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April 1, 2019

By Federal Express

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street – Second Floor North
PO Box 3265
Harrisburg, PA 17105-3265

RE: Community Utilities of Pennsylvania Inc. Wastewater Divisions; Docket No. R-2019-_____; **SUPPLEMENT NO. 2 TO TARIFF WASTEWATER – Pa. PUC NO. 1- FILING FOR INCREASE IN RATES FOR THE SERVICE TERRITORIES FORMALLY KNOWN AS PENN ESTATES UTILITIES, INC. AND UTILITIES, INC. – WESTGATE AND REQUEST FOR CONSOLIDATION OF PROCEEDINGS**

Dear Secretary Chiavetta:

Enclosed for filing with the Pennsylvania Public Utility Commission on behalf of Community Utilities of Pennsylvania Inc. (CUPA) Wastewater Divisions are the following documents:

1) Supplement No. 2 to Tariff Wastewater - Pa. PUC No. 1 which increases rates for all customers for the service territories formally known as Penn Estates Utilities, Inc. and Utilities, Inc. – Westgate and proposes revisions to certain rules and regulations as indicated in the tariff;

2) Supporting Data required by 52 Pa. Code §53.52; and

3) Direct Testimony of John P. Trogonoski and accompanying exhibits JPT-1 through JPT-10.[1]

CUPA is also making a similar filing today for its Water tariff. CUPA requests that these dockets be consolidated pursuant to 52 Pa. Code § 5.81 because these proceedings involve common questions of fact and law.

A copy of the enclosed materials has been served upon the Commission's Bureau of Investigation and Enforcement, the Pennsylvania Office of Consumer Advocate and the Office of Small Business Advocate.

Thank you for your attention to this matter. If you have any questions, please feel free to call either me or undersigned counsel.

Very truly yours,

Thomas J. Sniscak

Thomas J. Sniscak (Attorney ID No. 33891)
Whitney E. Snyder(Attorney ID No. 316625)
Bryce R. Beard (Attorney ID No. 325837)

Counsel for
Community Utilities of Pennsylvania Inc.

WES/das
Enclosures

cc: Per Certificate of Service

[1] CUPA notes that it is not required to file its direct testimony with this rate increase filing pursuant to 52 Pa. Code § 53.53 because it is not proposing a rate increase in excess of $1 million. CUPA will file the remainder of its direct testimony at a later date.

COMMUNITY UTILITIES OF PENNSYLVANIA INC.

RATES, RULES AND REGULATIONS GOVERNING

THE PROVISION OF WASTEWATER COLLECTION, TREATMENT AND/OR DISPOSAL SERVICE TO THE PUBLIC IN

STROUD AND POCONO TOWNSHIPS, MONROE COUNTY, AND WEST BRADFORD TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

Service Territory Formally Known as Penn Estates Utilities, Inc., and Utilities, Inc. of Pennsylvania

ISSUED: April 1, 2019 EFFECTIVE: June 1, 2019

ISSUED BY:
Steven M. Lubertozzi, President
2335 Sanders Road
Northbrook, IL 60062
(800) 860-4512

LIST OF CHANGES

Supplement No. 2 increases rates to move towards unitization of the former Penn Estates Utilities, Inc.'s and Utility Inc. of Pennsylvania in compliance with Ordering Paragraph No. 2 of the Order of the Commission dated December 3, 2015, at Docket No. A-2015-2504891. The increase in annual operating revenue is intended to produce an additional $377,944 per year.

Supplement No. 2 also adds Section K – Liability of Company to Part III: RULES AND REGULATIONS, adding provisions to govern the liability of the Company in the event of damage due to blockage, break or overload as a result of defects in the customer's service pipes, or damage to property when not due to the lack of reasonable care on the part of the Company.

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TERRITORIES SERVED

Penn Estates Division
Monroe County. Portions of Stroud and Pocono Townships

Utilities, Inc. of Pennsylvania Division
Chester County. Portions of West Bradford Township

PART I: SCHEDULE OF RATES AND CHARGES

Section A - Rates for Metered Service

The utility has no approved metered rate. All wastewater customers are subject to flat rates herein within Part I, Section B.

Section B - Flat Rates

The charge per unit is a flat rate either per month or per quarter as follows:

Residential

$59.55 per month per lot located within Penn Estates and upon which a structure has been erected. (I)
This rate will be billed monthly.

Pool

$59.55 per month per lot located within Penn Estates and at which a community pool or showering (I)
facility has been erected. This rate will be billed monthly.

Clubhouse

$59.55 per month for the Penn Estates Clubhouse. This rate will be billed monthly. (I)

Section C - Returned Check Charge

A charge of $25 will be assessed any time where a check which has been presented to the Company for payment on account has been returned by the payor's bank for any reason.

Section D - Availability

$17.25 per month per lot if located within Penn Estates and upon which no structure has been (I)
erected for an availability charge. This rate will continue to be billed quarterly.

Section E – Tampering Fee

Unauthorized connections, repairs, or other tampering with the system will render the service subject to immediate discontinuation without notice and wastewater service shall not be restored until such unauthorized connections, repairs, and other tampering with the system have been removed and unless settlement is made in full and for wastewater service estimated by the Company to have been used by reason for such unauthorized connection. The fee for these unauthorized connections, repairs, and system tampering shall be $200 plus any actual costs to repair.

(I) Indicates Increase

PART I: SCHEDULE OF RATES AND CHARGES

Section A - Rates for Metered Service
The utility has no approved metered rate. All wastewater customers are subject to flat rates herein within Part I, Section B.

Section B - Flat Rates
The charge per unit is a flat rate either per month or per quarter as follows:

Residential		
Per year, per household	$ 714.60	(I)

The flat rate charges will be billed quarterly covering service for the three (3) months immediately preceding presentation of bill and will be due and payable as rendered in equal amounts of $178.65 per quarter. Customers have the option of monthly billings if they so desire. Monthly bills will be in equal amounts of $59.55 per month. (I)

School		
Per quarter, per pupil	$ 3.77	(I)

The charges will be billed quarterly based on the rate of $3.77 per pupil per quarter based on the number of pupils for the preceding three (3) month period. (I)

(I) Indicates Increase

PART I: SURCHARGE

STATE TAX ADJUSTMENT SURCHARGE

In addition to the charges provided in this tariff, a surcharge of 0.00% will apply to all charges for service rendered on or after the effective date of this tariff.

The above surcharge will be recomputed, using the same elements prescribed by the Commission.

a. Whenever any of the tax rates used in the calculation of the surcharge are changed.

b. Whenever the utility makes effective any increased or decreased rates; and

c. On March 31, 1999, and each year thereafter.

The above recalculation will be submitted to the Commission within 10 days after the occurrence of the event or date which occasions such recomputation; and, if the recomputed surcharge is less than the one then in effect, the Company will, and if the recomputed surcharge is more than the one in effect, the Company may, submit with such recomputation a tariff or supplement to reflect such recomputed surcharge, the effective date of which shall be 10 days after filing.

PART II: DEFINITIONS

The following words and phrases, when used in this tariff, shall have the meanings assigned below unless the context clearly indicates otherwise:

1. Annual Line Extension Costs: The sum of a Company's additional annual operating and maintenance costs, debt costs and depreciation charges associated with the construction, operation and maintenance of the line extension.

2. Annual Revenue:(For Line Extension Purposes) The Company's expected additional annual revenue from the line extension based on the Company's currently effective tariff rates for customers similar in nature and size to the bona fide service applicant.

3. Applicant: A person, association, partnership, corporation, municipality, authority, state or federal governmental agency or other entity who applies to become a customer of the Company in accordance with Part III, Section A, of this tariff.

4. Bona Fide Service Applicant:(For Line Extension Purposes) A person or entity applying for wastewater service to an existing or proposed structure within the Company's certificated service territory for which a valid occupancy or building permit has been issued if the structure is either a primary residence of the applicant or a place of business. An applicant shall not be deemed a bona fide service applicant if:

   a) applicant is requesting wastewater service to a building lot, subdivision or a secondary residence;
   b) the request for service is part of a plan for the development of a residential dwelling or subdivision; or
   c) the applicant is requesting special utility service.

5. Commission: The Pennsylvania Public Utility Commission.

6. Company: Community Utilities of Pennsylvania Inc.

7. Company Service Line: The wastewater line from the collection facilities of the Company which connects to the customer service line at the hypothetical or actual curb line or the actual property line.

PART II: DEFINITIONS (CONT'D)

8. Customer: A person or entity who is an owner or occupant and who contracts with the Company for wastewater service.

9. Customer Service Line: The wastewater line extending from the end of the Company service line or connection to the point of connection at the customer's premise.

10. Debt Costs (For Line Extension Purposes): The Company's additional annual cost of debt associated with financing a line extension investment based on the current debt ratio and weighted long-term debt cost rate for the Company or that of a comparable jurisdictional wastewater utility.

11. Depreciation Charges (For Line Extension Purposes): The Company's additional annual depreciation charges associated with a specific line extension investment to be made based on the current depreciation accrual rates for that Company or that of a comparable jurisdictional wastewater utility.

12. Dwelling Unit: A structure or dwelling intended to be occupied as a whole by one family.

13. Equivalent Dwelling Units (EDUs): For a commercial and/or industrial customer the EDU is a measure based upon the estimated maximum daily wastewater flow for that type of business as calculated by the Department of Environmental Protection Regulation at 25 Pa. Code §73.17 divided by 250 gallons per day. 250 gallons per day is the typical Company estimated maximum daily wastewater flow from its current single family unit.

14. Garbage: The solid wastes from domestic cooking and dispensing of food, and from the handling and storage of produce.

15. Grinder pump: Any mechanical or powered device used to grind, macerate or fluidize garbage so that it can be discharged into the wastewater system of the Company.

16. Line Extension: (For Line Extension Purposes) An addition to the Company's main line which is necessary to serve the premises of a customer.

17. Main: The Company's pipe, excluding service connections, located in a public highway, street, alley or private right-of-way which pipe is used in transporting wastewater.

18. Meter: Any certified device used by the Company, or by the Commission, for the purpose of measuring water or wastewater consumption.

PART II: DEFINITIONS (CONT'D)

19. Nonresidential Service: Wastewater service supplied to a commercial or industrial building, including a hotel or motel, or to a master-metered trailer park or multi-tenant apartment building, or to any customer who purchases wastewater service from the Company for the purpose of resale.

20. Operating and Maintenance Costs: (For Line Extension Purposes) The company's average annual operating and maintenance costs associated with serving an additional customer, including customer accounting, billing, collections, water purchased, power purchased, chemicals, and other variable costs based on the current total Company level of such costs, as well as costs particular to the specific needs of that customer, such as line flushing.

21. Public Utility: Persons or corporations owning or operating equipment or facilities in this Commonwealth for water, electric or wastewater collection, treatment, or disposal for the public for compensation.

22. Residential Service: Wastewater service supplied to an individual single-family residential dwelling unit.

23. Regulatory Agency: Agencies, including but not limited to the Commission, the Pennsylvania Department of Environmental Protection (DEP), U.S. Environmental Protection Agency (EPA), and Delaware River Basin Commission (DRBC), which have authority over the operations of and/or discharges into and/or from the Company's treatment facilities.

24. Sanitary Sewer: A sewer which carries sanitary wastewater and excludes storm, surface and ground water.

25. Special Utility Service: Residential or business service which exceeds that required for ordinary residential purposes. See additional clarification in Section G, Part 2(d) of this tariff.

26. Storm Sewer: A sewer which receives discharges from stormwater building sewers and/or carries off surface, subsurface, or stormwater from the buildings, ground, streets, or other areas, including street wash.

27. Suspended Solids: Solids that either float on the surface of, or are in suspension in water, wastewater, or other liquids, and which are largely removable by filtration.

PART II: DEFINITIONS (CONT'D)

28. Tariff: All of the service rates, rules and regulations issued by the Company, together with any supplements or revisions thereto, officially approved by the Commission and contained in this document.

29. Toxic Substances: Any substances where gaseous, liquid or solid waste which, when discharged to a public sewer in sufficient quantities, will be detrimental to any biological wastewater treatment process, constitute a hazard to human beings or animals, inhibit aquatic life, or create a hazard to recreation in receiving waters of the effluent from a wastewater treatment plant, or as defined pursuant to PL 92-500 (Federal Water Pollution Control Act Amendments of 1972) or its amendments.

30. Wastes: Any liquid, gaseous, or solid substances or combination thereof which are discarded, leached, or spilled substances or combination thereof including sanitary wastewater but excluding storm-water.

31. Wastewater: A combination of the water-carried wastes from residences, together with such ground surface and storm water as may be present in sanitary sewers.

PART III: RULES AND REGULATIONS

Section A - Applications for Service

1. Service Application Required: All applications for service must be in writing on a form provided by the Company and signed by the owner or owners of the property to which wastewater collection service will be provided.

2. Change in Ownership or Tenancy: A new application must be made to the Company upon any change in ownership where the owner of the property is the customer, or upon any change in the identity of a lessee where the lessee of the property is the customer. The Company shall have the right to discontinue or otherwise interrupt wastewater collection service upon three (3) days notice if a new application has not been made and approved for the new customer.

3. Acceptance of Application: An application for service shall be considered accepted by the Company only upon oral or written approval by the Company. The Company may provide service to the applicant pending formal review and acceptance of the application.

4. Application Forms: Application forms can be obtained at the Company's local business office, presently located at:

Penn Estates Utilities, Inc.	Utilities, Inc. of Pennsylvania
570 Hallet Road	1201 Sawmill Road
East Stroudsburg, PA 18301	Downingtown, PA 19335

Please call (800) 860-4512 to schedule an appointment.

5. Temporary Service: In the case of temporary service for short-term use, the Company may require the customer to pay all costs of making the service connection and for its removal after the service has been discontinued, or to pay a fixed amount in advance to cover such expenses. If the service connection is physically removed, the customer shall receive a credit for reasonable salvage value.

Section B - Construction and Maintenance of Facilities

1. Customer Service Line: The customer service line shall be furnished, installed, maintained and/or replaced, when necessary, by and at the sole expense of the customer. The Company reserves the right to determine the size, kind and depth of customer service lines.

PART III: RULES AND REGULATIONS (CONT'D)

2. Separate Trench: The customer wastewater service line shall not be laid in the same trench with drain or water pipe, the facilities of any other public utility or of any municipality or municipal authority that provides a public utility service.

3. Customer's Responsibilities: All service lines, connections and fixtures furnished by the customer shall be maintained by the customer in good working order. All valves, meters and appliances furnished by the Company and on property owned or leased by the customer shall be protected properly by the customer. All leaks in the customer service line or any pipe or fixtures in or upon the customer's premises must be repaired immediately by the customer.

4. Right to Reject: The Company may refuse to connect with any piping system or furnish wastewater collection, treatment and/or disposal through a service already connected if such system or service is not properly installed or maintained.

5. Water Use Standards for Certain Plumbing Fixtures: This rule establishes maximum water use criteria for certain plumbing fixtures installed in all new construction or renovation. Such standards have been implemented to achieve maximum efficiency of water use which the Commission has determined is technologically feasible and economically justified.

(a) Maximum permitted water usage levels shall be as follows:

Plumbing Fixture	Maximum Water Use
water closets	1.6 gallons/flush
urinals	1.5 gallons/flush

PART III: RULES AND REGULATIONS (CONT'D)

(b) The Company may exempt particular customers, or classes of customers, when it is determined that the water use standards for plumbing fixtures listed above are unreasonable, cannot be accommodated by existing technology or are otherwise inappropriate.

6. Individual Service Lines: Except as otherwise expressly authorized by the Company, each individual customer shall be served only through a separate service line connected directly to the Company's collection main, and that service line shall not serve any other customer or premise. No additional attachment may be made to any customer's service line for any purpose without the express written approval of the Company.

7. Connection to Company Mains: No connection shall be made to the Company's main, nor detachment from it, except under the direction and control of the Company. All such connections shall be property of the Company and shall be accessible to it and under its control. The Company will maintain all service lines from the main to the curb.

Section C - Discontinuance, Termination and Restoration of Service

1. Discontinuance by Customer: Where a customer requests the Company to discontinue service, the following rules shall apply:

(a) A customer who wishes to have service discontinued shall give at least three (3) days notice to the Company, specifying the date on which service is to be discontinued. In the absence of proper notice, the customer shall be responsible for all service rendered until the time that the Company shall have actual or constructive notice of the customer's intent to discontinue service. The customer shall not begin to use nor cease to use wastewater service without the prior written consent of the Company. A customer discontinuing service remains a customer for purposes of paying turn-on fees pursuant to Rule 3 of this Section for a period of nine (9) months.

(b) Where a customer requests turn-on of service within six (6) months of disconnection, the customer shall be subject to monthly minimum billing for the period of disconnection.

PART III: RULES AND REGULATIONS (CONT'D)

2. Termination by Company: Service to the customer may be terminated for good cause, including, but not limited to, the following:

   (a) making an application for service that contains material misrepresentations;

   (b) failure to repair leaks in pipes or fixtures;

   (c) tampering with any service line, curb connection, or installing or maintaining any unauthorized connection;

   (d) theft of service, which shall include taking service without having made a proper application for service under Part III, Section A;

   (e) failure to pay, when due, any charges accruing under this tariff;

   (f) discharge of any prohibited substance listed in Section F into the wastewater system;

   (g) receipt by the Company of an order or notice from the Department of Environmental Protection, a health agency, local plumbing inspector or other similar authority, to terminate service to the property served on the grounds of violation of any law or ordinance, or upon notice to the Company from any such authority that it has ordered an existing violation on the property to be corrected and that such order has not been complied with or

   (h) material violation of any provisions of this tariff.

3. Turn-on Charge: Whenever service is discontinued or terminated pursuant to Rule 1 or Rule 2 of this Section, service shall be permitted by the Company only upon the payment by the customer of a turn-on charge and the curing of the problem that gave rise to the termination if under Rule 2.

Section D - Billing and Collection

1. Issuance of Bills: The Company will bill each customer within fifteen (15) days of the last day of each billing period.

PART III: RULES AND REGULATIONS (CONT'D)

2. Billing Due Date: The due date for payment of a bill for nonresidential service shall be no less than fifteen (15) days from the date of transmittal. The due date for payment of a bill for residential service shall be no less than twenty (20) days from the date of transmittal. If the last day for payment falls on a Saturday, Sunday or bank holiday, or on any day when the offices of the Company are not open to the general public, the due date shall be extended to the next business day. The Company may not impose a late-payment charge unless payment is received more than five (5) days after the stated due date.

3. Late-Payment Charge: All amounts not paid when due shall accrue a late-payment charge at the rate not to exceed one and one half percent 1.50% per billing period, not to exceed eighteen percent (18%) per year when not paid as prescribed in Rule 2 of this Section.

4. Change in Billing Address: Where a customer fails to notify the Company of a change in billing address, the customer shall remain responsible to remit payment by the billing due date.

5. Application of Payment: Utility bills rendered by the Company shall include only the amount due for utility service. Where a customer remittance to the Company includes payment for any non-utility services, proceeds will be applied first to pay all outstanding regulated utility charges.

6. Return Check Charges: The customer will be responsible for the payment of a charge for each time a check presented to the Company for payment on that customer's utility bill is returned by the payer bank for any reason including, but not limited to, insufficient funds, account closed, payment stopped, two signatures required, post-dated, stale date, account garnished, or unauthorized signature. This charge is in addition to any charge which may be assessed against the customer by the bank.

7. Disputed Bills: In the event of a dispute between the customer and the Company with respect to any bill, the Company will promptly make such investigation as may be required by the particular case and report the result to the customer. The customer is not obligated to pay the disputed amount during the pendency of the Company's investigation. When the Company has made a report to the customer sustaining the bill as rendered, the customer shall have fifteen (15) days from the date of such report in which to pay the bill. If the Company determines that the bill originally rendered is incorrect, the Company will issue a corrected bill with a new due date for payment. Any amounts received by the Company in excess of the amount determined to be due by the Company's investigation of the dispute shall be refunded to the customer.

PART III: RULES AND REGULATIONS (CONT'D)

Section E - Deposits

1. Residential Customers:

(a) New Applicants—The Company will provide service without requiring a deposit unless the applicant was terminated for nonpayment within the prior twelve (12) months or has an unpaid balance for prior service from the Company. The amount of the deposit will not be greater than an estimated average bill for one (1) billing period plus the estimated bill for one (1) additional month's service.

(b) Existing Customers—If a customer has paid late on two (2) consecutive occasions or a total of three (3) times within the prior 12-month period, the Company may send a letter informing the customer that a deposit may be required if another late payment is received within the next twelve (12) months. An existing customer may be required to pay a deposit as a condition to having service restored after termination for non-payment or for failure to comply with a payment agreement. The amount of the deposit will not be greater than an estimated average bill for one (1) billing period plus the estimated bill for one (1) additional month's service.

(c) Deposit Refunds and Interest—A deposit will be refunded if service is discontinued and the final bill is paid or if the customer has paid the bills for the prior 12-month period without having been late on more than two (2) occasions and is not currently delinquent. Deposits from residential customers shall bear simple interest at the rate of the average of one-year Treasury Bills for September, October and November of the previous year, payable annually without deductions for taxes thereon unless otherwise required by law. The applicable interest rate for each year shall be determined as of January 1 of that year.

2. Nonresidential Customers:

(a) New Applicants—A deposit may be required from any new applicant who does not have prior satisfactory credit history with the Company. The amount of the deposit will not be greater than an estimated average bill for one (1) billing period plus the estimated bill for one (1) additional month's service.

(b) Existing Customers—Deposit requirements for existing nonresidential customers shall be as established for residential customers in Rule 1 of this Section.

PART III: RULES AND REGULATIONS (CONT'D)

(c) Deposit Refunds and Interest—A deposit will be refunded if the customer pays all bills on time over a 12-month period or if service is disconnected and the final bill has been paid. There will be no interest paid on deposits for nonresidential accounts.

Section F - Wastewater Control Regulations

1. General:

(a) No storm water from pavements, area ways, roof runoff water, foundation drains, subsurface drains, water from springs, cooling water, basement sump pumps, unpolluted industrial or commercial process water or other sources shall be admitted to the Company mains.

(b) The discharge of garbage to the sewer system is expressly prohibited. Properly shredded garbage may be discharged into the sewer system when expressly authorized by the Company.

(c) This does not exclude or preclude pump-out of manholes by a utility company or of manholes on plant premises which should be kept in dry or reasonably dry condition.

2. Discharges: No person shall cause or permit to be discharged into the Company's wastewater system any toxic substances or wastes having any of the following characteristics:

(a) Wastes containing any gasoline, naphtha, fuel, oil or other liquids, solids or gases which by reason of their nature or quality may cause fire or explosion or be in any other way injurious to persons, the structures of the wastewater system or its operation.

(b) Wastes having a temperature in excess of 120 degrees F. or less than 20 degrees F.

(c) Washes having a pH lower than 6.0 or higher than 9.0 having any corrosive property capable of causing damage or hazards to structures, equipment or personnel of the wastewater system.

PART III: RULES AND REGULATIONS (CONT'D)

(d) Wastes containing any noxious or malodorous gas or substance that either singly or by interaction with sewage or other wastes is likely in the opinion of the Company to create a public nuisance or hazard to life or prevent entry to sewers for their maintenance and repair.

(e) Wastes containing ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, hair, chemical or paint residues, greases, paunch, manure, cotton, wool, plastic or other fibers, lime, slurry or any other solid or viscous material of such character or in such quantity as in the opinion of the Company may cause an obstruction to the flow in sewers or otherwise interfere with the proper operation of the sewer system.

(f) Wastes containing insoluble, non-flocculent substances having a specific gravity in excess of 2.65.

(g) Wastes containing soluble substances in such concentrations as to cause the specific gravity to be greater than 1.1.

(h) Wastes containing any of the following substances in concentrations exceeding those shown in the following table as measured by an acceptable method:

Substance	Maximum Permissible Concentration
Phenolic Compounds, e.g., As C6H5OH	1.00 mg/l
Cyanides as CN	0.00 mg/l
Cyanates as CNO	0.00 mg/l
C.B.O.D. (5 day)	300.00 mg/l
Iron as Fe	3.00 mg/l
Trivalent Chromium as CR plus three	.05 mg/l
Hexavalent Chromium as CR. plus six	.05 mg/l
Nickel as Ni	.05 mg/l
Copper as Cu	.50 mg/l
Lead as Pb	0.50 mg/l
Zinc as Zn	0.50 mg/l
Mercury as Hg	0.00 mg/l

PART III: RULES AND REGULATIONS (CONT'D)

(i) Wastes containing other matter detrimental to the operation of a sewage treatment plan or sanitary sewers causing erosion, corrosion or deterioration in sewers, equipment and structures of a sanitary or sewage treatment plant.

(j) Wastes containing more than 100 mg/l by weight of tar, fat, oil or grease.

(k) Wastes containing more than 10 mg/l of any of the following gases, hydrogen sulfide, sulfur dioxide, nitrous oxide, or any of the halogens.

(l) Wastes containing a toxic or poisonous substance, in a sufficient quantity to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals or create any hazard in the sewer system operation and such toxic wastes shall include, but not be limited to wastes containing cyanide, chromium and/or copper ions.

(m) Any waste containing toxic substance in quantities sufficient to interfere with the biochemical processes of the sewage treatment works or that will pass through the sewage treatment works and exceed the state and/or federal requirements in respect thereof.

(n) Any waste containing radioactive isotopes.

3. Sampling and Analysis:

(a) All measurements, tests and analyses of the characteristics of waters and wastes to which reference is made in these rules may be determined in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater" as prepared, approved and published jointly by the American Public Health Association, the American Water Works Association, and/or the Water Pollution Control Federation or other reference sources specified by regulatory agency requirements, such as "Methods for Chemical Analysis of Water and Wastes," U.S.E.P.A. 1974 or its subsequent updated version.

PART III: RULES AND REGULATIONS (CONT'D)

(b) All measurements, test, inspections and analyses deemed by the Company to be necessary under this Section or any other part of the Rules and Regulations of the Company, shall be done by the Company or its agents, employees or contractors. If the measurements, test, inspections and/or analyses determine that a customer has created a situation which is in violation of any statute, ordinance, rule or regulation then the customer shall be required to pay all costs incurred in order to measure, test, inspect, analyze and remedy the situation. Otherwise, the costs involved are to be borne by the Company. Costs assessed against a Customer pursuant to this Section shall be in addition to any other fees charged by the Company. The costs shall be payable within 30 days of presentation of a bill for such costs by the Company to the Customer(s).

(c) Where the Company deems it advisable, it may require any person discharging wastes to install and maintain, at his or her own expense, in a manner approved by the Company or its representative, a suitable device to continuously measure and record the pH of the wastes so discharged.

4. Disposal of Wastes From Septic Tanks and Cesspools: No person shall dispose of wastes from septic tanks, cesspools, or other such sources of sanitary sewage to the Company's wastewater system, except as designated by the Company.

5. Penalties: The Company reserves the right to deny wastewater service for violation of any provision of these regulations, subject to PUC rules and regulations.

6. Damage to System and Indemnification: In the event of any damage to the Company's wastewater system caused by a customer, such damage shall be immediately reported to the Company and said customer shall reimburse Company for the costs of such repairs.

Section G - Line Extensions

1. Requests by Bona Fide Service Applicant: Upon request by a bona fide service applicant, the Company shall construct line extensions within its franchised territory consistent with the following directives:

(a) Line extensions to bona fide service applicants shall be funded without customer advance where the annual revenue from the line extension will equal or exceed the Company's annual line extension costs.

PART III: RULES AND REGULATIONS (CONT'D)

(b) If the annual revenue from the line extension will not equal or exceed the Company's annual line extension costs, a bona fide service applicant may be required to provide a customer advance to the Company's cost of construction for the line extension. The Company's investment for the line extension shall be the portion of the total construction costs which generate annual line extension costs equal to annual revenue from the line extension. The customer advance amount shall be determined by subtracting the Company's investment for the line extension from the total construction costs.

(c) The Company's investment for the line extension shall be based on the following formula, where X equals the Company's investment attributed to each bona fide applicant:

X	=	[AR - OM] divided by [I + D] ; and,
AR	=	the Company's annual revenue
OM	=	the Company's operating and maintenance costs
I	=	the Company's current debt ratio multiplied by the Company's weighted long-term debt cost rate
D	=	the Company's current depreciation accrual rate

2. Customer advance financing, refunds and facilities on private property:

(a) When a customer advance is required of a service applicant and an additional customer or customers attach service lines to the line extension within ten (10) years, the Company shall refund a portion of the advance to the customer. Deposits made for additional facilities other than the line extension are contributions in aid of construction and need not be refunded.

(b) The Company will refund to the applicant, during a period of ten (10) years from the date of the extension deposit, a per-customer amount for each additional bona fide service applicant from whom a street service connection shall be directly attached to such main extension as distinguished from extensions or branches thereof. Provided, however, that the total amount refunded shall not exceed the original deposit without interest, and provided that all or any part of the deposit not refunded within said ten (10) year period shall become the property of the Company and shall be treated as Contributions in Aid of Construction for ratemaking purposes. The per customer refund amount shall equal the Company's investment attributed to each bona fide applicant as calculated in the formula contained in Section G, Rule 1, Subsection (c) of this tariff.

PART III: RULES AND REGULATIONS (CONT'D)

(c) The Company shall require a customer to pay, in advance, a reasonable charge for service lines and equipment installed on private property for the exclusive use of the customer.

(d) Special utility service shall mean residential or business service which exceeds that required for ordinary residential purposes. Section G, Rule 1, (a) through (c) of this tariff do not apply to special utility service. By way of illustration and not limitation, special utility service shall include: the installation of facilities such as oversized mains and booster pumps as necessary to provide adequate flows, or service to large commercial and industrial facilities. An otherwise bona fide applicant requesting service which includes a "special utility service" component is entitled to bona fide applicant status, including the corresponding Company contribution toward the costs to the line extension which do not meet the special utility service criteria.

3. Requirement for Extension Deposit Agreement: Where extension of facilities is not fully funded by the Company pursuant to Rule 2 of this Section, the execution by the applicant of an Extension Deposit Agreement for customer contribution or advance shall be a condition of extending the facilities. Upon notice that the Company is prepared and able to go forward with the work, the applicant will deposit with the Company the amount specified in the Extension Deposit Agreement.

4. Size of Main: The Company shall have the exclusive right to determine the type and size of mains to be installed and the other facilities required to render adequate service. However, where the Company decides to install a pipe larger than necessary to render extension of adequate service to the applicant, estimated or actual cost figures in the Extension Deposit Agreement shall include only the material and installation cost for a pipe the size of which is necessary to provide adequate service to the applicant. Any incremental costs of a larger pipe will be the responsibility of the Company. All estimated or actual cost figures referred to in the Extension Deposit Agreement shall include a reasonable allowance for overhead costs and taxes as appropriate.

5. Length of Extension: In determining the necessary length of an extension, the terminal point of such extension shall be at that point in the curb line, which is equidistant from the side property lines of the last lot for which service was requested. A street service connection will be provided only for customer service lines that extend at right angles from the curb line in a straight line to the premises to be served.

PART III: RULES AND REGULATIONS (CONT'D)

6. Cost True-up: At the conclusion of the main extension project there shall be a reconciliation of the actual costs incurred to the amount of extension deposit that has been paid by the customer. If the actual cost exceeds the deposit, the applicant shall be responsible for payment to the Company of the difference. If the deposit exceeds the actual cost, the Company shall refund the difference.

Section H - Service Continuity

1. Regularity of Service: The Company may, at any time, shut off service in case of accident or for the purpose of making connections, alterations, repairs or changes, or for other reasons. The Company will, pursuant to Commission regulations at 52 Pa. Code §67.1 and as circumstances permit, notify customers to be affected by service interruptions.

2. Liability for Damages:

   (a) Limitation of Damages for Service Interruptions—The Company's liability to a customer for any loss or damage from any excess or deficiency in the wastewater collection service due to any cause other than willful misconduct or negligence by the Company, its employees or agents shall be limited to an amount no more than the customer charge or minimum bill for the period in question. The Company will undertake to use reasonable care and diligence in order to prevent and avoid interruptions and fluctuations in service, but cannot and does not guarantee that such will not occur.

   (b) Responsibility for Customer Facilities—The Company shall not be liable for any loss or damage caused by reason of any break, leak or other defect in a customer's own service pipe, line, fixtures or other installations, except where the damage is a result of the negligence or willful misconduct of the Company, its employees or agents.

Section I - Waivers

The Company may, at its sole discretion, waive any of the Rules contained herein that operate for the benefit of the Company; provided, that no such waiver will be valid unless in writing and signed by an authorized representative of the Company, and provided that no waiver will be allowed where the waiver would constitute a violation of the Public Utility Code, the regulations of the Commission or of any other applicable statute, law or regulation.

PART III: RULES AND REGULATIONS (CONT'D)

Section J - Amendment of Commission Regulations

Whenever Commission regulations in Title 52 of the Pennsylvania Code are duly amended in such a way as would produce a difference between Commission regulations and this tariff, this tariff is deemed to be amended so as to be consistent with the amendments to the regulations, except that if application of the amendment to Title 52 is discretionary, this tariff will remain unchanged.

Section K - Industrial and Commercial Service Limitations

1. Pretreatment: All industrial and commercial waste proposed for discharge into the sewer system shall be studied to determine the degree of pretreatment, if any, necessary in order that the waste will not adversely affect the system or the sewage treatment facilities. The Company will have the authority to properly control any waste discharge into its sewage system by regulating the rate of any waste discharge into its sewer system by requiring necessary pretreatment, and excluding certain waste, if necessary, to protect the integrity of the Company's system.

2. Customer Limitations: Customers specifically agree that service applies exclusively for domestic/household sewage. If any Customer discharges industrial or commercial waste that:
   - the existing wastewater treatment plant is unable to satisfactorily treat; or,
   - is not in compliance with discharge permit standards, disrupts the normal functioning of the existing wastewater treatment plant; or,
   - is more costly to treat than typical domestic wastewater; or,
   - requires the utilization of more wastewater treatment plant capacity per gallon of effluent than that required by average typical domestic wastewater, then the customer shall provide, at the customer's own expense, such primary treatment as may be necessary before such waste is discharged into the Company mains. No commercial or industrial waste, whether pretreated or not, may be discharged without prior written authorization from the Company.

3. Company Limitations: The Company will not be liable nor bound to increase wastewater treatment plant operations to accommodate industrial or commercial waste.

PART III: RULES AND REGULATIONS (CONT'D)

4. Specific dangers: In general, any waste will be considered harmful to the Company wastewater system if it may cause any of the following damaging effects:

(a) chemical reaction either directly or indirectly with the materials of construction of the system in such a manner as to impair the strength or durability of the sewer structures;

(b) mechanical action that will destroy the sewer structures;

(c) restriction of the hydraulic capacity of the sewer structures;

(d) restriction of the normal inspection or maintenance of the sewer structures;

(e) danger to public health and safety; or

(f) obnoxious condition contrary to public interest.

Section L - Privilege to Investigate/Right of Access

The Company's authorized representatives shall have the right of access at all reasonable times to all parts of any premises connected with the system, for the purpose of examining and inspecting connections and fixtures, including the water and/or wastewater metering arrangement, or for disconnecting service for any proper cause.

Section K – Liability of Company (C)

The Company shall not be liable for damages of any kind or character for any deficiency or failure (C)
of sewer service, for the blockage or breaking or sewer overload for any deficiency in any Customer Service Line, or for any other interruption of sewer service caused by breaking of machinery, stopping for repairs or for any reason or occurrence beyond the reasonable control of the Company. The Company shall not be liable for any damage to any property caused by any of the foregoing reasons or for any other cause beyond the reasonable control of the Company.

Community Utilities of Pennsylvania Inc.
Wastewater Division

Supporting Data
for
Docket No. R-2019-_____

By

Perry Brown
Senior Financial Analyst

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ANSWERS TO 52 PA. CODE 53.52
OF THE COMMISSIONS TARIFF REGULATIONS

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Community Utilities of Pennsylvania – Wastewater Operations

Community Utilities of Pennsylvania Inc. ("Company") is filing Supplement No. 1 to Tariff Wastewater – Pa. P.U.C. No. 1. on April 1st, 2019 with a requested effective date of June 1st, 2019 for the purpose of increasing Wastewater service revenue by $377,944 per annum which represents a 20.85% increase over the service revenues previously generated by the service territories formally known as Penn Estates Utilities, Inc. and Utilities Inc., of Pennsylvania.

For the twelve months ended December 31, 2018, December 31, 2019, and December 31, 2020, respectively, utility operations produced book net income, forecasted net income under present rates, and fully projected pro-forma net income under proposed rates as follows:

Period	Net Income/(Loss)	Reference
Base Year per Books (12/31/2018)	$222,334[1]	Section 1 (pp. 1-19)
Future Test Year (12/31/2019)	$149,329[1]	Section 1 (pp. 1-19)
Future Test Year (12/31/2020)	$62,517[1]	Section 1 (pp. 1-19)
Pro-Forma Proposed (12/31/2020)	$327,217[2]	Section 1 (pp. 1-19)

The current rate filing is necessary to realize a reasonable rate of return on the Company's actual and forecasted capital investment and recover forecasted operating expenses. The factors given consideration in calculating the proposed increase are set forward in the following narrative.

Operating Revenues

The per books operating revenue for the twelve months ended December 31, 2019 totaled $1,805,367. The Company performed a billing analysis to reflect the proper level of service revenue for the test years ended December 31, 2018, December 31, 2019, and December 31, 2020. The analysis produced an adjustment that resulted in an overall decrease in service revenue of $1,377 for the twelve months ended

[1] Present rates
[2] Proposed rates

December 31, 2019. These adjustments, combined with projected levels of miscellaneous revenues, forfeited discounts, and uncollectible accounts produce pro-forma operating revenue under present rates of $1,804,002 for the twelve months ended December 31, 2019, and December 31, 2020. After accounting for the increase in uncollectible accounts ($3,191) related to the Company's revenue request of $377.944, the Company's proposed fully projected test year operating revenue is $2,178,756.

Operating Expenses

For the twelve months ended December 31, 2018, December 31, 2019, and December 31, 2020, respectively, utility operations produced per book, forecasted, and fully projected pro-forma operating expenses as follows:

Period	Operating Expense	Reference
Base Year Per books (12/31/2018)	$1,472,653	Section 1 (pp. 1-11)
Future Test Year (12/31/2019)	$1,498,679	Section 1 (pp. 1-11)
Future Test Year (12/31/2020)	$1,544,112	Section 1 (pp. 1-11)
Fully projected (12/31/2020)	$1,664,165	Section 1 (pp. 1-11)

The Company has projected net increased operating expenses costs of $191,512 between the base year ended December 31, 2018 and the fully projected future test year ended December 31, 2020 as reflected in response to tariff Regulation c (1) Sheets1a.

Original Cost – Plant in Service

The original costs of the plant in service at December 31, 2018 were compiled through Company records. The gross plant in service per books at the end of the base year is $15,538,788. Pro-forma plant additions of $730,724 and $1,290,861 for the future test years ended December 31, 2019, and December 31, 2020 respectively have been included on Tariff Regulation (c) (3) to reflect the fully projected future test year level of utility plant in service as of December 31, 2020.

Accumulated Depreciation and Annual Depreciation Expense

Community Utilities of Pennsylvania Inc.
Wastewater Division
R-2019-_____
Statement of Reasons for Rate Increase
Answer to 52 PA. Code 53.52 (b) (1)

The calculations of annual and accumulated depreciation are based upon the straight-line method. An adjustment has been made to calculate pro-forma depreciation expense and the level of pro-forma accumulated depreciation using class of asset rates on the Company's books, going level, as well as projected plant in service as of December 31, 2019, and December 31, 2020. Capital adjustments result in a decrease to depreciation expense of $3,827 and increase of $31,377 for the future test years ended December 31, 2019, and December 31, 2020 respectively. The pro-forma accumulated depreciation amounts to $7,311,512 and $7,755,579 as of December 31, 2019, and December 31, 2020 respectively. Please see Supporting Schedules No. 4 and No. 9 in Section 2.

Calculation of Rate Base

Five elements were used to determine rate base for the Company have been included on Tariff Regulation (c) (3). They are as follows:

I. Net Plant in Service
II. Contributions in Aid of Construction (Net)
III. Net Plant Acquisition Adjustment
IV. Customer Deposits
V. Accumulated Deferred Income Taxes
VI. Pro forma Plant Additions (Net of Retirements)
VII. Cash Working Capital

I. Net Plant in Service

Net Plant in Service was determined by deducting per-books and pro forma accumulated depreciation from per books and pro forma gross utility plant in service as of December 31, 2018, December 31, 2019, and December 31, 2020.

Water Operations	Supporting Schedule No.	Per Books Base Year Ended 12/31/2018	Future Test Year Ended 12/31/2019	Pro-forma FPFTY Ended 12/31/2020
Utility Plant in Service	(c)(3)	$ 15,538,788	$ 16,269,513	$ 17,560,373
Accumulated Depreciation	(c)(4)	(6,936,514)	(7,311,512)	(7,755,579)
Net Utility Plant:		$ 8,602,275	$ 8,958,001	$ 9,804,794

II. Cash Working Capital

The amount included for Cash Working Capital is based on 1/8 method using per books and pro forma operating and maintenance expenses and taxes other than income of $1,170,056, $1,231,901, and $1,291,229 for the test years ended December 31, 2018, December 31, 2019, and December 31, 2020 respectively resulting in cash working capital levels of $146,257, $153,988, and $161,404 for the test years ended December 31, 2018, December 31, 2019, and December 31, 2020 respectively. Please see Supporting Schedules No. 11 in Section 2.

III. Accumulated Deferred Income Taxes

The amount included in Accumulated Deferred Income Taxes are per books and projected pro-rated amounts of ($549,861), ($803,544), and ($871,681) for the test years ended December 31, 2018, December 31, 2019, and December 31, 2020 respectively.

IV. Customer Deposits

The amount included in Customer Deposits are per books ($3,314), for the test years ended December 31, 2018, December 31, 2019, and December 31, 2020.

V. Plant Acquisition Adjustment

The amount included in Plant Acquisition Adjustment is the per books number net of accumulated amortization as of December 31, 2018 and amounts to ($1,291,901). Net PAA is rolled forward to December 31, 2019 and December 31, 2020 using current amortization rates and result in Net PAA of ($1,233,328) and ($1,174,754) for the test years ended December 31, 2019, and December 31, 2020 respectively.

Rate of Return

Community Utilities of Pennsylvania Inc.
Wastewater Division
R-2019-_____
Statement of Reasons for Rate Increase
Answer to 52 PA. Code 53.52 (b) (1)

The Company uses the capital structure of its parent company, Utilities, Inc. to calculate its rate of return. Utilities Inc.'s capital structure as of December 31st, 2018 is as follows:

Debt	$272,742,026
Common Equity	269,100,108
Total Capital	$541,852,134

For December 31, 2020, the Company adopts a 50/50 debt-to-equity capital ratio and 6.16% cost of debt. The Company has utilized an overall 8.46% weighted average cost of capital and 10.75% cost of equity for this application.

Tariff Design

Community Utilities is proposing to consolidate rates between its two service territories formally known as Penn Estates Utilities, Inc. and Utilities, Inc. of Pennsylvania. The overall proposed increase in a residential customer's bill is approximately 27.90% for customers of the formally known territory, Penn Estates Utilities, Inc. and 13.23% for residential customers of the formally known territory Utilities, Inc. of Pennsylvania as follows:

Community Utilities of Pennsylvania Inc.
Average Bills

	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	Q
Line	Co	Name	W/WW	Class	Meter Size	12/31/18 Average Usage	BFC	Usage Rate	PWAC Surcharge	Average Bill	12/31/20 Average Usage	Proposed BFC*	Proposed Usage*	Proposed Average Bill	Proposed Increase	Increase %
1.	316	316 - Utilities, Inc. of Pennsylvania	WW	RES	5/8"	-	$ 52.59	$ -	$ -	$ 52.59	-	$ 59.55	$ -	$ 59.55	$ 6.96	13.23%
2.	317	317 - Penn Estates Utilities, Inc.	WW	RES	5/8"	-	$ 46.56	$ -	$ -	$ 46.56	-	$ 59.55	$ -	$ 59.55	$ 12.99	27.90%

A billing analysis at present rates was prepared for the twelve months ended December 31, 2018, December 31, 2019, and December 31, 2020. The calculations are contained in supporting Schedule No. 1. The results of that analysis were used to prepare proof of revenues for the proposed rates contained in supporting Schedule No. 2. The allocation of the proposed revenues is shown in response to tariff Regulation (b) (4).

Community Utilities of Pennsylvania Inc.
Wastewater Division
R-2019-_____
Statement of Reasons for Rate Increase
Answer to 52 PA. Code 53.52 (b) (1)

General Comments

Since the last rate case in each of the Community Utilities of Pennsylvania wastewater service territories have invested nearly $2 million in system upgrades and improvements. The company is forecasting to invest an additional $2 million for system improvements and anticipates operating and maintenance expenses to increase 12% through the December 31, 2020 fully projected future test year. The proposed level of operating revenue will allow the Company enough revenue to meet debt obligations and recover reasonable levels of operating cost and capital investments. The increased revenue for Community Utilities of Pennsylvania Inc.'s wastewater division will also ensure continued safe and adequate service to its customers.

Community Utilities of Pennsylvania Inc.
Wastewater Division
Operating Revenue for the Base Year Ended December 31, 2018 Under Present Rates,
the Future Test Year Ended December 31, 2019, and the FPFTY Ended December 31, 2020. Under Present Rates
Answer to 52 Pa. Code 53.52 (b)(2)

Wastewater Operations

Customer Classification	Base Year Ended 12/31/2018	Pro-forma Revenue at Present Rates Future Test Year Ended 12/31/2019	Pro-forma Revenue at Present Rates FPFTY Ended 12/31/2020
Flat/Base Rate Revenue			
Residential	$ 1,788,282	$ 1,788,282	$ 1,788,282
School	14,271	14,271	14,271
Availability	7,388	7,388	7,388
Commercial	2,798	2,798	2,798
Total Flat Rate Revenue	1,812,739	1,812,739	1,812,739
Forfeited Discounts	12,710	12,710	12,710
Miscellaneous Service Revenues	(6,142)	(6,142)	(6,142)
Purchased Services	-	-	-
Accruals	1,352	-	-
Total Operating Revenues	$ 1,820,659	$ 1,819,306	$ 1,819,306

Community Utilities of Pennsylvania Inc.
Wastewater Division
Number of Customer Equivalents served at December 31, 2018,
and the Future Test Year Ended December 31, 2019, and FPFTY Ended December 31, 2020
Answer to 52 Pa. Code 53.52 (b)(3)

Wastewater Operations				
Customers	[1]	Total Customers 12/31/2018	Pro-forma Customers 12/31/2019	Pro-forma Customers 12/31/2020
Flat Rate Customers				
Residential		3,135	3,135	3,135
Commercial		6	6	6
School		61	61	61
Availability		57	57	57
Fire Hydrant (# of Hydrants)		0	0	0
Total Flat Rate Customers		3,259	3,259	3,259

[1] With the exception of fire hydrants, the Company uses Equivalent Residential Customers (ERCs) to count customers.

Community Utilities of Pennsylvania Inc.
Wastewater Division
Statement of Operating Revenue Under the Existing and Proposed Rates for the Base Year Ended
December 31, 2018, the Future Test Years Ended December 31, 2019 and December 31, 2020, and FPFTY Ended December 31, 2020
Answer to 52 Pa. Code 53.52 (b)(4)

Wastewater Operations	Schedule Number	Base Year Ended 12/31/2018	Change	Future Test Year Ended 12/31/2019	Change	Future Test Year Ended 12/31/2020	Change	Proposed FPFTY Ended 12/31/2020
Flat Rate Revenue								
Residential	(b)(2)	$ 1,788,282	$ -	$ 1,788,282	$ -	$ 1,788,282	$ 371,766	$ 2,160,048
School	(b)(2)	14,271	-	14,271	-	14,271	2,701	16,972
Availability	(b)(2)	7,388	-	7,388	-	7,388	3,523	10,911
Commercial	(b)(2)	2,798	-	2,798	-	2,798	781	3,579
Total Flat Rate Revenue		1,812,739	-	1,812,739	-	1,812,739	378,770	2,191,509
Forfeited Discounts	(b)(2)	$ 12,710	$ -	$ 12,710	$ -	$ 12,710	$ -	$ 12,710
Miscellaneous Service Revenues	(b)(2)	(6,142)	-	(6,142)	-	(6,142)	-	(6,142)
Purchased Services	(b)(2)	-	-	-	-	-	-	-
Accruals	(b)(2)	1,352	(1,352)	-	-	-	-	-
Total Operating Revenue		$ 1,820,659	$ (1,352)	$ 1,819,306	$ -	$ 1,819,306	$ 378,770	$ 2,198,077

Going Level Adjustments [1]		
Residential	$	-
School		-
Availability		-
Commercial		-
See supporting Schedule No. 1	$	-
Future Test Year Ended 12/31/20 Adjustments [1]		
Residential	$	-
School		-
Availability		-
Commercial		-
See supporting Schedule No. 2	$	-
FPFTY Ended 12/31/20 Adjustments		
Residential	$	371,766
School		2,701
Availability		3,523
Commercial		781
See supporting Schedule No. 2	$	378,770

[1] Adjustment to reflect revenues based on the billing analysis at present rates.

Community Utilities of Pennsylvania Inc.
Wastewater Division
Whose Bills will be Decreased Under the Proposed Tariff
for the Twelve Months Ended December 31, 2020
Answer to 52 Pa. Code 53.52 (b)(5)

Under the proposed tariff, no Community Utilities of Pennsylvania wastewater customer will receive a bill decrease

Community Utilities of Pennsylvania Inc.
Wastewater Division
Statement of Net Operating Income Under the Existing and Proposed Rates for the Base Year Ended December 31, 2018, the Future Test Years Ended December 31, 2019 and December 31, 2020, and the FPFTY Ended December 31, 2020
Answer to 52 Pa. Code 53.52 (c)(1) - Sheet No. 1a

Wastewater Operations	Schedule Number	Per Books Base Year Ended 12/31/2018	Change	Future Test Year Ended 12/31/2019	Change	Future Test Year Ended 12/31/2020	Change	Proposed FPFTY Ended 12/31/2020
Operating Revenue								
Gross Operating Revenue	(b)(2)	$ 1,820,659	$ (1,352)	$ 1,819,306	$ -	$ 1,819,306	$ 378,770	$ 2,198,077
Allowance for Uncollectible Accounts	Sup. Sch. No.3	(15,316)	12	(15,304)	-	(15,304)	(3,191)	(18,495)
Net Operating Revenue		1,805,343	(1,341)	1,804,002	-	1,804,002	375,580	2,179,582
Operating Expenses								
Operating Expenses	(c)(1) - Sheet No. 1b	$ 1,111,956	$ 58,280	$ 1,170,237	$ 47,599	$ 1,217,836	$ -	$ 1,217,836
Depreciation	Sup. Sch. No. 4	378,825	(3,827)	374,998	31,377	406,375	-	406,375
Amortization of CIAC	Sup. Sch. No. 4	(84,588)	(1,933)	(86,522)	-	(86,522)	-	(86,522)
Amortization of PAA	Sup. Sch. No. 4	(58,573)	(0)	(58,573)	-	(58,573)	-	(58,573)
Taxes Other than Income	Sup. Sch. No. 5	58,099	3,564	61,664	11,729	73,393	2,502	75,895
Income Taxes								
Federal Income Tax	Sup. Sch. No. 6	$ 18,211	$ 5,914	$ 24,125	$ (23,076)	$ 1,048	$ 70,363	$ 71,412
State Income Tax	Sup. Sch. No. 6	48,723	(35,973)	12,750	(12,196)	554	37,188	37,742
Total Operating Expenses		1,472,653	26,025	1,498,679	55,433	1,554,112	110,053	1,664,165
Net Operating Income		$ 332,690	$ (27,366)	$ 305,323	$ (55,433)	$ 249,890	$ 265,526	$ 515,417

Community Utilities of Pennsylvania Inc.
Wastewater Division
Statement of Operating Expenses for the Base Year Ended December 31, 2018,
the Future Test Year Ended December 31, 2019, and the FPFTY Ended December 31, 2020
Answer to 52 Pa. Code 53.52 (c)(1) - Sheet No. 1b

Wastewater Operations

NARUC Acct. No.	Account Description	Per Books Base Year Ended 12/31/18	Per Book & Going Level Adjustments No.	Per Book & Going Level Adjustments Amount	Pro Forma Expenses at Going Rates 12/31/2019	Per Book & Going Level Adjustments No.	Per Book & Going Level Adjustments Amount	Pro Forma Expenses at Going Rates 12/31/2020
701	Wastewater - Salaries & Wages - Employees	$ 319,081	1,2	$ 3,914	$ 322,996	1,2	$ 5,892	$ 328,888
704	Wastewater - Employee Pensions & Benefits	86,468	3	13,776	100,244	3	8,648	108,892
711	Wastewater - Sludge Hauling & Sewer Rodding	218,285	4	(22,689)	195,596	4	-	195,596
615	Wastewater - Purchased Power	157,276	5	2,621	159,897	5	(7,112)	152,785
610	Wastewater - Purchased Water	-	6	-	-	6	-	-
718	Wastewater - Chemicals	49,590	7	14,291	63,882	7	(3,707)	60,175
720	Wastewater - Materials, Supplies, and Other Maintenance Expense	23,823	8	21,805	45,628	8	22,799	68,427
731	Wastewater - Engineering Fees	1,747	9	2,583	4,329	9	54	4,384
732	Wastewater - Contractual Services - Accounting	8,601	10	(94)	8,507	10	255	8,762
733	Wastewater - Contractual Services - Legal	10,852	11	(7,351)	3,501	11	74	3,575
736	Wastewater - Contractual Services - Other	58,153	12	13,077	71,229	12	(3,798)	67,431
741	Wastewater - Rental of Building/Real Property	2,923	13	7,788	10,710	13	716	11,426
750	Wastewater - Transportation Expenses	20,611	14	(1,076)	19,535	14	179	19,714
759	Wastewater - Insurance - Other	34,575	15	955	35,529	15	2,541	38,070
760	Wastewater - Advertising Expense	366	16	(36)	330	16	(68)	262
675	Wastewater - Office Utilities, Supplies & Other Office Expenses	56,591	17	4,187	60,777	17	2,753	63,530
766	Wastewater - Regulatory Commission Expenses - Normalization of Rate Case Expense	20,345	18	2	20,347	18	18,223	38,570
767	Wastewater - Regulatory Commission Expenses - Other	2,425	19	(2,425)	-	19	-	-
775	Wastewater - Testing and Miscellaneous Expense	$ 40,247	20	$ 6,952	$ 47,199	20	$ 149	$ 47,348
	Total Operating and Maintenance Expenses	$ 1,111,956		$ 58,280	$ 1,170,237		$ 47,599	$ 1,217,836

Community Utilities of Pennsylvania Inc.
Wastewater Division
Adjustments to (c)(1) Sheet 1b
Answer to 52 Pa. Code 53.52 (c)(1) - Sheet No. 1c

Going Level Adjustments [1]	2019	2020
1 An adjustment is required to reflect the forecasted level of salary expense.		
Going Level Adjustment	$ 1,563	$ 22,313
2 An adjustment is required to reflect the forecasted level of Capitalized Time Charged to Plant for employees allocated to Community Utilities of PA Inc.		
Going Level Adjustment	$ 2,351	$ (16,421)
3 An adjustment is required to reflect the forecasted level of Pension and Benefits for Employees Allocated to Community Utilities of PA Inc.		
Going Level Adjustment	$ 13,776	$ 8,648
4 An adjustment is required to reflect the forecasted level of Sludge Hauling and Sewer Rodding expense for territories providing wastewater service to Community Utilities of PA Inc. customers.		
Going Level Adjustment	$ (22,689)	$ -
5 An adjustment is required to reflect the forecasted level of Electric expense to be incurred by Community Utilities of PA Inc.		
Going Level Adjustment	$ 2,621	$ (7,112)
6 An adjustment is required to reflect the forecasted level of Purchased Water expense to be incurred by Community Utilities of PA Inc.		
Going Level Adjustment	$ -	$ -
7 An adjustment is required to reflect the forecasted level of Chemical expense to be incurred by Community Utilities of PA Inc.		
Going Level Adjustment	$ 14,291	$ (3,707)
8 An adjustment is required to reflect the forecasted level of Maintenance expense to be incurred by Community Utilities of PA Inc.		
Going Level Adjustment	$ 21,805	$ 22,799
9 An adjustment is required to reflect the forecasted level of Engineering fees to be incurred by Community Utilities of PA Inc.		
Going Level Adjustment	$ 2,583	$ 54

[1] "Adjustment" refers to the change between periods and is not meant to imply there was an "adjustment" to the base period.

10 An adjustment is required to reflect the forecasted level of Accounting fees to be allocated to Community Utilities of PA Inc.			
Going Level Adjustment	$ (94)	$ 255	
11 An adjustment is required to reflect the forecasted level of outside Legal expense to be allocated to Community Utilities of PA Inc.			
Going Level Adjustment	$ (7,351)	$ 74	
12 An adjustment is required to reflect the forecasted level of other Contractual services expenses to be allocated to Community Utilities of PA Inc.			
Going Level Adjustment	$ 13,077	$ (3,798)	
13 An adjustment is required to reflect the forecasted level of Rent expense to be incurred by Community Utilities of PA Inc.			
Going Level Adjustment	$ 7,788	$ 716	
14 An adjustment is required to reflect the forecasted level of Transportation expense to be incurred by Community Utilities of PA Inc.			
Going Level Adjustment	$ (1,076)	$ 179	
15 An adjustment is required to reflect the forecasted level of Insurance expense to be incurred by Community Utilities of PA Inc.			
Going Level Adjustment	$ 955	$ 2,541	
16 An adjustment is required to reflect the forecasted level of Advertising expense to be incurred by Community Utilities of PA Inc.			
Going Level Adjustment	$ (36)	$ (68)	
17 An adjustment is required to reflect the forecasted level of Office Utilities expense to be incurred by Community Utilities of PA Inc.			
Going Level Adjustment	$ 4,187	$ 2,753	
18 An adjustment is required to normalize Estimated Rate Case expense for this filing over three years.			
Going Level Adjustment	$ 2	$ 18,223	
19 An adjustment is required to eliminate outside regulatory commission expense.			
Going Level Adjustment	$ (2,425)	$ -	
20 An adjustment is required to reflect the forecasted level of Testing, Meter Reading, and other miscellaneous expense to be incurred by Community Utilities of PA Inc.			
Going Level Adjustment	$ 6,952	$ 149	

[1] "Adjustment" refers to the change between periods and is not meant to imply there was an "adjustment" to the base period.

Community Utilities of Pennsylvania Inc.
Wastewater Division
Statement of the Calculation of the Rate of Return Under the Present and Proposed Rates for the Base Year Ended December 31, 2018, the Future Test Years Ended December 31, 2019 and December 31, 2020, and FPFTY Ended December 31, 2020
Answer to 52 Pa. Code 53.52 (c)(1) - Sheet No. 2

Wastewater Operations	Supporting Schedule No.	Pro-forma Present 12/31/2018	Future Test Year 12/31/2019	Future Test Year 12/31/2020	Proposed FPFTY 12/31/2020
Utility Plant In Service	(c)(3)	$ 15,538,788	$ 15,576,565	$ 15,638,243	$ 15,638,243
Less:					
Accumulated Depreciation	(c)(4)	(6,936,514)	(7,311,512)	(7,755,579)	(7,755,579)
Net Plant In Service		8,602,275	8,265,053	7,882,664	7,882,664
Less:					
Contributions in Aid of Construction (Net)		(2,112,507)	(2,025,985)	(1,939,463)	(1,939,463)
Net Plant Acquisition Adjustment		(1,291,901)	(1,233,328)	(1,174,754)	(1,174,754)
Customer Deposits		(3,314)	(3,314)	(3,314)	(3,314)
Accumulated Deferred Income Taxes		(549,861)	(803,544)	(871,681)	(871,681)
Add:					
Proforma Level of Plant		-	692,948	1,922,130	1,922,130
Cash Working Capital	11	146,257	153,988	161,404	161,404
Total Rate Base		$ 4,790,948	$ 5,045,818	$ 5,976,985	$ 5,976,985
Net Operating Income	(c)(1) Sheet 1a	332,714	305,323	249,891	514,591
Percent Pro-forma Return		6.94% [1]	6.05% [1]	4.18% [1]	8.61% [1]

[1] Net Operating Income over Total Rate Base.

Community Utilities of Pennsylvania Inc.
Wastewater Division
Assets and other Debits as of the Base Year Ended December 31, 2018 and Pro-forma Balance Sheets
for the Future Test Years Ended December 31, 2019 and December 31, 2020, and FPFTY Ended December 31, 2020
Answer to 52 Pa. Code 53.52 (c)(2) - Sheet No. 1

Wastewater Operations

Account	Per Books Base Year Ended 12/31/2018		Future Test Year Ended 12/31/2019		Pro-forma FPFTY Ended 12/31/2020	
Net Utility Plant						
Utility Plant In Service	$ 15,538,788		$ 16,269,513		$ 17,560,373	
Accumulated Depreciation	(6,936,514)	8,602,275	(7,311,512)	8,958,001	(7,755,579)	9,804,794
Purchased Acquisition Adjustment (Net)		(1,291,901)		(1,233,328)		(1,174,754)
Work in Progress (Net)		28,192		-		-
Current & Accrued Assets						
Cash	-		-		-	
Accounts Receivable (Net)	249,080		249,080		249,080	
Other Current Assets	11,707		11,707		11,707	
Deferred Charges	69,172	329,959	48,825	309,612	265,604	526,391
Total Assets		$ 7,668,525		$ 8,034,285		$ 9,156,431

Community Utilities of Pennsylvania Inc.
Wastewater Division
Assets and other Debits as of the Base Year Ended December 31, 2018 and Pro-forma Balance Sheets for the Future Test Year Ended December 31, 2019 and FPFTY Ended December 31, 2020
Answer to 52 Pa. Code 53.52 (c)(2) - Sheet No. 2

Wastewater Operations

Account	Per Books Base Year Ended 12/31/2018			Future Test Year Ended 12/31/2019			Pro-forma FPFTY Ended 12/31/2020		
Equity Capital									
Common Stock and Paid In Capital			$ 3,916,281			$ 3,916,281			$ 3,916,281
Retained Earnings			2,135,317			2,284,646			2,347,163
Current and Accrued Liabilities									
Accounts Payable-Trade	50,757			50,757			50,757		
Taxes Accrued	(10,572)			(10,572)			(10,572)		
Customer Deposits	2,950			2,950			2,950		
Customer Deposits - Interest	364			364			364		
Advances from Utilities, Inc.	204,477			204,477			204,477		
A/P - Assoc. Companies	(1,293,419)	(1,045,441)		(1,081,582)	(833,605)		(82,448)	165,529	
Contributions in Aid of Construction		2,112,507			2,025,985			1,939,463	
Accumulated Deferred Income Tax									
Deferred Tax - Federal	484,204			543,815			639,997		
Deferred Tax - State	65,658	549,861	1,616,927	97,163	640,978	1,833,358	147,997	787,994	2,892,987
Total Capitalization & Liabilities			$ 7,668,525			$ 8,034,285			$ 9,156,431

Community Utilities of Pennsylvania Inc.
Wastewater Division
Original Cost Utility Plant in Service for the Base Year Ended December 31, 2018
Future Test Year Ended December 31, 2019, and FPFTY Ended December 31, 2020
Answer to 52 Pa. Code 53.52 (c)(3)

Wastewater Operations

NARUC Acct. No.	Account Description	Per Books Base Year Ended 12/31/2018	Future Test Year 2019 GL Additions & Pro-forma Plant	Future Test Year 2019 Retirements [1]	Pro Forma Plant Future Test Year Ended 12/31/2019	FPFTY 2020 GL Additions & Pro-forma Plant	FPFTY 2020 Retirements [1]	Pro Forma Plant FPFTY Ended 12/31/2020
351.1	WASTEWATER - ORGANIZATION	$ 286,959	$ -	$ -	$ 286,959	$ -	$ -	$ 286,959
352.1	WASTEWATER - FRANCHISES INTANG PLT	-	-	-	-	-	-	-
353.1	WASTEWATER - LAND & LAND RIGHTS INTANG PLT	-	-	-	-	-	-	-
353.7	WASTEWATER - LAND & LAND RIGHTS GEN PLT	89,625	-	-	89,625	-	-	89,625
354.2	WASTEWATER - STRUCT/IMPRV COLL PLT	3,026	124	-	3,150	130	-	3,280
354.3	WASTEWATER - STRUCT/IMPRV PUMP PLT LS	684,288	15,181	-	699,470	15,947	-	715,417
354.4	WASTEWATER - STRUCT/IMPRV TREAT PLT	619,792	20,336	-	640,127	21,362	-	661,489
354.5	WASTEWATER - STRUCT/IMPRV RECLAIM WTP	-	-	-	-	-	-	-
354.6	WASTEWATER - STRUCT/IMPRV RECLAIM WTR DIST PLT	-	-	-	-	-	-	-
354.7	WASTEWATER - STRUCT/IMPRV GEN PLT	670,154	8,063	-	678,217	8,470	-	686,687
355.4	WASTEWATER - POWER GEN EQUIP TREAT PLT	6,221	749	-	6,970	787	-	7,758
360.2	WASTEWATER - SEWER FORCE MAIN	406,681	27,390	-	434,072	12,220	-	446,292
361.2	WASTEWATER - SEWER GRAVITY MAIN	6,155,264	170,791	-	6,326,055	171,623	-	6,497,678
361.2	WASTEWATER - MANHOLES	63,892	5,495	-	69,387	5,772	-	75,159
362.2	WASTEWATER - SPECIAL COLL STRUCTURES	-	-	-	-	-	-	-
363.2	WASTEWATER - SERVICES TO CUSTOMERS	28,156	2,298	-	30,454	2,414	-	32,868
364.2	WASTEWATER - FLOW MEASURE DEVICES	41,994	7,613	-	49,607	7,997	-	57,604
365.2	WASTEWATER - FLOW MEASURE INSTALL	87,794	46	-	87,839	48	-	87,887
370.3	WASTEWATER - RECEIVING WELLS	168	-	-	168	-	-	168
371.3	WASTEWATER - PUMPING EQUIPMENT PUMP PLT	145,659	10,085	-	155,743	10,593	-	166,337
371.5	WASTEWATER - PUMPING EQUIPMENT RECLAIM WTP	-	-	-	-	-	-	-
380.4	WASTEWATER - TREAT/DISP EQUIP LAGOON	320,027	59	-	320,086	62	-	320,148
380.4	WASTEWATER - TREAT/DISP EQUIP TRT PLT	4,923,093	385,695	-	5,308,787	677,280	-	5,986,068
380.5	WASTEWATER - TREAT/DISP EQUIP RCL WTP	-	-	-	-	-	-	-
381.4	WASTEWATER - PLANT SEWERS TRTMT PLT	77,908	2,779	-	80,687	2,919	-	83,606
381.5	WASTEWATER - PLANT SEWERS RECLAIM WTP	-	-	-	-	-	-	-
382.4	WASTEWATER - OUTFALL LINES	-	-	-	-	-	-	-
398.7	WASTEWATER - OTHER PLT TANGIBLE	1,000	-	-	1,000	-	-	1,000
389.2	WASTEWATER - OTHER PLT COLLECTION	1,450	-	-	1,450	-	-	1,450
389.3	WASTEWATER - OTHER PLT PUMP	26,096	582	-	26,678	611	-	27,290
389.4	WASTEWATER - OTHER PLT TREATMENT	8,674	46	-	8,720	48	-	8,768
389.5	WASTEWATER - OTHER PLT RECLAIM WTR TRT	-	-	-	-	-	-	-
354.7	WASTEWATER - OFFICE STRUCT & IMPRV	36,724	18,934	-	55,657	273,375	-	329,032
390.7	WASTEWATER - OFFICE FURN & EQPT	29,734	306	-	30,040	319	-	30,359
392.7	WASTEWATER - STORES EQUIPMENT	2,793	513	-	3,306	539	-	3,845
393.7	WASTEWATER - TOOL SHOP & MISC EQPT	134,884	9,370	-	144,254	9,842	-	154,096
394.7	WASTEWATER - LABORATORY EQPT	31,218	3,640	-	34,858	3,823	-	38,681
395.7	WASTEWATER - POWER OPERATED EQUIP	41,696	1,737	-	43,434	1,825	-	45,258
396.7	WASTEWATER - COMMUNICATION EQPT	18,148	915	-	19,063	961	-	20,024
397.7	WASTEWATER - MISC EQUIP SEWER	1,170	205	-	1,375	215	-	1,590
398.7	WASTEWATER - OTHER TANGIBLE PLT SEWER	3,705	-	-	3,705	-	-	3,705
374.5	WASTEWATER - REUSE DIST RESERVOIRS	-	-	-	-	-	-	-
375.6	WASTEWATER - REUSE TRANMISSION & DIST SYS	2,438	-	-	2,438	-	-	2,438
341.5	WASTEWATER - TRANSPORTATION EQPT	196,183	18,846	-	215,029	37,692	-	252,721
340.5	WASTEWATER - MAINFRAME COMPUTER	11,616	-	-	11,616	-	-	11,616
340.5	WASTEWATER - MINI COMPUTERS	70,625	8,244	-	78,868	8,491	-	87,359
340.5	WASTEWATER - COMP SYS COST	303,921	10,686	-	314,608	15,495	-	330,103
340.5	WASTEWATER - MICRO SYS COST	6,009	-	-	6,009	-	-	6,009
348.5/398.7	WASTEWATER - OTHER PLANT	-	-	-	-	-	-	-
	Total Plant in Service	$ 15,538,788	$ 730,724	$ -	$ 16,269,513	$ 1,290,861	$ -	$ 17,560,373

[1] Per Books and General Ledger Additions amounts are net of retirements.

Community Utilities of Pennsylvania Inc.
Wastewater Division
Reserve for Depreciation of Utility Plant
the Future Test Year Ended December 31, 2019, and FPFTY Ended December 31, 2020
Answer to 52 Pa. Code 53.52 (c)(4)

Wastewater Operations	Adjustment	[1]	Base Year Ended 12/31/2019 Total	Adjustment	[1]	Future Test Year Ended 12/31/2020 Total
Per Books Reserve for Depreciation			$ 6,936,514			$ 7,311,512
Accumulated Depreciation Adjustments:						
Pro-forma Plant A/D	$ 351,027			$ 379,379		
Computers	13,617			9,104		
Vehicles	10,353		$ 374,998	55,584		$ 444,067
Pro-forma Reserve for Depreciation			$ 7,311,512			$ 7,755,579

[1] Supporting Schedules No. 9 and 10 calculate additional Accumulated Depreciation associated with Pro-forma Capital Projects and General Ledger Additions.

Community Utilities of Pennsylvania Inc.
Wastewater Division
Statement of Operating Income Setting Forth the Operating Revenues at Present Rates by Detail Accounts for the Base Year Ended December 31, 2018, the Future Test Year Ended December 31, 2019, and FPFTY Ended December 31, 2020
Answer to 52 Pa. Code 53.52 (c)(5)

Wastewater Operations	Per Books for the Base Year Ended 12/31/2018	Future Test Year Ended 12/31/2019	Future Test Year Ended 12/31/2020	Pro Forma FPFTY Ended 12/31/2020
Operating Revenue				
Gross Operating Revenue	$ 1,820,683	$ 1,819,306	$ 1,819,306	$ 2,197,251
Allowance for Uncollectible Accounts	(15,316)	(15,304)	(15,304)	(18,495)
Net Operating Revenue	1,805,367	1,804,002	1,804,002	2,178,756
Operating Expenses				
Operating Expenses	$ 1,111,956	$ 1,170,237	$ 1,217,836	$ 1,217,836
Depreciation	378,825	374,998	406,375	406,375
Amortization of PAA	(58,573)	(58,573)	(58,573)	(58,573)
Taxes Other than Income	58,099	61,664	73,393	75,895
Amortization of CIAC	(84,588)	(86,522)	(86,522)	(86,522)
Income Taxes				
Federal Income Tax	$ 18,211	$ 24,125	$ 1,048	$ 71,412
State Income Tax	48,723	12,750	554	37,742
Total Operating Expenses	$ 1,472,653	$ 1,498,679	$ 1,554,112	$ 1,664,165
Net Operating Income	$ 332,714	$ 305,323	$ 249,891	$ 514,591
Non-Operating Income & Expenses				
Interest Expense	126,096	155,995	187,373	187,373
Other Income	(15,716)	-	-	-
Total Non-Operating Expenses	$ 110,380	$ 155,995	$ 187,373	$ 187,373
Net Income (Loss)	$ 222,334	$ 149,329	$ 62,517	$ 327,217

Community Utilities of Pennsylvania Inc.
Wastewater Division
Statement Detailing Major Changes in the Operating or Financial Condition Occurring between December 31, 2018 and December 31, 2020
Answer to 52 Pa. Code 53.52 (c)(6)

There were no major accounting changes between December 31, 2018 and December 31, 2020 which would effect the operating or financial condition of Community Utilties of Pennsylvania Inc.

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Wastewater Division

Section 2 **Page**

SUPPORTING SCHEDULES

	A	B	C	D	E	F	G	H	I	J	K
1.	SEWER										
2.						Usage	Vol			Base	
3.	Bill code			Description	Gallonage	Charge	Revenue	Units	BFC	Revenue	Revenues
4.											
5.	All Subs:										
6.											
7.		FLAT	Household		-	$ -	$ -	16,487	$ 52.59	$ 867,069	$ 867,069
8.		FLAT	School		-	$ -	$ -	13,505	$ 1.06	$ 14,271	$ 14,271
9.		FLAT	Residential Flat		-	$ -	$ -	19,786	$ 46.56	$ 921,213	$ 921,213
10.		FLAT	Commercial Flat		-	$ -	$ -	60	$ 46.56	$ 2,798	$ 2,798
11.		FLAT	Availability		-	$ -	$ -	633	$ 11.68	$ 7,388	$ 7,388
12.					-		$ -	50,471		$ 1,812,739	$ 1,812,739
13.											
14.		Sewer Total			-		-	50,471		1,812,739	1,812,739

Community Utilities of Pennsylvania Inc.
Wastewater Division
Future Period / Pro Forma Present Revenues
Base Year (Per Books) Ended December 31, 2018
Future Period Ended December 31, 2019

	A	B	C	D	E	F	G	H	I	J	K
1.	SEWER										
2.						Usage	Vol			Base	
3.	Bill code			Description	Gallonage	Charge	Revenue	Units	BFC	Revenue	Revenues
4.											
5.	All Subs:										
6.											
7.		FLAT	Household		-	$ -	$ -	16,487	$ 52.59	$ 867,069	$ 867,069
8.		FLAT	School		-	$ -	$ -	13,505	$ 1.06	$ 14,271	$ 14,271
9.		FLAT	Residential Flat		-	$ -	$ -	19,786	$ 46.56	$ 921,213	$ 921,213
10.		FLAT	Commercial Flat		-	$ -	$ -	60	$ 46.56	$ 2,798	$ 2,798
11.		AVAIL	Other		-	$ -	$ -	633	$ 11.68	$ 7,388	$ 7,388
12.					-		-	50,471		1,812,739	1,812,739
13.											
14.		Sewer Total			-		$ -	50,471		$ 1,812,739	$ 1,812,739

	A	B	C	D	E	F	G	H	I	J	K
1.	SEWER										
2.						Usage	Vol			Base	
3.	Bill code			Description	Gallonage	Charge	Revenue	Units	BFC	Revenue	Revenues
4.											
5.	All Subs:										
6.											
7.		FLAT	Household		-	$ -	$ -	16,487	$ 52.59	$ 867,069	$ 867,069
8.		FLAT	School		-	$ -	$ -	13,505	$ 1.06	$ 14,271	$ 14,271
9.		FLAT	Residential Flat		-	$ -	$ -	19,786	$ 46.56	$ 921,213	$ 921,213
10.		FLAT	Commercial Flat		-	$ -	$ -	60	$ 46.56	$ 2,798	$ 2,798
11.		AVAIL	Other		-	$ -	$ -	633	$ 11.68	$ 7,388	$ 7,388
12.					-		-	50,471		1,812,739	1,812,739
13.											
14.		Sewer Total			-		$ -	50,471		$ 1,812,739	$ 1,812,739

Community Utilities of Pennsylvania Inc.
Wastewater Division
Calculation of Proposed Rates
Base Year (Per Books) Ended December 31, 2018
Future Test Year Ended December 31, 2020

	A	B	C	D	E	F	G	H
Line No.	Meter Size	# of bills/units	Proposed Base Charge	Base Charge Revenue	Gallonage	Proposed Gallonage Charge	Gallonage Charge Revenue	Total Revenue
1.	**Sewer Service**							
2.								
3.	**Unmetered-Household (Flat)**	16,487	$ 59.55	$ 981,821	-	$ -	$ -	$ 981,821
4.	**Unmetered-School (Flat)**	13,505	$ 1.26	$ 16,972	-	$ -	$ -	$ 16,972
5.	**Unmetered-Residential (Flat)**	19,786	$ 59.55	$ 1,178,227	-	$ -	$ -	$ 1,178,227
6.	**Unmetered-Commercial (Flat)**	60	$ 59.55	$ 3,579	-	$ -	$ -	$ 3,579
7.	**Unmetered-Other Availability**	633	$ 17.25	$ 10,911	-	$ -	$ -	$ 10,911
8.								
9.	Total Sewer							$ 2,191,509

Community Utilities of Pennsylvania Inc.
Wastewater Division
Uncollectible Accounts
Base Year (Per Books) Ended December 31, 2018
Future Test Year Ended December 31, 2020

Line	A	B
		Sewer
	Community Utilities of Pennsylvania Inc.	
1.	December 31, 2018 Revenues	$ 1,814,116
2.		
3.	Uncollectible Accounts	$ 15,316
4.		
5.	Uncollectible %	0.84%
6.		
7.	**Community Utilities of Pennsylvania Inc.**	
8.	PROPOSED Revenues	$ 2,190,683
9.		
10.	Uncollectible %	0.84%
11.		
12.		
13.	Uncollectible Accounts	$ 18,495

Community Utilities of Pennsylvania Inc.
Wastewater Division
Depreciation Expense
Base Year (Per Books) Ended December 31, 2018
Future Test Year Ended December 31, 2020

Section 2
Supporting Schedule No. 4

Line	A		B	
1.	**December 31, 2018**	Source		Sewer
2.	Utility Plant	[1]	$	347,271
3.	Transportation	[1]		16,573
4.	Computers	[1]		14,981
5.				
6.	CIAC	[1]		(84,588)
7.				
8.	PAA	[1]		(58,573)
9.				
10.	**Per Books December 31, 2018**		$	235,663
11.				
12.				
13.	**December 31, 2019**			
14.	Utility Plant	[2]	$	351,027
15.	Transportation	[3]		10,353
16.	Computers	[4]		13,617
17.				
18.	CIAC	[2]		(86,522)
19.				
20.	PAA	[5]		(58,573)
21.				
22.	**Future Period December 31, 2019**		$	229,903
23.				
24.				
25.	**December 31, 2020**			
26.	Utility Plant	[2]	$	379,379
27.	Transportation	[3]		17,892
28.	Computers	[4]		9,104
29.				
30.	CIAC	[2]		(86,522)
31.				
32.	PAA	[5]		(58,573)
33.				
34.	**FPFTY December 31, 2020**		$	261,280
35.				
36.				
37.	Source:			
38.	[1] Trial Balance			
39.	[2] wp-r			
40.	[3] wp-p2			
41.	[4] wp-p3			
42.	[5] wp-v			

Community Utilities of Pennsylvania Inc.
Wastewater Division
Calculation of Taxes Other Than Income Taxes
Base Year (Per Books) Ended December 31, 2018
Future Test Year Ended December 31, 2020

Section 2
Supporting Schedule No. 5
Page 1 of 1

Line No.	A	B
1.	**Test Year 12/31/2018**	Sewer
2.		
3.	Utility/Commission Tax	$ 13,142
4.	Real Estate Tax	15,536
5.	Personal Property Tax	2
6.	Gross Receipts Tax	-
7.	Franchise Tax	32
8.	Sales/Use Tax	0
9.		
10.	Payroll Taxes	29,387
11.		
12.	Total	$ 58,099
13.		
14.	**Forecast 12/31/2019**	
15.		
16.	Utility/Commission Tax	$ 11,647
17.	Real Estate Tax	16,835
18.	Personal Property Tax	-
19.	Gross Receipts Tax	-
20.	Franchise Tax	147
21.	Sales/Use Tax	-
22.		
23.	Payroll Taxes	33,035
24.		
25.	Total	$ 61,664
26.		
27.	**Forecast 12/31/2020**	
28.		
29.	Utility/Commission Tax	$ 14,504
30.	Real Estate Tax	20,563
31.	Personal Property Tax	-
32.	Gross Receipts Tax	-
33.	Franchise Tax	152
34.	Sales/Use Tax	-
35.		
36.	Payroll Taxes	38,175
37.		
38.	Total	$ 73,393
39.		
40.	**Pro Forma Proposed**	
41.		
42.	Proposed Revenue Increase	$ 377,944
43.		
44.	Gross Receipts Increase	0.66%
45.	(Utility/Commission Tax)	
46.		
47.	**Adjustment**	**$ 2,502**

Community Utilities of Pennsylvania Inc.
Wastewater Division
Calculation of Income Taxes
Base Year (Per Books) Ended December 31, 2018
Future Test Year Ended December 31, 2020

Line No.	A	B	C	D	E
	SEWER				
1.	State Income Taxes	12/31/2019 Forecast	12/31/2020 Forecast	Pro Forma Present	Pro Forma Proposed
2.					
3.	Total Revenue	$ 1,804,002	$ 1,804,002	$ 1,804,002	$ 2,178,756
4.					
5.	Maintenance Expense	851,778	863,305	863,305	863,305
6.	General Expense	318,458	354,531	354,531	354,531
7.	Depreciation & Amortization	288,476	319,853	319,853	319,853
8.	Taxes Other Than Income	61,664	73,393	73,393	75,895
9.	Other Income	0	0	0	0
10.	Interest Expense	155,995	187,373	187,373	187,373
11.					
12.	Taxable Income profit/(loss)	$ 127,631	$ 5,546	$ 5,546	$ 377,798
13.	State Tax Rate	9.99%	9.99%	9.99%	9.99%
14.					
15.	**Total State Income Taxes**	$ 12,750	$ 554	$ 554	$ 37,742
16.					
17.	Federal Taxes				
18.					
19.	Taxable Income before taxes	$ 127,631	$ 5,546	$ 5,546	$ 377,798
20.					
21.	Less: State I/T	12,750	554	554	37,742
22.					
23.	Federal Taxable Income	$ 114,880	$ 4,992	$ 4,992	$ 340,056
24.	Federal Tax Rate	21%	21%	21%	21%
25.					
26.	**Total Federal Income Taxes**	$ 24,125	$ 1,048	$ 1,048	$ 71,412

Community Utilities of Pennsylvania Inc.
Wastewater Division
Salary Expense
Base Year (Per Books) Ended December 31, 2018
Future Test Year Ended December 31, 2020

Section 2
Supporting Schedule No. 7
Page 1 of 1

Line	A	B	
1.	**December 31, 2018**		Sewer
2.	ACCOUNTING	$	12,469
3.	ADMIN		4,811
4.	OFFICERS/STKHLDR		21,307
5.	HR		3,217
6.	IT		6,970
7.	HSE		3,110
8.	CUSTOMER SERVICE		14,739
9.	BILLING		5,635
10.	**General Salaries**	$	72,257
11.			
12.	LEADERSHIP OPS	$	64,303
13.	OPERATIONS FIELD		208,603
14.	OPERATIONS OFFICE		11,115
15.	CAPITALIZED TIME ADJUSTMENT		(37,197)
16.	**Maintenance Salaries**	$	246,824
17.			
18.	**Per Books December 31, 2018**	$	319,081
19.			
20.			
21.	**December 31, 2019**		
22.	ACCOUNTING	$	12,905
23.	ADMIN		4,881
24.	OFFICERS/STKHLDR		22,119
25.	HR		3,507
26.	IT		7,168
27.	HSE		2,778
28.	CUSTOMER SERVICE		13,709
29.	BILLING		6,365
30.	**General Salaries**	$	73,430
31.			
32.	LEADERSHIP OPS	$	84,797
33.	OPERATIONS FIELD		188,608
34.	OPERATIONS OFFICE		11,005
35.	CAPITALIZED TIME ADJUSTMENT		(34,846)
36.	**Maintenance Salaries**	$	249,565
37.			
38.	**Future Period December 31, 2019**	$	322,996
39.			
40.			
41.	**December 31, 2020**		
42.	ACCOUNTING	$	14,019
43.	ADMIN		5,027
44.	OFFICERS/STKHLDR		23,158
45.	HR		4,338
46.	IT		8,110
47.	HSE		2,339
48.	CUSTOMER SERVICE		14,120
49.	BILLING		6,556
50.	**General Salaries**	$	77,667
51.			
52.	LEADERSHIP OPS	$	87,447
53.	OPERATIONS FIELD		203,636
54.	OPERATIONS OFFICE		11,404
55.	CAPITALIZED TIME ADJUSTMENT		(51,267)
56.	**Maintenance Salaries**	$	251,221
57.			
58.	**FPFTY December 31, 2020**	$	328,888

Community Utilities of Pennsylvania Inc.
Wastewater Division
Rate Case Expense
Base Year (Per Books) Ended December 31, 2018
Future Test Year Ended December 31, 2020

Line No.	A	B	C	D	E
					Total
1.	Legal Fees:				$ 100,000
2.					
3.	Customer Notices (2 notices):				
4.	Postage	6,046	=	Customers x $0.86	10,399
5.	Stock	6,046	=	Notices x (.074)	895
6.					
7.	Fed Ex, mailings, postage, and miscellaneous costs:				$ 2,000
8.					
9.				# of Trips/	
10.		Personne	Cost	Nights	
11.	Travel:				
12.	Airfare	5	500	3	$ 7,500
13.	Hotel/Meals	5	200	3	3,000
14.	Rental Car	1	200	3	600
15.					
16.					
17.					
18.	Consultanting (Ronald F. Weigel Consulting):				$ 9,000
19.	.				
20.	External Consultants (Umbaugh COSS):				38,500
21.					
22.	External Consultants (Concentric Energy Advisors ROE):				43,000
23.					
24.	Allocation Weight to Community Utilities of Pennsylvania Inc.				1.00
25.					
26.					
27.	Total:				214,894
28.					
29.	Normalized over 3 years				3
30.					
31.					
32.	**Normalization of Rate Case Expense per year**				$ 71,631
33.					
34.	**Allocated to Sewer Division**				$ 38,570

Community Utilities of Pennsylvania Inc. | **Section 2**
Wastewater Division | **Supporting Schedule No. 9**
Net Plant in Service | **Page 1 of 1**
Base Year (Per Books) Ended December 31, 2018
Future Test Year Ended December 31, 2020

Line	A	Source	B Sewer
1.	**December 31, 2018**		
2.	Utility Plant In Service (UPIS)	[1]	$ 14,950,435
3.	Transportation	[1]	196,183
4.	Computers	[1]	392,171
5.	**Total Gross Plant in Service**		$ 15,538,788
6.			
7.	Accumulated Depreciation UPIS	[1]	$ (6,417,370)
8.	Accumulated Depreciation Transportation	[1]	(176,750)
9.	Accumulated Depreciation Computers	[1]	(342,394)
10.	**Total Accumulated Depreciation**		$ (6,936,514)
11.			
12.	**Per Books December 31, 2018**		$ 8,602,275
13.			
14.			
15.	**Additions**		
16.	Utility Plant In Service (UPIS)	[2]	$ 692,948
17.	Transportation	[3]	18,846
18.	Computers	[4]	18,930
19.	**Total Additions**		$ 730,724
20.			
21.	**Retirements**		
22.	Utility Plant In Service (UPIS)	[2]	$ -
23.	Transportation	[3]	0
24.	Computers	[4]	0
25.	**Total Retirements**		$ -
26.			
27.	**Depreciation**		
28.	Utility Plant In Service (UPIS)	[2]	$ 351,027
29.	Transportation	[3]	10,353
30.	Computers	[4]	13,617
31.	**Total Depreciation**		$ 374,998
32.			
33.	**December 31, 2019**		
34.	Utility Plant In Service (UPIS)		$ 15,643,383
35.	Transportation		215,029
36.	Computers		411,101
37.	**Total Gross Plant In Service**		$ 16,269,513
38.			
39.	Accumulated Depreciation UPIS		$ (6,768,397)
40.	Accumulated Depreciation Transportation		(187,104)
41.	Accumulated Depreciation Computers		(356,011)
42.	**Total Accumulated Depreciation**		$ (7,311,512)
43.			
44.	**Future Period December 31, 2019**		$ 8,958,001
45.			
46.			
47.	**Additions**		
48.	Utility Plant In Service (UPIS)	[2]	$ 1,229,182
49.	Transportation	[3]	0
50.	Computers	[4]	23,986
51.	**Total Additions**		$ 1,253,168
52.			
53.	**Retirements**		
54.	Utility Plant In Service (UPIS)	[2]	$ -
55.	Transportation	[3]	37,692
56.	Computers	[4]	0
57.	**Total Retirements**		$ 37,692
58.			
59.	**Depreciation**		
60.	Utility Plant In Service (UPIS)	[2]	$ 379,379
61.	Transportation	[3]	17,892
62.	Computers	[4]	9,104
63.	**Total Depreciation**		$ 406,375
64.			
65.	**December 31, 2020**		
66.	Utility Plant In Service (UPIS)		$ 16,872,565
67.	Transportation		252,721
68.	Computers		435,087
69.	**Total Gross Plant In Service**		$ 17,560,373
70.			
71.	Accumulated Depreciation UPIS		$ (7,147,777)
72.	Accumulated Depreciation Transportation		(242,688)
73.	Accumulated Depreciation Computers		(365,115)
74.	**Total Accumulated Depreciation**		$ (7,755,579)
75.			
76.	**FPFTY December 31, 2020**		$ 9,804,794
77.			
78.			
79.	Source:		
80.	[1] Trial Balance		
81.	[2] wp-p1		
82.	[3] wp-p2		
83.	[4] wp-p3		

Community Utilities of Pennsylvania Inc.
Utility Plant Additions and Retirements
Base Year (Per Books) Ended December 31, 2018
Future Test Year Ended December 31, 2020

Section 2
Supporting Schedule No. 10
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Line No.	A	B
		Community Utilities of Pennsylvania Inc. Sewer
	December 31, 2018	
1.	**Utility Plant In Service**	
2.	Total Plant In Service Cost	$ 14,950,435
3.	Total Accumulated Depreciation	(6,417,370)
4.	Net Book Value 12/31/2018	$ 8,533,065
5.		
6.	**December 31, 2019**	
7.	**Utility Plant In Service**	
8.	Total Plant In Service Cost 12/31/2018	$ 14,950,435
9.	Pro Forma Additions	692,948
10.	Pro Forma Retirements	-
11.	Total Plant In Service Cost 12/31/2019	$ 15,643,383
12.		
13.	Total Accumulate Depreciation 12/31/2018	$ (6,417,370)
14.	Pro Forma Retirements	-
15.	Depreciation Expense	(351,027)
16.	Total Accumulated Depreciation 12/31/2019	$ (6,768,397)
17.		
18.	Net Book Value 12/31/2019	$ 8,874,986
19.		
20.		
21.	Change in Gross Plant	$ 692,948
22.	Change in Accumulated Depreciation	$ (351,027)
23.	Depreciation Expense	$ 351,027
24.		
25.	**December 31, 2020**	
26.	**Utility Plant In Service**	
27.	Total Plant In Service Cost 12/31/2019	$ 15,643,383
28.	Pro Forma Additions	1,229,182
29.	Pro Forma Retirements	-
30.	Total Plant In Service Cost 12/31/2020	$ 16,872,565
31.		
32.	Total Accumulate Depreciation 12/31/2019	$ (6,768,397)
33.	Pro Forma Retirements	-
34.	Depreciation Expense	(379,379)
35.	Total Accumulated Depreciation 12/31/2020	$ (7,147,777)
36.		
37.	Net Book Value 12/31/2020	$ 9,724,789
38.		
39.		
40.	Change in Gross Plant	$ 1,229,182
41.	Change in Accumulated Depreciation	$ (379,379)
42.	Depreciation Expense	$ 379,379

Community Utilities of Pennsylvania Inc.
Wastewater Division
Calculation of Working Capital
Base Year (Per Books) Ended December 31, 2018
Future Test Year Ended December 31, 2020

Section 2
Supporting Schedule No. 11

Line No.	A	B	C
1.	**09/30/2018 Base Year**		**Sewer**
2.	Maintenance Expenses		824,068
3.	General Expenses		287,888
4.	Taxes Other Than Income		58,099
5.			
6.	Total		1,170,056
7.			
8.	Working Capital	45/360	146,257
9.			
10.			
11.	**9/30/2019 Forecast**		
12.	Maintenance Expenses		851,778
13.	General Expenses		318,458
14.	Taxes Other Than Income		61,664
15.			
16.	Total		1,231,901
17.			
18.	Working Capital	45/360	153,988
19.			
20.			
21.	**9/30/2020 FPFTY**		
22.	Maintenance Expenses		863,305
23.	General Expenses		354,531
24.	Taxes Other Than Income		73,393
25.			
26.	Total		1,291,229
27.			
28.	Working Capital	45/360	161,404

Community Utilities of Pennsylvania Inc.
Wastewater Division
Pro Forma Interest Expense/Forecasted Capital Structure
Base Year (Per Books) Ended December 31, 2018
Future Test Year Ended December 31, 2020

Section 2
Supporting Schedule No. 12
Page 2 of 2

Line No.	A	B Sewer
1.	Forecast Rate Base 12/31/2019	5,068,500
2.		
3.	Debt Ratio	50.00%
4.		
5.	Embedded Cost of Debt	6.16%
6.		
7.		
8.	Forecast Interest Expense 12/31/2019	155,995
9.		
10.	Forecast Rate Base 12/31/2020	6,088,040
11.		
12.	Debt Ratio	50.00%
13.		
14.	Embedded Cost of Debt	6.16%
15.		
16.		
17.	Forecast Interest Expense 12/31/2020	187,373
18.		
19.	Future Test Year Rate Base 12/31/2020	6,088,040
20.		
21.	Debt Ratio	50.00%
22.		
23.	Embedded Cost of Debt	6.16%
24.		
25.		
26.	Future Test Year Expense 12/31/2020	187,373

UTILITIES, INC. AND SUBSIDIARIES
Wastewater Division
Capital Structure
Base Year (Per Books) Ended December 31, 2018
Future Test Year Ended December 31, 2020

Line No.	A	B 12/31/2018 Per Books	C Annual Interest Expense	D Capital Structure
1.	COMMON SHAREHOLDERS' EQUITY:			
2.	Common shares, $.10 par value; authorized 1,000 and			
3.	issued 1,000 shares	$ 100		
4.	Paid-in capital	197,572,616		
5.	Retained earnings	71,537,392		
6.				
7.	Total Common Shareholder's Equity	$ 269,110,108		49.66%
8.				
9.	DEBT:			
10.	Collateral trust notes -			
11.	6.58%, $9,000,000 due in annual installments	161,255,504	11,844,000	
12.	beginning in 2017 through 2035			
13.				
14.	Collateral trust notes -			
15.	4.37%, beginning in 2018 through 2033			
16.	beginning in 2018 through 2035	99,486,522	4,404,812	
17.				
18.	Toronto Dominion Bank Line of Credit			
19.	4.01% Libor Rate as of 12/31/2018			
20.	beginning in 10/2015 through 10/2020	12,000,000	539,705	
21.	Total Debt	$ 272,742,026	$ 16,788,517	50.34%
22.				
23.				
24.	TOTAL CAPITALIZATION	$ 541,852,134		100.00%
25.				
26.	COST OF DEBT	6.16%		

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Community Utilities of Pennsylvania Inc.	:	
Wastewater Divisions	:	Docket No. R-2019-_____

COMMUNITY UTILITIES OF PENNSYLVANIA INC.'S

DIRECT TESTIMONY OF

JOHN P. TROGONOSKI

Dated: April 1, 2019

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EXHIBIT LIST

Exhibit JPT-1	Professional and Educational Background
Exhibit JPT-2	Summary of ROE Results
Exhibit JPT-3	Constant Growth DCF Analysis
Exhibit JPT-4	Beta Coefficients
Exhibit JPT-5	Capital Asset Pricing Model Analysis
Exhibit JPT-6	Bond Yield Plus Risk Premium Analysis
Exhibit JPT-7	Expected Earnings Analysis
Exhibit JPT-8	Size Premium Analysis
Exhibit JPT-9	Regulatory Risk Assessment
Exhibit JPT-10	Capital Structure Analysis

TESTIMONY OF
JOHN P. TROGONOSKI
ON BEHALF OF COMMUNITY UTILITIES OF PENNSYLVANIA, INC.

I. INTRODUCTION

Q1. **Please state your name, affiliation, and business address.**

A1. My name is John P. Trogonoski, and I am employed by Concentric Energy Advisors, Inc. ("Concentric") as a Senior Project Manager. Concentric is a management consulting and economic advisory firm, focused on the North American energy and water industries. Based in Marlborough, Massachusetts, and with offices in Washington D.C., Chicago, IL and Calgary, ALB, Concentric specializes in regulatory and litigation support, financial advisory services, energy market strategies, market assessments, energy commodity contracting and procurement, economic feasibility studies, and capital market analyses. My business address is 293 Boston Post Road West, Suite 500, Marlborough, MA 01752.

Q2. **On whose behalf are you testifying?**

A2. I am submitting this Testimony on behalf of Community Utilities of Pennsylvania, Inc. ("CUPA" or the "Company"), a wholly-owned subsidiary of Utilities, Inc. ("UI").

Q3. **Please describe your experience in the energy and utility industries and your educational and professional qualifications.**

A3. I am among Concentric's professionals who provide expert testimony before U.S. state and Canadian provincial regulatory agencies on matters pertaining to finance, economics and public policy in the utility industry. Concentric provides financial, economic and

regulatory advisory services to clients across North America, including utility companies, regulatory and public agencies, and utility sector investors. I advise public utilities, energy companies, public agencies and private equity investors on financial and economic issues pertaining to the utilities industry. This work includes estimating the cost of capital for the purposes of ratemaking and valuation and assessing business and financial risk. I have testified or provided expert evidence in state and provincial jurisdictions including Colorado, New York, Prince Edward Island, Quebec and Vermont. This evidence has been presented on behalf of both utilities and regulatory commission staff.

Prior to joining Concentric, I was a member of the Staff of the Colorado Public Utilities Commission from 1999-2008, where I supervised the financial analysts in the energy and telecommunications sections, provided advisory services to the Commissioners on financial and economic matters, and filed expert testimony on rate of return, revenue requirement, cost allocation, rate design, incentive regulation, and public policy matters. I have a Master's degree in Business Administration and an undergraduate degree in Marketing from the University of Colorado at Denver. My qualifications are detailed more fully in Exhibit JPT-1.

II. PURPOSE AND OVERVIEW OF TESTIMONY

Q4. **What is the purpose of your Direct Testimony?**

A4. The purpose of my Direct Testimony is to present evidence and provide a recommendation regarding the Company's return on equity ("ROE").[1] My Direct Testimony also discusses the reasonableness of the Company's proposed capital structure in the context of the

[1] Throughout my direct testimony, I interchangeably use the terms "ROE" and "Cost of Equity."

percentages of common equity and long-term debt retained by my proxy group companies. My analyses and recommendations are supported by the data presented in Exhibits JPT-2 through JPT-11, which have been prepared by me or under my direction.

Q5. **What is your conclusion regarding the appropriate cost of equity for CUPA?**

A5. The ROE results presented in my Direct Testimony indicate that the cost of equity for CUPA is currently within the range of 10.00 percent to 11.00 percent. Based on this quantitative analysis, and in light of the extremely small size and business risks of CUPA compared to the proxy group companies, I recommend that the Pennsylvania Public Utility Commission ("Commission") authorize CUPA the opportunity to earn an ROE of 10.75 percent.

Q6. **Please provide a brief overview of the analyses that you conducted to support your ROE recommendation.**

A6. My ROE recommendation is based primarily on the range of results that I derive from three commonly-employed and widely-accepted methodologies to estimate the cost of equity: 1) the Discounted Cash Flow ("DCF") model; 2) the Capital Asset Pricing Model ("CAPM"); and 3) the Risk Premium approach. I also considered the results of an Expected Earnings analysis. My application of the DCF model is based on reputable third-party growth rate projections, as well as market-based information on current annualized dividends and recent stock prices. My CAPM analysis is based on projected interest rates from Blue Chip Financial Forecasts and both a historical and projected market risk premium. My Risk Premium approach calculates the spread between authorized ROEs for

gas distribution companies and Treasury bond yields to estimate the ROE given current and projected interest rates.

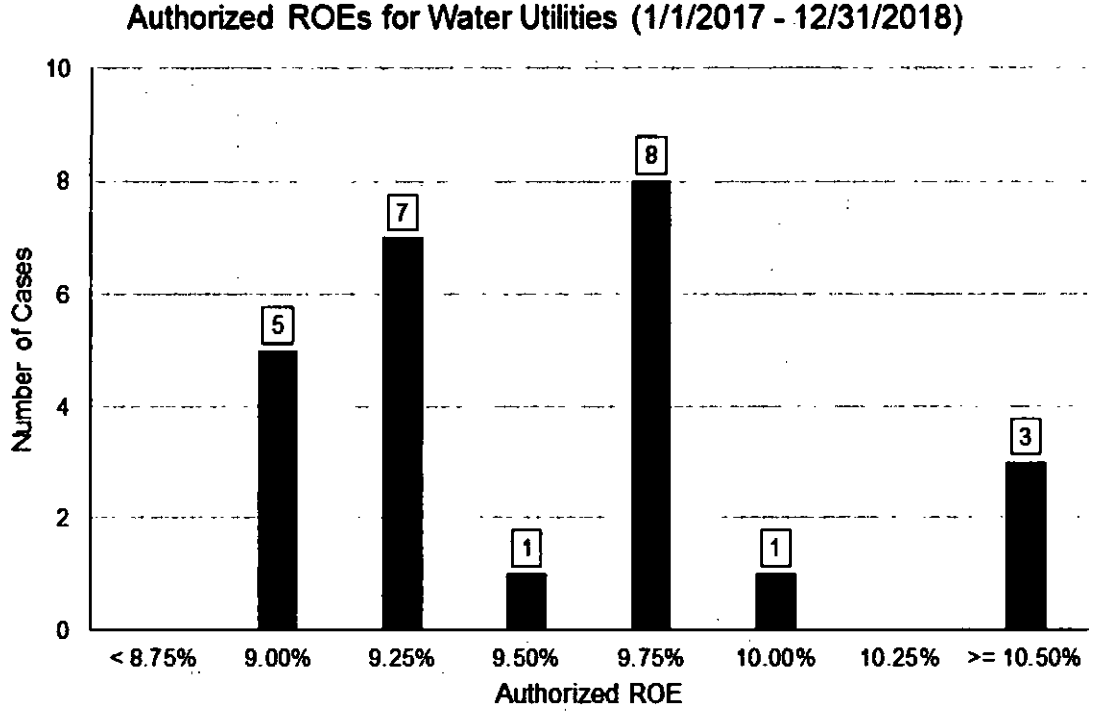
My recommendation also considers the capital market environment. I specifically consider the low Treasury bond yields in the current market relative to historical average levels which, when combined with the strong performance of utility shares over the past several years, has the effect of unduly reducing the results of the DCF model. I have concerns about the ability of the DCF model to produce reliable results under current market conditions due to elevated utility stock valuations and correspondingly low dividend yields. Although I have considered and incorporated the results of the DCF model into my recommendation, I have also considered the results of a forward-looking CAPM approach and a Bond Yield Plus Risk Premium analyses, as well as an Expected Earnings analysis, in developing my range of results and my ultimate ROE recommendation from within that range.

Lastly, in addition to the analyses described above, I also considered the Company's business and regulatory risks in relation to a set of proxy companies (described later in my testimony) to assist in the determination of the appropriate ROE from within the range of results. In particular, I considered the extremely small size of CUPA relative to the proxy group and the Company's higher regulatory risk due to its revenues not being protected against fluctuations in volume or declining average use per customer and due to the Company not being able to recover capital investment for projects placed in service between rate cases.

Q7. **How does your ROE recommendation compare with recently authorized equity returns for water distribution companies in other jurisdictions?**

A7. As shown in Figure 1, the authorized ROEs for water distribution companies were within a range from 8.90 percent to 10.50 percent in 2017 and 2018. My recommendation of 10.75 percent is higher than the average authorized ROE for water distribution companies in other jurisdictions in 2017 and 2018 of 9.48 percent. As explained later in my testimony, the extremely small size of CUPA justifies an authorized ROE slightly above the top end of the range of authorized returns for other water distributors.

Figure 1: Recently Authorized Water Distribution ROEs[2]



[2] Source: SNL Financial, Regulatory Research Associates.

Q8. **Please summarize the primary factors supporting your view that CUPA's authorized ROE should be higher than in the Company's 2016 rate case.**

A8. CUPA's currently authorized ROE of 9.58 percent was established as part of the Joint Settlement agreement that resolved the Company's 2016 rate case. Since that time, interest rates on government and utility bonds have risen as the Federal Reserve has taken steps to normalize monetary policy after a period of extraordinary policy accommodation following the financial crisis and the Great Recession of 2008-09. Figure 2 compares the 30-day average yields on government and utility bonds in January 2019 to those in November 2016, when the Commission adopted the Joint Settlement in the previous rate case.

Figure 2: Changes in Bond Yields[3]

	November 2016	January 2019	Change
10-Yr Treasury	2.02%	2.73%	+71 bps
30-Yr Treasury	2.75%	3.03%	+28 bps
Moody's A Utility	3.97%	4.34%	+ 37 bps
Moody's Baa Utility	4.52%	4.90%	+ 38 bps

The level of interest rates is one of the most important factors affecting utility cost of capital determinations. Because regulated utilities are capital intensive and have a significant percentage of debt in their capital structure, they are highly sensitive to changes in interest rates. As interest rates increase, utility valuations generally decrease, driving up the required utility equity return and accordingly the ROE. As shown in Figure 2, yields

[3] Source: Bloomberg Professional. Yields are based on 30-day average through last trading day in month.

on 10-year Treasury bond have increased by 71 basis points, while 30-year Treasury bond yields have increased by 28 basis points. Similarly, yields on Moody's A and Baa-rated utility bonds have increased by 37 and 38 basis points, respectively. These higher yields on government and utility bonds are evidence that equity capital costs also have increased since the previous rate case.

In addition, as discussed in more detail in Section IV of my testimony, the prolonged period of low interest rates has caused income-oriented investors to shift money from low yielding U.S. Treasury bonds into dividend paying stocks, including public utilities. This has driven up the share prices of these utilities and correspondingly reduced the dividend yields, which are calculated by dividing the annual dividend by the share price. To the extent those current high valuations of utility shares are not sustainable, the DCF model understates investors' forward-looking return requirements. For this reason, it is important to place weight on the results of alternative ROE estimation methodologies such as the CAPM and Bond Yield Plus Risk Premium analyses, which can be adjusted to reflect investors' expectations for higher interest rates during the period in which the rates set in this proceeding will be in effect.

Q9. **How is the remainder of your Direct Testimony organized?**

A9. The remainder of my Direct Testimony is organized as follows: Section III provides background on the regulatory principles behind making an ROE determination in general. Section IV presents a review of current and prospective capital market conditions and their impacts on utility cost of capital. Section V describes the criteria and approach for the selection of a proxy group of comparable companies. Section VI provides a description of

the data and methodologies used to estimate the cost of equity, as well as the results of those analyses. Section VII provides an assessment of the business risk factors I have considered in arriving at an appropriate ROE for CUPA. Section VIII reviews CUPA's proposed capital structure in the context of the proxy group. Section IX summarizes my results, conclusions and recommendation.

III. REGULATORY PRINCIPLES

Q10. **Please discuss the guiding principles used in establishing the cost of capital for a regulated utility.**

A10. The foundations of public utility regulation require that utilities receive a fair rate of return sufficient to attract needed capital at reasonable rates. The basic tenets of this regulatory doctrine originate from several bellwether decisions by the United States Supreme Court, notably *Bluefield Waterworks and Improvement Company v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) ("*Bluefield*"), and *Federal Power Commission v. Hope Natural Gas Company*, 320 U.S. 591 (1944) ("*Hope*"). In *Bluefield*, the Court stated:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties...
>
> The return should be reasonably sufficient to assure investor confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties.

Later, in *Hope*, the Court established a standard for the ROE that remains the guiding principle for rate making regulatory proceedings to this day:

> [T]he return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return,

moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.

Q11. **Has the Commission provided similar guidance in establishing the appropriate return on common equity?**

A11. Yes. The Commission follows the precedents of the *Hope* and *Bluefield* cases and acknowledges that utility investors are entitled to a fair and reasonable return. This position was set forth by the Commission as follows:

> In deciding this or any other general rate increase case brought under Section 1308(d) of the Public Utility Code (Code), 66 Pa. C.S. § 1308(d), certain general principles always apply. A public utility is entitled to an opportunity to earn a fair rate of return on the value of the property dedicated to public service. *Pa. PUC v. Pennsylvania Gas and Water Co.* 341 A.2d 239, 251 (Pa. Cmwlth. 1975). In determining a fair rate of return, the Commission is guided by the criteria provided by the United States Supreme Court in the landmark cases of *Bluefield Water Works and Improvement Co. v. Public Service Comm'n of West Virginia*, 262 U.S. 679 (1923) and *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).[4]

Based on these widely-recognized standards, the Commission's order in this case should provide CUPA with the opportunity to earn a return on equity that is:

- Commensurate with returns on investments in enterprises having comparable risks;
- Adequate to attract capital on reasonable terms, thereby enabling CUPA to provide safe, reliable water distribution service; and
- Sufficient to ensure the financial soundness of CUPA's operations.

[4] Pennsylvania Public Utility Commission, PPL Electric Utilities Corporation, R-2012-2290597, Opinion and Order adopted December 5, 2012, at 5.

Importantly, a fair return must satisfy all three of these standards. The allowed ROE should enable CUPA to finance capital expenditures on reasonable terms and provide the Company with financial flexibility.

Q12. **Please briefly discuss how these principles apply in the context of the regulated rate of return.**

A12. Regulated utilities rely primarily on common stock and long-term debt to finance their permanent property, plant and equipment, and short-term debt to finance working capital requirements. The allowed rate of return for a regulated utility is based on its weighted average cost of capital, where the costs of the individual sources of capital, debt and equity, are weighted by their respective values. The ROE represents the cost of raising and retaining equity capital and is estimated by employing one or more analytical techniques that use market data to quantify equity investors' return requirements. The cost of equity, however, should not be derived solely through quantitative metrics and models. The DCF, CAPM, Risk Premium and Expected Earnings approaches, while fundamental to the ROE determination, are still only models. One should not assume that the results of these models can be mechanically applied to determine the cost of equity without also using informed judgment to consider economic and capital market conditions and the relative risk of CUPA as compared to the proxy group companies.

Q13. **What are your conclusions regarding regulatory principles?**

A13. The ratemaking process is premised on the principle that, in order for investors and companies to commit the capital needed to provide safe and reliable utility services, the

utility must have the opportunity to recover the return *of* invested capital and the market-required return *on* that capital. Because utility operations are capital intensive, regulatory decisions should enable the utility to attract capital on reasonable terms. Such decisions balance the long-term interests of customers and shareholders.

The financial community carefully monitors the current and expected financial condition of utility companies, as well as the regulatory environment in which they operate. In that respect, the regulatory environment is one of the most important factors in both debt and equity investors' assessments of risk. It is therefore important that the ROE authorized in this proceeding takes into consideration the current and expected capital market conditions which CUPA faces, as well as investors' expectations and requirements regarding both risks and returns. These returns typically are set on a stand-alone basis, without regard to the parent company's ownership.

IV. EFFECT OF CAPITAL MARKET CONDITIONS

Q14. **Why is it important to analyze capital market conditions?**

A14. The ROE estimation models rely on market data that are either specific to the proxy group, in the case of the DCF model, or the expectations of market risk, in the case of the CAPM. The results of the ROE estimation models can be affected by capital market conditions at the time the analysis is performed. While the ROE established in a rate proceeding is intended to be forward-looking, the analyst uses current and projected market data, specifically stock prices, dividends, growth rates and interest rates in the ROE estimation models to estimate the required return for the subject company. If investors do not expect current market conditions to be sustained in the future, it is possible that the ROE

estimation models will not provide a reasonable estimate of investors' required return during that rate period. Therefore, it is very important to also consider projected market data to estimate the return for that forward-looking period.

Q15. **What factors are affecting the cost of equity for regulated utilities in the current and prospective capital markets?**

A15. The cost of equity for regulated utility companies is being affected by several factors in the current and prospective capital markets, including: (1) the current low interest rate environment and the corresponding effect on valuations and dividend yields of utility stocks relative to historical levels; (2) the rising interest rate environment of the past few years and the market's expectation for higher interest rates; and (3) recent Federal tax reform. In this section, I discuss each factor and how it affects the models used to estimate the cost of equity for regulated utilities.

A. Effect of Market Conditions on Utility Valuations and Dividend Yields

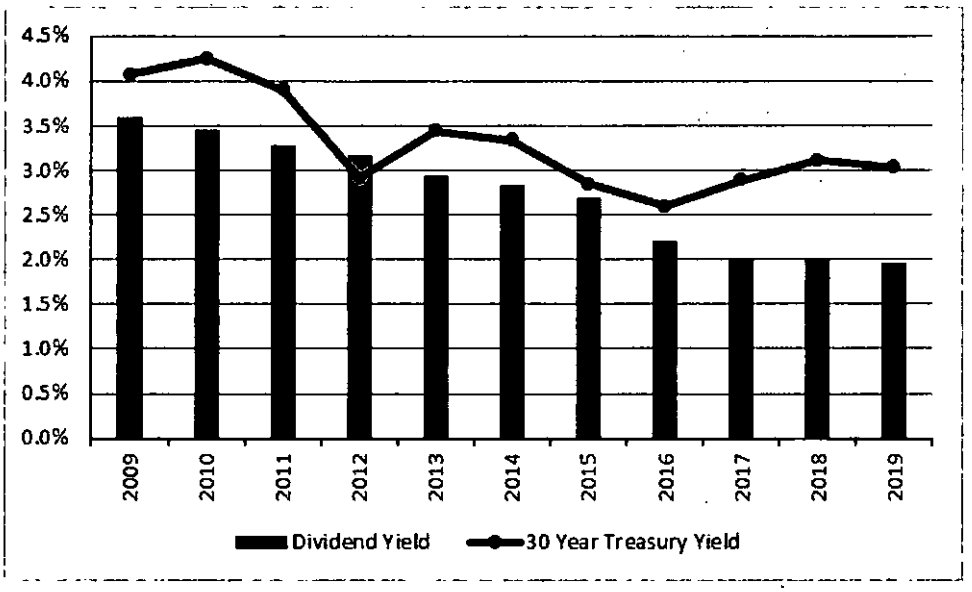
Q16. **How has the Federal Reserve's monetary policy affected capital markets in recent years?**

A16. Extraordinary intervention in capital markets artificially lowered government bond yields after the Great Recession of 2008-09, as the Federal Open Market Committee ("FOMC") used monetary policy (both reductions in short-term interest rates and purchases of Treasury bonds and mortgage-backed securities) to stimulate the U.S. economy. As a result of very low returns on short-term government bonds, yield-seeking investors shifted into longer-term instruments, bidding up prices and reducing yields on those investments.

Q17. **How has the period of abnormally low interest rates affected the valuations and dividend yields of utility shares?**

A17. The Federal Reserve's monetary policy in recent years has caused investors to seek alternatives to the historically low interest rates available on Treasury bonds. As a result of this search for higher yield, the share prices for many common stocks, especially dividend-paying stocks such as utilities, have been driven higher while the dividend yields have decreased to levels well below the historical average. As shown in Figure 3, over the period from 2009-2017, Treasury bond yields declined by 118 basis points, and dividend yields for water distribution companies decreased by 158 basis points. In 2017, Treasury bond yields started increasing; however, while water utility dividend yields have remained near historically low levels and well below the average since 2009 of 2.82 percent.

Figure 3: Dividend Yields for Water Utility Stocks[5]



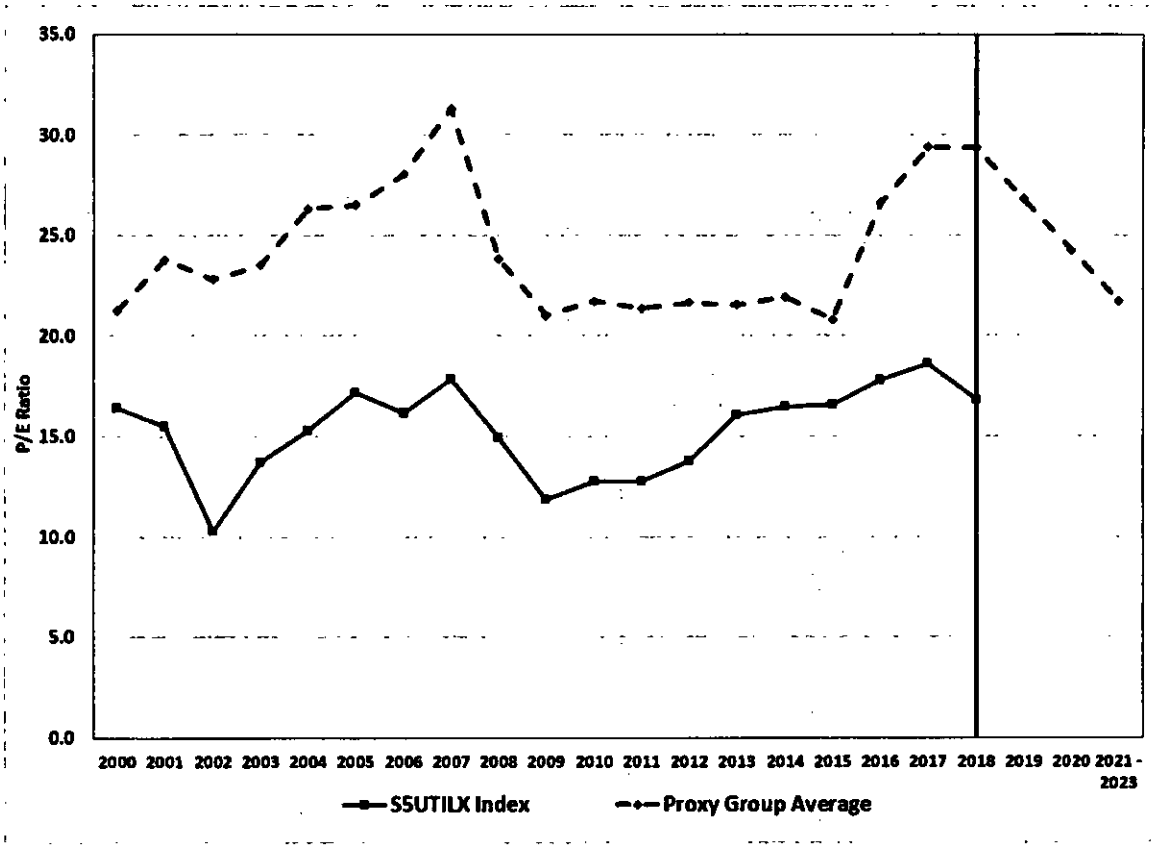
[5] Source: Bloomberg Professional.

Q18. **How do the valuations of public utilities compare to the historical average?**

A18. Figure 4 summarizes the average historical and projected Price-to-Earnings ("P/E") ratios for the companies in the proxy group. As shown in that Figure, the average P/E ratio of approximately 29.4X for the proxy companies was higher in 2017 and 2018 than at any time since 2000 (except for 2007) and is significantly higher than the average projected P/E ratio for the group for the period from 2021-2023 of 21.7. All else equal, if P/E ratios for the proxy companies decline, as Value Line projects, the DCF model is currently understating the forward-looking cost of equity for the proxy group companies.

Figure 4: Average Historical Proxy Group P/E Ratios[6]

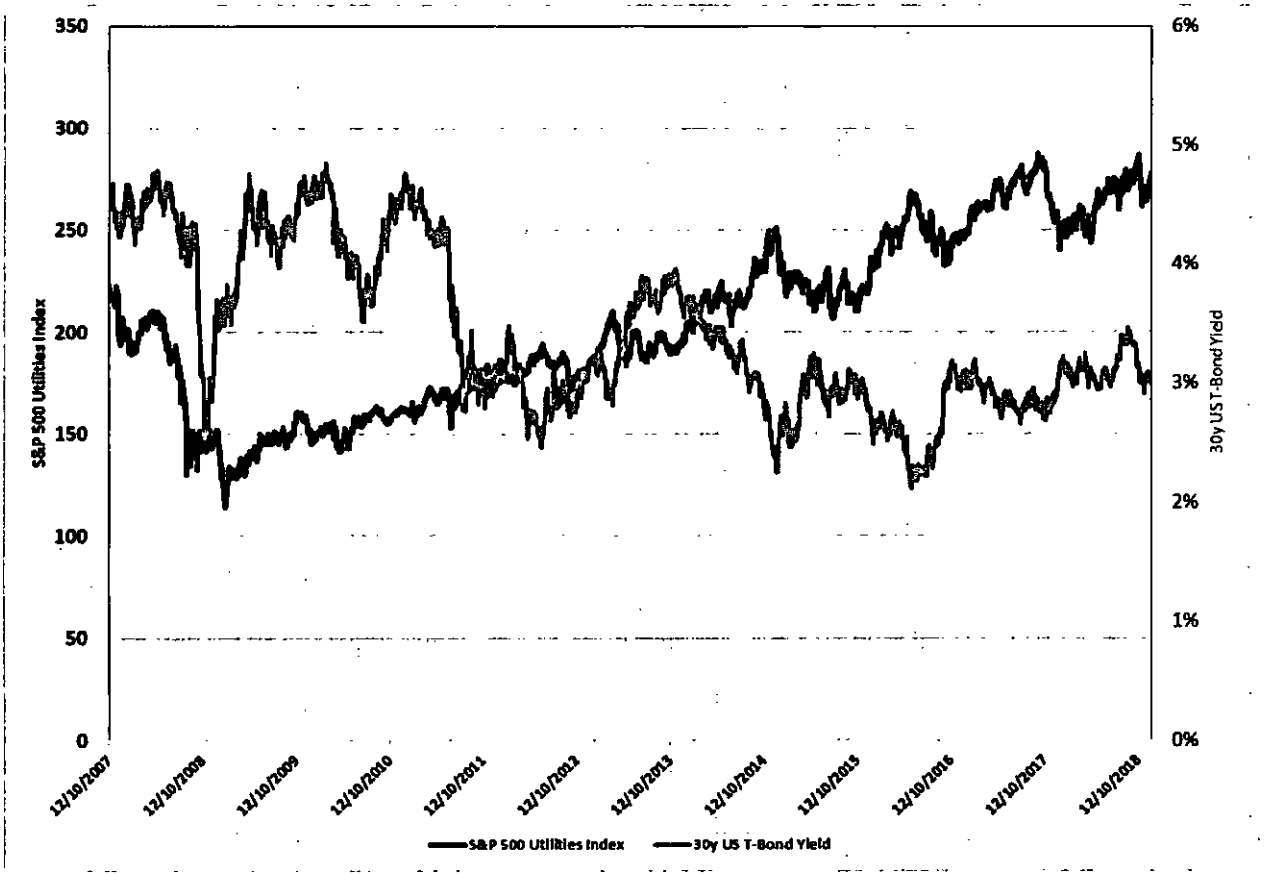
[6] Source: Historical data from Bloomberg Professional. Forecast P/E ratios from Value Line.



Q19. **How did the Standard & Poor's ("S&P") Utilities Index respond to the low interest rate environment that existed following the Great Recession of 2008-2009?**

A19. Figure 5 shows market conditions from 2007-2018 as measured by the S&P Utilities index and the yield on 30-year Treasury bonds. As shown in that Figure, the S&P Utilities index increased steadily from the beginning of 2009 through mid-November 2017, as yields on 30-year Treasury bonds declined in response to accommodative federal monetary policy.

Figure 5: S&P Utilities Index and Treasury Bond Yields - 2007 – 2019[7]

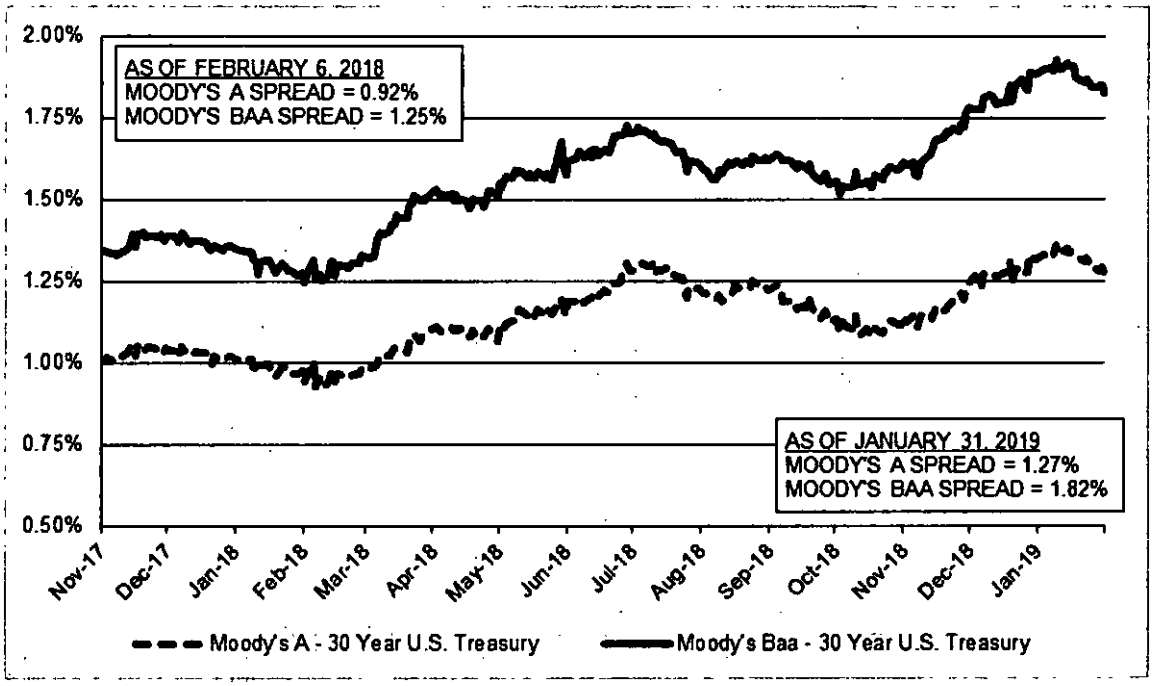


Q20. **Are there other indications that market conditions changed in 2018?**

A20. Yes, there is evidence that investors' risk sentiment has increased. As shown in Figure 6, credit spreads between Treasury bonds and utility bonds have increased since February 2018, which was the lowest level of credit spreads since before the Great Recession of 2008-2009. Since reaching a low point in early February 2018, the spread between Baa-rated utility debt and Treasury bonds has increased by 57 basis points, while the spread between A-rated utility debt and Treasury bonds increased by 35 basis points.

[7] Bloomberg Professional. Data through January 31, 2019.

Figure 6: Credit Spreads – February 2018 – January 2019[8]



Rising credit spreads indicate that investors are requiring a higher risk premium to compensate them for the additional credit risk associated with lower-rated utility debt. The higher required risk premium is the result of increased uncertainty in the market, which has reduced investor confidence. As Bloomberg notes:

> Corporate bond spreads have been widening since February, when they reached the tightest since before the financial crisis. Fewer foreign buyers, rate volatility and trade tensions are chipping away at investor confidence in the U.S. market, according to Thomas Murphy, a portfolio manager at Columbia Threadneedle Investments in Minneapolis.
>
> "A lot of people pushed into our market because of QE overseas. They can now go back to their home markets. Hedging costs have gone up dramatically," said Murphy, whose firm has about $172 billion of fixed-income assets under management. There are also "concerns about rate volatility and concerns on the curve shape changing," he added.[9]

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8 Source: Bloomberg Professional.

9 Hagan, Shelly. "Corporate Bond Spreads Jump to 16-Month High." Bloomberg.com, Bloomberg, 22 June 2018, www.bloomberg.com/news/articles/2018-06-22/corporate-bond-spreads-jump-to-16-month-high-amid-growing-supply.

B. The Current and Expected Interest Rate Environment

Q21. **What evidence is there that the interest rate environment has changed?**

A21. Based on stronger conditions in employment markets, a relatively stable inflation rate, steady economic growth, and increased household spending, the Federal Reserve raised the short-term borrowing rate in 25 basis point increments on four occasions in 2018. In total, the Federal Reserve has increased the federal funds rate nine times since December 2015, bringing the federal funds target rate to the range of 2.25 percent to 2.50 percent. However, the Federal Reserve recently indicated at the March 2019 meeting that going forward it will be patient in determining future adjustments to the federal funds rate due to recent global economic and financial developments and low inflationary pressures.[10]

Additionally, in October 2017, the FOMC started reducing the size of the Federal Reserve's $4.5 trillion bond portfolio by no longer reinvesting the proceeds of the bonds it holds. In response to the Great Recession, the Federal Reserve pursued a policy known as "Quantitative Easing," in which it systematically purchased mortgage-backed securities and long-term Treasury bonds to provide liquidity in financial markets and drive down yields on long-term government bonds. Although the Federal Reserve discontinued the Quantitative Easing program in October 2014, it continued to reinvest the proceeds from the bonds it holds. Under the initial balance sheet normalization policy, the FOMC gradually reduced the Federal Reserve's securities holdings by $10 billion per month

[10] FOMC, Federal Reserve press release, March 20, 2019.

initially, ramping up to $50 billion per month by the end of the first twelve months.[11] However, at the March 2019 meeting, the FOMC announced that it intends to slow the reduction of its holdings of Treasury Securities starting in May 2019 and ultimately conclude the program in September 2019.[12]

Q22. **How does the recent change in the Federal Reserve's policy affect the yields on long-term government bonds?**

A22. While the Federal Reserve has recently indicated that it will be patient in determining future adjustments in the federal funds rate, this is not unusual, as monetary policy has a lagged effect on the economy. As the Federal Reserve Bank of San Francisco notes:

> It can take a fairly long time for a monetary policy action to affect the economy and inflation. And the lags can vary a lot, too. For example, the major effects on output can take anywhere from three months to two years. And the effects on inflation tend to involve even longer lags, perhaps one to three years, or more.[13]

Since December 2015, the Federal Reserve has increased the federal funds rate nine times, four of which occurred in 2018 and three in 2017. Therefore, given recent market volatility and the lagged effect that monetary policy has on the economy, it is reasonable to expect the Federal Reserve to be patient with future increases. However, it is important to note, that the Federal Reserve is continuing to reduce the size of its balance sheet by no longer reinvesting the proceeds of the bonds it holds over the near-term. This policy, in

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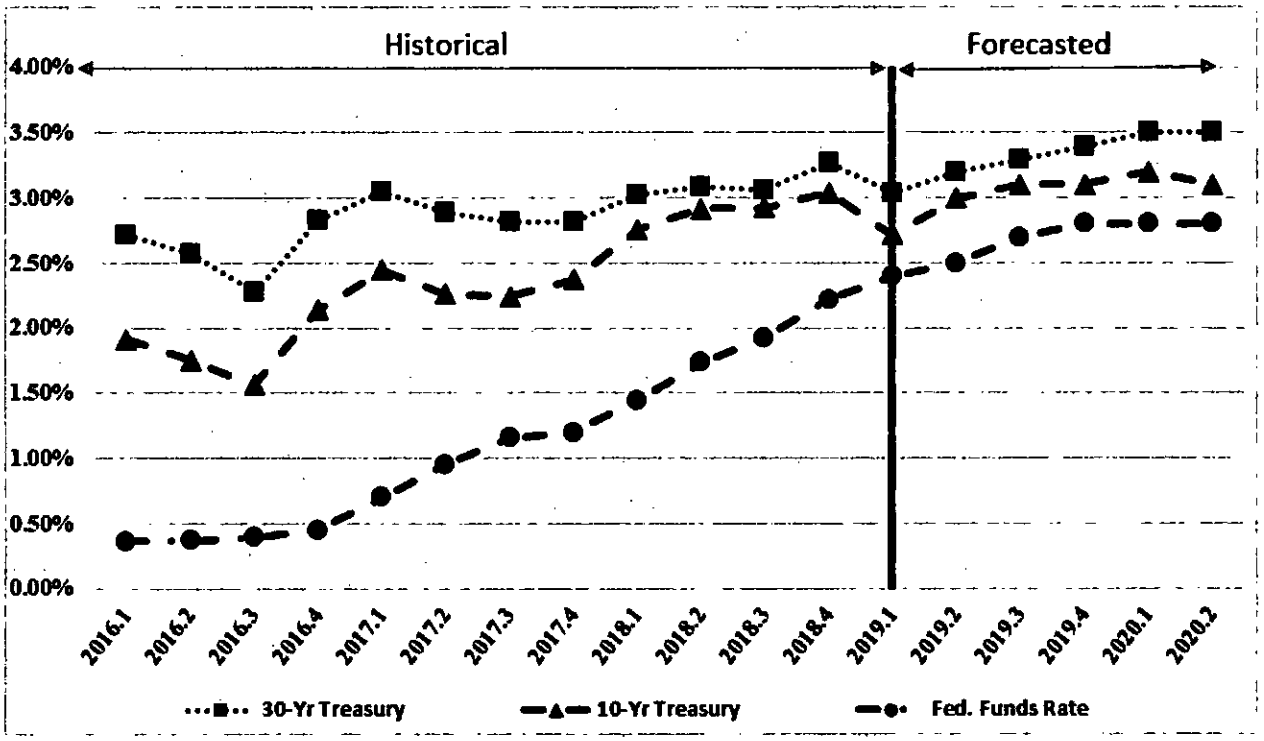
[11] Federal Reserve press release, Addendum to the Policy Normalization Principles and Plans, June 14, 2017, implemented at FOMC meeting, September 20, 2017.

[12] Federal Reserve press release, Balance Sheet Normalization Principles and Plans, March 20, 2019.

[13] Federal Reserve Bank of San Francisco, "U.S. Monetary Policy: An Introduction - How does monetary policy affect the U.S. economy?", February 6, 2004. https://www.frbsf.org/education/teacher-resources/us-monetary-policy-introduction/real-interest-rates-economy/

conjunction with the lagged effect of past increases in the federal funds rate, suggests that the yields on long-term government bonds should continue to increase over the near-term, which is consistent with investors' expectations. Investors are expecting continued increases in interest rates on both government and utility bonds over the next few years, as shown in Figure 7.[14]

Figure 7: Interest Rate Conditions[15]



[14] These investor expectations are reported by Blue Chip Financial Forecasts, which conducts a monthly survey of 45 economists employed by some of America's largest and most respected manufacturers, banks, insurance companies and brokerage firms to develop their consensus view.

[15] Source: Historical data from Bloomberg Professional. Forecast data from Blue Chip Financial Forecasts, Volume 38, No. 2, February 1, 2019, at 2.

Q23. **Have you examined the effect of the Federal Reserve's monetary policy on the yields of long-term government bonds over the last several years?**

A23. Yes. As shown in **Error! Reference source not found.**, yields on long-term government bonds have increased since the Federal Reserve started to raise the federal funds rate in December 2015. However, the increase in long-term government bond yields has not been as pronounced as the rise in short-term interest rates. This is due to a shift in the supply and demand of long-term government bonds that has occurred since 2009. Since the Great Recession of 2008-2009, federal debt has increased significantly which has resulted in an increase in the supply of Treasury bonds in the market. In general, an increase in supply should result in a decrease in the price of Treasury bonds and an increase in yield. However, long-term government bonds yields have not increased as fast as expected given the increase in supply. This is because the demand for Treasury bonds has also increased since 2009. As noted in a recent article published by the St. Louis Federal Reserve, the demand for government bonds increased for a number of reasons, some of which included increased holdings by foreign governments as countries in Europe and Asia faced their own economic uncertainty, and increased holdings by commercial banks due to new regulations that required banks to hold a larger portion of high-quality liquid assets.[16] This has resulted in a more gradual increase in the yields on long-term government bonds over the past few years.

[16] David Andolfatto and Andrew Spewak, Federal Reserve Bank of St. Louis, "On the Supply of, and Demand for, U.S. Treasury Debt", Economic Synopses, No. 5, 2018. https://doi.org/10.20955/es.2018.5.

Q24. **Is the demand for long-term government bonds currently increasing?**

A24. No, it is not. As noted in the Federal Reserve article:

> Some evidence suggests that the growth in demand for Treasuries has already begun to soften. Returning to Figures 1 and 2, foreign holdings have remained more or less constant since 2014, largely because of declining holdings in Japan and China. Likewise, regulation and policy changes such as the Dodd-Frank Act and new rules for prime money market funds may have only transitory effects on the demand for Treasuries. For example, the pace of growth of the ratio of commercial bank Treasury security holdings to private loans has slowed since 2014 (see Figure 3), as has the growth of investment in government money market funds since 2017 (Figure 4).[17]

Q25. **What effect do current market conditions have on the cost of equity?**

A25. As interest rates increase, the cost of equity for the proxy companies using the DCF model is likely to be a conservative estimate of investors' required return because the dividend yield is calculated based on stock prices when interest rates were substantially lower. The context for setting the authorized ROE for CUPA should not be the low interest rate environment of the last few years. Rather, the Commission should consider recent evidence that interest rates have been increasing, and that capital costs over the period that rates will be in effect are expected to continue to increase as yields on government and utility bonds increase and as the Federal Reserve normalizes monetary policy.

[17] *Ibid.*

Q26. **Do current low interest rates and relatively high utility stock prices suggest a lower cost of equity for utilities such as CUPA?**

A26. No. The cost of equity is forward looking, and current market data do not adequately reflect investor expectations for increasing interest rates and the movement toward more sustainable P/E levels (or its reciprocal dividend yield) for utility stocks. I am able to account for the first factor by using a forward-looking interest rate projection in the CAPM and Risk Premium models. There is not a forward-looking dividend yield from an objective or market source for the DCF model. Consequently, the DCF results fail to account for the market's expectation for higher interest rates and the corresponding effect on stock prices.

Q27. **What overall conclusions do you draw from your analysis of capital market conditions?**

A27. My primary conclusion is that it is important to consider the effect of capital market conditions on the inputs and assumptions used in the ROE estimation models and to consider whether current market conditions are sustainable on a forward-looking basis. High valuations and low dividend yields in the utility sector are not expected to be sustainable over time, thereby violating one of the fundamental assumptions underlying the Constant Growth DCF model (i.e., a constant P/E ratio) and suggesting that the DCF results understate the cost of equity under current market conditions. Furthermore, since interest rates are projected to increase from current levels, it is important to reflect that expectation in the Risk Premium model and the CAPM analysis by using a risk-free rate that is consistent with forward-looking expectations for Treasury yields. Wider credit

spreads are signs that investor risk expectations have moved higher, supporting my conclusion that the forward-looking cost of equity for water distribution utilities such as CUPA is increasing because investors are becoming more risk averse.

C. Effect of Tax Reform on the Return on Equity

Q28. **Are there other factors that should be considered in determining a just and reasonable cost of equity and capital structure for CUPA?**

A28. Yes. The effect of the TCJA should also be considered in the determination of a just and reasonable cost of equity and capital structure. Although the TCJA was credit positive for many sectors, Moody's Investors Service ("Moody's") indicated that it has an overall negative credit impact on regulated operating companies of utilities and their holding companies due to the reduction in cash flow metrics that results from the change in the federal tax rate and the loss of bonus depreciation. Moody's noted that customer rates for regulated utilities are based on a cost-plus model, with income tax expense being one of the pass-through items. Utilities will collect less income tax at the lower tax rate, reducing revenue. While income taxes are ultimately paid out as an expense, under the new tax law, utilities lose the timing benefit, reducing cash that may have been carried over a number of years. According to Moody's, the lower tax rate combined with the loss of bonus depreciation will have a negative effect on utility cash flows and will negatively impact the utilities' ability to fund ongoing operations and capital improvement programs.

Q29. **Did Moody's change its outlook for the utilities sector due to the increased risk resulting from the TCJA?**

A29. Yes, in January 2018, Moody's changed the rating outlook for 25 regulated utilities from Stable to Negative, noting that the rating changes affected companies with limited cushion in their ratings for deterioration in financial performance. In June 2018, Moody's downgraded the outlook for the entire regulated utility industry from Stable to Negative for the first time ever, citing ongoing concerns about the negative effect of the TCJA on cash flows of regulated utilities. While noting that "[r]egulatory commissions and utility management teams are taking important first steps"[18] and that "we have seen some credit positive developments in some states in response to tax reform,"[19] Moody's concluded that "we believe that it will take longer than 12-18 months for the majority of the sector to show any material financial improvement from such efforts."[20]

Q30. **Have any utilities been downgraded related to weak cash flow metrics resulting from the TCJA?**

A30. Yes. In July 2018, OGE Energy Corp and subsidiary utility Oklahoma Gas and Electric Company were downgraded. Moody's noted that the negative cash flow impact of federal tax reform will overshadow the positive cash flow impact that was expected from a higher rate base. In addition, Moody's held its outlook for both companies at negative due to the potential for a sustained reduction in financial metrics beyond the next 12-18 months.[21] In

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18 Moody's Investors Service, "Regulated utilities – US: 2019 outlook shifts to negative due to weaker cash flows, continued high leverage", June 18, 2018, at 3.

19 Ibid.

20 Ibid.

21 Moody's Investors Service Rating Action: Moody's downgrades OGE to Baa1 and Oklahoma Gas & Electric to A2; outlooks remain negative, July 5, 2018, at 2.

October 2018, Consolidated Edison, Inc. and its subsidiary companies, Consolidated Edison of New York and Orange and Rockland Utilities, were all downgraded by Moody's as a result of a weaker financial profile due to weaker cash flow metrics resulting from tax reform.[22] Also in October 2018, Southwestern Public Service Company, an Xcel Energy subsidiary, was downgraded due to a weakening of the utility's credit metrics.[23]

Q31. **What is your conclusion regarding the effect of the TCJA?**

A31. My conclusion is that the TCJA places pressure on the cash flows of regulated utilities such as CUPA. Therefore, it is important that CUPA is authorized an ROE and capital structure in this proceeding that are sufficient to maintain the financial integrity of the utility, allow the Company to attract capital on reasonable terms and conditions, and are comparable to returns available to investors in companies with commensurate risk.

V. PROXY GROUP SELECTION

Q32. **Why is it necessary to select a proxy group to estimate the cost of equity for CUPA?**

A32. Since the ROE is a market-based concept, and given the fact that CUPA is not publicly traded, it is necessary to select a group of companies that is both publicly traded and comparable to CUPA's business and financial characteristics to serve as a "proxy" for purposes of the ROE estimation process. Even if CUPA were a publicly-traded entity, it is possible that transitory events could bias the Company's market value in one way or another over a given period of time. A significant benefit of using a proxy group is the

[22] Moody's Investors Service Rating Action: Moody's downgrades Coned to Baa1, CECONY to A3 and O&R to Baa1; outlooks stable October 30, 2018 at 1.

[23] Moody's Investors Service Rating Action: Moody's changes Xcel Energy's outlook to negative; downgrades Southwestern Public Service ratings to Baa2 with stable outlook, October 19, 2018 at 1.

ability to mitigate the effects of unusual events that may be associated with any one company. The proxy companies used in my ROE analyses possess a set of business and operating characteristics that make them similar to CUPA's water distribution operations, and thus provide a reasonable basis for the derivation and assessment of ROE estimates.

Q33. **Please provide a summary profile of CUPA.**

A33. CUPA, a wholly-owned subsidiary of Utilities, Inc., provides water distribution and wastewater service to just over 4,300 retail customers (primarily residential and commercial) in Pennsylvania. Operating income from regulated water distribution and sewer operations accounted for virtually all of CUPA's total operating income in 2018. Utilities, Inc. issues debt through private placements on behalf of its utility subsidiaries, including CUPA, and does not have a credit rating.

Q34. **Please describe the screening criteria you have utilized to select the proxy group.**

A34. I began with the 11 investor-owned water distribution utilities covered by Value Line and then screened companies according to the following criteria:

1. Maintains an investment grade long-term issuer rating of BBB or higher from S&P or Baa2 or higher from Moody's;
2. Pays quarterly cash dividends and has not reduced or suspended those dividends in the past two years;
3. Is covered by more than one equity analyst;
4. Has positive earnings growth rates from at least two of the following sources: Thomson First Call (as reported by Yahoo! Finance), Zack's Investment Research ("Zacks"), and the Value Line Investment Survey; and
5. Derives more than 75 percent of their total operating income from regulated water operations.

Q35. **What is the composition of your proxy group?**

A35. Based on the screening criteria discussed above, I arrived at a proxy group consisting of the companies shown in Figure 8.

Figure 8: Proxy Group

Company	Ticker
American States Water Company	AWR
American Water Works	AWK
Aqua America, Inc.	WTR
California Water Service Group	CWT
Connecticut Water Service, Inc.	CWTS
Middlesex Water Company	MSEX
SJW Corporation	SJW
York Water Company	YORW

Q36. **Do your screening criteria result in a group of companies that investors would view as comparable to CUPA?**

A36. Yes, I believe so. I have selected the above group of water distribution companies to align with the financial and operational characteristics of CUPA. The proxy group screening criterion requiring an investment grade credit rating ensures that the proxy group companies are in sound financial condition. Because credit ratings take into account business and financial risks, the ratings provide a broad measure of investment risk that is widely-referenced by investors. Ratings of "investment grade" generally indicate sound financial condition. Additionally, I have screened on the percent of net operating income from regulated operations in order to differentiate companies that derive the majority of

their income from regulated water operations from those with substantial unregulated operations. These screens collectively reflect risk factors that investors consider in making their investment decisions in water distribution companies.

Q37. **Did you also consider any alternative proxy group?**

A37. Yes. I typically include a merger screening criterion in the selection process for my proxy group. In particular, I generally exclude any company that is involved in a merger or other transformative transaction during the period covered by my analysis. Due to the small sample size of the investor-owned water utility industry, however, my first proxy group does not include a merger screen. If I were to include a merger screen, three additional companies would be excluded from the proxy group. Specifically, SJW Corporation has announced plans to acquire Connecticut Water Services, Inc., and Aqua America has announced plans to acquire Peoples Natural Gas. Excluding those three companies results in an alternative proxy group, as shown in Figure 9.

Figure 9: Alternative Proxy Group

Company	Ticker
American States Water Company	AWR
American Water Works	AWK
California Water Service Group	CWT
Middlesex Water Company	MSEX
York Water Company	YORW

My testimony presents ROE results for both proxy groups, although I tend to place more weight on the first proxy group due to concerns with the very small number of companies in the second proxy group.

VI. DETERMINATION OF THE APPROPRIATE COST OF EQUITY

Q38. **What models did you use in your ROE analyses?**

A38. I considered the results of the following ROE estimation models: 1) the Constant Growth DCF model; 2) the Capital Asset Pricing Model; 3) the Risk Premium approach; and 4) an Expected Earnings analysis.

Q39. **Why is it important to use more than one approach to estimate the cost of equity?**

A39. It is important to use more than one approach because the cost of equity is not directly observable, and therefore must be estimated based on both quantitative and qualitative information. Several models have been developed to estimate the cost of equity. As a practical matter, however, all of the models available for estimating the cost of equity are subject to limiting assumptions or other methodological constraints. Consequently, many well-regarded finance texts recommend using multiple approaches. For example, Brigham

and Gapenski[24] recommend the CAPM, DCF, and Bond Yield Plus Risk Premium approaches, while Copeland, Koller, and Murrin[25] suggest using the CAPM and Arbitrage Pricing Theory model. Consistent with the *Hope* finding, it is the analytical result, not the methodology employed, which is controlling in arriving at ROE determinations.

Q40. **Has the Pennsylvania Commission recognized the need to use multiple methodologies to estimate the cost of equity?**

A40. Yes. In a 2012 decision for PPL Electric Utilities, while noting that the Commission has traditionally relied primarily on the DCF method to estimate the cost of equity for regulated utilities, the Commission recognized that market conditions were causing the DCF model to produce results that were much lower than other models such as the CAPM and Bond Yield Plus Risk Premium. The Commission's Order explained:

> Sole reliance on one methodology without checking the validity of the results of that methodology with other cost of equity analyses does not always lend itself to responsible ratemaking. We conclude that methodologies other than the DCF can be used as a check upon the reasonableness of the DCF derived equity return calculation.[26]

The PPUC ultimately concluded:

> As such, where evidence based on the CAPM and RP methods suggest that the DCF-only results may understate the utility's current cost of equity capital, we will give consideration to those other methods, to some degree, in determining the appropriate range of reasonableness for our equity return determination.[27]

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[24] Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed. (Orlando: Dryden Press, 1994), at 341.

[25] Tom Copeland, Tim Koller and Jack Murrin, Valuation: Measuring and Managing the Value of Companies, 3rd Ed. (New York: McKinsey & Company, Inc., 2000), at 214.

[26] Pennsylvania Public Utility Commission, PPL Electric Utilities, R-2012-2290597, meeting held December 5, 2012, at 80.

[27] *Id.*, at 81.

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2 *A. Constant Growth DCF Model*

3 Q41. **Please describe the DCF approach.**

4 A41. The DCF approach, which is widely used in regulatory proceedings, is based on the theory
5 that a stock's current price represents the present value of all expected future cash flows.
6 However, neither the DCF model nor any other model can be relied upon if market
7 conditions are distorting the inputs and assumptions of that model.

8 In its simplest form, the DCF model expresses the ROE as the sum of the expected
9 dividend yield and long-term growth rate:

10 $$k = \frac{D(1+g)}{P_0} + g \qquad [1]$$

11

12 Where "k" equals the required return, "D" is the current dividend, "g" is the expected
13 growth rate, and "p" represents the subject company's stock price.

14 Assuming a constant growth rate in dividends, the model may be rearranged to
15 compute the ROE accordingly, as shown in Formula [2]:

16 $$r = \frac{D}{P} + g \qquad [2]$$

17 Stated in this manner, the cost of common equity is equal to the dividend yield plus the
18 dividend growth rate.

19

20 Q42. **What are the assumptions underlying the Constant Growth DCF model?**

21 A42. The Constant Growth DCF model is based on the following assumptions: (1) a constant
22 average growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a

constant price-to-earnings multiple; and (4) a discount rate greater than the expected growth rate.

Q43. **Please summarize your application of the Constant Growth DCF model.**

A43. I calculated DCF results for each of the proxy group companies using the following inputs:

1. Average stock prices over 30-, 90-, and 180-trading days through January 31, 2019;
2. Annualized dividend per share as of January 31, 2019; and
3. Company specific earnings growth forecasts for the term *g*.

Q44. **Why did you use averaging periods of 30, 90, and 180 trading days?**

A44. It is important to use an average of recent trading days to calculate the term *P* in the DCF model to ensure that the calculated ROE is not skewed by unusual events that may affect stock prices on any given trading day. At the same time, it is important to reflect the conditions that have defined the financial markets over the recent past. In my view, use of those three averaging periods reasonably balances these considerations.

Q45. **Did you adjust the dividend yield to account for periodic growth in dividends?**

A45. Yes. Utility companies tend to increase their quarterly dividends at different times throughout the year, so it is reasonable to assume that such increases will be evenly distributed over calendar quarters. Given that assumption, it is reasonable to apply one-half of the expected annual dividend growth for the purposes of calculating this component of the DCF model. This adjustment ensures that the expected dividend yield is

representative of the coming 12-month period. Accordingly, the DCF estimates reflect one-half of the expected growth in the dividend yield.[28]

Q46. **What sources of growth have you used in your DCF analysis?**

A46. I have used the consensus analyst five-year earnings per share ("EPS") growth estimates from Thomson First Call and Zacks, and long-term EPS growth rates from Value Line.

Q47. **Why did you rely on earnings per share growth?**

A47. The Constant Growth DCF model assumes that dividends grow at a single growth rate in perpetuity. Accordingly, in order to reduce the long-term growth rate to a single measure, one must assume a constant payout ratio, and that earnings per share, dividends per share and book value per share all grow at the same constant rate. Over the long term, however, dividend growth can only be sustained by earnings growth. As noted by Brigham and Houston in their text, *Fundamentals of Financial Management*: "Growth in dividends occurs primarily as a result of growth in *earnings per share* (EPS)."[29] It is therefore important to focus on measures of long-term earnings growth from credible sources as an appropriate measure of long-term growth in the Constant Growth DCF model.

Q48. **Are other growth rates available to investors?**

A48. Yes, other growth rates are available. However, that does not mean that investors incorporate such estimates into their investment decisions. Academic studies suggest that

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[28] The expected dividend yield is calculated as $d_1 = d_0 (1 + \frac{1}{2} g)$.

[29] Eugene F. Brigham and Joel F., Houston, Fundamentals of Financial Management (Concise Fourth Edition, Thomson South-Western), at 317 (emphasis added).

investors base their investment decisions on analysts' expectations of growth in earnings.[30] I am not aware of any similar findings regarding other growth estimates such as dividends per share, book value per share or sustainable growth. In addition, the only forward-looking growth rates that are available on a consensus basis are analysts' EPS growth rates. The fact that earnings growth projections are the only widely-accepted estimates of growth provides further support that earnings growth is the most meaningful measure of growth among the investment community.

Q49. **What are the results of your Constant Growth DCF analysis?**

A49. The results of my Constant Growth DCF analysis are provided in Exhibits JPT-3.1 and 3.2 and summarized in Figure 9.

[30] *See, e.g.*, Harris and Marston, *Estimating Shareholder Risk Premia Using Analysts Growth Forecasts*, Financial Management, 21 (Summer 1992), and Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management, Spring 1988, at 81. Please note that while the original study was published in 1988, it was updated in 2004 under the direction of Dr. Vander Weide. The results of that updated study are consistent with Vander Weide and Carleton's original conclusions.

Figure 9: Constant Growth DCF Results

	Mean Low	Mean	Mean High
30-day average	7.63%	9.27%	10.96%
90-day average	7.63%	9.28%	10.97%
180-day average	7.67%	9.31%	11.00%

Figure 9: Constant Growth DCF Results – Alternate Proxy Group

	Mean Low	Mean	Mean High
30-day average	7.58%	9.16%	10.69%
90-day average	7.63%	9.21%	10.74%
180-day average	7.70%	9.28%	10.81%

Q50. **How did you calculate the Mean High, Mean Low, and Overall Mean DCF results?**

A50. I calculated the Mean High DCF results using the maximum growth rate (*i.e.*, the maximum of the First Call, Value Line, and Zacks EPS growth rates) in combination with the expected dividend yield for each of the proxy group companies. I used a similar method to calculate the Mean Low DCF results, using the minimum growth rate for each company. The Mean results reflect the average growth rate for each company in combination with the expected dividend yield.

Q51. **Do you have any concerns with the results of the DCF model?**

A51. Yes, I do. As a result of highly accommodative monetary policy by the Federal Reserve, interest rates on government bonds were near historic lows in the past few years. This pushed investors into riskier asset classes such as common stock and caused investors to purchase dividend paying stocks such as utilities in the search for higher yields. As stock prices increased for the proxy group companies, the average dividend yield for the proxy group decreased. However, these high valuations on water distribution companies are not considered to be sustainable. Consequently, it is reasonable to believe that the mean results of the Constant Growth DCF model, which is based historical stock prices when interest rates were near historically low levels, is not providing a reliable estimate of the forward-looking cost of equity.

Q52. **Are you aware of any regulatory commissions that have recognized that current conditions in capital markets are causing ROE recommendations based solely on the DCF model to be unreliable?**

A52. Yes, in addition to the previously discussed Commission Order regarding the use of multiple methodologies, the Federal Energy Regulatory Commission ("FERC") has also addressed the effect of capital market conditions (i.e., the low interest rate environment) on the DCF model.

Q53. **Please summarize how the FERC has responded to the effect of market conditions on the DCF model.**

A53. Understanding the important role that dividend yields play in the DCF model, the FERC determined that anomalous capital market conditions have caused the DCF model to understate equity costs for regulated utilities. In Opinion No. 531, the FERC noted:

> There is 'model risk' associated with the excessive reliance or mechanical application of a model when the surrounding conditions are outside of the normal range. 'Model risk' is the risk that a theoretical model that is used to value real world transactions fails to predict or represent the real phenomenon that is being modeled.[31]

In Opinion No. 531, the FERC also noted that the low interest rates and bond yields that persisted throughout the analytical period that was relied on (study period) resulted in anomalous market conditions and recognized the need to move away from the midpoint of the DCF analysis. In that case, the FERC relied on the CAPM and other risk premium methodologies to inform its judgment to set the return above the midpoint of the DCF results.

In Opinion No. 551, issued in September 2016, the FERC recognized that those same anomalous market conditions continued into the study period, and again concluded that it was necessary to rely on ROE estimation methodologies other than the DCF model to set the appropriate ROE:

> Though the Commission noted certain economic conditions in Opinion No. 531, the principle argument was based on low interest rates and bond yields, conditions that persisted throughout the study period. Consequently, we find that capital market conditions are still anomalous as described above...[32]
>
> ****
>
> Because the evidence in this proceeding indicates that capital markets continue to reflect the type of unusual conditions that the Commission

[31] FERC Docket No. EL11-66-001, Opinion No. 531 (June 19, 2014), fn 286.
[32] FERC Docket No. EL14-12-002, Opinion No. 551, at para. 121.

> identified in Opinion No. 531, we remain concerned that a mechanical application of the DCF methodology would result in a return inconsistent with *Hope* and *Bluefield.*[33]
>
> ***
>
> As the Commission found in Opinion No. 531, under these circumstances, we have less confidence that the midpoint of the zone of reasonableness in this proceeding accurately reflects the equity returns necessary to meet the Hope and Bluefield capital attraction standards. We therefore find it necessary and reasonable to consider additional record evidence, including evidence of alternative methodologies...[34]

Finally, in October 2018, the FERC issued an Order in response to the remand from the U.S. Court of Appeals for the District of Columbia. In that Order, FERC proposed to establish ROEs based on an equal weighting of the results of four financial models: the DCF, CAPM, Expected Earnings and Risk Premium. FERC explained its reasons for moving away from sole reliance on the DCF model as follows:

> Our decision to rely on multiple methodologies in these four complaint proceedings is based on our conclusion that the DCF methodology may no longer singularly reflect how investors make their decisions. We believe that, since we adopted the DCF methodology as our sole method for determining utility ROEs in the 1980s, investors have increasingly used a diverse set of data sources and models to inform their investment decisions. Investors appear to base their decisions on numerous data points and models, including the DCF, CAPM, Risk Premium, and Expected Earnings methodologies.[35]

These FERC decisions support my view that it is important to consider the results of alternative ROE estimation methodologies, such as the CAPM and the Risk Premium approach, especially under current market conditions when the results of the DCF model are likely understating the forward-looking cost of equity for investors.

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33 *Id.*, at para. 122.

34 Ibid.

35 Federal Energy Regulatory Commission, Docket No. EL 11-66-001, et al., Order Directing Briefs, issued October 16, 2018, at para. 40.

B. CAPM Analysis

Q54. **Please briefly describe the general form of the Capital Asset Pricing Model.**

A54. The CAPM is a risk premium approach that estimates the cost of equity for a given security as a function of a risk-free return plus a risk premium (to compensate investors for the non-diversifiable or "systematic" risk of that security).[36] As shown in Equation [3], the CAPM is defined by four components, each of which must theoretically be a forward-looking estimate:

$$K_e \approx r_f + \beta(r_m - r_f) \quad [3]$$

where:

$K_e \approx$ the required ROE for a given security;

$r_f =$ the risk-free rate of return;

$\beta =$ the Beta of an individual security; and

$r_m \approx$ the required return for the market as a whole.

The term $(r_m - r_f)$ represents the Market Risk Premium ("MRP"). According to the theory underlying the CAPM, since unsystematic risk can be diversified away, investors should be concerned only with systematic or non-diversifiable risk. Non-diversifiable risk is measured by Beta, which is defined as:

$$\beta = \frac{Covariance(r_e, r_m)}{Variance(r_m)} \quad [4]$$

where:

[36] Systematic risks are fundamental market risks that reflect aggregate economic measures and therefore cannot be mitigated through diversification. Unsystematic risks reflect company-specific risks that can be mitigated and ultimately eliminated through investments in a portfolio of companies and/or market sectors.

r_e = the rate of return for the individual security or portfolio.

The variance of the market return, noted in Equation [4], is a measure of the uncertainty of the general market, and the covariance between the return on a specific security and the market reflects the extent to which the return on that security will respond to a given change in the market return. Thus, Beta represents the risk of the security relative to the market.

Q55. **How have economic and financial market conditions affected the CAPM?**

A55. As discussed in Section IV, the U.S. economy has emerged from a period of very low interest rates as the Federal Reserve has taken steps to normalize monetary policy. Low interest rates also impact the CAPM in two ways: (1) the risk-free rate is lower, and (2) because the market risk premium is a function of interest rates, (i.e., it is the return on the broad stock market less the risk-free interest rate), the risk premium should move higher when interest rates are lower. Therefore, it is important to use multiple approaches to moderate the impact that the current low interest rate environment is having on the ROE estimates for the proxy group and, where possible, consider projected market data in the models to estimate the return for the forward-looking period.

Q56. **What risk-free rate did you use in your CAPM analysis?**

A56. Since both the DCF and CAPM models assume long-term investment horizons, I used the Blue Chip long-term forecast of the yield on 30-year Treasury bonds from 2020-2024 of 3.9 percent as my estimate of the risk-free rate.[37] This time period reflects a forward-looking view, which is the objective of the ROE analysis.

[37] Blue Chip Financial Forecasts, Volume 37, No. 12, December 1, 2018, at 14.

Q57. **Have other regulatory commissions recognized that current capital market conditions have affected the inputs, in particular the risk-free rate, of the CAPM?**

A57. Yes, in a 2017 decision, the Massachusetts Department of Public Utilities ("DPU") recognized that the accommodative monetary policy pursued by the Federal Reserve to stimulate the economy following the recession in 2008-2009 has resulted in historic lows on the yields for both short-term and long-term government bonds. As a result, the CAPM results calculated using current Treasury yields may be understating the ROE required by investors. The DPU's Order explained:

> Current federal monetary policy that is intended to stimulate the economy has pushed treasury yields to near historic lows. Consequently, the Department has found that a CAPM analysis based on current treasury yields may tend to underestimate the risk-free rate over the long term and, thereby, understate the required ROE. The CAPM is based on investor expectations and, therefore, it is appropriate to use a prospective measure for the risk-free rate component. The Department has found that Blue Chip Financial Forecasts is widely relied on by investors and provides a useful proxy for investor expectations for the risk-free rate.[38]

Q58. **What measures of Beta did you use in your CAPM analysis?**

A58. As shown in Exhibits JPT-4.1 and 4.2, I considered Beta coefficients for the proxy group companies as reported by Value Line. The Value Line beta coefficients are based on five years of weekly returns against the NYSE Composite Index.

[38] D.P.U. 17-05 Petition of NSTAR Electric Company and Western Massachusetts Electric Company, each doing business as Eversource Energy, Pursuant to G.L. c. 164, § 94 and 220 CMR 5.00 et seq., for Approval of General Increases in Base Distribution Rates for Electric Service and a Performance Based Ratemaking Mechanism, November 30, 2017, at 693.

Q59. **What Market Risk Premia did you use in your CAPM analysis?**

A59. I used two estimates of the market risk premium: (1) a historical (*ex-post)* estimate; and (2) a forward-looking (*ex-ante*) estimate.

Q60. **Please describe your historical estimate of the market risk premium.**

A60. My historical market risk premium estimate is based on the arithmetic mean risk premium calculated by Duff & Phelps using data from Ibbotson and Associates for the period from 1926-2017. The Duff & Phelps historical risk premium is 7.1 percent, calculated as the arithmetic mean of the total returns for large company common stocks less the income-only return on long-term government bonds.[39]

Q61. **Now please discuss your forward-looking estimate of the market risk premium.**

A61. The forward-looking market risk premium is calculated by subtracting the projected risk-free rate from the estimated total return for the overall market. For purposes of this calculation, I relied on the average of Yahoo! Finance's projected five-year earnings growth rate for the S&P 500 Index of 12.0 percent and Standard and Poor's estimated earnings growth rate for the S&P 500 of 13.06 percent, both as of January 31, 2019, and the current dividend yield for the S&P 500 of 2.07 percent, less the projected long-term treasury bond yield of 3.9 percent. As shown in Exhibits JPT-5.1 and 5.2, the forward-looking market risk premium is 10.83 percent. The average historical and projected market risk premium is 8.97 percent.

[39] Duff & Phelps, 2018 Cost of Capital: Annual U.S. Guidance and Examples, Chapter 2, Exhibit 2.3, at 4.

Q62. **Why did you not rely exclusively on the historical market risk premium?**

A62. While the historical market risk premium is generally reasonable when interest rates on long-term government bonds are near historical average levels, the historical market risk premium does not accurately reflect the required equity risk premium when government bond yields are substantially higher or lower than the historical average. This is because there is an inverse relationship between interest rates and the equity risk premium; that is, as interest rates increase (decrease), the equity risk premium decreases (increases).[40] Given the current low level of interest rates, I have relied on an average of the historical and the forward-looking market risk premium in my CAPM analysis.

Q63. **What are the results of your CAPM analyses?**

A63. The results of my CAPM analyses are shown in Figure 10 (*see* also Exhibits JPT-5.1 and 5.2). I place primary weight on the results of the CAPM analysis using a forward-looking market risk premium due to investors' expectation for higher interest rates during the period in which the rates established for CUPA in this proceeding will be in effect.

[40] *See* e.g., S. Keith Berry, Interest Rate Risk and Utility Risk Premia during 1982-93, Managerial and Decision Economics, Vol. 19, No. 2 (March 1998), in which the author used a methodology similar to the regression approach described below, including using allowed ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates.

Figure 10: CAPM Results

	Historical MRP	Mean	Forward-Looking MRP
Initial Proxy Group	8.65%	9.90%	11.14%
Alternate Proxy Group	8.80%	10.09%	11.37%

C. Risk Premium Analysis

Q64. **Please describe the Risk Premium approach that you used.**

A64. In general terms, this approach recognizes that equity is riskier than debt because equity investors bear the residual risk associated with ownership. Equity investors, therefore, require a greater return (i.e., a premium) than a bondholder would. The Risk Premium approach estimates the cost of equity as the sum of the Equity Risk Premium and the yield on a particular class of bonds.

$$ROE = RP + Y \qquad [5]$$

Where:

RP = Risk Premium (difference between allowed ROE and the 30-Year Treasury Yield) and

Y = Applicable bond yield.

Since the equity risk premium is not directly observable, it typically is estimated using a variety of approaches, some of which incorporate ex-ante, or forward-looking estimates of the cost of equity, and others that consider historical, or ex-post, estimates. For my Risk Premium analysis, I have relied on authorized returns from a large sample of U.S. gas distribution companies because the RRA data on authorized returns for water distribution companies is much more limited.

Q65. **What did your Risk Premium analysis reveal?**

A65. To estimate the relationship between the equity risk premium and interest rates, I conducted a regression analysis using the following equation:

$$RP = a + (b \times Y) \qquad [6]$$

where:

RP = Risk Premium (difference between allowed ROEs and the 30-Year Treasury Yield);

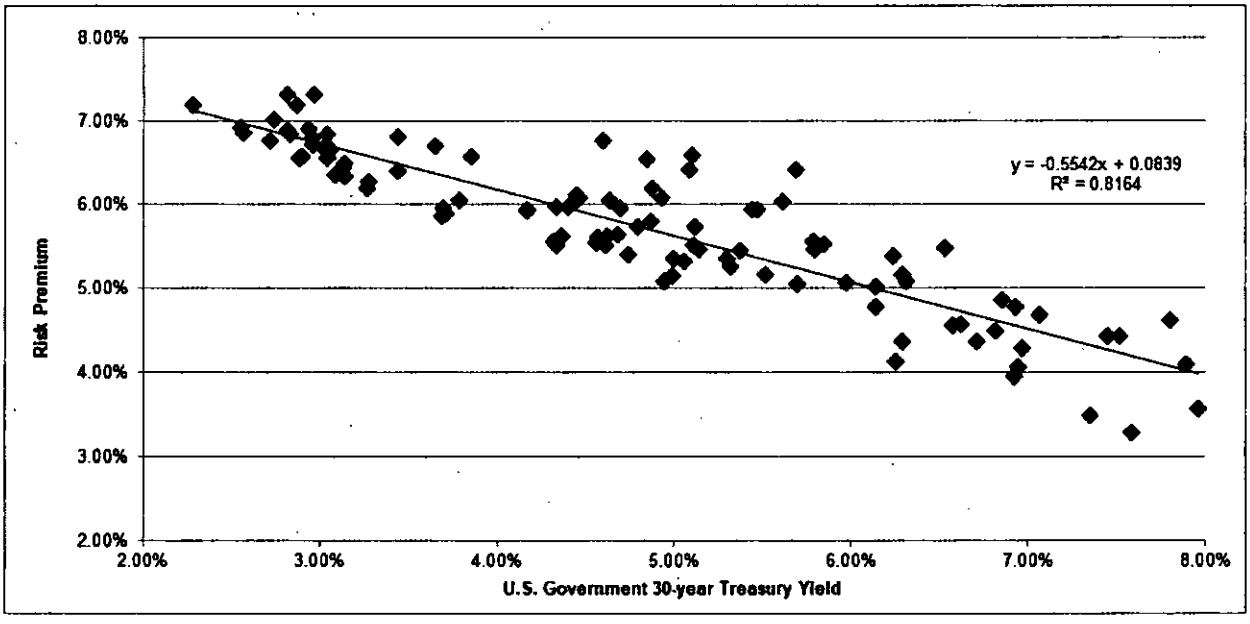
a = Intercept term;

b = Slope term; and

Y = 30-Year Treasury Yield.

Data regarding allowed ROEs were derived from 611 natural gas distribution company rate cases from 1992 through January 31, 2019, as reported by Regulatory Research Associates.

Figure 11: Risk Premium Results



As illustrated by the chart, the risk premium varies inversely with the level of bond yield. I considered three estimates of the 30-year Treasury yield, including the current 30-day average, a "near-term" Blue Chip consensus forecast for 2019-2020, and a "long-term" Blue Chip consensus forecast for 2020-24. I find the "long-term" result to be most relevant because investors are expecting higher government bond yields during the period in which the rates established for CUPA in this case will be in effect. Based on the regression coefficients in Exhibit JPT-6, which allow for the estimation of the risk premium at varying bond yields, the results of my Risk Premium analysis are shown in Figure 12.

Figure 12 – Risk Premium Results Using 30-Year Treasury Yield

	Using 30-Day Average Yield on 30-Year Treasury Bond	**Using Near-Term Forecast for Yield on 30-Year Treasury Bond[41]**	**Using Long-Term Forecast for Yield 30-Year Treasury Bond[42]**
Yield	3.03%	3.52%	3.90%
Risk Premium	6.71%	6.44%	6.23%
Resulting ROE	9.74%	9.96%	10.13%

D. Expected Earnings Analysis

Q66. **Have you considered any additional analysis to estimate the cost of equity for CUPA?**

A66. Yes. Consistent with the FERC's recent Order on remand, I have considered an Expected Earnings analysis based on the projected ROEs for each of the proxy group companies.

[41] Blue Chip consensus near-term forecast for 1Q 2019 – 2Q 2020, as of February 1, 2019, at 2.
[42] Blue Chip consensus long-term forecast for 2020 – 2024, as of December 1, 2018, at 14.

Q67. **What is an Expected Earnings analysis?**

A67. The Expected Earnings methodology is a comparable earnings analysis that calculates the earnings that an investor expects to receive on the book value of a stock. The Expected Earnings analysis is a forward-looking estimate of investors' expected returns. The use of an Expected Earnings approach based on the proxy companies provides a range of the expected returns on a group of risk comparable companies to the subject company. This range is useful in helping to determine the opportunity cost of investing in the subject company, which is relevant in determining a company's ROE.

Q68. **How did you develop the Expected Earnings approach?**

A68. I relied on the projected return on equity capital for the proxy companies as reported by Value Line for the period from 2021-2023. As shown in Exhibit JPT-7, for the Initial proxy group, the Expected Earnings analysis produces mean results of 11.75 percent in 2019 and 12.75 percent for the period from 2021-2023, and for the Alternate proxy group, it produces mean results of 11.00 percent in 2019 and 13.00 percent from 2021-2023.

VII. BUSINESS RISKS

Q69. **Are there risk factors specific to CUPA's operating and regulatory environment that you considered in your ROE recommendation?**

A69. Yes, there are two risk factors that have a direct bearing on the Company's ability to earn a fair return and on the Company's riskiness relative to the proxy group. Those factors are: (1) the Company's extremely small size relative to the proxy group companies; and (2) the

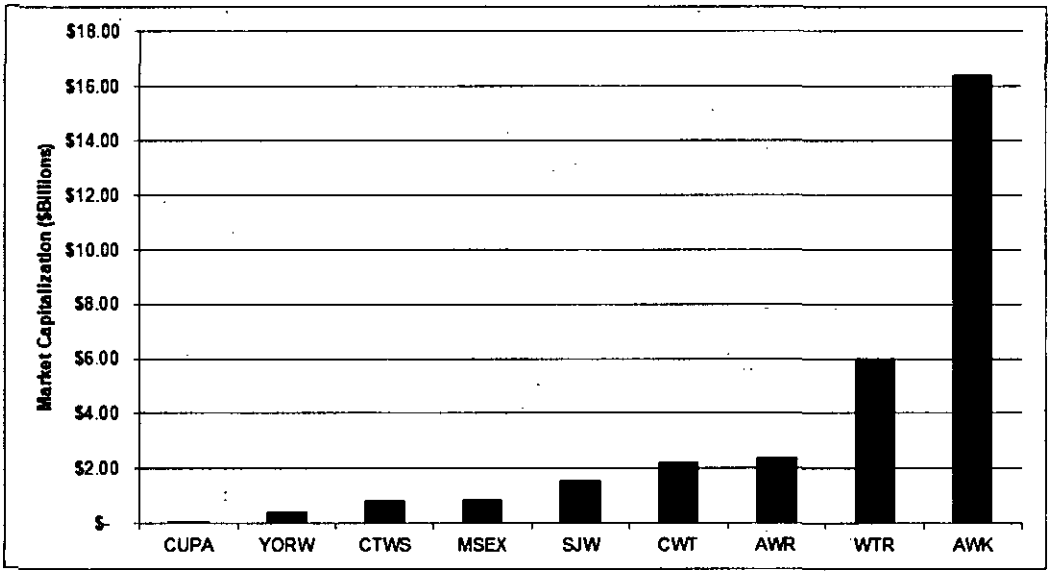
Company's regulatory risks relative to the proxy group. Those risk factors increase CUPA's risk relative to the proxy group and support an ROE at the upper end of the range for the proxy group companies.

A. Small Size

Q70. **To what extent does CUPA's extremely small size affect its risk profile?**

A70. The extremely small size of CUPA relative to the proxy group companies is an important risk factor in determining the Company's cost of equity. Substantial academic literature recognizes that smaller companies tend to be rewarded with higher total returns than larger companies, even after the relative illiquidity of smaller company stock is taken into account. Figure 13 (see also Exhibit JPT-8) shows CUPA's implied market capitalization relative to the proxy group companies.

Figure 13: Market Capitalization of CUPA vs. Proxy Group



CUPA's extremely small size relative to the proxy group companies means that the Company's earnings and cash flows may be disproportionately affected by the loss of large customers, or weaker than expected demand for water due to general macroeconomic conditions or weather in the service territory. Similarly, capital expenditures for non-revenue producing investments such as system maintenance and replacements will put proportionately greater pressure on customer costs. Taken together, these risks affect the return required by investors for smaller companies. While I recognize that, as a wholly-owned subsidiary of Utilities, Inc., CUPA may have some buffer from such external shocks, on a stand-alone basis the Company is extremely small as compared to the proxy group companies used for the ROE analysis. This extremely small size magnifies the effect of other business and financial risks on CUPA.

Q71. **Do credit rating agencies consider small size as a distinguishing risk factor?**

A71. Yes. For example, Moody's considers the size and diversity of utility operations to be a distinguishing factor that makes some utilities riskier than others. In discussing its rating methodology for regulated utilities, Moody's states:

> We also consider the diversity of utility operations (e.g., regulated electric, gas, water, steam) when there are material operations in more than one area. Economic diversity is typically a function of the population, size and breadth of the territory and the businesses that drive its GDP and employment. For the size of the territory, we typically consider the number of customers and the volumes of generation and/or throughput. For breadth, we consider the number of sizeable metropolitan areas served, the economic diversity and vitality in those metropolitan areas, and any concentration in a particular area or industry.[43]

[43] Moody's Investors Service, "Rating Methodology: Regulated Electric and Gas Utilities," December 23, 2013, at 19.

CUPA's service territory is characterized by the small size and lack of geographic and economic diversity that Moody's describes as an increased risk factor for regulated utilities.

Q72. **How did you estimate the size premium for CUPA?**

A72. Given this relative size information, it is possible to estimate the impact of size on the cost of equity for CUPA using Duff & Phelps' data that estimates the stock risk premia associated with a company's market capitalization. As shown in Exhibit JPT-8, the median market capitalization of the proxy group of approximately $1.89 billion corresponds to the seventh decile of the Duff & Phelps market capitalization data. Based on Duff & Phelps' analysis, that decile corresponds to a size premium of 1.72 percent (i.e., 172 basis points). CUPA's implied market capitalization of approximately $18.1 million falls within the tenth decile, which comprises market capitalization levels less than $262.9 million and corresponds to a size premium of 5.59 percent (i.e., 559 basis points). The difference between those size premia is 387 basis points (i.e., 5.59 percent minus 1.72 percent).

Q73. **Have regulators in other jurisdictions made a specific risk adjustment to the authorized ROE based on a company's small size?**

A73. Yes, regulators in other jurisdictions have recognized the importance of small size in setting the risk premium for regulated utilities. For example, in Order No. 15, the Regulatory Commission of Alaska concluded that Alaska Electric Light and Power Company ("AEL&P") was riskier than the proxy group companies due to its small size as well as other business risks. The Commission did "not believe that adopting the upper end of the range of ROE analyses in this case, without an explicit adjustment, would adequately

compensate AEL&P for its greater risk." [44] Thus, the Commission awarded AEL&P an ROE of 12.875 percent, which was 108 basis points above the highest return on equity estimate from any model presented in the case.[45] In addition, regulators in Canada have also accepted the size premium.[46]

Q74. **What is your conclusion regarding how CUPA's extremely small size affects the Company's cost of equity?**

A74. My conclusion is that CUPA is significantly smaller than the proxy group companies. While I have not made a specific adjustment to reflect the extremely small size of CUPA, the risk associated with CUPA's extremely small size indicates that the Company's authorized ROE should be at the upper end of the range of results for the proxy group.

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44 Docket No. U-10-29, In the Matter of the Revenue Requirement and Cost of Service Study Designated as TA381-1 Filed by Alaska Electric Light and Power Company, Order entered September 2, 2011 (Order No. 15), at 37.

45 *Id.*, at 32 and 37.

46 BCUC Generic Cost of Capital Proceeding (Stage 2) Decision, March 25, 2014, at iv., The British Colombia Utilities Commission's ("BCUC") Generic Cost of Capital decision for Stage 2 stated that small size relative to the benchmark utility was a business risk factor considered when awarding an equity risk premium to several utilities. See also, Yukon Utilities Board Appendix A to Board Order 2017-01: Reasons for Decision, April 27, 2017, at 44. The Yukon Utilities Board concluded "that small size is the most significant factor to be considered in determining a risk premium for ATCO Electric Yukon ("AEY")." The Board noted the 25-basis point premium awarded for small size in the BCUC decision which the Board deemed an acceptable premium for the additional risk associated with AEY's small size.

B. Regulatory Risks

Q75. **Do credit rating agencies consider regulatory risk in establishing a company's credit rating?**

A75. Yes. S&P, Moody's and Fitch all consider regulatory risk in establishing credit ratings for public utilities. In particular, Moody's has published a report quantifying the importance of this metric. Moody's establishes credit ratings based on four key factors: (1) regulatory framework; (2) the ability to recover costs and earn returns; (3) diversification; and (4) financial strength, liquidity, and key financial metrics. Of those criteria, regulatory framework and the ability to recover costs and earn returns are each given a broad rating factor of 25.00 percent. In sum, Moody's assigns regulatory risk a 50.00 percent weighting in the overall assessment of business and financial risk for regulated utilities.[47]

Q76. **How does the regulatory environment in which a utility operates affect its access to and cost of capital?**

A76. The regulatory environment can significantly affect both the access to, and cost of, capital in several ways. First, the proportion and cost of debt capital available to utility companies are influenced by the rating agencies' assessment of the regulatory environment. As noted by Moody's, "[f]or rate-regulated utilities, which typically operate as a monopoly, the regulatory environment and how the utility adapts to that environment are the most important credit considerations."[48] Moody's further notes:

> Utility rates are set in a political/regulatory process rather than a competitive or free-market process; thus, the Regulatory Framework is a key determinant of the success of utility. The Regulatory Framework has many components: the governing body and the utility legislation or decrees it

[47] Moody's Investors Service, *Regulated Electric and Gas Utilities*, December 23, 2013, at 6.
[48] Ibid, at 9.

> enacts, the manner in which regulators are appointed or elected, the rules and procedures promulgated by those regulators, the judiciary that interprets the laws and rules and that arbitrates disagreements, and the manner in which the utility manages the political and regulatory process. In many cases, utilities have experienced credit stress or default primarily or at least secondarily because of a break-down or obstacle in the Regulatory Framework – for instance, laws that prohibited regulators from including investments in uncompleted power plants or plants not deemed "used and useful" in rates, or a disagreement about rate-making that could not be resolved until after the utility had defaulted on its debts.[49]

It also is important to recognize that regulatory decisions regarding the authorized ROE and capital structure have direct consequences for the utility's internal cash flow generation (sometimes referred to as "Funds from Operations", or "FFO"). Since credit ratings are intended to reflect a company's ability to fund financial obligations, the ability to internally generate the cash flows required to meet those obligations (and to provide an additional amount for unexpected events) is of critical importance to debt investors. Two of the most important metrics used to assess that ability are the ratios of FFO to debt, and FFO to interest expense, both of which are directly affected by regulatory decisions regarding the appropriate rate of return and capital structure.

Q77. **How does CUPA's regulatory risk compare to that of the proxy companies?**

A77. CUPA has higher regulatory risk than the proxy group companies in two important ways. First, CUPA has greater regulatory risk related to fluctuations in volume than the companies in the proxy group. Customer demand for water can fluctuate for several reasons, including weather conditions and conservation efforts to reduce consumption. My understanding is CUPA has experienced declining average use per customer of

[49] *Ibid.*

approximately 2.15 percent per year since from 2009-2018. As shown in Exhibit JPT-9, approximately 22 percent of the operating company held by the proxy group have some form of revenue stabilization or decoupling mechanism that mitigates the risk associated with declining usage, while CUPA is fully exposed to volumetric risk. Further, CUPA does not have the ability to recover capital costs for investments that are made between rate cases. As shown in Exhibit JPT-9, more than 59 percent of the operating utilities held by the proxy group have an infrastructure tracking mechanism that allows them to recover capital costs for investments in maintaining and upgrading the distribution system.

Q78. **What is your conclusion regarding the Company's regulatory risk and the effect on the cost of equity for CUPA?**

A78. CUPA has higher volumetric risk than the operating companies held by the proxy group, and the Company does not have the ability to recover capital costs for projects that are placed in service between rate cases. My conclusion is that both of these factors indicate that CUPA has greater regulatory risk than the proxy group, which supports a cost of equity above the proxy group mean.

VIII. CAPITAL STRUCTURE

Q79. **What is CUPA's proposed capital structure?**

A79. CUPA is proposing a capital structure comprised of 50.0 percent common equity and 50.0 percent long-term debt.

Q80. **How does the capital structure affect the cost of equity?**

A80. The capital structure relates to a company's financial risk, which represents the risk that a company may not have adequate cash flows to meet its financial obligations, and is a function of the percentage of debt (or financial leverage) in its capital structure. In that regard, as the percentage of debt in the capital structure increases, so do the fixed obligations for the repayment of that debt. Consequently, as the degree of financial leverage increases, the risk of financial distress (*i.e.*, financial risk) also increases.[50] Since the capital structure can affect a company's overall level of risk, it is an important consideration in establishing a just and reasonable rate of return.

Q81. **How did you assess the reasonableness of CUPA's capital structure with respect to the proxy group?**

A81. The proxy group has been selected to reflect comparable companies in terms of business and financial risks. Therefore, it is appropriate to compare the capital structures of the proxy group companies to that of CUPA in order to assess whether the Company's capital structure is reasonable and consistent with industry standards for companies with commensurate risk. I calculated the average annual capital structure for each of my proxy group companies from 2013 through 2017. As shown in Exhibit JPT-10, the common equity ratios for the proxy group companies range from 45.98 percent to 60.52 percent with an average of 53.94 percent. CUPA's proposed common equity ratio of 50.0 percent is at the lower end of the range of common equity ratios and well below the mean of 53.94 percent.

[50] *See* Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 45-46.

Q82. **What is your conclusion regarding the appropriateness of CUPA's capital structure in this proceeding?**

A82. Based on the analysis presented in Exhibit JPT-10, my conclusion is that CUPA's proposed common equity ratio of 50.0 percent is reasonable, if not conservative, in light of the Company's extremely small size relative to the proxy group companies and the need for the Company to maintain its financial integrity and access to capital on reasonable terms.

IX. CONCLUSIONS AND RECOMMENDATION

Q83. **What is your conclusion regarding a fair ROE for CUPA?**

A83. My analytical results are summarized in Figures 14 and 15. Based on the quantitative analyses provided in my Direct Testimony, the reasonable range of results is from 10.00 percent to 11.00 percent. The low end of the range is supported by the mean CAPM results and the Risk Premium results based on the long-term projected Treasury bond yield, while the high end of the range is supported by the Mean High DCF results. The forward-looking CAPM results fall toward the upper end of this range, and the Expected Earnings analysis exceeds the range by a substantial margin. Taking into consideration the extremely small size and business risks of CUPA as compared to the proxy group of water distribution companies, I recommend an authorized ROE of 10.75 percent for CUPA.

Figure 14: Summary of ROE Analyses Results – Initial Proxy Group

Constant Growth DCF			
	Mean Low	Mean	Mean High
30-Day Average	7.63%	9.27%	10.96%
90-Day Average	7.63%	9.28%	10.97%
180-Day Average	7.67%	9.31%	11.00%
CAPM			
	Historical MRP	Mean	Forward-Looking MRP
Projected Risk-Free Rate	8.65%	9.90%	11.14%
Treasury Yield Plus Risk Premium			
	Current 30 day Avg Treasury Bond Yield	Near Term Blue Chip Forecast Yield	Long Term Blue Chip Forecast Yield
Risk Premium Analysis	9.74%	9.96%	10.13%
Expected Earnings			
		Value Line: 2019	Value Line: 2021-2023
Median Expected Earnings		11.75%	12.75%

1

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Figure 15: Summary of ROE Analyses Results – Alternate Proxy Group

Constant Growth DCF			
	Mean Low	Mean	Mean High
30-Day Average	7.58%	9.16%	10.69%
90-Day Average	7.63%	9.21%	10.74%
180-Day Average	7.70%	9.28%	10.81%
CAPM			
	Historical MRP	Mean	Forward-Looking MRP
Projected Risk-Free Rate	8.80%	10.09%	11.37%
Treasury Yield Plus Risk Premium			
	Current 30 day Avg Treasury Bond Yield	Near Term Blue Chip Forecast Yield	Long Term Blue Chip Forecast Yield
Risk Premium Analysis	9.74%	9.96%	10.13%
Expected Earnings			
		Value Line: 2019	Value Line: 2021-2023
Median Expected Earnings		11.00%	13.00%

In my view, an authorized ROE of 10.75 percent reasonably balances the interests of customers and shareholders by enabling CUPA to maintain its financial integrity and therefore its ability to attract capital at reasonable terms and conditions under a variety of economic and financial market conditions. One could argue that CUPA's authorized ROE should be higher based on its extremely small size and relative business risk.

Q84. **What is your conclusion regarding CUPA's capital structure?**

A84. My conclusion is that the Company's proposed capital structure consisting of 50.0 percent common equity and 50.0 percent long-term debt is reasonable, if not conservative, as compared to the mean common equity ratios for the proxy group companies and in light of the extremely small size and higher business risk of CUPA relative to the proxy group.

Q85. **Does this conclude your Direct Testimony?**

A85. Yes, it does.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Community Utilities of Pennsylvania Inc.	:	
Wastewater Divisions	:	Docket No. R-2019-_____

EXHIBITS TO

COMMUNITY UTILITIES OF PENNSYLVANIA INC.'S

DIRECT TESTIMONY OF

JOHN P. TROGONOSKI

Dated: April 1, 2019

CONCENTRIC ENERGY ADVISORS

John P. Trogonoski
Senior Project Manager

Mr. Trogonoski is a Project Manager with approximately 25 years of experience in utility regulation, financial and economic analysis, business valuation, property taxation, and program administration. Since joining Concentric in 2008, Mr. Trogonoski has assisted clients with a variety of regulatory matters including expert testimony and reports on cost of capital and business and financial risk analysis. As a member of the Staff of the Colorado Public Utilities Commission, Mr. Trogonoski supervised the financial analysts in the energy and telecommunications sections and filed expert testimony on matters such as rate of return, revenue requirement, cost allocation, rate design, incentive regulation, and public policy. He has an M.S. in Business Administration and a B.S. in Marketing from the University of Colorado at Denver.

REPRESENTATIVE PROJECT EXPERIENCE

Utility Consulting

Since joining Concentric Energy Advisors in February 2008, Mr. Trogonoski has:

- Filed expert testimony on behalf of Hydro-Quebec Distribution and Transmission in support of the Company's request to the Régie de l'energie to modify its allowed return on equity. Performed risk analysis to determine whether it was appropriate to consider a U.S. peer group of regulated electric utilities as an appropriate proxy group for purposes of establishing the allowed ROE for Hydro-Quebec. This analysis included review of the business and financial risks of Canadian and U.S. peer groups on factors that are important to investors in assessing the relative risks of these companies and the regulatory protections that help to mitigate those risks.
- Prepared expert testimony and exhibits for return on equity analysis for numerous North American gas and electric utility clients. This included preparing direct testimony, responding to data requests, drafting rebuttal testimony in response to intervening witnesses, assisting with hearing preparation, and drafting post-hearing statements of position.
- Prepared expert testimony and exhibits for multiple clients seeking regulatory approval of mergers and acquisitions. This included summarizing credit rating agency reactions to the proposed mergers, researching merger approval standards, analyzing the benefits of increased financial scale in the utility industry, and developing financial and ring-fencing commitments in order to mitigate any risk that might result from the merger.
- Performed regulatory due diligence for clients considering the potential acquisition of a natural gas distribution company and an electric transmission company. Due diligence included a review of the regulatory framework in the jurisdiction of the target company, potential cost disallowances, an assessment of the projected ROE and capital structure, an evaluation of the reasonableness of projected capital spending based on forecasted economic growth in the service territory, and the implications of these factors on the value of the target company.
- Assisted in the development of a conservation program for New Jersey American Water, which was filed with the Board of Public Utilities in conjunction with the company's rate case. The program included rebates for various indoor and outdoor plumbing fixtures, as well as

estimated penetration of the proposed rebate programs, and a cost/benefit analysis in support of the various rebates.

- Prepared rebuttal testimony for Central Maine Power in response to a complaint from Staff of the Maine Public Utilities Commission concerning the billing and collection practices of the utility. Demonstrated that increase in late payments was attributable to economic conditions during the recession rather than to decision by the company to outsource the billing and collection function to a third-party provider.
- Reviewed de-list bids filed with the ISO New England by a merchant generation company that wished to withdraw from the Forward Capacity Market. Also prepared user manuals for ISO New England to assist project sponsors in completing a request to provide new supply generation in the Forward Capacity Market, and to assist market participants in completing a request to de-list existing capacity.
- Analyzed the internal policies and tariff of New Mexico Gas in response to service outages and determined if the time to restore service to customers was consistent with other major gas distribution outages that have occurred across the United States. Offered recommendations to improve the Company's communication with regulators and customers.
- Assisted in the development of a business valuation for Poseidon Water, LLC by reviewing and validating cost assumptions for construction costs, water rates, and electricity prices. Also developed cost of capital studies for proxy groups of regulated water utilities and wholesale power generators for use in this valuation.

EXPERT REPORTS

- Drafted a report for the Ontario Energy Board that reviewed low-income energy assistance programs that have been implemented in other jurisdictions, including Canada, the United States, the United Kingdom, the European Union countries, Australia, and New Zealand. Attended hearing and responded to questions related to research report on behalf of OEB staff.
- Drafted a report for the Ontario Energy Board that proposed revisions to the Board's existing rules for Demand Side Management for gas distribution companies in Ontario. Participated in workshop and responded to questions from stakeholders regarding the proposed changes to the Board's rules.

REGULATORY EXPERIENCE

While at the Colorado Public Utilities Commission, Mr. Trogonoski:

- Supervised financial analysts in the energy and telecommunications units from 2004 to 2008. In this capacity, he was responsible for the financial analysis, accounting, and auditing work of between five and nine financial analysts. This included preparation of expert testimony and recommendations concerning rate cases, applications for alternative forms of regulatory treatment, performance of managerial and financial audits, compliance with relevant statutes and Commission rules, and review of applications for certificates of public convenience and necessity, transfers of authority, franchise agreements, and discontinuance of service.

- Provided expert testimony on rate of return issues, capital structure, cost of debt, financial integrity, and credit quality in numerous rate case proceedings involving energy, telecommunications and water companies including Xcel Energy, Qwest Corporation, and Atmos Energy.
- Performed managerial and financial audits of regulated energy and telecommunications companies using the regulatory and accounting guidelines in the Uniform System of Accounts relied upon by the Federal Energy Regulatory Commission, the Federal Communications Commission, the Financial Accounting Standards Board, and the Commission's rules and regulations.
- Led Staff's review of an application for relaxed regulatory treatment by Qwest Corporation. Provided expert testimony regarding Qwest's market share in Colorado relative to cable providers, wireless providers, and Competitive Local Exchange Carriers. Assisted professional market research firm in designing questionnaire to examine customer preferences for purchasing telecommunications services, expectations concerning price and quality of those services, and desire for regulation over those services.
- Led Staff's investigation into a Competitive Local Exchange Carrier who was providing regulated telephone service to over 14,000 customers without the requisite Commission authority and without an effective tariff. This investigation resulted in a Commission order to cease and desist provision of regulated services, an order to transfer customers to an alternative provider, and sanctions against the principals.
- Administered the Colorado High Cost Support Mechanism, which provided universal telecommunications service to customers in rural, high costs areas through an assessment on all Colorado customers. Also, later supervised the position that administered this program.

PUBLICATIONS AND RESEARCH

- "Autopilot Error: Why Similar U.S. and Canadian Risk Profiles Yield Varied Rate-making Results" (with John Trogonoski), Public Utilities Fortnightly, May 2010

PROFESSIONAL HISTORY

Concentric Energy Advisors, Inc. (2008 – Present)
Senior Project Manager
Project Manager
Senior Consultant

Colorado Public Utilities Commission (2004 – 2008)
Supervisory Financial Analyst, Telecommunications and Energy

Colorado Public Utilities Commission (1999 – 2004)
Financial Analyst, Telecommunications, Energy and Water

State of Colorado, Division of Property Taxation (1994 – 1999)
Property Tax Specialist

Nobel Sysco, Inc. (1992 – 1994)
Marketing Associate

State of Colorado, Division of Property Taxation (1989 – 1991)
Tax Appraiser Consultant

EDUCATION

M.S. in Business Administration, University of Colorado at Denver, 1987
B.S. in Marketing, University of Colorado at Denver, 1986

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Colorado Public Utilities Commission				
Colorado PUC Staff	2000	Qwest Corporation	99A-577T	Capital Structure Cost of Capital Cost of Debt Composite Income Tax Rate Interest During Construction factor Ad Valorem Tax factor
Colorado PUC Staff	2001	Peetz Cooperative Telephone	01S-321T	Cost of Capital Revenue Requirement Adjustments to Rate Base Adjustment to Operating Expenses Imputed Capital Structure Capital Credit Rotation
Colorado PUC Staff	2002	Mile High Telecom	02C-082T	Order to show cause Operating without CPCN or tariff Violation of stipulation – alleged fraud
Colorado PUC Staff	2002	Public Service Company of Colorado – Electric/Gas	02S-315EG	Cost of Capital Dissolution of PS Credit Corporation Financial Integrity and credit ratings Impact of NRG on regulated entity Dividend payments and capital spending
Colorado PUC Staff	2003	Aquila Networks, Inc.	02S-594E	Cost of Capital
Colorado PUC Staff	2003	Lake Durango Water Company	03S-052W	Allowable expenses – depreciation and taxes Value of purchased water Operating Ratio method Rate design for retail and bulk customers Customer impact of proposed rates Enhancement of accounting & financial reports
Colorado PUC Staff	2003	Roggen Telephone	03S-246T	Cost of Capital

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Colorado PUC Staff	2003	South Park Telephone	03A-277T	Request for HCSM support Adjustments to Rate Base Disallowance of Expenses Depreciation rates and USF impact Cost of Capital
Colorado PUC Staff	2003	Pine Drive Telephone	03S-314T	Cost of Capital
Colorado PUC Staff	2003	Phillips County Telephone	03S-315T	Cost of Capital
Colorado PUC Staff	2004	Aquila Networks, Inc.	04S-035E	Cost of Capital
Colorado PUC Staff	2004	SC TxLink, LLC	04A-508	CPCN for CLEC authority Financial Assurance - bonding
Colorado PUC Staff	2005	Qwest Corporation	04A-411T	History of CLEC competition since 1996 Wireless competition in Colorado Is Wireless substitute for wireline? Financial barriers to entry Introduce customer survey Analyze and interpret survey results Regulation of retail service in 14 states
Colorado PUC Staff	2005	Public Service Company of Colorado – Gas	05S-264G	Cost of Capital – investor owned Rate design issues in Phase 2 – S&F Charge Impact on rate of return – minimum system
Colorado PUC Staff	2005	Public Service Company of Colorado - Steam	05S-369ST	Cost of Capital
Colorado PUC Staff	2006	Public Service Company of Colorado - Electric	06S-234EG	Cost of Capital Credit quality and cash flow Financial integrity and credit ratings Purchased power and imputed debt Performance based regulatory plan
Colorado PUC Staff	2007	Public Service Company of Colorado - Gas	06S-656G	Cost of Capital Financial integrity and credit ratings

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Colorado PUC Staff	2007	Nunn Telephone	07A-124T	Overview of HCSM statutes and rules Information required by CRS 40-15-208 Use of separation program – revenue requirement Challenges faced with new petition process
Island Regulatory and Appeals Commission (Prince Edward Island)				
Maritime Electric Company, Ltd.	2018	Maritime Electric Company, Ltd.	UE20944	Cost of Capital
Subpoenas to Provide Expert Testimony				
U.S. Bankruptcy Court – Denver, CO	2005	ON Systems, Inc.	N/A	Testify in U.S. bankruptcy court - value of CPCN for local exchange telecom service
U.S. District Court, Southern District of Florida	2008	USA vs. Wetherald, et al	06-80199-CR-MARRA	Testify on behalf of U.S. government Wire fraud, mail fraud, money laundering
New York Public Service Commission				
New York State Gas and Electric Company and Rochester Gas and Electric	2015	New York State Gas and Electric Company and Rochester Gas and Electric	15G-0284	Cost of Capital (Rebuttal)
Niagara Mohawk Power Corporation d/b/a National Grid	2017	Niagara Mohawk Power Corporation d/b/a National Grid	17-E-0238 17-G-0239	Cost of Capital (Rebuttal)
Régie de l'Energie du Quebec				
Hydro Quebec Distribution and Hydro Quebec TransÉnergie	2013	Hydro Quebec Distribution and Hydro Quebec TransÉnergie	R-3842-2013	Risk analysis in support of ROE testimony
Vermont Public Utility Commission				
Vermont Gas Systems, Inc.	2019	Vermont Gas Systems	TBD	Cost of Equity

SUMMARY OF ROE ANALYSES RESULTS			
Constant Growth DCF			
	Mean Low	Mean	Mean High
30-Day Average	7.63%	9.27%	10.96%
90-Day Average	7.63%	9.28%	10.97%
180-Day Average	7.67%	9.31%	11.00%
CAPM			
	Historical MRP	Mean	Forward-Looking MRP
Projected Risk-Free Rate	8.65%	9.90%	11.14%
Treasury Yield Plus Risk Premium			
	Current 30 day Avg Treasury Bond Yield	Near Term Blue Chip Forecast Yield	Long Term Blue Chip Forecast Yield
Risk Premium Analysis	9.74%	9.96%	10.13%
Expected Earnings			
		Value Line: 2019	Value Line: 2021-2023
Median Expected Earnings		11.75%	12.75%

SUMMARY OF ROE ANALYSES RESULTS - EXCLUDING MERGERS			
Constant Growth DCF			
	Mean Low	Mean	Mean High
30-Day Average	7.58%	9.16%	10.69%
90-Day Average	7.63%	9.21%	10.74%
180-Day Average	7.70%	9.28%	10.81%
CAPM			
	Historical MRP	Mean	Forward-Looking MRP
Projected Risk-Free Rate	8.80%	10.09%	11.37%
Treasury Yield Plus Risk Premium			
	Current 30 day Avg Treasury Bond Yield	Near Term Blue Chip Forecast Yield	Long Term Blue Chip Forecast Yield
Risk Premium Analysis	9.74%	9.96%	10.13%
Expected Earnings			
		Value Line: 2019	Value Line: 2021-2023
Median Expected Earnings		11.00%	13.00%

30-DAY CONSTANT GROWTH DCF

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Earnings Growth	[6] Yahoo! Finance Earnings Growth	[7] Zacks Earnings Growth	[8] Average Growth	[9] Low DCF ROE	[10] Mean DCF ROE	[11] High DCF ROE
American States Water Co	AWR	$1.10	$65.84	1.68%	1.73%	6.00%	6.00%	6.00%	6.00%	7.73%	7.73%	7.73%
American Water Works	AWK	$1.82	$91.36	1.99%	2.06%	10.00%	8.20%	7.80%	8.67%	9.87%	10.75%	12.09%
Aqua America, Inc.	WTR	$0.88	$33.85	2.59%	2.66%	7.50%	5.00%	5.30%	5.93%	7.65%	8.60%	10.18%
California Water Service Group	CWT	$0.75	$46.55	1.61%	1.68%	9.50%	9.80%	7.00%	8.77%	8.67%	10.45%	11.49%
Connecticut Water Service, Inc.	CTWS	$1.25	$66.47	1.88%	1.93%	5.50%	6.00%	n/a	5.75%	7.43%	7.68%	7.94%
Middlesex Water Company	MSEX	$0.96	$53.99	1.78%	1.83%	9.00%	2.70%	n/a	5.85%	4.50%	7.68%	10.86%
SJW Corporation	SJW	$1.12	$56.80	1.97%	2.07%	6.00%	14.00%	n/a	10.00%	8.03%	12.07%	16.11%
York Water Company	YORW	$0.69	$31.83	2.18%	2.25%	9.00%	4.90%	n/a	6.95%	7.13%	9.20%	11.28%
PROXY GROUP MEAN				1.96%	2.03%	7.81%	7.08%	6.53%	7.24%	7.63%	9.27%	10.96%

Notes
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of January 31, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line Investment Survey
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

90-DAY CONSTANT GROWTH DCF

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Earnings Growth	[6] Yahoo! Finance Earnings Growth	[7] Zacks Earnings Growth	[8] Average Growth	[9] Low DCF ROE	[10] Mean DCF ROE	[11] High DCF ROE
American States Water Co	AWR	$1.10	$64.14	1.71%	1.77%	6.00%	6.00%	6.00%	6.00%	7.77%	7.77%	7.77%
American Water Works	AWK	$1.82	$91.13	2.00%	2.06%	10.00%	8.20%	7.80%	8.67%	9.88%	10.75%	12.10%
Aqua America, Inc.	WTR	$0.88	$34.63	2.53%	2.60%	7.50%	5.00%	5.30%	5.93%	7.59%	8.54%	10.12%
California Water Service Group	CWT	$0.75	$44.62	1.68%	1.75%	9.50%	9.80%	7.00%	8.77%	8.74%	10.52%	11.56%
Connecticut Water Service, Inc.	CTWS	$1.25	$68.26	1.83%	1.88%	5.50%	6.00%	n/a	5.75%	7.38%	7.63%	7.89%
Middlesex Water Company	MSEX	$0.96	$50.47	1.90%	1.96%	9.00%	2.70%	n/a	5.85%	4.63%	7.81%	10.99%
SJW Corporation	SJW	$1.12	$58.97	1.90%	1.99%	6.00%	14.00%	n/a	10.00%	7.96%	11.99%	16.03%
York Water Company	YORW	$0.69	$31.85	2.18%	2.25%	9.00%	4.90%	n/a	6.95%	7.13%	9.20%	11.27%
PROXY GROUP MEAN				1.97%	2.04%	7.81%	7.08%	6.53%	7.24%	7.63%	9.28%	10.97%

Notes
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 90-day average as of January 31, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line Investment Survey
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

180-DAY CONSTANT GROWTH DCF

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Earnings Growth	[6] Yahoo! Finance Earnings Growth	[7] Zacks Earnings Growth	[8] Average Growth	[9] Low DCF ROE	[10] Mean DCF ROE	[11] High DCF ROE
American States Water Co	AWR	$1.10	$61.41	1.79%	1.84%	6.00%	6.00%	6.00%	6.00%	7.84%	7.84%	7.84%
American Water Works	AWK	$1.82	$88.45	2.06%	2.15%	10.00%	8.20%	7.80%	8.67%	9.94%	10.81%	12.16%
Aqua America, Inc.	WTR	$0.88	$35.30	2.48%	2.56%	7.50%	5.00%	5.30%	5.93%	7.54%	8.49%	10.07%
California Water Service Group	CWT	$0.75	$42.55	1.76%	1.84%	9.50%	9.80%	7.00%	8.77%	8.82%	10.61%	11.65%
Connecticut Water Service, Inc.	CTWS	$1.25	$67.28	1.86%	1.91%	5.50%	6.00%	n/a	5.75%	7.41%	7.66%	7.91%
Middlesex Water Company	MSEX	$0.96	$47.42	2.02%	2.08%	9.00%	2.70%	n/a	5.85%	4.75%	7.93%	11.12%
SJW Corporation	SJW	$1.12	$60.99	1.84%	1.93%	6.00%	14.00%	n/a	10.00%	7.89%	11.93%	15.96%
York Water Company	YORW	$0.69	$31.58	2.20%	2.27%	9.00%	4.90%	n/a	6.95%	7.15%	9.22%	11.29%
PROXY GROUP MEAN				2.00%	2.07%	7.81%	7.08%	6.53%	7.24%	7.67%	9.31%	11.00%

Notes
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 180-day average as of January 31, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line Investment Survey
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

30-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low DCF ROE	Mean DCF ROE	High DCF ROE
American States Water Co	AWR	$1.10	$65.64	1.68%	1.73%	6.00%	6.00%	6.00%	6.00%	7.73%	7.73%	7.73%
American Water Works	AWK	$1.82	$91.36	1.99%	2.08%	10.00%	8.20%	7.80%	8.67%	9.87%	10.75%	12.09%
California Water Service Group	CWT	$0.75	$46.55	1.61%	1.68%	9.50%	9.80%	7.00%	8.77%	8.67%	10.45%	11.49%
Middlesex Water Company	MSEX	$0.96	$53.99	1.78%	1.83%	9.00%	2.70%	n/a	5.85%	4.50%	7.68%	10.86%
York Water Company	YORW	$0.69	$31.83	2.18%	2.25%	9.00%	4.90%	n/a	6.95%	7.13%	9.20%	11.28%
PROXY GROUP MEAN				1.85%	1.91%	8.70%	6.32%	6.93%	7.25%	7.58%	9.16%	10.69%

Notes
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of January 31, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line Investment Survey
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

90-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low DCF ROE	Mean DCF ROE	High DCF ROE
American States Water Co	AWR	$1.10	$64.14	1.71%	1.77%	6.00%	6.00%	6.00%	6.00%	7.77%	7.77%	7.77%
American Water Works	AWK	$1.82	$91.13	2.00%	2.08%	10.00%	8.20%	7.80%	8.67%	9.88%	10.75%	12.10%
California Water Service Group	CWT	$0.75	$44.62	1.68%	1.75%	9.50%	9.80%	7.00%	8.77%	8.74%	10.52%	11.56%
Middlesex Water Company	MSEX	$0.96	$50.47	1.90%	1.96%	9.00%	2.70%	n/a	5.85%	4.63%	7.81%	10.99%
York Water Company	YORW	$0.69	$31.85	2.18%	2.25%	9.00%	4.90%	n/a	6.95%	7.13%	9.20%	11.27%
PROXY GROUP MEAN				1.89%	1.96%	8.70%	6.32%	6.93%	7.25%	7.63%	9.21%	10.74%

Notes
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 90-day average as of January 31, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line Investment Survey
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

180-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low DCF ROE	Mean DCF ROE	High DCF ROE
American States Water Co	AWR	$1.10	$61.41	1.79%	1.84%	6.00%	6.00%	6.00%	6.00%	7.84%	7.84%	7.84%
American Water Works	AWK	$1.82	$88.45	2.06%	2.15%	10.00%	8.20%	7.80%	8.67%	9.94%	10.81%	12.16%
California Water Service Group	CWT	$0.75	$42.55	1.76%	1.84%	9.50%	9.80%	7.00%	8.77%	8.82%	10.61%	11.65%
Middlesex Water Company	MSEX	$0.96	$47.42	2.02%	2.08%	9.00%	2.70%	n/a	5.85%	4.75%	7.93%	11.12%
York Water Company	YORW	$0.69	$31.58	2.20%	2.27%	9.00%	4.90%	n/a	6.95%	7.15%	9.22%	11.29%
PROXY GROUP MEAN				1.97%	2.04%	8.70%	6.32%	6.93%	7.25%	7.70%	9.28%	10.81%

Notes
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 180-day average as of January 31, 2019
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line Investment Survey
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

PROXY GROUPS BETAS

US Proxy Group	Ticker	[1] Value Line
American States Water Co	AWR	0.70
American Water	AWK	0.55
Aqua America, Inc.	WTR	0.70
California Water Service Group	CWT	0.70
Connecticut Water Service, Inc.	CTWS	0.60
Middlesex Water Company	MSEX	0.75
SJW Corporation	SJW	0.60
York Water Company	YORW	0.75
MEAN		0.67

Notes:

[1] Source: Value Line as of January 31, 2019.

PROXY GROUPS BETAS

US Proxy Group	Ticker	[1] Value Line
American States Water Co	AWR	0.70
American Water	AWK	0.55
California Water Service Group	CWT	0.70
Middlesex Water Company	MSEX	0.75
York Water Company	YORW	0.75
MEAN		0.69

Notes:
[1] Source: Value Line as of January 31, 2019.

CAPITAL ASSET PRICING MODEL											
					[1]	[2]	[3]	[4]	[5]	[6]	[7]
									Return on Equity		
							Market Risk Premium		CAPM		
					Risk-Free Rate	Average Beta	Historical MRP	Market DCF Derived	Historical MRP	Mean	Market DCF Derived
Blue Chip Consensus Forecast (2020-2024)					3.90%	0.669	7.10%	10.83%	8.65%	9.90%	11.14%
									8.65%	9.90%	11.14%

MARKET RISK PREMIUM DERIVED FROM ANALYSTS' LONG-TERM GROWTH ESTIMATES FOR S&P 500

	[8]	[9]	[10]
	Estimated Dividend Yield	S&P 500 Long-Term Growth Rate	S&P 500 Est. Market Return
Yahoo Finance	2.07%	12.00%	14.19%
S&P	2.07%	13.06%	15.27%

[11] Long-Term Projected 30-Year Treasury: 3.90%

[12] Implied Market Risk Premium: 10.83%

Notes:

[1] Blue Chip Consensus Forecast (2020 - 2024)
Source: Blue Chip Financial Forecasts, Vol. 37, No. 12, December 1, 2018, at 14

[2] Source: Value Line Investment Survey

[3] Source: Duff & Phelps 2018 Cost of Capital: Annual U.S. Guidance and Examples, Chapter 2, Exhibit 2.3, at 4.

[4] Equals [12]

[5] Equals (Col. [2] x Col. [3]) + Col. [1]

[6] Equals average of Col. [5] and Col. [7]

[7] Equals (Col. [2] x Col. [4]) + Col. [1]

[8] Source: Bloomberg Professional

[9] Source: Yahoo! Finance and Standard and Poor's Earnings and Estimates report, as of January 31, 2019.

[10] Equals (Col. [8] x (1 + (0.5 x Col. [9]))) + Col. [9]

[11] *See note* [1]

[12] Equals Col. [10] – Col. [11]

CAPITAL ASSET PRICING MODEL

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
					Return on Equity		
			Market Risk Premium		CAPM		
	Risk-Free Rate	Average Beta	Historical MRP	Market DCF Derived	Historical MRP	Mean	Market DCF Derived
Blue Chip Consensus Forecast (2020-2024)	3.90%	0.690	7.10%	10.83%	8.80%	10.09%	11.37%
					8.80%	10.09%	11.37%

MARKET RISK PREMIUM DERIVED FROM ANALYSTS' LONG-TERM GROWTH ESTIMATES FOR S&P 500

	[8] Estimated Dividend Yield	[9] S&P 500 Long-Term Growth Rate	[10] S&P 500 Est. Market Return
Yahoo! Finance	2.07%	12.00%	14.19%
S&P	2.07%	13.06%	15.27%

[11] Long-Term Projected 30-Year Treasury: 3.90%

[12] Implied Market Risk Premium: 10.83%

Notes:

[1] Blue Chip Consensus Forecast (2020 - 2024)
Source: Blue Chip Financial Forecasts, Vol. 37, No. 12, December 1, 2018, at 14

[2] Source: Value Line Investment Survey

[3] Source: Duff & Phelps 2018 Cost of Capital: Annual U.S. Guidance and Examples, Chapter 2, Exhibit 2.3, at 4.

[4] Equals [12]

[5] Equals (Col. [2] x Col. [3]) + Col. [1]

[6] Equals average of Col. [5] and Col. [7]

[7] Equals (Col. [2] x Col. [4]) + Col. [1]

[8] Source: Bloomberg Professional

[9] Source: Yahoo! Finance and Standard and Poor's Earnings and Estimates report, as of January 31, 2019.

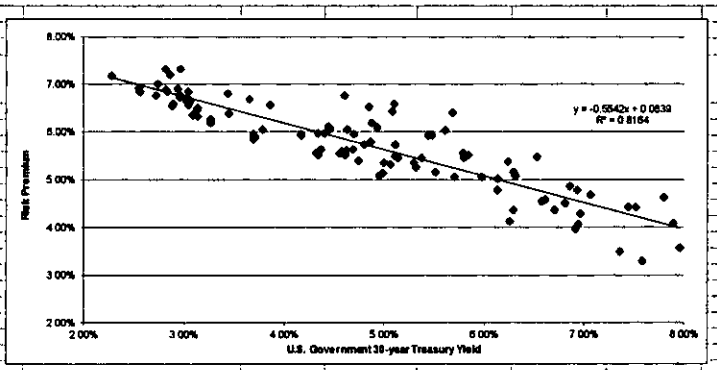
[10] Equals (Col. [8] x (1 + (0.5 x Col. [9]))) + Col. [9]

[11] *See note* [1]

[12] Equals Col. [10] – Col. [11]

RISK PREMIUM – GAS UTILITIES

	[1] Average Authorized Gas ROE	[2] U.S. Govt 30-year Treasury	[3] Risk Premium
1992.1	12.42%	7.80%	4.62%
1992.2	11.98%	7.89%	4.09%
1992.3	11.87%	7.45%	4.42%
1992.4	11.94%	7.52%	4.42%
1993.1	11.75%	7.07%	4.68%
1993.2	11.71%	6.86%	4.85%
1993.3	11.39%	6.31%	5.07%
1993.4	11.16%	6.14%	5.02%
1994.1	11.12%	6.57%	4.55%
1994.2	10.84%	7.35%	3.48%
1994.3	10.87%	7.58%	3.28%
1994.4	11.53%	7.96%	3.57%
1995.2	11.00%	6.94%	4.06%
1995.3	11.07%	6.71%	4.35%
1995.4	11.61%	6.23%	5.37%
1996.1	11.45%	6.29%	5.16%
1996.2	10.88%	6.92%	3.96%
1996.3	11.25%	6.96%	4.29%
1996.4	11.19%	6.62%	4.58%
1997.1	11.31%	6.81%	4.49%
1997.2	11.70%	6.93%	4.77%
1997.3	12.00%	6.53%	5.47%
1997.4	10.92%	6.14%	4.78%
1998.2	11.37%	5.85%	5.52%
1998.3	11.41%	5.47%	5.94%
1998.4	11.69%	5.10%	6.59%
1999.1	10.82%	5.37%	5.44%
1999.2	11.25%	5.79%	5.46%
1999.4	10.38%	6.25%	4.12%
2000.1	10.66%	6.29%	4.36%
2000.2	11.03%	5.97%	5.06%
2000.3	11.33%	5.79%	5.55%
2000.4	12.10%	5.69%	6.41%
2001.1	11.38%	5.44%	5.93%
2001.2	10.75%	5.70%	5.05%
2001.4	10.65%	5.30%	5.35%
2002.1	10.67%	5.51%	5.15%
2002.2	11.64%	5.61%	6.03%
2002.3	11.50%	5.08%	6.42%
2002.4	11.01%	4.93%	6.08%
2003.1	11.38%	4.85%	6.53%
2003.2	11.36%	4.60%	6.76%
2003.3	10.61%	5.11%	5.50%
2003.4	10.84%	5.11%	5.73%
2004.1	11.06%	4.88%	6.18%
2004.2	10.57%	5.32%	5.25%
2004.3	10.37%	5.06%	5.31%
2004.4	10.66%	4.86%	5.79%
2005.1	10.65%	4.69%	5.96%
2005.2	10.54%	4.47%	6.07%
2005.3	10.47%	4.44%	6.03%
2005.4	10.32%	4.68%	5.63%
2006.1	10.68%	4.63%	6.05%
2006.2	10.60%	5.14%	5.46%
2006.3	10.34%	4.99%	5.34%
2006.4	10.14%	4.74%	5.40%
2007.1	10.52%	4.80%	5.72%
2007.2	10.13%	4.99%	5.14%
2007.3	10.03%	4.95%	5.08%
2007.4	10.12%	4.61%	5.50%
2008.1	10.38%	4.41%	5.97%
2008.2	10.17%	4.57%	5.60%
2008.3	10.55%	4.44%	6.11%
2008.4	10.34%	3.65%	6.69%
2009.1	10.24%	3.44%	6.81%
2009.2	10.11%	4.17%	5.94%
2009.3	9.88%	4.32%	5.56%
2009.4	10.31%	4.34%	5.97%
2010.1	10.24%	4.62%	5.61%
2010.2	9.99%	4.36%	5.62%
2010.3	10.43%	3.86%	6.57%
2010.4	10.09%	4.17%	5.93%
2011.1	10.10%	4.56%	5.54%
2011.2	9.85%	4.34%	5.51%
2011.3	9.65%	3.69%	5.96%
2011.4	9.88%	3.04%	6.84%
2012.1	9.63%	3.14%	6.50%
2012.2	9.83%	2.93%	6.90%
2012.3	9.75%	2.74%	7.01%
2012.4	10.06%	2.86%	7.19%
2013.1	9.57%	3.13%	6.44%
2013.2	9.47%	3.14%	6.33%
2013.3	9.60%	3.71%	5.89%
2013.4	9.83%	3.79%	6.04%
2014.1	9.54%	3.69%	5.85%
2014.2	9.84%	3.44%	6.39%
2014.3	9.45%	3.26%	6.19%
2014.4	10.28%	2.96%	7.32%
2015.1	9.47%	2.55%	6.91%
2015.2	9.43%	2.88%	6.55%
2015.3	9.75%	2.96%	6.79%
2015.4	9.68%	2.96%	6.72%
2016.1	9.48%	2.72%	6.76%
2016.2	9.42%	2.57%	6.85%
2016.3	9.47%	2.28%	7.19%
2016.4	9.67%	2.83%	6.84%
2017.1	9.60%	3.04%	6.56%
2017.2	9.47%	2.90%	6.58%
2017.3	10.14%	2.82%	7.32%
2017.4	9.70%	2.82%	6.88%
2018.1	9.68%	3.02%	6.66%
2018.2	9.43%	3.09%	6.34%
2018.3	9.71%	3.06%	6.65%
2018.4	9.53%	3.27%	6.26%
2019.1	9.75%	3.03%	6.72%
AVERAGE	10.54%	4.81%	5.72%
MEDIAN	10.47%	4.74%	5.85%



SUMMARY OUTPUT

Regression Statistics

Multiple R	0.903567333
R Square	0.816433926
Adjusted R Square	0.814651731
Standard Error	0.003943403
Observations	105

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.007123742	0.007123742	458.1058605	1.05412E-39
Residual	103	0.001601694	1.55504E-05		
Total	104	0.008725436			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.083911079	0.001303948	64.35155883	5.36705E-85	0.081325008	0.08649715	0.081325006	0.086497152
U.S. Govt. 30-year Treasury	-0.554163355	0.025891361	-21.40340768	1.05412E-39	-0.605512763	-0.5028139	-0.605512763	-0.502813947

	[7] U.S. Govt 30-year Treasury	[8] Risk Premium	[9] ROE
Current Risk Free Rate [4]	3.03%	6.71%	9.74%
Blue Chip Consensus Forecast (Q2 2019 - Q3 2020) [5]	3.52%	6.44%	9.96%
Blue Chip Consensus Forecast (2020-2024) [6]	3.90%	6.23%	10.13%
AVERAGE			9.94%

Notes:

[1] Source: Regulatory Research Associates, accessed March 6, 2019

[2] Source: Bloomberg Professional, quarterly bond yields are the average of each trading day in the quarter

[3] Equals Column [1] – Column [2]

[4] Source: Bloomberg, equals 30-day average of 30-year treasury yield

[5] Source: Blue Chip Financial Forecasts, Vol. 38, No. 2, February 1, 2019, at 2

[6] Source: Blue Chip Financial Forecasts, Vol. 37, No. 12, December 1, 2018, at 14

[7] See notes [4] & [5]

[8] Equals 0.083916 + (-0.554234 x Column [7])

[9] Equals Column [7] + Column [8]

EXPECTED EARNINGS ANALYSIS

Company	Ticker	2019	2021-2023
American States Water Co	AWR	13.00%	14.00%
American Water Works Co, Inc.	AWK	10.50%	10.50%
Aqua America, Inc.	WTR	13.00%	12.50%
California Water Service Group	CWT	11.00%	11.50%
Connecticut Water Service, Inc.	CTWS	10.00%	11.00%
Middlesex Water Company	MSEX	13.00%	13.00%
SJW Corporation	SJW	12.50%	17.50%
York Water Company	YORW	10.50%	13.50%
	Median	11.75%	12.75%
	Median Excluding WTR, CTWS and SJW	11.00%	13.00%

Source: Value Line dated January 13, 2019.

SIZE PREMIUM CALCULATION

Proxy Group Market Capitalization and Market-to-Book Ratio

Company	Ticker	[1] Market Capitalization ($ billions)	[2] Market-to-Book Ratio
American States Water Co	AWR	2.40	3.16
American Water	AWK	16.45	2.81
Aqua America, Inc.	WTR	6.01	2.98
California Water Service Group	CWT	2.23	3.07
Connecticut Water Service, Inc.	CTWS	0.80	2.89
Middlesex Water Company	MSEX	0.89	3.50
SJW Corporation	SJW	1.56	1.89
York Water Company	YORW	0.41	3.29
Average		3.84	2.92
Median		1.90	3.03

Community Utilities of Pennsylvania	
Common Equity ($ millions) [3]	$ 6.0
Implied Market Capitalization [4]	$ 18.1
As a percent of Proxy Group Median Market Capitalization	0.95%

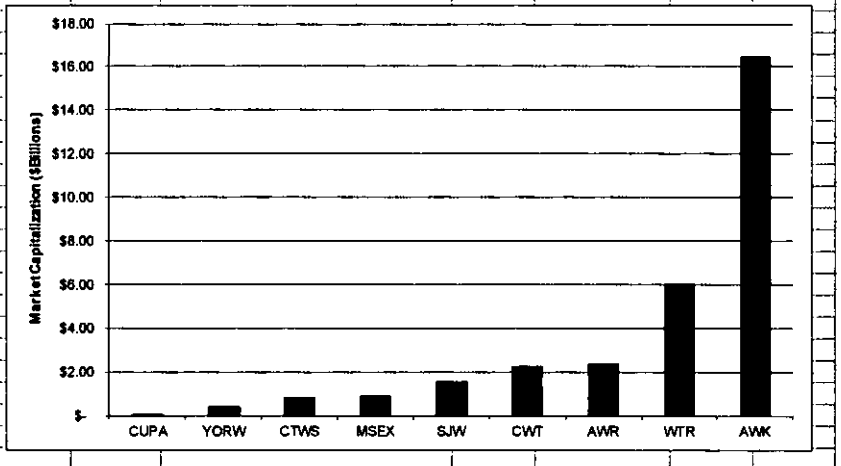
Duff & Phelps 2017 Valuation Hand Book – Size Premium

Breakdown of Deciles 1-10	[5] Market Capitalization of Largest Company ($ millions)	[6] Size Premium
1-Largest	609,163.498	-0.35%
2	24,233.747	0.61%
3	10,711.194	0.89%
4	5,676.716	0.98%
5	3,512.913	1.51%
6	2,390.899	1.66%
7	1,569.984	1.72%
8	1,030.426	2.08%
9	567.843	2.68%
10-Smallest	262.891	5.59%
American Water - Maryland - Implied Market Capitalization	18	5.59%
Proxy Group Median Market Capitalization	1,895	1.72%
Size Premium [7]		3.87%

Notes:
[1] Source: Bloomberg Professional; equals 30-day average as of January 31, 2019
[2] Source: Bloomberg Professional; equals 30-day average as of January 31, 2019.
[3] Community Utilities of PA data
[4] Equals [3] x proxy group median market-to-book ratio
[5] Duff & Phelps 2017 Valuation Hand Book – U.S. Guide to Cost of Capital Exhibit 7.2.
[6] Duff & Phelps 2017 Valuation Hand Book – U.S. Guide to Cost of Capital Exhibit 4.7.
[7] Equals 5.59% – 1.72%

RELATIVE MARKET CAPITALIZATION AS OF JANUARY 31, 2019

Company	Ticker	[2] Market Capitalization ($billions)
Community Utilities of PA	CUPA	$ 0.02
York Water Company	YORW	$ 0.41
Connecticut Water Service, Inc.	CTWS	$ 0.80
Middlesex Water Company	MSEX	$ 0.89
SJW Corporation	SJW	$ 1.56
California Water Service Group	CWT	$ 2.23
American States Water Co	AWR	$ 2.40
Aqua America, Inc.	WTR	$ 6.01
American Water	AWK	$ 16.45



Company	Ticker	State	Infrastructure Replacement Surchage	Future Test Year	Revenue Stabilization or Decoupling	Citations
American States Water Co	AWR					2017 10-K
		California		Yes	Yes	
American Water	AWK					2017 10-K
		New Jersey	Yes			
		Pennsylvania	Yes	Yes		
		Illinois	Yes	Yes	Yes	
		Missouri	Yes			
		Indiana	Yes	Yes		
		California		Yes	Yes	
		West Virginia	Yes			
		Georgia				
		Hawaii		Yes		
		Iowa	Yes			
		Kentucky		Yes		
		Maryland				
		Michigan				
		New York	Yes	Yes	Yes	
		Tennessee	Yes	Yes		
		Virginia	Yes	Yes		
Aqua America, Inc.	WTR					2017 10-K
		Pennsylvania	Yes	Yes		Aqua America Q1 2018 Investor Presentation
		Ohio	Yes	Yes		
		Texas				
		Illinois	Yes	Yes		
		North Carolina	Yes			
		New Jersey	Yes			
		Indiana	Yes	Yes		
		Virginia				Final Order, Case No. PUR-2017-00017
California Water Service Group	CWT					
		California		Yes	Yes	2017 10-K
		New Mexico				Opinion Resolving General Rate Cases, Decision 07-12-055
		Washington				
		Hawaii		Yes		Decision and Order, Docket No. 03-0275
Connecticut Water Service, Inc.	CTWS					2017 10-K
		Connecticut	Yes		Yes	
		Maine	Yes			
Middlesex Water Company	MSEX					2017 10-K
		New Jersey	Yes			
		Delaware	Yes		Yes	
		Pennsylvania	Yes			Order December 17, 2015, Docket R-2015-2506337 and C-2015-2514368
SJW Corporation	SJW					2017 10-K
		California		Yes	Yes	
		Texas				
York Water Company	YORW					
		Pennsylvania	Yes	Yes		Annual Report
Total Number of Jurisdictions (Y)			22	18	8	
Total Number of Jurisdictions			37	37	37	
Percent of Jurisdictions			59.46%	48.65%	21.62%	

CAPITAL STRUCTURE OF PROXY GROUP COMPANIES							
Company Name	Ticker	2017	2016	2015	2014	2013	5-Year Average
American States Water Co.	AWR						
Common Equity		62.25%	60.60%	59.19%	60.85%	59.70%	60.52%
Preferred Stock		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Long-Term Debt		37.75%	39.40%	40.81%	39.15%	40.30%	39.48%
Total Capital		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
American Water	AWK						
Common Equity		44.12%	45.17%	46.00%	47.18%	47.41%	45.98%
Preferred Stock		0.07%	0.09%	0.11%	0.14%	0.17%	0.12%
Long-Term Debt		55.81%	54.74%	53.89%	52.68%	52.42%	53.91%
Total Capital		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Aqua America Inc.	WTR						
Common Equity		47.99%	49.49%	49.57%	50.55%	49.39%	49.40%
Preferred Stock		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Long-Term Debt		52.01%	50.51%	50.43%	49.45%	50.61%	50.60%
Total Capital		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
California Water Service Group	CWT						
Common Equity		56.60%	54.17%	55.54%	59.54%	57.97%	56.76%
Preferred Stock		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Long-Term Debt		43.40%	45.83%	44.46%	40.46%	42.03%	43.24%
Total Capital		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Connecticut Water Service Inc.	CTWS						
Common Equity		53.01%	53.80%	56.07%	53.80%	52.36%	53.81%
Preferred Stock		0.14%	0.18%	0.19%	0.20%	0.20%	0.18%
Long-Term Debt		46.85%	46.02%	43.74%	46.00%	47.44%	46.01%
Total Capital		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Middlesex Water Co.	MSEX						
Common Equity		60.71%	60.41%	59.43%	57.74%	57.75%	59.21%
Preferred Stock		0.64%	0.67%	0.70%	0.71%	0.88%	0.72%
Long-Term Debt		38.65%	38.91%	39.87%	41.54%	41.36%	40.07%
Total Capital		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
SJW Corp.	SJW						
Common Equity		51.80%	49.31%	50.20%	48.34%	48.91%	49.71%
Preferred Stock		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Long-Term Debt		48.20%	50.69%	49.80%	51.66%	51.09%	50.29%
Total Capital		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
York Water Co.	YORW						
Common Equity		56.98%	57.40%	56.33%	55.19%	54.93%	56.17%
Preferred Stock		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Long-Term Debt		43.02%	42.60%	43.67%	44.81%	45.07%	43.83%
Total Capital		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Proxy Group Mean							
Common Equity		54.18%	53.79%	54.04%	54.15%	53.55%	53.94%
Preferred Stock		0.11%	0.12%	0.13%	0.13%	0.16%	0.13%
Long-Term Debt		45.71%	46.09%	45.83%	45.72%	46.29%	45.93%
Total Capital		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Proxy Group Mean excluding WTR, SJW and CTWS							
Common Equity		56.13%	55.55%	55.30%	56.10%	55.55%	55.73%
Preferred Stock		0.14%	0.15%	0.16%	0.17%	0.21%	0.17%
Long-Term Debt		43.73%	44.30%	44.54%	43.73%	44.24%	44.11%
Total Capital		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Source: Company 10-K's and annual reports							

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the foregoing document upon the parties, listed below, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a party).

BY FIRST CLASS MAIL

Office of Consumer Advocate
555 Walnut Street
Forum Place, 5th Floor
Harrisburg, PA 17101-1923

Office of Small Business Advocate
Commerce Building, Suite 202
300 North 2nd Street
Harrisburg, PA 17101

Bureau of Investigation & Enforcement
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
P.O. Box 3265
Harrisburg, PA 17105-3265

Thomas J. Sniscak

Thomas J. Sniscak
Whitney E. Snyder
Bryce R. Beard

Dated this 1st day of April, 2019

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