

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 2019-2021
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Supplemental Direct Testimony

of

Black & Veatch Management Consulting, LLC

on behalf of

The Philadelphia Water Department

Dated: February 12, 2018

1 **SUPPLEMENTAL DIRECT TESTIMONY OF BLACK & VEATCH**
2 **MANAGEMENT CONSULTING, LLC**

3
4 **Q1. PLEASE STATE YOUR NAMES AND BUSINESS AFFILIATION.**

5 A1. Our names are Ann Bui, Prabha Kumar, and Brian Merritt. We are all employed
6 by the firm of Black & Veatch Management Consulting, LLC (Black & Veatch),
7 8400 Ward Parkway, Kansas City, Missouri. On behalf of the City of Philadelphia
8 (City) Water Department (Water Department or PWD), we will be presenting, as
9 a panel, our collective testimony in this proceeding.

10
11 **Q2. HAVE YOU PRESENTED DIRECT TESTIMONY IN THIS**
12 **PROCEEDING AND PROVIDED A DESCRIPTION OF YOUR**
13 **EDUCATIONAL BACKGROUND AND PROFESSIONAL**
14 **EXPERIENCE?**

15 A2. Yes, we have presented direct testimony in the “*In the Matter of the*
16 *Philadelphia Water Department’s Proposed Change in Water, Wastewater and*
17 *Stormwater Rates and Related Charges*” (PWD Statement No. 9A). As part of
18 that direct testimony, we also presented a description of our respective
19 educational background and professional experience, which we incorporate by
20 reference in this testimony.

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22 **Q3. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

23 A3. This testimony provides a description of the Water Department’s Tiered
24 Assistance Program Rate Rider (TAP Rate Rider) which is proposed to apply to
25 rates in FY 2020 and FY 2021. Our testimony includes an overview of the

1 objectives, approach, calculation methodology, and implementation timeline for
2 the proposed TAP Rate Rider.

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4 **Q4. CAN YOU SUMMARIZE THE PURPOSE OF THE TAP RATE RIDER?**

5 A4. The TAP Rate Rider is intended to provide a mechanism by which the Water
6 Department can reconcile, in a timely fashion, the actual costs of the Tiered
7 Assistance Program (TAP) and the actual costs of the Low-Income Conservation
8 Program (LiCAP) with the projected costs included in the Adopted Rates and
9 approved in a given proceeding. Specifically, the TAP Rate Rider would help
10 true-up two components:

- 11 • Annual TAP revenue losses
- 12 • Annual LiCAP expenses

13 The TAP Rate Rider provides a process to align the timing of the revenue and
14 cost reconciliation more closely with when the Water Department incurs the
15 costs.

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17 **Q5. PLEASE BRIEFLY DESCRIBE THE ESTIMATED ANNUAL REVENUE**
18 **REDUCTION DUE TO THE TAP PROGRAM OVER THE STUDY**
19 **PERIOD.**

20 A5. The estimated annual revenue reduction (lost revenue) associated with TAP is
21 stated below.

	<u>Lost Revenues</u>
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23	FY 2018 \$ 3,900,000
24	FY 2019 9,800,000
25	FY 2020 13,700,000

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FY 2021 17,000,000

A more detailed discussion of estimated lost revenues is set forth in the Direct Testimony of Raftelis Financial Consultants, Inc. (PWD Statement No. 8).

Q6. WHAT ARE THE POTENTIAL RISKS ASSOCIATED WITH THE ASSUMED TAP REVENUE REDUCTION AS INCLUDED IN THE FINANCIAL PLAN AND PROPOSED RATES AND CHARGES?

A6. The key potential risks associated with the “assumed” TAP revenue reduction is that in any given fiscal year, the actual TAP revenue loss that is experienced could differ substantially from the projected revenue loss assumed in the adopted rates and charges. In conjunction with TAP, there could also be a material difference between the budgeted expense for the LiCAP and the actual cost experienced in a given fiscal year. The variances in TAP revenue loss and LiCAP costs may result from the cumulative impact of multiple factors including the level of TAP enrollment during each year of the study period, the usage behavior of the TAP customers, any policy decisions on the customer assistance programs, and the extent of demand for the LiCAP.

The Rate Board should be aware that the level of enrollment in TAP in a given year can be higher than projected, and consequently the actual TAP revenue loss that is experienced could be higher than what was included in the assumed rates. Such a scenario could result in an overall water fund revenue shortfall. Conversely, the level of TAP enrollment and/or the average revenue loss per TAP customer could be lower than anticipated, and consequently the actual TAP revenue loss could be lower than what was included in the assumed rates.

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Any such material variance in the TAP revenue loss could lead to potential shortfall in revenues or conversely could generate revenues higher than projected.

To address such types of potential financial risks, the Water Department proposes the establishment of a TAP Rate Rider to 1) protect the Water Department's customers in the event that the actual TAP revenue loss experience is lower than the estimates included in the adopted rates of a given fiscal year and 2) protect the Water Department's revenues in the event that the actual TAP revenue loss experience is higher than the estimates included in the adopted rates of a given fiscal year.

Q7. CAN YOU BRIEFLY DESCRIBE THE TAP RATE RIDER?

A7. Schedule # BV-S1 (White Paper: Proposed TAP Rate Rider) provides a detailed description of the TAP Rate Rider. The discussion below summarizes the basic approach/framework of the proposed rate rider.

- The Water Department will perform the true-up of costs for a specific True-up Period;
- Only TAP Revenue Loss Amount and LiCAP Expenses will qualify for true-up actions under the TAP Rate Rider;
- The true-up amount for these two components will be the difference between the estimates included in the adopted rates and the actual amounts experienced during the True-up Period;

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- The Water Department will apportion the TAP Rate Rider Adjustment amount between the water and wastewater utilities based on the proportion of water and wastewater revenue requirements determined for the Next Rate Period.
- If the true-up calculations indicate the need for TAP and/or LiCAP true-up cost adjustments, then the Water Department will only adjust the Water Quantity Charge and the Sewer Quantity Charge for the Next Rate Period as follows:
 - The percentage adjustment to the water quantity charge will be the ratio of the water rate rider adjustment amount to the water quantity revenue projected for the Next Rate Period; and
 - The percentage adjustment to the sewer quantity charge will be the ratio of the sewer rate rider adjustment amount to the sewer quantity revenue projected for the Next Rate Period.

Q8. PLEASE DEFINE THE TAP RATE RIDER CALCULATION.

A8. The proposed TAP Rate Rider adjustment calculation is as follows:

$$TAPr = \frac{(L - E)}{QR}$$

Where

- **TAPr** is the TAP Rate Rider Adjustment expressed as a percentage;
- **L** is the incremental additional costs associated with the LiCAP incurred during the True-Up Period;

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- **E** is the difference between “actual” TAP Revenue Loss incurred and the “assumed” amount included in the adopted rates for the True-Up Period; and
- **QR** is the projected quantity revenue for the Next Rate Period.

The TAP Rate Rider Adjustment amount (L-E) is apportioned between both Water and Sewer, as discussed in Q8. The Water Quantity Charge tiered rates of the Next Rate Period are to be adjusted based on the Water Quantity Charge Adjustment percentage; similarly, the Sewer Quantity Charge uniform rate of the Next Rate Period is to be adjusted based on the Sewer Quantity Charge Adjustment percentage. Example calculations that illustrate the above formula are set forth in Schedule # BV-S1 (White Paper: Proposed TAP Rate Rider).

Q9. PLEASE DESCRIBE THE FINANCIAL CONDITIONS THAT COULD TRIGGER AN ADJUSTMENT UNDER THE PROPOSED RATE RIDER?

A9. The Water Department contemplates that there are two situations that could trigger the need for a Rate Rider Adjustment:

1. In the event that the combination of the Water Department’s actual TAP revenue loss and additional LiCAP expense are greater than +/- (plus or minus) 5 percent of the projected amount associated with the True-Up Period; or
2. In the event that the combination of TAP revenue loss and LiCAP expenses exceed the amounts, included in the adopted rates, to the level that the Water Department anticipates that the Water Fund would not be

1 able to meet debt service coverage requirements and/or bond covenant
2 requirements.

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4 **Q10. PLEASE DESCRIBE THE PROCEDURAL TIMELINES ASSOCIATED**
5 **WITH THE RATE RIDER?**

6 A10. The following procedural timeline assumes that the Water Department will
7 complete the TAP Rate Rider adjustment process on an annual basis and then
8 incorporate any necessary adjustments in the water and sewer quantity charge
9 rates that are to go in to effect for the Next Rate Period. The proposed
10 procedural timeline is as follows:

11 1. Ninety (90) days prior to the effective date of the Next Rate Period the
12 Water Department will initiate the calculation of the TAP Rate Rider
13 Adjustment;

14 2. The Water Department will subsequently inform the Rate Board on
15 whether or not a TAP Rate Rider adjustment is necessary.

16 a. If the true-up calculation does not exceed +/- 5 percent threshold
17 of the projected estimate, then the Water Department will not
18 seek any Rate Rider adjustments to the previously approved rates
19 for the Next Rate period.

20 b. If the true-up calculation is greater than +/- 5 percent threshold of
21 the projected estimate, then the Water Department will file a
22 Request for TAP Rate Rider Adjustments with the Rate Board,
23 60 days prior to the effective date of the Next Rate Period.

24 3. Once the Water Department files the TAP Rate Rider Adjustment
25 request, the Rate Board will have 60 days to render a decision.

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If the Rate Board does not render a decision, the requested TAP Rate Rider adjustment would go into effect at the beginning of the Next Rate Period. In the event that the TAP Rate Rider Adjustment becomes necessary due to a potential risk of the Water Fund being unable to meet debt service coverage requirements and/or bond covenant requirements, an accelerated timeline is proposed as follows:

1. The Water Department will inform the Rate Board immediately if debt service coverage and/or bond covenant requirements situation warrants a Rate Rider adjustment;
2. The Water Department will file a TAP Rate Rider Adjustment request at least 30 days prior to the requested effective date; and
3. The TAP Rate Rider Adjustment would go into effect within 30 days of filing or on the requested effective date, whichever is later.

Q11. HOW DOES THE PROPOSED TAP RATE RIDER COMPARE WITH COMPARABLE MECHANISMS USED BY OTHER LOCAL UTILITIES?

A11. Black & Veatch designed the proposed TAP Rate Rider specifically for the Water Department, but also reviewed how local and peer utilities approach similar rate rider mechanisms. At the local level, we specifically reviewed the rate rider mechanisms employed by the Philadelphia Electric Company (PECO) and Philadelphia Gas Works (PGW) to recover revenue losses associated with analogous customer assistance programs.

1 The recovery mechanisms used by PECO and PGW share some similarities with
2 the Rate Rider framework that the Water Department has proposed. The
3 concepts that are similar are as follows:

- 4 • Both PECO's and PGW's recovery mechanism (rate riders) adjust for
5 specific revenues/revenue losses and defined program costs (as identified in
6 their respective riders);
- 7 • The rate rider adjustments are applicable only to the volume component of
8 their respective electric and gas rates; and
- 9 • Reconciliation of costs and revenues are based upon a comparison of the
10 projections utilized in a rate proceeding (or otherwise approved by the PUC)
11 and the utility's actual experience.

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13 While there are some similarities, it is also important to note some key
14 differences between PECO, PGW and the Water Department:

- 15 • PECO / PGW rate riders have evolved over time to better align with the
16 changes that have occurred to the customer assistance programs and to
17 reflect the improvements in data availability. The rate rider calculation
18 methodologies included in their current tariffs reflect mature programs that
19 have been in place for years. The Water Department's TAP Rate Rider
20 framework reflects the initial stages of TAP and therefore, the limited data
21 that will be available during the proposed study period.
- 22 • Unlike PECO and PGW, which provide a single utility service, the Water
23 Department provides services for customers of multiple systems: water,
24 wastewater and stormwater. Because the Water Department recovers both
25 TAP revenue losses and LiCAP costs via water and wastewater rates and

1 charges, the proposed TAP Rate Rider addresses adjustments to both water
2 and sewer quantity charges.

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4 **Q12. DOES THE PROPOSED TAP RATE RIDER APPROACH ALIGN WITH**
5 **INDUSTRY ACCEPTED GUIDELINES ON SUCH COST RECOVERY**
6 **MECHANISMS?**

7 A12. Yes, Black & Veatch developed the TAP Rate Rider Approach based on the
8 following key guiding principles:

- 9 1. Align the reconciliation of revenue loss and costs closer to the time
10 in which the Water Department incurs them;
- 11 2. Establish a framework that is simple to administer;
- 12 3. Design the framework to be flexible to accommodate available data
13 and allow for future refinements;
- 14 4. Enable timely updates to adopted rates; and
- 15 5. Be legal and defensible.

16 These guiding principles are consistent with the rate-making guidelines
17 described in the American Water Works Association (AWWA) Manual M1:
18 *Principles of Water Rates, Fees and Charges* (AWWA M1 Manual). As
19 discussed in Black & Veatch's direct testimony, the AWWA M1 Manual also
20 provides the industry guidelines and principles that are used in the development
21 of the Water Department's Rates and Charges.

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23 **Q13. DOES THIS CONCLUDE YOUR TESTIMONY?**

24 A13. Yes, this concludes our supplemental testimony.

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

Fiscal Years 2019-2021

Philadelphia Water Department

Black & Veatch Management Consulting, LLC

Schedule BV-S1

Dated: February 9, 2018

To: Philadelphia Water Department (PWD)	From: Black & Veatch Management Consulting, LLC
Task Name: Cost of Service Study	Schedule # BV-S1
Document: Proposed TAP Rate Rider	White Paper

White Paper: Proposed TAP Rate Rider

INTRODUCTION

The Philadelphia Water Department (PWD) implemented a Tiered Assistance Program (TAP), effective July 1, 2017, to assist low income water customers with their water, sewer, and stormwater utility bills. The design of TAP provides bill discounts to low income customers who opt in to TAP and qualify for the program.

Under TAP, qualifying customers with incomes at or below 150 percent of the Federal Poverty Level (FPL) receive lower monthly bills, capped based upon a percentage of their household income. In conjunction, PWD has also expanded its Low Income Conservation Assistance Program (LiCAP).

The PWD intends to propose a “TAP Rate Rider” in the upcoming rate case. This white paper provides an overview of the purpose, the drivers, the objectives, the proposed approach, and peer utility examples.

PURPOSE

The TAP Rate Rider is a revenue true-up mechanism designed to enable PWD to reconcile the actual costs of the TAP and LiCAP with the projected costs included in the Adopted Rates and approved in a rate proceeding. Specifically, the TAP Rate Rider would help true-up two components:

- Annual TAP revenue losses
- Annual LiCAP expenses

Implementation of the proposed TAP Rate Rider would occur in conjunction with the water, sewer, and stormwater rates that are adopted pursuant to the Fiscal Year (FY) 2019 through FY 2021 rate proceeding.

TAP RATE RIDER DRIVERS

In the previous rate proceeding, Raftelis Financial Consultants, Inc. (RFC) projected an annual TAP revenue loss, for inclusion in PWD’s FY 2018 through FY 2022 financial plan. Consequently, the FY 2018 rates, that went in to effect on July 1, 2017, include recovery of the projected \$16.3 Million FY 2018 TAP revenue loss.

Consistent with this previous approach, RFC will provide revised estimates of annual TAP revenue loss for inclusion in the proposed FY 2019 through FY 2021 rates. Even with the updated estimates, the PWD will propose a TAP Rate Rider as it will allow customer bills to reflect increases or decreases in TAP costs. For FY 2019 through FY 2021, the proposed TAP Rate Rider could provide the following benefits:



- **Protect PWD Customers:** If the actual TAP revenue loss experienced by PWD is lower than the estimate included in the Adopted Rates of a given fiscal year, then PWD would reduce the quantity charge of the following fiscal year.
- **Protect PWD Revenues:** If the actual TAP revenue loss experienced by PWD is higher than the estimate included in the Adopted Rates of a given fiscal year, then PWD would recover the additional cost by adjusting the quantity charge of the following fiscal year.

DEFINITIONS

The following definitions apply for key terms used strictly in the context of this TAP Rate Rider white paper:

Adopted Rates – Refers to the approved and adopted water, sewer, and stormwater rates, pursuant to the FY 2019 through FY 2021 rate proceeding.

Current Fiscal Year – Refers to the fiscal year in which PWD initiates the TAP Rate Rider analysis.

True-up Period – The Current Fiscal Year and/or the period for which reconciliation is performed between the projected TAP revenue loss and LiCAP expenses that are included in the Adopted Rates and the actual TAP revenue loss and LiCAP expenses incurred.

Next Rate Period – This refers to the fiscal year and/or the period that immediately follows the True-up Period, and in which the TAP Rate Rider Adjustment is applied. The Adopted Rates of this “Next Rate Period” are increased or decreased to account for the reconciliation amount that is calculated for the True-up Period.

LiCAP – PWD’s Low-Income Conservation Assistance Program (LiCAP). TAP customers are also eligible for LiCAP, which provides water conservation devices and education to help customers manage and reduce their overall water usage.

TAP – PWD’s Tiered Assistance Program. TAP provides qualifying customers a reduction in the customer’s monthly water, sewer and stormwater utility bill.

TAP Rate Rider – Refers to the adjustment approach that is defined to increase or decrease the Adopted Rates of the Next Rate Period.

PROPOSED TAP RATE RIDER

The Black & Veatch project team in collaboration with PWD staff developed a TAP Rate Rider framework. The framework defines the following:

- TAP Rate Rider adjustment calculation;
- Application of TAP Rate Rider adjustment;
- Example Calculation; and
- Timing of the adjustment to the Adopted Rates

The developed framework specifically addresses PWD's key objectives, discussed herein, and takes into consideration peer utility approaches.

In addition to PWD, the PWD customers are also served by two other local utilities, namely Philadelphia Electric Company (PECO) and Philadelphia Gas Works (PGW). To increase customer acceptance of PWD's approach, we evaluated the cost recovery mechanisms used by these two peer utilities to see if any common elements exist between the three utilities. Appendix A provides details on the cost recovery programs of these two peer utilities.

KEY OBJECTIVES

The key objectives of the TAP Rate Rider framework are as follows:

- Align potential TAP cost adjustments closer to the time frame in which costs were incurred;
- Be simple to administer;
- Be flexible to accommodate the following:
 - Available data on TAP and LiCAP;
 - Future evolution of the TAP Rate Rider mechanism;
 - Changes to the calculation methodology;
- Enable timely updates to the Adopted Rates; and
- Be legal and defensible.

The above objectives, in general, align with the rate making principles described in the American Water Works Association's (AWWA) Manual M1: Principles of Water Rates, Fees, and Charges (AWWA Manual M1).

OVERALL APPROACH

The overall framework includes the following key features:

1. The true-up of costs will be performed for a specific True-up Period, which most likely will be the Current Fiscal Year;
2. The true-up for the TAP Rate Rider will be limited to the following two components:
 - a. TAP Revenue Loss
 - b. LiCAP Expenses

3. The true-up amount for these two components will be determined as follows:
 - a. TAP Revenue Loss True-up Amount = Difference between the *Estimated TAP Revenue Loss Amount* included in the Adopted Rates and the *Actual TAP Revenue Loss Amount* incurred during the True-up Period.
 - b. LiCAP Expenses True-up Amount = Additional *Actual LiCAP Cost* incurred above the *Estimated LiCAP Cost* included in the Adopted COS Rates during the True-up Period.
4. The overall true-up amount will be apportioned between water and wastewater utilities based on the proportion of water and wastewater revenue requirements determined for the Next Rate Period.
5. If TAP and/or LiCAP true-up cost adjustments are needed, then only the following two rate components in the Adopted Rates will be adjusted, for the Next Rate Period:
 - Water Quantity Charge; and
 - Sewer Quantity Charge.
6. The percentage adjustment to the water quantity charge will be determined as the ratio of the water true-up amount to the water quantity revenue of the Next Rate Period. This same percentage adjustment will be applied to each of the four separate block rates.
7. The percentage adjustment to the sewer quantity charge will be determined as the ratio of the sewer true-up amount to the sewer quantity revenue of the Next Rate Period.

TAP RIDER ADJUSTMENT CALCULATION

Based on the key features described above, the TAP Rate Rider Adjustment would be calculated as follows:

$$TAPr = \frac{(L - E)}{QR}$$

Component	Definition
TAPr	TAP Rate Rider Adjustment (% of Quantity Charge Adjustment)
L	Incremental additional costs associated with Low-Income Conservation Assistance Program (LiCAP) incurred during the <u>True-up Period</u> .
E	The amount of Actual TAP Revenue Loss under or (over) the TAP Revenue Loss included in Adopted Rates incurred for the <u>True-up Period</u> .
QR	<u>Projected</u> quantity revenue of the Next Rate Period.

EXAMPLE CALCULATION

Example calculations illustrating the proposed TAP Rate Rider approach are provided in Appendix B.

APPLICATION OF TAP RIDER ADJUSTMENT

Typically, these types of cost recovery mechanisms are initiated only where the true-up amounts are fairly significant. Therefore, the following process will be applicable with respect to TAP Rate Rider adjustments:

- If the combination of PWD's actual TAP revenue loss and additional LiCAP expenses incurred during the True-up Period are within plus or minus 5 percent of the projected amount included in the Adopted Rates of the True-up Period:
 - PWD would not file for a TAP Rate Rider Adjustment;
 - The charges for the Next Rate Period, adopted previously by the Rate Board, will continue to stay in effect.
- If the combination of PWD's actual TAP revenue loss and additional LiCAP expenses for the True-up Period are greater than plus or minus 5 percent of the projected amount included in the Adopted Rates of the True-up Period:
 - PWD would determine the net TAP and LiCAP true-up amount, a few months prior to the Next Rate Period.
 - The Water and Sewer Quantity charges of the Next Rate Period will be adjusted commensurate with the total TAP revenue loss and additional LiCAP expense true-up amount.
- In the event that the net true-up amount increases to the point where PWD anticipates that the Water Fund would not be able to meet debt service coverage requirements and/or bond covenant requirements (including the insurance covenant) at the end of the current fiscal year, then PWD would have the ability to file an "Emergency Adjustment."

TIMING

The appropriate timing of the TAP Rate Rider adjustment is critical to:

- Align the potential TAP cost adjustments closer to the time frame in which the increase or decrease in TAP costs occur;
- Provide adequate time to complete the TAP Rate Rider adjustment analysis, the associated approval procedures, and the changes to the rate schedules in the billing system; and
- Align the timing of TAP Rate Rider adjustments with the timing of the Adopted Rates of the Next Rate Period.

Therefore, PWD proposes the following timeline for key actions:

- PWD will initiate the TAP Rate Rider Adjustment at least 90 days prior to the close of the current fiscal year.



- If no TAP Rate Rider adjustments are necessary, then the charges for the Next Rate Period, adopted previously by the Rate Board, will continue to stay in effect.
- If TAP Rate Rider adjustments are necessary, then 60 days prior to the close of the current fiscal year, PWD will file with the Rate Board, any quantity charge adjustments for the Next Rate Period.
- If the Rate Board doesn't render its decision within 60 days of the filing of the TAP Rate Rider Adjustment, then the requested TAP Rate Rider adjustment will go into effect.
- **Note** - *To accommodate this approach, the PWD would need to use 9 to 10 months of actual TAP Revenue Loss and LiCAP expense data of the True-up Period, and annualize those for the True-up Period.*
- In the event an "Emergency Adjustment" becomes necessary, then PWD would file a TAP Rate Rider Adjustment request at least 30 days prior to the requested effective date.

SUMMARY

The proposed TAP Rate Rider approach provides a repeatable and simple mechanism for PWD to manage revenue and expense uncertainty associated with the TAP and LiCAP programs. The proposed adjustment methodology follows similar approach used by other local utilities. In addition, it offers the PWD customers an opportunity to obtain a fair adjustment in Adopted Rates based on the actual performance of the TAP and LiCAP programs.

APPENDIX A

EXAMPLES FROM OTHER LOCAL UTILITIES

In developing the proposed TAP Rate Rider Adjustment, Black & Veatch reviewed examples of rate riders associated with low-income customer assistance programs for other local utilities. As PWD customers receive electric and natural gas services from these utilities, they may also be familiar with these riders and/or be aware of their associated impacts on the electric and natural gas rates, respectively.

PHILADELPHIA ELECTRIC COMPANY (PECO):

PECO utilizes a rate rider to recover costs related to its Customer Assistance Program (CAP) and Low Income Usage Reduction Program (LIURP).

- These costs are included as a component of PECO’s variable distribution service charge for residential electric and residential heating customers.
- Beyond the costs recovered in the base rate, PECO utilizes its Universal Service Fund Charge (USFC) mechanism to annually adjust its variable distribution service charge rates to account for differences between projections (used in establishing their base rates) versus actual results.
- The key aspects of the USFC adjustment process are as follows:
 - Costs and revenues are reconciled on an annual basis.
 - USFC Adjustment requires Public Utility Commission (PUC) approval.
 - PECO filed its most recent final annual rate adjustment on October 16, 2017, for rates effective January 1, 2018. As such, estimates were used for the final 3 months of their current fiscal year.
- The key features of PECO’s rate rider are as follows:
 - PECO has an established rate rider for incremental customer assistance costs / revenue shortfalls.
 - PECO adjusts its rate rider to recover/credit historical (experienced) costs for specified customer service program expenses (i.e. LIURP).
 - The PECO rate rider adjustment is applied only to the volume component of the electric rates. No adjustment is made to the service charge.

The following provides an overview of PECO’s approach for adjusting its USFC:

USFC Calculation

$$USFC = \frac{(C + L - E - I) + F}{(S)}$$

Component	Definition
USFC	Universal Service Fund Charge (\$ per kilowatt hour (kWh)).
C	Cost in dollars of the Reconcilable CAP Costs for the <u>projected annual period</u> .
L	Incremental LIUPR related expenditures not included in base rates.
E	The net over or under collection of the USFC for the <u>most recent period</u> (included in the previous calculation).
I	Interest on any over or under collection USFC balance. Interest is computed monthly at a <u>6% simple interest rate</u> from the month that the over or under collection occurs to the mid-point of the recovery period.
F	IPA Forgiveness Program Factor. Based on the Accounts Receivable of CAP customers. Adjusts the estimated recovery amount included in the base rates based upon the actual A/R associated with CAP customers.
S	<u>Projected</u> electrical service sales in kWh for residential customers.

PHILADELPHIA GAS WORKS (PGW):

PGW utilizes a surcharge for its Universal Service and Energy Conservation (USEC) Programs.

- The USEC includes a Customer Responsibility Program (CRP) for low-income customers. The costs related to the CRP are recovered via a USEC Surcharge, which is applied to all customers (except those with interruptible service¹).
- The total USEC surcharge is adjusted to capture changes in both cost and revenue performance.
- Adjustments can be done automatically, on a quarterly basis with associated PUC filings.
- The key aspects of the USEC adjustment process are as follows:
 - USEC program costs are reconciled on a quarterly basis.
 - USEC adjustments go into effect automatically with quarterly PUC filings².
 - With each quarterly filing PGW estimates overall annual costs and for the full fiscal year using actual experience from previous months and estimates for remaining (i.e. future) months within a given fiscal year.
- The key features of PGW's rate rider are as follows:
 - PGW established surcharge for recovering universal service costs from its customers.
 - The costs (including reduced revenue) are tracked and applied to total billed volumes to derive the surcharge rate.

¹ Interruptible customers are able to switch from natural gas to the alternative fuel whenever PGW announces a temporary curtailment of gas service (interruption); customers include power plants, cogeneration facilities, etc.

² Following annual reconciliation.

- PGW adjusts its USEC surcharge to recover historical costs.
- The PGW USEC surcharge is applied to only the volume component of the gas rates. No adjustment is made to the service charge.

The following provides an overview of PGW’s approach for adjusting its USEC:

USEC Surcharge Calculation

$$USEC = \frac{\text{Total Cost Components to be Recovered}}{\text{Projected Billed Volume}}$$

Term	Definition
USEC Surcharge	Universal Service and Energy Conservation Surcharge (\$ per Mcf)
Individual Cost Components	<ol style="list-style-type: none"> 1. CRP Discounts 2. Senior Citizen Discounts 3. Conservation Works Program (CWP) and Enhanced Low Income Retrofit Program (ELRIP) Costs 4. CRP Forgiveness (Pre-program Past Due Arrearages) 5. Under/Over Recovery of Revenue
Billings	Projected Total Applicable Volume (Mcf)

APPENDIX B

EXAMPLES CALCULATIONS

The following pages provide a series of example calculations; these are provided for illustration purposes and reference the estimated costs and proposed rates included in the FY 2019 to FY 2021 rate proceeding.



Example 1 - 10% Increase in LiCAP and TAP Costs

Philadelphia Water Department
Table 1 - EXAMPLE Calculation of TAP Rate Rider Adjustment Effective July 1, 2019 (FY 2020)
(10% Increase in LiCAP and TAP Costs)

	Philadelphia Water Department		
	Total	Water Portion	Sewer Portion
	Amount	Amount	Amount
(1) L = Incremental LiCAP Costs ^a	\$ 60,825	\$ 25,000	\$ 36,000
(2) E = Experienced & Estimated Net Over/(Under) Recovery ^b	\$ (360,000)	\$ (149,000)	\$ (211,000)
(3) Net Recoverable ^c (L - E)	\$ 420,825	\$ 174,000	\$ 247,000
(4) QR = Quantity Revenue Under Approved Rates for Next FY ^d	436,159,000	239,611,000	196,548,000
(5) TAP Adjustment (%) ^e : (3)/(4)	0.1%	0.1%	0.1%

Notes:

^aIncremental LiCAP Program Costs for the current fiscal year.

^bActual TAP Discounts versus TAP Revenue Recovery for the current fiscal year.

^cNet Recoverable TAP Losses

^dEstimated quantity revenue under approved rates for the next period.

^eEstimated TAP Rider Adjustment Percentage

Philadelphia Water Department
Table 2 - EXAMPLE Application of TAP Rate Rider Adjustment Effective July 1, 2019 (FY 2020)

Rates	Adopted		% Adjustment	Adjusted		\$ Difference
	FY 2020			FY 2020		
Water Quantity Charges		(\$/Mcf)		(\$/Mcf)		
1	0 to 2 Mcf	\$ 45.15	0.1%	\$ 45.18	\$ 0.03	
2	2.1 to 100 Mcf	\$ 38.92	0.1%	\$ 38.95	\$ 0.03	
3	100.1 to 2,000 Mcf	\$ 30.16	0.1%	\$ 30.18	\$ 0.02	
4	2,000 + Mcf	\$ 29.34	0.1%	\$ 29.36	\$ 0.02	
Sewer Quantity Charges		(\$/Mcf)		(\$/Mcf)		
5	Sewer Volume Rate	\$ 33.81	0.1%	\$ 33.85	\$ 0.04	



Philadelphia Water Department
Table 3 - EXAMPLE Calculation of TAP Rate Rider Adjustment Effective July 1, 2019 (FY 2020)

		A		B
RECONCILABLE COSTS - FROM THE CURRENT PERIOD		FY 2019		
Incremental LiCAP Costs (L-Factor)				
1	Assumed LiCAP Costs ¹	Included in Adopted Rates	\$ 608,251	
2	Actual LiCAP Costs ²	Experienced	\$ 669,076	
3	Net Incremental LiCAP Costs	Line 2 - Line 1	\$ 60,825	
Experienced TAP Revenue Loss (E-Factor)				
4	Assumed Tap Revenue Loss ³	Included in Adopted Rates	\$ 3,900,000	
5	Actual Tap Revenue Loss ⁴	Experienced	\$ 4,290,000	
6	Net TAP Revenue Loss	Line 4 - Line 5	\$ (390,000)	
Total Tap Adjustment Amount (L - E)				
7	Reconcilable TAP Rate Rider Adjustment Amount	Line 3 - Line 6	\$ 450,825	
ADJUSTMENTS - APPLIED TO THE NEXT PERIOD		FY 2020		
8	Adjustment to Next Period (Future FY)	From Line 7 Column A above	\$ 450,825	
Water				
9	Water Portion of TAP Adjustment ⁵	41.4% x Line 8	41.4%	\$ 187,000
10	Water Quantity Revenue Under Approved Rates ⁶			\$ 239,611,000
11	% Increase or (Decrease) Revenue Adjustment	Line 9 / Line 10		0.08%
Water Quantity Charges - Rate Case Adopted				
12	0 to 2 Mcf			\$ 45.15
13	2.1 to 100 Mcf			\$ 38.92
14	100.1 to 2,000 Mcf			\$ 30.16
15	2,000 + Mcf			\$ 29.34
Water Quantity Charge - True-Up Rates				
16	0 to 2 Mcf	Line 12 x (1 + Line 11)		\$ 45.19
17	2.1 to 100 Mcf	Line 13 x (1 + Line 11)		\$ 38.95
18	100.1 to 2,000 Mcf	Line 14 x (1 + Line 11)		\$ 30.18
19	2,000 + Mcf	Line 15 x (1 + Line 11)		\$ 29.36
<i>Note - calculations are not rounded</i>				
Wastewater				
20	Wastewater Portion of TAP Adjustment ⁷	58.6% x Line 8	58.6%	\$ 264,000
21	Sewer Quantity Revenue Under Approved Rates ⁸			\$ 196,548,000
22	% Increase or (Decrease) Revenue Adjustment	Line 20 / Line 21		0.13%
Sewer Quantity Charges - Rate Case Adopted				
23	Sewer Volume Rate (\$/Mcf)			\$ 33.81
Sewer Quantity Charge - True-Up Rates				
24	Sewer Volume Rate (\$/Mcf)	Line 23 x (1 + Line 22)		\$ 33.86
<i>Note - calculations are not rounded</i>				
CHANGE IN RATES - COMPARISON OF ADOPTED VERSUS ADJUSTED RATES				
Water Quantity Charge				
25	0 to 2 Mcf	Line 16 - Line 12		\$ 0.04
26	2.1 to 100 Mcf	Line 17 - Line 13		\$ 0.03
27	100.1 to 2,000 Mcf	Line 18 - Line 14		\$ 0.02
28	2,000 + Mcf	Line 19 - Line 15		\$ 0.02
Sewer Quantity Charge				
29	Sewer Volume Rate (\$/Mcf)	Line 24 - Line 23		\$ 0.05

¹ Assumed LiCAP Costs included in adopted rates for FY 2019 reflects FY 2018 budgeted amount (\$650,000) x spend factor (90.5%) x escalation rate (3.40%) or (\$650,000 x 0.905 x 1.034)

² Actual experience will be based upon actual invoices paid to LiCAP vendors during the fiscal year. Estimates for remaining months will be developed to provide a full year estimated actual

³ Assumed TAP Revenue Loss Costs as included in adopted rates for FY 2019 reflect the projected TAP Revenue Loss as included in the Financial Plan and Cost of Service Analysis.

⁴ Actual experience will be based upon actual discounts provided to TAP customers during the fiscal year. Estimates for remaining months will be developed to provide a full year estimated ac

⁵ The water portion of the TAP Rider adjustment is based on the water system's percentage of total revenue requirements.

⁶ The amount of billings the adopted water quantity rates are expected to generate in FY 2020.

⁷ The wastewater portion of the TAP Rider adjustment is based on wastewater system's percentage of the total revenue requirements.

⁸ The amount of billings the adopted sewer quantity rates are expected to generate in FY 2020.



Example 2 – 10% Decrease in LiCAP and TAP Costs

Philadelphia Water Department
Table 1 - EXAMPLE Calculation of TAP Rate Rider Adjustment Effective July 1, 2019 (FY 2020)
(10% Decrease in LiCAP and TAP Costs)

	Total	Water Portion	Sewer Portion
	Amount	Amount	Amount
(1) L = Incremental LiCAP Costs ^a	\$ (60,825)	\$ (25,000)	\$ (36,000)
(2) E = Experienced & Estimated Net Over/(Under) Recovery ^b	\$ 390,000	\$ 161,000	\$ 229,000
(3) Net Recoverable ^c (L - E)	\$ (450,825)	\$ (186,000)	\$ (265,000)
(4) QR = Quantity Revenue Under Approved Rates for Next FY ^d	436,159,000	239,611,000	196,548,000
(5) TAP Adjustment (%)^e: (3)/(4)	-0.1%	-0.1%	-0.1%

Notes:

- ^aIncremental LiCAP Program Costs for the current fiscal year.
- ^bActual TAP Discounts versus TAP Revenue Recovery for the current fiscal year.
- ^cNet Recoverable TAP Losses
- ^dEstimated quantity revenue under approved rates for the next period.
- ^eEstimated TAP Rider Adjustment Percentage

Philadelphia Water Department
Table 2 - EXAMPLE Application of TAP Rate Rider Adjustment Effective July 1, 2019 (FY 2020)

Rates		Adopted	% Adjustment	Adjusted	\$ Difference
		FY 2020		FY 2020	
Water Quantity Charges		(\$/Mcf)		(\$/Mcf)	
1	0 to 2 Mcf	\$ 45.15	-0.1%	\$ 45.11	\$ (0.04)
2	2.1 to 100 Mcf	\$ 38.92	-0.1%	\$ 38.89	\$ (0.03)
3	100.1 to 2,000 Mcf	\$ 30.16	-0.1%	\$ 30.14	\$ (0.02)
4	2,000 + Mcf	\$ 29.34	-0.1%	\$ 29.32	\$ (0.02)
Sewer Quantity Charges		(\$/Mcf)		(\$/Mcf)	
5	Sewer Volume Rate	\$ 33.81	-0.1%	\$ 33.76	\$ (0.05)



Philadelphia Water Department
Table 3 - EXAMPLE Calculation of TAP Rate Rider Adjustment Effective July 1, 2019 (FY 2020)

			A	B
RECONCILABLE COSTS - FROM THE CURRENT PERIOD			FY 2019	
Incremental LiCAP Costs (L-Factor)				
1	Assumed LiCAP Costs ¹	Included in Adopted Rates	\$ 608,251	
2	Actual LiCAP Costs ²	Experienced	\$ 547,425	
3	Net Incremental LiCAP Costs	Line 2 - Line 1	\$ (60,825)	
Experienced TAP Revenue Loss (E-Factor)				
4	Assumed Tap Revenue Loss ³	Included in Adopted Rates	\$ 3,900,000	
5	Actual Tap Revenue Loss ⁴	Experienced	\$ 3,510,000	
6	Net TAP Revenue Loss	Line 4 - Line 5	\$ 390,000	
Total Tap Adjustment Amount (L - E)				
7	Reconcilable TAP Rate Rider Adjustment Amount	Line 3 - Line 6	\$ (450,825)	
ADJUSTMENTS - APPLIED TO THE NEXT PERIOD			FY 2020	
8	Adjustment to Next Period (Future FY)	From Line 7 Column A above		\$ (450,825)
Water				
9	Water Portion of TAP Adjustment ⁵	41.4% x Line 8	41.4%	\$ (187,000)
10	Water Quantity Revenue Under Approved Rates ⁶			\$ 239,611,000
11	% Increase or (Decrease) Revenue Adjustment	Line 9 / Line 10		-0.1%
Water Quantity Charges - Rate Case Adopted				
12	0 to 2 Mcf			\$ 45.15
13	2.1 to 100 Mcf			\$ 38.92
14	100.1 to 2,000 Mcf			\$ 30.16
15	2,000 + Mcf			\$ 29.34
Water Quantity Charge - True-Up Rates				
16	0 to 2 Mcf	Line 12 x (1 + Line 11)		\$ 45.11
17	2.1 to 100 Mcf	Line 13 x (1 + Line 11)		\$ 38.89
18	100.1 to 2,000 Mcf	Line 14 x (1 + Line 11)		\$ 30.14
19	2,000 + Mcf	Line 15 x (1 + Line 11)		\$ 29.32
<i>Note - calculations are not rounded</i>				
Wastewater				
20	Wastewater Portion of TAP Adjustment ⁷	58.6% x Line 8	58.6%	\$ (264,000)
21	Sewer Quantity Revenue Under Approved Rates ⁸			\$ 196,548,000
22	% Increase or (Decrease) Revenue Adjustment	Line 20 / Line 21		-0.1%
Sewer Quantity Charges - Rate Case Adopted				
23	Sewer Volume Rate (\$/Mcf)			\$ 33.81
Sewer Quantity Charge - True-Up Rates				
24	Sewer Volume Rate (\$/Mcf)	Line 23 x (1 + Line 22)		\$ 33.76
<i>Note - calculations are not rounded</i>				
CHANGE IN RATES - COMPARISON OF ADOPTED VERSUS ADJUSTED RATES				
Water Quantity Charge				
25	0 to 2 Mcf	Line 16 - Line 12		\$ (0.04)
26	2.1 to 100 Mcf	Line 17 - Line 13		\$ (0.03)
27	100.1 to 2,000 Mcf	Line 18 - Line 14		\$ (0.02)
28	2,000 + Mcf	Line 19 - Line 15		\$ (0.02)
Sewer Quantity Charge				
29	Sewer Volume Rate (\$/Mcf)	Line 24 - Line 23		\$ (0.05)

¹ Assumed LiCAP Costs included in adopted rates for FY 2019 reflects FY 2018 budgeted amount (\$650,000) x spend factor (90.5%) x escalation rate (3.40%) or (\$650,000 x 0.905 X 1.034)

² Actual experience will be based upon actual invoices paid to LiCAP vendors during the fiscal year. Estimates for remaining months will be developed to provide a full year estimated actual

³ Assumed TAP Revenue Loss Costs as included in adopted rates for FY 2019 reflect the projected TAP Revenue Loss as included in the Financial Plan and Cost of Service Analysis.

⁴ Actual experience will be based upon actual discounts provided to TAP customers during the fiscal year. Estimates for remaining months will be developed to provide a full year estimated a

⁵ The water portion of the TAP Rider adjustment is based on the water system's percentage of total revenue requirements.

⁶ The amount of billings the adopted water quantity rates are expected to generate in FY 2020.

⁷ The wastewater portion of the TAP Rider adjustment is based on wastewater system's percentage of the total revenue requirements.

⁸ The amount of billings the adopted sewer quantity rates are expected to generate in FY 2020.