL SUBSIDIZATION RESTRICTED TO SPECIAL**
16 **APPROPRIATIONS SUCH AS THE BIL?**

17 A. No. The annual appropriations provided by Congress through the Safe Drinking Water
18 Act (SDWA) support what are called “capitalization grants.” The SDWA requires states
19 to use 14% of their funding for additional subsidization, and allows state programs to
20 provide up to 35% of their annual federal capitalization grant as DAC additional
21 subsidization in the form of grants, negative interest loans, or loan principal forgiveness,
22 among other things. Moreover, the Clean Water Act (CWA) now requires states to use

1 10% of their annual SRF allotment for additional subsidization, and allows states the
2 discretion to use up to 30% of their SRF funds for this purpose.

3 **Q. IS THERE ANY PARTICULAR CAPITAL NEED IDENTIFIED BY PWD THAT**
4 **PRESENTS CONCERNS?**

5 A. Yes. PWD’s Capital Panel testified that “PWD has begun financial planning to comply
6 with the mandated replacement of lead service lines. Addressing these requirements will
7 likely necessitate significant expenditures to ensure compliance and protect public health.
8 We have included the lead replacement budget in the current proposed capital plan.”⁹⁰

9 **Q. DOESN’T THE CAPITAL PANEL TESTIFY THAT IT WILL SEEK OUTSIDE**
10 **DOLLARS TO HELP FUND THE REQUIRED LEAD SERVICE LINE**
11 **REPLACEMENTS?**

12 A. Yes. The Capital Panel states, “We will actively pursue grant opportunities to help offset
13 the costs to the extent possible and to ensure the project’s success” (referring to lead
14 service line replacement as “the project”).⁹¹

15 **Q. WHAT THEN IS THE BASIS FOR YOUR CONCERN?**

16 A. PWD does not reference the entire range of outside dollars that could reduce the costs of
17 lead service line replacement to customers. For example, PWD was asked to provide a
18 copy of any loan application to either Pennsylvania’s CWRLF or DWRLF asking for
19 additional subsidization generally, or any loan application to the state’s CWRLF or

⁹⁰ PWD St. 3, at page 15.

⁹¹ PWD St. 3, at page 15.

1 DWRLF asking for additional subsidization for lead line replacement in particular. PWD
2 objected to these requests, stating that “The term ‘additional subsidization’ is not defined.
3 The lack of a definition makes it unclear what information and documents are being
4 requested by the Public Advocate.”

5 PWD’s objection, stating the term “additional subsidization” is “ambiguous” and “not
6 defined” either indicates a lack of understanding of the availability of resources that
7 would reduce rates to PWD customers or that PWD did not enlist the appropriate staff to
8 review and respond to the Public Advocate’s discovery. Likewise, PWD objected to the
9 requests on the grounds that “[t]he requested information and documents are not pertinent
10 to the prospective rates and charges for the Rate Period (Fiscal Year 2026 and Fiscal
11 Year 2027).” To argue that any request for a 30-year loan in the past 10 years is not
12 pertinent, particularly if that loan could have involved principal forgiveness, either
13 demonstrates a fundamental misunderstanding of the resources that are available that
14 could have, if accessed, reduced rates to PWD customers, including rates in FY2026 and
15 FY2027, or that PWD’s objection is not well-informed by personnel working with
16 PENNVEST opportunities.

17 Finally, note that even in discussing its lead line replacement, PWD states that it “has
18 begun financial planning to comply with the mandated replacement of lead service lines.
19 Addressing these requirements will likely necessitate significant expenditures to ensure
20 compliance and protect public health. We have included the lead replacement budget in
21 the current proposed capital plan. We will actively pursue grant opportunities to help

1 offset the costs to the extent possible and to ensure the project’s success.”⁹² Even now,
2 PWD is not seeking funding with additional subsidization –a term of art defined by
3 federal statute—but is instead only seeking “grant opportunities.”

4 **Q. WHY IS THE POTENTIAL RECEIPT OF LOANS SUBJECT TO ADDITIONAL**
5 **SUBSIDIZATION IMPORTANT IN THIS RATE PROCEEDING?**

6 A. To the extent that funding with additional subsidization for capital projects, including
7 lead service line replacements, is successfully obtained, it could very well be obtained
8 between PWD rate cases and thus not reflected in the rates charged to PWD customers.

9 The availability of additional subsidization is based on the funded projects serving
10 “disadvantaged communities” (another term of art). The communities which would
11 qualify PWD to receive additional subsidization, in other words, are the same
12 communities which would have customers qualifying for and participating in TAP. Since
13 federal law requires that the financial benefits of a loan with additional subsidization be
14 flowed through to the underlying disadvantaged community, it is appropriate to recognize
15 those financial benefits, and to use those financial subsidies for the purposes identified
16 above.

17 **Q. IS THIS LAST OBSERVATION OF PARTICULAR SIGNIFICANCE?**

18 A. Yes. Federal law requires that the benefits of providing loans with additional
19 subsidization be flowed through to the disadvantaged communities which gave rise to
20 approval of the loan. It is not appropriate for the foregone revenue requirement

⁹² PWD St. 3, at page 15 (emphasis added).

1 associated with the additional subsidization to simply be flowed through to all customers.
2 It would, therefore, benefit not only PWD's disadvantaged communities, but also PWD
3 itself, to have a rate mechanism in place through which it can demonstrate to
4 PENNVEST that should a loan with additional subsidization be provided, the financial
5 benefits of that additional subsidization will, indeed, be flowed through to the underlying
6 disadvantaged community.

7 I recognize the difficult proposition that PWD faces. On the one hand, the receipt of
8 loans with additional subsidization (including the possibility of principal forgiveness) is a
9 contingent event. I acknowledge that there is no guarantee that, even if PWD applies for
10 such a loan, that application will be granted. There may be a rate year, therefore, when
11 there is no additional subsidization to be captured and flowed through to the
12 disadvantaged communities. However, on the other hand, the ability to demonstrate that
13 the financial benefits will be captured and flowed through to the disadvantaged
14 communities is one of the factors that PENNVEST will use to assess whether to grant the
15 additional subsidization with which to begin. Given PWD's willingness to seek out such
16 loans, it would seem to behoove the Rate Board to place PWD in as good of position as
17 possible to be favorably considered by PENNVEST.

18 **Q IS THERE A RATEMAKING PRINCIPLE INVOLVED WITH YOUR**
19 **RECOMMENDATION?**

20 A. Absolutely. Assume that PWD has a capital expenditure –PWD, itself, devotes
21 substantial attention in its Direct Testimony, for example, about the forthcoming tsunami
22 of capital expenditures associated with complying with the new lead and copper rule—for
23 which it seeks PENNVEST funding. When PWD places the revenue requirement

1 associated with that capital expense in rates, any future rates paid will include some
2 component, larger or smaller, intended to pay for that capital funding. However, to the
3 extent that PWD may seek out and receive PENNVEST funding with additional
4 subsidization (including principal forgiveness), the component of rates designed to pay
5 for the capital expenditure will continue to exist even though the underlying expenditure
6 has been dissolved. In that event, there would be two problems: First, it would be
7 difficult, if not impossible, for PWD to demonstrate to PENNVEST its compliance with
8 the federal statutory requirement that the financial advantages of the additional
9 subsidization is being flowed through to disadvantaged communities. Second, rates
10 would include a cost that is no longer being incurred by PWD.

11 **Q. WHY NOT WAIT UNTIL THE TIME OF A POTENTIAL APPLICATION TO**
12 **ADDRESS THIS ISSUE?**

13 A. There are two reasons why the Rate Board should not delay action on this request. First,
14 the question is how proactively to place PWD in as good a position as possible to apply
15 for, and receive, PENNVEST funding with additional subsidization. If the Rate Board
16 were to delay consideration of the question, it may be entirely possible that PWD would
17 find itself in the position of seeking an important external source of funding on a between
18 rate case basis. In those circumstances, there would be no forum through which the
19 question of how to demonstrate compliance with federal law could be presented.

20 Moreover, I have substantial concerns about not seeking to address the issue until there is
21 a “crisis” (i.e., a situation where something needs to be done “yesterday”) in order to
22 proceed. The fact that we are addressing a future contingency is precisely the reason why
23 this issue should be addressed in this proceeding. This concern is exacerbated when

1 PWD, itself, states that its “capacity to manage numerous large projects underway is
2 constrained by the limited number of (i) engineering/design staff as well as (ii) other
3 Department personnel managing these projects.”⁹³ That is not a critique or criticism of
4 PWD, but rather is simply a recognition of the reality that PWD, itself, noted in its own
5 testimony.

6 **Q. HAS PWD EVER RECEIVED A LOAN WITH “ADDITIONAL**
7 **SUBSIDIZATION” THROUGH PENNVEST?**

8 A. Yes, it would appear so. In a 2024 application to PENNVEST, PWD sought funding for
9 lead service line replacements in South Philadelphia. In that application, PWD took care
10 to explain how the proposed project for which PENNVEST funding was requested would
11 benefit “disadvantaged communities.” The application stated in relevant part:

12 PWD is requesting funding in the amount of \$9,975,000 for the West Philly
13 Lead Line Replacement project for approximately 950 residential private lead
14 lines within the zip codes 19104, 19131, 19139, 19142, 19143, 19151, 19153
15 in the City of Philadelphia. These private lead lines are known and have been
16 identified through the Lead Service Line Inventory process. This project will
17 address removal of lead services within the neighborhoods of West
18 Philadelphia including Belmont, Wynnefield, Haddington, Elmwood,
19 Kingsessing, Overbrook, and Eastwick. This Project will remove and replace
20 lead and galvanized steel drinking water service lines with new copper
21 service lines benefitting 950 households and roughly over 2000 persons.
22 During the construction phase, it is anticipated that a portion of these
23 replacements will include the service line from the main to the meter and a
24 portion will be from the curb stop to the meter, or from the main to the curb
25 stop. No lead remnants will be left in the system, and the replacement action
26 will be full replacement.⁹⁴

⁹³ PWD St. 3, at page 17.

⁹⁴ PWD PENNVEST Application #1, page 8 of 27.

1 The application continued on to describe the disadvantaged communities which the
2 proposed project would serve:

3 PWD seeks funding through this application to replace approximately 950
4 identified residential lead lines in zip codes 19104, 19131, 19139, 19142,
5 19143, 19151 and 19153 as identified through the Comprehensive Service
6 Line Inventory project. Disadvantaged communities typically have a
7 heightened susceptibility to the adverse effects of natural hazards and
8 disasters. With regards to LSLR, disadvantaged communities are more likely
9 to live in environments with higher exposure to lead sources, which can cause
10 adverse health effects, including neurological, developmental, reproductive,
11 and kidney issues. Since there is no safe level of lead exposure, mitigating
12 lead exposure through permanent removal of lead services and grr ,
13 especially in disadvantaged areas, is crucial for promoting public health and
14 community vitality.

15 The City of Philadelphia has long held the reputation for being the poorest
16 among the large American cities. Today, according to data organized and
17 analyzed by the Pew Charitable Trusts, 1 in 5 residents still lives below the
18 poverty line. There remains a high crime rate and high numbers of drug
19 overdose deaths. Philadelphia's persistent problems remain, and it is likely
20 that even as diversity increases, the positive impacts of removal of lead
21 services could be beneficial for the populace over the next decades. West
22 Philadelphia is home to roughly 203,366 residents or approximately 81,311
23 households. Close to 40% of the West Philly population is at 150% below the
24 federal poverty level compared to just under 33% of the City of Philadelphia
25 population and 21% of the US. The percent of persons below 150% of the
26 federal poverty level in the project area is nearly double that of the United
27 States. The median household income of the project area is 40% less than the
28 median household income of the United States and 23% lower than the City
29 of Philadelphia. This demographic and economic data emphasizes the need
30 for targeted investments to support community resilience and growth.

31 * * *

32 This project will address existing levels of geographic, racial, and/or
33 socioeconomic inequalities in Philadelphia by assisting to improve the public
34 health and contribute to the well-being of children and families within this
35 underserved and high-priority area. Funding for this project will help improve
36 the situation for renters – many of whom are in lower socio-economic groups,
37 on fixed or single-family incomes, and/or with children or elderly populations

1 requiring assistance. This project directly increases public awareness of the
2 risks and sources of lead exposure to all individuals but particularly to low
3 income, vulnerable, and sensitive populations.⁹⁵

4 In granting funds in response to this application, PENNVEST provided PWD the
5 \$9,975,000 that PWD had requested. For purposes of this section of my testimony,
6 however, the most important part of the PENNVEST funding offer is evident on the
7 cover page. PENNVEST noted the total project cost, as presented by PWD, is
8 \$9,975,000. However, the loan amount for the project was only \$5,157,375, while the
9 “non-repayment amount” was \$4,817,625, nearly half of the total project cost.

10 **Q. HAS PWD SOUGHT SIMILAR FUNDING SINCE ITS SUCCESSFUL WEST**
11 **PHILADELPHIA APPLICATION?**

12 A. Yes. In addition to the successful West Philadelphia application, PWD submitted an
13 application for a similar project in South Philadelphia. The discussion in that application
14 demonstrates that PWD is seeking similar funding with additional subsidization. The
15 application stated in relevant part:

16 This project is part of the larger PWD LSLR Program that is replacing lead
17 and GRR service lines throughout the City of Philadelphia. In 2024, PWD
18 received approval through a USEPA Drinking Water State Revolving Fund
19 (SRF) grant/grant/principal forgiveness loan and low-interest loan to
20 implement its first LSLR project for CEJST disadvantaged communities in
21 North Philadelphia. PWD is in the process of applying for a second SRF to
22 conduct LSLR for CEJST disadvantaged communities in West Philadelphia.
23 These USEPA funds will help PWD increase participation in the PWD LSLR
24 Program by approximately 1,100 customers in South Philadelphia. As public
25 education and outreach engages more Philadelphians, it is expected that there
26 will be more interest and increased participation in the PWD LSLR Program.

⁹⁵ Id., at pages 9 – 10 of 27.

1 Through the replacement of LSL and GRR services in South Philadelphia,
2 PWD will improve public health by reducing potential exposure to lead,
3 particularly those in economically distressed areas. Since all the addresses in
4 this project service area are located in CEJST census tracts, the likelihood of
5 the known lead and GRR service lines being replaced by the resident on their
6 own is very low. Households most at risk are often not able to pay for
7 replacements. These same households can be negatively impacted by health
8 problems, such as neurodevelopmental delays in children and heart disease,
9 kidney disease, and high blood pressure in adults. Young children and
10 pregnant women are especially susceptible to the impacts of cumulative lead
11 exposure. The elimination of lead services and reduction of potential sources
12 of lead in drinking water will decrease the lead risk in a vulnerable
13 community where it would otherwise continue to exist.⁹⁶

14 PWD explained to PENNVEST:

15 The PWD's October 16, 2024, SLI identified 15,461 known lead and GRR
16 service lines throughout the City. Approximately 75%, or 11,575, of
17 Philadelphia's known service lead lines are located within CEJST-classified
18 disadvantaged areas. The total estimated cost to replace the City's known
19 lead services ranges from \$232 million to \$382 million dollars. This cost is
20 daunting for any utility dealing with aging infrastructure needs, emerging
21 contaminants, climate resiliency challenges, and workforce needs. Similarly,
22 the average cost for a LSLR is \$7,000 to \$10,000 and is viewed as
23 unaffordable for many customers, especially those living in disadvantaged
24 communities (A-008). The logistical challenges of LSLR in disadvantaged
25 communities are significant. The costs associated with replacing LSL's often
26 falls on property owners and can be prohibitively high, resulting in a
27 disproportionate exposure to lead among those who cannot afford the
28 replacement. Full LSLR programs, which are the best practice for eliminating
29 lead contamination risk, still leave the question of cost to homeowners.⁹⁷

30 These projects to serve West Philadelphia and South Philadelphia involve precisely the
31 type of external funding which PWD needs to be encouraged, and facilitated, to pursue.

32 Both projects address a critical need in disadvantaged communities of Philadelphia. Both

⁹⁶ PWD PENNVEST Application #2, at page 4.

⁹⁷ Id., at pages 6 – 7.

1 projects bring external funding to bear on the needs of Philadelphia. And both would
2 access a funding source which, for a substantial portion of the project cost, will not
3 require ratepayers to pay.

4 However, both projects, too, are subject to the discretion of PENNVEST to either fund or
5 not fund, and to either approve, or not approve, the additional subsidization found in the
6 West Philadelphia funding order. That is why it is important for the Rate Board to
7 establish an ongoing mechanism that PWD (and PENNVEST) can rely upon to ensure
8 that the federal statutory requirement that the dollars associated with the reduced capital
9 funding represented by the additional subsidization are passed through to the
10 disadvantaged communities, and not to ratepayers at large.

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

12 A. I recommend that the Rate Board adopt a deferred rate mechanism through which PWD
13 will allocate the dollars of decreased revenue requirement associated with the receipt of
14 any PENNVEST loan with additional subsidization as that term is defined by federal
15 statute. Pursuant to federal law, the dollars allocated to this deferred rate mechanism will
16 be used for the exclusive benefit of the PWD customers in the disadvantaged community
17 or communities, as that term is defined by federal statute and PENNVEST regulations,
18 which the capital investment funded by the PENNVEST loan is structured to serve. The
19 use of these dollars will be at the discretion of PWD, in consultation with the Public
20 Advocate.

21 Recommended uses in the disadvantaged communities identified in the PENNVEST
22 application for any loan with additional subsidization include devoting these dollars to

1 provide low-income households with 100%, direct-installed replacement of customer lead
2 service lines, providing leak remediation, and providing conservation investments for
3 high use customers. In order to ensure that the financial benefits of the additional
4 subsidization are flowed through to the relevant disadvantaged communities, any use of
5 funds set aside in such a manner necessarily need to supplement and not supplant funds
6 that would be set aside for these purposes in the absence of the loan. PWD should adopt
7 appropriate reporting procedures to the Rate Board to ensure that this principle of
8 “supplementing, not supplanting” has been adhered to.

9 **Q. WHAT DO YOU CONCLUDE?**

10 A. Maximizing the application for, and receipt of, PENNVEST loans with additional
11 subsidization will require a proactive, collaborative, approach with PWD and
12 stakeholders representing Philadelphia’s disadvantaged communities which might be
13 served through such external, non-ratepayer, funding. The discussion and
14 recommendation advanced above is intended to facilitate PWD’s ability to structure not
15 only the capital projects, but the PENNVEST funding requests for such projects, to
16 maximize this influx of federal CWSRF and/or DWSRF funding.

17 **Part 8. PWD Unlawfully Considers the Income of Minors in Delivering TAP Rates.**

18 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
19 **TESTIMONY.**

20 A. In this section of my testimony, I examine whether PWD is delivering TAP rates to all
21 who qualify and to the extent required by law. I find that by considering the incomes

1 received by minors, and on behalf of minors, PWD is in violation of the City ordinance
2 creating TAP.⁹⁸

3 **Q. PLEASE EXPLAIN WHAT THE PHILADELPHIA CODE STATES**
4 **REGARDING TAP'S CONSIDERATION OF THE INCOME OF MINORS.**

5 A. The Philadelphia Code excludes the income of, or on behalf of, minors from the
6 definition of “monthly household income” to be used in TAP. The Code first defines
7 TAP eligibility as follows: “Eligibility for the IWRAP program shall be understood in all
8 cases to require showing of financial or Special Hardship. Customers demonstrating
9 monthly household income that is Low-Income shall have satisfied this eligibility
10 requirement.” (emphasis added). The Code then defines “monthly household income” as
11 follows: “Monthly household income means the monthly income received by the
12 customer and all adults residing in the customer’s household.” (emphasis added).⁹⁹ The
13 Code, in other words, could hardly be clearer than it is in restricting the calculation of
14 monthly income to “all adults.” PWD regulations likewise limit TAP calculations to the
15 monthly household income of the customer and all adult household members, thereby
16 excluding from consideration the income of minors.

17 **Q. WHY DO YOU CONCLUDE THAT PWD INCLUDES THE INCOME OF**
18 **MINORS IN ITS DETERMINATION OF INCOME FOR TAP?**

⁹⁸ The ordinance creating TAP calls the program the Income-based Water Rate Assistance Program (IWRAP). The IWRAP program became operationally known as “TAP” (Tiered Assistance Program). IWRAP and TAP are one and the same program.

⁹⁹ See also, PWD regulations, Section 206.1(h).

1 A. PWD was specifically asked to provide a “detailed description of how the income of a
2 minor child is treated for purposes of determining TAP income eligibility and monthly
3 TAP bill amount.” PWD’s response was: “Income of minor children is included in gross
4 household income when it is provided by the applicant. The absence of income of a
5 minor child would not render an application incomplete.”¹⁰⁰ Moreover, the TAP
6 application provided to customers states that an applicant must provide information,
7 including income information, “for all other members of your household.”¹⁰¹ It does not
8 limit the income information to “all adults” as required by the Philadelphia Code and
9 PWD regulations.

10 It is not possible to reconcile PWD’s requirement that “the income of minor children is
11 included” with the definition in the Philadelphia Code that income is limited to “all
12 adults.” It is not possible to reconcile PWD’s requirement that an applicant must provide
13 income “for all other members of your household” in a TAP application when the
14 Philadelphia Code section creating TAP limits income to “all adults.”

15 **Q. WHY IS THIS PROBLEM A RATE CASE ISSUE RATHER THAN A**
16 **CUSTOMER ISSUE OUTSIDE THE AUTHORITY OF THE RATE BOARD?**

17 A. Unlawfully including the income from, and on behalf of, minor children (i.e., not
18 “adults”) means that PWD is charging a group of customers unlawful rates in two
19 different respects. First, some customers may be denied eligibility for TAP if and when
20 the income of the minor child pushes their total household income over the TAP income

¹⁰⁰ PA-VIII-20.

¹⁰¹ Id.

1 eligibility. Second, even customers who are enrolled in TAP are charged unlawful rates
2 to the extent that their percentage of income payment is based on a percentage of total
3 household income rather than on the income limited to that of “all adults.”

4 It is clearly within the authority of the Rate Board to ensure that the TAP rates charged to
5 PWD customers are in compliance with the Philadelphia Code and with PWD
6 regulations. Ensuring that the rates charged are lawful is not only within the jurisdiction
7 of the Rate Board, it is an essential element of the Rate Board’s jurisdiction.

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

9 A. The Rate Board should adopt the following remedial action:

- 10 ➤ First, PWD should enlist the services of an independent third-party auditor to
11 audit all TAP denials for being over-income in the past three years to
12 determine which, if any, of those denials was based on an unlawful
13 consideration of incomes other than the income of adults.
- 14 ➤ Any household unlawfully denied eligibility for TAP should be immediately
15 enrolled in TAP with the lawful TAP rates being charged for all future bills.
- 16 ➤ Any household unlawfully denied eligibility for TAP should have their bills
17 during the audit period be redetermined at the appropriate and lawful rate with
18 an appropriate adjustment being made.
- 19 ➤ All payments made during the audit period should be credited toward the
20 forgiveness of pre-enrollment arrears.
- 21 ➤ Any charges imposed for nonpayment (e.g., late payment charge,
22 disconnect/reconnect charge) should be refunded.¹⁰²
- 23 ➤ PWD should make a diligent effort to locate customers who were unlawfully
24 denied entry into TAP, and accordingly charged unlawful rates, and are now
25 no longer PWD customers. Appropriate refunds should be provided to these

¹⁰² It would be unreasonable at best and likely unlawful to impose a fee for nonpayment of a charge that was unlawfully billed with which to begin.

1 households, including the value of the unlawfully charged bills for current
2 service, arrears forgiveness unlawfully denied, and charges for late or
3 nonpayment payment unlawfully imposed.

- 4 ➤ The same remedies should be directed toward customers who were enrolled in
5 TAP with incomes unlawfully determined to be higher than they should have
6 been had incomes been limited to the income of adults. TAP bills should be
7 recalculated based on the appropriate income and refunds issued; future TAP
8 bills should be set at a level reflecting the appropriate income levels; all past
9 payments should be applied against appropriate levels of TAP bills and
10 appropriate adjustments made to earned forgiveness; and all charges for
11 nonpayment imposed during the period in which TAP bills were set at
12 unlawfully high amounts should be refunded. Moreover, PWD should make a
13 diligent effort to locate customers who were enrolled in TAP, with incomes
14 higher than allowed by the Philadelphia Code, who are no longer customers
15 with appropriate refunds made to those households.

16 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

17 **A.** Yes, it does.

COLTON EXHIBITS

Exhibit RDC-1: Colton Vitae

Roger Colton
Fisher, Sheehan & Colton
Public Finance and General Economics
Belmont, MA

* * * * *

EDUCATION:

J.D. (Order of the Coif), University of Florida (1981)

M.A. (Regulatory Economics), McGregor School, Antioch University (1993)

B.A. Iowa State University (1975) (journalism, political science, speech)

PROFESSIONAL EXPERIENCE:

Fisher, Sheehan and Colton, Public Finance and General Economics: 1985 – present.

As a co-founder of this economics consulting partnership, Colton provides services in a variety of areas, including: regulatory economics, poverty law and economics, public benefits, fair housing, community development, energy efficiency, utility law and economics (energy, telecommunications, water/sewer), government budgeting, and planning and zoning.

Colton has testified in state and federal courts in the United States and Canada, as well as before regulatory and legislative bodies in more than forty (40) states. He is particularly noted for creative program design and implementation within tight budget constraints.

PROFESSIONAL AFFILIATIONS:

Past Chair:	Belmont Zoning By-law Review Working Committee (climate change)
Member:	Board of Directors, Massachusetts Rivers Alliance
Columnist:	Belmont Citizen-Herald
Producer:	Belmont Media Center: BMC Podcast Network
Host:	Belmont Media Center: Belmont Journal
Member:	Belmont Town Meeting
Vice-chair:	Belmont Light General Manager Screening Committee
Past Chair:	Belmont Goes Solar
Coordinator:	BelmontBudget.org (Belmont's Community Budget Forum)
Coordinator:	Belmont Affordable Shelter Fund (BASf)
Past Chair:	Belmont Solar Initiative Oversight Committee
Past Member:	City of Detroit Blue Ribbon Panel on Water Affordability
Past Chair:	Belmont Energy Committee

Member: Massachusetts Municipal Energy Group (Mass Municipal Association)
 Past Chair: Housing Work Group, Belmont (MA) Comprehensive Planning Process
 Past Chair: Board of Directors, Belmont Housing Trust, Inc.
 Past Chair: Waverley Square Fire Station Re-use Study Committee (Belmont MA)
 Past Member: Belmont (MA) Energy and Facilities Work Group
 Past Member: Belmont (MA) Uplands Advisory Committee
 Past Member: Advisory Board: Fair Housing Center of Greater Boston.
 Past Chair: Fair Housing Committee, Town of Belmont (MA)
 Past Member: Aggregation Advisory Committee, New York State Energy Research and Development Authority.
 Past Member: Board of Directors, Vermont Energy Investment Corporation.
 Past Member: Board of Directors, National Fuel Funds Network
 Past Member: Board of Directors, Affordable Comfort, Inc.
 Past Member: National Advisory Committee, U.S. Department of Health and Human Services, Administration for Children and Families, Performance Goals for Low-Income Home Energy Assistance.
 Past Member: Editorial Advisory Board, International Library, *Public Utility Law Anthology*.
 Past Member: ASHRAE Guidelines Committee, GPC-8, *Energy Cost Allocation of Comfort HVAC Systems for Multiple Occupancy Buildings*
 Past Member: National Advisory Committee, U.S. Department of Housing and Urban Development, Calculation of Utility Allowances for Public Housing.
 Past Member: National Advisory Board: Energy Financing Alternatives for Subsidized Housing, New York State Energy Research and Development Authority.

PROFESSIONAL ASSOCIATIONS:

National Association of Housing and Redevelopment Officials (NAHRO)
 National Society of Newspaper Columnists (NSNC)
 Association for Enterprise Opportunity (AEO)
 Iowa State Bar Association
 Energy Bar Association
 Association for Institutional Thought (AFIT)
 Association for Evolutionary Economics (AEE)
 Society for the Study of Social Problems (SSSO)
 Association for Social Economics

BOOKS

Colton, *et al.*, *Access to Utility Service*, National Consumer Law Center: Boston (4th edition 2008).
 Colton, *et al.*, *Tenants' Rights to Utility Service*, National Consumer Law Center: Boston (1994).

Colton, *The Regulation of Rural Electric Cooperatives*, National Consumer Law Center: Boston (1992).

BOOK CHAPTERS

Colton (2018). The equities of efficiency: distributing energy usage reduction dollars, Chapter in *Energy Justice: US and International Perspectives* (Edited by Raya Salter, Carmen Gonzalez and Elizabeth Ann Kronk Warner), Edward Elgar Publishing (London, England).

JOURNAL PUBLICATIONS

65 publications in industry and academic journals, primarily involving utility regulation and affordable housing. (list available upon request)

TECHNICAL REPORTS

200 technical reports for public-sector and private-sector clients (list available upon request)

JURISDICTIONS IN WHICH EXPERT WITNESS PROVIDED

1. Maine	17. Tennessee	33. Montana
2. New Hampshire	18. Kentucky	34. Colorado
3. Vermont	19. Ohio	35. New Mexico
4. Massachusetts	20. Indiana	36. Arizona
5. Rhode Island	21. Michigan	37. Utah
6. Connecticut	22. Wisconsin	38. Idaho
7. New Jersey	23. Illinois	39. Nevada
8. Maryland	24. Minnesota	40. Washington
9. Pennsylvania	25. Iowa	41. Oregon
10. Washington D.C.	26. Missouri	42. California
11. Virginia	27. Kansas	43. Hawaii
12. North Carolina	28. Louisiana	Canadian Provinces
13. South Carolina	29. Arkansas	1. Nova Scotia
14. Florida	30. Texas (Federal Court)	2. Ontario
15. Alabama	31. South Dakota	3. Manitoba
16. Mississippi	32. North Dakota	4. British Columbia