

COMMONWEALTH OF PENNSYLVANIA



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March 25, 2021

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission
v.
Pike County Light and Power Company -- Gas
Docket No. R-2020-3022134

Dear Secretary Chiavetta:

Enclosed for electronic filing please find the Office of Consumer Advocate's Pre-Served Testimony and Exhibits of the following **non-confidential testimony** and exhibits in the above-referenced proceeding, per ALJ Long's Interim Order dated March 15, 2021:

1. OCA Statement 1: Direct Testimony of Dante Mugrace (Public Version)
2. OCA Statement 2: Direct Testimony of Karl R. Pavlovic
3. OCA Statement 3: Direct Testimony of Marlon F. Griffing
4. OCA Statement 2-R: Rebuttal Testimony of Karl R. Pavlovic
5. OCA Statement 1-SR: Surrebuttal Testimony of Dante Mugrace
6. OCA Statement 2-SR: Surrebuttal Testimony of Karl R. Pavlovic
7. OCA Statement 3-SR: Surrebuttal Testimony of Marlon F. Griffing

Rosemary Chiavetta, Secretary
March 25, 2021
Page 2

The following confidential testimony and exhibits will be e-mailed directly to Secretary Rosemary Chiavetta:

1. OCA Statement 1: Direct Testimony of Dante Mugrace (Confidential Version)

Copies have been served per the attached Certificate of Service.

Respectfully submitted,

/s/ Santo G. Spataro
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Enclosures:

cc: The Honorable Mary D. Long (**email only**)
Certificate of Service

*305673

CERTIFICATE OF SERVICE

Re: Pennsylvania Public Utility Commission :
v. : Docket No. R-2020-3022134
Pike County Light and Power Company :
-- Gas :

I hereby certify that I have this day served a true copy of the following documents, the Office of Consumer Advocate's § 5.412a filing of Admitted Evidence, upon parties of record in this proceeding in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant), in the manner and upon the persons listed below:

Dated this 25th day of March 2021.

SERVICE BY E-MAIL ONLY

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Dated: March 25, 2021
*305671

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission) Docket No. R-2020-3022134
v.) (Gas)
Pike County Light & Power Company)
Gas Base Rate Cases)

DIRECT TESTIMONY OF

DANTE MUGRACE

**ON BEHALF OF THE
COMMONWEALTH OF PENNSYLVANIA
OFFICE OF CONSUMER ADVOCATE**

Dated: February 2, 2021

PUBLIC VERSION

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1 **I. STATEMENT OF QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is Dante Mugrace. My business address is 22 Brooks Avenue,
4 Gaithersburg, MD 20877.

5 **Q. WHAT IS YOUR PRESENT OCCUPATION?**

6 **A.** I am a Senior Consultant with the Economic and Management Consulting
7 Firm of PCMG and Associates, LLC. (“PCMG”). In my capacity as a Senior
8 Consultant, I am responsible for evaluating and examining rate and rate
9 related proceedings before various governmental entities, preparing expert
10 testimony recommending revenue requirement, as well as, offering opinions
11 on economic policy and policy issues and methodologies used to set a value
12 on a utility’s rate base and cost of service components of revenue
13 requirement.

14 **Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE.**

15 **A.** PCMG is an association of experts in utility regulation and policy,
16 economics, accounting, and finance. PCMG’s members have over 75 years
17 collective experience providing assistance to counsel and expert testimony
18 regarding the regulation of electric, gas, water, and wastewater utilities that
19 operate under local, state, and federal jurisdictions. PCMG focuses on
20 areas regarding revenue requirement, cost of service, rate design, cost of
21 capital, and rate of return. Prior to my association with PCMG, I was
22 employed as a Senior Consultant with the consulting firm of Snavelly King
23 Majoros and Associates (“SKM”) from 2013 to 2015, in the same capacity
24 as PCMG. Prior to SKM I was employed by the New Jersey Board of Public
25 Utilities (“NJBPU”) from 1983 to my retirement in 2011. During my tenure
26 at the NJBPU, I held various Accounting, Rate Analyst, Supervisory, and
27 Management Positions. My last position was Bureau Chief of Rates in the
28 Agency’s Water Division (Bureau Chief of Rates). I held this position for
29 nearly 10 years. My resume is attached as Appendix A.

1 **Q. WHAT EXPERIENCE DO YOU HAVE IN THE AREA OF UTILITY RATE**
2 **SETTING PROCEEDINGS AND OTHER UTILITY MATTERS?**

3 **A.** In my capacity as Bureau Chief of Rates at NJBPU, I was responsible for
4 overseeing the rate process regarding administrative, financial, and
5 managerial functions of the Rates Bureau. My primary duties were to
6 ensure that the jurisdictional utilities had sufficient revenues to cover their
7 operating expenses, the ability to earn a reasonable rate of return on plant
8 investments, and to ensure that the provision of safe, adequate, and proper
9 service at reasonable rates was met. During my time at the NJBPU, I was
10 involved in hundreds of rate and rate related proceedings. In my capacity
11 as a Senior Consultant previously with SKM and now with PCMG, I have
12 been and am currently involved in rate and rate related proceedings before
13 the Commissions in the Commonwealths of Massachusetts and
14 Pennsylvania, and the States of Maine, Maryland, New Jersey, New York,
15 North Dakota, and Ohio. I was involved in the Generic Proceedings to
16 Establish Parameters for the Next Generation Performance Based Rate
17 Plans before the Alberta Utilities Commission. I was involved in
18 transmission formula rate plans before the Federal Energy Regulatory
19 Commission (FERC) regarding the PECO Energy Company on behalf of
20 the Pennsylvania OCA and the Rockland Electric Company on behalf of the
21 NJ Division of Rate Counsel.

22 **Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?**

23 **A.** I hold a Master of Business Administration (“MBA”) degree with a
24 concentration in Strategic Management from Pace University-Lubin School
25 of Business in New York, New York. I hold a Master of Public Administration
26 (“MPA”) degree from Kean University in Union, New Jersey. I hold a
27 Bachelor of Science (“BS”) degree in Accounting from Saint Peter’s
28 University in Jersey City, New Jersey.

29

1 **II. PURPOSE OF TESTIMONY**

2 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

3 **A.** I am testifying on behalf of the Pennsylvania Office of the Consumer
4 Advocate (“OCA”).

5 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

6 **A.** The purpose of my testimony is to calculate and to make a recommendation
7 regarding the Pike County Light & Power Company (PCLP) base rate case
8 proceedings for its Gas utility operations . My recommendations include the
9 setting of the Gas Company’s Rate Base and Pro Forma Operating Income
10 at Present Rates for a Future Test Year Period ending June 30, 2021,
11 adjusted for known and measurable changes through December 31, 2021.
12 The Gas Company has not proposed a fully projected future test year
13 period. in these proceedings. On October 26, 2020, PCLP filed two petitions
14 with the Pennsylvania Public Utility Commission (PAPUC or Commission).
15 The Gas Company has requested an overall increase in rates for its gas
16 distribution service of \$262,200 annually or 15.96% above current rate
17 revenues of \$1,642,500. PCLP was purchased from Orange and Rockland
18 Utilities in 2016 by Corning Natural Gas Holding Company (CNGH).¹ The
19 Gas and Electric Utility operations are charged for costs provided by
20 Corning Natural Gas Corporation (CNG) a subsidiary of CNGH which
21 include Administrative and General Costs, wages, shared services, and
22 taxes, among other things.² Included in my recommended position on the
23 setting of Rate Base and Operating Income, I am also incorporating the
24 recommendations of OCA witness Dr. Marlon Griffing with respect to the
25 overall rate of return, and OCA witness Dr. Karl R. Pavlovic with respect to
26 cost of service and rate design.

27

¹ Statement No. 2 Direct Testimony of Accounting Panel Chuck Lenns and Richard A. Kane page 5.

² Ibid page 11.

1 **III. REVENUE REQUIREMENT ISSUES**

2 **A. SUMMARY**

3 **Q. WHAT REVENUE DEFICIENCIES OR ADJUSTMENTS ARE YOU**
4 **RECOMMENDING?**

5 **A.** Based upon the use of the Companies' proposed future test year periods
6 ending June 30, 2021, I have the following recommendations:

7 **Gas Utility Operations:**

- 8 • My recommended Rate Base balance is \$3,826,765, which is
9 \$245,135 lower than the Company's proposed Rate Base balance of
10 \$4,071,900.
- 11 • My overall Consolidated Cost of Money (Rate of Return) based upon
12 OCA witness Dr. Griffing's recommendation is 6.86%, which includes
13 a Common Equity component of 9.28%.
- 14 • My recommended Operating Revenue at Present Rates is computed
15 at \$1,642,500, which is the same as the Gas Company's Present
16 Rate Revenue of \$1,642,500.³
- 17 • My recommended total Gas Supply Expenses is \$889,800, which is
18 the same as the Gas Company's Gas Supply Expenses of \$889,800.
- 19 • My recommended Income Taxes⁴ are \$42,040, which is \$35,860
20 lower than the Company's proposed Income Taxes of \$77,900.
- 21 • Overall, I recommend a revenue requirement increase of \$97,301
22 which is \$164,917 lower than the Company's proposed revenue
23 requirement increase of \$262,200.

24

³ Any differences between Company Operating Revenues at Present Rates in its filing and my Schedules are due to rounding.

⁴ Includes State and Federal Income Taxes

1 **Q. HAS THE GAS COMPANY ADJUSTED ITS REVENUE REQUIREMENT**
2 **PROPOSAL IN LIGHT OF THE COVID-19 PANDEMIC, PARTICULARLY**
3 **UNCOLLECTIBLE ACCOUNTS?**

4 **A.** No. In response to OCA Set I No. 18, the Gas Company indicated that it did not
5 experience an increase in uncollectible accounts that can be attributable to the
6 COVID-19 pandemic. The Gas Company has not entered into any new or recent
7 payment arrangements with customers regarding collections. The Gas Company
8 has stated that it takes several months before customers' accounts are deemed
9 uncollectible and turned over to outside agencies for collection. The Gas Company
10 does not have any information on the number of residential customers who have
11 been unable to pay their utility bills due to the COVID-19 pandemic.

12
13 **Q. WHAT IS YOUR OPINION REGARDING THE GAS COMPANY'S PROPOSED**
14 **REVENUE REQUIREMENT INCREASE?**

15 **A.** As a consequence of the pandemic and the devastating impact it had on the health
16 and the economy of the Commonwealth and the world, the Commission should
17 adopt the smallest feasible rate increase to ensure the financial viability of the Gas
18 Company. No one can know the economic impacts that COVID-19 has had on the
19 Company or will whether it will continue to have in the future.

20
21
22 **B. COST OF CAPITAL – GAS OPERATIONS**

23 **Q. WHAT HAS THE GAS COMPANY PROPOSED WITH RESPECT TO ITS COST**
24 **OF CAPITAL?**

25 **A.** The Gas Company has proposed an overall Cost of Capital of 7.09% as shown on
26 Exhibit G-2 Schedule 3 and E-2 Schedule 3. The Gas Company has proposed the
27 following Consolidated Cost of Money:

	<u>% of Capital</u>	<u>Cost Component</u>	<u>Weighted Cost</u>
Long-Term Debt	46.54%	4.77%	2.22%
Short-Term Debt	5.14%	3.10%	0.16%
Common Equity	<u>48.32%</u>	<u>9.75%</u>	<u>4.711%</u>
Total Capitalization	100.00%		7.09%

6

7 **Q. WHAT ADJUSTMENTS DO YOU HAVE WITH RESPECT TO THE GAS**
8 **COMPANY’S PROPOSED COST OF CAPITAL?**

9 **A.** As per the recommendation of Dr. Griffing, I am incorporating an overall Cost of
10 Capital of 6.86% with a Common Equity Component of 9.28%. My
11 recommendation is shown on my Schedules DM-2 .

12

13 **C. RATE BASE – GAS OPERATIONS**

14 **1. Gas Plant in Service (GPIS)**

15 **Q. WHAT HAS THE GAS COMPANY PROPOSED REGARDING ITS GAS PLANT**
16 **IN SERVICE BALANCE?**

17 **A.** The Gas Company has proposed a GPIS balance in the amount of \$4,339,700
18 based upon the future test year period ending June 30, 2021 (Gas Company
19 Exhibit G-3 Summary), and through the period July 1, 2021 to December 31, 2021
20 (Gas Company Exhibit G-3 Schedule 1).

21 **Q. WHAT IS INCLUDED IN THAT BALANCE?**

22 **A.** Included in that balance are plant additions and Construction Work in Progress
23 (CWIP) that the Gas Company expects to place in service during the future test
24 year period ending June 30, 2021, in the amount of \$787,700, and \$250,000 of
25 plant expected to be placed in service through December 31, 2021, as well as
26 associated Retirements of \$83,700 for the same periods.

1 **Q. WHAT ELSE HAS THE GAS COMPANY INCLUDED IN THAT BALANCE?**

2 **A.** The Gas Company has also included Gas Common Plant in Service consisting of
3 CWIP of \$15,800 that has been completed as of June 30, 2020 and, additions
4 through June 30, 2021 of \$400,000, as well as additions through December 31,
5 2021 of \$300,000. These plant balances are offset by associated Retirements of
6 \$310,000 for the same periods. The Gas and Electric Companies allocate
7 Common Plant based upon an 85%-Electric and 15%-Gas allocation (Statement
8 No. 2 Direct Testimonies of Accounting Panel Chuck Lenns and Richard Kane,
9 page 15). Given these allocations, the net Common Plant adjustments computes
10 to total Plant Additions through December 31, 2021 of \$107,400, less Retirements
11 of \$46,500, equaling \$60,900. (Gas Company Exhibit G-3 Schedule 1).

12 **Q. WHAT OTHER PLANT ADDITIONS HAS THE GAS COMPANY PROPOSED TO**
13 **INCLUDE IN ITS GAS UTILITY PLANT IN SERVICE BALANCE?**

14 **A.** The Gas Company has included Intercompany Plant allocated from Shared
15 Corning Facilities and office furniture and equipment, based upon square footage
16 utilized (0.35%) and wages charged to the Gas Company (0.96%) (Statement No.
17 2 Accounting Panel page 20). The costs related to office space is \$11,237 and the
18 costs related to office furniture and equipment is \$18,305 for a total allocated cost
19 of \$29,500 as shown on Gas Company Exhibit G-3 Schedule 1 page 3 of 4. Below
20 is a total breakdown of the Gas Company's proposed Gas Plant in Service balance
21 of \$4,339,700 as of December 31, 2021:

22	Gas Plant In Service -	\$3,955,700
23	Common Plant Allocated -	\$ 354,500
24	Intercompany Allocated	<u>\$ 29,500</u>
25	Total Gas Plant In Service	\$4,339,700

26 **Q. HOW DID THE GAS COMPANY DEVELOP ITS GAS PLANT IN SERVICE**
27 **BALANCE?**

28 **A.** The Gas Company began with its actual gas utility plant in service balance at June
29 30, 2020. To that balance, the Gas Company included proposed CWIP transferred

1 to plant. The Gas Company, through Gas Company witness Mr. Steven
2 Grandinali, has included additions scheduled for July 1, 2020 through December
3 31, 2021, and associated Retirements projected through December 31, 2021
4 (Statement No. 2 Accounting Panel testimony page 19). Mr. Grandinali addressed
5 the Gas Company's Long-Term Infrastructure Improvement Plan (LTIIP) that was
6 submitted to the PAPUC in 2019 and approved on January 13, 2019.⁵ Included in
7 the Gas Plant Additions are costs associated with the pipe replacement program
8 totaling \$700,000 (Statement No. 3 Direct Testimony of Mr. Grandinali page 5).
9 The Gas Company accounted for the additions to Common Plant in the same
10 manner as it has accounted for its allocation of other Common Plant by using a
11 Gas allocation factor of 15% well as the Intercompany Plant allocated from Corning
12 Gas. The Gas Company has included recurring capital projects and upgrade
13 replacements related to Mains, Measuring and Regulating Station Equipment,
14 Services, Meters, and House Regulators, including costs related to a survey to be
15 performed by JHA Companies on the Gas Company's gas main routes related to
16 the Gas Company's gas main replacement program over the next several years
17 (Statement No. 3 page 6).

18 **Q. WHAT ADJUSTMENTS DO YOU HAVE WITH RESPECT TO THE GAS**
19 **COMPANY'S PLANT IN SERVICE BALANCE?**

20 **A.** I am recommending that the Gas Company's Plant in Service balance be
21 determined and fixed as of June 30, 2021, and not through the post-test year
22 period December 31, 2021. My argument is that it is expected that the Commission
23 will make a determination on the Gas Company's rates prior to the post-test year
24 period December 31, 2021. Therefore, there will be Gas Plant in Service in rates
25 that will not be placed in service and not used or useful in the provision of utility
26 service. By determining and fixing the Gas Company's post-test year plant
27 balance as of December 31, 2021, it will essentially have ratepayers pay for
28 expenditures and a return on those Gas plant expenditure balances prior to
29 implementation of these plant additions being placed in service. Therefore, it is

⁵ Docket No. P-2019-3007304

1 neither prudent nor reasonable to allow ratepayers to pay for capital expenditures
2 for six-months beyond the test-year ending June 30, 2021. My adjustments to the
3 Gas Company's post-test year balances are to remove the following
4 expenditures:⁶

5	Gas Plant – July 2021 - December 2021	\$250,000
6	Common Gas Plant – July 2021 – Dec 2021	<u>\$ 45,000</u>
7	Total recommended Gas Plant removal	<u>\$295,000</u>
8	Assoc. Retirements – Gas Plant July 2021 – Dec 2021	\$ 27,900
9	Assoc. Retirements – Common Gas Plant July 2021 – Dec 2021	<u>\$ 45,000</u>
10		
11	Net Difference	\$222,100⁷

12 **Q. WHAT EFFECT DOES ENDING THE GAS COMPANY'S PLANT IN SERVICE**
13 **BALANCE AT JUNE 30, 2021 HAVE ON THE GAS COMPANY'S LTIP?**

14 **A.** According to the response to OCA Set I No. 26, all of the Gas Company's LTIP
15 have been placed in service as of December 2020. Nothing in this data response
16 shows that the Gas Company proposes to include any LTIP investment beyond
17 June 30, 2021, the end of the test year. In response to OCA Set I No. 4 the Gas
18 Company stated that 50% of the capital expenditures related to the LTIP
19 investment were included in the July-December 2021 time period. This response
20 and the reference to Schedule G-3 Schedule 11 shows that approximately
21 \$178,000 of LTIP plant investment is expected to be placed in service between
22 July 2021 and December 2021. The Gas Company should reconcile these two
23 data responses.

24 **Q. WHAT OTHER ARGUMENTS DO YOU HAVE WITH RESPECT TO**
25 **CALCULATING THE GAS COMPANY'S PLANT IN SERVICE BALANCE AS OF**
26 **JUNE 30, 2021?**

⁶ Common Plant is allocated 15% to the Gas Company, along with the related Retirements.

⁷ Any differences due to rounding.

1 **A.** Since the Gas Company will not ascertain the level of plant investment at the time
2 the Commission makes a determination on rates, this could cause a discrepancy
3 or mismatch in the measurement of the Gas Company's test year values, which
4 might cause the Gas Company's earnings to be overstated and result in a windfall
5 for the Gas Company.

6 **Q. WHY IS A JUNE 30, 2021 FUTURE TEST YEAR PERIOD APPROPRIATE IN**
7 **THIS MATTER?**

8 **A.** The use of a June 30, 2021 future test year period will approximately match the
9 collection of the revenue requirement during the time new rates will be determined
10 by the Commission which will be before the Gas Company's proposed post-test
11 year period ending December 31, 2021.

12 **Q. IS THERE ANY REQUIREMENT OR DIRECTIVE FROM THE COMMISSION**
13 **THAT THE GAS COMPANY'S LTIIP INVESTMENTS SHOULD BE**
14 **COMPLETED IN THIS PROCEEDING?**

15 **A.** I am not aware of any such requirement or directive. According to Pike's Gas
16 Statement 2, page 6, the statement of the Gas Company witness accounting panel,
17 the LTIIP has been integrated in the Gas Company's capital spending for 2020
18 and 2021. The Gas Company has proposed a Distribution System Improvement
19 Charge (DSIC) and expects to recover LTIIP upgrades beyond the first year in
20 which new rates are in effect through the DISC. The LTIIP upgrades are expected
21 to be completed through 2024 (Statement No. 2 page 7). If approved by the
22 PAPUC, the DSIC should greatly reduce the need for additional base rate
23 increases in future years.

24 **Q. WHAT IS YOUR RECOMMENDED GAS PLANT IN SERVICE BALANCE?**

25 **A.** My recommended Gas Plant in Service balance is \$4,117,588, which is \$222,112
26 lower than the Gas Company's proposed Plant in Service balance of \$4,339,700
27 as shown on my Schedule DM-4.

1 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF YOUR GPIS BALANCE**
2 **ADJUSTMENT?**

3 **A.** The revenue requirement impact of my GPIS adjustment is: \$222,112 multiplied
4 by the recommended rate of return of Dr. Griffing of 6.86% times the Retention
5 Factor of 1.4282, which equals \$21,761.

6

7 **2. Accumulated Depreciation**

8 **Q. WHAT HAS THE GAS COMPANY CALCULATED WITH RESPECT TO ITS**
9 **ACCUMULATED DEPRECIATION?**

10 **A.** The Gas Company computed accumulated depreciation in the amount of \$315,900
11 as shown on Gas Company Exhibit G-3 Summary.

12 **Q. HOW DID THE GAS COMPANY COMPUTE ITS ACCUMULATED**
13 **DEPRECIATION?**

14 The Gas Company calculated its accumulated depreciation in the same manner
15 as the Gas Company used in the calculation of its GPIS, beginning with the per
16 books balance of June 30, 2020, and adding accruals projected for the 18 months
17 ending December 31, 2021(Statement No. 2 Accounting Panel testimony page
18 21). The Gas Company subtracted projected retirements for the same period. The
19 Gas Company calculated accumulated depreciation for its Common Plant in the
20 same manner as its Gas Plant through the period ending balance December 31,
21 2021(Statement No. 2 Accounting Panel testimony page 21). The following is a
22 breakdown of the Gas Company's development of its Accumulated Depreciation:

23	Accumulated Depreciation – Gas Plant	\$191,200
24	Accumulated Depreciation – Common Plant	<u>\$124,700</u>
25	Total	\$315,900

26 In the same manner as the Gas Company is allocated 15% of CNG's Common
27 Plant, 15% is also allocated towards the associated Accumulated Depreciation
28 related to Common Plant(Gas Company Exhibit G-3 Schedule 2).

1 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE GAS COMPANY'S**
2 **ACCUMULATED DEPRECIATION?**

3 **A.** I am using the same method of computing the Gas Company's GPIS balance and
4 the reasoning for my use of an ending future test year period June 30, 2021 to
5 develop the Accumulated Depreciation balance. I am removing the adjustments
6 related to the post-test year July 2021 through December 2021 for the Gas Plant
7 additions and for the Common Gas Plant additions as follows:

8	Accumulated Depreciation – Gas Plant July 2021 - Dec 2021	\$38,900
9	Accumulated Depreciation – Common Plant July 2021 – Dec 2021	<u>(\$22,500)</u>
10	Total	\$11,500

11 This adjusts the Gas Company's Accumulated Depreciation from \$315,900⁸ to
12 \$327,408, a difference of \$11,500 as shown on my Schedule DM-5

13 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF YOUR ADJUSTMENT**
14 **TO THE COMPANY'S ACCUMULATED DEPRECIATION?**

15 **A.** The revenue requirement impact of my Accumulated Depreciation adjustment is
16 \$11,500 times the recommended Rate of Return of 6.86% multiplied by the
17 Retention Factor of 1.4282, which equals to \$1,127.

18

19 **3. Working Capital**

20 **Q. DID THE GAS COMPANY PREPARE A LEAD/LAG STUDY IN THE**
21 **DEVELOPMENT OF ITS WORKING CAPITAL ALLOWANCE?**

22 **A.** Yes. As per the Accounting Panel testimony page 22, the Gas Company prepared
23 a lead/lag study to develop its Working Capital balance of \$72,500 for the twelve
24 months ending June 30, 2021 (Exhibit G-3 Schedule 3).

⁸ Differences due to rounding.

1 **Q. DO YOU HAVE ANY ADJUSTMENTS WITH RESPECT TO HOW THE GAS**
2 **COMPANY DEVELOPED AND PREPARED ITS WORKING CAPITAL**
3 **BALANCE OF \$72,500?**

4 **A.** No. I am accepting the Gas Company's methodology with respect to its
5 development and calculation of its Working Capital. My adjustments are related
6 to my recommended balances on the Gas Company's O&M Expenses,
7 Depreciation, Taxes Other, and Income Taxes.

8 **Q. WHAT CHANGES DO YOU HAVE REGARDING THE GAS COMPANY'S**
9 **WORKING CAPITAL REQUIREMENTS OF \$72,500 AS NOTED ABOVE?**

10 **A.** Using my recommended levels of O&M Expenses along with the Company's CWC
11 Factors for each of the Gas Company's CWC components, my recommended level
12 of CWC is \$63,049, a reduction of \$9,451, and is shown on my Schedule DM-6.

13 **Q. WHAT IS THE TOTAL REVENUE REQUIREMENT IMPACT OF YOUR**
14 **WORKING CAPITAL COMPONENTS?**

15 **A.** My recommended adjustments for the Working Capital components is therefore
16 \$10,622 and the impact is multiplied by the recommended Rate of Return of 7.09%
17 multiplied by the Retention factor of 1.4282, which equals \$1,041.

18

19 **4. Materials and Supplies / Prepayments**

20 **Q. WHAT HAS THE GAS COMPANY PROPOSED WITH RESPECT TO ITS**
21 **MATERIALS AND SUPPLIES AND ITS PREPAYMENTS?**

22 **A.** As shown on Gas Company's Exhibits G-3, Schedule 4 and Schedule 5, and also
23 on Exhibit G-3 Summary, the Gas Company has proposed a Materials and
24 Supplies balance of \$153,900 and a Prepayments balance of \$4,200 as of the
25 future test year ending June 30, 2021.

26 **Q. HOW DID THE GAS COMPANY DEVELOP ITS MATERIALS AND SUPPLIES**
27 **AND ITS PREPAYMENTS BALANCE AS OF JUNE 30, 2021?**

1 **A.** As stated by the Accounting Panel testimony, page 29, the Gas Company used
2 the average balance for the twelve months ending August 31, 2020 as a proxy for
3 the plant materials balances for the twelve-month period ending June 30, 2021.
4 The Gas Company used the same method to develop its Prepayments.

5 **Q. WHAT ADJUSTMENTS DO YOU HAVE WITH RESPECT TO THE GAS**
6 **COMPANY’S MATERIALS AND SUPPLIES AND PREPAYMENTS BALANCE?**

7 **A.** I am accepting the Gas Company’s proposed Materials and Supplies balance and
8 the Prepayments balance as of the ending of the future test year period. My
9 adjustments are shown on my Schedule DM-7.

10

11 **5. Deferred Debits / Deferred Credits**

12 **Q. WHAT HAS THE GAS COMPANY PROPOSED WITH RESPECT TO ITS**
13 **DEFERRED DEBIT BALANCE AND ITS DEFERRED CREDIT BALANCE?**

14 **A.** As shown on Gas Company Exhibit G-3 Summary Schedule and on Schedule 6
15 and 7, the Gas Company has proposed a Deferred Debit balance of \$16,000, and
16 a Deferred Credit balance of (\$20,300), respectively. The Deferred Debit balance
17 of \$16,000 relates to forecasted rate case costs of \$22,500 minus the tax effect.
18 The Gas Company was allocated 15% of total rate case costs of \$150,000. With
19 respect to the Deferred Credit balance of (\$20,300), the Gas Company stated that
20 this was related to the timing differences created by the Federal Tax Cuts and Jobs
21 Act of 2017 (TCJA) that will reverse in future years. This balance of (\$20,300) is
22 net of the tax effect.

23 **Q. WHAT ADJUSTMENTS DO YOU HAVE WITH RESPECT TO THE GAS**
24 **COMPANY’S DEFERRED DEBIT AND DEFERRED CREDIT BALANCE**
25 **PROPOSALS?**

26 **A.** I have an adjustment related to the Gas Company’s Deferred Debit balance of
27 \$16,000. I am removing this amount from the Gas Company’s balance because I
28 believe that the Gas Company should not be earning a return on Rate Case

1 expenses in addition to recovering these rate case expense in the cost of service.
2 My recommendation is shown on my Schedule DM-8. With respect to the Deferred
3 Credit balance of (\$20,300) please see Section V related to the TCJA with respect
4 to my recommendations on how to account for this balance in rates.

5 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT ON YOUR**
6 **ADJUSTMENTS?**

7 **A.** The revenue requirement impact on my adjustments for the Deferred Debit
8 adjustment related to Rate Case Expenses is \$16,000 times the recommended
9 rate of return of 6.86% times the Retention Factor of 1.4282 equals \$1,568.

10
11 **6. Customer Deposits**

12 **Q. WHAT HAS THE GAS COMPANY PROPOSED REGARDING ITS CUSTOMER**
13 **DEPOSITS?**

14 **A.** As shown on Gas Company Exhibit G-3 Summary, the Gas Company proposed
15 Customer Deposits of \$22,400. The Company used the average balance for the
16 twelve-months ending August 31, 2020 as a proxy for the twelve-month period
17 ending June 30, 2021. (Statement No. 2 Accounting Panel page 30).

18 **Q. WHAT ADJUSTMENTS DO YOU HAVE RELATED TO THE GAS COMPANY'S**
19 **PROPOSED CUSTOMER DEPOSITS?**

20 **A.** I am accepting the Gas Company's proposed Customer Deposits balance of
21 \$22,400. My recommendation is shown on my Schedule DM-7.

22
23 **7. Deferred Income Taxes**

24 **Q. WHAT DID THE GAS COMPANY PROPOSE WITH RESPECT TO ITS**
25 **ACCUMULATED DEFERRED INCOME TAXES (ADIT)?**

26 **A.** The Gas Company has proposed an ADIT balance of \$196,400 as shown on Gas
27 Company Exhibit G-3 Summary, and also on Gas Exhibit G-3 Schedule 9.

1 **Q. HOW DID THE GAS COMPANY DEVELOP ITS ADIT BALANCE AS OF**
2 **DECEMBER 31, 2021?**

3 **A.** According to Statement No. 2 Accounting Panel, the Gas Company developed the
4 ADIT balance by computing the difference between the balances of accumulated
5 deferred income taxes at June 30, 2020 and June 30, 2021, respectively. The Gas
6 Company extended this balance to account for its post test year additions between
7 July 1, 2021 and December 31, 2021. (Gas Exhibit G-3 Schedule 9).

8 **Q. WHAT CHANGES DO YOU HAVE WITH RESPECT TO THE GAS COMPANY'S**
9 **ADIT BALANCE AND HOW DID YOU CALCULATE THE ADIT BALANCE?**

10 **A.** In the same manner as I computed the Gas Company's GPIS and Accumulated
11 Depreciation balances, I am also calculating the Gas Company's ADIT the same
12 way, by removing the GPIS post test year additions between July 1, 2021 through
13 December 31, 2021.

14 **Q. WHAT IS YOUR TOTAL ADJUSTMENT RELATED TO THE GAS COMPANY'S**
15 **ADIT BALANCE?**

16 **A.** My total adjustment to the Gas Company's ADIT balance is \$15,107, which
17 reduces the Gas Company's ADIT balance from \$196,400 to \$181,293. My
18 recommendation is shown on my Schedule DM-9.

19 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF YOUR ADJUSTMENT?**

20 **A.** The revenue requirement impact of my Accumulated Deferred Income Taxes is
21 \$15,107 multiplied by the recommended Rate of Return of 6.86% times the
22 Retention Factor of 1.4282, which equals \$1,480.

23

24 **E. OPERATING INCOME – GAS COMPANY**

25 **1. Operating Revenues**

26 **Q. WHAT HAS THE GAS COMPANY PROPOSED AS ITS OPERATING REVENUE**
27 **AT PRESENT RATES AND PROPOSED RATES?**

1 **A.** As shown on Gas Company Exhibit G-4 Summary, the Gas Company has
2 proposed total Operating Revenues of \$1,450,700, which comprises of Sales of
3 Gas Retail Revenues of \$1,448,200 and Other Operating Revenues of \$2,500
4 (which are comprised of Late Payment Charges), for a total of \$1,450,700 June
5 30, 2020 Balance). To that amount the Gas Company made adjustments of
6 \$191,500 related to Sales of Gas Retail Revenues and \$300 related to Other
7 Operating Revenues for a total adjustment of \$191,800. The Gas Company has
8 proposed an Operating Revenue balance as of June 30, 2021 in the amount of
9 \$1,642,500 (\$1,639,700 for Sales of Gas Retail Revenues and \$2,800 of Other
10 Operating Revenues).

11 **Q. WHAT REVENUES ARE INCLUDED IN THE OPERATING REVENUES OF**
12 **\$1,448,200 AND \$1,639,700 IN THE PRESENT AND PROPOSED RATE**
13 **BALANCES, RESPECTIVELY?**

14 **A.** The Operating Revenues of \$1,448,200 and \$1,639,700 are comprised of Base
15 Revenues, Delivery Revenues, and Rider Revenues (Gas Cost Recovery Rider or
16 GCR), as shown on Gas Exhibit G-4, Schedule 1.

17 **Q. DID THE COMPANY UPDATE ITS OPERATING REVENUE SUBSEQUENT TO**
18 **THE INITIAL FILING?**

19 **A.** No, the Company did not update its Operating Revenue subsequent to the initial
20 filing.

21 **Q. DO YOU HAVE ANY ADJUSTMENTS TO THE COMPANY'S PRESENT RATE**
22 **REVENUE?**

23 **A.** No. I am accepting the Gas Company's Base Revenue, Delivery Revenue, and
24 Rider Revenue (GCR), as well as the Gas Company's Late Payment Charges. My
25 recommendation is shown on my Schedule DM-11.

26

27 **2. Operation and Maintenance Expenses – Gas**

28 **a. Gas Supply Expenses**

1 **Q. WHAT DID THE COMPANY PROPOSE REGARDING ITS GAS SUPPLY**
2 **EXPENSES?**

3 **A.** The Company proposed a Gas Supply Expense of \$889,800 as of the twelve-
4 months ending June 30, 2021 as shown on Gas Company Exhibit G-4, Schedule
5 2. The Gas Company began with the sales volume for the historic test year period
6 ending June 30, 2020, and weather normalized to develop the sales forecast for
7 the twelve-months ending June 30, 2021 (OCA Set I No. 11). The Gas Company
8 forecasted Purchased Gas Cost recoveries by multiplying the forecast future test
9 year sales by the GCR currently in effect. The GCR were matched to Purchased
10 Gas in order to eliminate any over / (under) recovery collection in the Future Test
11 Year period.

12 **Q. DO YOU HAVE ANY ADJUSTMENTS TO THE COMPANY'S GAS SUPPLY**
13 **EXPENSE?**

14 **A.** No. I am accepting the Gas Company's proposed Purchased Gas Cost balance
15 of \$889,800. This is offset by the Gas Cost Recovery Rider Rate balance of
16 \$889,800. My recommendation is shown on my Schedule DM-13.

17

18 **b. Other Operating Expenses**

19 **i. Distribution Expense**

20 **Q. WHAT DID THE GAS COMPANY PROPOSE WITH RESPECT TO ITS**
21 **DISTRIBUTION EXPENSES?**

22 **A.** In response to OCA Set I, No. 12, the Gas Company proposed a balance of
23 \$115,098 for the period ending June 30, 2020. To that amount the Gas Company
24 added 2021 forecasted adjustments of \$3,007 related to Salary and Wage
25 Increases (adjustment 3a), an allocation of new positions of \$3,000 (adjustment
26 3b), and \$36 related to Intercompany allocation (adjustment 6), for a balance of
27 \$121,141 as of June 30, 2021.

1 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE GAS COMPANY'S**
2 **TOTAL DISTRIBUTION EXPENSES WITHOUT THE SPECIFIC ADJUSTMENTS**
3 **ABOVE?**

4 **A.** My first adjustment is to the Gas Company's Distribution Expense – Maintenance
5 Services shown in response to OCA Set I, No. 2. These expenses were mainly
6 for the cost of inspecting, stripping, and coating of service lines. The three-year
7 balances were \$23,829 for 2018, \$20,909 for 2019, and \$103,088 for 2020. The
8 Gas Company has proposed a balance of \$108,900 in the 2021 forecast period. I
9 am recommending normalizing these costs for the 2018-2020 period, or \$49,275.
10 This reduces the Gas Company's proposed balance from \$108,900 to \$49,275, or
11 by a difference of \$59,625. These costs appear to be abnormal compared with
12 what has been incurred in prior years, and the Gas Company has not particularly
13 addressed the reasons for such a large increase from the 2019 cost to the 2020
14 costs. A three-year normalization smooths out fluctuations in setting rates going
15 forward. Prior years' costs can also provide and show a trend of expenses that
16 were incurred by the Gas Company to determine the reasonableness of the costs.
17 I am accepting the remaining costs under this account. My argument for the use
18 of a three-year normalization carries over to the remaining adjustments detailed
19 below. My total adjustment is a reduction of \$53,622 and is shown on my Schedule
20 DM-12 Line 5.

21 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF THIS ADJUSTMENT**
22 **RELATED TO DISTRIBUTION AND MAINTENANCE EXPENSE?**

23 **A.** The revenue requirement impact of this adjustment is Distribution and
24 Maintenance adjustment of \$53,622 minus the tax effect of 28.8921%, which
25 equals \$38,129.

26
27 **ii. Customer Accounts Expense**

28 **Q. WHAT HAS THE GAS COMPANY PROPOSED RELATED TO ITS CUSTOMER**
29 **ACCOUNTS EXPENSE?**

1 **A.** In response to OCA Set I, No. 12, the Gas Company proposed a balance of
2 \$36,191 for the period ending June 30, 2020. To that balance the Gas Company
3 added \$1,470 related to Salary and Wages, \$3,000 for the allocation of new
4 positions (adjustment 3b), Uncollectible Accounts Expense adjustment of \$39,037
5 (adjustment 7), and an additional Uncollectible Accounts Expense adjustment of
6 \$4,000 related to the proposed rate increase (\$262,200 times the uncollectible
7 accounts percentage of 1.53%), for a balance of \$83,698 as of June 30, 2021.

8 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE GAS COMPANY'S**
9 **CUSTOMER ACCOUNTS EXPENSE WITHOUT THE SPECIFIC**
10 **ADJUSTMENTS ABOVE?**

11 **A.** My adjustment is to the Gas Company's Meter Reading Expense shown on OCA
12 Set I, No. 2 in the amount of \$48,600. The Gas Company's Meter Reading
13 Expense has been \$15,888 in 2018, \$10,472 in 2019 and \$44,200 in 2020. The
14 Company proposed a Meter Reading Expense in the Future Test Year period
15 ending June 30, 2021 of \$48,600. These costs were mainly for internal labor costs
16 for meter reading and costs associated with billing and collection activities. I
17 normalized these costs to arrive at a balance of \$23,520, a difference of \$25,080.
18 I am accepting the remaining costs under this account. My total adjustment is a
19 reduction of \$20,680 shown on my Schedule DM-5 Line 6.

20 **Q. WHAT IS YOUR REVENUE REQUIREMENT ADJUSTMENT RELATED TO**
21 **CUSTOMER ACCOUNTS EXPENSE?**

22 **A.** The revenue requirement impact of this adjustment is \$20,680 (plus the additional
23 uncollectible for the revenue requirement increase) minus the tax effect of
24 28.8921% equals \$14,705.

25

26 **iii. Sales Expense**

27 **Q. WHAT HAS THE GAS COMPANY PROPOSED WITH RESPECT TO ITS**
28 **CUSTOMER SERVICE AND INFO. EXPENSE?**

1 **A.** As shown on OCA Set I, No. 2 and OCA Set I, No. 12, the Gas Company has
2 proposed a Customer Service & Info. Expense of \$5,788⁹ for the period ending
3 June 30, 2020. These expenses were primarily used for customer contact services
4 (OCA Set I No. 2).

5 **Q. WHAT IS YOUR RECOMMENDATION?**

6 **A.** I am accepting the Gas Company's balance of \$5,788. My recommendation is
7 shown on my Schedule DM-5, Line 8.

8

9 **iv. A&G Expense**

10 **Q. WHAT DID THE GAS COMPANY PROPOSE REGARDING ITS – A&G**
11 **EXPENSES?**

12 **A.** AS shown on OCA Set I, No. 2 and OCA Set I, No. 12, the Gas Company has
13 proposed total A&G Costs of \$263,555 for the period ending June 30, 2020. To
14 that balance the Gas Company added adjustments related to Salaries and Wages
15 of \$2,572 (Adjustment No. 3a), New Positions of \$10,350 (Adjustment No. 3b),
16 Benefits of \$10,754 (Adjustment of 4), Rate Case fees of \$5,626 (Adjustment 5),
17 and Intercompany of \$654 (Adjustment 6). These A&G Costs were for salaries of
18 general office employees, office supplies, outside consulting services, insurance
19 employee health and life insurance, and workers compensation, as well as
20 maintenance of the building and grounds of Pike's operating center (OCA Set I No.
21 2).

22 **Q. WHAT ARE YOUR ADJUSTMENTS RELATED TO THE GAS COMPANY'S A&G**
23 **BALANCE OF JUNE 30, 2020 OF \$263,555 WITHOUT THE SPECIFIC**
24 **ADJUSTMENTS ABOVE?**

25 **A.** I am making the following adjustments to the Gas Company's A&G Expenses,
26 particularly the Office Expenses of \$53,070, by normalizing these costs over the

⁹ Difference due to rounding.

1 three-year period 2018-2020 to arrive at a balance of \$49,589, which is a reduction
2 of \$3,481. These costs vary from year-to-year and it is reasonable to normalize
3 these costs as they fluctuation from year to year.

4 **Q. WHAT IS YOUR REVENUE REQUIREMENT ADJUSTMENT IMPACT?**

5 **A.** The revenue requirement impact is a reduction of \$3,481, minus the income tax
6 effect of 28.8921%, which equals \$2,475, as shown on my Schedule DM-5, Line 10.

7

8 **c. Payroll Expense**

9 **Q. WHAT HAS THE GAS COMPANY PROPOSED WITH RESPECT TO ITS**
10 **PAYROLL EXPENSE?**

11 **A.** The Gas Company proposed an adjustment to its Gas Payroll Expense of \$7,049
12 (rounded to \$7,000) and is shown on Gas Company Exhibit G-4, Schedule 3. The
13 Gas Company began with a Payroll Expense balance of \$145,792; to that balance
14 the Gas Company included \$41,905 of Administrative Payroll allocated from
15 Corning Gas to the Gas Company. The Gas Company included annualized wage
16 increases of 3% for October 2019 and October 2020.

17 The Salary and Wage adjustment of \$7,049 is broken down and accounted for into
18 the expense categories as follows:

19	• Distribution Labor	\$3,007	42.65% to total
20	• Customer Accounts Expense Labor	\$1,470	20.85% to total
21	• A&G Labor	<u>\$2,572</u>	36.50% to total
22	• Total	\$7,049	

23 **Q. WHAT ARE YOUR ADJUSTMENTS TO THE GAS COMPANY'S PAYROLL**
24 **INCREASE OF \$7,049?**

25 My adjustment is related to the Salary and Wage Increases attributable to the
26 Administrative Payroll allocated from Corning Gas Corporation. As shown in
27 response to OCA Set I, No. 14, the Gas Company provided a summary of CNG
28 Salary and Wages for the years 2018-2020. I normalized these costs and

1 computed a three-year average of \$39,462, or a reduction of \$2,443 from the Gas
2 Company's proposed balance of \$41,905. I then accepted the Gas Company's
3 Payroll as of June 30, 2020 of \$145,792. My recommended total Gas Payroll is
4 computed at \$185,254. I accepted the Gas Company's 3% annual increase in
5 October 2019, and the Gas Company's October 2020 3% annual increase. My
6 total recommended payroll increase is \$6,976, a reduction of \$73. This is shown
7 on my Schedule DM-14.

8 **Q. DOES THE GAS COMPANY OFFER INCENTIVE TYPE COMPENSATION FOR**
9 **ITS EMPLOYEES?**

10 **A.** Yes. According to the response to Electric OCA Set I, No. 22, PCLP provides for
11 employee long-term incentive (CONFIDENTIAL RESPONSE).

12 **Q. DID THE GAS COMPANY PROVIDE ANY MORE DETAIL WITH RESPECT TO**
13 **WHETHER EMPLOYEE COMPANY GOALS WERE MET?**

14 **A.** No. (BEGIN CONFIDENTIAL) [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED] (END CONFIDENTIAL).

22 **Q. WHAT ADJUSTMENTS DO YOU HAVE RELATED TO PCLP LONG-TERM**
23 **INCENTIVE PROGRAM?**

24 **A.** I am recommending removing the adjustment related to a bonus provided to
25 Company witness Mr. Grandinali. In response to Electric OCA Set IV No. 9, Mr.
26 Grandinali was provided (BEGIN CONFIDENTIAL) [REDACTED]
27 [REDACTED]
28 [REDACTED]
29 [REDACTED]

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[REDACTED]

[REDACTED] (END CONFIDENTIAL). Given that we are currently in a pandemic, it would be improper to have ratepayers pay for bonuses to employees particularly when the bonus is not related or oriented to customer service issues or standards.

Q. WHAT IS THE REVENUE REQUIREMENT IMPACT ON YOUR ADJUSTMENT TO THE GAS COMPANY’S PAYROLL EXPENSE INCLUDING THE REMOVAL OF THE BONUS?

A. My recommended revenue requirement adjustment impact is \$166, minus the tax effect of 28.8921%, which equals \$118. This is shown on my Schedule DM-14.

d. Additional Employees

Q. WHAT HAS THE GAS COMPANY PROPOSED WITH RESPECT TO ADDITIONAL EMPLOYEES?

A. In Statement No. 2, page 35, the Gas Company has proposed three-new positions to be added during the twelve-month period ending June 30, 2021: (1) Material and Facilities Manager at \$60,000; (2) CNG Accounting Manager at \$95,000, and; CNG Staff Accountant at \$50,000 (Gas Company Exhibit G-4 Schedule 3). The Gas Company has allocated 20% of the Material and Facilities Manager to the Gas Company or \$12,000; and 3% to each of the Accounting Manager and Staff Accountant or \$2,850 and \$1,500, respectively.

Q. WHAT ARE THE HIRING STATUSES OF THE THREE ADDITIONAL EMPLOYEES?

A. According to the response to OCA Set I, No. 25 (Electric), the anticipated dates of hires is expected to be between March 15 and April 5, 2021.

Q. DID YOU HAVE ANY ADJUSTMENTS RELATED TO THE GAS COMPANY’S ADDITIONAL NEW EMPLOYEES TOTALING \$16,400?

1 **A.** No. I am accepting the Gas Company’s proposal to include the three additional
2 employees, allocated as 20% for the Material & Facilities Management (\$12,000),
3 3% for the Accounting Manager (\$2,850), and 3% for the Staff Accountant
4 (\$1,500). This is reflected in my Schedule DM-14 and DM-10, Line 9. The Gas
5 Company should confirm the dates of employment with any changes to the starting
6 salaries as described above.

7

8 **e. Ancillary Cost**

9 **Q. WHAT HAS THE GAS COMPANY PROPOSED WITH RESPECT TO ITS**
10 **ANCILLARY COSTS?**

11 **Q.** The Gas Company has included Payroll Ancillary Costs that reflects the allocation
12 of Health Insurance and Workers Compensation with respect to the additional
13 Wage Increase of \$7,000¹⁰ and the Salaries and Wages for the three additional
14 employees of \$16,500 for a total adjustment of \$23,350 as shown on Gas
15 Company Exhibit G-4, Schedule 4. In Statement No. 2, page 36 the Gas Company
16 applied a fringe benefit rate of 46.05%, consisting of 401K Pension match rate of
17 5.52%, Health and Life Insurance rate of 38.27%, and Workers Compensation rate
18 of 2.26%. These rates were developed based upon the historic cost of each benefit
19 item in relation to the total historic labor costs for the twelve-months ending June
20 30, 2020. Using the above fringe benefits rate of 46.05%, the Gas Company
21 computed a total benefits cost of \$10,800.

22 **Q. WHAT ADJUSTMENTS DO YOU HAVE WITH RESPECT TO THE GAS**
23 **COMPANY’S ANCILLARY COSTS?**

24 **A.** I am accepting the Gas Company’s overall fringe benefit rate of 46.05%. My
25 adjustment reflects my proposed Wage Increase adjustment reflected on my
26 Schedule DM-15. Using the Gas Company’s fringe benefit rate multiplied by my

¹⁰ Differences due to rounding.

1 total Wage Increase and Additional Staffing totaling \$23,233, I compute a decrease
2 of \$166.

3 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF YOUR ADJUSTMENT?**

4 **A.** The revenue requirement impact is \$166, minus the tax effect of 28.8921%, which
5 equals \$118.

6
7 **f. Rate Case Expenses**

8 **Q. WHAT HAS THE GAS COMPANY PROPOSED RELATED TO ITS RATE CASE**
9 **EXPENSES?**

10 **A.** The Gas Company proposed a Rate Case Expense of \$5,600 as shown on Gas
11 Company Exhibit G-4, Schedule 5. The Gas Company began with a Rate Case
12 Expenses of \$150,000 representing total Rate Case Expenses for both the Pike
13 Electric and the Pike Gas Company rate case filings. The Gas Company was
14 allocated 15%, attributable to the Gas Operations or \$22,500. The Gas Company
15 amortized these costs over a four-year period to arrive at a yearly balance of
16 \$5,625 (\$5,600 rounded).

17 **Q. WHEN WAS THE GAS COMPANY'S LAST BASE RATE CASE PROCEEDING**
18 **BEFORE THE COMMISSION?**

19 **A.** According to Gas Statement No. 2, page 6, the last base rate case proceeding was
20 in 2014. The last base rate case proceeding was a "black box" settlement.

21 **Q. WHAT HAS BEEN THE COMMISSION'S APPROACH WITH RESPECT TO**
22 **RATE CASE EXPENSES?**

23 **A.** The Commission normalizes Rate Case Expenses rather than amortizing these
24 expenses by reviewing prior rate case costs and the actual amounts that were
25 requested and included in the establishment of rates in those proceedings. Given
26 that this is the first base rate case filing by the Gas Company in seven years, there

1 are no comparable prior costs that can be used to normalize Rate Case Expenses
2 in this proceeding.

3 **Q. WHAT IS YOUR RECOMMENDATION?**

4 **A.** Given that the last base rate case was approved by the Commission in 2014, I am
5 recommending a 6-year normalizing period. This reduces the Gas Company's
6 Rate Case Expenses from \$5,625 to \$3,750, a reduction of \$1,875. This is shown
7 on my Schedule DM-16.

8 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF YOUR ADJUSTMENT?**

9 **A.** My revenue requirement impact is a reduction of \$1,875 minus the tax effect of
10 28.8921% equals \$1,333.

11
12 **g. Intercompany Charges**

13 **Q. WHAT HAS THE GAS COMPANY PROPOSED WITH RESPECT TO ITS**
14 **INTERCOMPANY CHARGES?**

15 **A.** The Gas Company has proposed an Intercompany Charge balance of \$72,623,
16 representing charges not reflected in other schedules such as payroll and taxes
17 other, as shown on Gas Company Schedule G-4, Schedule 6. The Gas Company
18 has utilized a CPI General Inflation Factor of 1% to adjust these expenses in the
19 Future Test Year ending June 30, 2021, or an increase of \$726 (\$700 rounded).

20 **Q. WHAT ADJUSTMENTS DO YOU HAVE WITH RESPECT TO THE GAS**
21 **COMPANY'S INTERCOMPANY CHARGES?**

22 **A.** My only adjustment is to remove the CPI inflation rate of 1.0%. My reasoning for
23 removing CPI from the Gas Company's Intercompany Charges is that these types
24 of adjustments are typically blanket adjustments in nature and do not directly relate
25 to actual costs expected to be incurred by the Gas Company in the period which
26 rates are set. Cost should be based upon evidence or documentation that
27 supports the Gas Company's adjustments.

1 **Q. WHAT IS YOUR RECOMMENDATION?**

2 **A.** My recommendation is to remove the \$726 from the Gas Company's Intercompany
3 Charges. This is shown on my Schedule DM-16.

4 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF YOUR ADJUSTMENT?**

5 **A.** My revenue requirement impact is a reduction of \$726, minus the tax effect of
6 28.8921%, which equals \$516.

7

8 **h. Uncollectible Accounts Expense**

9 **Q. WHAT DID THE GAS COMPANY PROPOSE RELATED TO ITS**
10 **UNCOLLECTIBLE ACCOUNTS EXPENSE?**

11 **A.** With respect to the Uncollectible Accounts Expense adjustment of \$39,037, the
12 Gas Company has calculated the number of write-offs during the twenty-four
13 months ending June 30, 2020, (Statement No. 2, page 38, line 19-20) of \$13,950,
14 and adding to that balance an annual expense of \$25,087, using an uncollectible
15 factor of 1.53%, times the Operating Revenues of \$1,639,700 as of June 30, 2021.
16 This is also shown on the Gas Company's Exhibit G-4, Schedule 7.

17 **Q. WHAT OTHER ADJUSTMENTS HAS THE GAS COMPANY PROPOSED?**

18 **A.** In addition, the Gas Company adjusted the Uncollectible Accounts Expense by
19 taking the proposed revenue requirement increase of \$262,200 and multiplying
20 that amount by the uncollectible factor of 1.53% to arrive at an additional expense
21 of \$4,000. (Gas Company Exhibit G-4 Summary).

22 **Q. WHAT HAS THE GAS COMPANY STATED REGARDING THE NEGATIVE**
23 **AMOUNT OF UNCOLLECTIBLE EXPENSE OF \$13,950 AT JUNE 30, 2020?**

24 **A.** The Gas Company stated that this negative balance resulted from the collection of
25 the amounts that had been written off in the prior year as uncollectible (Statement
26 No. 2 page 39). The Gas Company stated during the twelve-months ending June
27 30, 2020, the Gas Company was able to collect some of the amounts that had

1 been written off in the prior year as uncollectible. Since there is an inherent lag
2 between the time customer bills are written off and the possible recovery of a
3 portion of those write-offs, the Gas Company utilized a two-year period to
4 normalize this time lag in developing the uncollectible factor of 1.53%.

5 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE GAS COMPANY'S**
6 **UNCOLLECTIBLE ACCOUNTS EXPENSE BALANCE OF \$39,000?**

7 **A.** I am recommending that the Uncollectible Accounts expense should be computed
8 simply by taking the Operating Revenues at June 30, 2021 and multiplying that
9 amount by the Uncollectible Rate of 1.53%, or \$25,087. I do not believe the Gas
10 Company should recover incremental Uncollectible Accounts Expense from the
11 period ending June 30, 2020, in addition to a proposed Uncollectible Accounts
12 Expense through June 30, 2021. With respect to the Gas Company's additional
13 costs of \$4,000 related to the proposed rate increase of \$262,200, I am utilizing
14 my recommended revenue requirement adjustment of \$97,301 to compute the
15 additional Uncollectible Accounts Expense of \$1,489.

16 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF YOUR ADJUSTMENT?**

17 **A.** My recommended revenue requirement impact is the reduction of the \$13,950 plus
18 the additional uncollectible accounts related to my recommended revenue
19 requirement increase (\$97,301 times the uncollectible write off percentage of
20 1.53% which equals \$1,489), which equals \$16,473, minus the tax effect of
21 28.8921%, which equals \$11,714. This is shown on my Schedule DM-17 and DM-
22 10.

- 23
- 24 i. **Miscellaneous Expenses – Membership Fees, Dues and**
25 **Subscriptions , Advertising and Charitable Contributions and**
26 **Chambers of Commerce**

1 **Q. WHAT HAS THE GAS COMPANY PROPOSED WITH RESPECT TO ITS**
2 **MEMBERSHIP FEES, DUES AND SUBSCRIPTIONS, ADVERTISING AND**
3 **CHARITABLE CONTRIBUTIONS AND CHAMBERS OF COMMERCE?**

4 **A.** The Electric Company has not specifically provided nor broken down costs related
5 to Membership Fees, Dues and Subscriptions, Advertising, and Charitable
6 Contributions / Chambers of Commerce.

7 **Q. DID YOU ASK FOR SUCH INFORMATION THROUGH DISCOVERY?**

8 **A.** Yes. On January 19, 2021, OCA submitted its SET IV of Interrogatories requesting
9 information related to the above Miscellaneous Expenses.

10 **Q. WHAT HAS THE GAS COMPANY PROVIDED IN RESPONSE TO OCA SET IV**
11 **INTERROGATORIES?**

12 **A.** The Gas Company has indicated that it had forecasted \$3,800 related to
13 Membership Fees, Dues and Subscriptions. (OCA Set IV No.2).

14 **Q. WHAT HAS THE COMMISSION STATED WITH RESPECT TO MEMBERSHIPS,**
15 **DUES AND SUBSCRIPTIONS?**

16 **A.** In 66 Pa.C.S. Section 1316.1, Recovery of dues, “no public utility may charge to
17 its customers as a permissible operating expense for ratemaking purposes
18 membership fees, dues or charges to fraternal, social or sports clubs or
19 organization.”

20 **Q. WHAT CHANGES DO YOU HAVE WITH RESPECT TO THE GAS COMPANY’S**
21 **MEMBERSHIPS, DUES AND SUBSCRIPTIONS?**

22 **A.** I have no adjustments. As shown in response to OCA Set IV No. 2 these costs
23 were for Energy Association for PA and Northeast Gas Association and appear to
24 be reasonable in nature.

25 **Q. WHAT HAS THE GAS COMPANY PROVIDED WITH RESPECT TO**
26 **CHARITABLE CONTRIBUTIONS?**

1 **A.** In response to OCA Set IV No. 4, the Gas Company indicated that it forecasted
2 \$1,223 related to various Charitable Contributions.

3 **Q. WHAT HAS THE COMMISSION STATED WITH RESPECT TO CHARITABLE**
4 **CONTRIBUTIONS?**

5 **A.** In various Commission Decisions, the Commission has viewed Charitable
6 Contributions to be the responsibility of all citizens in a community including
7 corporations. According to a Pa. P.U.C. January 26, 1996 case:

8 “A Charitable Contribution loses much of its philanthropic character if the donor has the
9 ability to turn around and pass responsibility for its payment on to someone else. In that
10 case, it becomes a form of involuntary “taxation” of ratepayers. We would hope that [the
11 utility] will continue to meet its civic obligations to aid worthy causes; but if we in turn
12 assessed ratepayers for these contributions, we would in fact be excusing the utility’s
13 owners from that obligation. Neither this commission nor [the utility] as a corporation has
14 the right to make others pay for its charitable inclinations. The company’s claim should
15 be rejected.”¹¹

16 **Q. WHAT IS YOUR RECOMMENDATION?**

17 **A.** I am recommending removing these costs from rates. I do not believe that
18 ratepayers should bear the burden of paying for costs related to any type of
19 charitable contributions related to any organization. Ratepayers do not have a say
20 of what type of contribution they are paying for or paying into. Further, there is no
21 benefit accruing to ratepayers regarding utility service. These costs should be
22 funded solely by the Gas Company and receive a benefit through the corporate
23 entity.

24 **Q. WHAT IS YOUR RECOMMENDATION AND REVENUE REQUIREMENT**
25 **IMPACT?**

26 **A.** My recommended adjustment is to remove the amount of \$1,223 from the Gas
27 Company’s revenue requirement proposal. My revenue requirement adjustment

¹¹ Pa. PUC v. Citizens Utility Water Company of Pennsylvania, 1996 Pa. PUC LEXIS 164 *119-120 (Pa. P.U.C. January 26, 1996).

1 is \$1,223 minus the tax effect of 28.8921% or \$870. This is shown on my Schedule
2 DM-10.

3 **Q. WHAT HAS THE GAS COMPANY PROVIDED WITH RESPECT TO**
4 **ADVERTISING EXPENSE?**

5 **A.** In response to OCA Set IV No. 3 the Gas Company proposed Advertising Expense
6 of \$3,600.

7 **Q. WHAT HAS THE PA PUBLIC UTILITY CODE PROVIDE WHAT SHOULD BE**
8 **RECOVERED BY RATEPAYERS REGARDING ADVERTISING EXPENSES?**

9 **A.** IN 66 Pa C.S. §1316, “no public utility may charge to its customers as a permissible
10 operating expense for ratemaking purposes any direct or indirect expenditure by
11 the utility for political advertising. The commission shall also disallow as operating
12 expense for ratemaking purposes expenditures for other advertising, unless and
13 only to the extent that the commission finds that such advertising is reasonable
14 and meets one or more of the following criteria:

- 15 1) Is required by law or regulation.
- 16 2) Is in support of the issuance, marketing or acquisition of securities or other
17 forms of financing.
- 18 3) Encourages energy independence by promoting the wise development and
19 use of domestic sources of coal, oil or natural gas and does not promote
20 one method of generating electricity as preferable to other methods of
21 generating electricity.
- 22 4) Provides important information to the public regarding safety, rate changes,
23 means of reducing usage or bills, load management or energy conservation.
- 24 5) Provide a direct benefit to ratepayers.
- 25 6) Is for the promotion of community service or economic development.

26
27
28 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE GAS COMPANY’S**
29 **ADVERTISING EXPENSES?**

30 **A.** In reviewing the responses, these Advertising Costs appear to be reasonable in
31 nature. I have no adjustments to the Gas Company’s Advertising Costs, as these
32 costs appear to be reasonable.

1 **3. DEPRECIATION EXPENSE – GAS**

2 **Q. WHAT DID THE GAS COMPANY PROPOSE WITH RESPECT TO ITS**
3 **DEPRECIATION AND AMORTIZATION EXPENSE?**

4 **A.** The Gas Company has proposed a Depreciation and Amortization Expense of
5 \$125,000 as shown on Gas Company Exhibit G-4 Summary.

6 **Q. HOW DID THE GAS COMPANY DEVELOP ITS PROPOSED DEPRECIATION**
7 **AND AMORTIZATION EXPENSE?**

8 **A.** The Gas Company began with the gas distribution and common plant balances
9 allocated to the Gas Company as of June 30, 2020. To that balance, the Gas
10 Company eliminated non-depreciable plant, and reflected plant additions and
11 retirements through June 30, 2021. These plant balances were multiplied by the
12 composite depreciation expense to calculate the rate-year level of depreciation of
13 \$125,030. This level was compared to the test year level of \$91,300 and results
14 in the depreciation adjustment of \$33,722 (Statement No. 2, page 40-41).

15 **Q. WHAT DEPRECIATION, AMORTIZATION AND NET SALVAGE RATES WERE**
16 **USED BY THE GAS COMPANY?**

17 **A.** The Gas Company utilized the depreciation, amortization, and net salvage rates
18 to compute the depreciation and amortization expense in the same manner as it
19 computed its depreciation, amortization and net salvages rates as was contained
20 in the Gas Company's last base rate case filing under R-2013-2397353, with the
21 exception of some general plant accounts which did not exist at the time of the
22 settlement agreement (Statement No. 2 page 41).

23 **Q. WHAT ARE YOUR RECOMMENDATIONS RELATED TO THE GAS**
24 **COMPANY'S DEPRECIATION AND AMORTIZATION EXPENSE?**

25 **A.** I am accepting the Gas Company's depreciation, amortization, and net salvage
26 rates that were used to compute the depreciation and amortization expense. My
27 adjustments are with regard to the removal of certain plant additions beyond the
28 future test year period June 30, 2021. In the same manner as I removed plant

1 additions from July 1, 2021 through December 31, 2021, I am removing the
2 corresponding depreciation and amortization expense associated with those plant
3 additions.

4 **Q. WHAT ARE YOUR ADJUSTMENTS?**

5 **A.** For the Gas Distribution Plant, I am recommending a depreciation and amortization
6 balance of \$74,966 and a depreciation and amortization balance of \$38,702
7 related to the Common Plant for a total balance of \$116,389, a difference of
8 \$8,641. This is shown on my Schedule DM-18.

9 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF YOUR ADJUSTED
10 DEPRECIATION AND AMORTIZATION EXPENSE?**

11 **A.** The revenue requirement impact of the adjusted Depreciation Expense is a
12 decrease of \$8,641, minus the income tax effect of 28.8921%, which equals
13 \$6,144.

14
15 **4. TAXES OTHER THAN INCOME – GAS**

16 **Q. WHAT HAS THE GAS COMPANY PROPOSED WITH RESPECT TO TAXES
17 OTHER THAN INCOME TAXES?**

18 **A.** As shown on Gas Company Schedule G-4, Schedule 9, the Gas Company
19 proposed a total Taxes other than Income of \$19,253. This is comprised of Payroll
20 Taxes and Property Taxes, which reflect the change in these two accounts for the
21 period ending June 30, 2021 (Statement No. 2, page 43).

22 **Q. HOW WERE THE PAYROLL AND PROPERTY TAXES COMPUTED?**

23 **A.** For the Payroll Tax the Gas Company included the additional wage and salary
24 increases and for the additional employees shown on the Gas Company's Exhibits
25 G-4, Schedule ,3 pages 1 and 2, respectively. The Property Taxes were (PA.
26 Realty Taxes) based upon historic school and town property tax bills as of June
27 30, 2021. (OCA Set I No. 21).

1 **Q. WHAT ARE YOUR ADJUSTMENTS AND YOUR RECOMMENDED LEVEL OF**
2 **TAXES OTHER THAN INCOME TAXES?**

3 **A.** Since I made adjustments to the Allocated Payroll from CNGC, I am making a
4 corresponding adjustment to the payroll taxes associated with that adjustment. I
5 am also accepting the Gas Company's PA Property Taxes which were based upon
6 the latest actual tax bills. My adjustment is a reduction of \$436, or a balance
7 \$18,818 which is shown on my Schedule DM-19.

8 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF YOUR ADJUSTMENT?**

9 **A.** The revenue requirement impact of my adjusted Taxes Other Than Income is:
10 \$436, minus the income tax effect of 28.8921%, which equals \$310.

11

12 **5. INCOME TAXES – GAS**

13 **Q. WHAT DID THE GAS COMPANY CALCULATE WITH RESPECT TO ITS STATE**
14 **AND FEDERAL INCOME TAXES?**

15 **A.** As shown on the Gas Company Exhibit G-4 Summary and on Schedule 10, the
16 Gas Company proposed a State Income Tax balance of \$27,000 and a Federal
17 Income Tax balance of \$50,900 for a total balance of \$77,900.

18 **Q. HOW DID THE GAS COMPANY COMPUTE ITS STATE AND FEDERAL**
19 **INCOME TAXES?**

20 **A.** The Gas Company made certain adjustments (subtractions and additions) that
21 must be made to operating income before taxes in order to determine taxable
22 income to which the statutory tax rates are applied (Gas Statement No. 2, page
23 44). The Gas Company also calculated interest expense using the weighted cost
24 of debt for both long and short term to which the Gas Company multiplied the debt
25 cost to the Gas Company's Rate Base to determine the interest deduction. (Gas
26 Statement No.2 page 44).

1 **Q. DO YOU HAVE ANY CHANGES WITH RESPECT TO THE METHODOLOGY**
2 **THAT THE GAS COMPANY USED TO CALCULATE ITS STATE AND**
3 **FEDERAL INCOME TAXES?**

4 **A.** No, I am accepting the Gas Company's methodology related to its State and
5 Federal Income Taxes. My adjustments related to my recommended balances to
6 the Gas Company's O&M Expenses, and Rate Base adjustments, including the
7 calculation of interest synchronization.

8 **Q. WHAT IS YOUR RECOMMENDED STATE INCOME TAXES AND**
9 **RECOMMENDED FEDERAL INCOME TAXES?**

10 **A.** My recommended State Income Tax is \$14,536 as shown on my Schedule DM-
11 20. This is a reduction to the Gas Company's proposed State Income Tax of
12 \$26,945¹², a reduction of \$12,409. My recommended Federal Income Tax is
13 \$27,504 as shown on my Schedule DM-21. This a reduction to the Gas Company's
14 proposed Federal Income Tax of \$50,982, a reduction of \$23,478.¹³

15

16 **IV. ACT – 40 REQUIREMENTS (ACT 40 OF 2016)**

17 **Q. WHAT ARE THE ACT 40 REQUIREMENTS?**

18 **A.** Act 40 took effect on August 11, 2016, which, among other things, eliminated the
19 consolidated tax savings adjustment. Prior to Act 40, the Company would have
20 been required to adjust its revenue increase request downward to reflect tax
21 savings associated with filing taxes as part of a parent or holding company. This
22 practice recognized that the Company's ratepayers should only pay taxes that the
23 Company actually paid. Act 40 requires the Company to continue its performance
24 of the consolidated tax savings calculation and provide that consolidated tax
25 savings differential as part of its rate case filing. In part, Act 40 states:

¹² Differences due to rounding.

¹³ Differences due to rounding.

1 If an expense or investment is allowed to be included in a public
2 utility's rates for ratemaking purposes, the related income tax
3 deductions and credits shall also be included in the computation of
4 current or deferred income tax expense to reduce rates. If an
5 expense or investment is not allowed to be included in a public
6 utility's rates, the related income tax deductions and credits,
7 including tax losses of the public utility's parent or affiliated
8 companies, shall not be included in the computation of income tax
9 expense to reduce rates. The deferred income taxes used to
10 determine the rate base of a public utility for ratemaking purposes
11 shall be based solely on the tax deductions and credits received by
12 the public utility and shall not include any deductions or credits
13 generated by the expenses or investments of a public utility's parent
14 or any affiliated entity. The income tax expense shall be computed
15 using the statutory income tax rates.

16 Act 40 further states:

17 REVENUE USE- If a differential accrues to a public utility resulting
18 from applying the ratemaking methods employed by the commission
19 prior to the effective date of subsection (a) for ratemaking purposes,
20 the differential shall be used as follows:

- 21 (1) Fifty percent to support reliability or infrastructure related to the rate-
22 base eligible capital investment as determined by the commission;
23 and
- 24 (2) Fifty percent for general corporate purposes.

25 As a result, ratepayers now pay taxes in excess of those taxes that the
26 Company actually pays, and the revenue use requirement specifies how
27 those additional revenues are to be applied. Section 1301.1 (b) requires the
28 Company to use 50% of that differential for reliability or infrastructure related
29 capital investment and the remaining 50% for general corporate purposes.

30 **Q. HAS THE GAS COMPANY CALCULATED A CONSOLIDATED TAX EXPENSE**
31 **ADJUSTMENT (CTA)?**

32 **A.** No. In response to OCA Set IV No. 5 (Gas Company), PCLP – Gas Division did
33 not have any disbursements for fines, penalties, judgments, entertainment,
34 compensation with Section 162 limitations, etc. As a result there were no Act 40
35 deductions to eliminate from the income tax computation for ratemaking purposes.

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Q. HAS THE GAS COMPANY SATISFIED THE FIRST REQUIREMENT UNDER ACT 40 – 50% OF THE DIFFERENTIAL SPENT ON INFRASTRUCTURE REPLACEMENT?

A. The Gas Company has not provided sufficient information to make a determination, that requires 50% of the differential to be spent on infrastructure replacement. Therefore, I am unable to make a recommendation.

Q. WHAT IS PCLP’S GAS PROPOSAL FOR THE OTHER 50% OF THE DIFFERENTIAL, WHICH SECTION 1301.1(b)(2) STATES MUST BE USED FOR “GENERAL CORPORATE PURPOSES”?

A. The Gas Company has not provided sufficient information to make a determination that requires 50% of the differential to be used for General Corporate purposes. Therefore, I am unable to make a recommendation.

Q. WHAT SPECIFIC RECOMMENDATION DO YOU HAVE IN THE CURRENT PCLP GAS RATE CASE FOR APPLYING THE 50% OF THE “REVENUE USE” DIFFERENTIAL THAT ACT 40 REQUIRES TO BE FOR “GENERAL CORPORATE PURPOSES”?

A. According to Act 40, the Company is required to calculate a consolidated income tax adjustment (CTA), but not for the purpose of flowing through as a ratemaking adjustment to federal income tax expense, but rather to calculate what dollars should be attributable to applying the 50% level to infrastructure and General Corporate purposes. Given that the Gas Company has not presented a plan related to the investment of the 50% of the differential in projects to conform to Section 1301.1 (b) nor as the Gas Company presented a plan related to treatment of the other 50% of the differential to conform to Section 1301.1 (b) (2), I am recommending that the Commission direct PCLP - Gas to provide specific reasons why it has not prepared a consolidated tax adjustment (CTA) that is used to

1 determine the requirements of Act 40, related to the calculation of 50% of the CTA
2 differential to be applied towards infrastructure spend and 50% to be applied for
3 general corporate purposes.

4
5
6 **V. TAX CUTS AND JOBS ACT OF 2017 (TCJA)**

7 **Q. WHAT HAS THE PCLP – GAS COMPANY PROPOSED WITH RESPECT TO**
8 **THE TCJA?**

9 **A.** The Gas Company had a negative deferred credit of \$28,569 related to the timing
10 difference created by the TCJA, which will reverse itself in future years. (Gas
11 Statement No. 2, page 30).

12 **Q. WHAT CONCERNS DO YOU HAVE REGARDING PCLP’S GAS PROPOSAL**
13 **RELATED TO THE TCJA?**

14 **A.** In response to I&E-RE-21-D, the Gas Company was asked if amortization began
15 stemming from the Tax Cuts and Jobs Act of 2017 (TCJA). The Gas Company
16 responded that it had not started amortizing any of the balances in the accounts
17 shown on Gas Company Exhibit G-3 Schedule 9. The Gas Company stated that
18 this should be addressed as part of this (instant) base rate filing. The Gas
19 Company has determined those balances should be amortized over 50 years, and
20 the unprotected balance should be amortized over four years, in the same manner
21 as rate case expenses.

22
23 **Q, DID THE COMMISSION REQUIRE THE GAS COMPANY TO ESTABLISH A**
24 **REGULATORY LIABILITY FOR THE TAX SAVINGS ACCRUED FOR THE**
25 **PERIOD JANUARY 1, 2018 THROUGH JUNE 30, 2018?**

26 **A.** No. As per the response to I&E-RE-22-D, the Gas Company stated that due to the
27 size of Pike’s gas operations, the Commission did not require the Gas Company
28 to refund the difference between income taxes as calculated at 35% vs. the TCJA
29 21% rate. As a result, the Gas Company does not have a regulatory liability

1 established for the January 1, 2018 through June 30, 2018 time period for the
2 TCJA tax benefit.

3
4
5 **Q. WHAT IS YOUR RECOMMENDATION?**

6 **A.** I am recommending that PCLP- Gas update its filing to include the adjustment and
7 account for the pass-back of the regulatory liability amounts related to the EDIT
8 and detailed in response to I&E-RE-21 and 22-D. The Gas Company should
9 update its revenue requirement proposal to show the adjustments related to the
10 pass-back of the regulatory liability amounts. As indicated in the response to I&E-
11 RE-21-D, the Gas Company believes that it is appropriate to include the regulatory
12 liability resulting from the TCJA in Rate Base. With respect to the Stub Period
13 amount (January 1, 2018 through June 30, 2018, I am recommending that PCLP
14 – Gas calculate the stub period balance and should provide a time period in which
15 these revenues will be passed back to customers but no later than 120 days from
16 the date of the Commission Order in this matter.

17
18 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

19 **A.** Yes, it does. However, I reserve my right to update and adjust my recommended
20 revenue requirement components pending any updated information or through
21 discovery that PCLP – Gas Company provides in this filing.

GAS REVENUE REQUIREMENT

	(1)			
	Company Proposed	Adjustments	OCA	References
1 Rate Base - June 30, 2021	\$ 4,071,900	\$ (245,135)	\$ 3,826,765	DM-3
2 Rate of Return	7.09%		6.86%	DM-2
3 Return Requirement	\$ 288,698	\$ (26,052)	\$ 262,646	
4 Operating Income Present Rates	\$ 105,100	\$ 89,419	\$ 194,519	
5 Additional Return Requirement	\$ 183,598	\$ (115,471)	\$ 68,127	
6 Retention Factor (2)	1.428216		1.428216	
7 Total Revenue Requirement	\$ 262,218	\$ (164,917)	\$ 97,301	
% Increase	15.96%		5.92%	

(1) Company Exhibit G-4 Summary

(2) Additional Revenues	100.000000
Less Revenue Taxes	0.000000
Less Uncollectibles	1.530000
Sub-Total	98.470000
Less State Income Taxes 9.99%	9.837153
Sub-Total	88.632847
Less Federal Income Taxes 21.00%	18.612898
Retention Factor	70.019949
Additional Revenues	100.000000
Retention Factor	70.019949
	1.428164

CONSOLIDATED COST OF MONEY

(1)

	<u>Company Proposed</u>	Percent of Capital	Cost of Component	Weighted Cost
1	Long Term Debt	46.540%	4.770%	2.220%
2	Short Term Debt	5.140%	3.100%	0.159%
3	Common Stock Equity	48.320%	9.750%	4.711%
4	Total Capitalization	100.000%		7.090%

OCA Recommended

1	Long Term Debt	46.540%	4.770%	2.220%
2	Short Term Debt	5.140%	3.100%	0.159%
3	Common Stock Equity	48.320%	9.280%	4.484%
4	Total Capitalization	100.000%		6.863%

(2)

(1) Company Exhibit G-2 Schedule 3

(2) Per MFG-9

GAS RATE BASE

		(1)			
		Company			
		Proposed	Adjustments	OCA	References
<u>Gas Utility Plant</u>					
1	Utility Plant In Service	\$ 3,955,700	\$ (222,100)	\$ 3,733,600	DM-4
2	Common Plant In Service	\$ 354,500	\$ (55)	\$ 354,445	DM-4
3	General Plant In Service (Corning Gas)	\$ 29,500	\$ -	\$ 29,500	DM-4
4	CWIP not Taking Interest	\$ -	\$ -	\$ -	
5	Total Gas Utility Plant	\$ 4,339,700	\$ (222,112)	\$ 4,117,588	
<u>Gas Plant Reserves</u>					
6	Accumulated Depreciation - Gas Plant	\$ 191,200	\$ (11,000)	\$ 180,200	DM-5
7	Accumulated Depreciation - Common Plant	\$ 124,700	\$ 22,492	\$ 147,200	DM-5
8	Retirements W.I.P.	\$ -	\$ -	\$ -	
9	Total Gas Plant Reserves	\$ 315,900	\$ 11,500	\$ 327,400	
10	Net Gas Plant in Service	\$ 4,023,800	\$ (233,612)	\$ 3,790,188	
<u>Additions to Net Gas Plant</u>					
Working Capital Allowance					
11	Cash Working Capital	\$ 72,500	\$ (10,622)	\$ 61,878	DM-6
12	Materials and Supplies	\$ 153,900	\$ -	\$ 153,863	DM-7
13	Prepayments	\$ 4,200	\$ -	\$ 4,200	DM-7
14	Deferred Debits (Net of Tax)	\$ 16,000	\$ (16,000)	\$ -	DM-8
15	Total Additions to Net Gas Plant	\$ 246,600	\$ (26,659)	\$ 219,941	
<u>Deductions to Net Gas Plant</u>					
16	Deferred Credits (Net of Tax)	\$ (20,300)	\$ -	\$ (20,330)	DM-7
17	Customer Deposits	\$ 22,400	\$ -	\$ 22,401	DM-7
18	Accumulated Deferred Income Taxes	\$ 196,400	\$ (15,107)	\$ 181,293	DM-9
19	Total Deductions to Net Gas Plant	\$ 198,500	\$ (15,107)	\$ 183,364	
20	Total Gas Rate Base	\$ 4,071,900	\$ (245,135)	\$ 3,826,765	

(1) Company Exhibit G-3 Summary page 1 of 2

GAS PLANT IN SERVICE

		(1)			
		Company			
		Proposed	Adjustments	OCA	References
1	Gas Plant In Service - 6/30/2020	\$ 3,001,700	\$ -	\$ 3,001,700	
2	Additions - Completed CWIP - 6/30/2020	\$ 87,700	\$ -	\$ 87,700	
3	Additions - 7/1/2020 - 6/30/2021	\$ 700,000	\$ -	\$ 700,000	
4	Additions - 7/1/2021 - 12/31/2021	\$ 250,000	\$ (250,000)	\$ -	OCA Set I No. 26
5	Total	\$ 4,039,400	\$ (250,000)	\$ 3,789,400	
6	Retirements	\$ 83,700	\$ (27,900)	\$ 55,800	
7	Gas Plant In Service Balance 12/31/2021	\$ 3,955,700	\$ (222,100)	\$ 3,733,600	
8	Gas Common Plant In Service - 6/30/2020	\$ 1,957,164	\$ -	\$ 1,957,164	
9	Allocated to Gas - 15%	\$ 293,575	\$ -	\$ 293,575	
10	Additions - Completed CWIP - 6/30/2020	\$ 15,800	\$ -	\$ 15,800	
11	Additions - 7/1/2020 - 6/30/2021	\$ 400,000	\$ -	\$ 400,000	
12	Additions - 7/1/2021 - 12/31/2021	\$ 300,000	\$ (300,000)	\$ -	
13	Gas Plant Additions - 12/31/2021	\$ 715,800	\$ (300,000)	\$ 415,800	
14	Allocated to Gas - 15%	\$ 107,370	\$ (45,000)	\$ 62,370	
15	Retirements	\$ 310,000	\$ (300,000)	\$ 10,000	
16	Allocated to Gas - 15%	\$ 46,500	\$ (45,000)	\$ 1,500	
17	Gas Common Plant In Service - 12/31/2021	\$ 354,445	\$ -	\$ 354,445	
18	Intercompany Plant Allocated from Corning Gas Shared Corning Facilities (Net)				
19	Land- Williams Street	\$ 155,733	\$ -	\$ 155,733	
20	West Williams Street Office	\$ 1,207,576	\$ -	\$ 1,207,576	
21	Land Riverside	\$ 233,732	\$ -	\$ 233,732	
22	Riverside Operations Facility	\$ 1,643,541	\$ -	\$ 1,643,541	
23	Total	\$ 3,240,582	\$ -	\$ 3,240,582	
24	Allocated to Pike Gas 0.35%	\$ 11,238	\$ -	\$ 11,238	
	Intercompany Plant Office Furniture/Equipment				
25	Furniture	\$ 3,851	\$ -	\$ 3,851	
26	Machines	\$ (57,449)	\$ -	\$ (57,449)	
27	Computers	\$ 1,960,326	\$ -	\$ 1,960,326	
28	Total	\$ 1,906,728	\$ -	\$ 1,906,728	
29	Allocated to Pike Gas 0.96%	\$ 18,305	\$ -	\$ 18,305	
30	Total Proposed Gas Plant In Service (Lines 14, 26, 35, 42)	\$ 4,339,700	\$ (222,112)	\$ 4,117,588	

(1) Company Exhibit G-3 Schedule 1

ACCUMULATED DEPRECIATION

	(1)			
	Company Proposed	Adjustments	OCA	References
1 Gas Reserve Balance - 6/30/2020	\$ 167,000	\$ -	\$ 167,000	
2 Additions 7/1/2020 - 6/30/2021	\$ 69,000	\$ -	\$ 69,000	
3 Additions 7/1/2021 - 12/31/2021	\$ 38,900	\$ (38,900)	\$ -	
4 Total Gas Reserve	\$ 107,900	\$ (38,900)	\$ 69,000	
5 Gas Retirements WIP	\$ (83,700)	\$ 27,900	\$ (55,800)	
6 Net Additions	\$ 24,200	\$ (11,000)	\$ 13,200	
7 Gas Reserve Balance - 12/31/2021	\$ 191,200	\$ (11,000)	\$ 180,200	
8 Common Gas Reserve Balance - 6/30/2020	\$ 718,684	\$ -	\$ 718,684	
9 Allocated to Gas - 15%	\$ 107,803	\$ -	\$ 107,803	
10 Additions - 7/1/2020 - 6/30/2021	\$ 272,700	\$ -	\$ 272,700	
11 Additions - 7/1/2021 - 12/31/2021	\$ 150,000	\$ (150,000)	\$ -	
12 Total Common Additions to Electric Reserve	\$ 422,700	\$ (150,000)	\$ 272,700	
13 Allocated to Gas - 15%	\$ 63,405	\$ (22,500)	\$ 40,905	
Common Gas Retirements	\$ (310,000)	\$ 300,000	\$ (10,000)	
14 Allocated to Gas - 15%	\$ (46,500)	\$ 45,000	\$ (1,500)	
15 Common Gas Ending Balance - 12/31/2021	\$ 124,708	\$ 22,500	\$ 147,208	
16 Lines 18, 23, 26)				
17 Total Gas Reserve Balance - (Lines 15, 28)	\$ 315,908	\$ 11,500	\$ 327,408	

(1) Company Exhibit G-3 Schedule 2

CASH WORKING CAPITAL

		(1)			
		Company			
		Proposed	Adjustments	OCA	References
1	Revenue Recovery	\$ 65,140,740	\$ (5,639,559)	\$ 59,501,181	DM-10
2	PA Gross Receipts Tax	\$ -	\$ -	\$ -	
3	Total	\$ 65,140,740	\$ (5,639,559)	\$ 59,501,181	
4	Gas Supply Expense	\$ 26,871,960	\$ -	\$ 26,871,960	DM-13
5	SBC Expense	\$ -	\$ -	\$ -	
6	Salaries and Wages	\$ 2,322,056	\$ (62,689)	\$ 2,259,367	DM-14
7	401K Pension Matching	\$ 77,792	\$ (83)	\$ 77,709	DM-15
8	Employee Welfare Expenses	\$ 2,292,361	\$ (3,262)	\$ 2,289,099	DM-15
9	InterCo Charges	\$ 2,214,355	\$ (21,140)	\$ 2,193,215	DM-16
10	Uncollectible Accounts Accrual	\$ 994,775	\$ (85,872)	\$ 908,903	DM-17
11	Other O&M	\$ 2,148,830	\$ (344,265)	\$ 1,804,566	DM-12
12	<u>Amortizations:</u>				
13	Rate Case Expenses	\$ -	\$ -	\$ -	
14	PUC Assessment	\$ -	\$ -	\$ -	
15	Insurance	\$ -	\$ -	\$ -	
16	Depreciation & Amortization	\$ -	\$ -	\$ -	
17	Taxes Other - Payroll	\$ 177,100	\$ (4,258)	\$ 172,842	
18	Property Taxes	\$ -	\$ -	\$ -	
19	PA Gross Receipts Tax	\$ -	\$ -	\$ -	
20	Federal Income Taxes	\$ 997,343	\$ (803,406)	\$ 193,936	
21	Deferred Federal Income Taxes	\$ -	\$ -	\$ -	
22	CBT (State)	\$ 581,697	\$ (433,529)	\$ 148,167	
23	Deferred State Income Taxes	\$ -	\$ -	\$ -	
24	Return on Rate Base	\$ -	\$ -	\$ -	
25	Total Requirement	\$ 38,690,080	\$ (1,770,317)	\$ 36,919,762	
26	Net Lag	\$ 26,450,660	\$ (3,869,242)	\$ 22,581,419	
27	Working Capital (365 days)	\$ 72,500	\$ (10,633)	\$ 61,867	

(1) Company Exhibit G-3 Schedule 3

**MATERIALS AND SUPPLIES
 PREPAYMENTS
 CUSTOMER DEPOSITS**

		(1)			
		Company Proposed	Adjustments	OCA	References
<u>Materials and Supplies</u>					
1	September 2019 - August 2020	\$ 12,309,026	\$ -	\$ 12,309,026	
2	Gas Allocation - 15% (2)	\$ 1,846,354	\$ -	\$ 1,846,354	
3	12 Month Average	\$ 153,863	\$ -	\$ 153,863	
<u>Prepayments</u>					
4	September 2019 - August 2020	\$ 150,502	\$ -	\$ 150,502	
5	Gas Allocation - 100.00% (2)	\$ 50,075	\$ -	\$ 50,075	
6	12 Month Average	\$ 4,200	\$ -	\$ 4,200	
<u>Customer Deposits</u>					
7	September 2019 - August 2020	\$ 268,809	\$ -	\$ 268,809	
8	12 Month Average	\$ 22,401	\$ -	\$ 22,401	

(1) Company Exhibit E-3 Schedule 4, 5, 8

(2) Company Allocates 15% to Gas
 Company Allocates 100% to Gross
 Earnings and PAPUC Assessment and 15%
 to Property Tax and Property Insurance to
 Gas

DEFERRED ITEMS

		(1)			
		Company			
		Proposed	Adjustments	OCA	References
<u>Deferred Debits</u>					
3	Rate Case Expenses	\$ 22,500	\$ (22,500)	\$ -	
4	Less Tax Effect - 71.1079%	\$ 15,999	\$ (15,999)	\$ -	
7	Balance at June 30, 2021	\$ 15,999	\$ (15,999)	\$ -	
<u>Deferred Credits</u>					
8	FIT Tax Benefits (balance)	\$ (28,569)	\$ -	\$ (28,569)	
9	Less Tax Effect - 71.1079%	\$ (20,315)	\$ -	\$ (20,315)	
10	Deferred Credits	\$ -	\$ -	\$ -	
11	Less Tax Effect - 71.1079%	\$ -	\$ -	\$ -	
12	Balance at June 30, 2021	\$ (20,315)	\$ -	\$ (20,315)	

(1) Company Exhibit G-3 Schedule 6 & 7

ACCUMULATED DEFERRED INCOME TAXES

	(1) Company			
	Proposed	Adjustments	OCA	References
1 Balance at June 30, 2020	\$ 147,400	\$ -	\$ 147,400	
<u>Additions - 7/1/2020 - 6/30/2021</u>				
2 Tax Depreciation - Normalized	\$ 227,214	\$ -	\$ 227,214	
3 Book Depreciation	\$ 109,905	\$ -	\$ 109,905	
4 Net Schedule M Tax Deduction	\$ 117,309	\$ -	\$ 117,309	
5 Tax Effect - 28.8921%	\$ 33,893	\$ -	\$ 33,893	
<u>Additions 7/1/2021 - 12/31/2021</u>				
6 Tax Depreciation - Normalized	\$ 113,607	\$ (113,607)	\$ -	
7 Book Depreciation	\$ 61,400	\$ (61,400)	\$ -	
8 Net Schedule M Tax Deduction	\$ 52,207	\$ (52,207)	\$ -	
9 Tax Effect - 28.8921%	\$ 15,084	\$ (15,084)	\$ -	
10 Balance at June 30, 2021	\$ 196,400	\$ (15,107)	\$ 181,293	

(1) Company Exhibit G-3 Schedule 9

**GAS COST OF SERVICE
 INCOME STATEMENT**

(1)

		Company Proposed					OCA		References
		Balance at	Adjustments	Balance at	Proposed	Adjusted at	Adjustments	Present Rates	References
		June 30, 2020		June 30, 2021	Rate Change	June 30, 2021			
<u>Operating Revenues</u>									
1	Sales of Gas - Retail	\$ 1,448,200	\$ 191,500	\$ 1,639,700	\$ 262,200	\$ 1,901,900	\$ -	\$ 1,639,700	DM-11
2	Other Operating Revenues	\$ 2,500	\$ 300	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	DM-11
3	Total Operating Revenues	\$ 1,450,700	\$ 191,800	\$ 1,642,500	\$ 262,200	\$ 1,904,700	\$ (262,200)	\$ 1,642,500	
<u>Operating Expenses</u>									
4	Purchased Gas Costs	\$ 853,200	\$ 36,600	\$ 889,800	\$ -	\$ 889,800	\$ -	\$ 889,800	DM-12
5	Other Gas Supply Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	DM-12
6	Other Operating & Maintenance Expenses	\$ 420,600	\$ -	\$ 420,600	\$ 4,000	\$ 424,600	\$ (81,752)	\$ 342,848	DM-12
7	SBC Expense	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
8	Wages and Salaries	\$ -	\$ 7,000	\$ 7,000	\$ -	\$ 7,000	\$ (117)	\$ 6,883	DM-14
9	Material Management Positions	\$ -	\$ 16,400	\$ 16,400	\$ -	\$ 16,400	\$ -	\$ 16,400	DM-14
10	Payroll Ancillary Costs (HIWC)	\$ -	\$ 10,800	\$ 10,800	\$ -	\$ 10,800	\$ (101)	\$ 10,699	DM-15
11	OPEB Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (25,000)	DM-15
12	Rate Case Costs	\$ -	\$ 5,600	\$ 5,600	\$ -	\$ 5,600	\$ -	\$ 3,750	DM-18
13	InterCo Other O&M Expenses	\$ -	\$ 700	\$ 700	\$ -	\$ 700	\$ (700)	\$ -	DM-18
14	Uncollectible Accounts Expense	\$ -	\$ 39,000	\$ 39,000	\$ -	\$ 39,000	\$ (12,424)	\$ 26,576	DM-19
15	Depreciation Expense	\$ 91,300	\$ 33,700	\$ 125,000	\$ -	\$ 125,000	\$ (8,611)	\$ 116,389	DM-20
16	Taxes Other Than Income	\$ 10,200	\$ 9,000	\$ 19,200	\$ -	\$ 19,200	\$ (382)	\$ 18,818	DM-21
17	Misc. Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (1,223)	\$ (1,223)	OCA Set IV No. 4
	Total Operating Expenses Before								
18	Income Taxes	\$ 1,375,300	\$ 158,800	\$ 1,534,100	\$ 4,000	\$ 1,538,100	\$ (132,159)	\$ 1,405,941	
19	Operating Income Before Income Taxes	\$ 75,400	\$ 33,000	\$ 108,400	\$ 258,200	\$ 366,600	\$ (130,041)	\$ 236,559	
20	State Income Taxes	\$ -	\$ 1,200	\$ 1,200	\$ 25,800	\$ 27,000	\$ (12,464)	\$ 14,536	DM-20
21	Federal Income Taxes	\$ (100)	\$ 2,200	\$ 2,100	\$ 48,800	\$ 50,900	\$ (23,396)	\$ 27,504	DM-21
22	Operating Income After Taxes	\$ 75,500	\$ 29,600	\$ 105,100	\$ 183,600	\$ 288,700	\$ (94,181)	\$ 194,519	
23	Additional Return Requirement							\$ 68,127	DM-1
24	Return Requirement					\$ 288,700	\$ (26,054)	\$ 262,646	DM-1
25	Rate Base	\$ 3,183,500	\$ 888,400	\$ 4,071,900		\$ 4,071,900		\$ 3,826,765	
26	Rate of Return	2.372%		2.581%		7.090%		6.863%	

(1) Company Exhibit G-4 Summary

OPERATING REVENUES

		(1)			
		Company		OCA	References
		Proposed	Adjustments		
1	Base Revenue	\$ 114,100	\$ -	\$ 114,100	OCA Set I No. 10
2	Delivery Revenue	\$ 635,800	\$ -	\$ 635,800	
3	Tax Cuts and Jobs Act of 2017 Credit	\$ -	\$ -	\$ -	
4	Rider Revenue (GCR)	\$ 889,800	\$ -	\$ 889,800	
5	Balance at June 30, 2021	\$ 1,639,700	\$ -	\$ 1,639,700	
Other Operating Revenues					
6	Late Payment Charges	\$ 2,769	\$ -	\$ 2,769	
7	Provision for FIT Refund	\$ -	\$ -	\$ -	
8	Other Misc. Sales Adjustment	\$ -	\$ -	\$ -	
9	Total Other Electric Revenues	\$ 2,800	\$ -	\$ 2,769	

(1) Company Exhibit G-4 Schedule 1

OTHER OPERATING EXPENSES

Work Sheet		(1) Company Balance			OCA	References
		June 30, 2020	Adjustments			
1	Purchased Gas Costs	\$ 853,200	\$ 36,600	\$ 889,800		DM-13
2	Other Gas Supply Expenses	\$ -	\$ -	\$ -		DM-13
3	Subtotal	\$ 853,200	\$ 36,600	\$ 889,800		
5	Distribution Expense - Maintenance	\$ 115,097	\$ (53,622)	\$ 61,475		OCA Set I No. 2
6	Customer Accounts Expense- Operation	\$ 36,191	\$ (20,680)	\$ 15,511		OCA Set I No. 2
8	Sales Expense	\$ 5,788	\$ -	\$ 5,788		OCA Set I No. 2
	<u>A&G Operation</u>					
9	A&G Salaries	\$ 69,049	\$ -	\$ 69,049		
10	Office Supplies and Expenses	\$ 53,070	\$ (3,481)	\$ 49,589		
11	Administrative Expenses - Transferred	\$ 51	\$ -	\$ 51		
12	Outside Svcs. Employed	\$ 55,136	\$ -	\$ 55,136		
13	Property Insurance	\$ 4,416	\$ -	\$ 4,416		
14	Injury & Damages	\$ 3,309	\$ -	\$ 3,309		
15	Other Employee Benefits Expense	\$ 68,915	\$ -	\$ 68,915		
16	Regulatory Commission Expense	\$ 5,480	\$ -	\$ 5,480		
17	Misc. General Expense	\$ 650	\$ -	\$ 650		
18	Misc. General Expense - Vehicle	\$ 13	\$ -	\$ 13		
	<u>A&G Maintenance</u>					
19	Maintenance of General Plant	\$ 3,466	\$ -	\$ 3,466		
20	Sub-Total	\$ 420,631	\$ (77,783)	\$ 342,848		OCA Set I No. 13
21	Total Operation & Maintenance Expense	\$ 1,273,831	\$ (41,183)	\$ 1,232,648		

(1) Company Exhibit G-1 Schedule 5
 Company Exhibit G-4 Summary

PURCHASED GAS EXPENSE

(1)

Company

Proposed

Adjustments

OCA

References

1	Purchased Gas Expense	\$ 889,800	\$ -	\$ 889,800	OCA Set I-No. 11
2	Other Gas Expense	\$ -	\$ -	\$ -	
3	Net Purchased Power Expense	\$ 889,800	\$ -	\$ 889,800	

(1) Company Exhibit G-4 Schedule 2

PAYROLL / ADDITIONAL EMPLOYEES

		(1)			
		Company		OCA	References
		Proposed	Adjustments		
1	Gas Payroll - June 30, 2020	\$ 145,792	\$ -	\$ 145,792	
2	Less Incentive Compensation allocated	\$ -			OCA Set IV No. 9
3	Administrative Payroll	\$ 41,905	\$ (2,443)	\$ 39,462	OCA Set I No. 14
4	Total Gas Payroll	\$ 187,697	\$ (5,533)	\$ 182,164	
5	Annualized 10/2019 Increase (3%)	\$ 1,377	\$ -	\$ 1,377	
6	Annualized Test Year Payroll	\$ 189,074	\$ (5,533)	\$ 183,541	
7	October 2020 Increase - 3%	\$ 5,672	\$ (166)	\$ 5,506	
8	Total Payroll Increase (Line 4 and 6)	\$ 7,049	\$ (166)	\$ 6,883	(3)
Annual Salary - New Employees (2)					
9	Pike Material & Facilities Mgmt - CSR	\$ 60,000	\$ -	\$ 60,000	
10	Pike Gas Allocation - 20%	\$ 12,000	\$ -	\$ 12,000	
11	CNG- Accounting Manager	\$ 95,000	\$ -	\$ 95,000	
12	Pike Gas Allocation - 3%	\$ 2,850	\$ -	\$ 2,850	
13	CNG - Staff Accountant	\$ 50,000	\$ -	\$ 50,000	
14	Pike Gas Allocation - 3%	\$ 1,500	\$ -	\$ 1,500	
15	Total Additional Employees (Lines 9, 11, 13)	\$ 16,350	\$ -	\$ 16,350	

(1) Company Exhibit G-4 Schedule 3

(2) Company Exhibit G-4 Schedule 3

(3) These costs are allocated as follows:

Distribution Expense	\$ 2,975	42.65%
Customer Accounts	\$ 1,454	20.85%
A&G	\$ 2,546	36.50%
Total	\$ 6,975	100.00%

Allocated on the basis shown in OCA Set I No. 12 to total Salary and Wage Adjustment

ANCILLARY COSTS

		(1)			
		Company		OCA	References
		Proposed	Adjustments		
1	Proposed Wage Increase	\$ 7,049	\$ (166)	\$ 6,883	DM-14
2	Proposed Additional Staffing	\$ 16,350	\$ -	\$ 16,350	DM-14
3	Total	\$ 23,399	\$ (166)	\$ 23,233	
4	401K Pension Match Rate - 5.52%	\$ 1,292	\$ (9)	\$ 1,282	
5	Health & Life Insurance Match Rate - 38.27%	\$ 8,955	\$ (64)	\$ 8,891	
6	Workers Compensation Match Rate - 2.26%	\$ 529	\$ (4)	\$ 525	
7	Total Benefits Costs	\$ 10,775	\$ (76)	\$ 10,699	

(1) Company Exhibit G-4 Schedule 4

**RATE CASE EXPENSES
 INTERCOMPANY ADMINISTRATIVE
 & OPERATING CHARGES**

		(1)			
		Company			References
		Proposed	Adjustments	OCA	
<u>Rate Case Expenses</u>					
1	Company Proposed	\$ 150,000	\$ -	\$ 150,000	
2	Gas Allocation	15.00%		15.00%	
3	Estimated Rate Case Expenses	\$ 22,500	\$ -	\$ 22,500	
<hr/>					
4	Amortization Period	4		\$ 6	
5	Annual Rate Case Expenses	\$ 5,625	\$ (1,875)	\$ 3,750	
<hr/>					
<u>InterCompany Charges</u>					
6	InterCompany Allocations	\$ 72,623		\$ 72,623	
7	CPI Increase	1.01%		0.00%	
8	Net Change	\$ 726	\$ (726)	\$ -	

(1) Company Exhibit G-4 Schedule 5
 Company Exhibit G-4 Schedule 6

UNCOLLECTIBLE ACCOUNTS EXPENSE

		(1)				
		Company			OCA	References
		Proposed	Adjustments			
1	Operating Revenues Before Rate Change	\$ 1,639,700	\$ -	\$	1,639,700	
2	Write Off Percentages 6/30/2020	1.53%			1.53%	
3	Uncollectible Expense - 6/30/2021	\$ 25,087	\$ -	\$	25,087	
4	Less; Uncollectible Expense 6/30/2020	\$ (13,950)	\$ 13,950	\$	-	
5	Net Change in Uncollectible Expense	\$ 39,037	\$ (13,950)	\$	25,087	
(2)	Additional Uncollectibles					
	Proposed Revenue Increase	\$ 262,200		\$	97,301	
	Write Off Percentage	1.53%			1.53%	
	Balance	\$ 4,012	\$ (2,523)	\$	1,489	

(1) Company Exhibit G-4 Schedule 7

(2) Company Exhibit G-4 Summary

DEPRECIATION EXPENSE

		(1)			OCA				
		Company Proposed							
		Gas Distr.	Common	Total	Adjustments	Gas Distr.	Common	Total	References
		Plant	Gen. Plant	Gas Plant		Plant	Gen. Plant	Gas Plant	
1	Plant Balance at 6/30/2020	\$ 3,001,661	\$ 293,575	\$ 3,295,236	\$ -	\$ 3,001,661	\$ 293,575	\$ 3,295,236	
2	Less: Acquisition Adjustment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
3	Gas Plant at 6/30/2020	\$ 3,001,661	\$ 293,575	\$ 3,295,236	\$ -	\$ 3,001,661	\$ 293,575	\$ 3,295,236	
4	Less: Non-Depreciable Plant	\$ -	\$ (46,650)	\$ (46,650)	\$ -	\$ -	\$ (46,650)	\$ (46,650)	
5	Depreciable Plant at 6/30/2020	\$ 3,001,661	\$ 246,925	\$ 3,248,586	\$ -	\$ 3,001,661	\$ 246,925	\$ 3,248,586	
<u>Additions - July 1 - June 30, 2021</u>									
6	Transfers of CWIP	\$ 87,700	\$ 15,763	\$ 103,431	\$ -	\$ 87,700	\$ 15,763	\$ 103,463	
7	Plant Additions - July 1 - June 30, 2021	\$ 700,000	\$ 60,000	\$ 760,000	\$ -	\$ 700,000	\$ 60,000	\$ 760,000	
8	Plant Additions - July 1 - Dec. 31, 2021	\$ 250,000	\$ 45,000	\$ 295,000	\$ (295,000)	\$ -	\$ -	\$ -	DM-4
9	Total Plant Additions	\$ 1,037,700	\$ 120,763	\$ 1,158,431	\$ (294,968)	\$ 787,700	\$ 75,763	\$ 863,463	
10	Retirements	\$ (83,740)	\$ (46,500)	\$ (130,240)	\$ -	\$ (83,700)	\$ (46,500)	\$ (130,200)	
11	Gas Depreciable Plant - 6/30/2021	\$ 3,955,621	\$ 321,188	\$ 4,276,817	\$ (294,968)	\$ 3,705,661	\$ 276,188	\$ 3,981,849	
12	Composite Depreciation Rate	2.0230%	14.0130%	2.9230%		2.0230%	14.0130%	2.9230%	
13	Depreciation Expense - 6/30/2021	\$ 80,022	\$ 45,008	\$ 125,030	\$ (8,641)	\$ 74,966	\$ 38,702	\$ 116,389	
14	Depreciation Expense - 6/30/2020	\$ 56,286	\$ 35,023	\$ 91,309	\$ -	\$ 56,286	\$ 35,023	\$ 91,309	
15	Increase in Depreciation Expense	\$ 23,736	\$ 9,985	\$ 33,721	\$ -	\$ 18,680	\$ 3,679	\$ 22,359	

(1) Company Exhibit G-4 Schedule 8

TAXES OTHER THAN INCOME

	(1) Company Proposed	Adjustments	OCA	References
<u>Payroll Taxes - Base Payroll</u>				
1 Test Year Payroll	\$ 145,792	\$ (3,090)	\$ 142,702	DM-14
2 Allocated Payroll - CNGC	\$ 41,905	\$ (2,443)	\$ 39,462	
3 Wage Increase adjustment	\$ 7,049	\$ (166)	\$ 6,883	
4 Additional Employees Salaries	\$ 16,350	\$ -	\$ 16,350	
5 Total Proposed Wage Increase	\$ 211,096	\$ (5,699)	\$ 205,397	
6 FICA/Medicare Rate	7.65%		7.65%	
7 Total Proposed Adjustment	\$ 16,149	\$ (436)	\$ 15,713	
13 PA. Realty Tax	\$ 3,105	\$ -	\$ 3,105	
14 Total Taxes Other Than Income	\$ 19,254	\$ (436)	\$ 18,818	

(1) Company Exhibit G-4 Schedule 9

STATE GAS INCOME TAXES

		(1)			
		Company		OCA	References
		Proposed	Adjustments		
1	Operating Income Before Income Taxes	\$ 366,600	\$ (130,041)	\$ 236,559	
2	Less: Interest Expense	\$ 96,883	\$ (5,832)	\$ 91,050	
3	Income Before Federal Income Tax	\$ 269,717	\$ (124,208)	\$ 145,509	
<u>Add:</u>					
4	Book Depreciation	\$ 125,000	\$ (8,611)	\$ 116,389	
5	Amortization of Rate Case Expenses	\$ 5,600	\$ (1,850)	\$ 3,750	
7	Total	\$ 130,600	\$ (10,461)	\$ 120,139	
<u>Deduct:</u>					
8	Tax Depreciation	\$ 227,125	\$ -	\$ 227,125	
9	Deferrred Rate Case Expense	\$ 22,500	\$ (22,500)	\$ -	
10	Deferred Purchased Gas Costs	\$ -	\$ -	\$ -	
11	Amortization - Deferred FIT Customer Cr.	\$ -	\$ -	\$ -	
12	Total	\$ 249,625	\$ (22,500)	\$ 227,125	
13	Taxable Income	\$ 150,692	\$ (112,169)	\$ 38,523	
14	State Income Tax Rate - 9.99%	9.99%		9.99%	
15	State Income Tax	\$ 15,054	\$ (11,206)	\$ 3,848	
16	Deferrred Income Tax Dr.	\$ 24,938	\$ (2,248)	\$ 22,690	
17	Deferred Income Tax Cr.	\$ (13,047)	\$ 1,045	\$ (12,002)	
18	Total State Income Tax	\$ 26,945	\$ (12,409)	\$ 14,536	

(1) Company Exhibit G-4 Schedule 10

FEDERAL GAS INCOME TAXES

		(1)			
		Company			
		Proposed	Adjustment	OCA	References
1	State Taxable Income	\$ 150,692	\$ (112,169)	\$ 38,523	
2	Less: State Income Tax	\$ (26,945)	\$ 12,409	\$ (14,536)	
3	Federal Tax Adjustment	\$ -		\$ -	
4	Adjusted Taxable Income	\$ 123,747	\$ (99,760)	\$ 23,987	
5	Federal Income Tax Rate 21.00%	21.00%		21.00%	
6	Current Federal Income Tax	\$ 25,987	\$ (20,950)	\$ 5,037	
<u>Deferred FIT Applicable To:</u>					
7	Book Depreciation	\$ (26,250)	\$ 1,808	\$ (24,442)	
8	Amortization of Rate Case Expenses	\$ (1,176)	\$ 389	\$ (788)	
9	Recovery of Prior Deferred Purchase Gas Cost	\$ -		\$ -	
10	Tax Depreciation	\$ 47,696	\$ -	\$ 47,696	
11	Deferred Rate Case Expenses	\$ 4,725	\$ (4,725)	\$ -	
12	Deferral of Def. Purchased Gas Cost	\$ -	\$ -	\$ -	
13	Total	\$ 24,995	\$ (2,528)	\$ 22,467	
14	Current Federal Income Tax	\$ 25,987	\$ (20,950)	\$ 5,037	
15	Deferred Income Tax	\$ 24,995	\$ (2,528)	\$ 22,467	
	Total	\$ 50,982	\$ (23,478)	\$ 27,504	

(1) Company Exhibit - E-4 Schedule 10

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission :
v. : Docket No. R-2020-3022134
Pike County Light and Power Company :
-- Gas :

VERIFICATION

I, Dante Mugrace, hereby state that the facts set forth in my Direct Testimony, OCA Statement 1, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: February 2, 2021
*303194

Signature: *Dante Mugrace*
Dante Mugrace

Consultant Address: PCMG and Associates
90 Moonlight Court
Toms River, NJ 08753

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission)	
)	
v.)	Docket No. R-2020-3022134
)	
Pike County Light & Power Company (Gas))	

DIRECT TESTIMONY OF

KARL RICHARD PAVLOVIC

**ON BEHALF OF THE
PENNSYLVANIA
OFFICE OF CONSUMER ADVOCATE**

February 2, 2021

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1 **I. STATEMENT OF QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is Karl Richard Pavlovic. My business address is 22 Brooks Avenue,
4 Gaithersburg, MD 20877.

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

6 **A.** I am Managing Director of and a Senior Consultant with PCMG and Associates
7 LLC (“PCMG”). PCMG is an association of experts in economics, accounting,
8 finance, and utility regulation and policy, with over 75 years of collective
9 experience providing assistance to counsel and expert testimony regarding the
10 regulation of electric, gas, water, and wastewater utilities.

11 **Q. HAVE YOU PREPARED A SUMMARY OF YOUR QUALIFICATIONS**
12 **AND EXPERIENCE?**

13 **A.** Yes. Exhibit KRP-1 to my testimony summarizes my qualifications and
14 experience.

15 **Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN**
16 **REGULATORY PROCEEDINGS?**

17 **A.** Yes. I have submitted testimony to the Federal Communications Commission, the
18 Federal Energy Regulatory Commission, the Alaska Public Utilities Commission,
19 the Alberta Utilities Commission, the California Public Utilities Commission, the
20 Kansas Corporation Commission, the Delaware Public Service Commission, the
21 Hawaii Public Utilities Commission, the Maryland Public Service Commission, the

1 Missouri Public Service Commission, the Massachusetts Department of Public
2 Utilities, the Illinois Commerce Commission, the North Dakota Public Service
3 Commission, the Maine Public Utilities Commission, the Hawaii Public Utilities
4 Commission, the Pennsylvania Public Utility Commission, the Maryland Public
5 Service Commission, and the Public Service Commission of the District of
6 Columbia.

7 **Q. PLEASE SUMMARIZE YOUR REGULATORY EXPERIENCE.**

8 **A.** For over thirty-five years, I have performed analyses and submitted testimony
9 regarding electric, gas, and water utility operations, cost of service, rate design, and
10 matters of regulatory policy. Exhibit KRP-1 contains a complete list of my
11 engagements as an expert and/or expert witness in matters before state and federal
12 regulatory agencies.

13 **II. PURPOSE OF TESTIMONY**

14 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

15 **A.** I am testifying on behalf of the Pennsylvania Office of Consumer Advocate
16 (“OCA”).

17 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

18 **A.** I have been asked by the OCA to (1) provide an overview of this case from a public
19 policy perspective in light of the COVID-19 pandemic, (2) respond to the gas class
20 cost of service (GCOS) study for the gas operations of Pike County Light & Power
21 (PCLP), and (3) respond to the gas rate design proposals based on the GCOS

1 results, both of which are presented in the Gas Rate Panel direct testimony of Paul
2 M. Normand and Debbie L. Gajewski (Statement No. 1 - Gas) in this proceeding.

3 **III. DISCUSSION**

4 **A. SUMMARY**

5 **Q. PLEASE SUMMARIZE THE SUBSTANCE OF YOUR TESTIMONY.**

6 **A.** As detailed below, I find that:

- 7 • Considering the current pandemic-induced threats to the public welfare, it would be neither
8 just nor reasonable for there to be a rate increase of the magnitude (42%) proposed by
9 PCLP;
- 10 • PCLP's proposed methodology for distribution of the class revenue increase is consistent
11 with traditional rate making principles and cost causation appropriate; and
- 12 • PCLP's proposed increases to class customer charges are inconsistent with the non-cost
13 policy goals of incentivizing conservation and maximizing customer bill control.

14 Based on these findings, I recommend that:

- 15 • the Commission direct PCLP to revise its class cost of service study to classify FERC
16 Account 376 Mains as 100% demand-related;
- 17 • the Commission direct PCLP to distribute to rate classes the revenue requirement
18 recommended by OCA Witness Mugrace based on the revised class cost of service study
19 and the rate of return recommended by OCA Witness Griffing; and
- 20 • that the Commission direct PCLP to maintain the current level of class customer charges.

1 **B. RATEMAKING POLICY IN THE CONTEXT OF THE IMPACT OF**
2 **THE COVID-19 PANDEMIC ON THE HEALTH AND ECONOMY OF**
3 **THE COMMONWEALTH OF PENNSYLVANIA**

4 **Q. WHAT IS YOUR UNDERSTANDING OF THE PURPOSE OF THIS**
5 **PROCEEDING?**

6 A. As I understand it, the purpose of this case is to determine the “just and reasonable” rates
7 for Pike County Light & Power Company (PCLP) under Chapter 13, and other
8 provisions, of the Public Utility Code.

9 **Q. IN YOUR MORE THAN 35 YEARS OF EXPERIENCE WITH UTILITY RATE-**
10 **SETTING, ARE THERE STANDARDS OR CRITERIA USED TO DETERMINE**
11 **WHETHER A RATE IS “JUST AND REASONABLE”?**

12 A. Yes. There are thousands of administrative and judicial decisions throughout the United
13 States that interpret the phrase “just and reasonable” as it relates to utility rates. Without
14 going into the nuances and jurisdictional differences of those decisions, and without
15 providing a legal opinion, I will provide my general understanding of how that phrase is
16 used in the field of public utility ratemaking.

17 As a general matter, the rates (and other terms of service) of public utilities are
18 regulated because they are natural monopolies. As natural monopolies, it would be
19 economically inefficient (more expensive) to have competing enterprises provide the
20 service. Regulation is designed to protect utility consumers from what otherwise would
21 be the unfettered power of a monopoly to set prices and the conditions of service, while
22 at the same time provide a utility with the opportunity to earn a reasonable return on their
23 investment. The role of regulation, however, is not to insulate the utility or its investors

1 from normal market forces, technological improvements, or general economic conditions.
2 If market forces or technological change result in significant reductions in the demand for
3 service, then the utility may not be able to recover its costs.

4 **Q. IS THERE A GENERAL FRAMEWORK IN WHICH TO EVALUATE**
5 **WHETHER A RATE IS JUST AND REASONABLE?**

6 A. Yes, regulators, analysts, and courts often speak of a “zone of reasonableness.” In setting
7 rates, regulators should attempt to balance the interests of all relevant sectors of the
8 public understood as including the utility’s investors, the utility’s officers and employees,
9 the customers (recognizing that different customer classes also have different interests),
10 and local governments whose residents are served by the utility. Ideally, rates should be
11 set within a “zone of reasonableness” which represents a range within which all of the
12 relevant interests intersect. There is no bright line delineating any of these interests. The
13 regulator is must exercise judgment in discerning the relative interests of the parties from
14 the arguments and evidence which are placed before it on the record.

15 **Q. ARE YOU SAYING THAT THE COMMISSION SHOULD NOT SET RATES**
16 **OUTSIDE THE ZONE OF REASONABLENESS?**

17 A. No, I am not saying that. In fact, in certain instances it may be impossible for the
18 Commission to simultaneously satisfy all aspects of the public interest. As I view the
19 role of rate regulators, they must act within the broad public interest. Sometimes, that
20 may mean setting rates which fail to fully meet the needs of a certain segment of the
21 public. I believe, however, that whenever it sets rates, the Commission must attempt to
22 determine whose needs are being met and whose are not.

1 **Q. YOU HAVE TESTIFIED ON NUMEROUS OCCASIONS BEFORE**
2 **REGULATORY COMMISSIONS. DO YOU ALWAYS GO INTO DETAIL**
3 **ABOUT “JUST AND REASONABLE” RATES OR THE “ZONE OF**
4 **REASONABLENESS”?**

5 A. No. I have never before testified in any proceeding where the apparent zone of
6 reasonableness was as small as it is in this proceeding under current circumstances

7 **Q. WHY ARE YOU RAISING THESE CONCERNS IN THIS CASE?**

8 A. The Company filed this case on October 26, 2020, when its service area -- indeed the
9 entire world -- was and still is being devastated with the worst pandemic in a century.
10 While I understand that it takes time to prepare a rate filing, and that the Company
11 appears to have prepared this case assuming “normal business as usual,” life and business
12 in the Company’s service territory are now anything but normal and the near-term
13 prospects of a return to normal are not good.

14 In particular, I am very concerned about the impact that significant rate increases
15 would have on the Company’s customers at this time.

16 If regulation is supposed to be a substitute for market forces, then we must
17 recognize that businesses, competitive and regulated, cannot sustainably raise prices
18 when their customers’ incomes have decreased significantly. What may have been a
19 “just and reasonable” rate last year may be unreasonable today.

1 ***The Pandemic's Impact on People***

2 **Q. CAN YOU BE MORE SPECIFIC ABOUT THE IMPACTS OF THE PANDEMIC**
3 **ON PEOPLE IN THE COMPANY'S SERVICE AREA AND THROUGHOUT**
4 **PENNSYLVANIA?**

5 A. Yes, I can be more specific to some extent. Data on new statewide unemployment claims
6 are released each week, but county-level data are released only monthly. Exhibit KRP-2
7 shows the devastating effect the pandemic has had on unemployment in the
8 Commonwealth.

9 The huge spike in unemployment claims during the weeks ending March 21 and
10 March 28 coincides with the entry of the Governor's order of March 19 closing all dine-
11 in restaurants on that date and all non-life-sustaining businesses on March 21. To put
12 these figures in perspective, according to the U.S. Census Bureau, Pennsylvania had a
13 workforce of approximately 6,588,000 people in 2019.¹ In the past nine months, 2.7
14 million Pennsylvanians have filed initial unemployment claims -- more than 40% of
15 Pennsylvania's workforce.

16 **Q. CAN YOU QUANTIFY THE PANDEMIC'S IMPACT ON EMPLOYMENT IN**
17 **PCLP'S SERVICE TERRITORY?**

18 A. County-level unemployment data are published monthly in Pennsylvania. As I am
19 preparing this testimony, the most recent information was published for November 2020.
20 In November 2020, the unemployment rate in Pike County was 7.0 %.² For comparison,

¹ U.S. Census Bureau, 2018 American Community Survey, Table S2301: Employment Status.

² Exhibit KRP-3, Federal Reserve Bank of St. Louis. January 29, 2021.

1 the unemployment rate in the county one year earlier was 5.6%.³ The county's
2 unemployment rate peaked in April 2020 at 19.1%.⁴

3 **Q. GENERALLY, WHAT EFFECT HAS THE PANDEMIC HAD ON FAMILIES'**
4 **FINANCES?**

5 A. The Federal Reserve System in update report released in September 2020 attempted to
6 measure the effects of the pandemic on household finances at the end of the initial surge
7 in unemployment.⁵ The report is based on surveys conducted during July 2020.

8 The survey found that twenty percent of people who were working in October
9 2019 were laid off between March and late July 2020.⁶ Among lower-income
10 households, however, the impact was even more severe. The report found that twenty
11 eight percent of the with a household income below \$40,000 reported a job loss during
12 the same period.⁷ Further, approximately 10 percent of people who were still working
13 had their hours reduced or were required to take unpaid leave.⁸

14 Data for Pennsylvania show an even more serious result. The U.S. Census
15 Bureau conducted special weekly surveys of households from April 23, 2020 to the week
16 ending July 21, known as the Household Pulse Survey. The Census Bureau restarted the
17 survey on August 19 2020 with the most recent survey ending on January 18, 2020. In
18 the first week (the end of April 2020), 47% of Pennsylvania households reported a loss of
19 at least some employment income since March 13, 2020. By the most recent two-week

³ Id.

⁴ Id.

⁵ Exhibit KRP-4. Board of Governors of the Federal Reserve System, Update on the Economic Well-Being of U.S. Households: July 2020 Results (September 2020). <https://www.federalreserve.gov/publications/files/2019-report-economic-well-being-us-households-202005.pdf>.

⁶ Id page 3.

⁷ Id. Page4.

⁸ Id.

1 period reported (the period ending January 18, 2021, the percentage had slightly declined
2 to 46% of households.⁹

3 **Q. DOES THE CENSUS BUREAU’S HOUSEHOLD PULSE SURVEY CONTAIN**
4 **OTHER INFORMATION THAT HELPS TO DEFINE THE SCOPE OF THE**
5 **PANDEMIC’S IMPACTS IN PENNSYLVANIA?**

6 A. Yes. In addition to asking about income loss during the pandemic, the Census survey
7 also asks about expected income loss during the next four weeks. The results in Exhibit
8 KRP-5, show that in the first week (the end of April 2020), 38% of Pennsylvania
9 households reported an expected loss of at least some employment income. By the most
10 recent two-week period reported (the period ending January 18, 2021, the percentage had
11 declined to 23% of households.¹⁰

12 **Q. WITH SUCH A SIGNIFICANT LOSS OF INCOME, HOW ARE**
13 **PENNSYLVANIANS PAYING THEIR BILLS?**

14 A. The Census Bureau’s Household Pulse Survey began asking exactly that question in
15 week 7 of the survey; specifically, asking how households that lost some of their
16 employment income paid their bills in the past seven days. In Exhibit KRP-7, shows the
17 results for the most recent two-week period of the survey (ending January 18, 2021).
18 People were able to report multiple sources of funds to pay their bills. Only 57% of
19 Pennsylvanians who lost income said they used their normal source of income to pay bills
20 in the previous week. About 22% cited unemployment benefits and 40% referred to the

⁹ Exhibit KRP-5. U.S. Census Bureau, Household Pulse Survey, <https://www.census.gov/data-tools/demo/hhp/#/table>.

¹⁰ Exhibit KRP-6. U.S. Census Bureau, Household Pulse Survey, <https://www.census.gov/data-tools/demo/hhp/#/table>.

1 CARES Act stimulus payments. More people, however, relied on credit card debt or
2 loans (including loans from family or friends) (61%) or money from savings or asset
3 sales (27%) than relied on short-term government benefits.

4 **Q. ARE PEOPLE CONCERNED ABOUT BEING ABLE TO AFFORD THEIR**
5 **UTILITY BILLS DURING THIS TIME?**

6 A. Yes. A recent survey conducted by the Electric Power Research Institute (“EPRI”) found
7 that about two-thirds of people who lost their jobs during the pandemic are concerned
8 about being able to pay their energy bills.¹¹ Moreover, more than 20% of survey
9 respondents reported that their energy bills were higher because of the pandemic.¹²

10 ***The Pandemic’s Impact on Small Businesses***

11 **Q. ARE THERE ANY INDICATORS OF THE CONDITION OF PENNSYLVANIA’S**
12 **ECONOMY AS A RESULT OF THE PANDEMIC?**

13 A. Yes. A recently initiated small-business survey by the U.S. Census Bureau provides
14 insights into the condition of small businesses in Pennsylvania. The Census Bureau
15 estimates that, as of the week ending May 2, 2020, 31.6% of small businesses in
16 Pennsylvania said they would not return to normal operations for more than six months
17 and 6.6% of the Commonwealth’s small businesses expected to never return to their pre-
18 pandemic level of operations.¹³ By the week ending January 10, 2021, the small-business

¹¹ Exhibit KRP-8 Omar Siddiqui and Min Long, Impact of COVID-19 on Consumer Energy Use & Outlook: Results of EPRI National Survey (April 29, 2020), http://mydocs.epri.com/Docs/public/covid19/COVID-19_survey_report.pdf, page 4.

¹² Id., page 3.

¹³ Exhibit KRP-9 U.S. Census Bureau, Small Business Pulse Survey, <https://www.census.gov/data/experimental-data-products/small-business-pulse-survey.html>.

1 outlook was considerably worse with more than 47.4% and 7.6% of businesses selecting
2 these two categories

3 **Q. HOW DOES THIS AFFECT THE DECISIONS THE COMMISSION MUST**
4 **MAKE IN THIS CASE?**

5 A. Faced with this unprecedented public health and economic crisis, I respectfully submit
6 that the Commission cannot treat this case as “business as usual.” Almost no other
7 business in Pike County is conducting business as usual; residential consumers are using
8 the Company’s services differently than they do during normal circumstances (few if any
9 people are usually at home 24 hours per day, 7 days a week, preparing every meal at
10 home, and so on).

11 Respectfully, the Commission cannot focus on PCLP’s historic costs, or on cost
12 projections prepared before the pandemic, and assume that the resulting rates will be “just
13 and reasonable.” The Commission must focus on what rates are reasonable for
14 consumers to pay under these extraordinary conditions.

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

16 A. I recommend that the Commission set PCLP’s revenue requirement at the lowest amount
17 feasible to ensure the financial viability of the Company. OCA Witness Mugrace is
18 evaluating the reasonableness of the Company’s pro forma revenue requirement claims.
19 It appears likely, however, that some amount of rate increase is required for the Company
20 to obtain a realistic cash flow and a minimum level of profitability.

21 I urge the Commission to carefully balance the Company’s need for some
22 additional revenues with the needs of customers during this public health crisis that is

1 causing loss of life, debilitating illness, and serious financial harm customers have
2 experienced unprecedented levels of unemployment and other economic dislocation (such
3 as reduced hours of work), while many are battling the COVID-19 infection. Businesses
4 of all sizes, as well as local governments, schools, universities, and nonprofit organizations
5 are struggling to remain viable. I expect many will not be able to survive or, if they do, it
6 might take them months or years to return to pre-pandemic levels of operations. To put all
7 of this in terms of utility ratemaking: it would be neither just nor reasonable for there to
8 be a rate increase of the magnitude (42%) proposed by PCLP.

9 **C. PIKE COUNTY LIGHT & POWER'S PROPOSED GAS CLASS COST**
10 **OF SERVICE STUDY.**

11 **Q. HAVE YOU EXAMINED AND ANALYZED PIKE COUNTY'S GAS CLASS COST**
12 **OF SERVICE STUDY?**

13 **A.** Yes. PCLP's GCOS model is an Excel spreadsheet¹⁴ linked to six ancillary Excel
14 spreadsheets.¹⁵ The GCOS model itself follows the standard class cost of service procedure
15 of first functionalizing costs, second classifying the functionalized costs as directly
16 assignable to certain classes or as demand-related, customer-related or commodity-related,
17 and third allocating to customer classes those functionalized costs that are classified as
18 demand-, customer-, or commodity-related.¹⁶

¹⁴ Pike GCOS 10-19-20.xlsm, provided in response to I&E RS-2-D (gas).

¹⁵ See Pike GCOS 10-19-20.xlsm, Edit Links: DR18 – Gas Rate Base.xlsx, DR 21 – Gas Labor Expense.xlsx, G-3 Rate Base (excl. Purchased Gas) 10_10_2020.xlsx, G-4 Rev Reqmt (excl. Purchased Gas) 10_19_2020.xlsx, Pike Gas Rate Design 10-19-20.xlsx, and Pike Gas Revenue Proof 6-30-20 Test Year Rev 9-15-20.xlsx.

¹⁶ See NARUC Gas Distribution Rate Design Manual (NARUC Gas Manual), 1989, page 20.

1 **Q. HAVE YOU FOUND ANY ERRORS IN THE GCOS' FUNCTIONALIZATION OF**
2 **PLCP'S GAS COSTS?**

3 **A.** No. The GCOS properly functionalizes PLCP's gas costs using the FERC Gas Uniform
4 System of Accounts (USoA).¹⁷ Distribution capital costs are functionalized in FERC Plant
5 Accounts 374-385; operating expenses are functionalized in FERC Accounts 871-916;
6 administrative and general expenses are functionalized in FERC Accounts 920-931;
7 intangible and general capital costs are functionalized in FERC Accounts 301-303 and 389-
8 399.

9 **Q. HAVE YOU FOUND ANY ERRORS IN THE GCOS' CLASSIFICATION OF THE**
10 **FUNCTIONALIZED GAS COSTS?**

11 **A.** Yes. The GCOS relies on the minimum-size method¹⁸ to classify PCLP's gas distribution
12 costs in FERC Account 376 (mains) as both demand-related and customer-related.¹⁹ The
13 minimum-size method calculates the cost of the purported minimum system of mains
14 required to serve the current customers by applying the unit cost of the smallest diameter
15 main in the system to the entire mains system. The calculated cost of the minimum-size
16 system of mains is classified as customer-related. The demand-related cost is then
17 calculated by subtracting the calculated customer-related cost from the total cost of the
18 mains system. Note that the minimum-size method simply assumes that some portion of
19 the mains system is customer-related. While the minimum-size method of cost
20 classification was once, but no longer is, widespread among gas distribution utilities, there

¹⁷ 18 CFR Ch. I Pt.201.

¹⁸ NARUC Gas Manual, pages 22-23.

¹⁹ OSBA I-4, 2013 Pike Gas Minimum System for Mains.xlsx.

1 is, no theoretical or practical justification for the practice, from the perspective of cost
2 causation.

3 **Q. WHAT IS THE COST CAUSATION THAT DEFINES THE CLASSIFICATION OF**
4 **GAS DISTRIBUTION COSTS AS CUSTOMER-RELATED?**

5 **A.** As clearly articulated in Bonbright’s Principles of Public Utility Rates,²⁰ under the
6 principle of cost causation, customer-related costs are “those operating and capital costs
7 found to vary with number of customers.”²¹ Operationally defined, customer-related costs
8 are the “costs of connecting another customer or the savings in costs of not connecting the
9 customer.”²² Per the NARUC Gas Manual, the capital costs incurred in connecting a
10 customer to those parts of a gas distribution system that serve more than a single customer
11 (FERC Accounts 374-379) are the capital costs of metering equipment and customer
12 service connections (FERC Accounts 380-385).²³ PCLP’s GCOS properly classifies the
13 costs in FERC Accounts 380-385 as customer-related.²⁴

14 **Q. WHAT IS THE COST CAUSATION THAT DEFINES THE CLASSIFICATION OF**
15 **GAS DISTRIBUTION COSTS AS DEMAND-RELATED?**

16 **A.** As Bonbright explains, it is theoretically impossible for the capital costs in FERC Accounts
17 374-379 to vary with the number of customers connected to those facilities because the
18 connection of a new customer (or disconnection of an existing customer) has no measurable
19 impact on the costs of the parts of the distribution system that serve more than a single

²⁰ Bonbright et al, Principles of Public Utility Rates, 1988.

²¹ Bonbright, page 490; also see NARUC Gas Manual, page 22, “Customer costs are those operating capital costs found to vary directly with the number of customers served rather than the amount of utility service supplied.”

²² Bonbright, page 490.

²³ NARUC Gas Manual, pages 22 and 40.

²⁴ See Exhibit G-6, Schedule GRP-4-G, lines 17-21, column (b) and Schedule GRP-6-G, pages 2-3.

1 customer, i.e., FERC Accounts 374-379.²⁵ Since the costs of the distribution system in
2 FERC Accounts 374-379 do not and cannot vary with the number of customers connected
3 the distribution system, for the purposes of embedded cost analysis, the costs in FERC
4 Accounts 374-379 are properly classified as demand-related, because those costs “var[y]
5 continuously (and, perhaps, even more or less directly) with the maximum demand
6 imposed on this system as measured by peak load.”²⁶

7 **Q. HOW DOES THE GCOS CLASSIFY THE CAPITAL COSTS IN FERC**
8 **ACCOUNTS 374-379?**

9 **A.** PCLP’s GCOS classifies FERC Accounts 374-375 and 378²⁷ as demand-related; only the
10 costs in FERC Account 376 Mains, are erroneously classified as both demand-related and
11 customer-related.²⁸

12 **Q. IS IT NOT THE CASE THAT THE MINIMUM-SIZE METHOD OF**
13 **CLASSIFYING FERC ACCOUNT 376 MAINS IS PRESENTED IN THE NARUC**
14 **GAS MANUAL?**

15 **A.** Yes. The NARUC Gas Manual presents two procedures for implementing minimum
16 system classification of FERC Account 376 Mains: the Minimum-Size Method (which
17 PCLP uses) and the Zero-Inch Main Method. The NARUC Gas Manual notes that both
18 methods are controversial, and contrasts them to the Basic System Method.²⁹ Under the

²⁵ Bonbright, page 491 – The discussion is in terms of electric utilities, but applies to any utility with a physical commodity delivery network.

²⁶ Bonbright, page 492; see also NARUC Gas Manual, pages 23-24 “Demand or capacity costs vary with the quantity or size of plant and equipment. They are related to maximum system requirements which the system is designed to serve during short intervals and do not directly vary with the number of customers or their annual usage.”

²⁷ PCLP has no costs functionalized in FERC Accounts 377 and 379.

²⁸ See Exhibit G-6, Schedule GRP-4-G, page 3, lines 10-16.

²⁹ NARUC Gas Manual, pages 22-23.

1 Basic System Method, “only those facilities, such as meters, regulators and service taps,
2 are considered to be customer related, as they vary directly with the number of customers
3 on the system,”³⁰ which is consistent with and supported by Bonbright’s demonstration
4 regarding the classification of customer-related and demand-related costs. However, both
5 of the minimum system methods are, as demonstrated by Bonbright, contradicted by the
6 NARUC Gas Manual’s definition that “[c]ustomer costs are those operating capital costs
7 found to vary directly with the number of customers served rather than the amount of utility
8 service supplied.”³¹ The application of the Minimum-Size Method to FERC Account 376
9 Mains is also contradicted by the GCOS’s demand-related only classification of FERC
10 Accounts 374, 375 and 378 costs that, FERC Account 376 Mains, do not vary directly with
11 the number of customers on the system.

12 **Q. DOES THE PENNSYLVANIA COMMISSION’S GUIDE TO UTILITY RATE**
13 **MAKING ADDRESS THE ISSUE OF CLASSIFICATION OF DISTRIBUTION**
14 **ACCOUNTS?**

15 **A.** No. The Commission’s Guide makes no mention of minimum system cost classification
16 and defines demand-related costs and customer-related costs consistent with both
17 Bonbright and the NARUC Gas Manual’s Basic System Method.³²

18 **Q. HAVE THERE BEEN ANY UPDATES OR REVISIONS TO THE NARUC GAS**
19 **MANUAL?**

20 **A.** No.

³⁰ NARUC Gas Manual, page 23.

³¹ NARUC Gas Manual, page 22.

³² A Guide to Utility Ratemaking, Pennsylvania Public Utility Commission, 2018, pages 143-144.

1 **Q. WHAT IS YOUR RECOMMENDATION REGARDING THE CLASSIFICATION**
2 **OF FERC ACCOUNT 376 MAINS IN PCLP'S GCOS?**

3 **A.** For reasons given above I recommend that PCLP's FERC Account 376 Mains be classified
4 as only demand-related with no customer-related component, consistent with its
5 classification of FERC Accounts 374, 375 and 378 as only demand-related.

6 **Q. HAVE YOU FOUND ANY OTHER ERRORS IN THE GCOS' ALLOCATION OF**
7 **PLCP'S CLASSIFIED FUNCTIONAL GAS COSTS?**

8 **A.** No. Aside from the misapplication of customer-related allocation to FERC Account 376
9 Mains, I found no errors in the development and selection of allocators in PCLP's GCOS.
10 Specifically, the GCOS' demand allocator which is based on PCLP's design day peak load
11 is, as I noted above, consistent with demand cost causation as defined by both Bonbright
12 and the NARUC Gas Manual.³³

13 **Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATIONS ON PCLP'S GCOS**
14 **RESULTS.**

15 **A.** PCLP's residential tariff rate classes have significantly more customers than its
16 commercial tariff rate classes and significantly less aggregate peak demand than the
17 commercial classes. Consequently, customer allocators of the FERC Account 376 Mains
18 costs that the GCOS erroneously classifies as customer-related results in an unjustified over
19 allocation of costs to PCLP's residential tariff rate classes. Application of the GCOS'
20 demand allocator to the entirety of PCLP's FERC 376 Mains costs, corrects the
21 overallocation. As can be seen in Table 1 below the result for the residential classes is a

³³ See OCA-II-6..

1 decrease in both rate base and operating expenses and a significant increase in both
 2 operating income and rate of return as calculated by the GCOS. For the commercial classes
 3 the results are an increase in both rate base and operating expenses and a significant
 4 decrease in operating income and rate of return as calculated by the GCOS.

5 **Table 1: Comparison of GCOS Results With and Without OCA Recommended**
 6 **Demand Only Allocation of FERC Account 376 Mains³⁴**

GCOS Results	Residential		Commercial	
	Mains Minimum-Size	Mains Demand Only	Mains Minimum-Size	Mains Demand Only
Operating Revenue	\$589,382	\$589,382	\$127,868	\$127,868
Operating Expenses	\$478,731	\$476,729	\$77,962	\$79,964
Operating Income	\$110,651	\$112,653	\$49,906	\$47,904
Rate Base	\$2,754,598	\$2,618,895	\$421,056	\$556,759
Rate of Return	4.02%	4.30%	11.85%	8.60%
Index Rate of Return	0.79	0.85	2.34	1.70

7
 8 **Q. DO THESE RESULTS HAVE SIGNIFICANT IMPLICATIONS FOR RATE**
 9 **DESIGN?**

10 **A.** Yes. As detailed below, these results support a significant decrease in the amount of the
 11 revenue increase properly assigned to PCLP's residential tariff rate classes.

³⁴ Exhibit KRP-10.

1 **D. PIKE COUNTY POWER & LIGHT’S PROPOSED GAS RATE DESIGN.**

2 **Q. HAVE YOU EXAMINED AND ANALYZED PIKE COUNTY’S GAS RATE**
3 **DESIGN PROPOSALS?**

4 **A.** Yes. PCLP’s rate design proposals are contained in an Excel spreadsheet³⁵ linked to two
5 ancillary Excel spreadsheets, the GCOS and Revenue Proof.³⁶ PCLP proposes to distribute
6 its requested revenue increase (42%) to its tariff rate classes based on capped and
7 redistributed GCOS class revenue requirements at PCLP’s requested rate of return
8 (7.09%).³⁷ The class specific capped and redistributed revenue requirements produce class
9 revenue increases ranging from a low of 9% (general service commercial) to a high of 48%
10 (residential).³⁸

11 Regarding tariff rate structure, PCLP proposes to increase customer charges by the overall
12 revenue increase percentage (42%) and distribute the remainder of the class revenue
13 increase to the residential class delivery charges.³⁹

14 **Q. WHAT ARE YOUR ASSESSMENT AND RECOMMENDATIONS REGARDING**
15 **PCLP’S PROPOSED CLASS REVENUE INCREASE DISTRIBUTION AND**
16 **TARIFF CHARGES?**

17 **A.** Regarding class revenue increase distribution, I find PCLP’s method of distributing the
18 revenue increase to the tariff rate classes is consistent with traditional rate making

³⁵ Pike Gas Rate Design 10-19-20.xlsx, provided in response to OSBA I-33a2.

³⁶ Pike GCOS 10-19-20.xlsm, provided in response to I&E-RS-2-D (Gas); Pike Gas Revenue Proof 6-30-20 Test Year Rev 9-15-20.xlsx, provided in response to OSBA IR-I-2 (gas).

³⁷ Pike Gas Rate Design 10-19-20.xlsx, Revenue Allocation tab, lines 2-6, column (E); Pike GCOS 10-19-20.xlsm, COST OF SERVICE tab, line 43, columns (f) – (j).

³⁸ Pike Gas Rate Design 10-19-20.xlsx, Revenue Allocation tab, lines 2-6, column (M).

³⁹ Pike Gas Rate Design 10-19-20.xlsx, Rate Design Base Margin Only tab

principles and cost causations. I recommend, however, that the revenue increase distribution be based on the corrected GCOS results presented above, the revenue increase recommended by OCA Witness Mugrace and the rate of return recommended by OCA Witness Griffing. Table 2 below compares PCLP’s proposed revenue increase with OCA’s recommended revenue increase.

Table 2: Comparison of PCLP Proposed and OCA Recommended Revenue Increase Distribution⁴⁰

Rate Schedule:	PCLP Proposed	OCA Recommended
SC-1 Residential Space Heating 231	\$262,753	\$81,341
SC-1 Residential Domestic 631	\$17,872	\$5,100
SC-1 Residential Other 531 & 731	\$3,172	\$939
SC-2 General Service Commercial 162	\$6,490	\$5,041
SC-2 Commercial Space Heating 331	\$6,283	\$4,880
Total	\$296,571	\$97,301

Regarding tariff charges, I recommend no increase in the customer charges and that the entire class revenue increase be distributed to the class delivery charges, consistent with the non-cost policy goals of incentivizing conservation and maximizing customer bill control.

Table 3: Comparison of PCLP Proposed and OCA Recommended Customer and Delivery Charges⁴¹

Rate Class	Residential		Commercial	
	PCLP Proposed	OCA Recommended	PCLP Proposed	OCA Recommended

⁴⁰ Exhibit KRP 11.

⁴¹ Exhibit KRP 11.

Customer Charge	\$10.61	\$7.50	\$13.31	\$10.85
Delivery Charge	0.6579	0.5188		
Delivery Charge First 300 CCF			0.4698	0.4698
Deivery Charge All Over 300 CCF			0.3114	0.3114

1

2

3 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

4 **A.** Yes. However, I reserve the right to supplement this testimony if further information is
5 provided by PCLP.

KARL RICHARD PAVLOVIC, Ph.D.

Education

Purdue University – MA and Ph.D. in Philosophy

Karl-Ruprecht Universität, Heidelberg, Germany – graduate study

Yale University – BA in Philosophy

Positions

Senior Consultant – PCMG and Associates	2015-Present
Senior Consultant – Snavelly King Majoros and Associates	2010-2014
Director – FTI Consulting	2008-2010
President – DOXA, Inc	1994-2008
Partner – Snavelly King and Associates	1983-1994
Assistant Professor – University of Florida-Gainesville	1978-1983

Professional Experience

Dr. Pavlovic provides clients with economic and policy analyses of commercial operations and expert testimony in support of litigation, negotiation and strategic planning. His analyses and testimony are distinguished by systematic articulation and testing of assumptions, thorough evaluation of data, innovative application of statistical tools and economic principles, and clarity and precision of presentation. Dr. Pavlovic has provided expert testimony on the operations, costs and revenues of gas and electric utilities, the impacts of restructuring wholesale and retail electric markets, effects of mergers, the operation and competitiveness of petroleum and electric markets, the market valuation of crude oil, electric and gas reliability, and the performance of energy efficiency, renewable energy, and peak reduction programs.

Major projects directed by Dr. Pavlovic have included: analytical assistance to counsel and testimony on all aspects of the restructuring of wholesale and retail electric markets in the Eastern Interconnection; technical representation of the District of Columbia People’s Counsel on the DC PSC’s Pepco Productivity Improvement Working Group and various PJM working groups; impact evaluation study of pilot energy efficiency and renewable energy programs in the District of Columbia; analysis of petroleum markets, expert testimony, and coordination of technical testimony in the Trans-Alaska Pipeline quality bank litigation; Independent Technical Review of the economic models used by the US Army Corps of Engineers for the Ohio River System Investment Plan; assistance to a major independent telephone company in the formulation and implementation of corporate strategic plans, applications for long-distance authority, and settlement negotiations with major domestic and foreign carriers.

By education and professional experience Dr. Pavlovic has expertise in formal and mathematical logic, statistics, economics, financial analysis, econometrics, and computer modeling. With 33 years’ experience as a consultant and expert witness, Dr. Pavlovic has in-depth knowledge of

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commercial and industrial operations in the energy, transportation, and telecommunications industries and is familiar with a wide range of experimental and investigative methods in science and engineering.

References

Proceedings before the District of Columbia Public Service Commission

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Regulatory Projects and Appearances

1. In re: Pike County Light & Power Company 2020 General Base Rate Increase Filing – (Appearance: gas and electric cost of service and rate design ratemaking on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2020-3022134 and R-2020-3022135
2. In re: Young Brothers LLC’s Application for Approval of a New Cost of Service Model – (Assistance to Counsel: cost of service on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2020-0135
3. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2019 Gas System Enhancement Plan Reconciliation Filing (2020) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 20-GREC-06
4. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2019 Gas System Enhancement Plan Reconciliation Filing (2020) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 20-GREC-05
5. In re: Petition of Berkshire Gas Company for Approval of its 2019 Gas System Enhancement Plan Reconciliation Filing (2020) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 20-GREC-02
6. In re: Pittsburgh Water and Sewer Authority 2020 General Base Rate Increases 2020 – (Appearance: multi-year rate plan and performance based ratemaking on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2020-3017970 and R-2020-3017951
7. In re: Commonwealth Edison Company Petition for approval of a Revision to Integrated Distribution Company Implementation Plan Creation of Rate Residential Time of Use Pricing Pilot (“Rate RTOUP”) – On Rehearing (2020) – (Appearance: price signal and customer response on behalf of the Illinois Attorney General)
IL Commerce Commission Docket Nos. 18-1725/18-1824
8. In re: Hawaii Electric Company, Inc. Application for Approval of a General Rate Increase and Revised Rate Schedules and Rules (2019) - (Appearance: cost of service and rate design on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2019-0085

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9. In re: Application of San Diego Gas & Electric Company for Authority to: (i) Adjust its Authorized Return on Common Equity, (ii) Adjust its Authorized Embedded Costs of Debt and Preferred Stock, (iii) Adjust its Authorized Capital Structure; (iv) Increase its Overall Rate of Return, (v) Modify its Adopted Cost of Capital Mechanism Structure, and (vi) Revise its Electric Distribution and Gas Rates Accordingly, and for Related Substantive and Procedural Relief (2019) – (Appearance: wildfire risk accounting and ratemaking on behalf of Utility Consumers’ Action Network)
CA Public Utilities Commission Application 19-04-017
10. In re: Proposed Amendments to N.J.A.C. 14:9 Adoption of Water and Sewer Uniform System of Accounts (2019) – (Assistance to counsel: water and sewer accounting on behalf of the Division of Rate Counsel)
NJ Board of Public Utilities Docket Nos. WX19050612 and WX19050613
11. In re: Petition of Public Service Electric and Gas Company for Approval of Gas Base Rate Adjustments Pursuant to its Gas System Modernization Program (2019) – (Assistance to Counsel: infrastructure replacement accounting)
NJ Board of Public Utilities Docket No. GE19040522
12. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2018 Gas System Enhancement Plan Reconciliation Filing (2019) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
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13. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2018 Gas System Enhancement Plan Reconciliation Filing (2019) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 19-GREC-05
14. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2019) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9602
15. In re: PECO Energy Company Non-Bypassable Transmission Service Charge (NBT) Semiannual Adjustment (2019) - (Appearance: accounting, cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket No. M-2018-3005860

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16. In re: PECO Energy Company Transmission Formula Rate Application (2018) - (Appearance: accounting, cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
Federal Energy Regulatory Commission Docket ER17-1519-000
17. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2017 Gas System Enhancement Plan Reconciliation Filing (2018) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 18-GREC-06
18. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2017 Gas System Enhancement Plan Reconciliation Filing (2018) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 18-GREC-05
19. In re: The Application of the Potomac Edison Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2018) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9490
20. In re: Rate Applications of Kansas City Power & Light – Missouri and Kansas City Power & Light – Greater Missouri Operations (2018) – (Appearance: consolidated operations, cost of service and rate design on behalf of the Missouri Office of Public Counsel)
MO Public Service Commission Case Nos. ER-2018-0145 and ER-2018-0146
21. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2018) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9472
22. In re: Mid-Atlantic Interstate Transmission, L.L.C. 2018 Transmission Formula Rate Protocol Filings (2018) - (Analysis and Advice to Counsel: accounting)
Federal Energy Regulatory Commission Docket ER17-211-000
23. In re: The Gas Company d/b/a Hawaii Gas Application for Approval of Rate Increases and Revised Rate Schedules and Rules (2017) - (Appearance: cost of service and rate design on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2017-0105
24. In re: Montana-Dakota Utilities Co., Application to Increase Natural Gas Rates (2017) - (Appearance: cost of service and rate design on behalf of the North Dakota Public Service Commission Staff)
ND Public Service Commission Case No. PU-12-813

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25. In re: The Application of Delmarva Power and Light Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2017) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9455
26. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2016 Gas System Enhancement Plan Reconciliation Filing (2017) - (Appearance: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
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27. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2016 Gas System Enhancement Plan Reconciliation Filing (2017) - (Appearance: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 17-GREC-05
28. In re: In the matter of the application of Columbia Gas of Maryland, Inc. for Authority to Increase Rates and Charges (2017) - (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9447
29. In re: PJM Interconnection, L.L.C. - PECO Energy Company Transmission Formula Rate Application (2017) - (Analysis and Advice to Counsel: accounting, cost of service and rate design)
Federal Energy Regulatory Commission Docket ER17-1519-000
30. In re: Northern Illinois Gas Company d/b/a Nicor Gas Company Proposed General Increase in Gas Rates (2017) - (Appearance: prudence/used and useful and plant accounting re. accelerated asset replacement program on behalf of the Illinois Citizens Utility Board)
IL Commerce Commission Docket No. 17-0124
31. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2017) - (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9443
32. In re: PJM Interconnection, L.L.C. - Rockland Electric Company Transmission Rate Application (2017) (Analysis and Advice to Counsel: accounting, cost of service and rate design on behalf of the New Jersey Division of Rate Counsel)
Federal Energy Regulatory Commission Docket ER17-856-000

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33. In re: PJM Interconnection, L.L.C. - Mid-Atlantic Interstate Transmission, L.L.C. Transmission Formula Rate Application (2016) - (Analysis and Advice to Counsel: accounting, cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
Federal Energy Regulatory Commission Docket ER17-211-000
34. In re: The Application of Delmarva Power and Light Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2016) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9424
35. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2016) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9418
36. In re: Petition of Fitchburg Gas and Electric Light Company d/b/a Unitil for Approval of its 2015 Gas System Enhancement Plan Reconciliation Filing (2016) - (Analysis and Advice to Counsel: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
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37. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2015 Gas System Enhancement Plan Reconciliation Filing (2016) - (Appearance: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
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38. In re: Petition for Approval of Gas Infrastructure Contract Between Public Service Company of New Hampshire d/b/a Eversource Energy and Algonquin Gas Transmission, LLC (2016) - (Appearance: compliance with statutes and regulations, prudence, cost/benefit, and ratemaking on behalf of the New Hampshire Office of Consumer Advocate)
NH Public Utilities Commission Docket No. DE 16-241
39. In re: Central Maine Power Company, Annual Compliance Filing and Price Change (2016) - (Analysis and Advice to Counsel: tax normalization regulatory asset on behalf of the Maine Office of the Public Advocate)
ME Public Service Commission Docket No. 2016-00035
40. In re: Bulletin 2015-10 Generic Proceeding to Establish Parameters for the Next Generation PBR Plans (2016) - (Appearance: productivity adjustments/performance based ratemaking on behalf of the Alberta Utilities Consumer Advocate)
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41. In re: Emera Maine, Proposed Rate Increase in Rates (2016) - (Analysis and Advice to to Counsel: evaluation of management audit of implementation of Customer Information System on behalf of the Maine Office of the Public Advocate)
ME Public Service Commission Docket No. 2015-00360
42. In re: The Merger of the Southern Company and AGL Resources Inc. - Joint Application of the Southern Company, AGL Resources Inc., and Pivotal Utility Holdings, Inc., d/b/a Elkton Gas (2015-2016) - (Appearance: earnings, synergy savings, rates, operations, supply procurement, safety, and reliability on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9404
43. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of Firm Transportation Agreements with Millennium Pipeline Company, LLC (2015-2016) - (Analysis, Advice to Counsel, and Assistance on Brief: compliance with gas supply plan, rates, and reliability on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 15-142
44. In re: Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for Approval of Precedent Agreements with Millennium Pipeline Company, LLC (2015-2016)
- (Analysis, Advice to Counsel, and Assistance on Brief: compliance with gas supply plan, rates, and reliability on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 15-130
45. In re: Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for Approval of Agreements for LNG or Liquefaction Services with GDF Suez Gas NA, LLC; Northeast Energy Center, LLC; Gaz Metro LNG, L.P.; and National Grid LNG (2015- 2016) - (Analysis and Advice to Counsel: compliance with gas supply plan, rates, and reliability on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 15-129
46. In re: Columbia Gas of Massachusetts CY2014 Targeted Infrastructure Reinvestment Factor Compliance Filing (2015) - (Appearance: PBR tracker design/rates, prudence/used and useful, plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 15-55
47. ENMAX Energy Corporation (EEC) 2015-2016 Regulated Rate Option Non-Energy Tariff Application (2015-2016) - (Appearance: cost allocation, rate design, non-energy risk on behalf of the Alberta Utilities Consumer Advocate)
Alberta Utilities Commission Proceeding 20480

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48. In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc. (2014) - (Advice to Counsel: impact on customers on behalf of the New Jersey Division of Rate Counsel)
NJ Board of Public Utilities BPU Docket No. EM1406
49. In re: Application of Baltimore Gas and Electric Company For Adjustments To Its Electric and Gas Base Rates (2014) (Analysis and Advice to Counsel in Settlement: earnings, investment tracker, cost allocation and rate design on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9355
50. In re: Columbia Gas of Massachusetts CY2013 Targeted Infrastructure Reinvestment Factor Compliance Filing (2014) - (Appearance: PBR tracker design/rates, prudence/used and useful, plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 14-83
51. In re: Potential Business Combination of Entergy Louisiana, LLC and Entergy Gulf States Louisiana, L.L.C. (2014-2015) - (Analysis and Advice to Counsel: impact on rates and consolidation of rates on behalf of the Louisiana Public Service Commission Staff)
LA Public Service Commission Docket No.U-33244
52. In the Matter of the Application of Ohio Power Company to Adopt a Final Implementation Plan for the Retail Stability Rider (2014) - (Analysis and Advice to Counsel: rate design)
OH Public Utilities Commission Case No. 14-1186-EL-RDR
53. In re: Examination of Long-Term Natural Gas Hedging Proposals (2014-2015) - (Analysis and Advice to Counsel: natural gas procurement on behalf of the Louisiana Public Service Commission Staff)
LA Public Service Commission Docket No.R-32975-LPSC, ex parte
54. In re: 2013 Integrated Resource Planning Process for Southwestern Electric Power Company Pursuant to General Order Dated April, 20, 2012 (2014-2015 - (Analysis and Advice to Counsel: IRP design and evaluation on behalf of the Louisiana Public Service Commission Staff)
LA Public Service Commission Docket No.I-33013 SWEPCO, ex parte
55. In the Matter of the Application of Columbia Gas of Maryland, Inc. for Authority to Adopt an Infrastructure Replacement Surcharge Mechanism (2013-2014) - (Appearance: PBR tracker design/rates, prudence/used and useful, plant accounting on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9332

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56. In the Matter of the Application of Baltimore Gas and Electric Company for Approval of a Gas System Strategic Infrastructure Development and Enhancement Plan and Accompanying Cost Recovery Mechanism (2013-2014) - (Appearance: PBR tracker design/rates, prudence/used and useful, plant accounting on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9331
57. In the Matter of the Application of Delmarva Power & Light Company for an Increase in Electric Base Rates and Miscellaneous Tariff Changes (2013-2014) - (Appearance: earnings, investment tracker design/rates, cost allocation and rate design on behalf of the Delaware Public Service Commission Staff)
DE Public Service Commission Docket No. 13-115
58. In the Matter of the Application of Northern States Power Company for Authority to Increase Rates for Electric Service in North Dakota (2013) - (Appearance: cost allocation and rate design on behalf of the North Dakota Public Service Commission Staff)
ND Public Service Commission Case No. PU-12-813
59. In the Matter of the Application of Columbia Gas of Maryland, Inc. for Authority to Increase Rates and Charges (2013) - (Appearance: expense tracker design/rates and evaluation on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9316
60. In the Matter of the Application of Baltimore Gas and Electric Company for Adjustment in its Electric and Gas Base Rates (2012) - (Appearance: earnings, investment tracker design/rates, cost allocation and rate design on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9299
61. In the Matter of the Application of Delmarva Power & Light Company for an Increase in Electric Base Rates and Miscellaneous Tariff Changes (2012) - (Appearance: earnings, investment tracker design/rates, cost allocation and rate design on behalf of the Delaware Public Service Commission Staff)
DE Public Service Commission Docket No. 11-528
62. ENMAX Energy Corporation (EEC) 2012-2014 Regulated Rate Option Non-Energy Tariff Application (2012-2013) - (Analysis and Advice to Counsel: rate design and non-energy risk on behalf of the Alberta Utilities Consumer Advocate)
Alberta Utilities Commission Application #1608745 Proceeding 2069

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63. In the Matter of the Petition of Atlantic City Electric Company for Approval of Amendments to Its Tariff to Provide for an Increase in Rates and Charges for Electric Service Pursuant to *N.J.S.A. 48:2-21* and *N.J.S.A. 48:2-21.1* and for Other Appropriate Relief (2011) - (Analysis and Advice to Counsel: depreciation on behalf of the New Jersey Division of Rate Counsel)
NJ Board of Public Utilities Docket No. ER11080469
64. In the Matter of the Application of the Potomac Electric Power Company for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service (2011) - (Appearance: investment tracker design/rates, cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1087
65. Electric Transmission Formula Rate Annual Informational Filing of Central Maine Power Company (2011) - (Advice to Counsel: formula transmission rates, cost allocation and rate design on behalf of the Maine Attorney General)
Federal Energy Regulatory Commission Docket No. ER09-934-000 (2011)
66. Electric Transmission Formula Rate Annual Informational Filing of Bangor Hydro Electric Company (2011) - (Analysis, Report and Advice to Counsel: formula rate on behalf of the Massachusetts Attorney General)
Federal Energy Regulatory Commission Docket No. ER09-938-000
67. Pennsylvania Public Utility Commission Office of Consumer Advocate Office of Small Business Advocate v. City of Bethlehem – Bureau of Water (2011) - (Appearance: cost allocation and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania PUC Docket Nos. R-2011-2244756, C-2011-2246910, and C-2011- 2248241
68. Southern California Edison Company Transmission Owners Tariff (2011) - (Analysis and Advice to Counsel: depreciation on behalf of M-S-R Public Power Agency)
Federal Energy Regulatory Commission Docket No. ER11-2061-000
69. In the Matter of the Petition of Kansas City Power & Light Company for Determination of the Ratemaking Principles and Treatment that Will Apply to the Recovery in Rates of the Cost to be Incurred by KCP&L for Certain Electric Generation Facilities under K.S.A. 66- 1239 (2011) - (Appearance: advance determination of prudence on behalf of the Kansas Citizens' Utility Ratepayer Board)
Kansas Corporation Commission Docket No. 11-KCPE-581-PRE
70. Midwest Independent Transmission System Operator, Inc., and Ameren Illinois Company (2011) - (Analysis and Advice to Counsel: depreciation on behalf of the Wholesale Distribution Service Customer Group)
Federal Energy Regulatory Commission Docket No. ER11-2788-000

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71. Electric Generation Plant Valuation Study (2010-2012) - (Analysis: generation plant valuation)
California Department of Water Resources
72. Tampa Electric Company Wholesale Power Tariff (2010-2011) - (Analysis and Advice to Counsel: depreciation on behalf of the Orlando Utilities Commission)
Federal Energy Regulatory Commission Docket No. ER10-2061-000
73. Pacific Gas & Electric Company, Transmission Owner Tariff (2010-2011) - (Analysis and Advice to Counsel: depreciation on behalf of the Transmission Agency of Northern California)
Federal Energy Regulatory Commission Docket No. ER10-2026-000
74. Natural Gas Price Forecast Model Consulting (2008-2010) - (line of business development) FTI Consulting
75. Impact Evaluation Study of the District of Columbia Department of the Environment's Two-Year Pilot Reliable Energy Trust Fund Programs (2007-2008) - (Appearance: evaluation of implementation and cost effectiveness of energy efficiency, renewable energy, and demand response pilot programs on behalf of the District of Columbia Department of the Environment)
D.C. Public Service Commission Formal Case No. 945
76. In the Matter of the Application of the Potomac Electric Power Company for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service (2007-2008)- Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1053
77. In the Matter of the Investigation of Interconnection Standards in the District of Columbia (2006) - (Analysis and Advice to Counsel: interconnection standards and tariff design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1050
78. In the Matter of the Investigation into the Omnibus Utility Emergency Amendment Act of 2005, Specifically Regarding the Establishment of the Natural Gas Trust Fund Programs (2006) - (Analysis and Advice to Counsel: program design on behalf of the District of Columbia Department of the Environment)
D.C. Public Service Commission Formal Case No. 1037
79. Emergency Application of the Potomac Electric Power Company For A Certificate of Public Convenience and Necessity To Construct Two 69kV Overhead Transmission Lines and Notice of The Proposed Construction of Two Underground 230kV Transmission Lines (2005-2006) - (Appearance: facilities need on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1044

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80. Investigation Into Potomac Electric Power Company's Distribution Service Rates (2003- 2005) - (Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1032
81. Investigation of the Feasibility of Removing Pre-Existing Aboveground Utility Lines and Cables and Relocating Them Underground in the District of Columbia (2003) - (Analysis and Advice to Counsel: cost/benefit analysis on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1026
82. Guadalupe L. Garcia v. Ann Veneman, Secretary, US Department of Agriculture (2003- 2006) - (Appearance: statistical analysis on behalf of the Plaintiff)
U.S. District Court for the District of Columbia
83. Mirant Corporation, et al., Debtors (2003-2005) - (Analysis and Advice to Counsel: cost of service on behalf of the People's Counsel for the District of Columbia)
U.S. District Court for the Northern District of Texas
84. Complaint: Office of the People's Counsel of the District of Columbia v. Mirant Americas Energy Marketing, L.P. (2003) - (Analysis and Advice to Counsel: cost of service on behalf of the People's Counsel for the District of Columbia)
Federal Energy Regulatory Commission
85. Investigation into the Effect of the Bankruptcy of Mirant Corporation on Retail Electric Service in the District of Columbia (2003-2005) - (Appearance: customer and rate impact on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1023
86. Development and Designation of Standard Offer Service in the District of Columbia (2003- 2007) - (Appearance: cost of service allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1017
87. Independent Review Panel, Project Management Plan, Ohio River Main Stem Study (2003- 2005) - (50 year economic simulation model evaluation)
U.S. Army Corps of Engineers
88. Investigation into Affiliated Activities, Promotional Practices, and Codes of Conduct of Regulated Gas and Electric Companies (2002-2004) - (Analysis and Advice to Counsel: cost allocation on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1009

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89. Independent Review Panel, Ohio River Main Stem Study, System Investment Plan (2001) - (50 year economic simulation model evaluation)
U.S. Army Corps of Engineers
90. Joint Application of PEPCO and New RC, Inc. for Authorization and Approval of Merger Transaction (2001-2002) - (Appearance: cost allocation and affiliate transactions on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1002
91. Investigation into Explosions Occurring in Underground Distribution Systems of PEPCO (2001-2006) - (Analysis and Advice to Counsel: electric systems operation and planning on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 991
92. Pennsylvania-New Jersey-Maryland Power Pool/PJM LLC (ISO/RTO) (2000-2005) - (Member Working Group technical representation on behalf of The People's Counsel for the District of Columbia)
93. Trans Alaska Pipeline System 1996 Quality Bank Complaint Remand (2000-2008) - (Appearance: crude oil valuation and tariff rate design on behalf of ExxonMobil)
Federal Energy Regulatory Commission
94. Ohio River Main Stem Study, Independent Technical Review (1999) - (50 year economic simulation model evaluation)
U.S. Army Corps of Engineers
95. Investigation of January 1999 Electric Service Interruption (1999-2004) - (Appearance: emergency response evaluation on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 982
96. Trans Alaska Pipeline System 1996 Quality Bank Complaint Appeal (1998-2000) - (Analysis and Advice to Counsel: technical record below on behalf of ExxonMobil)
U.S. Court of Appeals for the District of Columbia
97. Electric Retail Competition Investigation (1997-2006) - (Appearance: electric utility restructuring, electric energy procurement, cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 945
98. Trans Alaska Pipeline System 1996 Quality Bank Complaint (1996-1998) - (Appearance: crude oil valuation and tariff rate design on behalf of ExxonMobil)
Federal Energy Regulatory Commission

PCMG and Associates LLC

99. Trans Alaska Pipeline System 1989 Quality Bank Complaint Remand (1995-1998) - (Appearance: crude oil valuation and tariff rate design on behalf of ExxonMobil)
Federal Energy Regulatory Commission
100. Prudhoe Bay Unit Operating Agreement Hearings (1995) - (Analysis and Advice to Counsel: cost of service on behalf of ExxonMobil)
Alaska Oil and Gas Conservation Commission
101. Prudhoe Bay Unit Natural Gas Liquids Hearings (1995) - (Analysis and Advice to Counsel: liquids valuation on behalf of ExxonMobil)
Alaska Department of Natural Resources/Department of Revenue (1995)
102. Potomac Electric Power Co. 3rd Integrated Least-Cost Plan (1995) - (Appearance: forecast operations and costs on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 917, Phase II
103. All American Pipeline Quality Bank Complaint (1994-1995) - (Appearance: crude oil valuation and tariff rate design on behalf of ExxonMobil)
Federal Energy Regulatory Commission
104. Trans Alaska Pipeline System 1989 Quality Bank Complaint Appeal (1994-1995) - (Analysis and Advice to Counsel: technical record below on behalf of ExxonMobil)
U.S. Court of Appeals for the District of Columbia
105. Investigation of the January 1994 Energy Crisis (1994) - (Appearance: emergency response evaluation on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 936
106. Washington Gas Light Co. Gas Rate Case (1994) - (Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 934
107. Washington Gas Light Co. 3rd Integrated Least-Cost Plan (1994) - (Appearance: forecast operations and costs on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 921
108. Potomac Electric Power Co. Electric Rate Case (1993) - (Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 929

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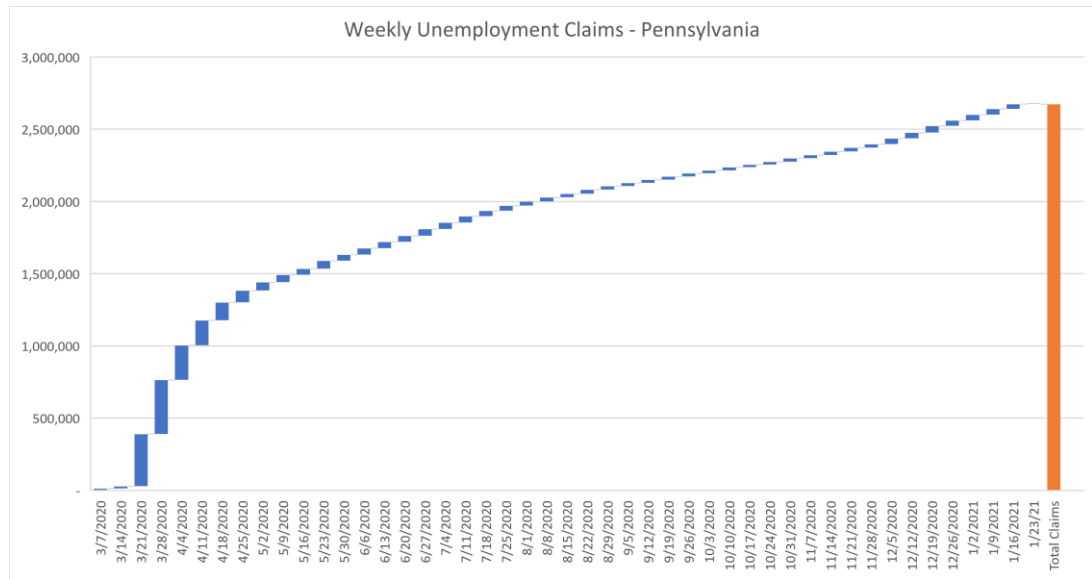
109. Washington Gas Light Co. Gas Rate Case (1993) - (Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 922
110. Trans Alaska Pipeline System Pumpability Complaint (1992) - (Analysis and Advice to Counsel: cost of service and rate design on behalf of ExxonMobil)
Federal Energy Regulatory Commission
111. Potomac Electric Power Co. 2nd Integrated Least-Cost Plan (1992) - (Appearance: forecast operations and costs on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 917
112. Potomac Electric Power Co. Electric Rate Case (1992) - (Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 912
113. Potomac Electric Power Co. Fuel Clause Audit and Productivity Improvement Plan (1991- 2005) (Analysis, Participation in Technical Sessions, and Advice to Counsel; electric utility plant investment and operating costs productivity and benefit/cost analysis on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 766
114. Potomac Electric Power Co. Electric Rate Case (1991) - (Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 905
115. Anchorage Telephone Utility (1991-1995) - (Analysis and Advice to Counsel: cost of service)
Federal Communications Commission
116. Trans Alaska Pipeline System 1989 Quality Bank Complaint (1990-1993) - (Appearance: crude oil valuation and tariff rate design on behalf of ExxonMobil)
Federal Energy Regulatory Commission
117. Telefonica Larga Distancia de Puerto Rico International Service Tariffs (1990-1992) - (Appearance: cost of service and rate design)
Federal Communications Commission
118. Southern Bell Intrastate Depreciation Study (1989-1990) - (Analysis and Advice to Counsel: telecommunications operation)
Florida Public Service Commission

PCMG and Associates LLC

119. Lake Erie Iron Ore Antitrust Litigation: Erie-Western Pennsylvania Port Authority v. Penn Central et al. (1988-1989) - (Analysis and Advice to Counsel: truck operations and damages on behalf of the Norfolk and Western Railroad)
U.S. District Court for the Eastern District of Pennsylvania
120. Unimar International Chapter 11 Reorganization (1988) - (Analysis and Advice to Counsel: cost of service on behalf of Unsecured Creditors)
U.S. Bankruptcy Court for the Western District of Washington at Seattle
121. National Forest Road Cost Analysis System (1986) - (Analysis: cost allocation system design)
U.S. Department of Agriculture, Forest Service
122. Puerto Rico Telephone Company Long Distance Facilities and Service Applications (1985- 1990) - (Appearance: cost of service and rate design on behalf of the Puerto Rico Telephone Company)
Federal Communications Commission
123. All American Cable and Radio/AT&T de Puerto Rico International Rate Complaint (1985- 1990) - (Appearance: cost of service and rate design on behalf of the Puerto Rico Telephone Company)
Federal Communications Commission
124. Caribbean Telecommunications Facilities Planning Docket (1984-1990) - (Appearance: operations forecast and planning on behalf of the Puerto Rico Telephone Company)
Federal Communications Commission

Week End Date	Total Initial Claims Count
3/7/2020	12,227
3/14/2020	15,439
3/21/2020	363,000
3/28/2020	374,056
4/4/2020	239,077
4/11/2020	172,733
4/18/2020	124,633
4/25/2020	82,414
5/2/2020	58,240
5/9/2020	50,299
5/16/2020	41,673
5/23/2020	55,374
5/30/2020	42,266
6/6/2020	45,049
6/13/2020	44,341
6/20/2020	42,577
6/27/2020	45,261
7/4/2020	44,086
7/11/2020	44,798
7/18/2020	37,986
7/25/2020	35,808
8/1/2020	29,371
8/8/2020	27,094
8/15/2020	25,584
8/22/2020	27,510
8/29/2020	24,883
9/5/2020	22,626
9/12/2020	21,747
9/19/2020	22,762
9/26/2020	22,955
10/3/2020	19,844
10/10/2020	20,251
10/17/2020	19,223
10/24/2020	19,974
10/31/2020	23,742
11/7/2020	23,051
11/14/2020	22,756
11/21/2020	26,983
11/28/2020	23,878
12/5/2020	40,833
12/12/2020	39,258
12/19/2020	47,305
12/26/2020	38,279
1/2/2021	38,647
1/9/2021	41,424
1/16/2021	32,921
1/23/21	26,580
Total Claims	(2,674,238)
Total Employed	6,588,410
% Filed	40.59%

<https://oui.doleta.gov/unemploy/claims.asp>



https://data.census.gov/cedsci/table?q=S2301&g=0400000US42&tid=ACSS1Y2019_S2301&hidePreview=true

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Help: <https://fredhelp.stlouisfed.org>
Economic Research Division
Federal Reserve Bank of St. Louis

PAPIKE3URN

Unemployment Rate in Pike County, PA, Percent, Monthly, Not Seasonally Adjusted

Frequency: Monthly
observation_date

November	2019	5.6%
December	2019	6.0%
January	2020	6.7%
February	2020	6.7%
March	2020	7.9%
April	2020	19.1%
May	2020	16.0%
June	2020	15.8%
July	2020	14.4%
August	2020	12.0%
September	2020	9.0%
October	2020	8.0%
November	2020	7.0%



Update on the Economic Well-Being of U.S. Households: July 2020 Results

September 2020



Update on the Economic Well-Being of U.S. Households: July 2020 Results

September 2020

Errata

The Federal Reserve revised this report on September 22, 2020, as follows: On p. 2, first bullet under “Overall Financial Security,” the word “June” was changed to “July.”

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Preface

This survey and report were prepared by the Consumer and Community Research Section of the Federal Reserve Board's Division of Consumer and Community Affairs (DCCA).

DCCA directs consumer- and community-related functions performed by the Board, including conducting research on financial services policies and practices and their implications for consumer financial stability, community development, and neighborhood stabilization.

DCCA staff members Sara Canilang, Kayla Jones, Jeff Larrimore, Ellen Merry, and Mike Zabek prepared this report. Federal Reserve staff members

Eric Belsky, Anna Alvarez Boyd, Andrea Brachtesende, Ken Brevoort, David Buchholz, Cassandra Duchan, Alicia Lloro, Madelyn Marchessault, Kirk Schwarzbach, Susan Stawick, and Erin Troland provided valuable comments on the survey and report. Ana Kent, Raven Molloy, Wilbert van der Klaauw, and Abigail Wozniak provided helpful feedback on new survey questions for the supplemental surveys. The authors would like to thank Bob Torongo, Poom Nukulkiij, Mansour Fahimi, Frances Barlas, and Alyssa Marciniak for their assistance fielding the survey.

If you have questions about the survey or this report, please email SHED@frb.gov.

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Executive Summary

In March 2020, the onset of the COVID-19 pandemic altered the financial landscape for many American families. Recognizing the unprecedented financial disruptions caused by the pandemic, the Federal Reserve conducted a pair of supplemental surveys to monitor the financial well-being of U.S. households. The first was fielded in April 2020, and the results were described in the *Report on the Economic Well-Being of U.S. Households in 2019, Featuring Supplemental Data from April 2020*.

This report describes the responses to the second supplemental survey, fielded in July 2020. The combined results shed light on the evolution of family finances after the onset of COVID-19, the associated economic disruptions, and the likely effects of public policy responses.¹ These data supplement information from the Federal Reserve Board's annual Survey of Household Economics and Decisionmaking (SHED). All respondents to the July survey also completed the previous survey in October 2019, creating the unique opportunity to observe how financial well-being compared for the same individuals before and after the start of the pandemic and the ensuing recession.²

The results of the July survey indicate that while many people who were laid off at the start of the public health crisis had returned to work, an increasing share did not expect to return to their previous job. Additionally, employment outcomes differed markedly across workers of different incomes and education levels. The April survey found that lower-income workers were more likely to have been laid off at the start of the pandemic. The July survey showed that lower-income adults who were laid off were also less likely to have returned to work in the same job. Additionally, workers with less education who maintained their jobs were less likely to be working from home than were those with more education. Consistent with these differences in work arrangements, workers with less education were also more likely to say that their employer was not taking sufficient precautions to prevent the spread of COVID-19.

Although many people experienced disruptions to their work, the extraordinary governmental measures in response to the pandemic seemed to have eased families' financial strain. A substantial number of families received one or more forms of financial assistance from government programs or charitable organizations. The effects of these programs were apparent in people's overall financial well-being and ability to cover expenses. Across several dimensions, financial well-being was higher in the July survey than in early April before most financial relief efforts were in place.

Nevertheless, the results highlight financial concerns that remained for some families. Although financial assistance programs have buffered families from economic hardships, many still remained out of work. Additionally, some of those who received assistance with housing bills expressed concerns about resuming their regular monthly payments when this payment relief ends. Some working parents also indicated that they expected to face challenges balancing work and childcare responsibilities in the fall if schools do not have in-person classes. Consequently,

¹ The Centers for Disease Control and Prevention (CDC) first reported community spread of COVID-19 in the United States on February 26, 2020 (<https://www.cdc.gov/media/releases/2020/s0226-Covid-19-spread.html>) and first reported a death from COVID-19 in the United States on February 29, 2020 (<https://www.cdc.gov/media/releases/2020/s0229-COVID-19-first-death.html>). The CDC COVID-19 Response Team later reported evidence of limited community transmission of COVID-19 earlier than initially reported. See Michelle A. Jorden et al., "Evidence for Limited Early Spread of COVID-19 within the United States," *Morbidity and Mortality Weekly Report*, no. 69 (2020): 680–684, <http://dx.doi.org/10.15585/mmwr.mm6922e1>.

² The July 2020 SHED supplemental survey interviewed a sample of just over 4,000 individuals. For the July supplement and prior SHED surveys, the anonymized data, as well as an appendix containing the complete questionnaire and responses to all questions in the order asked, are available at <https://www.federalreserve.gov/consumerscommunities/shed.htm>.

the conditions observed in this survey may change in the coming months depending on the economic trajectory moving forward.

Key findings from the July survey include:

Employment

- Thirty percent of those laid off between March and July had since returned to work for the same employer. Twenty-two percent of those laid off did not expect to return to their previous employer and were not working at another job.
- Thirty-one percent of workers did all of their work from home in the week before the survey, down from 41 percent in April.
- Eighteen percent of workers said their employer was taking too few precautions to prevent the spread of COVID-19. A higher 27 percent of Black workers and 23 percent of Hispanic workers felt their employer was not taking enough precautions.
- Of working parents, 3 percent expected to stop working, and 19 percent expected to work less, if their local schools do not have in-person classes in the fall.

Financial Assistance

- Nearly one-fourth of adults said their family received assistance from unemployment insurance,

the Supplemental Nutrition Assistance Program (SNAP), or free groceries or meals from charitable organizations since the start of the pandemic.

- Among those receiving unemployment insurance benefits, 40 percent said that the benefits were higher than their wages before the layoff, whereas 36 percent said that the benefits were lower.
- Five percent of both homeowners with a mortgage and renters reported receiving a housing payment reduction or deferral. Twelve percent of adults reported receiving assistance with other bills.

Overall Financial Security

- Seventy-seven percent of adults were doing at least okay financially in July, up from 72 percent in early April and 75 percent in October 2019.
- Seventy percent of adults would pay a \$400 emergency expense using cash or its equivalent, up from 64 percent in April and 63 percent in October 2019.
- Improvements in preparedness for emergency expenses since 2019 were greatest among low- and middle-income families, for whom stimulus payments and enhanced unemployment insurance benefits reflect a larger share of incomes.

Employment

Since March 2020, many have experienced employment disruptions such as a layoff, reduction of hours, or unpaid leave (figure 1). Twenty percent of people who were working at the time of the annual SHED survey in October 2019 said they were laid off between March and when they took the supplemental survey in late July.³ Additionally, 10 percent of October 2019 workers had their hours reduced or took unpaid leave, but were not laid off.

Layoffs have not affected all workers equally. Hispanic and Black adults were more likely to report a layoff between March and July (table 1). In addition, a larger share of working women than men were laid off, which is a departure from previous recessions.

At the same time that many reported employment disruptions, others reported working more. Twenty percent of people who were working in October reported working increased hours or overtime between March and July. Additionally, 5 percent of all adults started a job between March and July.

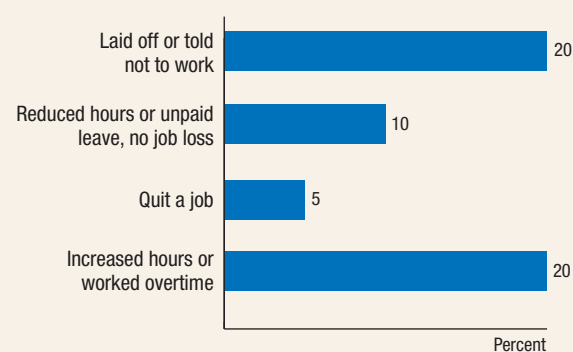
Some workers who were laid off had also returned to work or were working at another job in July. Thirty percent of workers who were laid off said in July that they had returned to their former job, up from 5 percent in April (figure 2). An additional 10 percent said that they were employed and did not expect to return to the old job.⁴

Still, a larger share of laid-off workers expected the layoff to be permanent than was the case in April. In July, 22 percent of adults who had been laid off said

³ Employment status in October is used here since all respondents completed the October 2019 survey and reported their employment status at that time. Eighty-six percent of people who were laid off between March and July 2020 said that they were working in October 2019. The remaining 14 percent were most likely laid off from a job that they started between October and July. This report refers to someone who answers that they lost a job, were laid off, or were told not to work any hours as someone who was laid off.

⁴ Workers who said they were employed could have found a new job since the layoff, or they could have lost one of multiple jobs without getting another.

Figure 1. Employment events since March 2020 among those working before the pandemic



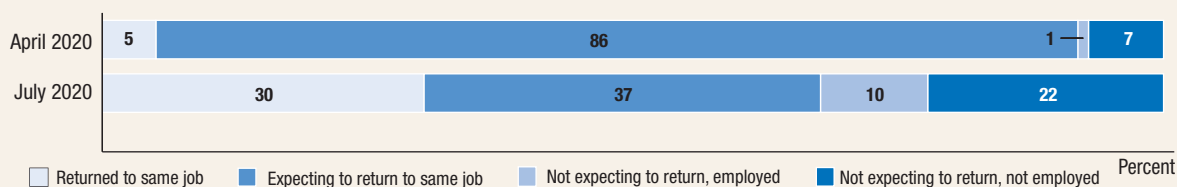
Note: Among those working in October 2019.

Table 1. Proportion of adults working in October 2019 who were laid off since March 2020 (by demographic characteristics)

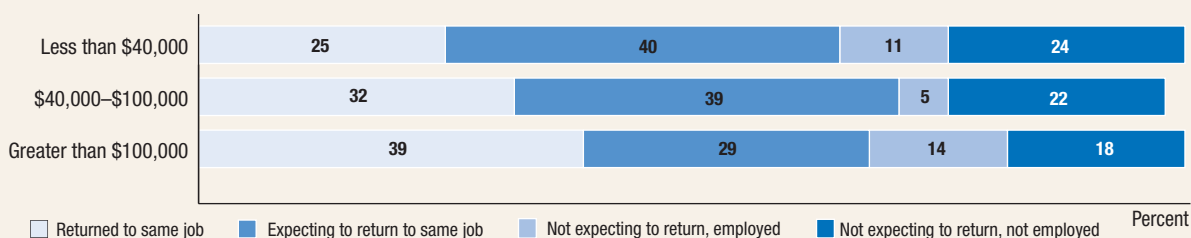
Characteristic	Laid off or told not to work
Family income	
Less than \$40,000	28
\$40,000–\$100,000	19
Greater than \$100,000	13
Education	
High school degree or less	23
Some college/technical or associate degree	25
Bachelor's degree or more	13
Race/ethnicity	
White	18
Black	22
Hispanic	23
Gender	
Male	18
Female	22

Note: Among those working in October 2019. Income and education categories are from the October 2019 survey responses.

that they were not employed and that they did not expect to return to their old job. This is up from 7 percent of laid-off workers who reported in April

Figure 2. Expectations about returning to work and current employment for laid-off workers (by month)

Note: Among adults reporting a layoff since March 2020. Percents may not sum to 100 due to rounding and question non-response. Key identifies bars in order from left to right.

Figure 3. Expectations about returning to work and current employment for laid-off workers (by family income)

Note: Among adults reporting a layoff since March 2020. Income categories are from the October 2019 survey responses. Percents may not sum to 100 due to rounding and question non-response. Key identifies bars in order from left to right.

that they were not employed and did not expect to return to their old job.

Another important feature of the employment situation since March has been larger disruptions among workers in families with low incomes. The rate of layoffs was substantially higher among workers from low-income families. Between March and July, 28 percent of October workers in families making less than \$40,000 per year at the time were laid off.⁵ In contrast, layoffs affected 13 percent of October workers in families making more than \$100,000 per year over the same period.

Laid-off workers in low-income families were also less likely to say that they had returned to work at their original job. One-fourth of workers in low-income families who experienced a layoff said they had returned to work for the same employer (figure 3). In contrast, 32 percent of middle-income and

39 percent of high-income workers who were laid off had returned to their same job.

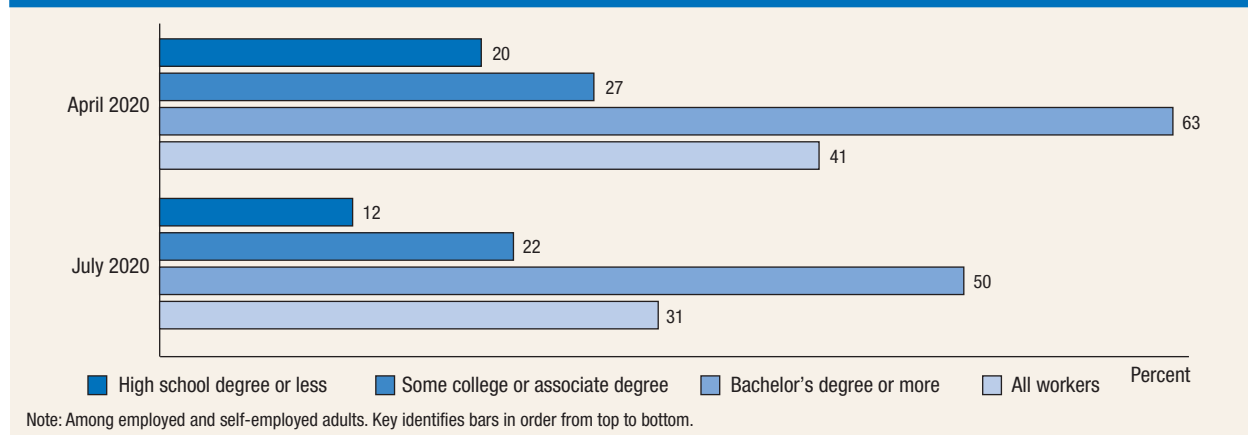
Work Location and Concerns about COVID-19 at Work

The pandemic also has continued to affect where people physically do their work. Although the frequency of remote work has declined since April, it remains elevated. Thirty-one percent of workers did all of their work from home in the week before the survey, compared to 41 percent who did so in early April (figure 4).

Workers with more education, however, were more likely to work from home. In July, 12 percent of workers with a high school degree or less worked entirely from home, compared to half of workers with a bachelor's degree. Each number was down from the proportion that said they worked entirely from home in April.

Differences by education in the proportion of adults who worked from home translate into different levels of exposure to others. Indeed, 85 percent of workers who were not entirely telecommuting said that they were within six feet of someone for more than five minutes on the most recent day that they went to work. Thirty-five percent had close contact with at

⁵ This statistic is not directly comparable to related findings in the *Report on the Economic Well-Being of U.S. Households in 2019, Featuring Supplemental Data from April 2020*. The statistic in this report uses information on family (rather than household) income and employment in the October 2019 survey that was not available for the April survey. The results could also differ because of sampling error and recall bias. For example, people who quickly returned to work may report a layoff in April but not July. The most comparable statistic to that reported in April would be that one-third of people in households making under \$40,000 per year who were working in February reported that they were laid off since March.

Figure 4. Work entirely from home in April 2020 and July 2020 (by education)

least 10 people. Conditional on going into work, workers with different levels of education reported that they were exposed to similar numbers of people each day.

Overall, most adults felt their employer was taking adequate precautions to prevent the spread of COVID-19. Roughly three-fourths of workers said that their employer was taking about the right amount of precautions for their safety. This compares to 18 percent of workers who felt that their employer was not taking enough precautions and 7 percent who felt their employer took too many precautions.

Since half of workers with bachelor's degrees were working from home, these workers likely had less potential exposure to the virus at their jobs. And the differences in exposure by education were reflected in workers' evaluations of the precautions that their employers took. Sixteen percent of workers with a bachelor's degree said that their employer had not taken enough precautions against the coronavirus, while 21 percent of workers with a high school degree or less responded the same way.

Black and Hispanic workers also were disproportionately likely to say that their employers were not taking enough precautions to prevent the spread of COVID-19. Twenty-seven percent of Black workers said that their employer was not taking enough precautions, while 23 percent of Hispanic workers and 16 percent of White workers responded similarly (figure 5).

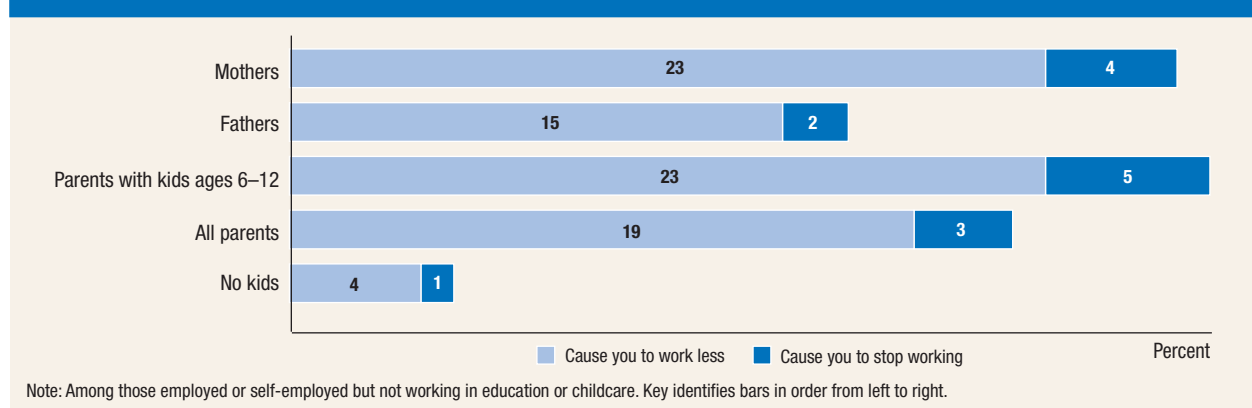
Different views of employer's precautions by race and ethnicity reflected different rates of working

Figure 5. Think employer is not taking enough precautions to prevent the spread of COVID-19

from home, among other factors. Twenty-two percent of Hispanic workers and 28 percent of Black workers worked entirely from home over the week before the survey, compared to 33 percent of White workers. Across all races and ethnicities, adults who did none of their work from home were twice as likely as those working completely from home to say their employer was not taking enough precautions (19 percent versus 9 percent).

Work and Family

Potential school closures in the fall, accompanied by increased family and childcare responsibilities, could affect some parents' ability to maintain formal employment. While most working parents did not expect potential school closures in the fall to affect their work, 22 percent expected to work less or stop

Figure 6. Expect to reduce hours worked if schools do not have in-person classes in the fall (by parental status and gender)

working altogether if their local schools do not have in-person classes (figure 6).⁶ These potential labor market effects were the largest for working parents

⁶ To isolate the effects of school closings on people's responsibilities at home, we exclude people who work in education or childcare. Parental status is based on whether the respondent lived with their own children under age 18 in October 2019.

living in households with primary-school-aged children, among whom nearly 3 in 10 expected to work less or stop working altogether. Additionally, working mothers, at 27 percent, were more likely than working fathers to report that they expected to work less or stop working altogether.

Financial Assistance

In the wake of employment disruptions since the beginning of March, public and private assistance helped fill the gap between income and expenses for many families. Nearly one-fourth of adults reported that they, or their spouse or partner, received assistance from unemployment insurance, SNAP, or free groceries or meals from charitable organizations since the start of the pandemic. This includes 11 percent who received unemployment insurance and 10 percent who received SNAP benefits (figure 7). Additionally, 5 percent of adults received financial assistance from family outside their household or from a religious or community group. A small share of adults reported they had applied for one of these benefits but not received them, and this was most common for unemployment insurance.

The Coronavirus Aid, Relief, and Economic Security Act (CARES Act) provided enhanced unemployment insurance benefits of \$600 per week, which supplemented normal unemployment insurance benefits.⁷ Reflecting these additional benefits, 40 percent

⁷ For details on the unemployment insurance benefit changes in the CARES Act, see “Unemployment Insurance Relief during

of unemployment insurance recipients said that the benefits they received were larger than their previous wages while working, and 23 percent said they were about the same. Adults in low-income families were more likely to say that the unemployment insurance benefits were greater than their prior earnings (figure 8).

Changes in both employment and financial assistance affected household income as a whole. Most people did not experience an employment disruption, and most said that their income was unchanged from before the pandemic. However, 23 percent of all adults said their income in June was below that in February, whereas 11 percent said it was higher.⁸

COVID-19 Outbreak,” U.S. Department of Labor, 2020, <https://www.dol.gov/coronavirus/unemployment-insurance>.

⁸ Some of this volatility may reflect regular changes in income that occur from month to month. For a description of income variability from survey measures, see Jeff Larrimore, Maximilian Schmeiser, and Sebastian Devlin-Foltz, “Should You Trust Things You Hear Online? Comparing SHED and Census Bureau Survey Results,” Finance and Economic Discussion Series Notes (Washington: Board of Governors of the Federal Reserve System, October 15, 2015), <https://www.federalreserve.gov/econresdata/notes/feds-notes/2015/comparing-shed-and->

Figure 7. Forms of assistance received and requested

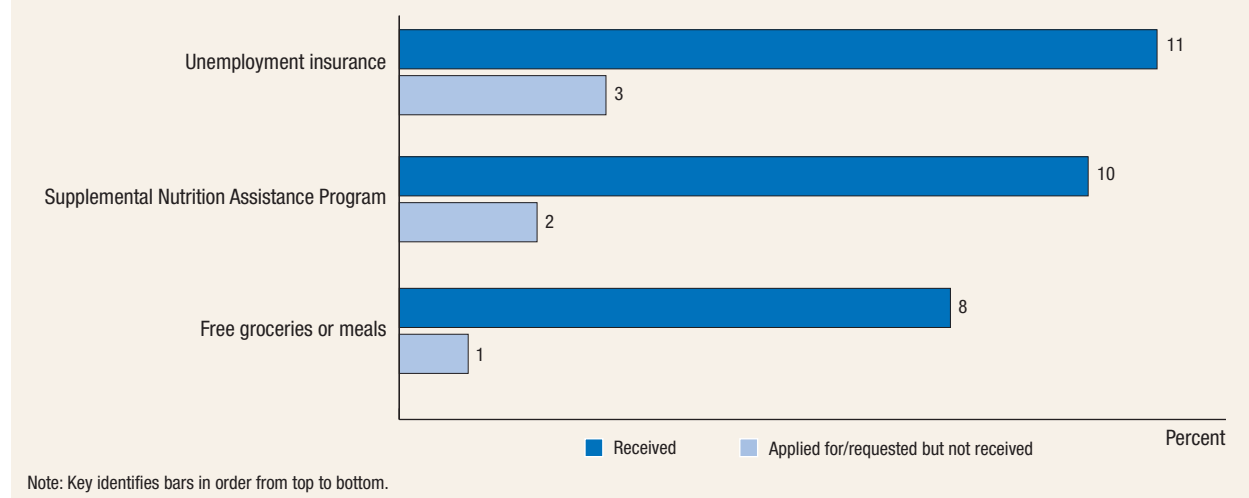
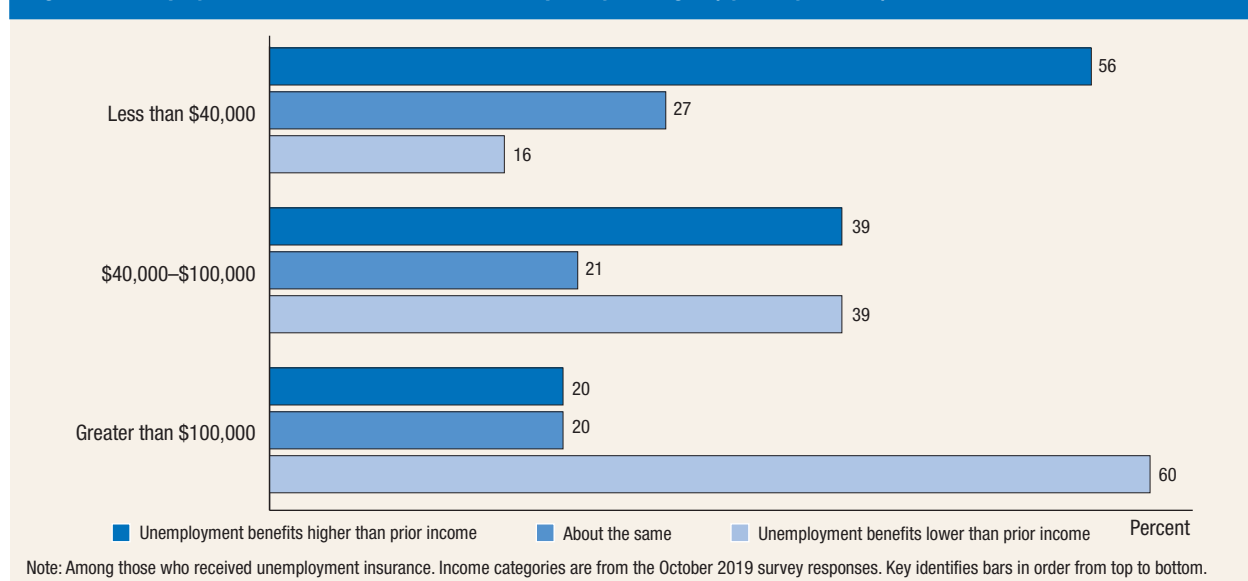
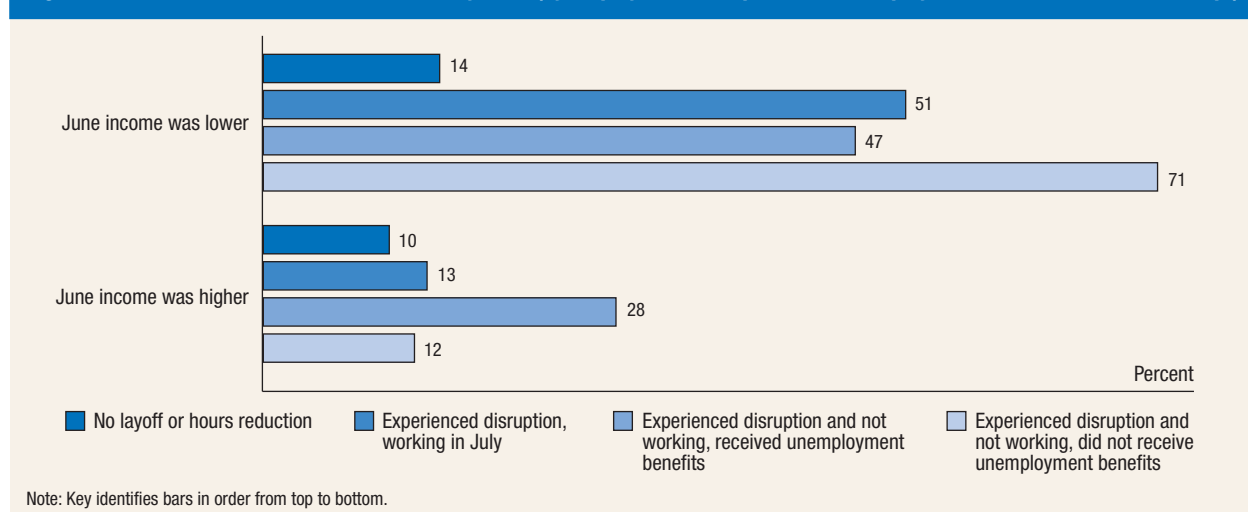


Figure 8. Unemployment insurance benefits relative to pre-layoff wages (by family income)**Figure 9. June 2020 income relative to February 2020 (by employment disruption and unemployment insurance benefits receipt)**

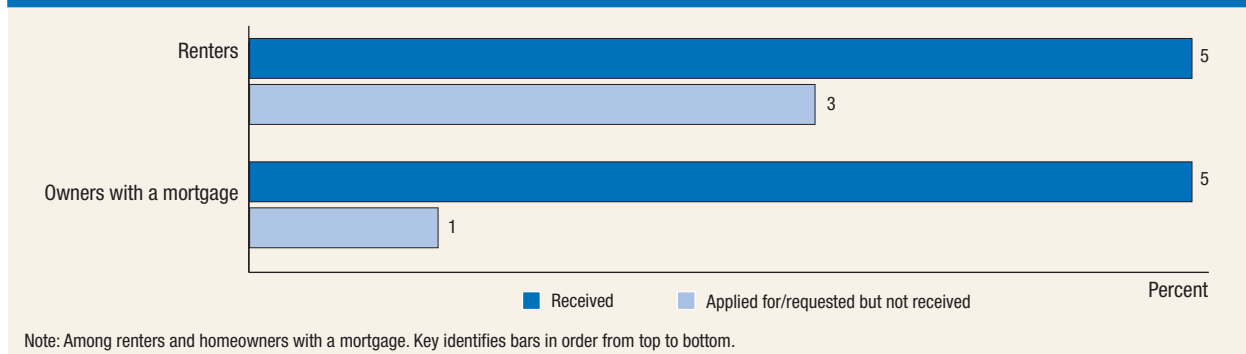
The likelihood of experiencing an increase or decrease in income varies based on employment disruptions as well as the receipt of unemployment insurance benefits.⁹ Half of the people who lost a

job or had their hours cut, but were working at the time of the survey, said that their June income was lower than before the pandemic. Similarly, 47 percent of those not working who received unemployment insurance reported an income decline. However, among those not working who did not receive unemployment insurance, 71 percent said that their income went down (figure 9).

[census-bureau-survey-results-20151015.html](https://www.frb.org/census-bureau-survey-results-20151015.html). For patterns of income volatility in bank account data, see Diana Farrell, Fiona Grieg, and Chenxi Yu, *Weathering Volatility 2.0: A Monthly Stress Test to Guide Savings* (New York: JPMorgan Chase Institute, 2019), <https://institute.jpmorganchase.com/institute/research/household-income-spending/report-weathering-volatility-2-a-monthly-stress-test-to-guide-saving>.

⁹ The employment question in the survey asks about the respondent's own employment, whereas the income and unemployment insurance benefits include benefits for the respondent's spouse or partner as well. Consequently, some respondents may

report income changes due to employment disruptions among family members, even if they did not personally experience an employment disruption.

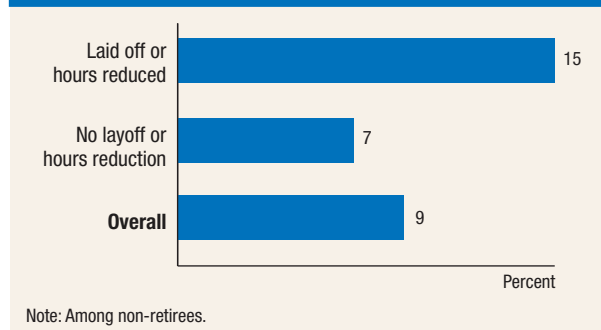
Figure 10. Received or requested assistance on housing payments (by homeownership status)

On the other hand, those who had received unemployment insurance benefits were more likely to say their income was higher, reflecting the enhanced benefits in effect at the time. Twenty-eight percent of people who received unemployment benefits said that their June income was above that in February. This compares to 10 percent of those who had no employment disruption whose income increased.

Some families also received housing payment relief due to the effects of COVID-19, which further alleviated potential financial hardships. Five percent of both renters and homeowners with a mortgage received a housing payment reduction or deferral (figure 10). An additional 3 percent of renters, and 1 percent of homeowners with a mortgage, requested assistance with rent or mortgage payments but did not receive it.

Among those receiving relief, there was some concern about restarting payments once the relief ends. Just under half of people receiving housing relief were moderately or very confident that they would be able to resume their monthly payments and make up any deferred payments. However, 32 percent were just slightly confident that they would be able to resume their payments, and 19 percent were not at all confident that they would be able to do so.

In addition to the relief received on housing payments, 12 percent of all adults received assistance with other bills. This appears to reflect high rates of student loan deferrals. Thirty-five percent of people who had outstanding student loan debt from their own education in the fall reported receiving payment relief on at least one non-housing bill, compared to 8 percent of those without student loan debt.

Figure 11. Borrowed from or cashed out retirement savings accounts in the past 12 months (by employment disruption)

Some adults tapped their own savings to cover financial shortfalls in recent months. This includes those who borrowed or withdrew funds from retirement accounts. The CARES Act relaxed some of the restrictions and penalties for savers to tap retirement plan assets, provided they experienced a qualifying hardship due to COVID-19.¹⁰

Adults who experienced employment disruptions were more likely to have borrowed from or cashed out retirement savings accounts (figure 11).¹¹ Fifteen percent of non-retirees who were laid off or had their hours reduced since March said they had tapped retirement assets in the past 12 months, com-

¹⁰ "Coronavirus-Related Relief for Retirement Plans and IRAs Questions and Answers," Internal Revenue Service, last updated July 30, 2020, <https://www.irs.gov/newsroom/coronavirus-related-relief-for-retirement-plans-and-iras-questions-and-answers>.

¹¹ The question does not specify whether retirement savings accounts were tax-preferred (such as 401(k) plans) or taxable accounts, so respondents may have included withdrawals from a range of different types of accounts, not just those covered by the CARES Act provisions.

pared to 7 percent of non-retirees who had not experienced an employment disruption. Nevertheless, the overall share of non-retirees who reported

they have borrowed from or cashed out accounts was unchanged in July relative to the fall of 2019, remaining at 9 percent.

Overall Financial Security

The substantial layoffs that occurred in March and April upended the lives of many families. However, by July, some people had returned to work and others were receiving financial assistance. As a result, there was an uptick in the overall rate of financial well-being in July. Seventy-seven percent of adults in July indicated that they were either “doing okay” financially or “living comfortably.” The rest were either “just getting by” or “finding it difficult to get by.” The 77 percent of adults doing at least okay financially in July reflects an improvement since early April, when 72 percent were doing at least this well. In October 2019, 75 percent of adults were at least doing okay financially.¹²

When comparing individual-level responses, most people reported that they were equally as well off in July as they had been in October. Nineteen percent of adults reported a higher level of financial well-being, compared to 17 percent who were worse off financially than in the fall. The remainder reported the same level of well-being as they did in October. Even though the scale of layoffs during the pandemic has been unprecedented, this stability reflects the fact that many people did not personally experience a lay-off. Additionally, enhanced unemployment insurance benefits, Economic Impact Payments, and other financial support measures blunted the potential negative financial effects for many families.

Although substantial gaps in the rate of well-being across racial and ethnic groups remained, self-reported financial well-being for White, Black, and Hispanic adults in July were all consistent with the rates seen in late 2019. White and Hispanic adults saw slight upticks in their overall rates of well-being, although self-reported financial well-being among Black adults fell by 1 percentage point (table 2).

¹² Seventy-six percent of October 2019 respondents who also took the July survey were doing okay financially last fall. Consequently, part of the observed 2 percentage point change in overall well-being can be attributed to which respondents completed the follow-up survey in July.

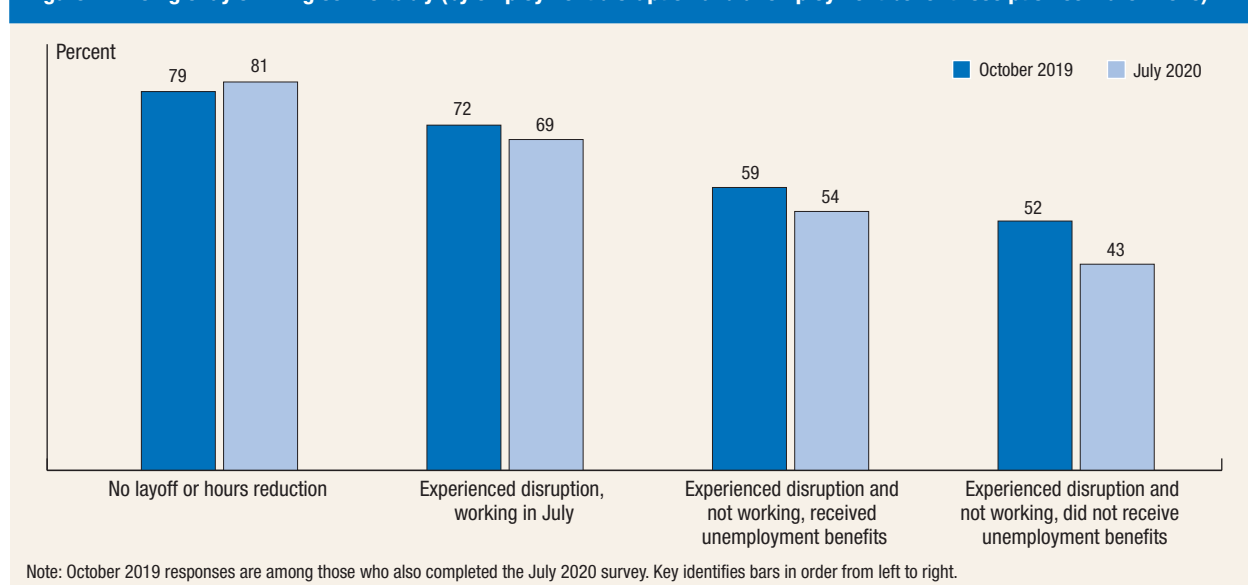
Table 2. Share of adults at least doing okay financially (by demographic characteristics and year)

Characteristic	October 2019	July 2020	Change
Percent			
Family income			
Less than \$40,000	55	56	2
\$40,000–\$100,000	81	84	4
Greater than \$100,000	95	95	0
Education			
High school degree or less	63	64	1
Some college/technical or associate degree	75	77	2
Bachelor's degree or more	88	91	3
Race/ethnicity			
White	79	81	2
Black	65	64	-1
Hispanic	66	69	2
Place of residence			
Metro area	76	77	1
Non-metro area	72	76	4
Overall	75	77	2

Note: Income and education categories are from the October 2019 survey responses.

Consistent with the earlier observations that layoffs from the pandemic most affected lower-income workers, individuals experiencing an employment disruption typically had lower pre-pandemic well-being than those who did not. Two-thirds of those who experienced a disruption were doing at least okay financially in the fall. This compares to 79 percent of those who did not experience a disruption who were doing at least okay financially before the pandemic.

Changes in financial well-being since the fall were closely tied to maintaining—or regaining—employment. Those who did not experience a layoff or a reduction of hours were, on average, faring at least as well as they were last fall. Those who were laid off or saw their hours reduced but were working at least in some capacity in July reported slight declines in well-being, although the change was relatively modest (figure 12).

Figure 12. Doing okay or living comfortably (by employment disruption and unemployment benefit receipt since March 2020)

For those who were laid off and were not working in July, the magnitude of the decline in well-being depended on whether they received unemployment insurance benefits. Those who were laid off and received unemployment insurance saw a 5 percentage point decline in the share doing at least okay financially. However, among those who were laid off and did not receive unemployment, financial well-being declined by 9 percentage points since the fall. Forty-three percent of the group that was not receiving unemployment insurance benefits indicated that they were doing at least okay—down from 52 percent in October 2019.

Ability to Pay Bills

Consistent with the pattern in overall financial well-being, 85 percent of adults said they could pay all their current month's bills in full in July, about the same as in the fourth quarter of 2019 (84 percent) and above the 81 percent who were able to do so in April.¹³ Yet, those experiencing employment disruptions were disproportionately likely to have difficulty paying bills, on average. Of adults who were laid off, were still not working, and had not received unem-

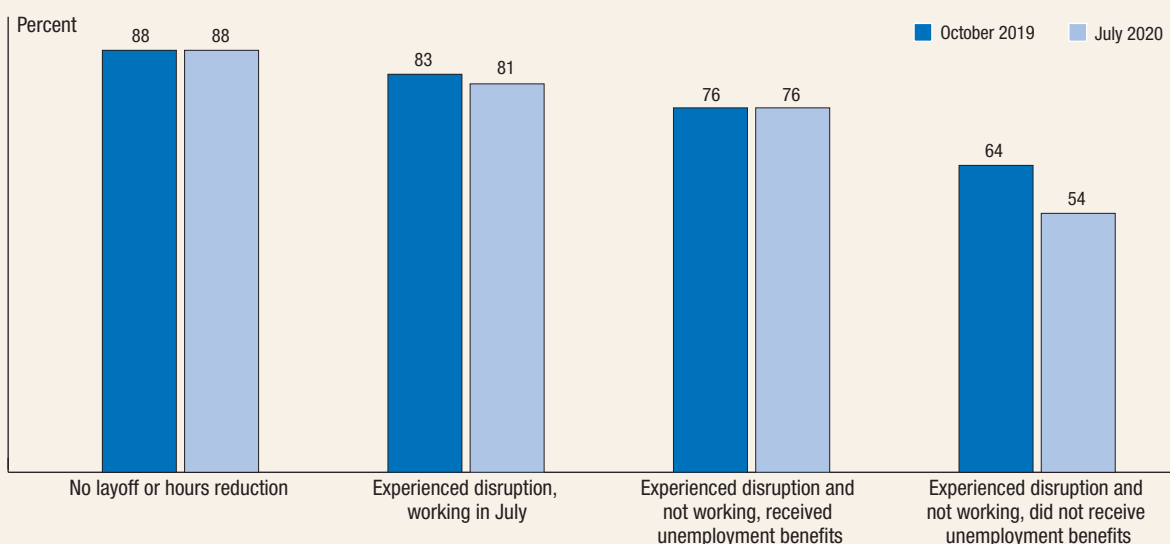
ployment benefits, 54 percent expected to be able to pay all their bills in full in July (figure 13). Among those who were not working but had received unemployment benefits and among those who had returned to work, higher shares said they could pay all their bills in full. Nonetheless, these groups were still less likely to be able to cover all their bills than those who had not experienced an employment disruption.

In part, this difference in bill payment rates reflects financial circumstances from before the pandemic. But those who were still not working after a disruption and did not receive unemployment benefits also fared worse during the pandemic. Laid-off adults who were not working and not receiving unemployment benefits showed the largest decline in ability to pay their bills. Fifty-four percent of this group expected to be able to pay all of their bills in full in July, whereas 64 percent of the same people were able to do so in October. In contrast, those who had not experienced an employment disruption showed no change in their ability to pay bills, on average. Those who experienced a disruption and received unemployment insurance benefits or were working in July were also nearly as likely to be able to pay their bills in full as they were last fall.

Of people who could not pay all their bills in full in July, this most frequently involved not paying a credit card bill or making only a partial payment on it (table 3). Yet, 42 percent of those who were not

¹³ Similar to that seen previously for overall well-being, repeat respondents from the fall survey were slightly more likely to be able to pay their bills in full than the entire fall sample (86 percent versus 84 percent). Hence, the 1 percentage point improvement in bill payment from the fall reflects these sample differences.

Figure 13. Ability to pay all bills in full the month of the survey (by employment disruption and unemployment benefits receipt since March 2020)



Note: October 2019 responses are among those who also completed the July 2020 survey. Key identifies bars in order from left to right.

Table 3. Bills to leave unpaid or only partially paid in July

Percent

Bill	Among those who expect to defer at least one bill	Among adult population
Housing-related bills		
Rent or mortgage	21	3
Water, gas, or electric bill	31	4
Overall	42	6
Non-housing-related bills		
Credit card	44	6
Phone or cable bill	27	4
Student loan	12	2
Car payment	14	2
Other	31	5
Overall	87	13
Overall	100	14

Note: Respondents could select multiple answers.

able to pay all their bills in July (6 percent of all adults) said that their rent, mortgage, or utility bills would be left at least partially unpaid in July.

Handling Small Financial Emergencies

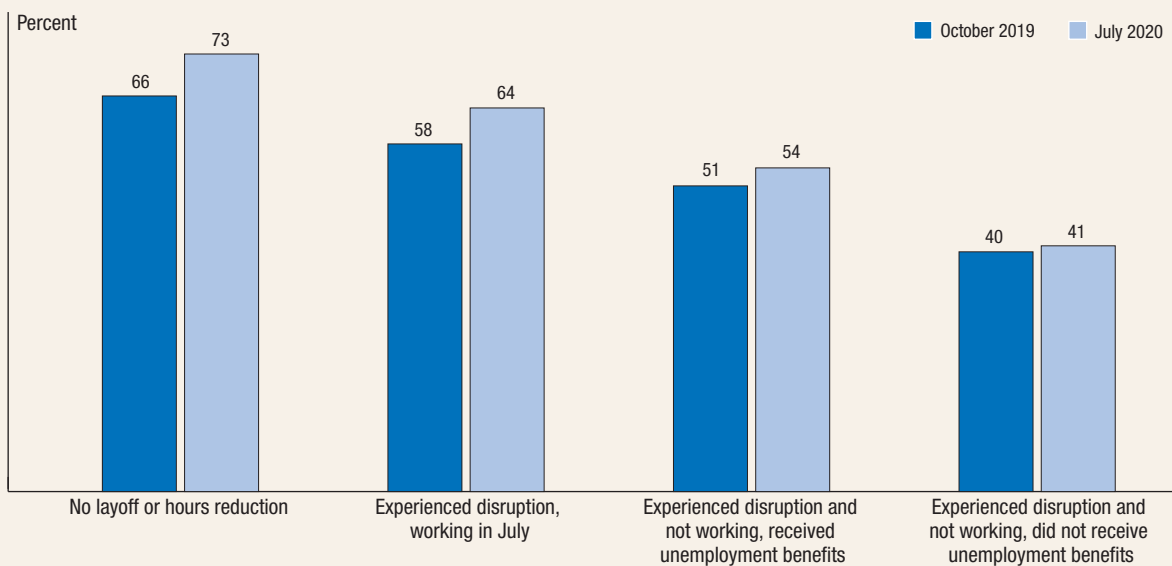
A sizeable share of adults in July appeared to be better able to handle a small financial emergency than in

April or in the fall. Among all adults, the share who reported they would pay an unexpected \$400 emergency expense entirely using cash, savings, or a credit card paid off at the next statement increased by 6 percentage points—from 63 percent in October to 70 percent in July (table 4).¹⁴ In April, 64 percent of adults said they would pay a small emergency expense in this way. While improvements since October were evident across all groups, increases were particularly notable for Hispanic adults, those living outside of metropolitan areas, and those in lower-income families. However, since this is a measure of how people would pay the \$400 expense, rather than whether they could pay, it is also possible that changes in credit availability or people's desire to use credit could contribute to these results.

Similar to the findings for the ability to pay bills, those who experienced a layoff or an hours reduction were less likely to report they would pay an unexpected \$400 expense with cash or the equivalent (figure 14). Furthermore, those who did not experience an employment disruption saw the largest gain in this measure, while those who lost a job and were not working in July and had not received unemploy-

¹⁴ Repeat respondents from the fall survey were about as likely to say they would pay an unexpected \$400 expense with cash or the equivalent as the entire fall sample (64 percent versus 63 percent, respectively). Using either the full fall sample or the repeat sample, the change from the fall survey to the July supplement was 6 percentage points.

Figure 14. Would pay \$400 expense with cash or its equivalent (by employment disruption and unemployment benefits receipt since March 2020)



Note: October 2019 responses are among those who also completed the July 2020 survey. Key identifies bars in order from left to right.

Table 4. Would cover a \$400 emergency expense completely using cash or its equivalent (by year)
Percent

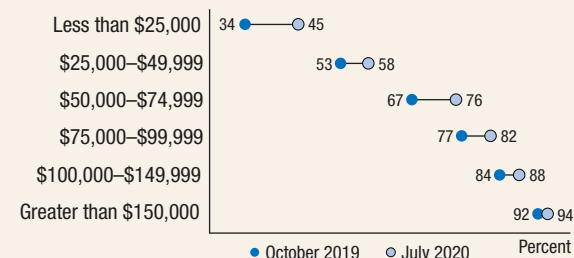
Characteristic	October 2019	July 2020	Change
Family Income			
Less than \$40,000	39	48	9
\$40,000–\$100,000	68	75	7
Greater than \$100,000	88	91	3
Education			
High school degree or less	47	54	8
Some college/technical or associate degree	61	68	7
Bachelor’s degree or more	81	88	7
Race/ethnicity			
White	71	77	6
Black	43	48	5
Hispanic	45	55	10
Place of residence			
Metro area	64	70	6
Non-metro area	59	69	9
Overall	63	70	6

Note: Income and education categories are from the October 2019 survey responses.

ment benefits showed the least change, relative to responses in fall 2019.

The share who would pay cash or its equivalent for a small emergency improved at all income ranges, but did so the most for low- and middle-income adults

Figure 15. Would pay \$400 expense with cash or its equivalent (by family income)



Note: Income categories are from the October 2019 survey responses. Key identifies circles in order from left to right.

(figure 15). This may be due to the income boost experienced from Economic Impact Payments. These payments went to nearly everyone with incomes below the income limits, including those not experiencing an employment disruption—the group that showed the greatest improvement in this emergency savings measure. Additionally, because these payments were fixed below the phaseout limits, the effect on family incomes would be proportionately greater for those with lower incomes.¹⁵ These increases in

¹⁵ For most U.S. families, the CARES Act authorized Economic Impact Payments of \$1,200 per adult and an additional \$500 per qualifying dependent child. The amount of the payment also varied with income and tax filing status, phasing out for single filers with incomes over \$75,000 and married joint filers with incomes over \$150,000. Payment distribution began in

the share who would pay a small emergency expense with cash or the equivalent are also consistent with estimates indicating that the personal savings rate

April 2020. See “Economic Impact Payment Information Center,” Internal Revenue Service, last updated August 14, 2020, <https://www.irs.gov/coronavirus/economic-impact-payment-information-center>.

increased and average daily balances in checking accounts rose in the early months of the pandemic.¹⁶

¹⁶ For a time series of estimates of the personal savings rate from the Bureau of Economic Analysis, see <https://fred.stlouisfed.org/series/PSAVERT>. For findings from data on checking account balances in the early months of the pandemic, see Natalie Cox et al. “Initial Impacts of the Pandemic on Consumer Behavior: Evidence from Linked Income, Spending, and Savings Data,” *Brookings Papers on Economic Activity* (Washington: Brookings Institution, June 25, 2020), <https://www.brookings.edu/wp-content/uploads/2020/06/Cox-et-al-conference-draft.pdf>.

Description of the Survey

The July 2020 supplemental survey to the Survey of Household Economics and Decisionmaking was fielded from July 17 through July 27 of 2020. This survey was fielded to a subset of respondents from the seventh annual SHED, which was fielded in October 2019.¹⁷ Staff of the Federal Reserve Board wrote the survey questions in consultation with other Federal Reserve System staff, outside academics, and professional survey experts.

Ipsos, a private consumer research firm, administered the survey using its KnowledgePanel, a nationally representative probability-based online panel. Ipsos selected respondents for KnowledgePanel based on address-based sampling. SHED respondents were then selected from this panel.

Survey Participation

Participation in the July survey depended on several separate decisions made by respondents. First, they agreed to participate in Ipsos' KnowledgePanel, then they completed an initial demographic profile survey. According to Ipsos, 12.2 percent of individuals contacted to join KnowledgePanel agreed to join (study-specific recruitment rate), and 62.1 percent of recruited participants completed the initial profile survey and became a panel member (study-specific profile rate). Selected panel members then must have agreed to complete the 2019 SHED and, finally, agreed to complete the July 2020 survey.

Of the 5,306 panel members contacted to take the July survey, 4,185 (excluding breakoffs who did not complete the survey) participated, yielding a final-stage completion rate of 78.9 percent. All the stages taken together, the cumulative response rate was

3.7 percent. The final sample used in the report included 4,174 respondents.¹⁸

Targeted Outreach and Incentives

To increase survey participation and completion among hard-to-reach demographic groups, Board staff and Ipsos utilized a targeted communication plan. The target groups—young adults ages 18 to 29, adults with less than a high school degree, and those who are a race or ethnicity other than White and non-Hispanic—received additional email reminders during the field period.

All respondents to the survey received a coming-soon email the day before the survey launched, as well as an email once the survey was available to them. Targeted individuals also received follow-up emails during the field period to encourage completion.¹⁹ All respondents to the survey also received a small incentive from Ipsos for their participation.

Survey Questionnaire

The survey took respondents about four minutes (median time) to complete.

A leading priority in selecting questions was to provide information on the financial experiences and challenges among low- and moderate-income populations during the public health crisis. The questions were intended to complement and augment the base of knowledge from other data sources. The full survey questionnaire can be found in appendix A of the appendixes to this report.

¹⁷ Data and reports of survey findings from all past years are available at <https://www.federalreserve.gov/consumerscommunities/shed.htm>.

¹⁸ Of the 4,185 respondents who completed the survey, 11 were excluded from the analysis in this report due to either leaving responses to a large number of questions missing, completing the survey too quickly, or both.

¹⁹ All targeted adults received an email encouraging completion on July 24 and July 26 during the field period.

Survey Mode

While the sample was drawn using probability-based sampling methods, both the 2019 SHED and the July supplemental survey were administered to respondents entirely online. Online interviews are less costly than telephone or in-person interviewing, and can still be an effective way to interview a representative population.²⁰ Ipsos' online panel offers some additional benefits. Their panel allows the same respondents to be re-interviewed in subsequent surveys with relative ease, as they can be easily contacted for several years—as was done for the July survey.

Furthermore, internet panel surveys have numerous existing data points on respondents from previously administered surveys, including detailed demographic and economic information. This allows for the inclusion of additional information on respondents without increasing respondent burden. The respondent burdens are further reduced by automatically skipping irrelevant questions based on responses to previous answers.

The “digital divide” and other differences in internet usage could bias participation in online surveys, so recruited panel members who did not have a computer or internet access were provided with a laptop and access to the internet to complete the surveys. Even so, individuals who complete an online survey may have greater comfort or familiarity with the internet and technology than the overall adult population.

Sampling and Weighting

The SHED sample was designed to be representative of adults age 18 and older living in the United States. The Ipsos methodology for selecting a general population sample from KnowledgePanel ensured that the resulting sample behaved as an equal probability of selection method (EPSEM) sample. This methodology started by weighting the entire KnowledgePanel to the benchmarks in the 2019 March supplement of the Current Population Survey along several geo-demographic dimensions. This way, the weighted dis-

tribution of the KnowledgePanel matched that of U.S. adults. The geo-demographic dimensions used for weighting the entire KnowledgePanel included gender, age, race, ethnicity, education, census region, household income, homeownership status, and metropolitan area status.

Using the above weights as the measure of size (MOS) for each panel member, in the next step a probability proportional to size (PPS) procedure was used to select study specific samples. This methodology was designed to produce a sample with weights close to one, thereby reducing the reliance on post-stratification weights for obtaining a representative sample.

After the survey collection was complete, statisticians at Ipsos adjusted weights in a post-stratification process that corrected for any survey non-response as well as any non-coverage or under- and over-sampling in the study design. The following variables were used for the adjustment of weights for this study: age, gender, race, ethnicity, census region, residence in a metropolitan area, education, and household income. Demographic and geographic distributions for the noninstitutionalized, civilian population age 18 and older from the March 2019 Current Population Survey were the benchmarks in this adjustment.

Although weights allow the sample population to match the U.S. population (not in the military or in institutions, such as prisons or nursing homes) based on observable characteristics, similar to all survey methods, it remains possible that non-coverage, non-response, or occasional disparities among recruited panel members result in differences between the sample population and the U.S. population. For example, address-based sampling likely misses homeless populations, and non-English speakers may not participate in surveys conducted in English.²¹ All results presented in this report utilize the post-stratification weights produced by Ipsos for use with the survey.

²⁰ David S. Yeager et al., “Comparing the Accuracy of RDD Telephone Surveys and Internet Surveys Conducted with Probability and Non-Probability Samples,” *Public Opinion Quarterly* 75, no. 4 (2011): 709–47.

²¹ For example, while the survey was weighted to match the race and ethnicity of the entire U.S. adult population, there is evidence that the Hispanic population in the survey were somewhat more likely to speak English at home than the overall Hispanic population in the United States. See the *Report on the Economic Well-Being of U.S. Households in 2017* for a discussion of this issue and a comparison of results to select questions administered in Spanish and English in that year's survey.

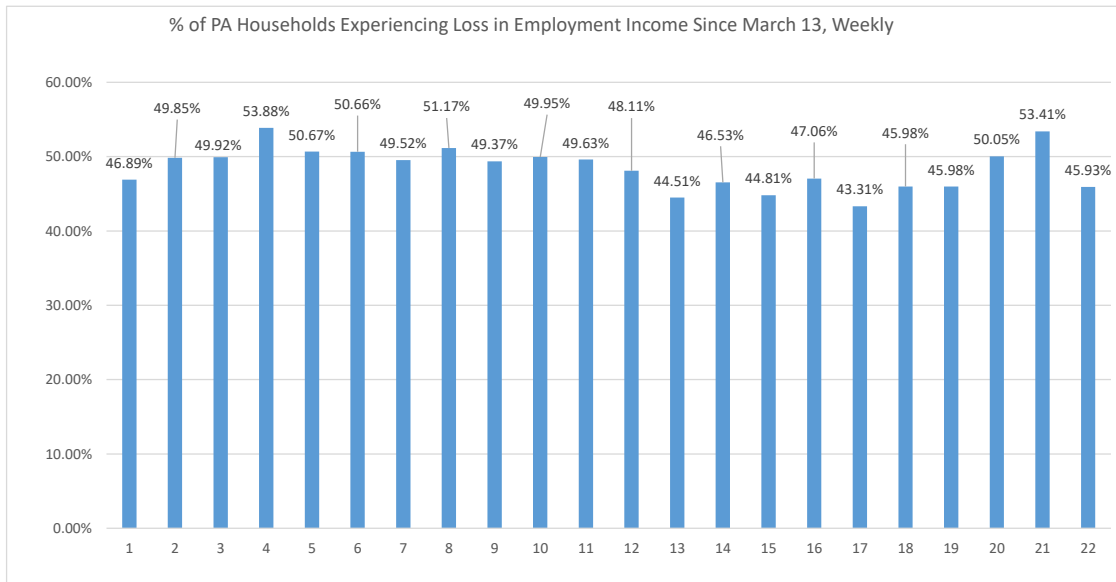
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Experienced Loss of Employment Income - Pennsylvania

Week	Begin	End	Total Individual Population age 18+	Measure Universe	Number	Percent
1	4/23/2020	5/5/2020	9,776,154	9,686,947	4,542,523	46.89%
2	5/7/2020	5/12/2020	9,776,154	9,751,066	4,860,890	49.85%
3	5/14/2020	5/19/2020	9,776,154	9,727,137	4,855,344	49.92%
4	5/21/2020	5/26/2020	9,776,154	9,750,481	5,253,912	53.88%
5	5/28/2020	6/2/2020	9,776,154	9,736,136	4,933,539	50.67%
6	6/4/2020	6/9/2020	9,776,154	9,718,747	4,923,662	50.66%
7	6/11/2020	6/16/2020	9,776,154	9,710,510	4,808,634	49.52%
8	6/18/2020	6/23/2020	9,776,154	9,725,659	4,976,558	51.17%
9	6/25/2020	6/30/2020	9,776,154	9,751,033	4,814,344	49.37%
10	7/2/2020	7/7/2020	9,776,154	9,763,857	4,877,499	49.95%
11	7/9/2020	7/14/2020	9,776,154	9,734,292	4,830,993	49.63%
12	7/16/2020	7/21/2020	9,776,154	9,701,869	4,667,236	48.11%
13	8/19/2020	8/31/2020	9,776,154	9,750,714	4,339,981	44.51%
14	9/2/2020	9/14/2020	9,776,154	9,729,619	4,527,514	46.53%
15	9/16/2020	9/28/2020	9,776,154	9,739,370	4,364,547	44.81%
16	9/30/2020	10/12/2020	9,776,154	9,750,012	4,587,872	47.06%
17	10/14/2020	10/26/2020	9,776,154	9,723,239	4,211,332	43.31%
18	10/28/2020	11/9/2020	9,776,154	9,755,582	4,485,147	45.98%
19	11/11/2020	11/23/2020	9,776,154	9,714,550	4,467,059	45.98%
20	11/25/2020	12/7/2020	9,776,154	9,732,716	4,870,813	50.05%
21	12/9/2020	12/21/2020	9,776,154	9,695,440	5,178,148	53.41%
22	1/6/2021	1/18/2021	9,776,154	9,647,832	4,431,022	45.93%

Source: U.S. Census Bureau, Household Pulse Survey



Expected Loss in Employment
Income, Household Pulse Survey

Week	Begin	End	Pennsylvania Total Individual Population age 18+	Measure Universe	Number	Percent
1	4/23/2020	5/5/2020	9,776,154	9,661,593	3,710,428	38.40%
2	5/7/2020	5/12/2020	9,776,154	9,773,228	3,530,899	36.13%
3	5/14/2020	5/19/2020	9,776,154	9,732,070	3,546,302	36.44%
4	5/21/2020	5/26/2020	9,776,154	9,742,805	3,328,986	34.17%
5	5/28/2020	6/2/2020	9,776,154	9,711,846	2,910,392	29.97%
6	6/4/2020	6/9/2020	9,776,154	9,723,345	2,728,806	28.06%
7	6/11/2020	6/16/2020	9,776,154	9,652,472	2,902,214	30.07%
8	6/18/2020	6/23/2020	9,776,154	9,750,922	3,087,887	31.67%
9	6/25/2020	6/30/2020	9,776,154	9,681,375	3,192,332	32.97%
10	7/2/2020	7/7/2020	9,776,154	9,754,093	3,073,526	31.51%
11	7/9/2020	7/14/2020	9,776,154	9,750,970	3,089,008	31.68%
12	7/16/2020	7/21/2020	9,776,154	9,697,025	2,831,710	29.20%
13	8/19/2020	8/31/2020	9,776,154	9,718,783	2,151,217	22.10%
14	9/2/2020	9/14/2020	9,776,154	9,716,599	2,067,059	21.30%
15	9/16/2020	9/28/2020	9,776,154	9,742,146	2,001,461	20.50%
16	9/30/2020	10/12/2020	9,776,154	9,742,765	2,294,522	23.60%
17	10/14/2020	10/26/2020	9,776,154	9,689,068	1,930,830	19.90%
18	10/28/2020	11/9/2020	9,776,154	9,752,574	2,313,787	23.70%
19	11/11/2020	11/23/2020	9,776,154	9,706,106	2,879,104	29.70%
20	11/25/2020	12/7/2020	9,776,154	9,700,438	2,925,947	30.20%
21	12/9/2020	12/21/2020	9,776,154	9,702,643	3,274,486	33.70%
22	1/6/2021	1/18/2021	9,776,154	9,625,216	2,243,043	23.30%

Source: U.S. Census Bureau, Household Pulse Survey



Employment Table 1. Experienced and Expected Loss of Employment Income, by Select Characteristics: Pennsylvania

Source: U.S. Census Bureau Household Pulse Survey, Week 22.

Note: These data are experimental. Users should take caution using estimates based on subpopulations of the data – sample sizes may be small and the standard errors may be large. **

Total Population 18 Years and Older

Select characteristics	Total	Experienced loss of employment income since March 13, 2020 (for self or household)			Expected loss of employment income in next 4-weeks (for self or household)		
		Yes	No	Did not report	Yes	No	Did not report
Used in the last 7 days to meet spending needs*	9,776,154	4,431,022	5,216,809	128,322	2,243,043	7,382,173	150,938
Regular income sources like those used before the pandemic	6,052,841	2,512,198	3,540,642	-	883,037	5,167,686	2,117
Credit cards or loans	1,991,272	1,017,883	973,389	-	470,921	1,518,234	2,117
Money from savings or selling assets	1,865,258	1,191,300	673,958	-	769,772	1,086,454	9,032
Borrowing from friends or family	614,567	491,553	123,014	-	345,632	266,818	2,117
Unemployment insurance (UI) benefit payments	973,171	953,690	19,481	-	614,701	358,470	-
Stimulus (economic impact) payment	2,978,817	1,789,318	1,189,499	-	1,024,452	1,952,249	2,117
Money saved from deferred or forgiven payments (to meet spending needs)	256,368	118,169	138,199	-	60,868	195,500	-
Supplemental Nutrition Assistance Program (SNAP)	583,604	413,291	170,314	-	290,182	293,423	-
Did not report	1,708,612	654,805	925,484	128,322	357,691	1,211,131	139,790
* Totals may not sum to 100% as the question allowed for multiple categories to be marked.							
** The Census Bureau considers estimated coefficients of variation (standard error divided by the estimate times 100) over 30 percent to indicate potentially serious data quality issues related to sampling error.							
Regular income sources like those used before the pandemic	61.91%	56.70%	67.87%	#VALUE!			
Credit cards or loans	20.37%	22.97%	18.66%	#VALUE!			
Money from savings or selling assets	19.08%	26.89%	12.92%	#VALUE!			
Borrowing from friends or family	6.29%	11.09%	2.36%	#VALUE!			
Unemployment insurance (UI) benefit payments	9.95%	21.52%	0.37%	#VALUE!			
Stimulus (economic impact) payment	30.47%	40.38%	22.80%	#VALUE!			
Money saved from deferred or forgiven payments (to meet spending needs)	2.62%	2.67%	2.65%	#VALUE!			
Supplemental Nutrition Assistance Program (SNAP)	5.97%	9.33%	3.26%	#VALUE!			
Did not report	17.48%	14.78%	17.74%		1		
Total From Loans/Credit		34.07%					

Impact of COVID-19 on Consumer Energy Use & Outlook

Results of EPRI National Survey

Omar Siddiqui
Min Long

April 29, 2020

  
www.epri.com

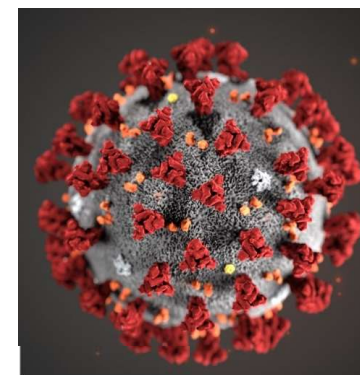
© 2020 Electric Power Research Institute, Inc. All rights reserved.

EPRI | ELECTRIC POWER
RESEARCH INSTITUTE



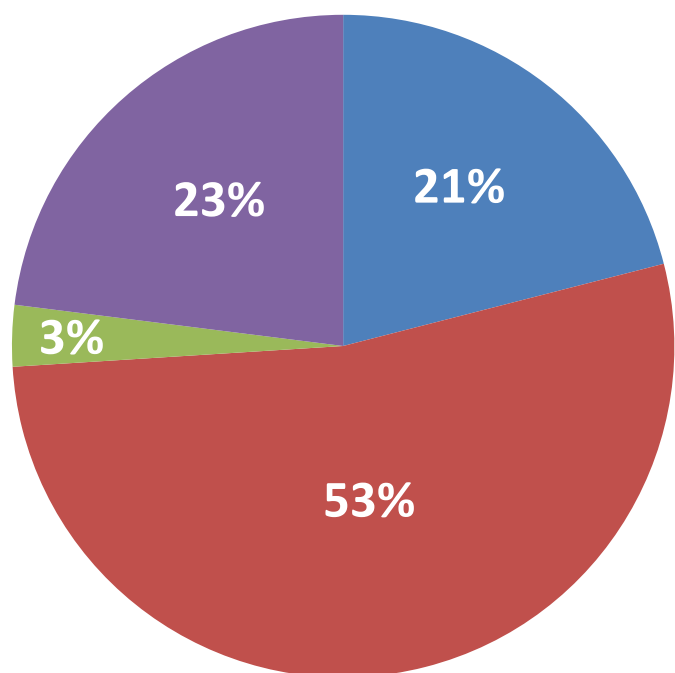
Introduction

- National EPRI survey on COVID-19 impact on consumer energy use and outlook
- Online panel through YouGov
- Nationally representative sample
 - 2,000 respondents
 - Geographic (census regions and divisions)
 - Demographic (household size, age, education, rent vs. own home, income, etc.)
 - Margin of error +/- 2.3%
- Administered week of April 13

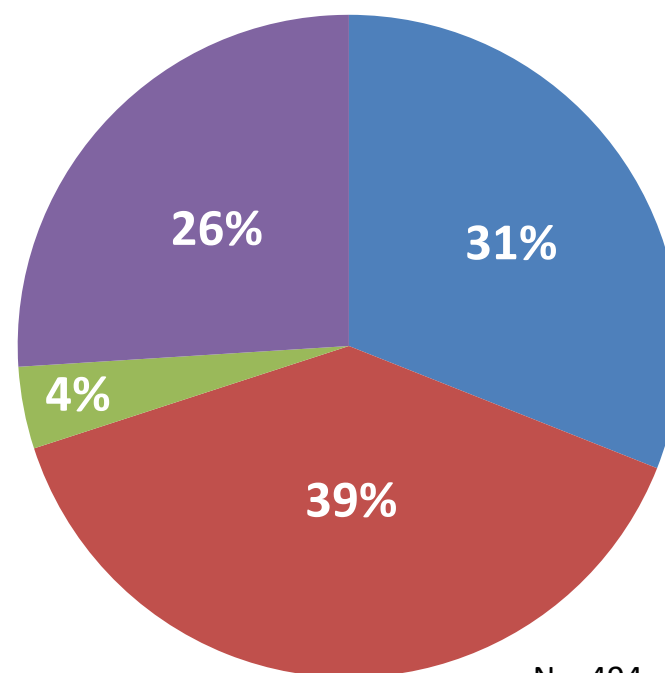


How has the current situation affected your energy bills?

Overall Results



Those with Kids Schooling at Home

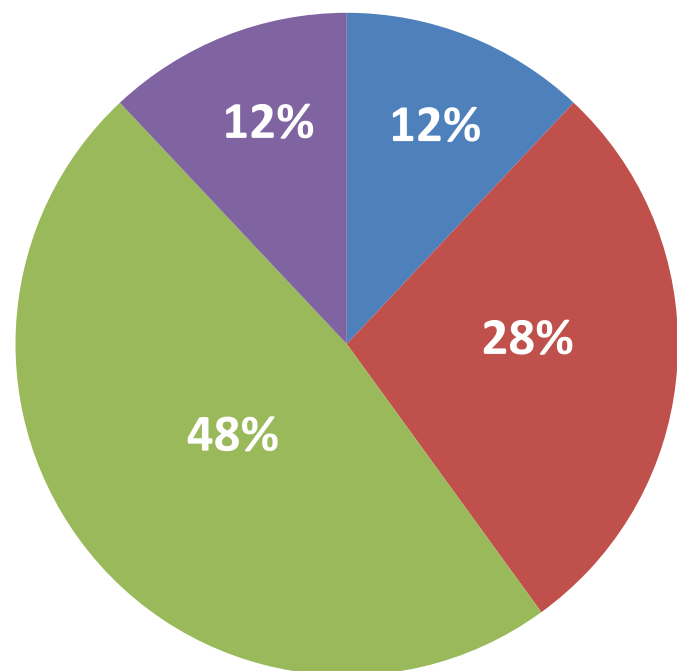


N = 494

Statistical margin of error +/- 2.3%

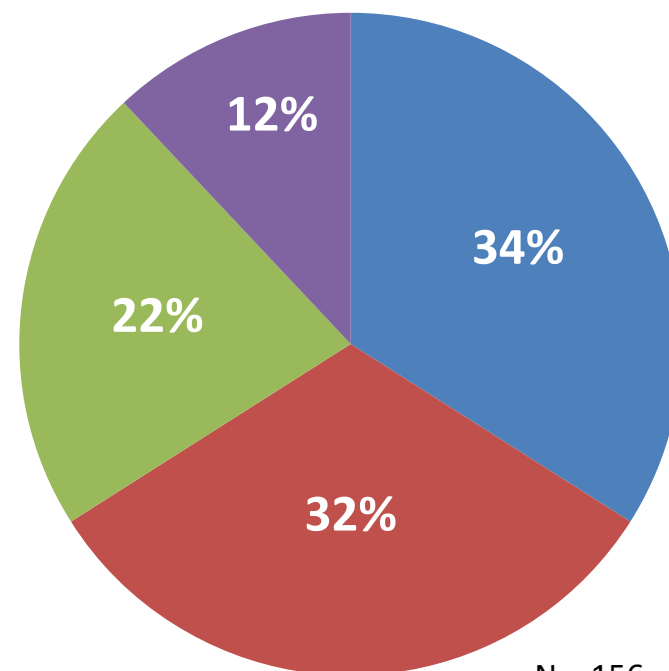
How do you feel about your energy bills as a result of the current situation?

Overall Results



- Very concerned
- Somewhat concerned
- Not concerned
- Don't know/don't pay attention

Those Who Have Lost Their Job

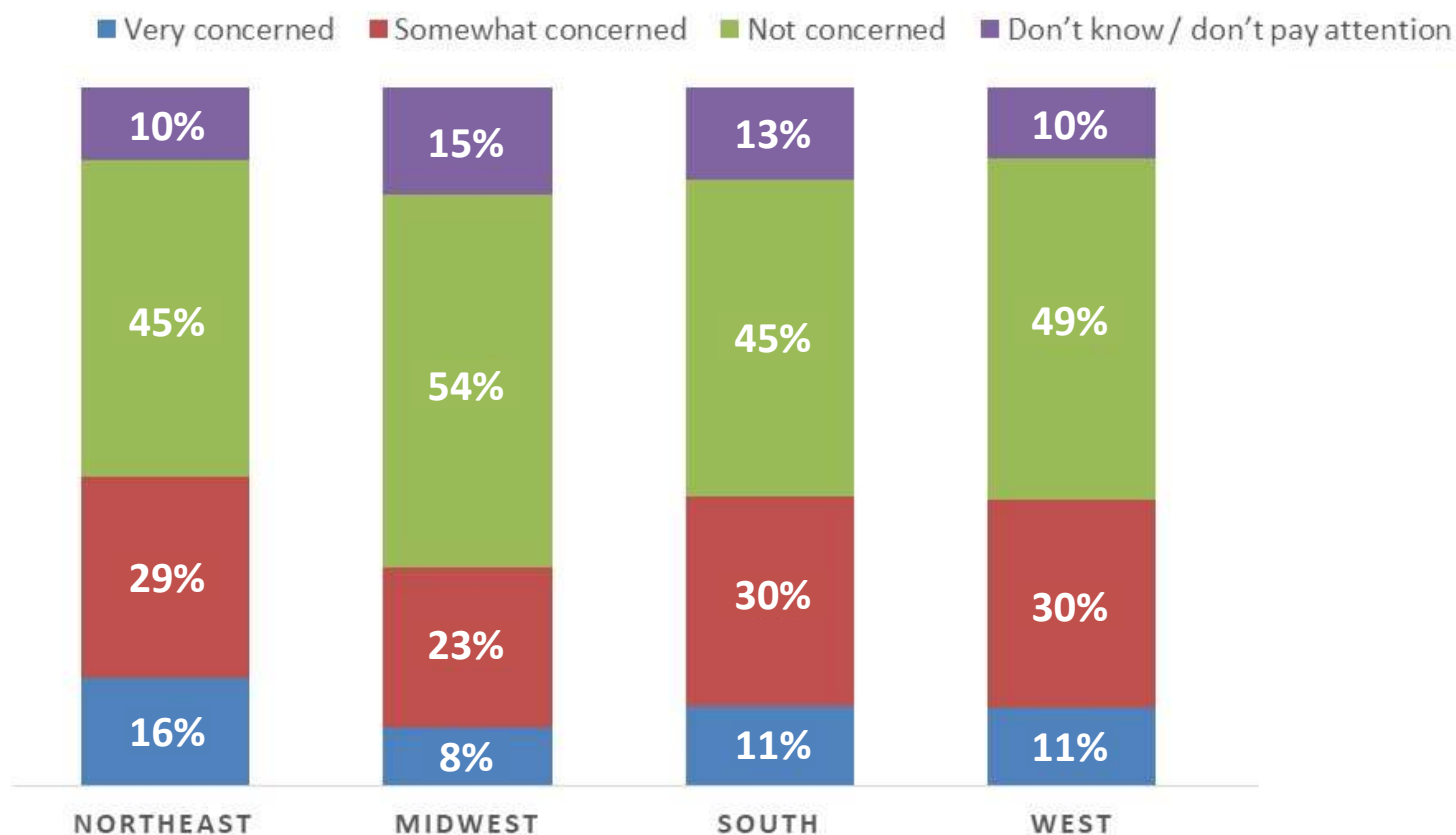


N = 156

Statistical margin of error +/- 2.3%

How do you feel about your energy bills as a result of the current situation?

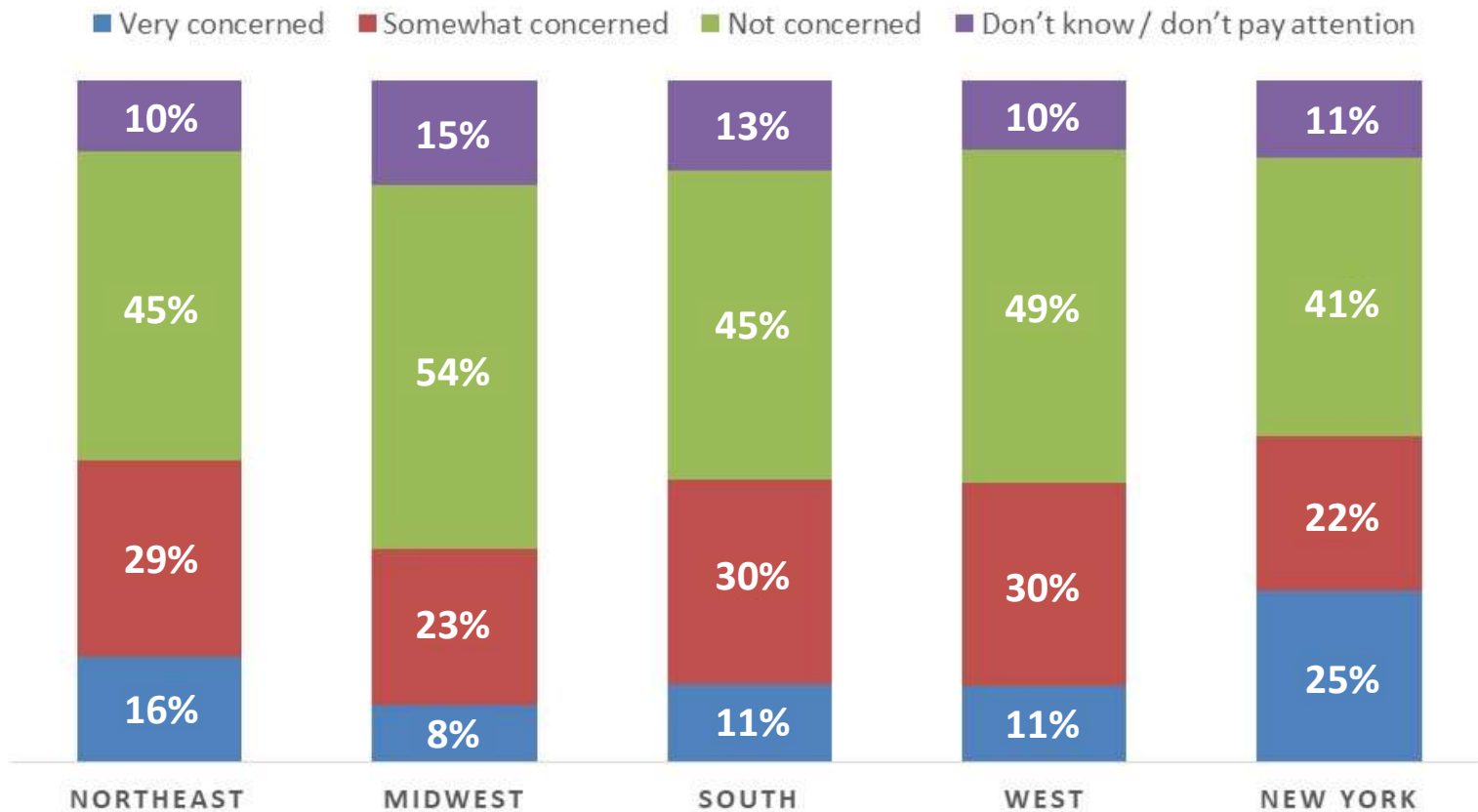
HIGHER CONCERN IN NORTHEAST



Statistical margin of error +/- 2.3%

How do you feel about your energy bills as a result of the current situation?

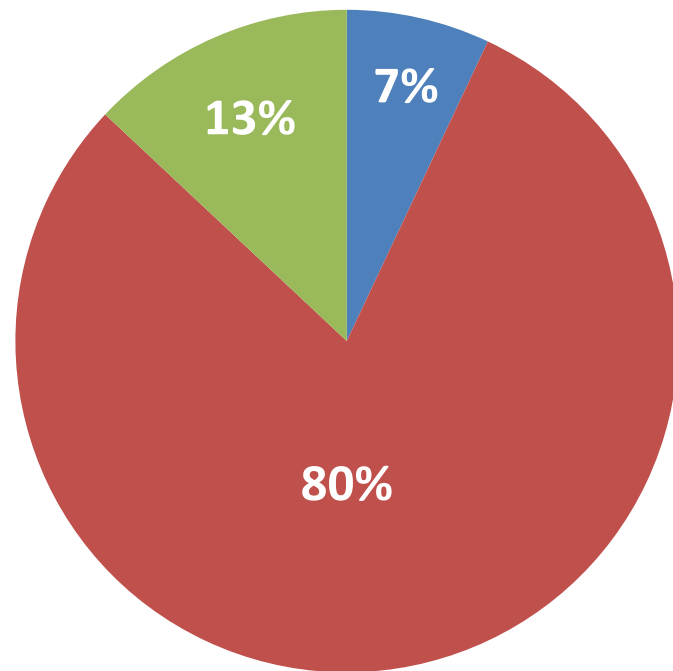
HIGHER CONCERN IN NORTHEAST, ESPECIALLY NEW YORK



Statistical margin of error +/- 2.3%

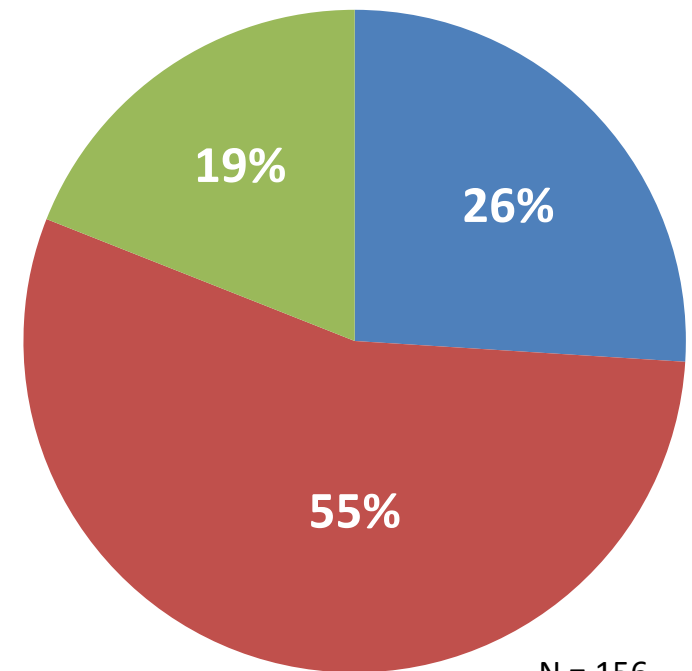
Have you skipped, or do you intend to skip, an electric or gas bill payment during this crisis?

Overall Results



- Yes
- No
- I don't know

Those Who Have Lost Their Job

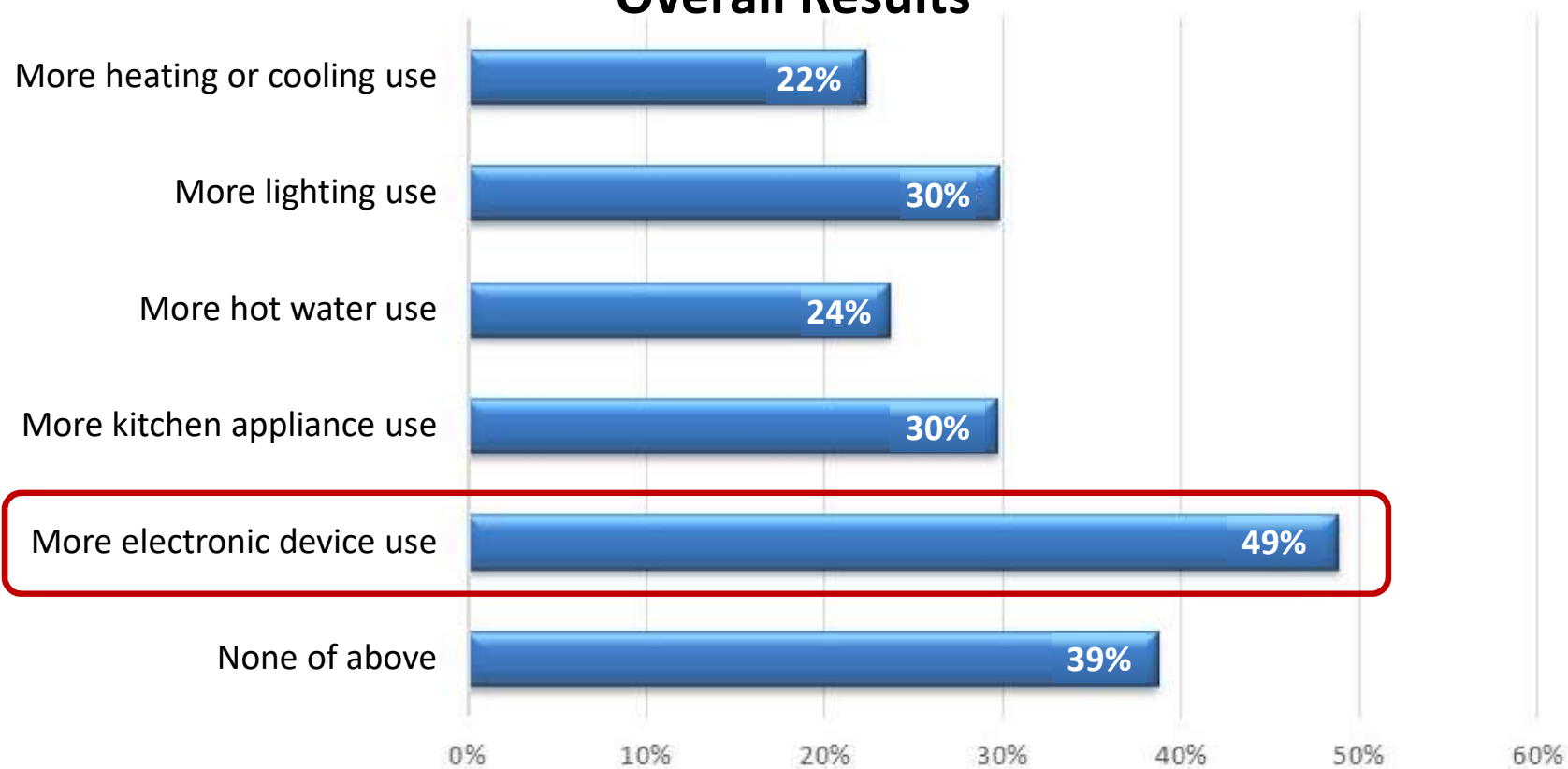


N = 156

Statistical margin of error +/- 2.3%

What changes have you noticed in your home energy use as a result of COVID-19?

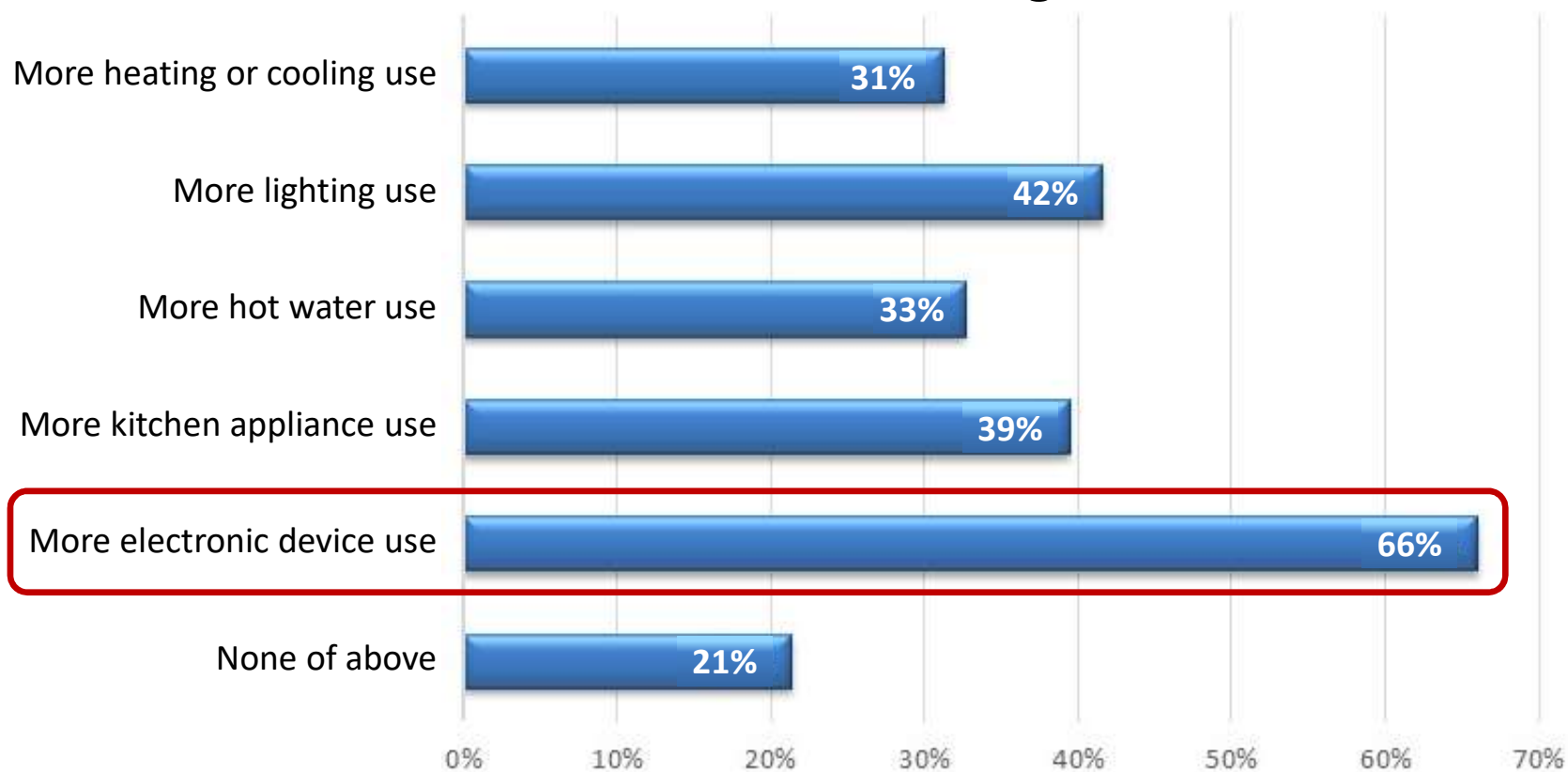
Overall Results



Statistical margin of error +/- 2.3%

What changes have you noticed in your home energy use as a result of COVID-19?

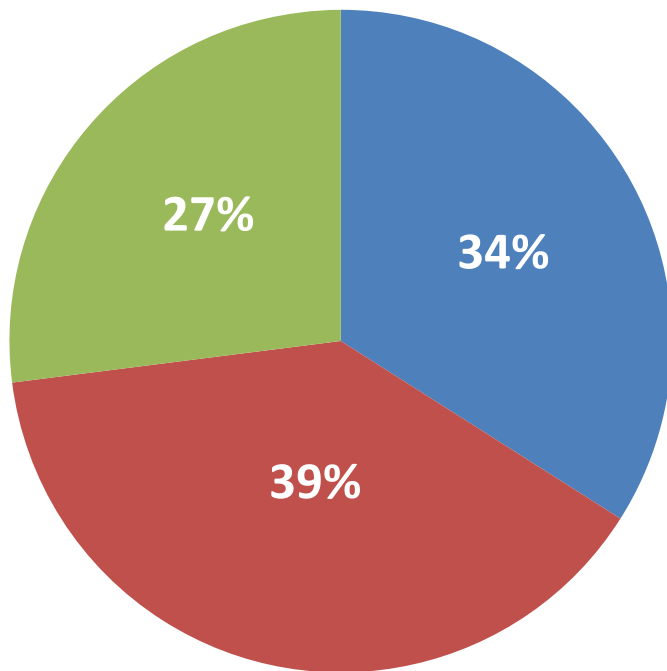
Those with Kids Schooling at Home



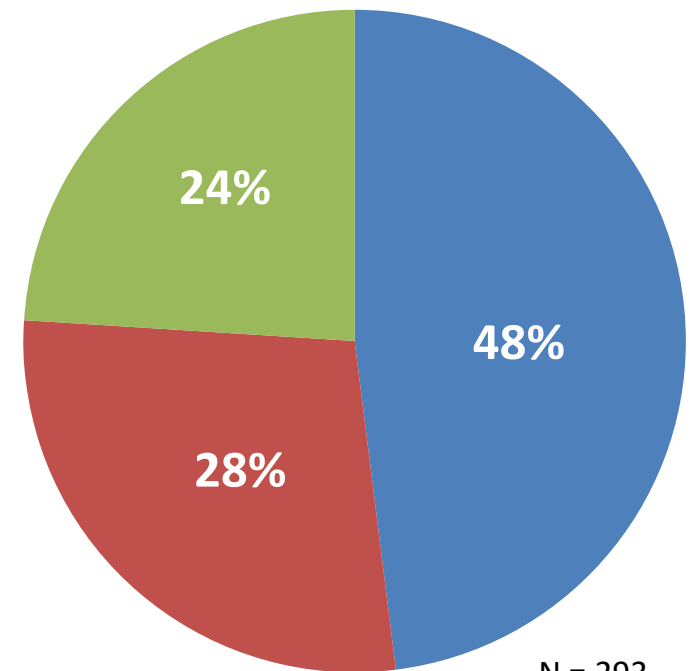
N = 494

Are savings from other expenses offsetting any increases in your energy bills?

Overall Results



Those Who Now Work from Home

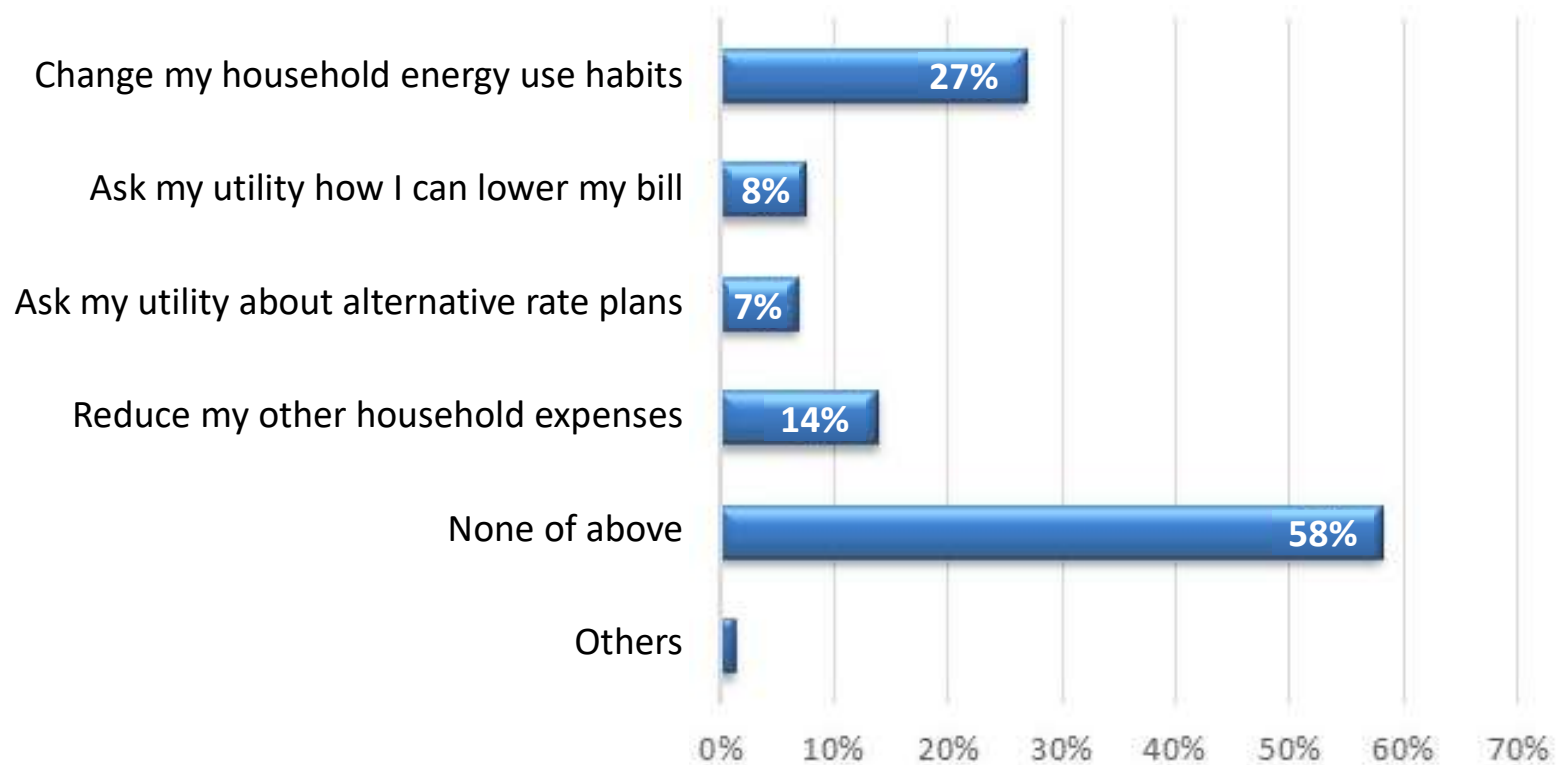


N = 293

Statistical margin of error +/- 2.3%

Does the current crisis make you more likely to take the following actions related to your energy use?

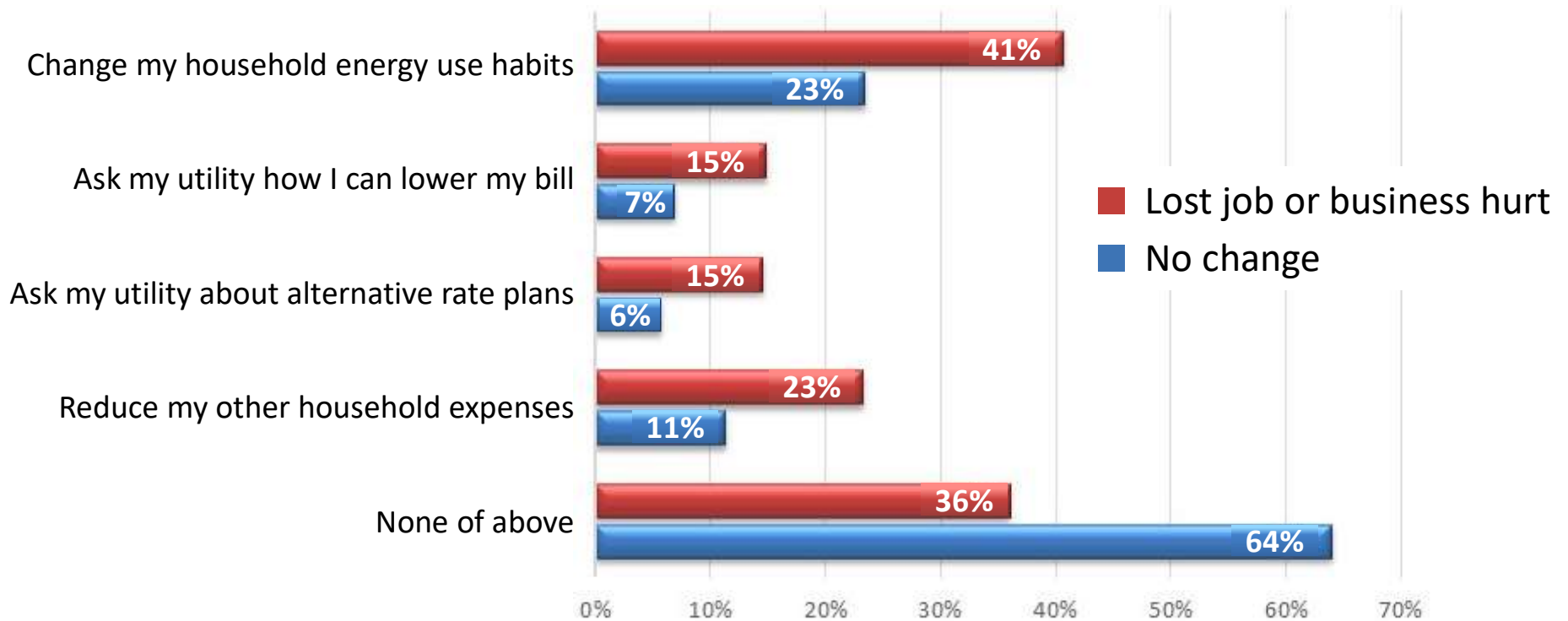
Overall Results



Statistical margin of error +/- 2.3%

Does the current crisis make you more likely to take the following actions related to your energy use?

Results Segmented by Impact of COVID-19 on Employment Status

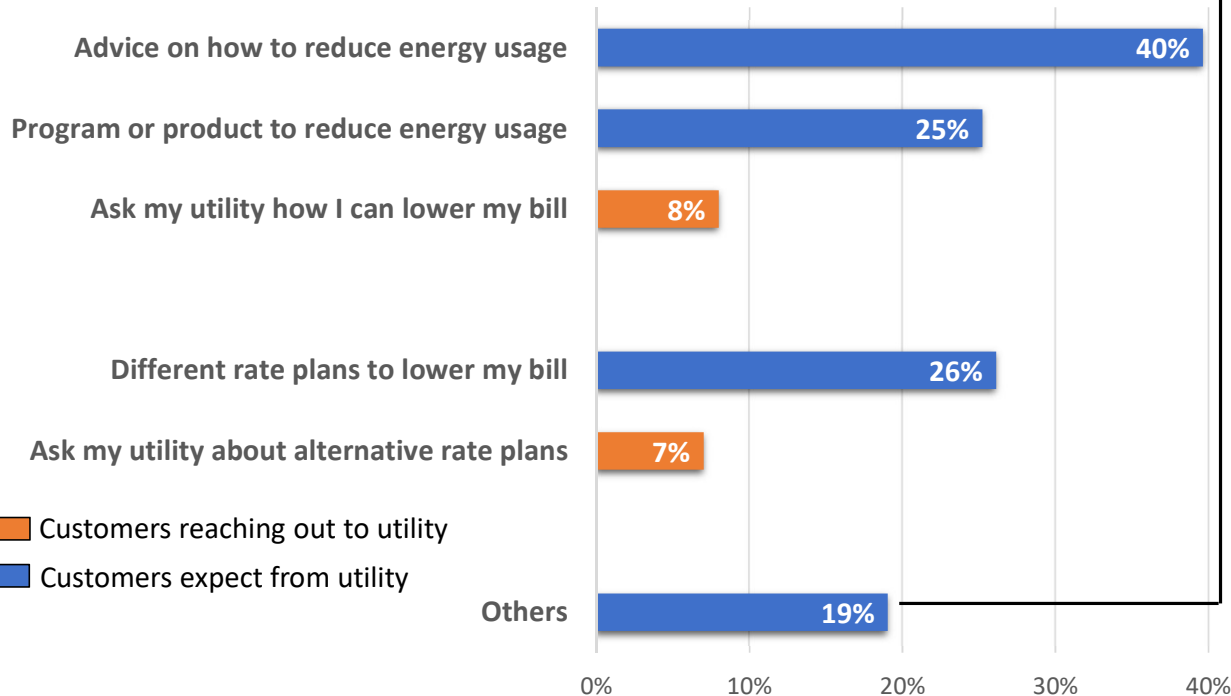


Statistical margin of error +/- 2.3%

What actions do you expect your electric utility to take?

Few customers are proactively asking their utility for help to reduce their energy use and bills; however

More customers still expect their utility to help by providing advice, programs, or rate plans to reduce their energy bills

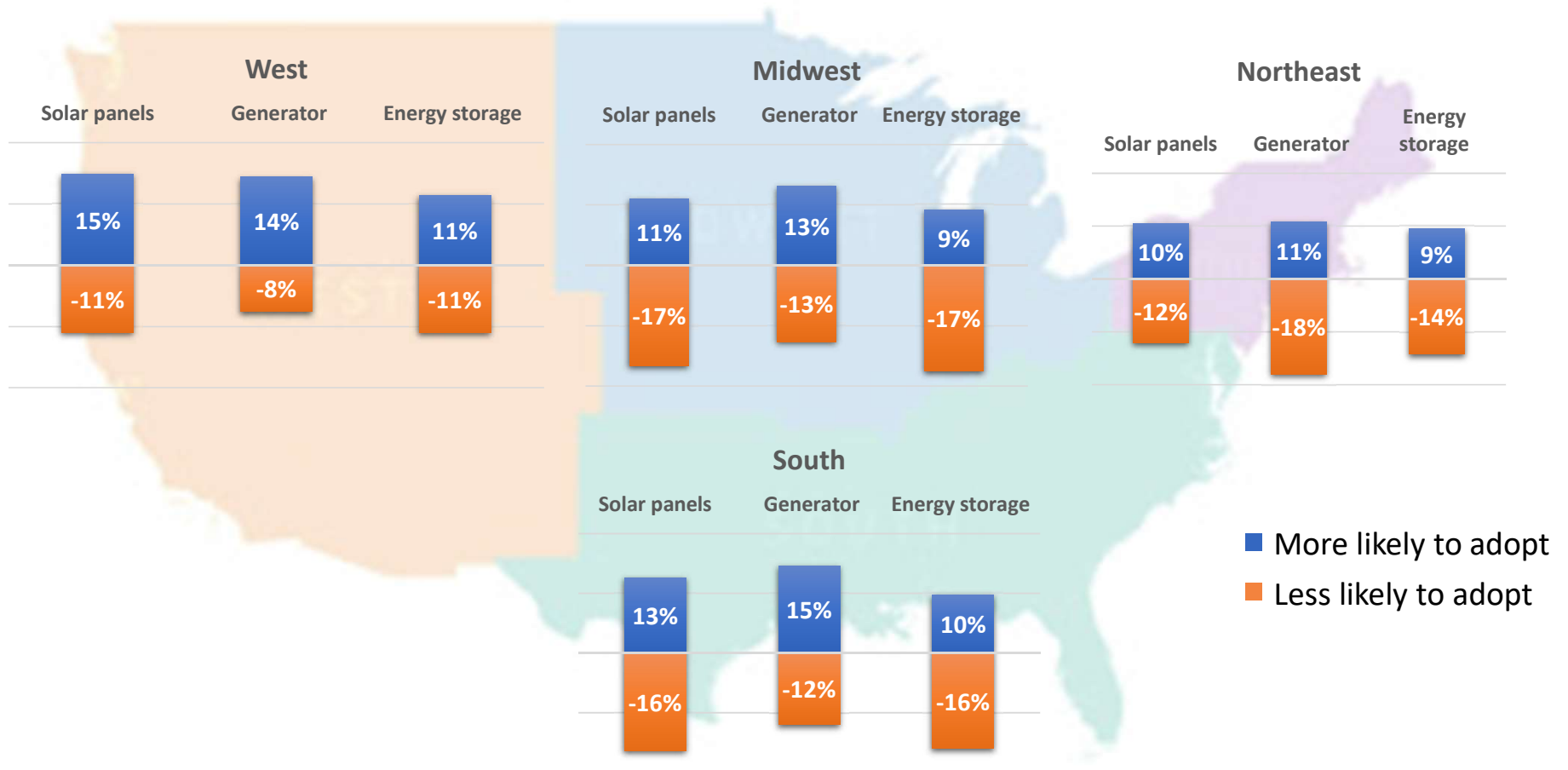


"Other" Explained

No Need	None
“	Nothing now... might change if my job status changes
”	Utilities included in my rent
Actions Expected	Keep the electricity flowing
	Reduce rates for those in need
“	Waive late fees
”	Give me extra time to pay bill
	Provide a credit on my bill
Negatives	Expect utility to raise prices
“	Utility won't do anything
”	Utility hasn't contacted me

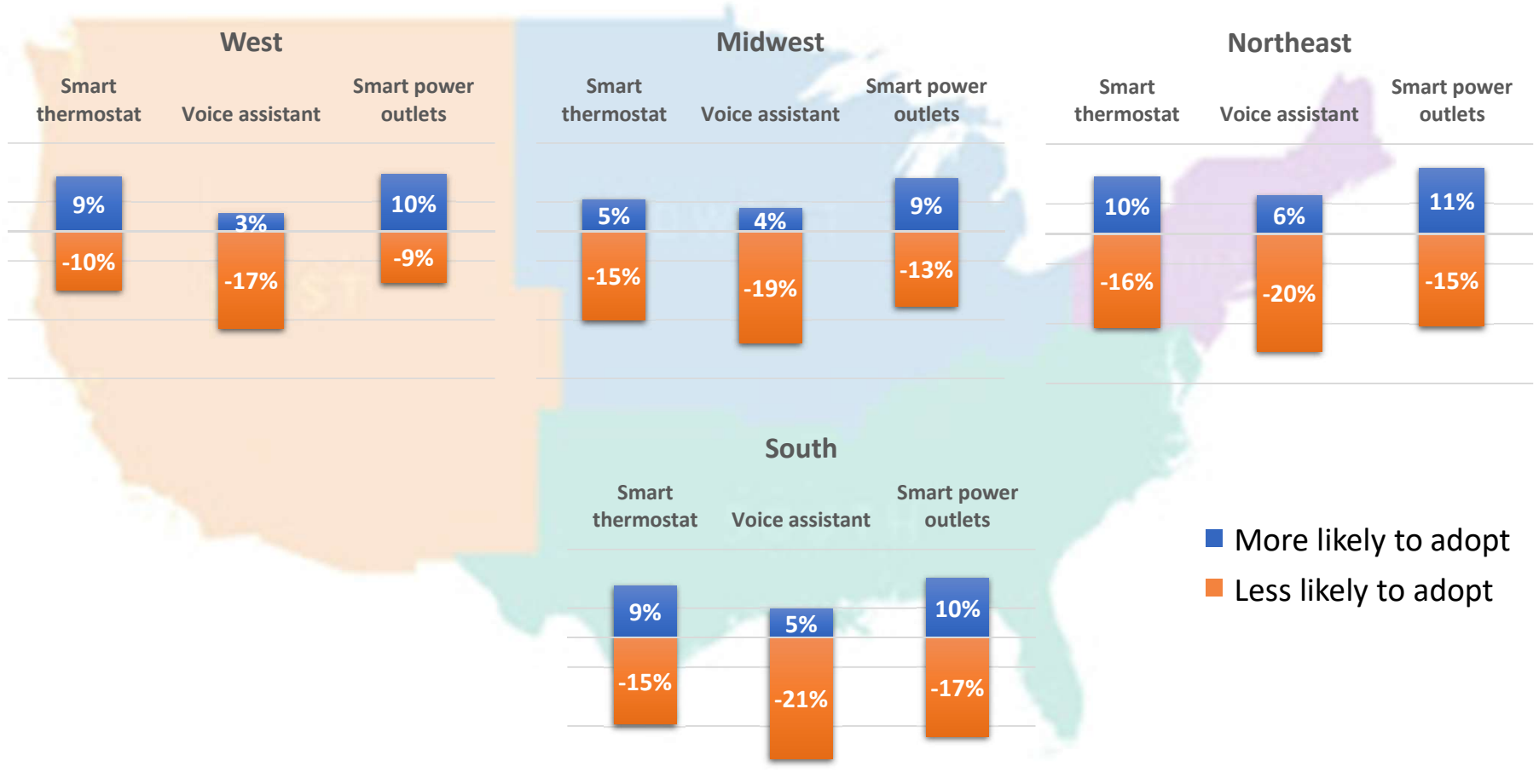
“Does the current crisis make you more likely or less likely to purchase any of the following within this year?”
Results by U.S. census regions

Power Generation & Storage



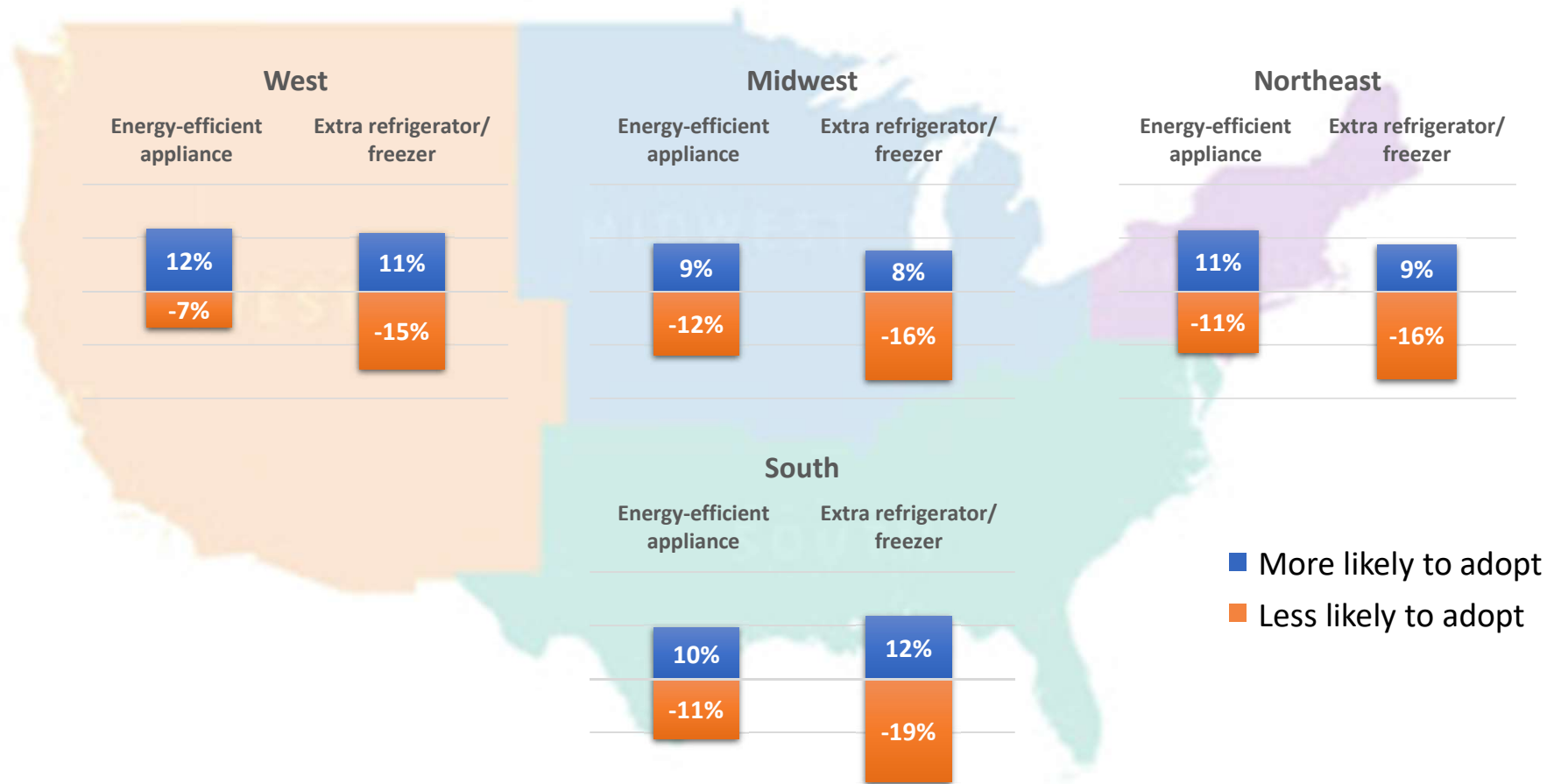
■ More likely to adopt
■ Less likely to adopt

Smart Devices

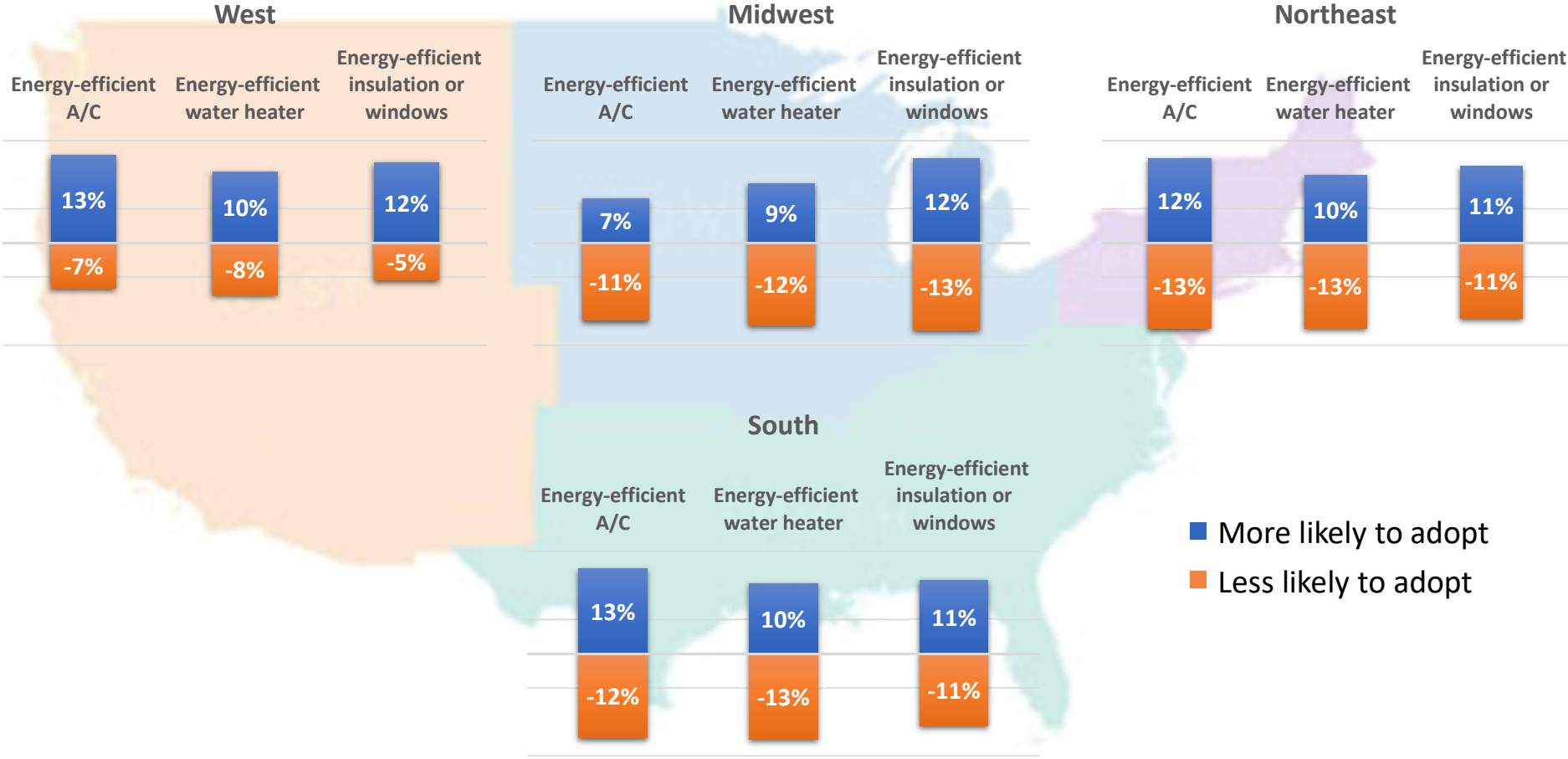


- More likely to adopt
- Less likely to adopt

Home Appliances

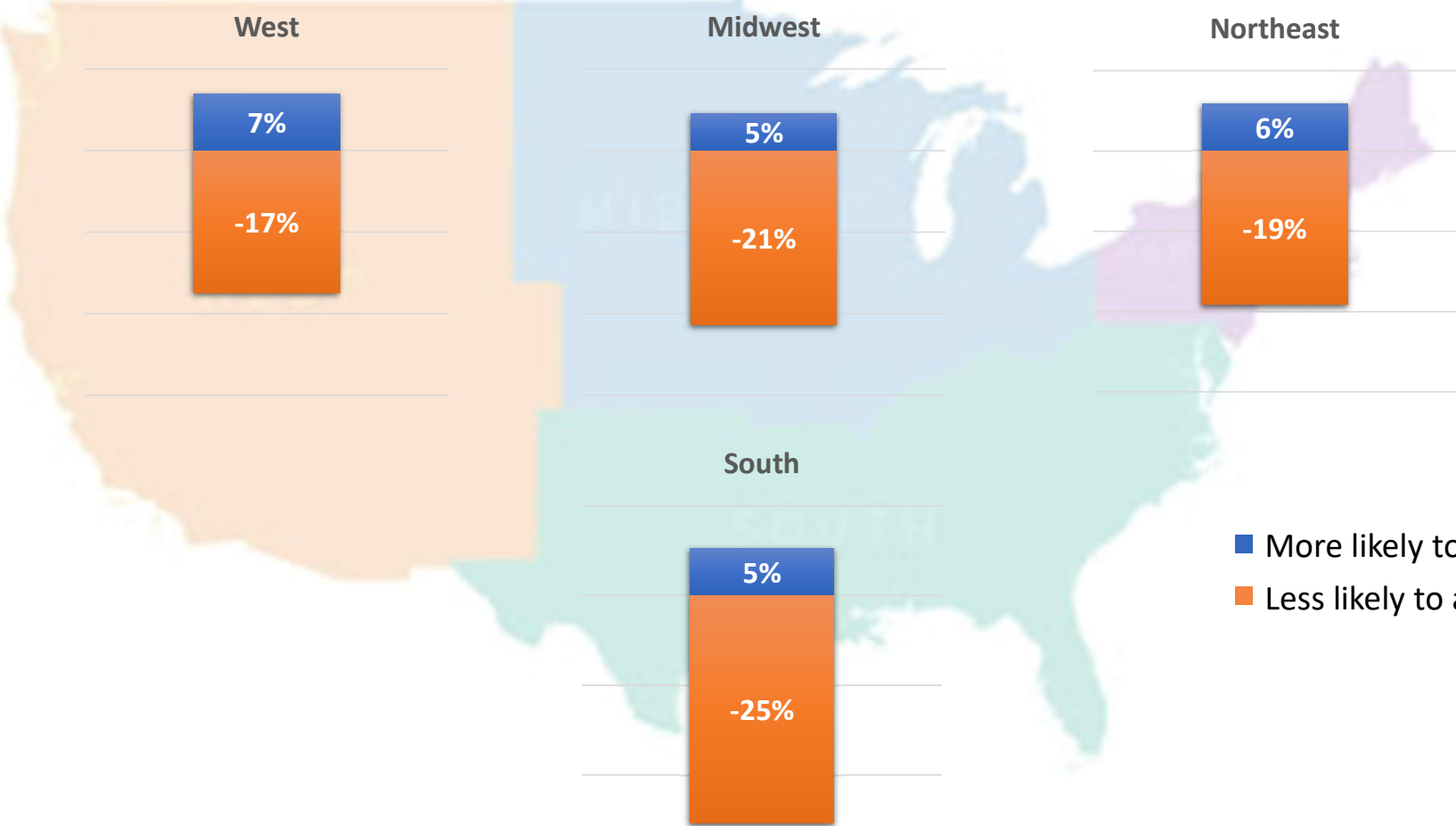


Energy-efficient Upgrades



■ More likely to adopt
■ Less likely to adopt

Electric Vehicles

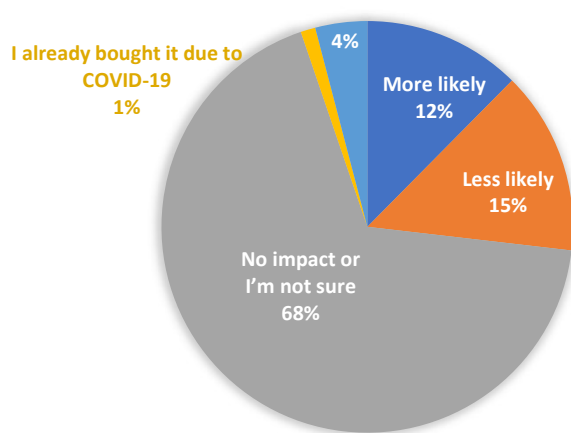


■ More likely to adopt
■ Less likely to adopt

COVID-19 spurs greatest uptick in solar panel interest among 30-44 age bracket; least among 65+ age bracket

All Respondents

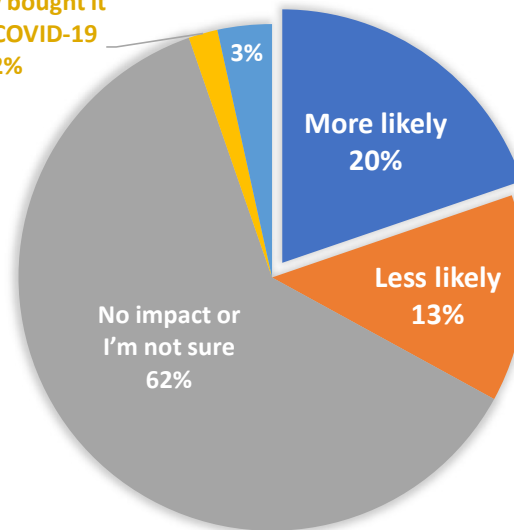
I had it prior to COVID-19



30-44 Age Bracket

I had it prior to COVID-19

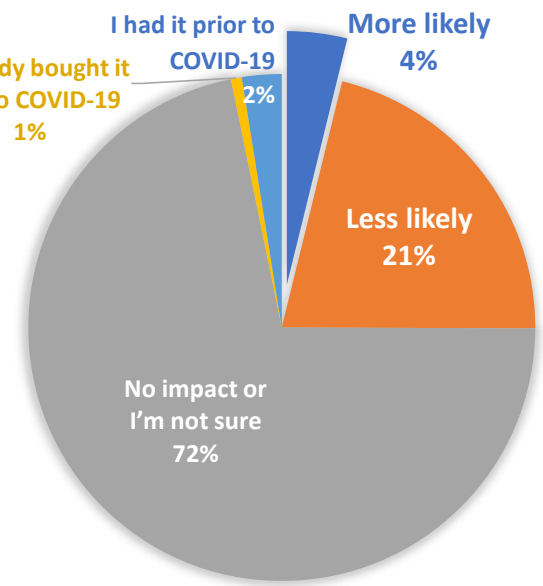
I already bought it due to COVID-19



65+ Age Bracket

I had it prior to COVID-19

I already bought it due to COVID-19



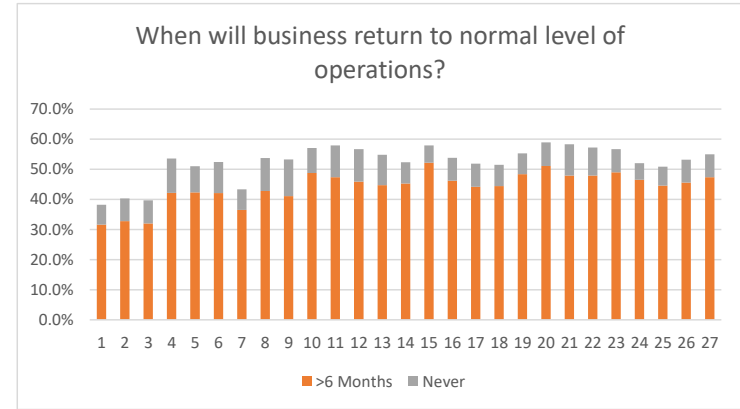
Similar age-segment trend for COVID-19 impact on interest in other technologies

Together...Shaping the Future of Electricity

How much time will pass before this business returns to its normal level of operations relative to one year ago?

Week			>6 Months	Never
1	4/26/2020	5/2/2020	31.6%	6.6%
2	5/3/2020	5/9/2020	32.8%	7.5%
3	5/10/2020	5/16/2020	32.0%	7.7%
4	5/17/2020	5/23/2020	42.2%	11.4%
5	5/24/2020	5/30/2020	42.3%	8.7%
6	5/31/2020	6/6/2020	42.1%	10.3%
7	6/7/2020	6/13/2020	36.5%	6.8%
8	6/14/2020	6/20/2020	42.8%	10.9%
9	6/21/2020	6/27/2020	41.1%	12.2%
10	8/9/2020	8/15/2020	48.8%	8.3%
11	8/16/2020	8/22/2020	47.4%	10.5%
12	8/23/2020	8/29/2020	45.9%	10.8%
13	8/30/2020	9/5/2020	44.7%	10.1%
14	9/6/2020	9/12/2020	45.3%	7.0%
15	9/13/2020	9/19/2020	52.2%	5.7%
16	9/20/2020	9/26/2020	46.2%	7.6%
17	9/27/2020	10/3/2020	44.2%	7.7%
18	10/4/2020	10/12/2020	44.4%	7.1%
19	11/9/2020	11/15/2020	48.4%	6.9%
20	11/16/2020	11/22/2020	51.1%	7.8%
21	11/23/2020	11/29/2020	47.9%	10.4%
22	11/30/2020	12/6/2020	47.9%	9.3%
23	12/7/2020	12/13/2020	49.0%	7.7%
24	12/14/2020	12/20/2020	46.5%	5.5%
25	12/21/2020	12/27/2020	44.6%	6.3%
26	12/28/2020	1/3/2021	45.6%	7.6%
27	1/4/2021	1/10/2021	47.4%	7.6%

<https://portal.census.gov/pulse/data/#weekly>



	A	B	C	D	E	F	G	H	I	J	K	L	M	N		
61						Pike County Light & Power Company										
62						Gas Class Cost of Service Study										
63						12 Months Ended June 30, 2020										
64																
65																
66																
67	LINE				TOTAL	Total	Total	Residential	Residential	Residential	General Service	Commercial	TOTAL COMPANY	TOTAL COMPANY		
68	SCH	NO.	DESCRIPTION	ALLOCATION BASIS	GAS COMPANY	Residential SC1	Commercial SC2	Space Heating Rate 231	Domestic Rate 631	Other Rate 531 & 731	Commercial Rate 162	Space Heating Rate 331	INPUT BALANCES	PERCENTAGE INPUT		
69			(a)	(b)	(c)	(a)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)		
70																
173	RBP	3	GAS PLANT IN SERVICE													
174	RBP	4	INTANGIBLE PLANT													
175	RBP	5	301-Organization	TOTPLT	0	0	0	0	0	0	0	0				
176	RBP	6	303-Miscellaneous Intangible Plant	TOTPLT	0	0	0	0	0	0	0	0				
177	RBP	7	TOTAL INTANGIBLE PLANT		0	0	0	0	0	0	0	0	0			
178	RBP	8														
179	RBP	9	DISTRIBUTION PLANT													
180	RBP	10	374-Land & Land Rights	DDIST	715	566	149	549	15	2	73	75	715			
181	RBP	11	375-Structures & Improvements	DDIST	0	0	0	0	0	0	0	0				
182	RBP	12	376-Mains													
183	RBP	13	Demand	DDIST	626,796	654,969	171,827	635,198	17,417	2,354	84,987	86,840	626,796			
184	RBP	14	Customer	DDIST	967,907	766,754	201,153	743,608	20,389	2,756	99,491	101,661	967,907	46.07%		
185	RBP	15	Total Account 376		1,794,703	1,421,723	372,980	1,378,807	37,806	5,111	184,478	188,502	1,794,703	53.93%		
186	RBP	16	378-Measuring & Regulating Station Equip-Gen	DDIST	101,978	80,785	21,193	78,346	2,148	290	10,482	10,711	101,978			
187	RBP	17	380-Services	CUSTSERV	753,794	656,312	95,482	626,034	28,297	3,981	30,866	64,616	753,794			
188	RBP	18	381-Meters	CUSTMET	69,921	49,649	20,273	47,214	2,134	300	6,553	13,719	69,921			
189	RBP	19	382-Meter Installations	CUSTMETIN	212,246	189,084	23,162	179,813	8,128	1,144	7,487	15,675	212,246			
190	RBP	20	384-House Regulator Installations	CUSTREGUL	9,180	8,487	693	8,071	365	51	224	469	9,180			
191	RBP	21	385-Industrial Regulators	CUSTREGUL	32,210	29,778	2,432	28,318	1,280	180	786	1,646	32,210			
192	RBP	22	TOTAL DISTRIBUTION PLANT		2,974,747	2,438,364	536,363	2,347,152	80,172	11,080	240,951	295,413	2,974,747			
193	RBP	23														
194	RBP	24	GENERAL PLANT													
195	RBP	25	389-Land and Land Rights	LABOR	0	0	0	0	0	0	0	0				
196	RBP	26	390-Structures and Improvements	LABOR	0	0	0	0	0	0	0	0				
197	RBP	27	391-Office Furniture & Equipment	LABOR	0	0	0	0	0	0	0	0				
198	RBP	28	393-Store Equipment	LABOR	0	0	0	0	0	0	0	0				
199	RBP	29	394-Tools, Shop & Garage Equip.	LABOR	26,914	23,759	3,155	22,614	1,004	141	1,067	2,088	26,914			
200	RBP	30	395-Laboratory Equipment	LABOR	0	0	0	0	0	0	0	0				
201	RBP	31	397-Communication Equipment	LABOR	0	0	0	0	0	0	0	0				
202	RBP	32	398-Miscellaneous Equipment	LABOR	0	0	0	0	0	0	0	0				
203	RBP	33	TOTAL GENERAL PLANT		26,914	23,759	3,155	22,614	1,004	141	1,067	2,088	26,914			
204	RBP	34														
205	RBP	35	TOTAL GAS PLANT IN SERVICE		3,001,661	2,462,142	539,519	2,369,765	81,176	11,201	242,018	297,500	3,001,661			
206	RBP	36														
207	RBP	37	COMMON PLANT IN SERVICE (Allocated)	LABOR	293,575	260,160	34,415	246,667	10,954	1,539	11,641	22,774	293,575			
208	RBP	38	CWIP not taking interest	TOTPLT	103,431	85,416	18,015	82,125	2,892	400	7,962	10,053	103,431			
209	RBP	39														
210	RBP	40	TOTAL GAS UTILITY PLANT		3,398,667	2,806,718	591,948	2,696,556	95,022	13,140	261,621	330,327	3,398,667			

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission :
v. : Docket No. R-2020-3022134
Pike County Light and Power Company :
-- Gas :

VERIFICATION

I, Karl R. Pavlovic, hereby state that the facts set forth in my Direct Testimony, OCA Statement 2, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: February 2, 2021
*303193

Signature:


Karl R. Pavlovic

Consultant Address: PCMG and Associates, LLC.
22 Brookes Avenue
Gaithersburg, MD 20877

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission)	Docket No. R-2020-3022134
v.)	(Gas)
Pike County Light & Power Company)	
Gas and Electric Base Rate Cases)	

**DIRECT TESTIMONY OF
MARLON GRIFFING, PH.D.**

**ON BEHALF OF THE
COMMONWEALTH OF PENNSYLVANIA
OFFICE OF CONSUMER ADVOCATE**

Dated: February 2, 2021

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EXHIBITS:

MFG-1	Qualifications and Prior Testimony
MFG-2	Pike Regulated by the Pennsylvania Public Utilities Commission
MFG-3	Pennsylvania electric and natural gas utilities
MFG-4	Comparison Group screen applications
MFG-5	S&P Places FirstEnergy on Credit Watch
MFG-6	Common-Equity Prices
MFG-7	Dividends
MFG-8	Constant-Growth DCF ROE Analysis
MFG-9, Schedule 1	Daily Treasury Yield Curve, Risk-Free Rate Analysis
MFG-9, Schedule 2	Value Line Betas
MFG-9, Schedule 3	S&P 500 Stocks with Earnings per Share and Dividend Yields
MFG-9, Schedule 4	S&P 500 Stocks with Dividend and EPS Screens Applied
MFG-9, Schedule 5	Duff & Phelps Size Premia Table
MFG-9, Schedule 6	CAPM ROE Analysis
MFG-10, Schedule 1	Regulatory Research Associates 2019-2020 Authorized ROEs for electric utilities
MFG-10, Schedule 2	Regulatory Research Associates 2019-2020 Authorized ROEs for gas utilities
MFG-11	Rate of Return (ROR)
MFG-12	Beta Values Example from Fall 2019
MFG-13	Pike Response to OCA Interrogatories Set III, Question. 3
MFG-14	Pike Response to OCA Interrogatories Set III, Question. 1

1 **I. INTRODUCTION**

2 **Q. Please state your name, occupation and business address.**

3 A. My name is Dr. Marlon F. Griffing. I am a Senior Consultant with the economic
4 consulting firm of PCMG & Associates Inc. ("PCMG"). My business address is 22
5 Brookes Drive, Gaithersburg, MD 20785.

6
7 **Q. Please describe PCMG.**

8 A. PCMG was founded in 2015 to conduct research on a consulting basis into the rates,
9 revenues, costs and economic performance of regulated firms and industries. The
10 firm has a professional staff of five economists, accountants, engineers and cost
11 analysts. Most of its work involves the development, preparation, and presentation
12 of expert witness testimony before federal and state regulatory agencies.

13
14 **Q. Have you prepared a summary of your qualifications and experience?**

15 A. Yes. Exhibit MFG-1 is a summary of my qualifications, experience, and testimony
16 given before state and federal regulatory agencies regarding cost of capital.

17
18 **Q. For whom are you appearing in this proceeding before the Pennsylvania
19 Public Utilities Commission ("PAPUC" or "the Commission")?**

20 A. I am appearing on behalf of the Pennsylvania Office of the Consumer Advocate
21 ("OCA").
22

1 **Q. What are your responsibilities in this Commission proceeding?**

2 A. My responsibility is to determine a fair rate of return on common equity capital
3 and a fair overall rate of return for the electric and natural gas service public
4 utility Pike County Light and Power (“Pike” or “the Company”). Pike is an
5 operating subsidiary of Corning Natural Gas Holding Company (“CNGH”). (See
6 Pike Statement No. 2, Page 2, lines 6-12). Pike provides electric and natural gas
7 service to customers in several townships and boroughs in Pike County,
8 Pennsylvania. The Company operates under Commission-approved rates. See
9 Exhibit MFG-2 (CNGH 2020 10K, page 4).

10
11 **Q. How do you address recommended rates for the Company?**

12 A. To arrive at a recommended overall rate of return, I analyzed the Company’s
13 capital structure and the costs for each component of that structure.

14
15 **Q. How is your testimony organized?**

16 A. My testimony is organized as follows.

- 17 ▪ First, I discuss economic considerations and legal precedents underlying
- 18 the cost of equity in regulatory proceedings.
- 19 ▪ Second, I explain how I selected the members of the Comparison Group of
- 20 companies used in my analysis.
- 21 ▪ Third, I provide an overview of the Discounted Cash Flow (“DCF”) model
- 22 and the Capital Asset Pricing Model (“CAPM”).
- 23 ▪ Fourth, I perform DCF model and CAPM return on equity (ROE) analyses

1 for the Comparison Group, find a recommend a return on equity (“ROE”)
2 for the Company, and check the result for reasonableness.

- 3 ■ Fifth, I recommend a capital structure and overall rate of return (“ROR”)
4 for the Company.
- 5 ■ Sixth, I critique the rate of return analyses of Company Accounting Panel
6 witnesses Chuck Lenns and Richard A. Kane.
- 7 ■ Seventh, I summarize my testimony and recommendations.

8
9 **Q. Please state your conclusions regarding the Company’s ROE and ROR.**

10 A. I recommend a ROE of 9.28 percent for the Company and a capital structure of
11 46.54 percent long-term debt, 5.14 percent short-term debt, and 48.32 percent
12 common equity. When these values are combined with the long-term debt cost of
13 4.77 percent and short-term debt cost of 3.10 percent recommended by Mr. Lenns,
14 and Mr. Kane (See Pike Statement No. 2, Page 16, line 14-Page 18, line 20), the
15 result is an overall ROR of 6.86 percent for the Company.

16
17 **II. THE COST OF EQUITY IN THE REGULATORY ENVIRONMENT**

18 **1. The Role of Economic Theory**

19 **Q. What is the basis in economic theory for regulating certain industries?**

20 A. According to economic theory, the forces of supply and demand interacting in
21 a competitive environment produce an allocation of resources that yields an
22 optimal mix of goods and services. Firms and individuals maximize profits and
23 satisfaction given the prices and incomes that the interplay of market forces

1 generates. One description for this outcome is that it is economically efficient. Put
2 simply, there is no better output of goods and services that can be produced with
3 the available resources.
4

5 **Q. Does the economically efficient outcome occur in all industries?**

6 A. No, several conditions must be present, including many buyers and sellers, perfect
7 information about prices, identical products, and so forth. If these conditions
8 exist, then price is the only way for providers of goods and services to compete in
9 markets. If the conditions for competition do not exist, however, then letting
10 supply and demand work unfettered will not produce the socially desired efficient
11 outcome.
12

13 **Q. What condition for competition is missing in the electric industry?**

14 A. The electric industry does not have several sellers. The large size of the electric
15 generation, transmission, and distribution systems required to provide the product
16 means that electric utilities have high fixed costs. Consequently, it is difficult for
17 firms to enter the market, resulting in less competition than would be the case if
18 fixed costs were lower. High fixed costs in this context are known as a “barrier to
19 entry.”
20

21 **Q. Are there legal obstacles to competition in public utility markets?**

22 A. Even if a firm is willing and able to raise the capital needed to be a viable electric
23 distribution company, state and local governments typically have permitting

1 processes that govern where and when utilities can build facilities. Thus, high
2 start-up costs are not the only barrier that must be overcome.

3
4 **Q. What is a declining-cost industry?**

5 A. A declining-cost industry is one where the average cost of service declines over
6 the range of effective demand.

7
8 **Q. Are public utilities declining-cost industries?**

9 A. Yes. With their high fixed costs, public utilities have high initial average costs,
10 but as their sales increase, the average cost drops. This fact alone does not make
11 public utilities declining-cost industries. In most industries, average costs fall as
12 sales increase from low volumes. It is also true, however, in most industries, that
13 average costs turn upward at sale volumes that are much less than the total
14 demand for the product. Consequently, a few too many firms can share the market,
15 depending on other features of the product. What sets public utilities, such as
16 electric utilities, apart from most industries is that their average costs continue to
17 decline over very high volumes of sales--up to and beyond total, or effective,
18 market demand. Thus, the firm with the largest market share has an increasing
19 advantage over competitors. In effect, there is not enough room in the market for
20 another distributor. The logical result is a market with one producer—often
21 referred to as a natural monopoly—not the many firms envisioned in the theory of
22 competition.

1 **Q. How has society responded to the absence of competition in public utility**
2 **markets?**

3 A. Since sufficient competition does not exist in the markets for public utilities to
4 ensure low prices and adequate service, society has typically turned to regulation
5 to achieve these goals. Government regulators of utilities generally are charged
6 with pursuing an outcome that approximates the efficient outcome of the
7 competitive model. Regulation thus is viewed as a way to decrease prices and
8 increase services provided by a natural monopoly. A challenge for regulators is to
9 set policies which ensure that the regulated firm provides an appropriate supply of
10 services at reasonable rates. A reasonable rate enables a public utility not only to
11 recover its operating expenses, depreciation, and taxes, but also to compete for
12 funds in capital markets.

13 **2. Standards for Finding a Fair Rate of Return**

14 **Q. Do standards exist for determining a fair rate of return?**

15 A. Yes. Two United States Supreme Court (Court) cases are the basis for rate of
16 return regulation in the United States. They are the *Bluefield Water Works*
17 *(Bluefield)*¹ and the *Hope Natural Gas (Hope)*² cases. In *Hope*, the Court
18 established the following standards for the return on equity that must be allowed a
19 regulated public utility to provide for a “reasonable return”:
20

21 . . . the return to the equity owner should be commensurate

¹ *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia*,
262 U.S. 679 (1923).

² *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

1 with the returns on investments in other enterprises having
2 corresponding risks. That return, moreover, should be
3 sufficient to assure confidence in the financial integrity of
4 the enterprise, so as to maintain its credit and to attract
5 capital.³
6

7 It can be seen from this excerpt that there are essentially three standards for
8 determining an appropriate return on equity from the standpoint of the equity
9 owners of a regulated utility. The first standard is the “comparable earnings”
10 standard; i.e., as stated above in *Hope*, the earnings must be “commensurate with
11 the returns on investments in other enterprises having corresponding risks.” The
12 second standard is that earnings must be sufficient to assure “confidence in the
13 financial integrity of the enterprise.” The third standard is that the earnings must
14 allow the utility to attract capital.
15

16 **Q. How can the comparable earnings standard be applied in estimating the rate**
17 **of return on equity capital?**

18 A. There is circularity to the comparable earnings standard because the competitive
19 nature of the capital markets virtually ensures that the returns to all enterprises
20 having corresponding risks are comparable with each other. Investors establish
21 the price of each traded stock based on that stock’s present and prospective
22 earnings in comparison with the present and prospective earnings of all other
23 stocks and other investments available to them. If the earnings of a firm are
24 depressed, then investors will pay only a low price for that firm’s stock. As a

³ *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 603, 64 S.Ct. 281, 88 L.Ed. 333 (1944).

1 result, the return on the market value of that stock will be comparable to the return
2 on the market value of the stock of other companies that are highly profitable but
3 which, as a consequence of their profitability, have been bid up to a very high
4 price. Thus, if “return” is defined as the earnings of an equity investment relative
5 to its current market price, then the comparable earnings test becomes a nullity:
6 All returns are comparable with all other returns.

7
8 **Q. How is this circularity typically resolved in public utility regulation?**

9 A. In public utility regulation, the conventional procedure for resolving this
10 circularity is to identify the required equity return based on the market value of a
11 utility’s stock. That return is combined with the cost of debt, and the blended
12 return to total capital is then applied to a rate base reflective of the book value of
13 the utility’s investment. The book value is the accountant’s quantification of the
14 depreciated original cost of the utility’s assets adjusted for ratepayer contributions
15 such as deposits and deferred taxes. Under this procedure, the market price of a
16 stock is used only to determine the return that investors expect from that stock.
17 That expectation is then applied to the book value of the utility’s investment to
18 identify the level of earnings that regulation will allow the utility’s common
19 shareholders to recover.

20
21 **Q. How can the financial integrity and capital attraction standards enunciated in**
22 ***Hope* be applied in estimating the rate of return on equity capital?**

23 A. If a utility can earn a return on its investment comparable to that required by

1 enterprises of comparable risk, then it should have no difficulty in attracting
2 capital and maintaining credit. Investors would have no reason to shun such a
3 utility in favor of other investment opportunities. Thus, if the comparable
4 earnings test is met, then the financial integrity and capital attraction standards are
5 met as well.

6
7 **Q. What is risk?**

8 A. Risk is the chance of a loss or less-than-expected return on an investment. A
9 business, for example, may introduce a new product with the expectation that it
10 will sell well. There is, of course, no guarantee that consumers will like the
11 product. The risk investors attach to the company varies inversely with their view
12 as to the probability of the product doing well. In general, the greater the risk of an
13 investment, the greater the return required to attract investors, and vice versa.

14
15 **Q. Does setting an allowed rate of return mean that the utility will earn that
16 return?**

17 A. No. There is no guarantee that the utility will earn the allowed rate of return. The
18 utility has the reasonable *opportunity* to earn the allowed rate of return; in practice
19 the utility may earn more or less than this return, depending on whether and how
20 its management responds to technological and market developments, among other
21 matters.

22
23 **Q. What should the Commission consider in setting an appropriate rate of
24 return?**

1 A. The Commission should look to current market conditions as it balances investor
2 and consumer interests. The rate of return should reflect the condition of the
3 capital markets in which Pike must compete with other firms for funding.
4 Historically allowed rates and historical performances are not appropriate inputs
5 in this forward-looking approach. This statement does not mean that historical
6 rates and performance are irrelevant. They are factors because they affect
7 investors' views of a company's prospects and, therefore, the investors' current
8 willingness to purchase its common-equity shares.

9
10 **Q. Please explain how the methods you have used to determine the cost of**
11 **common equity capital for the Company reflect current market conditions.**

12 A. I used a market-oriented approach to determine the common-equity cost for the
13 Company. I analyzed the equity return that investors currently expect to receive
14 from investing in companies with risks similar to the Company. Such a set of
15 utilities is known as a proxy group. Many factors influence these investor
16 expectations, among them: past performance of the companies, estimates of how
17 the companies will perform in the future, possible technological change, tax rates,
18 and predicted general economic conditions. As investors decide where to place
19 their funds among the investment options available to them, they weigh the
20 information they have. Then they decide how much to pay to acquire common-
21 equity shares, or to turn to the other side of the question, determine the price at
22 which they will sell shares. Either way, the factors are reflected in current prices
23 in capital markets. Thus, my analysis is forward-looking because it relies on

1 investors' current assessment of what is likely to happen with their investments.

2
3 **Q. What is the role of opportunity costs in your analysis?**

4 A. An opportunity cost is the value of the best choice forgone as the result
5 of making a decision. Opportunity costs are central to my analysis. As investors
6 decide where to place their assets, they have many opportunities from which to
7 choose in the financial markets. Economic theory says they will choose the
8 opportunity they think will provide them the best return, taking into account the
9 level of risk with which they are comfortable. Thus, for Pike to attract capital, the
10 Company's forward-looking fair rate of return must at least equal the rate of
11 return for the best alternative opportunity with similar risk.

12
13 **III. OVERVIEW OF THE RETURN ON EQUITY ANALYSIS**

14 **Q. How do you know what equity rate of return the Company must offer to**
15 **investors to be an attractive opportunity?**

16 A. No one knows with certainty what specific rate of return the Company must offer
17 to investors that is just sufficient to make the Company an attractive opportunity.
18 However, various methods based on finance theory have been derived for reliably
19 estimating what investors currently think that rate is.

20
21 **Q. Did you find one ROE for Pike in your analysis?**

22 A. Yes. I treated Pike as one company for the purposes of determining an ROE. The
23 company's electric and natural gas operations are part of the same organization.

1 Further, authorized ROEs for 2019 and 2020 show little difference in the ROEs
2 awarded to electric utilities and natural gas utilities (See Exhibits ____ MFG-10
3 Schedules 1 and 2).
4

5 **Q. Please identify the methods you have adopted in your ROE analysis.**

6 A. I use the Discounted Cash Flow (DCF) method, which is widely used in utility
7 general rate cases, and is a method relied on by the PAPUC in determining rate of
8 return. I also considered the results of the Capital Asset Pricing Model (CAPM).
9 However, after reviewing authorized returns for 2019 and 2020 for electric and
10 natural gas utility operating companies in U.S. jurisdictions as a check on the
11 reasonableness of the ROE outcome, I excluded the CAPM results from my
12 analysis. The CAPM ROE results are about 1.5 percent higher than the highest
13 authorized for the two years. As market conditions change, ROE results can rise
14 and fall, but commissions do not make such large incremental changes in their
15 authorized ROEs in such a short period. Thus, I have relied on my DCF result,
16 which is consistent with recent authorized ROEs.
17

18 **Q. Please summarize the DCF method.**

19 A. The DCF method uses the current dividend yield and the expected growth rate of
20 this yield to determine a required rate of return on an investment opportunity. The
21 required rate of return from a DCF analysis is derived from a formula for
22 determining the net present value, or price, of a share of stock. There are
23 variations of the DCF, but the constant-growth form I have selected assumes that

1 dividends (D) are received at the end of each year, the annual growth rate of
2 dividends (g) is constant to infinity, and the discount rate for dividends (k) is
3 constant to infinity. The equation form of this constant-growth DCF model is:
4

$$k = \frac{D_1}{P_0} + g$$

5 Where:

7 k is the required rate of return for the stock in question;

8 D_1 is the annual dividend one year from the present,

9 P_0 is the current price of a stock share,

10 g is the expected growth rate of the dividend, and

11 k is the discount rate and also the fair rate of return for equity.

12
13 **Q. How is the annual dividend one year from the present calculated?**

14 A. The annual dividend one year from now is derived by applying the growth-rate
15 estimate (g) to the actual current annual dividend (D_0).

16
17 **Q. Please characterize the DCF model.**

18 A. The first element of the DCF model is the dividend-yield component, while the
19 second element is the dividend growth-rate component. The sum of these two
20 components produces the required ROE for a company.

21
22 **Q. Please discuss the CAPM method.**

23 A. The basic premise of the CAPM method is that any risk which is company-specific

1 can be diversified away by investors. Therefore, the only risk that matters is the
2 systematic risk of the stock. This systematic risk is measured by beta (β).

3 Expressed simply, the CAPM assumes the following form:

4
5
$$k = r + \beta (k_m - r)$$

6
7 Where:

8 k is the required rate of return for the stock in question;

9 β is beta, the measure of systematic risk;

10 r is the rate of return on a riskless asset; and

11 k_m is the required rate of return on the broad market portfolio.

12
13 **Q. Please characterize the CAPM.**

14 A. In the CAPM the required ROE for a company also is the sum of two
15 components. The first of these is the return on a riskless asset. To this base value,
16 a return is added that reflects the additional rate of return earned by other
17 companies in the broad equity market adjusted for the risk of the subject company
18 relative to the risk of an average company in the market. The subsequent amount
19 thus reflects the risk of the subject company.

20
21 **Q. Does your equity rate of return analysis use financial data specific to Pike?**

22 A. No. As noted, Pike is an operating subsidiary of CNGH. Pike is not publicly
23 traded and, therefore, no common-equity share price information is available for
24 performing a direct DCF analysis on the Company.

1
2 **Q. Does your equity rate of return analysis use results from CNGH?**

3 A. No. I prefer not to use the subject company of my analysis or its parent company
4 as a member of the Comparison Group.⁴ I was able to construct a Comparison
5 Group of Pennsylvania utilities and two other utilities that provide electric and
6 natural gas service. Therefore, I conducted my ROE analysis without CNGH as a
7 member of the Comparison Group.

8
9 **Q. How do you use the ROE analysis to estimate the Company's required rate
10 of return?**

11 A. I perform a ROE analysis on a group of electric and natural gas utilities
12 comparable to Pike whose members are publicly traded and have similar
13 investment risk, as discussed below. The returns on equity for members of this
14 group form the basis for my estimate of a fair rate of return for the Company.

15
16 **IV. SELECTING THE COMPARISON GROUP**

17 **Q. Please discuss your choice of the Comparison Group.**

18 A. I set out to find a group of companies that are, from the perspective of investors,
19 similar to Pike. Thus, I wanted firms that are combination electric and natural gas
20 utilities that represent approximately the same investment risk as does the
21 Company.

22

⁴ The Comparison Group is a proxy group, a generic concept. I call my group of utilities the Comparison Group. to distinguish it from the proxy group(s) of any other witnesses.

1 **Q. Please describe how you found suitable candidate companies for the**
2 **Comparison Group.**

3 A. I typically begin construction of my Comparison Group by looking at Value Line,
4 a widely used investor service, for companies that Value Line classifies as part of
5 the same industry as the subject company, in this instance Pike. I also may find the
6 Standard Industrial Classification (“SIC”) code for the subject company and
7 supplement my selection process with that information, finding other utilities with
8 the same or similar SIC codes.

9
10 **Q. What is the next step in your usual proxy group selection process?**

11 A. I apply screens to the initial set of possible companies to ensure that the utilities
12 included in my Comparison Group are similar in risk to the risk of the subject
13 company. An important screen is the Standard & Poor’s (“S&P”) credit rating,⁵
14 which reflects the financial and business risks of a company. Thus, a credit rating
15 captures the important dimensions of risk as assessed by S&P in one criterion.
16 However, Pike and CNGH do not have a credit rating from S&P or any other
17 source. Thus, I modified my approach to fit the circumstances for Pike.

18
19 **Q. How did you proceed given the absence of credit ratings for Pike and**
20 **CNGH?**

21 A. I started from the set of utility companies that operate in Pennsylvania (See Exhibit
22 _____ MFG-3). The basis for this starting point is that these electric and natural gas

⁵ I will substitute equivalent credit ratings from Moody’s or the National Association of Insurance Commissioners if a utility does not have a S&P credit rating.

1 utilities face the same regulatory environment, which is an important element of
2 risk. I also employed screens that I usually apply to utilities in determining which
3 utilities have risk similar to the subject company.
4

5 **Q. Please list the criteria you applied in the selection of the Comparison Group.**

6 A. I applied the following screens to the initial set of Pennsylvania electric and natural
7 gas companies:

- 8
- 9 1. U.S.-based firm with Pennsylvania operations;
- 10 2. shares publicly traded on a stock exchange;
- 11 3. have SIC code 4923, 4931, or 4932;
- 12 4. have an S&P investment-grade credit rating (BBB- or better);
- 13 5. have a record of paying dividends for three years without skipping or
14 reducing the dividend amount;
- 15 6. not be expected to sell, merge into or be acquired by another company; not
16 be engaged in an unusual regulatory proceeding or event; and not have a
17 corporate relationship that affects its independence; and
- 18 7. have positive growth-rate projections from at least two sources.
19

20 **Q. What is the purpose of applying the criterion that the companies be based in
21 the United States?**

22 A. As stated above, I sought Pennsylvania companies that face a business
23 environment similar to that in which the Company operates. Pike's utility

1 operations are subject to Pennsylvania regulation, statutes, and rules. Further,
2 CNGH has its headquarters in New York. The business environment it faces is
3 similar to that faced by utilities in the rest of the United States. None of the
4 Pennsylvania companies were excluded for not being U.S.-based (See Exhibit
5 MFG-4).

6
7 **Q. What purpose is served by requiring that the companies be publicly traded?**

8 A. The DCF model, requires information about common equity share prices,
9 dividends, and growth-rate projections. The requirement that companies be
10 publicly traded ensures that their common-equity share prices are available. All
11 companies considered are publicly traded (See Exhibit MFG-4).

12
13 **Q. What purpose is served by requiring that the companies have SIC codes
14 4923, 4931, or 4932?**

15 A. These SIC codes are for Natural Gas Transmission and Distribution, Electric and
16 Other Services Combined, and Gas and Other Services Combined. Therefore,
17 companies with these codes, like Pike, have electric and natural gas operations.
18 FirstEnergy, National Fuel Gas, and PPL Corporation are excluded from the
19 Comparison Group because they have other SIC codes (See Exhibit MFG-4).⁶

20
21 **Q. Did you include a utility that has another SIC code?**

22 A. Yes. Essential Utilities has SIC code 4941, Water Supply. However, it has

⁶ FirstEnergy and PPL Corporation are also excluded for not meeting other screens.

1 expanded into natural gas operations, having acquired Peoples Gas in
2 Pennsylvania. I continue to include Essential Utilities because the company
3 provides different utility services and meets all the other criteria (See Exhibit
4 MFG-4).

5
6 **Q. What purpose is served by requiring that the companies have an S&P**
7 **investment-grade credit rating?**

8 A. An investment-grade credit rating means that the great majority of investors can
9 purchase shares of common equity in the utilities. Some managed funds prohibit
10 ownership of less-than-investment-grade companies. An investment-grade rating
11 also serves as a signal of risk level. All firms but UGI, which does not have a
12 S&P credit rating, meet this criterion. I continue to include UGI because the
13 company provides electric and gas utility services and meets all the other criteria
14 (See Exhibit MFG-4).⁷

15
16 **Q. What purpose is served by requiring that the companies have a record of**
17 **paying dividends for three years?**

18 A. The DCF model requires dividends as an input. If a company is not paying
19 dividends or has a record of cutting dividends, then its DCF analysis is not
20 reliable and does not produce a sound result. All the utilities meet this screen (See
21 Exhibit MFG-4).

22

⁷ FirstEnergy has a S&P BB credit rating, less than investment grade.

1 **Q. Why is it important that companies involved in sales, mergers, or**
2 **acquisitions, or involved in unusual regulatory proceedings or events be**
3 **excluded from a ROE analysis?**

4 A. The share prices of companies involved in sales, mergers or acquisitions can be
5 volatile. The same can be true for the prices of utilities involved in an unusual
6 regulatory proceeding or experiencing an unusual event. Extreme increases in the
7 share prices of electric companies that are part of sales, mergers, or acquisitions
8 drive down the ROE results in DCF analysis, while extreme decreases in the share
9 prices drive up the ROE results. Neither outcome yields meaningful DCF results.
10 Therefore, it is appropriate to exclude such companies from the analysis.

11
12 **Q. Are any companies in the initial set involved in sales, mergers, or acquisitions?**

13 A. No (See Exhibit MFG-4).

14
15 **Q. Are any companies in the initial set involved in unusual regulatory**
16 **proceedings or events?**

17 A. Yes. On July 23, 2020, S&P Global Ratings placed FirstEnergy and its
18 subsidiaries on a CreditWatch. The reason S&P took the action was
19 FirstEnergy's possible involvement in a racketeering scheme in Ohio (See Exhibit
20 MFG-5). FirstEnergy common equity share prices may be depressed for some
21 time to come.

22
23 **Q. You require that electric utilities have positive EPS growth-rate projections**

1 **from two sources to be included in the Comparison Group. What purpose**
2 **does this screen serve?**

3 A. If EPS growth-rate projections are negative or missing, then any DCF analysis
4 performed on them is not meaningful. If only one EPS growth-rate estimate is
5 available for a company, that company's growth-rate component has an outsized
6 influence on the ROE result. It is advisable to eliminate the company from
7 further consideration. First Energy and PPL, already excluded for other reasons,
8 have negative per share EPS growth forecasts from Yahoo! Finance and no EPS
9 growth forecast from Zacks (See Exhibit MFG-4). They are excluded from further
10 consideration.

11
12 **Q. Please describe the Comparison Group after your screening.**

13 A. The Comparison Group has four utilities as members. Those utilities are:
14 Essential Utilities, Exelon Corporation, NiSource, and UGI Corporation (See
15 Exhibit MFG-4).

16
17 **V. DCF OVERVIEW**

18 **Q. What is the purpose of a DCF analysis?**

19 A. The goal of this analysis is to estimate an appropriate, forward-looking rate of
20 return on equity. A DCF analysis requires a determination of expected growth
21 rates and dividend yields in order to estimate this return.

22
23 **Q. Please discuss expected growth rates for the DCF model.**

1 A. Because a DCF analysis is forward-looking, I wanted to estimate the expected
2 growth rate of dividends. Historical growth rates would be good indicators of the
3 expected growth rate if:

- 4
- 5 • the dividend payout ratio and the realized rate of return on equity
6 capital were constant in the past and could be assumed to remain
7 constant in the future; and
- 8 • any growth in book equity was attributable solely to retained
9 earnings.
- 10

11 If, in practice, these conditions held, then earnings per share (EPS), dividends per
12 share (DPS), and book value per share (BPS) would all grow at the same rate, and
13 the past growth rates for these factors would be the rate at which they would grow
14 in the future.

15

16 **Q. Do you use historical growth rates in your analysis?**

17 A. No. The conditions necessary for historical growth rates to be good indicators of
18 future growth rates are rarely satisfied. Most utilities' returns on equity and
19 payout ratios have not remained constant over time. Further, growth in book value
20 has occurred not only due to retained earnings, but also due to the issuance of new
21 shares of common stock. Consequently, past growth rates of earnings, dividends,
22 and book equity are frequently unequal. Moreover, an industry may face a
23 changed business environment, thereby making the past a poor basis for
24 projecting the future. Historical growth rates can differ significantly from
25 forward-looking projected growth rates due to such factors as inflation rates, tax

1 rates, the role of an industry in the economy, and the regulatory environment. In
2 view of these limitations of using historical growth rates, I based my estimated
3 growth rates on projected growth rates as publicly provided by “Zacks Investment
4 Research,” Yahoo! Finance, and the Value Line “Investment Survey.” These
5 services are recognized as respected sources.

6
7 **Q. Please discuss dividend yields for the DCF model.**

8 A. To estimate the required rate of return on equity capital today, I estimated the
9 expected dividend yield, D_1/P_0 where P_0 is the price of a share of common equity
10 today and D_1 is the dividend in the next period. To find the dividends expected a
11 year from now, I multiplied the current annual dividends paid by 1 plus the EPS
12 growth rates for each company.

13
14 **Q. What common-equity share prices do you use in your DCF analysis?**

15 A. Since the current equity price per share incorporates all market information
16 considered relevant by investors, generally speaking, non-recent historical prices
17 should be avoided in calculating the dividend yield. However, since share prices
18 are volatile in the short run, it is desirable to use a period of time long enough to
19 avoid short-term aberrations in the capital market. I used the average of four
20 weeks of share prices for each electric utility.

21
22 **VI. DCF ANALYSIS FOR THE COMPARISON GROUP**

23 **Q. Please discuss the required rate of return for the Comparison Group.**

1 A. To estimate the required rate of return for the group, I found the expected growth
2 rate, g , and the expected dividend yield, D_1/P_0 for each Comparison Group
3 company. I applied the DCF model to the inputs to find a ROE for each electric
4 utility. Finally, I average the ROEs to find my DCF ROE for Pike.

5
6 **Q. What period did you use to establish average common equity share prices for
7 the companies in the Comparison Group?**

8 A. I used the trading period of December 28, 2020-January 22, 2021 to find average
9 common equity share prices. This four-week period is long enough to dampen any
10 short-term aberrations in the capital market. It is also close to the January 28,
11 2021 date of this Testimony, thus making the results timely. I used closing prices
12 for the Comparison Group member companies obtained at Yahoo! Finance (See
13 Exhibit MFG-6, pages 1-2).

14
15 **Q. How did you determine the dividends for the Comparison Group companies?**

16 A. I used the dividends that each Comparison Group member company is currently
17 paying as reported by Value Line in November 2020, December 2020, and
18 January 2021, and by Zacks on January 27, 2021. I use the greater of these two
19 options in my DCF analysis. The Value Line dividends were equal or greater for
20 all companies (See Exhibit MFG-7).

21
22 **Q. Please discuss the expected growth rate for the Comparison Group.**

23 A. As noted above, it is appropriate in this proceeding to use only the forecasted

1 growth rates to estimate the expected growth rate to be used in the DCF analysis.
2 Zacks and Yahoo! Finance provide five-year growth-rate projections for EPS and
3 Value Line provides five-year growth rate projections for EPS, DPS, and BPS. To
4 maintain consistency across the sources, I used only the EPS estimates from
5 Value Line.

6
7 **Q. What information did you use from Value Line?**

8 A. I used the Value Line EPS five-year growth projections for the individual firms in
9 the Comparison Group as reported by Value Line at its website on November
10 2020, December 2020, and January 2021 (See Exhibit MFG-8).

11
12 **Q. What information did you use from Zacks?**

13 A. I used the Zacks EPS five-year growth projections available January 27, 2021 for
14 the individual firms in the Comparison Group as reported by Zacks at its website
15 (See Exhibit MFG-8).

16
17 **Q. What information did you use from Yahoo! Finance?**

18 A. I used the Yahoo! Finance EPS five-year growth projections available January 27,
19 2021 for the individual firms in the Comparison Group as reported by Yahoo!
20 Finance at its website (See Exhibit MFG-8).

21
22 **Q. How do you combine the Zacks, Yahoo! Finance, and Value Line estimates?**

23 A. I weighted the Zacks, Yahoo! Finance, and Value Line EPS values equally to find

1 my best estimate of the expected growth rate for each company in the Comparison
2 Group.

3
4 **Q. Did you make any adjustments to expected growth rate results for any**
5 **companies?**

6 A. Yes. The Yahoo! Finance EPS growth-rate for Exelon Corp. was -2.40 percent. I
7 excluded this value from my calculation of the EPS growth rate for Exelon,
8 consistent with my treatment of such values in my CAPM analysis. Exelon does
9 have positive EPS estimates from Zacks and Value Line.

10
11 **Q. Please discuss your calculation of the expected dividend yield for the**
12 **Comparison Group.**

13 A. The appropriate dividend to use in the constant-growth DCF model is the annual
14 dividend rate at the beginning of the next period (year). I began my estimation of
15 the expected dividend yield by finding the dividends that each Comparison Group
16 member company is currently paying, as noted above.

17
18 **Q. Please continue.**

19 A. Next, I adjusted the annualized dividends for expected growth. The dividends of
20 all the companies in the Comparison Group are expected to increase over the next
21 year. I applied a full year's growth rate for a firm to the annualized dividend and
22 add the product to the annualized dividend yield to transform it into the expected

1 dividend yield.⁸ The equation for this operation is:

2

$$3 \quad D_1 = \frac{D_0}{P_0} (1 + g)$$

4 Applying this equation to the dividend yield for each company yielded the D_1 values
5 that I use in my estimates (See Exhibit MFG-8).

6

7 **Q. Is it appropriate to apply a minimum standard to ROE results produced by**
8 **the ROE models?**

9 A. Yes. Investors demand a higher return from common equity than from debt to
10 compensate for the greater risk of common equity. The Federal Energy
11 Regulatory Commission (“FERC”) uses a minimum standard of the yield for
12 Moody’s 10-Year Baa Utilities bonds plus 20 percent of the CAPM risk premium
13 as a minimum ROE threshold. Investors faced with a ROE for a company below
14 that threshold would choose debt over common equity investment in the
15 company. Thus, such companies would not compete with Pike for capital.

16

17 **Q. Did you remove any companies from the DCF analysis because they had**
18 **ROE results that were unreasonably low?**

19 A. No. The 30-day moving average yield for the Moody’s 10-year Baa Utilities Bond
20 Yield Index was 3.15 percent December 28, 2020-January 21, 2021, while 20
21 percent of the CAPM risk premium was 1.96 percent. The sum of the two

⁸ I followed this rule of applying a full year’s growth to the current dividend in my CAPM analysis as well as in this DCF model analysis.

1 components of the minimum threshold was 5.11 percent. All the ROEs in the
2 analysis exceeded that value.

3
4 **Q. What ROE did you find for your constant-growth DCF analysis?**

5 A. For the six companies, the mean growth rate was 5.89 percent and the mean
6 expected dividend yield was 3.40 percent. The combination of these two
7 components yielded a ROE average of 9.28 percent⁹ (See Exhibit MFG-8).

8
9 **Q. Have you adjusted your ROE to accommodate other factors?**

10 A. No. The DCF model incorporates factors that affect investors' view of the world
11 and does not require ad hoc adjustments. The share price of common equity is the
12 mechanism through which these influences are translated. For example, investors
13 beliefs about the effect of the coronavirus pandemic on the economy are
14 translated into common-equity share prices. The same is true of the effect of
15 changes in federal income tax and depreciation rates, such as those implemented
16 in the United States under the 2017 Tax Cut and Jobs Act. Either element affects
17 the ROE of the company. Other factors that are incorporated into share prices are
18 environmental regulations, interest-rate expectations, market volatility, and
19 leverage of companies. Investors will ask for common equity prices that
20 compensate them for the degree of risk that they believe these factors create.

21
22 **VII. CAPM ANALYSIS FOR THE COMPARISON GROUP**

⁹ The sum of the mean growth rate and the mean expected dividend yield does not match the average ROE due to rounding.

1 **Q. What are the strengths and weaknesses of the CAPM method?**

2 A. The CAPM is theoretically sound, but its application raises some issues. The
3 analysis using CAPM selects a riskless asset, beta, and market risk premium. The
4 ROE analysis can vary considerably depending on the analyst's choices for these
5 variables. Thus, what at first may seem like a model that is straightforward
6 depends heavily on the particular input values used by an analyst.

7
8 **Q. Please describe the CAPM version that you employ in your ROE analysis.**

9 A. I base my CAPM analysis on the version that FERC adopted in Opinion 569.¹⁰
10 This version addresses potential flaws in the CAPM. The FERC model is
11 forward-looking, using EPS forecasts and current dividend yields for S&P 500
12 companies in developing the market risk premium. It requires that companies
13 included in the market return analysis be paying dividends, and have EPS
14 estimates greater than 0 percent and less than 20 percent, thereby handling the
15 problem of outliers at either end of the spectrum. It also specifies that the EPS
16 forecasts for S&P 500 companies be from Yahoo! Finance, thus bringing
17 consistency from one CAPM analysis to the next. For the risk-free rate, FERC
18 uses a six-month average of 30-year Treasury bond yields, not forecasts of those
19 bond yields. FERC also sets forth a specific method for making size adjustments
20 to CAPM ROEs. This list of rules and methods is not comprehensive, but it does
21 indicate that the FERC approach to CAPM removes much of the analyst judgment

¹⁰ *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Opinion No. 569, 169 FERC ¶ 61,129 (2019). Issued November 21, 2019, pages 134, 138, 184-185.

1 that can cause CAPM analyses conducted at the same time to vary widely,

2
3 **Q. Please explain the calculation of a CAPM ROE.**

4 A. First, the analyst must select the rate of return for a riskless asset. Short-term
5 assets such as 90-day Treasury Bills are considered to be virtually riskless; the
6 default risk is next to nothing and the inflation risk is negligible. Equity investors,
7 however, typically have a longer planning horizon than the 90-day maturity of
8 these instruments, so the return on these bills is not suitable for this CAPM process.
9 Long-Term Treasury bonds, on the other hand, match the planning horizon and
10 have yields that are closer to common equity returns. But these instruments are
11 subject to substantial inflation risk and, therefore, are not riskless. Nevertheless, I
12 adopted the 30-year U.S. Treasury yield as my risk-free rate. Its favorable
13 characteristics outweigh its unfavorable characteristics at this time.

14
15 **Q. What period did you use for the 30-year Treasury yield in your CAPM**
16 **analysis?**

17 A. I used the average yield on a 30-year Treasury bond for December 28, 2020-
18 January 22, 2021 as my riskless asset rate. This average yield is 1.79 percent (See
19 Exhibit MFG-9, Schedule 1). I departed from the FERC approach by using a
20 four-week average of recent yields. The six-month FERC period includes data
21 that is stale and, therefore, does not reflect investors current views of the economy
22 going forward.
23

1 **Q. What values did you use for beta (β)?**

2 A. I used the betas for each company in the Comparison Group taken from the Value
3 Line website (See Exhibit MFG-9, Schedule 2). These beta values are Value
4 Line's latest assessment for each company. Value Line publishes *Investment*
5 *Survey Reports* on a three-month rotating schedule.

6
7 **Q. How is beta (β) interpreted?**

8 A. A beta of 1 indicates that a company's share price will move with the market,
9 while a beta higher than 1 indicates that a stock will be more volatile than the
10 market, and a beta lower than 1 indicates that a stock will be less volatile than the
11 market.

12
13 **Q. What else was involved in your calculation?**

14 A. The term within parentheses in the CAPM equation often is called the "market risk
15 premium." It is the difference between the return on a broad market measure and
16 the risk-free rate of return. In other words, the premium that investors require in
17 order to take on risk. Therefore, I needed to calculate a market rate of return.

18
19 **Q. What method do you use to find the market return?**

20 A. As stated, I use the S&P 500 inputs in finding my market risk premium. FERC
21 prescribes the I/B/E/S EPS forecasts published by Yahoo! Finance. I downloaded
22 these values on January 28, 2021. I also downloaded the dividend yields for the
23 S&P 500 companies from Value Line that same day. I applied the I/B/E/S EPS

1 growth rates to find the expected dividend yield, adding a full year's growth. See
2 Exhibit MFG-9, Schedule 3.

3
4 **Q. What were the next steps in finding the CAPM return on equity?**

5 A. I applied the dividend-paying rule, and the minimum and maximum threshold rules
6 of less than 0 percent and greater than 20 percent to the set of S&P 500 companies
7 (See Exhibit MFG-9, Schedule 4).

8
9 **Q. What was your next step?**

10 A. I weighted the remaining ROEs by the market capitalization for each company.
11 The sum of those individual ROEs is the market return. In my analysis, the value
12 is 11.61 percent. The market risk premium is calculated by subtracting the rate of
13 return on the 30-year Treasury from the market return. The result of this operation
14 is 9.82 percent (See Exhibit MFG-9, Schedule 6). This amount is multiplied by the
15 beta for each Comparison Group company to find that company's unadjusted
16 CAPM ROE (See Exhibit MFG-9, Schedule 6).

17
18 **Q. Please describe the size adjustment.**

19 A. The CAPM size adjustment is made to incorporate findings that smaller
20 companies have higher actual ROEs than the CAPM predicts. FERC prescribes
21 using size adjustments calculated each year for ten deciles of firms based on their
22 market capitalizations. Duff & Phelps publishes these adjustments, which I have
23 added to the unadjusted ROE for each company as appropriate for their market

1 capitalizations (See Exhibit MFG-9, Schedules 5-6).

2
3 **Q. Does FERC have screens for outlier CAPM ROEs?**

4 A. Yes. FERC applies Low-End and High-End Tests to the CAPM size-adjusted
5 ROEs. My Low-End Test is the same as the minimum threshold for the DCF
6 ROEs, the four-week average of the Moody's 10-year Baa Utilities Bond Yield
7 Index plus 20 percent of the CAPM risk premium, or 5.11 percent. The High-End
8 Test is 150 percent of the median value (11.36 percent) of all companies included
9 in the analysis. That value is 17.04 percent in the current analysis. FERC
10 proposed changing the High-End Test to 200 percent of the median value, which
11 would be 22.72 percent.¹¹ It does not matter in my analysis as all the utilities have
12 ROEs of 12.83 percent or less. Thus, no CAPM ROEs are removed due to the
13 Low-End or High-End Tests.

14
15 **Q. What is the result of your CAPM analysis?**

16 A. The ROE result from my CAPM analysis is 11.60 percent

17
18 **VIII. RECOMMENDED ROE**

19 **Q. What is your recommended ROE for Pike?**

20 A. My recommended ROE for Pike is 9.28 percent, the result of my DCF analysis
21 (See Exhibit MFG-11).

¹¹ *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Opinion No. 569-A, 171 FERC ¶ 61,154 (2020).

1
2 **Q. Did you include your CAPM ROE results in arriving at your recommended**
3 **ROE for Pike?**

4 A. No. I found the CAPM ROE results to be unreasonably high and excluded them
5 from consideration. I discuss the basis for that decision in the next section.
6

7 **IX. REASONABLENESS CHECK OF THE RECOMMENDED ROE**

8 **Q. How did you check the reasonableness of the results of your DCF model and**
9 **CAPM ROE analyses?**

10 A. I checked the reasonableness of my DCF model and CAPM analyses outcomes by
11 comparing the ROEs with recent ROEs authorized in electric and gas rate cases
12 across the United States.
13

14 **Q. Please explain which authorized ROEs you used to check the reasonableness**
15 **of your DCF model and CAPM ROEs.**

16 A. I collected sets of fully litigated 2019-2020 authorized ROEs from U.S. electric
17 and gas rate cases from S&P Global Market Intelligence's Regulatory Research
18 Associates ("RRA") (See Exhibit MFG-10, Schedule 1 and Exhibit MFG-10,
19 Schedule 2). I checked the reasonableness of my DCF model and CAPM ROE
20 results against the means, medians, and ranges of these data sets.
21

22 **Q. Are there ROEs available for utilities that provide electric and gas service as**
23 **Pike does?**

1 A. RRA does not publish rate case information separately for utilities that provide
2 both electric and gas service.

3
4 **Q. How do you use the sets of 2019 and 2020 authorized ROEs?**

5 A. I use the recent authorized ROEs to evaluate the reasonableness of my DCF and
6 CAPM ROE results. I do not use them as a substitute for that analysis.

7
8 **Q. Why are authorized ROEs not a good substitute for current, forward-looking
9 DCF analysis?**

10 A. Recently authorized ROEs reflect the results of rate cases conducted in a variety
11 of environments and at different times. Test years, conditions in capital markets,
12 general economic indicators such as inflation rates, and so forth for previous rate
13 cases can be different and become outdated when compared with these factors for
14 a current rate case. Therefore, recently authorized ROEs should serve only to
15 establish whether a current ROE result is reasonably close to what has happened,
16 not be a substitute for forward-looking analysis based on current conditions.

17
18 **Q. Please describe the set of authorized ROEs you collected.**

19 A. For fully litigated electric cases, RRA listed 26 cases for 2019 and 14 cases for
20 2020. However, the ROEs for five of the 2019 cases were not available. For
21 fully litigated gas cases, RRA listed 13 cases for 2019 and 14 for 2020. Three of
22 the ROEs for the 2019 cases and two of the ROEs for the 2020 cases were not
23 available.

1
2 **Q. Please describe the authorized ROEs in the 2019-2020 electric cases.**

3 A. The mean ROE for the eighteen 2019 cases was 9.50 percent, while the media
4 was 9.55. The range was from 8.38 percent to 10.50 percent. The mean ROE for
5 the nine 2020 cases was 9.59 percent and the median was 9.65 percent. The range
6 is from 9.15 percent to 10.00 percent. See the table below.
7

Year	No. of Electric Cases	Mean ROE	Median ROE	ROE Range
2019	21	9.50	9.55	8.38-10.50
2020	14	9.59	9.65	9.15-10.00

8
9 **Q. Please describe the authorized ROEs in the 2019-2020 gas cases.**

10 A. The mean ROE for the ten 2019 cases was 9.77 percent, while the median was
11 also 9.77 percent. The range was from 9.20 percent to 10.25 percent. The mean
12 ROE for the 13 2020 cases was 9.46 percent, while the median was 9.42 percent.
13 The range is from 9.10 percent to 10.00 percent. See the table below.
14

Year	No. of Gas Cases	Mean ROE	Median ROE	ROE Range
2019	10	9.77	9.77	9.20-10.25
2020	12	9.44	9.42	9.15-10.00

15
16 **Q. Please discuss the results of your CAPM ROE analysis in light of these recent**

1 **authorized ROEs?**

2 A. As noted, the mean ROE for my CAPM ROE analysis was 11.60 percent. This
3 ROE value is markedly higher than the mean and median ROEs authorized for
4 electric and gas cases in 2019 and 2020. Therefore, I chose to exclude the ROE
5 results of my CAPM analysis from further consideration in arriving at an ROE
6 recommendation for Pike. Therefore, my ROE recommendation is based on my
7 DCF model analysis.

8
9 **Q. Please explain your decision.**

10 A. No U.S. commission has come close to authorizing an ROE at the level of my
11 CAPM result. The highest authorized for either an electric utility or a gas utility is
12 the 10.50 percent for Georgia Power in 2019. That ROE value was not
13 representative of authorized ROEs that year as the mean ROE was 9.50 percent
14 and the median was 9.55 percent. An analysis of the mean and median ROEs, and
15 the ROE ranges for electric and gas cases for 2019 and 2020 tells the same story.
16 My CAPM result in the instant docket is out of line with the authorized ROEs.

17
18 **Q. Do you have any insight as to why the CAPM ROE result is high?**

19 A. I have not conducted a formal study, but my experience as a cost of capital
20 witness qualifies me to identify a significant increase in beta values as one source
21 of the higher CAPM ROE results. The values for beta are much higher than they
22 were one and two years ago. A higher beta value, all other things equal, leads to a
23 higher CAPM ROE result.

1
2 **Q. What is the magnitude of the change in beta values?**

3 A. In many dockets the average beta for sets of electric and gas utilities was 0.60-
4 0.65 in 2019 and early 2020. I have provided as an example the betas I used in a
5 FERC docket filed in November 2019. The average beta for the electric
6 companies in my proxy group was 0.629 (See Exhibit MFG-12). In contrast, the
7 average beta in this docket is 0.950 (See Exhibit MFG-9, Schedule 2).
8

9 **Q. Why have beta values increased?**

10 A. Again, I have not conducted a formal study, but please recall that beta is a
11 measure of volatility in common equity share prices. One of the first reactions to
12 the recognition of the seriousness of COVID-19 were sharp declines in the value
13 of various equity market indices starting about March 2020. However, those
14 declines were followed by rebounds in the indices' values. Some of the indices
15 have reached or exceeded their levels of early 2020. However, the rebound has
16 not been steady. There have been several days where market indices such as the
17 Dow Jones Industrials have gained or lost 500-plus points. The ups and downs in
18 the markets increase the beta values of any equities that follow that pattern, even
19 if the net effect of the variability is relatively small.
20

21 **Q. Please compare your DCF ROE results with the recent authorized ROEs.**

22 A. As stated above, the ROE results from my DCF analysis was a mean of 9.28
23 percent. This value is reasonably close to the RRA mean ROEs and median ROEs

1 for 2019-2020, and within the ranges for all four data sets.

2
3 **Q. Does your recommended ROE fit with the recent authorized ROEs?**

4 A. The comparison with the authorized ROEs from recent years indicates that 9.28
5 percent is a reasonable ROE for Pike. Therefore, I continue to recommend this
6 value as the ROE for the Company. See Exhibit MFG-11.

7
8 **X. RECOMMENDED CAPITAL STRUCTURE AND OVERALL RATE OF**
9 **RETURN**

10 **Q. What do you recommend as the cost of long-term debt for Pike?**

11 A. I accept the Company's proposed cost of long-term debt of 4.77 percent as
12 presented in Pike Exhibit E-2, Schedule 2, Page 2 of 2. The exhibit shows the
13 forecasted long-term debt balance and cost as of June 30, 2021. The Company
14 indicates that it does not expect to issue additional debt before that date.

15
16 **Q. What does Pike state is its cost of short-term debt?**

17 A. In response to an interrogatory, Pike states that its short-term cost of debt of 3.10
18 percent is the rate for a short-term line of credit which the Company has with
19 M&T Bank as part of an agreement addressing the conversion of short-term debt
20 to long-term debt (See Exhibit MFG-13). The Company further states that it
21 expects to renegotiate the line of credit in the next few months. Pike states in the
22 response that it will entertain a bid from a competing bank for the line of credit.

23
24 **Q. What do you recommend as the cost of short-term debt for Pike?**

1 A. I accept the Company's proposed cost of short-term debt of 3.10 percent as
2 presented in Pike Exhibit E-2, Schedule 1. The exhibit shows the forecasted short-
3 term debt balance and cost as of June 30, 2021. The exhibit and the Company's
4 response to the interrogatory indicate the cost will remain in effect through that
5 date regardless of whether the line of credit is renegotiated.
6

7 **Q. What is the capital structure you recommend for the Company?**

8 A. I recommend a capital structure of 46.54 percent long-term debt, 5.14 percent
9 short-term debt, and 48.32 percent common equity. This is the capital structure
10 that Pike requests in its Accounting Panel Statement from Page 16, line 22
11 through Page 17, line 2.
12

13 **Q. How does the Company support its requested capital structure?**

14 A. The Company has supported its projected capital structure with Exhibits E-2,
15 Schedule 1 through E-2, Schedule 3. These exhibits show that Pike's projected
16 balances for its debt instruments and its common equity are consistent with its
17 experience with those capital structure elements.
18

19 **Q. Do you rely on other evidence to evaluate the Company's requested capital
20 structure?**

21 A. Yes. The mean and median common-equity ratios authorized in the electric and
22 gas rate cases published by RRA indicate that Pike's requested common-equity
23 ratio of 48.32 percent is reasonable (See Exhibits MFG-10, Schedules 1 and 2).

1 The common-equity information in those data sets is presented in the two
2 following tables.

3

Year	No. of Electric Cases	Mean Common- Equity Ratio	Median Common- Equity Ratio	Common- Equity Range
2019	21	50.75	51.96	37.94-56.00
2020	14	48.31	49.94	37.55-55.61

4

5

Year	No. of Gas Cases	Mean Common- Equity Ratio	Median Common- Equity Ratio	Common- Equity Range
2019	10	52.33	52.88	41.78-58.06
2020	12	50.77	50.63	33.07-59.64

6

7 **Q. Please summarize the common-equity information from 2019-2020 electric**
8 **and gas rate cases presented in the capital-structure tables.**

9 A. The electric and gas rate case tables show that Pike's requested common-equity
10 ratio of 48.32 percent is somewhat lower (1-2 percent lower for most of the means
11 and medians) than the typical common-equity ratios authorized in the 2019 and
12 2020 cases. Pike's requested ratio is also well within the ranges of the authorized
13 ratios. Thus, Pike's total debt also is reasonable given these levels of common

1 equity. Consequently, I support Pike's requested capital structure.

2
3 **Q. What is the overall ROR that you recommend for the Company?**

4 A. When my recommended ROE of 9.28 percent is included with the proposed
5 capital structure and above costs of long-term debt and short-term debt, the ROR
6 is 6.86 percent. See Exhibit MFG-11.

7
8 **XI. REVIEW OF THE COMPANY'S ROE ANALYSIS**

9 **Q. Please summarize the evidence Pike presents to support its recommended**
10 **ROE.**

11 A. In response to an interrogatory, Pike witnesses Mr. Lennox and Mr. Kane stated
12 that the Company relied on the PAPUC's "Report on Quarterly Earnings of
13 Jurisdictional Utilities for the Year Ended June 30, 2020" ("the Report") in
14 determining its requested ROE of 9.75 percent. Pike did not perform any analysis
15 using cost of equity models (See Exhibit MFG-14).

16
17 **Q. Does Pike request separate ROEs for its electric and gas services?**

18 A. No. Pike requests one ROE of 9.75 percent for both services.

19
20 **Q. Please state Pike's basis for requesting 9.75 percent as its ROE.**

21 A. The Pike witnesses identify several ROEs for electric utilities and gas utilities
22 currently in place in Pennsylvania in the interrogatory response. These ROEs
23 range from 9.45 percent to 10.15 percent. The Company settles upon 9.75 percent

1 as a ROE appropriate for a utility providing both electric and gas services. The
2 witnesses further note that Pike used a 9.75 percent ROE in 2014 as it negotiated
3 a settlement in its most recent rate case. No ROE was authorized in that rate case.
4 The witnesses state that a review of the Report indicates that it is common for
5 utilities in Pennsylvania to operate under settlements that do not include an
6 authorized ROE.

7
8 **Q. Please comment regarding Pike's proposed ROE.**

9 A. Pike's proposed ROE is the product of a historical review. My DCF model ROE
10 analysis, on the other hand, reflects current market conditions as perceived by
11 investors. This forward-looking analysis indicates that 9.28 percent is an
12 appropriate ROE for Pike. Further, my check of this value against recent
13 authorized U.S. ROEs indicates that this ROE is reasonable. Therefore, I continue
14 to recommend that value as Pike's ROE for its electric and gas services.

15
16 **XII. SUMMARY**

17 **Q. What are the criteria the Commission should consider in setting the**
18 **Company's ROE and ROR?**

19 A. The Commission should only consider whether the ROE and ROR meet the
20 *Bluefield* and *Hope* criteria for a fair return. Recounting, these criteria include
21 returns that are commensurate with returns being earned on other investments with
22 equivalent risks, a rate of return sufficient to enable the utility to attract capital, and
23 returns sufficient to enable the regulated company to maintain its credit rating and

1 financial integrity. The interpretation of the *Hope* and *Bluefield* criteria is that a
2 company should be given the opportunity to earn a ROE and ROR sufficient to
3 meet these standards.
4

5 **Q. What is your recommended return on equity and overall cost of capital for**
6 **Pike?**

7 A. I recommend a ROE of 9.28 percent and a ROR of 6.86 percent.
8

9 **Q. Does this conclude your testimony?**

10 A. Yes.
11

PCMG and Associates

Marlon Griffing, Ph.D.

Education

Ph.D., M.A., B.A., Economics, University of Nebraska-Lincoln

Position

Senior Consultant – PCMG and Associates	2015 – present
Senior Consultant – Snavely King Majoros and Associates	2013 – 2014
Utilities Financial Analyst – Minnesota Department of Commerce	2003 – 2013
Independent Consultant	2003
Senior Consultant – QSI Consulting	2000 – 2002
Economic Analyst – Nebraska Public Service Commission	1998 – 2000

Professional Experience

Dr. Griffing holds bachelors, masters, and doctoral degrees in economics. Dr. Griffing is well versed in microeconomics, cost/benefit analysis and econometric analysis. He has 21 years' experience as an expert witness and consultant, primarily addressing the cost of capital and capital structure for electric, natural gas, and water utilities. He has also made appearances regarding rate design, competitive effect of mergers, reliability and supply adequacy, and oil-pipeline companies in certificate of need cases. In addition, he managed testimony in two oil-pipeline certificate-of-need cases and arbitrated a telecommunications dispute for the Nebraska Public Service Commission. Dr. Griffing has appeared over 40 times in cost of capital dockets before the regulatory agencies of Arkansas, Maine, Maryland, Minnesota, Nebraska, New Jersey, New Mexico, North Dakota, Oklahoma, Pennsylvania, and South Dakota, and the Federal Energy Regulatory Commission.

Cost of Capital

1. Versant Power f/k/a Emera Maine, Proposed Increase in Distribution Rates (2021) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Maine Office of the Public Advocate)
Maine Public Utilities Commission Docket No. 2020-00316
2. In the Matter of the Verified Petition of Atlantic City Electric Company for Approval of Amendments to its Tariff to Provide for an Increase in Rates and Charges for Electric Service Pursuant to N.J.S.A. 48:2-21 and N.J.S.A. 48:2-21.1, and for Other Appropriate Relief (2021) – (Appearance: cost of capital on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. ER201020746

3. Northern States Power Company 2021 Electric Rate Increase Application (2021) –
(Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf
of the North Dakota Public Service Commission Staff)
ND Public Service Commission Case No. PU-20-441
4. Pike County Light & Power Company 2020 General Base Rate Increase (2020) –
(Appearance: Cost of Capital on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket Nos. R-2020-3022134 (Gas) and R-
2020-3022135 (Electric)
5. Water Rate Case Consultant for the Maine Public Advocate (2020) – (Appearance: cost of
capital on behalf of the Maine Office of Public Advocate in selected cases)
Docket Nos. to be determined
6. In the Matter of the Petition of South Jersey Gas Company for Approval of Increased Base
Tariff Rates and Charges for Gas Service, Changes to Depreciation Rates and Other Tariff
Revisions (2020) – (Appearance: cost of capital on behalf of the New Jersey Division of
Rate Counsel)
New Jersey Board of Public Utilities Docket No. GR20030243
7. In the Matter of the Verified Petition of Jersey Central Power & Light Company for
Review and Approval of Increases in, and Other Adjustments to, its Rates and Charges for
Electric Service, and for Approval of Other Proposed Tariff Revisions in Connection
Therewith (2020) – (Appearance: cost of equity on behalf of the New Jersey Division of
Rate Counsel)
New Jersey Board of Public Utilities Docket No. ER20020146
8. In the Matter of the Federal Power Act Rule 206 Complaint Against Public Service Electric
and Gas Company (2020) – (Appearance: cost of equity on behalf of the New Jersey
Division of Rate Counsel)
Federal Energy Regulatory Commission Docket No. ER09-1257-000
9. In the Matter of the Petition of New Jersey-American Water Company for Approval of
Increase Base Tariff Rates and Charges for Water and Wastewater Service and Other Tariff
Changes (2019) – (Appearance: cost of equity on behalf of the New Jersey Division of Rate
Counsel)
New Jersey Board of Public Utilities Docket No. WR19121516
10. In the Matter of the Petition of Jersey Central Power & Light Company for Approval of Its
Transmission Rates and Transmission Enhancement Charge for Interconnection with PJM
Interconnection, L.L.C. (2019) – (Appearance: cost of equity on behalf of the New Jersey
Division of Rate Counsel)
Federal Energy Regulatory Commission Docket No. ER20-227-000

11. In the Matter of the Application of Hawaiian Electric Company, Inc. for Approval of a General Rate Increase and Revised Rate Schedules and Rules (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Hawaii Division of Consumer Advocacy)
Hawaii Public Utilities Commission Docket No. 2019-0085
12. Request for Approval of Rate Change, Northern Utilities, Inc. (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Maine Office of the Public Advocate)
Maine Public Utilities Commission Docket No. 2019-00092
13. Application of San Diego Gas & Electric Company (U902M) for Authority to: (i) Adjust its Authorized Return on Common Equity, (ii) Adjust its Authorized Embedded Costs of Debt and Preferred Stock, (iii) Adjust its Authorized Capital Structure; (iv) Modify its Adopted Cost of Capital Mechanism Structure, and (v) Revise its Electric Distribution and Gas Rates Accordingly, and for Related Substantive and Procedural Relief (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the United Consumer Action Network)
California Public Utilities Commission Proceeding A.19-04-017
14. In the Matter of the Application of the Empire District Electric Company, a Kansas Corporation, for an Adjustment in its Rates and Charges for Electric Service in the State of Oklahoma (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Office of the Oklahoma Attorney General)
Oklahoma Commerce Commission Cause No. PUD 201800133
15. In the Matter of the Petition of New Jersey Natural Gas Company for Approval of an Increase in Gas Base Rates and for Changes in its Tariff for Gas Service, Pursuant to N.J.S.A. 48:2-21 and 48:2-21.1 and for Changes to Depreciation Rates for Gas Property Pursuant to N.J.S.A. 48:2-18 (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. GR19030420
16. In the Matter of the Petition of Pivotal Utility Holdings d/b/a Elizabethtown Gas Company to Implement an Infrastructure Investment Program (IIP) and Associated Recovery Mechanism (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. GR1810197
17. Commission-Initiated Investigation into Rates and Revenue Requirements Pertaining to Emera Maine, Inc. (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Maine Office of the Public Advocate)
Maine Public Utilities Commission Docket No. 2019-00019

18. In the Matter of the Petition of Aqua New Jersey, Inc. for Approval of an Increase in Rates for Water Service and Other Tariff Changes (2018) - (Appearance: return on equity, cost of capital on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR18121351
19. Application of Oklahoma Gas and Electric Company for an Order of the Commission Authorizing Applicant to Modify Its Rates, Charges, and Tariffs for Retail Electric Service in the State of Oklahoma (2018) - (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
Oklahoma Commerce Commission Cause No. PUD 201800140
20. Commission-Initiated Investigation into Rates and Revenue Requirements Pertaining to Central Maine Power Company (2018) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Maine Office of the Public Advocate)
Maine Public Utilities Commission Docket No. 2018-00194
21. Application of Public Service Company of Oklahoma, An Oklahoma Corporation, for An Adjustment in Its Rates and Charges and the Electric Service Rules, Regulations and Conditions for Service in the State of Oklahoma and to Approve a Performance-Based Rate Proposal (2018) - (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
Oklahoma Commerce Commission Cause No. PUD 201800097
22. In Re: The Matter of the Application of Maryland American Water Co. for Authority to Increase Rates and Charges (2018) – (Appearance: Cost of capital on behalf of the Maryland Office of the People’s Counsel)
Maryland Public Service Commission – Case No. 9487
23. In the Matter of Petition of Atlantic City Electric Co. for Approval of Amendments to Its Tariff to Provide for an Increase in Rates and Charges for Electric Service and for Other Appropriate Relief (2018) - (Appearance: return on equity, cost of capital on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. ER18080925
24. In the Matter of Petition of SUEZ Water New Jersey, Inc. for Approval of an Increase in Rates for Water/Sewer Service and Other Tariff Changes (2018) - (Appearance: return on equity, cost of capital on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR18050593
25. In Re: The Matter of the Application of Columbia Gas of Maryland, Inc. for Authority to Increase Rates and Charges (2018) – (Appearance: Cost of capital on behalf of the Maryland Office of the People’s Counsel)
Maryland Public Service Commission – Case No. 9480

26. In Re: The Matter of the Columbia Gas of Pennsylvania for a General Rate Increase in Distribution Gas Service (2018) – (Appearance: Cost of Capital on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket No. R-2018-2647577
27. In the Matter of the Application of Black Hills Energy Arkansas, Inc. for Approval of a General Tariff Change in Rates and Tariffs (2018) – (Appearance: return on equity, cost of capital on behalf of the Office of the Arkansas Attorney General)
Arkansas Public Service Commission Docket 17-071-U
28. In the Matter of the Petition of Atlantic City Electric Company for Approval of an Infrastructure Investment Program and Related Cost Recovery Mechanism (2018) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. EO18020196
29. In the Matter of the Application of Oklahoma Gas and Electric Company for an Order of the Commission Authorizing Applicant to Modify Its Rates, Charges, and Tariffs for Retail Electric Service in Oklahoma (2018) - (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
Oklahoma Commerce Commission Cause No. PUD 201700496
30. Application of Fayson Lake Water Company for the Approval of an Increase in Rates and Other Appropriate Relief (2017) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR17101041
31. Petition of Middlesex Water Company for Approval of an Increase in its Rates for Water Service and Other Tariff Changes, and an Order Authorizing Special Accounting Treatment of Income Tax Refund Proceeds and Future Income Tax Deductions (2017) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR17101049
32. In the Matter of the Petition of New Jersey-American Water Company, Inc. for Approval of an Increased Tariff Rates and Charges for Water and Sewer Service, Change in Depreciation Rates, and Other Tariff Modifications (2017) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR17090985
33. Montana-Dakota Utilities Co., Application to Increase Natural Gas Rates (2017) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the North Dakota Public Service Commission Staff)
ND Public Service Commission Case No. PU-17-295

34. In the Matter of the Petition of Andover Utility Company, Inc. for Approval of an Increase in Rates for Wastewater Service (2017) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR17070726
35. Application of Public Service Company of Oklahoma, An Oklahoma Corporation, for An Adjustment in Its Rates and Charges and the Electric Service Rules, Regulations and Conditions for Service in the State of Oklahoma (2017) - (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
Oklahoma Commerce Commission Cause No. PUD 201700151
36. In the Matter of the Petition of SUEZ Water Arlington Hills, Inc. for Approval of an Increase in Rates for Wastewater Service and Other Tariffs (2016) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR16060510
37. In the Matter of Request by Emera Maine for Approval of a Rate Change (2016) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Maine Office of the Public Advocate)
Maine Public Utilities Commission Docket No. 15-00360
38. ENMAX Energy Corporation (EEC) Regulated Rate Option Non-Energy Tariff Application (2015-2016) - (Analysis: cost of capital, risk element identification on behalf of the Alberta Utilities Consumer Advocate)
Alberta Utilities Commission Proceeding 20480
39. Pennsylvania Public Utilities Commission vs. West Penn Power Co., Pennsylvania Electric Co., Pennsylvania Power Co., and Metropolitan Edison Co. (2014-2015) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return behalf of the Office of the Pennsylvania Consumer Advocate)
PA Docket Nos. R-2014-2428742-R-2014-2428745
40. In the Matter of the Application of Minnesota Energy Resources Corporation for Authority to Increase Rates for Natural Gas Service in Minnesota (2010-2012) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G007,011/GR-10-977
41. In the Matter of the Application of Otter Tail Power Company for Authority to Increase Rates for Electric Utility Service in Minnesota (2010-2011) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. E017/GR-10-239

42. In the Matter of the Petition of Northern States Power Company, a Minnesota Corporation, for Authority to Increase Rates for Natural Gas Service in Minnesota (2009-2010) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G002/GR-09-1153
43. In the Matter of an Application by CenterPoint Energy Resources Corp., D/B/A CenterPoint Minnesota Gas to Increase Natural Gas Rates in Minnesota (2008-2009) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G008/GR-08-1075
44. In the Matter of Minnesota Energy Resources Corporation's Application for Authority to Increase Natural Gas Rates in Minnesota (2008-2009) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G007,011/GR-08-835
45. In the Matter of the Petition of Northern States Power Company, a Minnesota Corporation and Wholly Owned Subsidiary of Xcel Energy Inc., for Authority to Increase Rates for Natural Gas Service in Minnesota (2006-2007) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G002/GR-06-1429
46. In the Matter of the Application of CenterPoint Energy Resources Corp., D/B/A CenterPoint Energy Minnesota Gas, for Authority to Increase Natural Gas Rates in Minnesota (2005-2006) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G008/GR-05-1380
47. In the Matter of a Petition by Interstate Power and Light Company for Authority to Increase Electric Rates in Minnesota (2005) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. E001/GR-05-748
48. In the Matter of the Petition of Northern States Power Company dba Xcel Energy Request for General Rate Increase (2004-2005) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G002/GR-04-1511

49. In the Matter of the Petition of Great Plains Natural Gas Company's Request for General Rate Increase (2004-2005) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
MN Docket No. G004/GR-04-1487

50. In the Matter of the Petition of CenterPoint Energy Minnegasco, A Division of CenterPoint Resources Corp. for Authority to Increase Natural Gas Rates in Minnesota (2004-2005) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
Docket No. G008/GR-04-901

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EXPLANATORY NOTE

Corning Natural Gas Holding Corporation (the “Holding Company”) is a successor issuer to Corning Natural Gas Corporation (“Corning Gas” or the “Gas Company”) as of November 12, 2013 as a result of a share-for-share exchange, creating a holding company structure. As of November 12, 2013, the Gas Company became a wholly-owned subsidiary of Holding Company.

As used in this Form 10-K, the term “Company”, “we” or “us” refers to the consolidated companies, the terms “Gas Company” and “Corning Gas” mean Corning Natural Gas Corporation, the term “Pike” means Pike County Light & Power Company, and the term “Leatherstocking Companies” means the combination of Leatherstocking Gas Company, LLC and Leatherstocking Pipeline Company, LLC, unless the context clearly indicates otherwise. Except as otherwise stated, the information contained in this Form 10-K is as of September 30, 2020.

PART I

ITEM 1 – BUSINESS

General

The Holding Company was incorporated in New York in July 2013 to serve as a holding company for the Gas Company and its dormant subsidiary Corning Natural Gas Appliance Corporation (the “Appliance Company”), Pike County Light & Power Company (“Pike”), Leatherstocking Gas Company, LLC (“Leatherstocking Gas”), and Leatherstocking Pipeline Company, LLC (“Leatherstocking Pipeline”). The Holding Company also owns 50% of Leatherstocking Gas of New York, Inc. “Leatherstocking NY”. As used in this document, the term “the Company” refers to the consolidated operations of the Holding Company, Gas Company, Pike and (from July 1, 2020) the Leatherstocking Companies.

The Company’s principal executive offices are located at 330 W. William Street, Corning New York, 14830, the telephone number is (607) 936-3755, and our website is www.corninggas.com.

Business

The Company’s primary business, through its subsidiaries Corning Gas, Pike and the Leatherstocking Companies, is natural gas and electric distribution. Corning Gas serves approximately 15,000 residential, commercial, industrial and municipal customers in the Corning, Hammondsport and Virgil, New York, areas and two other gas utilities which serve the Elmira and Bath, New York, areas. It is franchised to supply gas service in all of the political subdivisions in which it operates. The Gas Company is under the jurisdiction of the New York Public Service Commission (“NYPSC”) which oversees and sets rates for New York gas distribution companies. In addition, the Gas Company has contracts with Corning Incorporated and Woodhull Municipal Gas Company, a small local utility, to provide maintenance service on their gas lines. Pike is an electric and gas utility regulated by the Pennsylvania Public Utility Commission (“PAPUC”). Pike provides electric service to approximately 4,800 customers in the Townships of Westfall, Milford and the northern part of Dingman and in the Boroughs of Milford and Matamoras. Pike provides natural gas service to 1,200 customers in Westfall Township and the Borough of Matamoras. All of these communities are located in Pike County, Pennsylvania. Additionally, Leatherstocking Gas is also regulated by the PAPUC and distributes gas in Susquehanna and Bradford Counties, Pennsylvania. Leatherstocking Pipeline, an unregulated company, has served one customer in Lawton, Pennsylvania and has had no revenues since 2018. Leatherstocking NY has an application pending before the NYPSC for authority to provide gas distribution services in Broome County, New York.

Gas and Electric Supply

Corning Gas has contracted with various sources to provide natural gas to our distribution system. The Gas Company contracts for pipeline capacity, as well as storage capacity of approximately 736,000 dekatherms (“Dth”). The Company manages its transportation and storage capacity with internal resources. Pike has contracted with Orange and Rockland Utilities, Inc. (“O&R”) to provide electricity and natural gas according to agreements until August 2022, subject to renewal. Leatherstocking Gas has a supply agreement with Cabot Oil and Gas.

Corning Gas secured the NYPSC-required fixed price and storage gas supply for the 2020-2021 winter season and is managing its storage and gas supply contracts following its gas supply and acquisition plan. Assuming no extraordinary conditions for the winter season, gas supply, flowing and storage, will be adequate to serve its approximately 15,000 customers.

Corning Gas does not expect a shortage of natural gas to impact our business over the next five to ten years. Natural gas supply over the last several years has been positive, and domestic reserves and production have increased. This is especially true in proximity to our distribution network. We likewise anticipate no shortages of the necessary pipes and valves for safe distribution of natural gas and continue to receive material inventory from various reliable sources. We also have confidence that our agreement with O&R will enable Pike to meet all our electric and gas needs for Pike’s customers until August 2022, subject to renewal, and that Cabot Oil and Gas will be able to continue reliably supplying Leatherstocking Gas.

**ROE and ROR Analysis for Pike County
Comparison Group
Pennsylvania Electric and Natural Gas Utilities**

**Docket Nos R-2020-3022134 and. R-2020-3022135
Exhibit ___ MFG-3**

Pennsylvania Electric Companies

Operating Company	Parent Company	Ticker	Exchange where Publicly Traded
Duquesne Light Company	DQE Holdings LLC	None	Privately Owned
PECO Energy Company	Exelon Corporation	EXC	NASDAQ
PPL Electric	PPL Corporation	PPL	NYSE
UGI - Electric	UGI Corporation	UGI	NYSE
Pennsylvania Electric Company	First Energy	FE	NYSE
Metropolitan Edison Company	First Energy	FE	NYSE
Pennsylvania Power Company	First Energy	FE	NYSE
West Penn Power Company	First Energy	FE	NYSE

Pennsylvania Gas Companies

Operating Company	Parent Company	Ticker	Exchange where Publicly Traded
Columbia Gas of PA, Inc.	NiSource	NI	NYSE
Peoples Natural Gas Company LLC	Essential Utilities	WTRG	NYSE
PECO Energy - Gas Operations	Exelon Corporation	EXC	NASDAQ
UGI Utilities, Inc. – South*	UGI Corporation	UGI	NYSE
National Fuel Gas Distribution Co.	National Fuel Gas Company	NFG	NYSE
UGI Utilities, Inc. – North*	UGI Corporation	UGI	NYSE
Peoples Gas Company, LLC	Essential Utilities	WTRG	NYSE
UGI Utilities, Inc. – Central*	UGI Corporation	UGI	NYSE

Sources: Pennsylvania Public Utilities Commission “Report on the Quarterly Earnings of Jurisdictional Utilities for the Year Ended June 30, 2020.” S&P Global Market Intelligence.

ROE and ROR Analysis for Pike County
Comparison Group Screens

Docket Nos. R-2020-3022134 and R-2020-3022135
Exhibit ____ MFG-4

Entity Name	Exchange	SIC Code	Combination Electric and Gas	Investment-Grade S&P Long-Term Credit Rating	Paying Dividend	Merger Target or MOE Participant? Unusual event?	Postive EPS Growth Rates from Two Sources
Essential Utilities, Inc.	NYSE	4941**	Water Supply, Natural Gas	A	Yes	No	Yes
Exelon Corporation	NASDAQ	4931	Electric Utilities; Oil and Gas Distribution	BBB+	Yes	No	Yes
FirstEnergy Corp.	NYSE	4911	Electric Utilities	BB	Yes	Yes	No
National Fuel Gas	NYSE	4924	Oil and Gas Distribution	BBB-	Yes	No	Yes
NiSource Inc.	NYSE	4931	Electric Utilities; Multi-Utilities; Oil and Gas Distribution	BBB+	Yes	No	Yes
PPL Corporation	NYSE	4911	Electric Utilities; Oil and Gas Distribution	A-	Yes	No	No
UGI Corporation	NYSE	4932	Electric Utilities; Oil and Gas Distribution		Yes	No	Yes

*-National Association of Insurance Commissioners rating. "1" is equivalent to at least an A- rating from Standard & Poor's.

**-Essential Utilities has SIC code 4941, but it also has natural gas operations, having acquired Peoples Gas in Pennsylvania.

Shaded cell indicates a screen that a company did not meet.

Bribery case prompts S&P to place FirstEnergy, subsidiaries on CreditWatch

Thursday, July 23, 2020 12:40 PM CT

By Usman Khalid
Market Intelligence

S&P Global Ratings placed the ratings of FirstEnergy Corp. and its subsidiaries on CreditWatch with negative implications July 23 after a federal criminal complaint implied the company's involvement in an approximately \$60 million racketeering scheme.

On July 21, the U.S. Attorney's Office for the Southern District of Ohio and the Federal Bureau of Investigation announced charges related to more than \$60 million in bribes allegedly paid to Ohio House Speaker Larry Householder and his associates to steer a nuclear subsidy bill, House Bill 6, through the state Legislature.

Although FirstEnergy was not explicitly named in the affidavit, Ratings said the company could be implicated in the charges in the coming months.

The nuclear subsidy legislation was signed into law in July 2019 and provides \$150 million in annual financial support for the 908-MW Davis-Besse and 1,268-MW Perry nuclear plants owned by Energy Harbor Corp. FirstEnergy's competitive subsidiary, FirstEnergy Solutions Corp., emerged from Chapter 11 bankruptcy protection earlier in 2020 as Energy Harbor.

The charges outlined in the criminal complaint allege that the bribery payments began as early as March 2017, prior to Energy Harbor's emergence from bankruptcy.

"If subsequent investigations directly implicate FirstEnergy, we believe it could reflect a material deficiency in the company's governance, insufficient internal controls, or could result in a weakening of the company's management of regulatory risk," S&P Global Ratings said in a research note. "Any of the above determinations would likely cause us to downgrade the company by one or more notches."

FirstEnergy shares dropped 20.91% on July 22, closing at \$27.09 following a 17% decline July 21. At around 1:30 p.m. ET on July 23, shares were up about 4.6% in heavy trading.

This S&P Global Market Intelligence news article may contain information about credit ratings issued by S&P Global Ratings. Descriptions in this news article were not prepared by S&P Global Ratings.

This article was published by S&P Global Market Intelligence and not by S&P Global Ratings, which is a separately managed division of S&P Global.

**ROE and ROR Analysis for Pike County
Comparison Group
Common Equity Share Prices
Yahoo Finance, January 27, 2021**

**Docket Nos. R-2020-3022134/135
Exhibit ____ MFG-6
1 of 2**

Essential Utilities (WTRG)		Exelon (EXC)		FirstEnergy (FE)		NiSource (NI)	
Date	Close	Date	Close	Date	Close	Date	Close
12/28/2020	\$ 46.08	12/28/2020	\$ 42.21	12/28/2020	\$ 29.62	12/28/2020	\$ 22.30
12/29/2020	\$ 46.11	12/29/2020	\$ 41.83	12/29/2020	\$ 29.71	12/29/2020	\$ 22.34
12/30/2020	\$ 46.56	12/30/2020	\$ 41.93	12/30/2020	\$ 30.11	12/30/2020	\$ 22.55
12/31/2020	\$ 47.29	12/31/2020	\$ 42.22	12/31/2020	\$ 30.61	12/31/2020	\$ 22.94
1/4/2021	\$ 46.19	1/4/2021	\$ 41.17	1/4/2021	\$ 29.51	1/4/2021	\$ 22.58
1/5/2021	\$ 46.81	1/5/2021	\$ 41.11	1/5/2021	\$ 29.84	1/5/2021	\$ 22.52
1/6/2021	\$ 48.04	1/6/2021	\$ 42.45	1/6/2021	\$ 30.30	1/6/2021	\$ 23.02
1/7/2021	\$ 47.48	1/7/2021	\$ 42.03	1/7/2021	\$ 29.63	1/7/2021	\$ 22.13
1/8/2021	\$ 48.72	1/8/2021	\$ 42.21	1/8/2021	\$ 29.91	1/8/2021	\$ 21.81
1/11/2021	\$ 48.18	1/11/2021	\$ 41.86	1/11/2021	\$ 30.20	1/11/2021	\$ 21.88
1/12/2021	\$ 46.64	1/12/2021	\$ 42.08	1/12/2021	\$ 30.49	1/12/2021	\$ 21.87
1/13/2021	\$ 46.88	1/13/2021	\$ 42.80	1/13/2021	\$ 30.79	1/13/2021	\$ 22.01
1/14/2021	\$ 45.52	1/14/2021	\$ 42.58	1/14/2021	\$ 31.25	1/14/2021	\$ 21.86
1/15/2021	\$ 46.15	1/15/2021	\$ 43.36	1/15/2021	\$ 31.67	1/15/2021	\$ 22.93
1/19/2021	\$ 46.80	1/19/2021	\$ 42.82	1/19/2021	\$ 31.11	1/19/2021	\$ 22.46
1/20/2021	\$ 46.81	1/20/2021	\$ 43.05	1/20/2021	\$ 31.33	1/20/2021	\$ 22.38
1/21/2021	\$ 46.01	1/21/2021	\$ 43.02	1/21/2021	\$ 31.07	1/21/2021	\$ 21.92
1/22/2021	\$ 45.46	1/22/2021	\$ 42.54	1/22/2021	\$ 31.27	1/22/2021	\$ 21.93
	\$ 46.76		\$ 42.29		\$ 30.47		\$ 22.30

ROE and ROR Analysis for Pike County
Comparison Group
Common Equity Share Prices
Yahoo Finance, January 27, 2021

Docket Nos. R-2020-3022134/135
Exhibit ____ MFG-6
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PPL (PPL)

UGI (UGI)

Date	Close	Date	Close
12/28/2020	\$ 27.25	12/28/2020	\$ 34.95
12/29/2020	\$ 27.30	12/29/2020	\$ 34.43
12/30/2020	\$ 27.59	12/30/2020	\$ 34.44
12/31/2020	\$ 28.20	12/31/2020	\$ 34.96
1/4/2021	\$ 27.58	1/4/2021	\$ 34.79
1/5/2021	\$ 27.61	1/5/2021	\$ 34.88
1/6/2021	\$ 28.11	1/6/2021	\$ 36.29
1/7/2021	\$ 27.74	1/7/2021	\$ 35.05
1/8/2021	\$ 27.81	1/8/2021	\$ 35.25
1/11/2021	\$ 27.77	1/11/2021	\$ 35.58
1/12/2021	\$ 27.95	1/12/2021	\$ 36.50
1/13/2021	\$ 28.09	1/13/2021	\$ 36.71
1/14/2021	\$ 28.21	1/14/2021	\$ 37.05
1/15/2021	\$ 28.57	1/15/2021	\$ 37.63
1/19/2021	\$ 28.14	1/19/2021	\$ 37.29
1/20/2021	\$ 27.97	1/20/2021	\$ 37.19
1/21/2021	\$ 27.76	1/21/2021	\$ 36.90
1/22/2021	\$ 27.82	1/22/2021	\$ 37.18

\$ 27.86

\$ 35.95

**ROE and ROR Analysis for Pike County
Comparison Group
Dividends**

**Docket Nos. R-2020-3022134 and R-2020-3022135
Exhibit ____ MFG-7**

Name	Value Line	Zacks	Highest Dividend
Essential Utilities, Inc.	\$ 1.00	\$ 1.00	\$ 1.00
Exelon Corporation	\$ 1.53	\$ 1.53	\$ 1.53
FirstEnergy Corp.	\$ 1.56	\$ 1.56	\$ 1.56
NiSource Inc.	\$ 0.84	\$ 0.84	\$ 0.84
PPL Corporation	\$ 1.66	\$ 1.66	\$ 1.66
UGI Corporation	\$ 1.32	\$ 1.32	\$ 1.32

Value Line dividends taken from November 2020 (Exelon, November 13; NiSource and UGI, November 27; Sempra) and January 2021 (Essential Utilities, January 8) Research Reports
Zacks dividends taken from website on January 27, 2021

**ROE and ROR Analysis for Pike County
Comparison Group
Discounted Cash Flow Constant-Growth Model Analysis
Common Equity Share Prices December 28, 2020-January 22, 2021
Zacks, Yahoo! Finance, and Value Line EPS Growth-
Rate Estimates--November 2020, January 2021**

**Docket Nos. R-2020-3022134
and R-2020-3022135
Exhibit ____ MFG-8**

	A	B	C	D
Company Name	Zacks EPS Growth Rate (%)	Yahoo! Finance EPS Growth Rates (%)	Value Line EPS Growth Rates (%)	Zacks-Yahoo! Finance-Value Line Mean Growth Rate (%)
Essential Utilities, Inc.	6.28%	6.40%	7.00%	6.56%
Exelon Corporation	2.98%	-2.40%	3.50%	3.24%
FirstEnergy Corp.	NA	-6.60%	8.50%	8.50%
NiSource Inc.	5.58%	1.65%	13.00%	6.74%
PPL Corporation	NA	-16.20%	2.50%	2.50%
UGI Corporation	8.00%	7.50%	5.50%	7.00%
Mean	5.71%	-1.61%	6.67%	5.89%

	E	F	G	H	I	J
Company Name	Average of Closing Prices	Annualized Dividend	Dividend Yield (Rate/Price)	Expected Dividend Yield	Required Rate of Return on Equity	Exceeds 5.11% threshold value for inclusion
Essential Utilities, Inc.	\$ 46.76	\$ 1.00	2.14%	2.21%	8.77%	Yes
Exelon Corporation	\$ 42.29	\$ 1.53	3.62%	3.68%	6.92%	Yes
FirstEnergy Corp.	\$ 30.47	\$ 1.56	5.12%	5.34%	13.84%	
NiSource Inc.	\$ 22.30	\$ 0.84	3.77%	3.89%	10.64%	Yes
PPL Corporation	\$ 27.86	\$ 1.66	5.96%	6.03%	8.53%	
UGI Corporation	\$ 35.95	\$ 1.32	3.67%	3.80%	10.80%	Yes
Mean			3.30%	3.40%	9.28%	

A: Zacks website, January 27, 2021. See Workpapers.

B: Yahoo! Finance website; January 27, 2021. See Workpapers.

C: Value Line Investment Survey: November 2020, December 2020, and January 2021. See Workpapers.

E: Yahoo! Finance website; December 28, 2020-January 22, 2021 (18 trading days).

F: Higher of Value Line Investment Survey and Zacks reports. See Exhibit MFG-7.

D: $(A + B + C)/3$

G: F/E

H: $G*(1+(0.5*D))$

I: $D + H$

J: Minimum threshold of 5.11% is from Exhibit MFG-9, Schedule 6. (Moody's Baa Public Utility 10-Year Bonds index average + 0.2 * CAPM risk premium)

Shaded cell indicates company is excluded from the analysis.

**ROE and ROR Analysis for Pike County
Capital Asset Pricing Model (CAPM) Analysis
Risk-Free Rate Analysis**

**Docket Nos. R-2020-3022134 and R-2020-3022135
Exhibit ____ MFG-9, Schedule 1**

Daily Treasury Yield Curve Rates (Percent)

December 28, 2020-January 22, 2021

Date	1 mo	2 mo	3 mo	6 mo	1 yr	2 yr	3 yr	5 yr	7 yr	10 yr	20 yr	30 yr
12/28/2020	0.09	0.10	0.11	0.11	0.11	0.13	0.17	0.38	0.65	0.94	1.46	1.67
12/29/2020	0.08	0.09	0.10	0.12	0.11	0.12	0.17	0.37	0.66	0.94	1.47	1.67
12/30/2020	0.06	0.06	0.08	0.09	0.12	0.12	0.17	0.37	0.66	0.93	1.46	1.66
12/31/2020	0.08	0.08	0.09	0.09	0.10	0.13	0.17	0.36	0.65	0.93	1.45	1.65
1/4/2021	0.09	0.09	0.09	0.09	0.10	0.11	0.16	0.36	0.64	0.93	1.46	1.66
1/5/2021	0.08	0.09	0.09	0.09	0.10	0.13	0.17	0.38	0.66	0.96	1.49	1.70
1/6/2021	0.09	0.09	0.09	0.09	0.11	0.14	0.20	0.43	0.74	1.04	1.60	1.81
1/7/2021	0.09	0.09	0.09	0.09	0.11	0.14	0.22	0.46	0.78	1.08	1.64	1.85
1/8/2021	0.08	0.08	0.08	0.09	0.10	0.14	0.24	0.49	0.81	1.13	1.67	1.87
1/11/2021	0.09	0.08	0.08	0.10	0.10	0.14	0.22	0.50	0.84	1.15	1.68	1.88
1/12/2021	0.09	0.08	0.09	0.09	0.11	0.14	0.23	0.50	0.83	1.15	1.68	1.88
1/13/2021	0.09	0.08	0.09	0.10	0.12	0.14	0.22	0.48	0.80	1.10	1.63	1.82
1/14/2021	0.09	0.09	0.09	0.09	0.10	0.16	0.23	0.49	0.82	1.15	1.69	1.88
1/15/2021	0.08	0.09	0.09	0.10	0.10	0.13	0.20	0.46	0.78	1.11	1.66	1.85
1/19/2021	0.07	0.09	0.09	0.11	0.10	0.14	0.21	0.45	0.78	1.10	1.65	1.84
1/20/2021	0.08	0.08	0.08	0.10	0.10	0.13	0.19	0.45	0.78	1.10	1.65	1.84
1/21/2021	0.07	0.09	0.09	0.09	0.10	0.13	0.19	0.45	0.79	1.12	1.68	1.87
1/22/2021	0.07	0.08	0.08	0.10	0.10	0.13	0.19	0.44	0.77	1.10	1.66	1.85
											Mean	1.79

Source: <https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yieldAll>

**ROE and ROR Analysis for Pike County
Capital Asset Pricing Model (CAPM) Analysis
Betas for Comparison Group**

**Docket Nos. R-2020-3022134
and R-2020-3022135
Exhibit ____ MFG-9, Schedule 2**

Company Name	Value Line Betas-- Comparison Group
Essential Utilities, Inc.	0.95
Exelon Corporation	0.95
NiSource Inc.	0.85
UGI Corporation	1.05
Mean	0.950

Value Line betas taken from November 2020, December 2020, and January 2021 Investment Survey Research Reports.

Constant-Growth DCF Analysis for S&P 500

All companies shown

A: IBES, January 28, 2021 B and E: Value Line Analyzer, January 27, 2021

$C = B * (1 + A)$

$D = A + C$

$F = E / (\text{Sum of E})$

$G = D * F$

	A	B	C	D	E	F	G
	EPS Growth	Dividend Yield	Expected Dividend	Rate of Return on	Market Cap	Market Cap	Rate of
Company Name	Rate (%)	(%)	Yield (%)	Equity (%)	\$ (Mil)	Weight Factor	Return on Equity (%)
3M Company	6.99	3.45	3.69	10.68	98,186.47	0.00278	0.0297
Abbott Labs.	15.21	1.59	1.83	17.04	200,081.94	0.00566	0.0965
AbbVie Inc.	11.22	4.62	5.14	16.36	198,807.52	0.00563	0.0921
ABIOMED Inc.	17.10	0.00	0.00	17.10	15,720.25	0.00045	0.0076
Accenture Plc	9.93	1.35	1.48	11.41	165,937.23	0.00470	0.0536
Activision Blizzard	24.38	0.47	0.58	24.96	73,509.30	0.00208	0.0520
Adobe Inc.	16.67	0.00	0.00	16.67	225,470.39	0.00638	0.1064
Advance Auto Parts	11.51	0.61	0.68	12.19	11,305.75	0.00032	0.0039
Advanced Micro Dev.	39.14	0.00	0.00	39.14	106,677.50	0.00302	0.1182
AES Corp.	7.30	2.14	2.30	9.60	18,636.97	0.00053	0.0051
Aflac Inc.	6.11	2.87	3.05	9.16	33,110.19	0.00094	0.0086
Agilent Technologies	9.30	0.61	0.67	9.97	39,531.92	0.00112	0.0112
Air Products & Chem.	10.31	1.87	2.06	12.37	63,299.38	0.00179	0.0222
Akamai Technologies	9.66	0.00	0.00	9.66	17,803.81	0.00050	0.0049
Alaska Air Group	-16.56	0.00	0.00	-16.56	6,901.52	0.00020	-0.0032
Albemarle Corp.	15.00	0.86	0.99	15.99	19,182.49	0.00054	0.0087
Alexandria Real Estate	0.10	2.55	2.55	2.65	18,986.38	0.00054	0.0014
Alexion Pharmac.	11.00	0.00	0.00	11.00	34,545.06	0.00098	0.0108
Align Techn.	19.01	0.00	0.00	19.01	44,500.01	0.00126	0.0240
Allegion plc	1.13	1.12	1.13	2.26	10,534.03	0.00030	0.0007
Alliant Energy	5.80	3.22	3.41	9.21	12,468.07	0.00035	0.0032

**ROE and ROR Analysis for Pike County
CAPM Analysis
Standard and Poor's 500 with IBES EPS**

Docket Nos. R-2020-3022134 and R-2020-3022135

Exhibit ____ MFG-9, Schedule 3

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Allstate Corp.	6.22	1.95	2.07	8.29	33,744.00	0.00096	0.0079
Alphabet Inc.	16.81	0.00	0.00	16.81	1,278,797.38	0.03621	0.6086
Alphabet Inc. 'A'	16.81	0.00	0.00	16.81	1,280,731.88	0.03626	0.6095
Altria Group	4.12	8.17	8.51	12.63	78,239.44	0.00222	0.0280
Amazon.com	32.80	0.00	0.00	32.80	1,638,216.75	0.04638	1.5213
Amcors plc	6.77	4.18	4.46	11.23	18,181.37	0.00051	0.0058
Amer. Airlines	-41.91	0.00	0.00	-41.91	8,224.13	0.00023	-0.0098
Amer. Elec. Power	6.00	3.71	3.93	9.93	41,549.67	0.00118	0.0117
Amer. Express	3.20	1.40	1.44	4.64	103,796.70	0.00294	0.0136
Amer. Int'l Group	1.89	3.04	3.10	4.99	36,249.77	0.00103	0.0051
Amer. Tower 'A'	15.58	2.25	2.60	18.18	98,956.65	0.00280	0.0509
Amer. Water Works	8.40	1.44	1.56	9.96	29,619.52	0.00084	0.0084
Ameren Corp.	6.60	2.88	3.07	9.67	17,931.89	0.00051	0.0049
Ameriprise Fin'l	10.11	1.95	2.15	12.26	25,287.60	0.00072	0.0088
AmerisourceBergen	8.73	1.70	1.85	10.58	21,169.11	0.00060	0.0063
AMETEK, Inc.	-1.20	0.60	0.59	-0.61	27,633.11	0.00078	-0.0005
Amgen	6.21	2.79	2.96	9.17	147,252.05	0.00417	0.0382
Amphenol Corp.	7.80	0.87	0.94	8.74	40,091.24	0.00114	0.0099
Analog Devices	11.47	1.55	1.73	13.20	59,054.78	0.00167	0.0221
ANSYS, Inc.	6.39	0.00	0.00	6.39	32,508.62	0.00092	0.0059
Anthem, Inc.	13.62	1.32	1.50	15.12	80,201.24	0.00227	0.0343
Aon plc	7.66	0.87	0.94	8.60	48,576.65	0.00138	0.0118
Apache Corp.	-24.00	0.57	0.43	-23.57	6,594.23	0.00019	-0.0044
Apple Inc.	12.92	0.66	0.75	13.67	2,241,442.00	0.06346	0.8672
Applied Materials	16.05	0.83	0.96	17.01	98,565.76	0.00279	0.0475
Aptiv PLC	3.44	0.00	0.00	3.44	39,186.03	0.00111	0.0038
Archer Daniels Midl'd	4.50	2.84	2.97	7.47	29,746.00	0.00084	0.0063
Arista Networks	6.60	0.00	0.00	6.60	23,782.48	0.00067	0.0044
Assurant Inc.	19.40	1.86	2.22	21.62	8,389.53	0.00024	0.0051
AT&T Inc.	-1.82	7.32	7.19	5.37	206,341.30	0.00584	0.0314
Atmos Energy	6.77	2.83	3.02	9.79	11,112.69	0.00031	0.0031
Autodesk, Inc.	36.14	0.00	0.00	36.14	67,795.03	0.00192	0.0694

**ROE and ROR Analysis for Pike County
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Automatic Data Proc.	11.07	2.29	2.54	13.61	69,696.86	0.00197	0.0269
AutoZone Inc.	5.60	0.00	0.00	5.60	28,339.74	0.00080	0.0045
AvalonBay Communities	2.54	3.95	4.05	6.59	23,335.66	0.00066	0.0044
Avery Dennison	8.93	1.58	1.72	10.65	13,300.42	0.00038	0.0040
Baker Hughes	3.25	3.14	3.24	6.49	15,679.65	0.00044	0.0029
Ball Corp.	13.90	0.65	0.74	14.64	30,167.08	0.00085	0.0125
Bank of America	1.11	2.23	2.25	3.36	280,113.62	0.00793	0.0267
Bank of New York Mellon	13.37	2.92	3.31	16.68	37,651.92	0.00107	0.0178
Baxter Int'l Inc.	8.90	1.23	1.34	10.24	40,617.94	0.00115	0.0118
Becton, Dickinson	9.50	1.26	1.38	10.88	76,361.48	0.00216	0.0235
Berkley (W.R.)	9.81	0.72	0.79	10.60	11,880.01	0.00034	0.0036
Berkshire Hathaway 'B'	23.30	0.00	0.00	23.30	-	-	0.0000
Best Buy Co.	9.63	2.14	2.35	11.98	28,955.34	0.00082	0.0098
Bio-Rad Labs. 'A'	17.80	0.00	0.00	17.80	17,922.77	0.00051	0.0090
Biogen	-8.40	0.00	0.00	-8.40	41,596.10	0.00118	-0.0099
BlackRock, Inc.	12.68	1.96	2.21	14.89	113,081.89	0.00320	0.0477
Boeing	12.33	0.00	0.00	12.33	119,366.91	0.00338	0.0417
Booking Holdings	2.90	0.00	0.00	2.90	88,462.68	0.00250	0.0073
BorgWarner	6.90	1.66	1.77	8.67	9,995.94	0.00028	0.0025
Boston Properties	7.00	4.19	4.48	11.48	14,482.15	0.00041	0.0047
Boston Scientific	7.10	0.00	0.00	7.10	52,492.07	0.00149	0.0106
Bristol-Myers Squibb	21.35	2.96	3.59	24.94	149,708.56	0.00424	0.1057
Broadcom Inc.	7.90	3.12	3.37	11.27	186,599.52	0.00528	0.0595
Broadridge Fin'l	10.00	1.51	1.66	11.66	17,627.84	0.00050	0.0058
Brown-Forman 'B'	8.81	0.98	1.07	9.88	35,098.39	0.00099	0.0098
C.H. Robinson	7.23	2.07	2.22	9.45	13,426.92	0.00038	0.0036
Cabot Oil & Gas 'A'	-2.58	2.62	2.55	-0.03	7,301.98	0.00021	0.0000
Cadence Design Sys.	14.70	0.00	0.00	14.70	39,078.23	0.00111	0.0163
Campbell Soup	8.64	3.21	3.49	12.13	14,870.92	0.00042	0.0051
Capital One Fin'l	4.19	0.36	0.38	4.57	50,944.88	0.00144	0.0066
Cardinal Health	5.15	3.55	3.73	8.88	16,049.46	0.00045	0.0040
CarMax, Inc.	6.34	0.00	0.00	6.34	20,157.45	0.00057	0.0036

**ROE and ROR Analysis for Pike County
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Carnival Corp.	-44.47	0.00	0.00	-44.47	17,247.40	0.00049	-0.0217
Carrier Global	-4.83	1.20	1.14	-3.69	34,702.15	0.00098	-0.0036
Catalent, Inc.	13.20	0.00	0.00	13.20	19,697.68	0.00056	0.0074
Caterpillar Inc.	-1.11	2.14	2.12	1.01	104,490.24	0.00296	0.0030
Cboe Global Markets	3.58	1.72	1.78	5.36	10,560.42	0.00030	0.0016
CBRE Group	11.00	0.00	0.00	11.00	21,769.99	0.00062	0.0068
CDW Corp.	9.87	1.17	1.29	11.16	19,442.22	0.00055	0.0061
Celanese Corp.	5.90	1.99	2.11	8.01	15,517.74	0.00044	0.0035
Centene Corp.	10.45	0.00	0.00	10.45	36,186.50	0.00102	0.0107
CenterPoint Energy	-5.88	2.98	2.80	-3.08	11,702.71	0.00033	-0.0010
CenturyLink, Inc.	3.00	9.04	9.31	12.31	12,135.44	0.00034	0.0042
Cerner Corp.	10.03	1.10	1.21	11.24	24,428.67	0.00069	0.0078
CF Industries	-5.21	2.95	2.80	-2.41	9,439.85	0.00027	-0.0006
Charter Communic.	51.85	0.00	0.00	51.85	128,483.64	0.00364	0.1886
Chevron Corp.	-1.45	5.41	5.33	3.88	178,105.28	0.00504	0.0196
Chipotle Mex. Grill	26.78	0.00	0.00	26.78	41,426.27	0.00117	0.0314
Chubb Ltd.	6.59	2.00	2.13	8.72	70,333.41	0.00199	0.0174
Church & Dwight	9.74	1.13	1.24	10.98	21,047.47	0.00060	0.0065
Cigna Corp.	10.25	1.75	1.93	12.18	83,873.55	0.00237	0.0289
Cincinnati Financial	-2.70	2.60	2.53	-0.17	14,870.78	0.00042	-0.0001
Cintas Corp.	12.50	0.90	1.01	13.51	34,875.30	0.00099	0.0133
Cisco Systems	7.50	3.24	3.48	10.98	191,425.47	0.00542	0.0595
Citigroup Inc.	1.28	3.22	3.26	4.54	131,683.97	0.00373	0.0169
Citizens Fin'l Group	-2.76	3.89	3.78	1.02	17,121.36	0.00048	0.0005
Citrix Sys.	10.85	1.06	1.18	12.03	16,305.88	0.00046	0.0056
Clorox Co.	5.10	2.26	2.38	7.48	24,820.46	0.00070	0.0053
CME Group	2.93	1.79	1.84	4.77	67,965.40	0.00192	0.0092
CMS Energy Corp.	7.23	2.96	3.17	10.40	16,805.81	0.00048	0.0050
Coca-Cola	2.18	3.45	3.53	5.71	209,177.97	0.00592	0.0338
Cognizant Technology	2.51	1.07	1.10	3.61	44,149.49	0.00125	0.0045
Colgate-Palmolive	7.27	2.19	2.35	9.62	68,744.95	0.00195	0.0187
Comcast Corp.	5.98	1.88	1.99	7.97	223,641.78	0.00633	0.0505

**ROE and ROR Analysis for Pike County
CAPM Analysis
Standard and Poor's 500 with IBES EPS**

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Comerica Inc.	-10.70	4.31	3.85	-6.85	8,778.04	0.00025	-0.0017
Conagra Brands	6.27	3.35	3.56	9.83	16,494.43	0.00047	0.0046
ConocoPhillips	-8.50	3.79	3.47	-5.03	48,659.58	0.00138	-0.0069
Consol. Edison	2.08	4.52	4.61	6.69	23,359.96	0.00066	0.0044
Constellation Brands	8.83	1.41	1.53	10.36	43,854.15	0.00124	0.0129
Cooper Cos.	10.00	0.02	0.02	10.02	18,891.72	0.00053	0.0054
Copart, Inc.	22.30	0.00	0.00	22.30	27,481.77	0.00078	0.0174
Corning Inc.	4.00	2.29	2.38	6.38	29,260.45	0.00083	0.0053
Corteva, Inc.	12.22	1.37	1.54	13.76	32,635.50	0.00092	0.0127
Costco Wholesale	8.59	0.82	0.89	9.48	160,039.64	0.00453	0.0430
Crown Castle Int'l	17.47	3.35	3.94	21.41	68,554.86	0.00194	0.0415
CSX Corp.	15.42	1.12	1.29	16.71	71,284.68	0.00202	0.0337
Cummins Inc.	3.74	2.28	2.37	6.11	35,030.09	0.00099	0.0061
CVS Health	4.60	2.66	2.78	7.38	98,502.25	0.00279	0.0206
Danaher Corp.	19.37	0.30	0.36	19.73	168,376.61	0.00477	0.0940
Darden Restaurants	33.60	1.19	1.59	35.19	16,233.66	0.00046	0.0162
DaVita Inc.	21.80	0.00	0.00	21.80	13,690.13	0.00039	0.0084
Deere & Co.	24.31	1.01	1.26	25.57	94,307.07	0.00267	0.0683
Delta Air Lines	-22.24	0.00	0.00	-22.24	26,542.49	0.00075	-0.0167
Dentsply Sirona	5.68	0.68	0.72	6.40	12,821.58	0.00036	0.0023
Devon Energy	4.50	2.20	2.30	6.80	7,648.51	0.00022	0.0015
DexCom Inc.	26.90	0.00	0.00	26.90	34,955.52	0.00099	0.0266
Diamondback Energy	21.90	2.47	3.01	24.91	9,568.87	0.00027	0.0067
Digital Realty Trust	16.66	3.33	3.88	20.54	29,396.55	0.00083	0.0171
Discover Fin'l Svcs.	6.27	1.76	1.87	8.14	30,615.88	0.00087	0.0071
Discovery Communic. 'C'	-1.00	0.00	0.00	-1.00	16,865.22	0.00048	-0.0005
Discovery, Inc.	1.65	0.00	0.00	1.65	18,074.24	0.00051	0.0008
Dish Network 'A'	-30.83	0.00	0.00	-30.83	17,046.56	0.00048	-0.0149
Disney (Walt)	41.57	0.00	0.00	41.57	312,552.03	0.00885	0.3679
Dollar General	16.90	0.70	0.82	17.72	50,254.40	0.00142	0.0252
Dollar Tree, Inc.	11.06	0.00	0.00	11.06	25,293.41	0.00072	0.0079
Dominion Energy	-0.93	3.52	3.49	2.56	58,409.28	0.00165	0.0042

**ROE and ROR Analysis for Pike County
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Domino's Pizza	15.09	0.86	0.99	16.08	14,929.57	0.00042	0.0068
Dover Corp.	3.79	1.57	1.63	5.42	18,158.42	0.00051	0.0028
Dow Inc.	-5.43	5.12	4.84	-0.59	43,444.41	0.00123	-0.0007
DTE Energy	6.05	3.55	3.76	9.81	23,662.71	0.00067	0.0066
Duke Energy	2.36	4.30	4.40	6.76	66,814.08	0.00189	0.0128
Duke Realty Corp.	6.00	2.61	2.77	8.77	14,681.21	0.00042	0.0036
DuPont de Nemours	2.42	1.52	1.56	3.98	61,855.79	0.00175	0.0070
DXC Technology	-9.45	0.00	0.00	-9.45	7,325.87	0.00021	-0.0020
Eastman Chemical	3.83	2.61	2.71	6.54	14,306.80	0.00041	0.0026
Eaton Corp. plc	-0.23	2.32	2.31	2.08	50,215.62	0.00142	0.0030
eBay Inc.	18.07	1.19	1.41	19.48	38,701.13	0.00110	0.0213
Ecolab Inc.	8.45	0.88	0.95	9.40	62,335.48	0.00176	0.0166
Edison Int'l	-0.50	4.45	4.43	3.93	22,794.05	0.00065	0.0025
Edwards Lifesciences	11.77	0.00	0.00	11.77	54,877.49	0.00155	0.0183
Electronic Arts	13.79	0.47	0.53	14.32	42,224.00	0.00120	0.0171
Emerson Electric	2.94	2.39	2.46	5.40	50,465.22	0.00143	0.0077
Enphase Energy	36.70	0.00	0.00	36.70	25,178.24	0.00071	0.0262
Entergy Corp.	5.35	4.07	4.29	9.64	18,965.97	0.00054	0.0052
EOG Resources	3.47	2.62	2.71	6.18	35,117.43	0.00099	0.0061
Equifax, Inc.	9.50	0.88	0.96	10.46	21,661.83	0.00061	0.0064
Equinix, Inc.	23.00	1.59	1.96	24.96	64,843.09	0.00184	0.0458
Equity Residential	6.10	3.91	4.15	10.25	22,920.95	0.00065	0.0067
Essex Property Trust	7.90	3.48	3.75	11.65	16,178.66	0.00046	0.0053
Etsy, Inc.	58.30	0.00	0.00	58.30	27,103.61	0.00077	0.0447
Everest Re Group Ltd.	6.71	2.62	2.80	9.51	9,455.39	0.00027	0.0025
Evergy, Inc.	5.90	4.03	4.27	10.17	12,223.98	0.00035	0.0035
Eversource Energy	6.51	2.70	2.88	9.39	30,035.87	0.00085	0.0080
Exelon Corp.	-2.40	3.69	3.60	1.20	42,016.80	0.00119	0.0014
Expedia Group	-17.95	0.00	0.00	-17.95	20,047.56	0.00057	-0.0102
Expeditors Int'l	8.49	1.11	1.20	9.69	15,926.33	0.00045	0.0044
Extra Space Storage	6.00	3.14	3.33	9.33	14,871.80	0.00042	0.0039
Exxon Mobil Corp.	13.95	7.03	8.01	21.96	209,412.83	0.00593	0.1302

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F5 Networks	6.04	0.00	0.00	6.04	12,150.23	0.00034	0.0021
Facebook Inc.	16.60	0.00	0.00	16.60	762,317.94	0.02158	0.3583
Fastenal Co.	8.09	2.30	2.49	10.58	27,956.23	0.00079	0.0084
Federal Rlty. Inv. Trust	6.70	4.83	5.15	11.85	6,666.49	0.00019	0.0022
FedEx Corp.	28.14	1.03	1.32	29.46	66,787.29	0.00189	0.0557
Fidelity Nat'l Info.	11.25	1.07	1.19	12.44	81,275.80	0.00230	0.0286
Fifth Third Bancorp	-2.98	3.45	3.35	0.37	22,317.24	0.00063	0.0002
First Republic Bank	8.39	0.51	0.55	8.94	26,790.73	0.00076	0.0068
FirstEnergy Corp.	-6.60	4.98	4.65	-1.95	16,999.35	0.00048	-0.0009
Fiserv Inc.	17.53	0.00	0.00	17.53	73,156.54	0.00207	0.0363
FleetCor Technologies	8.50	0.00	0.00	8.50	22,319.54	0.00063	0.0054
FLIR Systems	6.40	1.26	1.34	7.74	7,097.51	0.00020	0.0016
Flowserve Corp.	4.26	2.08	2.17	6.43	5,012.19	0.00014	0.0009
FMC Corp.	10.05	1.66	1.83	11.88	14,983.04	0.00042	0.0050
Ford Motor	8.69	0.00	0.00	8.69	42,436.28	0.00120	0.0104
Fortinet Inc.	19.24	0.00	0.00	19.24	24,392.07	0.00069	0.0133
Fortive Corp.	-8.12	0.40	0.37	-7.75	23,671.44	0.00067	-0.0052
Fortune Brands Home	9.15	1.13	1.23	10.38	12,760.63	0.00036	0.0038
Fox Corp. 'A'	1.01	1.48	1.49	2.50	18,508.05	0.00052	0.0013
Franklin Resources	3.89	4.14	4.30	8.19	13,383.01	0.00038	0.0031
Freep't-McMoRan Inc.	206.49	0.00	0.00	206.49	48,994.54	0.00139	0.2864
Gallagher (Arthur J.)	11.18	1.51	1.68	12.86	22,976.71	0.00065	0.0084
Gap (The), Inc.	-1.59	0.00	0.00	-1.59	8,310.28	0.00024	-0.0004
Garmin Ltd.	5.60	2.10	2.22	7.82	23,709.56	0.00067	0.0052
Gartner Inc.	11.70	0.00	0.00	11.70	14,446.54	0.00041	0.0048
Gen'l Dynamics	2.12	2.86	2.92	5.04	44,202.30	0.00125	0.0063
Gen'l Electric	-2.75	0.35	0.34	-2.41	99,774.95	0.00282	-0.0068
Gen'l Mills	4.91	3.76	3.94	8.85	33,834.88	0.00096	0.0085
Gen'l Motors	8.50	0.00	0.00	8.50	79,952.87	0.00226	0.0192
Genuine Parts	-1.10	3.16	3.13	2.03	14,430.44	0.00041	0.0008
Gilead Sciences	1.65	4.00	4.07	5.72	85,191.48	0.00241	0.0138
Global Payments	14.42	0.41	0.47	14.89	57,086.00	0.00162	0.0241

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Globe Life Inc.	7.37	0.78	0.84	8.21	10,140.20	0.00029	0.0024
Goldman Sachs	16.27	1.72	2.00	18.27	99,942.00	0.00283	0.0517
Grainger (W.W.)	5.79	1.59	1.68	7.47	21,089.38	0.00060	0.0045
Halliburton Co.	15.50	0.90	1.04	16.54	17,730.64	0.00050	0.0083
Hanesbrands, Inc.	0.27	3.86	3.87	4.14	5,408.91	0.00015	0.0006
Hartford Fin'l Svcs.	0.04	2.48	2.48	2.52	18,803.70	0.00053	0.0013
Hasbro, Inc.	8.90	2.87	3.13	12.03	12,982.22	0.00037	0.0044
HCA Healthcare	10.54	0.64	0.71	11.25	56,829.25	0.00161	0.0181
Healthpeak Properties	2.50	4.91	5.03	7.53	15,237.50	0.00043	0.0032
Henry (Jack) & Assoc.	10.80	1.11	1.23	12.03	11,808.81	0.00033	0.0040
Hershey Co.	7.78	2.15	2.32	10.10	31,142.04	0.00088	0.0089
Hess Corp.	-23.40	1.61	1.23	-22.17	19,118.62	0.00054	-0.0120
Hewlett Packard Ent.	3.12	3.89	4.01	7.13	15,881.58	0.00045	0.0032
Hilton Worldwide Hldgs.	-6.25	0.00	0.00	-6.25	29,879.21	0.00085	-0.0053
HollyFrontier Corp.	-12.87	5.05	4.40	-8.47	4,743.83	0.00013	-0.0011
Hologic, Inc.	17.40	0.00	0.00	17.40	19,980.13	0.00057	0.0098
Home Depot	8.56	2.24	2.43	10.99	295,146.78	0.00836	0.0919
Honeywell Int'l	2.33	1.79	1.83	4.16	146,009.73	0.00413	0.0172
Hormel Foods	4.05	2.19	2.28	6.33	24,149.15	0.00068	0.0043
Horton D.R.	16.60	1.07	1.25	17.85	27,339.96	0.00077	0.0138
Host Hotels & Resorts	28.40	0.00	0.00	28.40	10,665.33	0.00030	0.0086
Howmet Aerospace	-19.50	0.00	0.00	-19.50	11,880.75	0.00034	-0.0066
HP Inc.	10.74	3.10	3.43	14.17	32,860.80	0.00093	0.0132
Humana Inc.	11.78	0.67	0.75	12.53	54,347.48	0.00154	0.0193
Hunt (J.B.)	20.73	0.74	0.89	21.62	15,853.96	0.00045	0.0097
Huntington Bancshs.	-2.15	4.09	4.00	1.85	14,934.13	0.00042	0.0008
Huntington Ingalls	0.38	2.71	2.72	3.10	6,822.63	0.00019	0.0006
IDEX Corp.	13.00	1.01	1.14	14.14	15,001.87	0.00042	0.0060
IDEXX Labs.	17.09	0.00	0.00	17.09	42,226.91	0.00120	0.0204
IHS Markit	10.38	0.89	0.98	11.36	35,736.48	0.00101	0.0115
Illinois Tool Works	3.32	2.22	2.29	5.61	64,879.33	0.00184	0.0103
Illumina Inc.	6.30	0.00	0.00	6.30	58,916.84	0.00167	0.0105

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Incyte Corp.	20.89	0.00	0.00	20.89	21,095.68	0.00060	0.0125
Ingersoll Rand Inc.	6.69	0.00	0.00	6.69	19,204.69	0.00054	0.0036
Int'l Business Mach.	6.09	5.01	5.32	11.41	115,908.68	0.00328	0.0374
Int'l Flavors & Frag.	1.81	2.60	2.65	4.46	12,840.51	0.00036	0.0016
Int'l Paper	2.42	4.02	4.12	6.54	20,044.17	0.00057	0.0037
Intel Corp.	5.43	2.25	2.37	7.80	240,429.66	0.00681	0.0531
Intercontinental Exch.	11.29	1.05	1.17	12.46	64,341.09	0.00182	0.0227
Interpublic Group	1.80	4.30	4.38	6.18	9,617.80	0.00027	0.0017
Intuit Inc.	10.79	0.64	0.71	11.50	102,313.88	0.00290	0.0333
Intuitive Surgical	9.14	0.00	0.00	9.14	93,831.97	0.00266	0.0243
Invesco Ltd.	-3.35	2.87	2.77	-0.58	9,907.86	0.00028	-0.0002
IPG Photonics	29.30	0.00	0.00	29.30	13,370.63	0.00038	0.0111
IQVIA Holdings	13.19	0.00	0.00	13.19	36,526.52	0.00103	0.0136
Iron Mountain	1.70	8.19	8.33	10.03	8,731.34	0.00025	0.0025
Jacobs Engineering	11.24	0.68	0.76	12.00	14,530.48	0.00041	0.0049
Johnson & Johnson	4.30	2.49	2.60	6.90	427,411.28	0.01210	0.0835
Johnson Ctrls. Int'l plc	11.67	1.99	2.22	13.89	38,980.68	0.00110	0.0153
JPMorgan Chase	1.28	2.65	2.68	3.96	414,464.16	0.01173	0.0465
Juniper Networks	1.80	3.27	3.33	5.13	8,262.14	0.00023	0.0012
Kansas City South'n	16.49	0.82	0.96	17.45	20,212.53	0.00057	0.0100
Kellogg	1.99	3.99	4.07	6.06	19,811.62	0.00056	0.0034
KeyCorp	-0.66	4.05	4.02	3.36	17,854.79	0.00051	0.0017
Keysight Technologies	10.49	0.00	0.00	10.49	27,607.44	0.00078	0.0082
Kimberly-Clark	4.55	3.26	3.41	7.96	44,725.16	0.00127	0.0101
Kimco Realty	4.60	3.80	3.97	8.57	7,271.77	0.00021	0.0018
Kinder Morgan Inc.	-2.52	6.74	6.57	4.05	35,291.86	0.00100	0.0040
KLA Corp.	12.15	1.18	1.32	13.47	47,051.25	0.00133	0.0179
Kraft Heinz Co.	-3.20	4.87	4.71	1.51	40,187.78	0.00114	0.0017
Kroger Co.	8.03	2.18	2.36	10.39	25,331.62	0.00072	0.0074
L Brands	14.00	0.00	0.00	14.00	12,665.68	0.00036	0.0050
L3Harris Technologies	12.88	1.80	2.03	14.91	40,858.87	0.00116	0.0173
Laboratory Corp.	10.93	0.00	0.00	10.93	22,393.23	0.00063	0.0069

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Lam Research	20.57	0.92	1.11	21.68	81,405.86	0.00230	0.0500
Lamb Weston Holdings	9.70	1.23	1.35	11.05	11,323.49	0.00032	0.0035
Las Vegas Sands	-9.62	0.00	0.00	-9.62	41,584.52	0.00118	-0.0113
Lauder (Estee)	17.10	0.83	0.97	18.07	92,259.99	0.00261	0.0472
Leggett & Platt	5.20	3.62	3.81	9.01	5,859.99	0.00017	0.0015
Leidos Hldgs.	11.94	1.24	1.39	13.33	15,568.88	0.00044	0.0059
Lennar Corp.	10.70	1.21	1.34	12.04	25,810.18	0.00073	0.0088
Lilly (Eli)	13.67	1.69	1.92	15.59	192,503.39	0.00545	0.0850
Lincoln Nat'l Corp.	18.19	3.26	3.85	22.04	10,140.09	0.00029	0.0063
Linde plc	11.71	1.63	1.82	13.53	135,098.20	0.00382	0.0518
Live Nation Entertain.	80.30	0.00	0.00	80.30	16,008.04	0.00045	0.0364
LKQ Corp.	33.50	0.00	0.00	33.50	11,442.96	0.00032	0.0109
Lockheed Martin	7.31	3.04	3.26	10.57	95,593.80	0.00271	0.0286
Loews Corp.	14.03	0.53	0.60	14.63	13,023.10	0.00037	0.0054
Lowe's Cos.	24.25	1.39	1.73	25.98	129,637.29	0.00367	0.0953
LyondellBasell Inds.	-4.07	4.45	4.27	0.20	31,515.18	0.00089	0.0002
M&T Bank Corp.	-4.80	3.06	2.91	-1.89	18,440.99	0.00052	-0.0010
Marathon Oil Corp.	-19.63	1.39	1.12	-18.51	6,809.80	0.00019	-0.0036
Marathon Petroleum	-6.51	5.03	4.70	-1.81	30,056.67	0.00085	-0.0015
MarketAxess Holdings	19.86	0.46	0.55	20.41	19,641.95	0.00056	0.0114
Marriott Int'l	-10.13	0.00	0.00	-10.13	41,102.59	0.00116	-0.0118
Marsh & McLennan	7.33	1.64	1.76	9.09	57,515.78	0.00163	0.0148
Martin Marietta	7.20	0.75	0.80	8.00	19,313.00	0.00055	0.0044
Masco Corp.	14.71	0.96	1.10	15.81	15,221.01	0.00043	0.0068
MasterCard Inc.	9.76	0.53	0.58	10.34	334,240.16	0.00946	0.0979
Maxim Integrated	18.44	0.00	0.00	18.44	25,709.30	0.00073	0.0134
McCormick & Co.	4.80	1.48	1.55	6.35	24,481.10	0.00069	0.0044
McDonald's Corp.	4.87	2.41	2.53	7.40	159,178.06	0.00451	0.0333
McKesson Corp.	10.12	0.91	1.00	11.12	29,649.76	0.00084	0.0093
Medtronic plc	10.33	2.00	2.21	12.54	160,510.41	0.00454	0.0570
Merck & Co.	7.53	3.15	3.39	10.92	208,604.03	0.00591	0.0645
MetLife Inc.	3.77	3.56	3.69	7.46	46,772.80	0.00132	0.0099

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Mettler-Toledo Int'l	12.10	0.00	0.00	12.10	30,191.10	0.00085	0.0103
MGM Resorts Int'l	-0.88	0.03	0.03	-0.85	15,322.12	0.00043	-0.0004
Microchip Technology	10.10	0.97	1.07	11.17	39,657.66	0.00112	0.0125
Micron Technology	18.38	0.00	0.00	18.38	93,269.50	0.00264	0.0485
Microsoft Corp.	16.12	1.00	1.16	17.28	1,696,907.75	0.04804	0.8302
Mid-America Apartment	7.00	3.08	3.30	10.30	15,213.00	0.00043	0.0044
Mohawk Inds.	0.65	0.00	0.00	0.65	10,766.00	0.00030	0.0002
Molson Coors Beverage	-2.50	0.00	0.00	-2.50	11,082.04	0.00031	-0.0008
Mondelez Int'l	6.67	2.31	2.46	9.13	81,644.03	0.00231	0.0211
Monster Beverage	14.67	0.00	0.00	14.67	47,304.49	0.00134	0.0196
Moody's Corp.	10.46	0.81	0.89	11.35	51,755.01	0.00147	0.0166
Morgan Stanley	7.33	1.87	2.01	9.34	117,981.29	0.00334	0.0312
Mosaic Company	7.00	0.88	0.94	7.94	10,804.07	0.00031	0.0024
Motorola Solutions	5.88	1.64	1.74	7.62	29,292.65	0.00083	0.0063
MSCI Inc.	14.80	0.79	0.91	15.71	34,754.74	0.00098	0.0155
Nasdaq, Inc.	11.07	1.36	1.51	12.58	23,564.90	0.00067	0.0084
NetApp, Inc.	5.00	3.10	3.26	8.26	14,321.22	0.00041	0.0033
Netflix, Inc.	44.43	0.00	0.00	44.43	259,042.06	0.00733	0.3259
Newell Brands	4.94	3.73	3.91	8.85	10,463.24	0.00030	0.0026
Newmont Corp.	44.12	2.52	3.63	47.75	51,029.30	0.00144	0.0690
News Corp. 'A'	51.70	1.05	1.59	53.29	11,286.08	0.00032	0.0170
NextEra Energy	8.75	1.80	1.96	10.71	164,660.34	0.00466	0.0499
Nielsen Hldgs. plc	-2.92	1.08	1.05	-1.87	7,953.94	0.00023	-0.0004
NIKE, Inc. 'B'	34.30	0.77	1.03	35.33	224,909.98	0.00637	0.2250
NiSource Inc.	1.65	3.75	3.81	5.46	8,574.09	0.00024	0.0013
Norfolk Southern	11.71	1.48	1.65	13.36	64,367.42	0.00182	0.0244
Northern Trust Corp.	6.83	2.95	3.15	9.98	19,729.87	0.00056	0.0056
Northrop Grumman	7.62	1.94	2.09	9.71	49,811.41	0.00141	0.0137
NortonLifeLock Inc.	13.95	2.39	2.72	16.67	12,378.72	0.00035	0.0058
Norwegian Cruise Line	-51.35	0.00	0.00	-51.35	6,942.84	0.00020	-0.0101
NOV Inc.	18.90	0.00	0.00	18.90	5,303.74	0.00015	0.0028
NRG Energy	-12.80	2.95	2.57	-10.23	9,914.81	0.00028	-0.0029

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Nucor Corp.	-8.47	2.90	2.65	-5.82	16,835.51	0.00048	-0.0028
NVIDIA Corp.	22.04	0.12	0.15	22.19	330,935.97	0.00937	0.2079
NVR, Inc.	4.80	0.00	0.00	4.80	15,908.65	0.00045	0.0022
O'Reilly Automotive	12.47	0.00	0.00	12.47	34,158.68	0.00097	0.0121
Occidental Petroleum	-5.15	0.17	0.16	-4.99	21,440.48	0.00061	-0.0030
Old Dominion Freight	15.07	0.30	0.35	15.42	24,517.48	0.00069	0.0107
Omnicom Group	3.20	4.14	4.27	7.47	13,515.35	0.00038	0.0029
ONEOK Inc.	-1.60	8.82	8.68	7.08	19,557.74	0.00055	0.0039
Oracle Corp.	10.90	1.56	1.73	12.63	181,725.11	0.00515	0.0650
Otis Worldwide	8.63	1.23	1.34	9.97	28,240.31	0.00080	0.0080
PACCAR Inc.	-0.69	2.21	2.19	1.50	30,955.76	0.00088	0.0013
Packaging Corp.	-1.92	2.85	2.80	0.88	13,316.56	0.00038	0.0003
Parker-Hannifin	13.49	1.23	1.40	14.89	36,948.86	0.00105	0.0156
Paychex, Inc.	4.50	2.84	2.97	7.47	32,211.56	0.00091	0.0068
Paycom Software	13.65	0.00	0.00	13.65	23,547.20	0.00067	0.0091
PayPal Holdings	22.99	0.00	0.00	22.99	286,272.72	0.00811	0.1863
Pentair plc	6.60	1.38	1.47	8.07	9,669.69	0.00027	0.0022
People's United Fin'l	13.73	4.98	5.66	19.39	6,136.92	0.00017	0.0034
PepsiCo, Inc.	6.19	2.89	3.07	9.26	195,459.38	0.00553	0.0512
PerkinElmer Inc.	17.20	0.19	0.22	17.42	16,922.67	0.00048	0.0083
Perrigo Co. plc	10.00	2.31	2.54	12.54	5,906.35	0.00017	0.0021
Pfizer, Inc.	-1.00	4.27	4.23	3.23	202,830.50	0.00574	0.0185
Philip Morris Int'l	6.65	5.88	6.27	12.92	127,231.41	0.00360	0.0465
Phillips 66	-7.75	4.97	4.58	-3.17	32,930.35	0.00093	-0.0030
Pinnacle West Capital	3.70	4.39	4.55	8.25	8,777.92	0.00025	0.0021
Pioneer Natural Res.	16.85	1.70	1.99	18.84	21,722.57	0.00062	0.0116
PNC Financial Serv.	-1.62	2.94	2.89	1.27	66,254.24	0.00188	0.0024
Pool Corp.	17.00	0.63	0.74	17.74	14,705.63	0.00042	0.0074
PPG Inds.	10.71	1.49	1.65	12.36	34,143.29	0.00097	0.0119
PPL Corp.	-16.20	5.97	5.00	-11.20	21,503.25	0.00061	-0.0068
Price (T. Rowe) Group	14.59	2.35	2.69	17.28	36,115.87	0.00102	0.0177
Principal Fin'l Group	7.07	4.17	4.46	11.53	14,735.16	0.00042	0.0048

**ROE and ROR Analysis for Pike County
CAPM Analysis
Standard and Poor's 500 with IBES EPS**

Procter & Gamble	9.19	2.39	2.61	11.80	324,874.44	0.00920	0.1085
Progressive Corp.	1.36	0.42	0.43	1.79	56,252.73	0.00159	0.0028
Prologis	-6.05	2.47	2.32	-3.73	63,394.51	0.00179	-0.0067
Prudential Fin'l	4.04	5.24	5.45	9.49	33,220.24	0.00094	0.0089
Public Serv. Enterprise	1.15	3.41	3.45	4.60	29,867.04	0.00085	0.0039
Public Storage	17.00	3.56	4.17	21.17	39,240.79	0.00111	0.0235
PulteGroup, Inc.	16.50	1.20	1.40	17.90	12,521.28	0.00035	0.0063
PVH Corp.	-5.35	0.00	0.00	-5.35	7,055.15	0.00020	-0.0011
Qorvo Inc.	15.75	0.00	0.00	15.75	21,228.07	0.00060	0.0095
Qualcomm Inc.	22.27	1.63	1.99	24.26	185,668.81	0.00526	0.1275
Quanta Services	12.08	0.30	0.34	12.42	11,006.08	0.00031	0.0039
Quest Diagnostics	9.72	1.76	1.93	11.65	17,193.60	0.00049	0.0057
Ralph Lauren	1.30	0.00	0.00	1.30	7,791.73	0.00022	0.0003
Raymond James Fin'l	9.15	1.51	1.65	10.80	14,130.92	0.00040	0.0043
Raytheon Technologies	23.82	2.79	3.45	27.27	104,548.41	0.00296	0.0807
Realty Income Corp.	5.45	4.88	5.15	10.60	19,676.85	0.00056	0.0059
Regency Centers Corp.	9.10	4.94	5.39	14.49	8,071.90	0.00023	0.0033
Regeneron Pharmac.	11.72	0.00	0.00	11.72	57,819.00	0.00164	0.0192
Regions Financial	-21.60	3.42	2.68	-18.92	17,428.45	0.00049	-0.0093
Republic Services	8.27	1.83	1.98	10.25	33,554.59	0.00095	0.0097
ResMed Inc.	22.10	0.72	0.88	22.98	31,584.15	0.00089	0.0205
Robert Half Int'l	2.70	2.22	2.28	4.98	7,614.66	0.00022	0.0011
Rockwell Automation	10.65	1.65	1.83	12.48	30,673.31	0.00087	0.0108
Rollins, Inc.	8.20	0.56	0.61	8.81	18,563.69	0.00053	0.0046
Roper Tech.	5.10	0.54	0.57	5.67	44,100.77	0.00125	0.0071
Ross Stores	4.82	0.00	0.00	4.82	41,013.02	0.00116	0.0056
Royal Caribbean	-42.31	0.00	0.00	-42.31	15,634.67	0.00044	-0.0187
S&P Global	11.83	0.93	1.04	12.87	77,458.77	0.00219	0.0282
salesforce.com	17.69	0.00	0.00	17.69	204,224.16	0.00578	0.1023
SBA Communications	41.18	0.80	1.13	42.31	30,372.67	0.00086	0.0364
Schein (Henry)	5.43	0.00	0.00	5.43	9,997.56	0.00028	0.0015
Schlumberger Ltd.	41.84	1.97	2.79	44.63	35,287.96	0.00100	0.0446

**ROE and ROR Analysis for Pike County
CAPM Analysis
Standard and Poor's 500 with IBES EPS**

Schwab (Charles)	8.68	1.28	1.39	10.07	75,572.91	0.00214	0.0215
Seagate Technology	5.36	4.36	4.59	9.95	15,822.10	0.00045	0.0045
Sealed Air	7.95	1.44	1.55	9.50	6,913.84	0.00020	0.0019
Sempra Energy	7.70	3.66	3.94	11.64	35,386.56	0.00100	0.0117
ServiceNow, Inc.	26.11	0.00	0.00	26.11	105,754.15	0.00299	0.0782
Sherwin-Williams	10.01	0.76	0.84	10.85	66,867.18	0.00189	0.0205
Simon Property Group	8.60	5.46	5.93	14.53	29,240.79	0.00083	0.0120
Skyworks Solutions	11.95	1.23	1.38	13.33	26,982.86	0.00076	0.0102
SL Green Realty	-10.84	5.87	5.23	-5.61	4,982.35	0.00014	-0.0008
Smith (A.O.)	8.00	1.80	1.94	9.94	9,339.25	0.00026	0.0026
Smucker (J.M.)	-0.72	3.20	3.18	2.46	13,033.30	0.00037	0.0009
Snap-on Inc.	10.00	2.80	3.08	13.08	9,513.31	0.00027	0.0035
Southern Co.	4.36	4.32	4.51	8.87	64,061.08	0.00181	0.0161
Southwest Airlines	-16.13	0.00	0.00	-16.13	28,457.06	0.00081	-0.0130
Stanley Black & Decker	7.41	1.61	1.73	9.14	31,145.54	0.00088	0.0081
Starbucks Corp.	50.81	1.75	2.64	53.45	123,272.20	0.00349	0.1865
State Street Corp.	14.95	2.71	3.12	18.07	27,038.44	0.00077	0.0138
STERIS plc	10.00	0.84	0.92	10.92	16,157.62	0.00046	0.0050
Stryker Corp.	8.68	1.03	1.12	9.80	92,149.91	0.00261	0.0256
SVB Fin'l Group	8.00	0.00	0.00	8.00	23,962.83	0.00068	0.0054
Synchrony Financial	3.05	2.20	2.27	5.32	23,298.10	0.00066	0.0035
Synopsys, Inc.	11.50	0.00	0.00	11.50	41,495.19	0.00117	0.0135
Sysco Corp.	25.47	2.34	2.94	28.41	39,210.81	0.00111	0.0315
T-Mobile US	-1.40	0.00	0.00	-1.40	164,112.72	0.00465	-0.0065
Take-Two Interactive	15.28	0.00	0.00	15.28	23,795.84	0.00067	0.0103
Tapestry Inc.	46.36	0.00	0.00	46.36	9,345.61	0.00026	0.0123
Target Corp.	13.75	1.45	1.65	15.40	94,292.16	0.00267	0.0411
TE Connectivity	11.00	1.47	1.63	12.63	43,024.36	0.00122	0.0154
TechnipFMC plc	-2.90	1.15	1.12	-1.78	5,078.22	0.00014	-0.0003
Teledyne Technologies	29.10	0.00	0.00	29.10	14,297.12	0.00040	0.0118
Teleflex Inc.	12.00	0.35	0.39	12.39	18,314.33	0.00052	0.0064
Teradyne Inc.	25.03	0.29	0.36	25.39	23,015.22	0.00065	0.0165

**ROE and ROR Analysis for Pike County
CAPM Analysis
Standard and Poor's 500 with IBES EPS**

Tesla, Inc.	419.14	0.00	0.00	419.14	806,226.56	0.02283	9.5674
Texas Instruments	10.00	2.35	2.59	12.59	159,054.70	0.00450	0.0567
Textron, Inc.	-3.53	0.16	0.15	-3.38	11,354.85	0.00032	-0.0011
Thermo Fisher Sci.	16.73	0.17	0.20	16.93	204,445.44	0.00579	0.0980
TJX Companies	5.01	1.52	1.60	6.61	81,991.09	0.00232	0.0153
Tractor Supply	15.73	1.07	1.24	16.97	18,097.81	0.00051	0.0087
Trane Technologies plc	6.35	1.37	1.46	7.81	37,277.00	0.00106	0.0082
TransDigm Group	4.58	0.00	0.00	4.58	31,423.54	0.00089	0.0041
Travelers Cos.	5.93	2.35	2.49	8.42	36,733.56	0.00104	0.0088
Truist Fin'l	-9.10	3.49	3.17	-5.93	69,603.33	0.00197	-0.0117
Twitter Inc.	-18.69	0.00	0.00	-18.69	37,815.68	0.00107	-0.0200
Tyler Technologies	10.00	0.00	0.00	10.00	20,711.88	0.00059	0.0059
Tyson Foods 'A'	4.40	2.69	2.81	7.21	24,181.25	0.00068	0.0049
U.S. Bancorp	6.00	3.69	3.91	9.91	68,661.30	0.00194	0.0193
UDR, Inc.	-34.21	3.80	2.50	-31.71	11,625.73	0.00033	-0.0104
Ulta Beauty	0.35	0.00	0.00	0.35	16,640.47	0.00047	0.0002
Under Armour 'A'	-4.50	0.00	0.00	-4.50	8,461.39	0.00024	-0.0011
Under Armour 'C'	21.80	0.00	0.00	21.80	7,261.06	0.00021	0.0045
Union Pacific	12.92	1.78	2.01	14.93	147,278.69	0.00417	0.0623
United Airlines Hldgs.	-27.53	0.00	0.00	-27.53	13,146.93	0.00037	-0.0102
United Parcel Serv.	9.61	2.62	2.87	12.48	138,037.83	0.00391	0.0488
United Rentals	-2.60	0.00	0.00	-2.60	18,768.75	0.00053	-0.0014
UnitedHealth Group	12.41	1.42	1.60	14.01	332,947.19	0.00943	0.1320
Universal Health 'B'	5.11	0.00	0.00	5.11	11,192.13	0.00032	0.0016
Unum Group	3.27	4.41	4.55	7.82	5,266.85	0.00015	0.0012
V.F. Corp.	10.28	2.38	2.62	12.90	32,105.82	0.00091	0.0117
Valero Energy	-5.08	6.47	6.14	1.06	24,699.17	0.00070	0.0007
Varian Medical Sys.	9.90	0.00	0.00	9.90	15,985.67	0.00045	0.0045
Ventas, Inc.	-0.50	3.69	3.67	3.17	18,167.08	0.00051	0.0016
VeriSign Inc.	8.00	0.00	0.00	8.00	22,845.54	0.00065	0.0052
Verisk Analytics	11.05	0.58	0.64	11.69	31,689.25	0.00090	0.0105
Verizon Communic.	2.42	4.38	4.49	6.91	236,947.27	0.00671	0.0463

**ROE and ROR Analysis for Pike County
CAPM Analysis
Standard and Poor's 500 with IBES EPS**

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Exhibit ____ MFG-9, Schedule 3

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Vertex Pharmac.	25.44	0.00	0.00	25.44	61,583.19	0.00174	0.0444
ViacomCBS Inc.	-2.94	2.21	2.15	-0.79	26,709.76	0.00076	-0.0006
Visa Inc.	11.52	0.64	0.71	12.23	400,277.44	0.01133	0.1386
Vontier Corp.	4.08	0.00	0.00	4.08	-	-	0.0000
Vornado R'lty Trust	17.33	5.56	6.52	23.85	7,288.96	0.00021	0.0049
Vulcan Materials	8.35	0.85	0.92	9.27	21,274.76	0.00060	0.0056
Wabtec Corp.	7.30	0.59	0.63	7.93	15,467.58	0.00044	0.0035
Walgreens Boots	3.85	3.89	4.04	7.89	43,432.14	0.00123	0.0097
Walmart Inc.	6.93	1.51	1.61	8.54	411,938.84	0.01166	0.0997
Waste Management	4.38	1.89	1.97	6.35	48,618.64	0.00138	0.0087
Waters Corp.	4.90	0.00	0.00	4.90	16,816.57	0.00048	0.0023
WEC Energy Group	6.10	3.07	3.26	9.36	27,868.68	0.00079	0.0074
Wells Fargo	-4.08	1.23	1.18	-2.90	134,141.50	0.00380	-0.0110
Welltower Inc.	13.00	3.93	4.44	17.44	25,489.45	0.00072	0.0126
West Pharmac. Svcs.	20.50	0.22	0.27	20.77	22,543.19	0.00064	0.0133
Western Digital	-22.00	0.00	0.00	-22.00	15,753.28	0.00045	-0.0098
Western Union	8.88	4.10	4.46	13.34	9,025.56	0.00026	0.0034
WestRock Co.	23.68	1.76	2.18	25.86	11,848.20	0.00034	0.0087
Weyerhaeuser Co.	5.00	2.03	2.13	7.13	25,034.19	0.00071	0.0051
Whirlpool Corp.	0.20	2.56	2.57	2.77	12,134.02	0.00034	0.0009
Williams Cos.	5.00	7.13	7.49	12.49	27,207.59	0.00077	0.0096
Willis Towers Wat. plc	5.22	1.35	1.42	6.64	27,097.70	0.00077	0.0051
Wynn Resorts	-1.10	0.00	0.00	-1.10	11,873.47	0.00034	-0.0004
Xcel Energy Inc.	6.20	2.78	2.95	9.15	34,380.39	0.00097	0.0089
Xerox Holdings	-17.00	4.75	3.94	-13.06	4,335.40	0.00012	-0.0016
Xilinx Inc.	9.00	1.10	1.20	10.20	33,818.14	0.00096	0.0098
Xylem Inc.	-0.73	1.08	1.07	0.34	18,730.40	0.00053	0.0002
Yum! Brands	7.85	1.77	1.91	9.76	33,041.82	0.00094	0.0091
Zebra Techn. 'A'	10.00	0.00	0.00	10.00	21,668.30	0.00061	0.0061
Zimmer Biomet Hldgs.	3.46	0.61	0.63	4.09	33,885.26	0.00096	0.0039
Zions Bancorp.	-32.40	2.82	1.91	-30.49	7,921.63	0.00022	-0.0068
Zoetis Inc.	9.59	0.61	0.67	10.26	77,635.69	0.00220	0.0225

35,320,243	1.00	23.57
		Weighted Rate of Return on Equity (%)

Constant-Growth DCF Analysis for S&P 500

Companies not paying dividends, with EPS growth-rate estimates ≤ 0 percent, or > 20 percent excluded from return analysis

A: IBES, January 28, 2021

B and E: Value Line Analyzer, January 28, 2021

	C = B * (1 + A)		D = A + C		F = E / (Sum of E)		G = D * F		Weighted Return %
									11.61
	A	B	C	D	E	F	G		
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)		
<u>Companies not paying dividends</u>									
ABIOMED Inc.	17.10	0.00	0.00	17.10	15,720.25	0.00076	0.0130		
Adobe Inc.	16.67	0.00	0.00	16.67	225,470.39	0.01089	0.1816		
Advanced Micro Dev.	39.14	0.00	0.00	39.14	106,677.50	0.00515	0.2017		
Akamai Technologies	9.66	0.00	0.00	9.66	17,803.81	0.00086	0.0083		
Alaska Air Group	-16.56	0.00	0.00	-16.56	6,901.52	0.00033	-0.0055		
Alexion Pharmac.	11.00	0.00	0.00	11.00	34,545.06	0.00167	0.0184		
Align Techn.	19.01	0.00	0.00	19.01	44,500.01	0.00215	0.0409		
Alphabet Inc.	16.81	0.00	0.00	16.81	1,278,797.38	0.06177	1.0384		
Alphabet Inc. 'A'	16.81	0.00	0.00	16.81	1,280,731.88	0.06187	1.0400		
Amazon.com	32.80	0.00	0.00	32.80	1,638,216.75	0.07914	2.5956		
Amer. Airlines	-41.91	0.00	0.00	-41.91	8,224.13	0.00040	-0.0166		
ANSYS, Inc.	6.39	0.00	0.00	6.39	32,508.62	0.00157	0.0100		
Aptiv PLC	3.44	0.00	0.00	3.44	39,186.03	0.00189	0.0065		
Arista Networks	6.60	0.00	0.00	6.60	23,782.48	0.00115	0.0076		
Autodesk, Inc.	36.14	0.00	0.00	36.14	67,795.03	0.00327	0.1184		
AutoZone Inc.	5.60	0.00	0.00	5.60	28,339.74	0.00137	0.0077		
Bio-Rad Labs. 'A'	17.80	0.00	0.00	17.80	17,922.77	0.00087	0.0154		
Biogen	-8.40	0.00	0.00	-8.40	41,596.10	0.00201	-0.0169		

**ROE and ROR Analysis for Pike County
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Boeing	12.33	0.00	0.00	12.33	119,366.91	0.00577	0.0711
Booking Holdings	2.90	0.00	0.00	2.90	88,462.68	0.00427	0.0124
Boston Scientific	7.10	0.00	0.00	7.10	52,492.07	0.00254	0.0180
Cadence Design Sys.	14.70	0.00	0.00	14.70	39,078.23	0.00189	0.0277
CarMax, Inc.	6.34	0.00	0.00	6.34	20,157.45	0.00097	0.0062
Carnival Corp.	-44.47	0.00	0.00	-44.47	17,247.40	0.00083	-0.0370
Catalent, Inc.	13.20	0.00	0.00	13.20	19,697.68	0.00095	0.0126
CBRE Group	11.00	0.00	0.00	11.00	21,769.99	0.00105	0.0116
Centene Corp.	10.45	0.00	0.00	10.45	36,186.50	0.00175	0.0183
Charter Communic.	51.85	0.00	0.00	51.85	128,483.64	0.00621	0.3218
Chipotle Mex. Grill	26.78	0.00	0.00	26.78	41,426.27	0.00200	0.0536
Copart, Inc.	22.30	0.00	0.00	22.30	27,481.77	0.00133	0.0296
DaVita Inc.	21.80	0.00	0.00	21.80	13,690.13	0.00066	0.0144
Delta Air Lines	-22.24	0.00	0.00	-22.24	26,542.49	0.00128	-0.0285
DexCom Inc.	26.90	0.00	0.00	26.90	34,955.52	0.00169	0.0454
Discovery Communic. 'C'	-1.00	0.00	0.00	-1.00	16,865.22	0.00081	-0.0008
Discovery, Inc.	1.65	0.00	0.00	1.65	18,074.24	0.00087	0.0014
Dish Network 'A'	-30.83	0.00	0.00	-30.83	17,046.56	0.00082	-0.0254
Disney (Walt)	41.57	0.00	0.00	41.57	312,552.03	0.01510	0.6276
Dollar Tree, Inc.	11.06	0.00	0.00	11.06	25,293.41	0.00122	0.0135
DXC Technology	-9.45	0.00	0.00	-9.45	7,325.87	0.00035	-0.0033
Edwards Lifesciences	11.77	0.00	0.00	11.77	54,877.49	0.00265	0.0312
Enphase Energy	36.70	0.00	0.00	36.70	25,178.24	0.00122	0.0446
Etsy, Inc.	58.30	0.00	0.00	58.30	27,103.61	0.00131	0.0763
Expedia Group	-17.95	0.00	0.00	-17.95	20,047.56	0.00097	-0.0174
F5 Networks	6.04	0.00	0.00	6.04	12,150.23	0.00059	0.0035
Facebook Inc.	16.60	0.00	0.00	16.60	762,317.94	0.03682	0.6113
Fiserv Inc.	17.53	0.00	0.00	17.53	73,156.54	0.00353	0.0619
FleetCor Technologies	8.50	0.00	0.00	8.50	22,319.54	0.00108	0.0092
Ford Motor	8.69	0.00	0.00	8.69	42,436.28	0.00205	0.0178
Fortinet Inc.	19.24	0.00	0.00	19.24	24,392.07	0.00118	0.0227
Freep't-McMoRan Inc.	206.49	0.00	0.00	206.49	48,994.54	0.00237	0.4887

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Gap (The), Inc.	-1.59	0.00	0.00	-1.59	8,310.28	0.00040	-0.0006
Gartner Inc.	11.70	0.00	0.00	11.70	14,446.54	0.00070	0.0082
Gen'l Motors	8.50	0.00	0.00	8.50	79,952.87	0.00386	0.0328
Hilton Worldwide Hldgs.	-6.25	0.00	0.00	-6.25	29,879.21	0.00144	-0.0090
Hologic, Inc.	17.40	0.00	0.00	17.40	19,980.13	0.00097	0.0168
Host Hotels & Resorts	28.40	0.00	0.00	28.40	10,665.33	0.00052	0.0146
Howmet Aerospace	-19.50	0.00	0.00	-19.50	11,880.75	0.00057	-0.0112
IDEXX Labs.	17.09	0.00	0.00	17.09	42,226.91	0.00204	0.0349
Illumina Inc.	6.30	0.00	0.00	6.30	58,916.84	0.00285	0.0179
Incyte Corp.	20.89	0.00	0.00	20.89	21,095.68	0.00102	0.0213
Ingersoll Rand Inc.	6.69	0.00	0.00	6.69	19,204.69	0.00093	0.0062
Intuitive Surgical	9.14	0.00	0.00	9.14	93,831.97	0.00453	0.0414
IPG Photonics	29.30	0.00	0.00	29.30	13,370.63	0.00065	0.0189
IQVIA Holdings	13.19	0.00	0.00	13.19	36,526.52	0.00176	0.0233
Keysight Technologies	10.49	0.00	0.00	10.49	27,607.44	0.00133	0.0140
L Brands	14.00	0.00	0.00	14.00	12,665.68	0.00061	0.0086
Laboratory Corp.	10.93	0.00	0.00	10.93	22,393.23	0.00108	0.0118
Las Vegas Sands	-9.62	0.00	0.00	-9.62	41,584.52	0.00201	-0.0193
Live Nation Entertain.	80.30	0.00	0.00	80.30	16,008.04	0.00077	0.0621
LKQ Corp.	33.50	0.00	0.00	33.50	11,442.96	0.00055	0.0185
Marriott Int'l	-10.13	0.00	0.00	-10.13	41,102.59	0.00199	-0.0201
Maxim Integrated	18.44	0.00	0.00	18.44	25,709.30	0.00124	0.0229
Mettler-Toledo Int'l	12.10	0.00	0.00	12.10	30,191.10	0.00146	0.0176
Micron Technology	18.38	0.00	0.00	18.38	93,269.50	0.00451	0.0828
Mohawk Inds.	0.65	0.00	0.00	0.65	10,766.00	0.00052	0.0003
Molson Coors Beverage	-2.50	0.00	0.00	-2.50	11,082.04	0.00054	-0.0013
Monster Beverage	14.67	0.00	0.00	14.67	47,304.49	0.00229	0.0335
Netflix, Inc.	44.43	0.00	0.00	44.43	259,042.06	0.01251	0.5560
Norwegian Cruise Line	-51.35	0.00	0.00	-51.35	6,942.84	0.00034	-0.0172
NOV Inc.	18.90	0.00	0.00	18.90	5,303.74	0.00026	0.0048
NVR, Inc.	4.80	0.00	0.00	4.80	15,908.65	0.00077	0.0037
O'Reilly Automotive	12.47	0.00	0.00	12.47	34,158.68	0.00165	0.0206

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Paycom Software	13.65	0.00	0.00	13.65	23,547.20	0.00114	0.0155
PayPal Holdings	22.99	0.00	0.00	22.99	286,272.72	0.01383	0.3179
PVH Corp.	-5.35	0.00	0.00	-5.35	7,055.15	0.00034	-0.0018
Qorvo Inc.	15.75	0.00	0.00	15.75	21,228.07	0.00103	0.0162
Ralph Lauren	1.30	0.00	0.00	1.30	7,791.73	0.00038	0.0005
Regeneron Pharmac.	11.72	0.00	0.00	11.72	57,819.00	0.00279	0.0327
Ross Stores	4.82	0.00	0.00	4.82	41,013.02	0.00198	0.0095
Royal Caribbean	-42.31	0.00	0.00	-42.31	15,634.67	0.00076	-0.0320
salesforce.com	17.69	0.00	0.00	17.69	204,224.16	0.00987	0.1745
Schein (Henry)	5.43	0.00	0.00	5.43	9,997.56	0.00048	0.0026
ServiceNow, Inc.	26.11	0.00	0.00	26.11	105,754.15	0.00511	0.1334
Southwest Airlines	-16.13	0.00	0.00	-16.13	28,457.06	0.00137	-0.0222
SVB Fin'l Group	8.00	0.00	0.00	8.00	23,962.83	0.00116	0.0093
Synopsys, Inc.	11.50	0.00	0.00	11.50	41,495.19	0.00200	0.0231
T-Mobile US	-1.40	0.00	0.00	-1.40	164,112.72	0.00793	-0.0111
Take-Two Interactive	15.28	0.00	0.00	15.28	23,795.84	0.00115	0.0176
Tapestry Inc.	46.36	0.00	0.00	46.36	9,345.61	0.00045	0.0209
Teledyne Technologies	29.10	0.00	0.00	29.10	14,297.12	0.00069	0.0201
Tesla, Inc.	419.14	0.00	0.00	419.14	806,226.56	0.03895	16.3235
TransDigm Group	4.58	0.00	0.00	4.58	31,423.54	0.00152	0.0070
Twitter Inc.	-18.69	0.00	0.00	-18.69	37,815.68	0.00183	-0.0341
Tyler Technologies	10.00	0.00	0.00	10.00	20,711.88	0.00100	0.0100
Ulta Beauty	0.35	0.00	0.00	0.35	16,640.47	0.00080	0.0003
Under Armour 'A'	-4.50	0.00	0.00	-4.50	8,461.39	0.00041	-0.0018
Under Armour 'C'	21.80	0.00	0.00	21.80	7,261.06	0.00035	0.0076
United Airlines Hldgs.	-27.53	0.00	0.00	-27.53	13,146.93	0.00064	-0.0175
United Rentals	-2.60	0.00	0.00	-2.60	18,768.75	0.00091	-0.0024
Universal Health 'B'	5.11	0.00	0.00	5.11	11,192.13	0.00054	0.0028
Varian Medical Sys.	9.90	0.00	0.00	9.90	15,985.67	0.00077	0.0076
VeriSign Inc.	8.00	0.00	0.00	8.00	22,845.54	0.00110	0.0088
Vertex Pharmac.	25.44	0.00	0.00	25.44	61,583.19	0.00297	0.0757
Waters Corp.	4.90	0.00	0.00	4.90	16,816.57	0.00081	0.0040

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Western Digital	-22.00	0.00	0.00	-22.00	15,753.28	0.00076	-0.0167
Wynn Resorts	-1.10	0.00	0.00	-1.10	11,873.47	0.00057	-0.0006
Zebra Techn. 'A'	10.00	0.00	0.00	10.00	21,668.30	0.00105	0.0105
<u>Companies with EPS ≤ 0%</u>							
AMETEK, Inc.	-1.20	0.60	0.59	-0.61	27,633.11	0.00133	-0.0008
Apache Corp.	-24.00	0.57	0.43	-23.57	6,594.23	0.00032	-0.0075
AT&T Inc.	-1.82	7.32	7.19	5.37	206,341.30	0.00997	0.0535
Cabot Oil & Gas 'A'	-2.58	2.62	2.55	-0.03	7,301.98	0.00035	0.0000
Carrier Global	-4.83	1.20	1.14	-3.69	34,702.15	0.00168	-0.0062
Caterpillar Inc.	-1.11	2.14	2.12	1.01	104,490.24	0.00505	0.0051
CenterPoint Energy	-5.88	2.98	2.80	-3.08	11,702.71	0.00057	-0.0017
CF Industries	-5.21	2.95	2.80	-2.41	9,439.85	0.00046	-0.0011
Chevron Corp.	-1.45	5.41	5.33	3.88	178,105.28	0.00860	0.0334
Cincinnati Financial	-2.70	2.60	2.53	-0.17	14,870.78	0.00072	-0.0001
Citizens Fin'l Group	-2.76	3.89	3.78	1.02	17,121.36	0.00083	0.0008
Comerica Inc.	-10.70	4.31	3.85	-6.85	8,778.04	0.00042	-0.0029
ConocoPhillips	-8.50	3.79	3.47	-5.03	48,659.58	0.00235	-0.0118
Dominion Energy	-0.93	3.52	3.49	2.56	58,409.28	0.00282	0.0072
Dow Inc.	-5.43	5.12	4.84	-0.59	43,444.41	0.00210	-0.0012
Eaton Corp. plc	-0.23	2.32	2.31	2.08	50,215.62	0.00243	0.0051
Edison Int'l	-0.50	4.45	4.43	3.93	22,794.05	0.00110	0.0043
Exelon Corp.	-2.40	3.69	3.60	1.20	42,016.80	0.00203	0.0024
Fifth Third Bancorp	-2.98	3.45	3.35	0.37	22,317.24	0.00108	0.0004
FirstEnergy Corp.	-6.60	4.98	4.65	-1.95	16,999.35	0.00082	-0.0016
Fortive Corp.	-8.12	0.40	0.37	-7.75	23,671.44	0.00114	-0.0089
Gen'l Electric	-2.75	0.35	0.34	-2.41	99,774.95	0.00482	-0.0116
Genuine Parts	-1.10	3.16	3.13	2.03	14,430.44	0.00070	0.0014
Hess Corp.	-23.40	1.61	1.23	-22.17	19,118.62	0.00092	-0.0205
HollyFrontier Corp.	-12.87	5.05	4.40	-8.47	4,743.83	0.00023	-0.0019
Huntington Bancshs.	-2.15	4.09	4.00	1.85	14,934.13	0.00072	0.0013

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Invesco Ltd.	-3.35	2.87	2.77	-0.58	9,907.86	0.00048	-0.0003
KeyCorp	-0.66	4.05	4.02	3.36	17,854.79	0.00086	0.0029
Kinder Morgan Inc.	-2.52	6.74	6.57	4.05	35,291.86	0.00170	0.0069
Kraft Heinz Co.	-3.20	4.87	4.71	1.51	40,187.78	0.00194	0.0029
LyondellBasell Inds.	-4.07	4.45	4.27	0.20	31,515.18	0.00152	0.0003
M&T Bank Corp.	-4.80	3.06	2.91	-1.89	18,440.99	0.00089	-0.0017
Marathon Oil Corp.	-19.63	1.39	1.12	-18.51	6,809.80	0.00033	-0.0061
Marathon Petroleum	-6.51	5.03	4.70	-1.81	30,056.67	0.00145	-0.0026
MGM Resorts Int'l	-0.88	0.03	0.03	-0.85	15,322.12	0.00074	-0.0006
Nielsen Hldgs. plc	-2.92	1.08	1.05	-1.87	7,953.94	0.00038	-0.0007
NRG Energy	-12.80	2.95	2.57	-10.23	9,914.81	0.00048	-0.0049
Nucor Corp.	-8.47	2.90	2.65	-5.82	16,835.51	0.00081	-0.0047
Occidental Petroleum	-5.15	0.17	0.16	-4.99	21,440.48	0.00104	-0.0052
ONEOK Inc.	-1.60	8.82	8.68	7.08	19,557.74	0.00094	0.0067
PACCAR Inc.	-0.69	2.21	2.19	1.50	30,955.76	0.00150	0.0023
Packaging Corp.	-1.92	2.85	2.80	0.88	13,316.56	0.00064	0.0006
Pfizer, Inc.	-1.00	4.27	4.23	3.23	202,830.50	0.00980	0.0316
Phillips 66	-7.75	4.97	4.58	-3.17	32,930.35	0.00159	-0.0050
PNC Financial Serv.	-1.62	2.94	2.89	1.27	66,254.24	0.00320	0.0041
PPL Corp.	-16.20	5.97	5.00	-11.20	21,503.25	0.00104	-0.0116
Prologis	-6.05	2.47	2.32	-3.73	63,394.51	0.00306	-0.0114
Regions Financial	-21.60	3.42	2.68	-18.92	17,428.45	0.00084	-0.0159
SL Green Realty	-10.84	5.87	5.23	-5.61	4,982.35	0.00024	-0.0013
Smucker (J.M.)	-0.72	3.20	3.18	2.46	13,033.30	0.00063	0.0015
TechnipFMC plc	-2.90	1.15	1.12	-1.78	5,078.22	0.00025	-0.0004
Textron, Inc.	-3.53	0.16	0.15	-3.38	11,354.85	0.00055	-0.0019
Truist Fin'l	-9.10	3.49	3.17	-5.93	69,603.33	0.00336	-0.0199
UDR, Inc.	-34.21	3.80	2.50	-31.71	11,625.73	0.00056	-0.0178
Valero Energy	-5.08	6.47	6.14	1.06	24,699.17	0.00119	0.0013
Ventas, Inc.	-0.50	3.69	3.67	3.17	18,167.08	0.00088	0.0028
ViacomCBS Inc.	-2.94	2.21	2.15	-0.79	26,709.76	0.00129	-0.0010
Wells Fargo	-4.08	1.23	1.18	-2.90	134,141.50	0.00648	-0.0188

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Xerox Holdings	-17.00	4.75	3.94	-13.06	4,335.40	0.00021	-0.0027
Xylem Inc.	-0.73	1.08	1.07	0.34	18,730.40	0.00090	0.0003
Zions Bancorp.	-32.40	2.82	1.91	-30.49	7,921.63	0.00038	-0.0117
<u>Companies with EPS > 20%</u>							
West Pharmac. Svcs.	20.50	0.22	0.27	20.77	22,543.19	0.00109	0.0226
Lam Research	20.57	0.92	1.11	21.68	81,405.86	0.00393	0.0853
Hunt (J.B.)	20.73	0.74	0.89	21.62	15,853.96	0.00077	0.0166
Bristol-Myers Squibb	21.35	2.96	3.59	24.94	149,708.56	0.00723	0.1804
Diamondback Energy	21.90	2.47	3.01	24.91	9,568.87	0.00046	0.0115
NVIDIA Corp.	22.04	0.12	0.15	22.19	330,935.97	0.01599	0.3547
ResMed Inc.	22.10	0.72	0.88	22.98	31,584.15	0.00153	0.0351
Qualcomm Inc.	22.27	1.63	1.99	24.26	185,668.81	0.00897	0.2176
Equinix, Inc.	23.00	1.59	1.96	24.96	64,843.09	0.00313	0.0782
WestRock Co.	23.68	1.76	2.18	25.86	11,848.20	0.00057	0.0148
Raytheon Technologies	23.82	2.79	3.45	27.27	104,548.41	0.00505	0.1377
Lowe's Cos.	24.25	1.39	1.73	25.98	129,637.29	0.00626	0.1627
Deere & Co.	24.31	1.01	1.26	25.57	94,307.07	0.00456	0.1165
Activision Blizzard	24.38	0.47	0.58	24.96	73,509.30	0.00355	0.0886
Teradyne Inc.	25.03	0.29	0.36	25.39	23,015.22	0.00111	0.0282
Sysco Corp.	25.47	2.34	2.94	28.41	39,210.81	0.00189	0.0538
FedEx Corp.	28.14	1.03	1.32	29.46	66,787.29	0.00323	0.0950
Darden Restaurants	33.60	1.19	1.59	35.19	16,233.66	0.00078	0.0276
NIKE, Inc. 'B'	34.30	0.77	1.03	35.33	224,909.98	0.01086	0.3839
SBA Communications	41.18	0.80	1.13	42.31	30,372.67	0.00147	0.0621
Schlumberger Ltd.	41.84	1.97	2.79	44.63	35,287.96	0.00170	0.0761
Newmont Corp.	44.12	2.52	3.63	47.75	51,029.30	0.00247	0.1177
Starbucks Corp.	50.81	1.75	2.64	53.45	123,272.20	0.00595	0.3183
News Corp. 'A'	51.70	1.05	1.59	53.29	11,286.08	0.00055	0.0291

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Companies included in rate of return analysis

3M Company	6.99	3.45	3.69	10.68	98,186.47	0.00474	0.0507
Abbott Labs.	15.21	1.59	1.83	17.04	200,081.94	0.00967	0.1647
AbbVie Inc.	11.22	4.62	5.14	16.36	198,807.52	0.00960	0.1571
Accenture Plc	9.93	1.35	1.48	11.41	165,937.23	0.00802	0.0915
Advance Auto Parts	11.51	0.61	0.68	12.19	11,305.75	0.00055	0.0067
AES Corp.	7.30	2.14	2.30	9.60	18,636.97	0.00090	0.0086
Aflac Inc.	6.11	2.87	3.05	9.16	33,110.19	0.00160	0.0146
Agilent Technologies	9.30	0.61	0.67	9.97	39,531.92	0.00191	0.0190
Air Products & Chem.	10.31	1.87	2.06	12.37	63,299.38	0.00306	0.0378
Albemarle Corp.	15.00	0.86	0.99	15.99	19,182.49	0.00093	0.0148
Alexandria Real Estate	0.10	2.55	2.55	2.65	18,986.38	0.00092	0.0024
Allegion plc	1.13	1.12	1.13	2.26	10,534.03	0.00051	0.0012
Alliant Energy	5.80	3.22	3.41	9.21	12,468.07	0.00060	0.0055
Allstate Corp.	6.22	1.95	2.07	8.29	33,744.00	0.00163	0.0135
Altria Group	4.12	8.17	8.51	12.63	78,239.44	0.00378	0.0477
Amtcor plc	6.77	4.18	4.46	11.23	18,181.37	0.00088	0.0099
Amer. Elec. Power	6.00	3.71	3.93	9.93	41,549.67	0.00201	0.0199
Amer. Express	3.20	1.40	1.44	4.64	103,796.70	0.00501	0.0233
Amer. Int'l Group	1.89	3.04	3.10	4.99	36,249.77	0.00175	0.0087
Amer. Tower 'A'	15.58	2.25	2.60	18.18	98,956.65	0.00478	0.0869
Amer. Water Works	8.40	1.44	1.56	9.96	29,619.52	0.00143	0.0143
Ameren Corp.	6.60	2.88	3.07	9.67	17,931.89	0.00087	0.0084
Ameriprise Fin'l	10.11	1.95	2.15	12.26	25,287.60	0.00122	0.0150
AmerisourceBergen	8.73	1.70	1.85	10.58	21,169.11	0.00102	0.0108
Amgen	6.21	2.79	2.96	9.17	147,252.05	0.00711	0.0653
Amphenol Corp.	7.80	0.87	0.94	8.74	40,091.24	0.00194	0.0169
Analog Devices	11.47	1.55	1.73	13.20	59,054.78	0.00285	0.0376
Anthem, Inc.	13.62	1.32	1.50	15.12	80,201.24	0.00387	0.0586
Aon plc	7.66	0.87	0.94	8.60	48,576.65	0.00235	0.0202
Apple Inc.	12.92	0.66	0.75	13.67	2,241,442.00	0.10827	1.4796
Applied Materials	16.05	0.83	0.96	17.01	98,565.76	0.00476	0.0810

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Archer Daniels Midl'd	4.50	2.84	2.97	7.47	29,746.00	0.00144	0.0107
Assurant Inc.	19.40	1.86	2.22	21.62	8,389.53	0.00041	0.0088
Atmos Energy	6.77	2.83	3.02	9.79	11,112.69	0.00054	0.0053
Automatic Data Proc.	11.07	2.29	2.54	13.61	69,696.86	0.00337	0.0458
AvalonBay Communities	2.54	3.95	4.05	6.59	23,335.66	0.00113	0.0074
Avery Dennison	8.93	1.58	1.72	10.65	13,300.42	0.00064	0.0068
Baker Hughes	3.25	3.14	3.24	6.49	15,679.65	0.00076	0.0049
Ball Corp.	13.90	0.65	0.74	14.64	30,167.08	0.00146	0.0213
Bank of America	1.11	2.23	2.25	3.36	280,113.62	0.01353	0.0455
Bank of New York Mellon	13.37	2.92	3.31	16.68	37,651.92	0.00182	0.0303
Baxter Int'l Inc.	8.90	1.23	1.34	10.24	40,617.94	0.00196	0.0201
Becton, Dickinson	9.50	1.26	1.38	10.88	76,361.48	0.00369	0.0401
Berkley (W.R.)	9.81	0.72	0.79	10.60	11,880.01	0.00057	0.0061
Best Buy Co.	9.63	2.14	2.35	11.98	28,955.34	0.00140	0.0168
BlackRock, Inc.	12.68	1.96	2.21	14.89	113,081.89	0.00546	0.0813
BorgWarner	6.90	1.66	1.77	8.67	9,995.94	0.00048	0.0042
Boston Properties	7.00	4.19	4.48	11.48	14,482.15	0.00070	0.0080
Broadcom Inc.	7.90	3.12	3.37	11.27	186,599.52	0.00901	0.1016
Broadridge Fin'l	10.00	1.51	1.66	11.66	17,627.84	0.00085	0.0099
Brown-Forman 'B'	8.81	0.98	1.07	9.88	35,098.39	0.00170	0.0167
C.H. Robinson	7.23	2.07	2.22	9.45	13,426.92	0.00065	0.0061
Campbell Soup	8.64	3.21	3.49	12.13	14,870.92	0.00072	0.0087
Capital One Fin'l	4.19	0.36	0.38	4.57	50,944.88	0.00246	0.0112
Cardinal Health	5.15	3.55	3.73	8.88	16,049.46	0.00078	0.0069
Cboe Global Markets	3.58	1.72	1.78	5.36	10,560.42	0.00051	0.0027
CDW Corp.	9.87	1.17	1.29	11.16	19,442.22	0.00094	0.0105
Celanese Corp.	5.90	1.99	2.11	8.01	15,517.74	0.00075	0.0060
CenturyLink, Inc.	3.00	9.04	9.31	12.31	12,135.44	0.00059	0.0072
Cerner Corp.	10.03	1.10	1.21	11.24	24,428.67	0.00118	0.0133
Chubb Ltd.	6.59	2.00	2.13	8.72	70,333.41	0.00340	0.0296
Church & Dwight	9.74	1.13	1.24	10.98	21,047.47	0.00102	0.0112
Cigna Corp.	10.25	1.75	1.93	12.18	83,873.55	0.00405	0.0493

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Cintas Corp.	12.50	0.90	1.01	13.51	34,875.30	0.00168	0.0228
Cisco Systems	7.50	3.24	3.48	10.98	191,425.47	0.00925	0.1016
Citigroup Inc.	1.28	3.22	3.26	4.54	131,683.97	0.00636	0.0289
Citrix Sys.	10.85	1.06	1.18	12.03	16,305.88	0.00079	0.0095
Clorox Co.	5.10	2.26	2.38	7.48	24,820.46	0.00120	0.0090
CME Group	2.93	1.79	1.84	4.77	67,965.40	0.00328	0.0157
CMS Energy Corp.	7.23	2.96	3.17	10.40	16,805.81	0.00081	0.0084
Coca-Cola	2.18	3.45	3.53	5.71	209,177.97	0.01010	0.0576
Cognizant Technology	2.51	1.07	1.10	3.61	44,149.49	0.00213	0.0077
Colgate-Palmolive	7.27	2.19	2.35	9.62	68,744.95	0.00332	0.0319
Comcast Corp.	5.98	1.88	1.99	7.97	223,641.78	0.01080	0.0861
Conagra Brands	6.27	3.35	3.56	9.83	16,494.43	0.00080	0.0078
Consol. Edison	2.08	4.52	4.61	6.69	23,359.96	0.00113	0.0076
Constellation Brands	8.83	1.41	1.53	10.36	43,854.15	0.00212	0.0220
Cooper Cos.	10.00	0.02	0.02	10.02	18,891.72	0.00091	0.0091
Corning Inc.	4.00	2.29	2.38	6.38	29,260.45	0.00141	0.0090
Corteva, Inc.	12.22	1.37	1.54	13.76	32,635.50	0.00158	0.0217
Costco Wholesale	8.59	0.82	0.89	9.48	160,039.64	0.00773	0.0733
Crown Castle Int'l	17.47	3.35	3.94	21.41	68,554.86	0.00331	0.0709
CSX Corp.	15.42	1.12	1.29	16.71	71,284.68	0.00344	0.0575
Cummins Inc.	3.74	2.28	2.37	6.11	35,030.09	0.00169	0.0103
CVS Health	4.60	2.66	2.78	7.38	98,502.25	0.00476	0.0351
Danaher Corp.	19.37	0.30	0.36	19.73	168,376.61	0.00813	0.1605
Dentsply Sirona	5.68	0.68	0.72	6.40	12,821.58	0.00062	0.0040
Devon Energy	4.50	2.20	2.30	6.80	7,648.51	0.00037	0.0025
Digital Realty Trust	16.66	3.33	3.88	20.54	29,396.55	0.00142	0.0292
Discover Fin'l Svcs.	6.27	1.76	1.87	8.14	30,615.88	0.00148	0.0120
Dollar General	16.90	0.70	0.82	17.72	50,254.40	0.00243	0.0430
Domino's Pizza	15.09	0.86	0.99	16.08	14,929.57	0.00072	0.0116
Dover Corp.	3.79	1.57	1.63	5.42	18,158.42	0.00088	0.0048
DTE Energy	6.05	3.55	3.76	9.81	23,662.71	0.00114	0.0112
Duke Energy	2.36	4.30	4.40	6.76	66,814.08	0.00323	0.0218

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Duke Realty Corp.	6.00	2.61	2.77	8.77	14,681.21	0.00071	0.0062
DuPont de Nemours	2.42	1.52	1.56	3.98	61,855.79	0.00299	0.0119
Eastman Chemical	3.83	2.61	2.71	6.54	14,306.80	0.00069	0.0045
eBay Inc.	18.07	1.19	1.41	19.48	38,701.13	0.00187	0.0364
Ecolab Inc.	8.45	0.88	0.95	9.40	62,335.48	0.00301	0.0283
Electronic Arts	13.79	0.47	0.53	14.32	42,224.00	0.00204	0.0292
Emerson Electric	2.94	2.39	2.46	5.40	50,465.22	0.00244	0.0132
Entergy Corp.	5.35	4.07	4.29	9.64	18,965.97	0.00092	0.0088
EOG Resources	3.47	2.62	2.71	6.18	35,117.43	0.00170	0.0105
Equifax, Inc.	9.50	0.88	0.96	10.46	21,661.83	0.00105	0.0109
Equity Residential	6.10	3.91	4.15	10.25	22,920.95	0.00111	0.0113
Essex Property Trust	7.90	3.48	3.75	11.65	16,178.66	0.00078	0.0091
Everest Re Group Ltd.	6.71	2.62	2.80	9.51	9,455.39	0.00046	0.0043
Evergy, Inc.	5.90	4.03	4.27	10.17	12,223.98	0.00059	0.0060
Eversource Energy	6.51	2.70	2.88	9.39	30,035.87	0.00145	0.0136
Expeditors Int'l	8.49	1.11	1.20	9.69	15,926.33	0.00077	0.0075
Extra Space Storage	6.00	3.14	3.33	9.33	14,871.80	0.00072	0.0067
Exxon Mobil Corp.	13.95	7.03	8.01	21.96	209,412.83	0.01012	0.2222
Fastenal Co.	8.09	2.30	2.49	10.58	27,956.23	0.00135	0.0143
Federal Rlty. Inv. Trust	6.70	4.83	5.15	11.85	6,666.49	0.00032	0.0038
Fidelity Nat'l Info.	11.25	1.07	1.19	12.44	81,275.80	0.00393	0.0488
First Republic Bank	8.39	0.51	0.55	8.94	26,790.73	0.00129	0.0116
FLIR Systems	6.40	1.26	1.34	7.74	7,097.51	0.00034	0.0027
Flowserve Corp.	4.26	2.08	2.17	6.43	5,012.19	0.00024	0.0016
FMC Corp.	10.05	1.66	1.83	11.88	14,983.04	0.00072	0.0086
Fortune Brands Home	9.15	1.13	1.23	10.38	12,760.63	0.00062	0.0064
Fox Corp. 'A'	1.01	1.48	1.49	2.50	18,508.05	0.00089	0.0022
Franklin Resources	3.89	4.14	4.30	8.19	13,383.01	0.00065	0.0053
Gallagher (Arthur J.)	11.18	1.51	1.68	12.86	22,976.71	0.00111	0.0143
Garmin Ltd.	5.60	2.10	2.22	7.82	23,709.56	0.00115	0.0090
Gen'l Dynamics	2.12	2.86	2.92	5.04	44,202.30	0.00214	0.0108
Gen'l Mills	4.91	3.76	3.94	8.85	33,834.88	0.00163	0.0145

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Gilead Sciences	1.65	4.00	4.07	5.72	85,191.48	0.00412	0.0235
Global Payments	14.42	0.41	0.47	14.89	57,086.00	0.00276	0.0411
Globe Life Inc.	7.37	0.78	0.84	8.21	10,140.20	0.00049	0.0040
Goldman Sachs	16.27	1.72	2.00	18.27	99,942.00	0.00483	0.0882
Grainger (W.W.)	5.79	1.59	1.68	7.47	21,089.38	0.00102	0.0076
Halliburton Co.	15.50	0.90	1.04	16.54	17,730.64	0.00086	0.0142
Hanesbrands, Inc.	0.27	3.86	3.87	4.14	5,408.91	0.00026	0.0011
Hartford Fin'l Svcs.	0.04	2.48	2.48	2.52	18,803.70	0.00091	0.0023
Hasbro, Inc.	8.90	2.87	3.13	12.03	12,982.22	0.00063	0.0075
HCA Healthcare	10.54	0.64	0.71	11.25	56,829.25	0.00275	0.0309
Healthpeak Properties	2.50	4.91	5.03	7.53	15,237.50	0.00074	0.0055
Henry (Jack) & Assoc.	10.80	1.11	1.23	12.03	11,808.81	0.00057	0.0069
Hershey Co.	7.78	2.15	2.32	10.10	31,142.04	0.00150	0.0152
Hewlett Packard Ent.	3.12	3.89	4.01	7.13	15,881.58	0.00077	0.0055
Home Depot	8.56	2.24	2.43	10.99	295,146.78	0.01426	0.1567
Honeywell Int'l	2.33	1.79	1.83	4.16	146,009.73	0.00705	0.0294
Hormel Foods	4.05	2.19	2.28	6.33	24,149.15	0.00117	0.0074
Horton D.R.	16.60	1.07	1.25	17.85	27,339.96	0.00132	0.0236
HP Inc.	10.74	3.10	3.43	14.17	32,860.80	0.00159	0.0225
Humana Inc.	11.78	0.67	0.75	12.53	54,347.48	0.00263	0.0329
Huntington Ingalls	0.38	2.71	2.72	3.10	6,822.63	0.00033	0.0010
IDEX Corp.	13.00	1.01	1.14	14.14	15,001.87	0.00072	0.0102
IHS Markit	10.38	0.89	0.98	11.36	35,736.48	0.00173	0.0196
Illinois Tool Works	3.32	2.22	2.29	5.61	64,879.33	0.00313	0.0176
Int'l Business Mach.	6.09	5.01	5.32	11.41	115,908.68	0.00560	0.0639
Int'l Flavors & Frag.	1.81	2.60	2.65	4.46	12,840.51	0.00062	0.0028
Int'l Paper	2.42	4.02	4.12	6.54	20,044.17	0.00097	0.0063
Intel Corp.	5.43	2.25	2.37	7.80	240,429.66	0.01161	0.0906
Intercontinental Exch.	11.29	1.05	1.17	12.46	64,341.09	0.00311	0.0387
Interpublic Group	1.80	4.30	4.38	6.18	9,617.80	0.00046	0.0029
Intuit Inc.	10.79	0.64	0.71	11.50	102,313.88	0.00494	0.0568
Iron Mountain	1.70	8.19	8.33	10.03	8,731.34	0.00042	0.0042

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Jacobs Engineering	11.24	0.68	0.76	12.00	14,530.48	0.00070	0.0084
Johnson & Johnson	4.30	2.49	2.60	6.90	427,411.28	0.02065	0.1424
Johnson Ctrl's. Int'l plc	11.67	1.99	2.22	13.89	38,980.68	0.00188	0.0262
JPMorgan Chase	1.28	2.65	2.68	3.96	414,464.16	0.02002	0.0794
Juniper Networks	1.80	3.27	3.33	5.13	8,262.14	0.00040	0.0020
Kansas City South'n	16.49	0.82	0.96	17.45	20,212.53	0.00098	0.0170
Kellogg	1.99	3.99	4.07	6.06	19,811.62	0.00096	0.0058
Kimberly-Clark	4.55	3.26	3.41	7.96	44,725.16	0.00216	0.0172
Kimco Realty	4.60	3.80	3.97	8.57	7,271.77	0.00035	0.0030
KLA Corp.	12.15	1.18	1.32	13.47	47,051.25	0.00227	0.0306
Kroger Co.	8.03	2.18	2.36	10.39	25,331.62	0.00122	0.0127
L3Harris Technologies	12.88	1.80	2.03	14.91	40,858.87	0.00197	0.0294
Lamb Weston Holdings	9.70	1.23	1.35	11.05	11,323.49	0.00055	0.0060
Lauder (Estee)	17.10	0.83	0.97	18.07	92,259.99	0.00446	0.0805
Leggett & Platt	5.20	3.62	3.81	9.01	5,859.99	0.00028	0.0025
Leidos Hldgs.	11.94	1.24	1.39	13.33	15,568.88	0.00075	0.0100
Lennar Corp.	10.70	1.21	1.34	12.04	25,810.18	0.00125	0.0150
Lilly (Eli)	13.67	1.69	1.92	15.59	192,503.39	0.00930	0.1450
Lincoln Nat'l Corp.	18.19	3.26	3.85	22.04	10,140.09	0.00049	0.0108
Linde plc	11.71	1.63	1.82	13.53	135,098.20	0.00653	0.0883
Lockheed Martin	7.31	3.04	3.26	10.57	95,593.80	0.00462	0.0488
Loews Corp.	14.03	0.53	0.60	14.63	13,023.10	0.00063	0.0092
MarketAxess Holdings	19.86	0.46	0.55	20.41	19,641.95	0.00095	0.0194
Marsh & McLennan	7.33	1.64	1.76	9.09	57,515.78	0.00278	0.0253
Martin Marietta	7.20	0.75	0.80	8.00	19,313.00	0.00093	0.0075
Masco Corp.	14.71	0.96	1.10	15.81	15,221.01	0.00074	0.0116
MasterCard Inc.	9.76	0.53	0.58	10.34	334,240.16	0.01615	0.1670
McCormick & Co.	4.80	1.48	1.55	6.35	24,481.10	0.00118	0.0075
McDonald's Corp.	4.87	2.41	2.53	7.40	159,178.06	0.00769	0.0569
McKesson Corp.	10.12	0.91	1.00	11.12	29,649.76	0.00143	0.0159
Medtronic plc	10.33	2.00	2.21	12.54	160,510.41	0.00775	0.0972
Merck & Co.	7.53	3.15	3.39	10.92	208,604.03	0.01008	0.1100

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MetLife Inc.	3.77	3.56	3.69	7.46	46,772.80	0.00226	0.0169
Microchip Technology	10.10	0.97	1.07	11.17	39,657.66	0.00192	0.0214
Microsoft Corp.	16.12	1.00	1.16	17.28	1,696,907.75	0.08197	1.4165
Mid-America Apartment	7.00	3.08	3.30	10.30	15,213.00	0.00073	0.0076
Mondelez Int'l	6.67	2.31	2.46	9.13	81,644.03	0.00394	0.0360
Moody's Corp.	10.46	0.81	0.89	11.35	51,755.01	0.00250	0.0284
Morgan Stanley	7.33	1.87	2.01	9.34	117,981.29	0.00570	0.0532
Mosaic Company	7.00	0.88	0.94	7.94	10,804.07	0.00052	0.0041
Motorola Solutions	5.88	1.64	1.74	7.62	29,292.65	0.00141	0.0108
MSCI Inc.	14.80	0.79	0.91	15.71	34,754.74	0.00168	0.0264
Nasdaq, Inc.	11.07	1.36	1.51	12.58	23,564.90	0.00114	0.0143
NetApp, Inc.	5.00	3.10	3.26	8.26	14,321.22	0.00069	0.0057
Newell Brands	4.94	3.73	3.91	8.85	10,463.24	0.00051	0.0045
NextEra Energy	8.75	1.80	1.96	10.71	164,660.34	0.00795	0.0852
NiSource Inc.	1.65	3.75	3.81	5.46	8,574.09	0.00041	0.0023
Norfolk Southern	11.71	1.48	1.65	13.36	64,367.42	0.00311	0.0416
Northern Trust Corp.	6.83	2.95	3.15	9.98	19,729.87	0.00095	0.0095
Northrop Grumman	7.62	1.94	2.09	9.71	49,811.41	0.00241	0.0234
NortonLifeLock Inc.	13.95	2.39	2.72	16.67	12,378.72	0.00060	0.0100
Old Dominion Freight	15.07	0.30	0.35	15.42	24,517.48	0.00118	0.0183
Omnicom Group	3.20	4.14	4.27	7.47	13,515.35	0.00065	0.0049
Oracle Corp.	10.90	1.56	1.73	12.63	181,725.11	0.00878	0.1109
Otis Worldwide	8.63	1.23	1.34	9.97	28,240.31	0.00136	0.0136
Parker-Hannifin	13.49	1.23	1.40	14.89	36,948.86	0.00178	0.0266
Paychex, Inc.	4.50	2.84	2.97	7.47	32,211.56	0.00156	0.0116
Pentair plc	6.60	1.38	1.47	8.07	9,669.69	0.00047	0.0038
People's United Fin'l	13.73	4.98	5.66	19.39	6,136.92	0.00030	0.0057
PepsiCo, Inc.	6.19	2.89	3.07	9.26	195,459.38	0.00944	0.0874
PerkinElmer Inc.	17.20	0.19	0.22	17.42	16,922.67	0.00082	0.0142
Perrigo Co. plc	10.00	2.31	2.54	12.54	5,906.35	0.00029	0.0036
Philip Morris Int'l	6.65	5.88	6.27	12.92	127,231.41	0.00615	0.0794
Pinnacle West Capital	3.70	4.39	4.55	8.25	8,777.92	0.00042	0.0035

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Pioneer Natural Res.	16.85	1.70	1.99	18.84	21,722.57	0.00105	0.0198
Pool Corp.	17.00	0.63	0.74	17.74	14,705.63	0.00071	0.0126
PPG Inds.	10.71	1.49	1.65	12.36	34,143.29	0.00165	0.0204
Price (T. Rowe) Group	14.59	2.35	2.69	17.28	36,115.87	0.00174	0.0302
Principal Fin'l Group	7.07	4.17	4.46	11.53	14,735.16	0.00071	0.0082
Procter & Gamble	9.19	2.39	2.61	11.80	324,874.44	0.01569	0.1852
Progressive Corp.	1.36	0.42	0.43	1.79	56,252.73	0.00272	0.0049
Prudential Fin'l	4.04	5.24	5.45	9.49	33,220.24	0.00160	0.0152
Public Serv. Enterprise	1.15	3.41	3.45	4.60	29,867.04	0.00144	0.0066
Public Storage	17.00	3.56	4.17	21.17	39,240.79	0.00190	0.0401
PulteGroup, Inc.	16.50	1.20	1.40	17.90	12,521.28	0.00060	0.0108
Quanta Services	12.08	0.30	0.34	12.42	11,006.08	0.00053	0.0066
Quest Diagnostics	9.72	1.76	1.93	11.65	17,193.60	0.00083	0.0097
Raymond James Fin'l	9.15	1.51	1.65	10.80	14,130.92	0.00068	0.0074
Realty Income Corp.	5.45	4.88	5.15	10.60	19,676.85	0.00095	0.0101
Regency Centers Corp.	9.10	4.94	5.39	14.49	8,071.90	0.00039	0.0056
Republic Services	8.27	1.83	1.98	10.25	33,554.59	0.00162	0.0166
Robert Half Int'l	2.70	2.22	2.28	4.98	7,614.66	0.00037	0.0018
Rockwell Automation	10.65	1.65	1.83	12.48	30,673.31	0.00148	0.0185
Rollins, Inc.	8.20	0.56	0.61	8.81	18,563.69	0.00090	0.0079
Roper Tech.	5.10	0.54	0.57	5.67	44,100.77	0.00213	0.0121
S&P Global	11.83	0.93	1.04	12.87	77,458.77	0.00374	0.0482
Schwab (Charles)	8.68	1.28	1.39	10.07	75,572.91	0.00365	0.0368
Seagate Technology	5.36	4.36	4.59	9.95	15,822.10	0.00076	0.0076
Sealed Air	7.95	1.44	1.55	9.50	6,913.84	0.00033	0.0032
Sempra Energy	7.70	3.66	3.94	11.64	35,386.56	0.00171	0.0199
Sherwin-Williams	10.01	0.76	0.84	10.85	66,867.18	0.00323	0.0350
Simon Property Group	8.60	5.46	5.93	14.53	29,240.79	0.00141	0.0205
Skyworks Solutions	11.95	1.23	1.38	13.33	26,982.86	0.00130	0.0174
Smith (A.O.)	8.00	1.80	1.94	9.94	9,339.25	0.00045	0.0045
Snap-on Inc.	10.00	2.80	3.08	13.08	9,513.31	0.00046	0.0060
Southern Co.	4.36	4.32	4.51	8.87	64,061.08	0.00309	0.0274

**ROE and ROR Analysis for Pike County
CAPM Analysis
Standard and Poor's 500 with IBES EPS**

Stanley Black & Decker	7.41	1.61	1.73	9.14	31,145.54	0.00150	0.0138
State Street Corp.	14.95	2.71	3.12	18.07	27,038.44	0.00131	0.0236
STERIS plc	10.00	0.84	0.92	10.92	16,157.62	0.00078	0.0085
Stryker Corp.	8.68	1.03	1.12	9.80	92,149.91	0.00445	0.0436
Synchrony Financial	3.05	2.20	2.27	5.32	23,298.10	0.00113	0.0060
Target Corp.	13.75	1.45	1.65	15.40	94,292.16	0.00455	0.0701
TE Connectivity	11.00	1.47	1.63	12.63	43,024.36	0.00208	0.0263
Teleflex Inc.	12.00	0.35	0.39	12.39	18,314.33	0.00088	0.0110
Texas Instruments	10.00	2.35	2.59	12.59	159,054.70	0.00768	0.0967
Thermo Fisher Sci.	16.73	0.17	0.20	16.93	204,445.44	0.00988	0.1672
TJX Companies	5.01	1.52	1.60	6.61	81,991.09	0.00396	0.0262
Tractor Supply	15.73	1.07	1.24	16.97	18,097.81	0.00087	0.0148
Trane Technologies plc	6.35	1.37	1.46	7.81	37,277.00	0.00180	0.0141
Travelers Cos.	5.93	2.35	2.49	8.42	36,733.56	0.00177	0.0149
Tyson Foods 'A'	4.40	2.69	2.81	7.21	24,181.25	0.00117	0.0084
U.S. Bancorp	6.00	3.69	3.91	9.91	68,661.30	0.00332	0.0329
Union Pacific	12.92	1.78	2.01	14.93	147,278.69	0.00711	0.1062
United Parcel Serv.	9.61	2.62	2.87	12.48	138,037.83	0.00667	0.0832
UnitedHealth Group	12.41	1.42	1.60	14.01	332,947.19	0.01608	0.2253
Unum Group	3.27	4.41	4.55	7.82	5,266.85	0.00025	0.0020
V.F. Corp.	10.28	2.38	2.62	12.90	32,105.82	0.00155	0.0200
Verisk Analytics	11.05	0.58	0.64	11.69	31,689.25	0.00153	0.0179
Verizon Communic.	2.42	4.38	4.49	6.91	236,947.27	0.01145	0.0790
Visa Inc.	11.52	0.64	0.71	12.23	400,277.44	0.01934	0.2365
Vornado R'lty Trust	17.33	5.56	6.52	23.85	7,288.96	0.00035	0.0084
Vulcan Materials	8.35	0.85	0.92	9.27	21,274.76	0.00103	0.0095
Wabtec Corp.	7.30	0.59	0.63	7.93	15,467.58	0.00075	0.0059
Walgreens Boots	3.85	3.89	4.04	7.89	43,432.14	0.00210	0.0166
Walmart Inc.	6.93	1.51	1.61	8.54	411,938.84	0.01990	0.1700
Waste Management	4.38	1.89	1.97	6.35	48,618.64	0.00235	0.0149
WEC Energy Group	6.10	3.07	3.26	9.36	27,868.68	0.00135	0.0126
Welltower Inc.	13.00	3.93	4.44	17.44	25,489.45	0.00123	0.0215

**ROE and ROR Analysis for Pike County
CAPM Analysis
Standard and Poor's 500 with IBES EPS**

Western Union	8.88	4.10	4.46	13.34	9,025.56	0.00044	0.0058
Weyerhaeuser Co.	5.00	2.03	2.13	7.13	25,034.19	0.00121	0.0086
Whirlpool Corp.	0.20	2.56	2.57	2.77	12,134.02	0.00059	0.0016
Williams Cos.	5.00	7.13	7.49	12.49	27,207.59	0.00131	0.0164
Willis Towers Wat. plc	5.22	1.35	1.42	6.64	27,097.70	0.00131	0.0087
Xcel Energy Inc.	6.20	2.78	2.95	9.15	34,380.39	0.00166	0.0152
Xilinx Inc.	9.00	1.10	1.20	10.20	33,818.14	0.00163	0.0167
Yum! Brands	7.85	1.77	1.91	9.76	33,041.82	0.00160	0.0156
Zimmer Biomet Hldgs.	3.46	0.61	0.63	4.09	33,885.26	0.00164	0.0067
Zoetis Inc.	9.59	0.61	0.67	10.26	77,635.69	0.00375	0.0385

20,701,540 1.00 11.61

Companies not paying dividends, with
EPS growth-rate estimates \leq 0 percent, or
> 20 percent excluded

**Weighted
Rate of
Return on
Equity (%)**

ROE and ROR Analysis for Pike County

CAPM Analysis

Size Premia

Duff & Phelps 2020 Cost of Capital Navigator

2020 CRSP Deciles Size Study -- Supplementary Data Exhibits

Docket Nos. R-2020-3022134 and R-2020-3022135

Exhibit ____ MFG-9, Schedule 5

	2019	
Decile	Minimum Market Cap (millions)	Size Premium
1	\$ 31,090.379	-0.28%
2	\$ 13,142.606	0.50%
3	\$ 6,618.604	0.73%
4	\$ 4,312.546	0.79%
5	\$ 2,688.889	1.10%
6	\$ 1,669.856	1.34%
7	\$ 993.855	1.47%
8	\$ 515.621	1.59%
9	\$ 230.024	2.22%
10	\$ 1.973	4.99%

**ROE and ROR Analysis for Pike County
CAPM ROE Analysis
Calculation for Proxy Group**

**Docket Nos. R-2020-3022134 and R-2020-3022135
Exhibit ____ MFG-9, Schedule 6**

	A	B	C	D	E	F	G	H	I	J
	Market Return	Rf	MRP	Beta	RP	Unadjusted ROE	Market Cap (millions)	Size Adj.	Adjusted ROE	Filtered Results
Essential Utilities, Inc.	11.61%	1.79%	9.82%	0.95	9.33%	11.12%	\$ 11,481	0.73%	11.85%	11.85%
Exelon Corporation	11.61%	1.79%	9.82%	0.95	9.33%	11.12%	\$ 42,016	-0.28%	10.84%	10.84%
NiSource Inc.	11.61%	1.79%	9.82%	0.85	8.35%	10.14%	\$ 8,574	0.73%	10.87%	10.87%
UGI Corporation	11.61%	1.79%	9.82%	1.05	10.31%	12.10%	\$ 7,791	0.73%	12.83%	12.83%
					Mean	11.12%			11.60%	11.60%
					Median	11.12%			11.36%	11.36%

A: MFG-9, Sch 4
B: MFG-9 Sch 1
C: A - B
D: MFG-9, Sch 2
E: C * D

F: B + E
G: Value Line, Investment Analyzer, January 28, 2021
H: 2019 Duff & Phelps Valuation Handbook
I: F + H
J: Low-end test < Column I < High-end test

Low-End Test:	Moody's 10-Year Baa Public Utilities Bond Index (20-day moving average, January 28, 2021, S&P Global Intelligence)	3.15%
	CAPM Risk Premium, Column C	9.82%
High-End Test:	Moody's 10-Year Baa Public Utilities Bond Index + 20 percent of CAPM risk premium	5.11%
	Proxy Group median, Column J	11.36%
	150 percent of Proxy Group median	17.04%

ROE and ROR Analysis for Pike County
Summary of Authorized ROEs in Fully Litigated Electric Rate Cases, 2019-2020
Source: S&P Global Market Intelligence
Regulatory Research Associates Rate Case History

Docket Nos. R-2020-3022134 and R-2020-3022135
Exhibit ____ MFG-10, Schedule 1

S&P Global
Market Intelligence

2019

State	Company	Parent Company Ticker	Docket	Rate Case Service Type	Case Type	Date of Decision	Decision Type	Return on Equity (%)	Common Equity to Total Capital (%)
Maryland	Potomac Edison Co.	FE	C-9490	Electric	Distribution	3/22/19	Fully Litigated	9.65	52.82
Maryland	Potomac Electric Power Co.	EXC	C-9602	Electric	Distribution	8/12/19	Fully Litigated	9.60	50.46
Massachusetts	Massachusetts Electric Co. Commonwealth	NG.	DPU-18-150	Electric	Distribution	9/30/19	Fully Litigated	9.60	53.49
Illinois	Edison Co.	EXC	D-19-0387	Electric	Distribution	12/4/19	Fully Litigated	8.91	47.97
Illinois	Ameren Illinois	AEE	D-19-0436	Electric	Distribution	12/16/19	Fully Litigated	8.91	50.00
Massachusetts	NSTAR Electric Co.	ES	DPU 19-115	Electric	Distribution	12/19/19	Fully Litigated	NA	NA
Maine	Central Maine Power Co.	IBE	D-2018-00194	Electric	Distribution	2/19/20	Fully Litigated	8.25	50.00
Maryland	Delmarva Power & Light Co.	EXC	C-9630	Electric	Distribution	7/14/20	Fully Litigated	9.60	50.53
Massachusetts	Massachusetts Electric Co.	NG.	DPU-20-68	Electric	Distribution	9/23/20	Fully Litigated	NA	NA
Illinois	Ameren Illinois Commonwealth	AEE	D-20-0381	Electric	Distribution	12/9/20	Fully Litigated	8.38	50.00
Illinois	Edison Co.	EXC	D-20-0393	Electric	Distribution	12/9/20	Fully Litigated	8.38	48.16
Maryland	Baltimore Gas and Electric Co.	EXC	C-9645 (EL)	Electric	Distribution	12/16/20	Fully Litigated	9.50	52.00
Massachusetts	NSTAR Electric Co.	ES	DPU 20-96	Electric	Distribution	12/30/20	Fully Litigated	NA	NA

South Carolina	Duke Energy Carolinas LLC	DUK	D-2018-319-E	Electric	Vertically Integrated	5/1/19	Fully Litigated	9.50	53.00	
Michigan	DTE Electric Co.	DTE	C-U-20162	Electric	Vertically Integrated	5/2/19	Fully Litigated	10.00	37.94	
South Carolina	Duke Energy Progress LLC	DUK	D-2018-318-E	Electric	Vertically Integrated	5/8/19	Fully Litigated	9.50	53.00	
South Dakota	Otter Tail Power Co.	OTTR	D-EL18-021	Electric	Vertically Integrated	5/14/19	Fully Litigated	8.75	52.92	
California	Southern California Edison Co.	EIX	A-16-09-001	Electric	Vertically Integrated	5/16/19	Fully Litigated	NA	NA	
Vermont	Green Mountain Power Corp.		C-19-1932-TF	Electric	Vertically Integrated	8/29/19	Fully Litigated	9.06	49.46	
California	San Diego Gas & Electric Co.	SRE	A-17-10-007 (Elec)	Electric	Vertically Integrated	9/26/19	Fully Litigated	NA	NA	
Louisiana	Entergy New Orleans LLC	ETR	D-UD-18-07 (elec.)	Electric	Vertically Integrated	11/7/19	Fully Litigated	9.35	50.00	
Georgia	Georgia Power Co.	SO	D-42516	Electric	Vertically Integrated	12/17/19	Fully Litigated	10.50	56.00	
California	Pacific Gas and Electric Co.	PCG	A-19-04-015	Electric	Vertically Integrated	12/19/19	Fully Litigated	10.25	52.00	
California	San Diego Gas & Electric Co.	SRE	A-19-04-017 (Elec)	Electric	Vertically Integrated	12/19/19	Fully Litigated	10.20	52.00	
California	Southern California Edison Co.	EIX	A-19-04-014	Electric	Vertically Integrated	12/19/19	Fully Litigated	10.30	52.00	
California	PacifiCorp	BRK.A	A-18-04-002	Electric	Vertically Integrated	2/6/20	Fully Litigated	10.00	51.96	
								Mean	9.50	50.75
								Median	9.55	51.96
								High	10.50	56.00
								Low	8.38	37.94

2020

State	Company	Parent Company Ticker	Docket	Rate Case Service Type	Case Type	Date of Decision	Decision Type	Return on Equity (%)	Common Equity to Total Capital (%)
Colorado	Public Service Co. of CO	XEL	D-19AL-0268E	Electric	Vertically Integrate	2/11/20	Fully Litigated	9.30	55.61
Indiana	Indiana Michigan Power Co.	AEP	Ca-45235	Electric	Vertically Integrate	3/11/20	Fully Litigated	9.70	37.55
Kentucky	Duke Energy Kentucky Inc.	DUK	C-2019-00271	Electric	Vertically Integrate	4/27/20	Fully Litigated	9.25	48.23
Michigan	DTE Electric Co.	DTE	C-U-20561	Electric	Vertically Integrate	5/8/20	Fully Litigated	9.90	38.32
Indiana	Duke Energy Indiana, LLC	DUK	Ca-45253	Electric	Vertically Integrate	6/29/20	Fully Litigated	9.70	40.98
Washington	Puget Sound Energy Inc.		D-UE-190529	Electric	Vertically Integrate	7/8/20	Fully Litigated	9.40	48.50
California	Liberty Utilities (CalPeco Ele Green Mountain	AQN	A-18-12-001	Electric	Vertically Integrate	8/27/20	Fully Litigated	10.00	52.50
Vermont	Power Corp. Appalachian		20-1407-TF C-PUR-2020-	Electric	Vertically Integrate	8/27/20	Fully Litigated	8.20	49.87
Virginia	Power Co. Consumers	AEP	00015	Electric	Vertically Integrate	11/24/20	Fully Litigated	9.20	NA
Michigan	Energy Co.	CMS	C-U-20697	Electric	Vertically Integrate	12/17/20	Fully Litigated	9.90	NA
Oregon	PacifiCorp	BRK.A	D-UE-374	Electric	Vertically Integrate	12/18/20	Fully Litigated	9.50	50.00
Arizona	Tucson Electric Power Co.	FTS	D-E-01933A-19-0028	Electric	Vertically Integrate	12/22/20	Fully Litigated	9.15	53.08
Wisconsin	Wisconsin Power and Light Co	LNT	D-6680-UR-122 (Elec)	Electric	Vertically Integrate	12/23/20	Fully Litigated	10.00	52.53
Utah	PacifiCorp	BRK.A	D-20-035-04	Electric	Vertically Integrate	12/30/20	Fully Litigated	9.65	52.50
							Mean	9.59	48.31
							Median	9.65	49.94
							High	10.00	55.61
							Low	9.15	37.55

ROE and ROR Analysis for Pike County
Summary of Authorized ROEs in Fully Litigated Gas Rate Cases, 2019-2020
Source: S&P Global Market Intelligence
Regulatory Research Associates Rate Case History

Docket Nos. R-2020-3022134 and R-2020-3022135
Exhibit ____ MFG-10, Schedule 2

S&P Global
Market Intelligence

2019

State	Company	Parent Company Ticker	Docket	Rate Case Service Type	Case Type	Date of Decision	Decision Type	Return on Equity (%)	Common Equity to Total Capital (%)
Maryland	Baltimore Gas and Electric Co.	EXC	C-9484	Natural Gas	Distribution	1/4/19	Fully Litigated	9.80	52.85
Kentucky	Atmos Energy Corp.	ATO	C-2018-00281	Natural Gas	Distribution	5/7/19	Fully Litigated	9.65	58.06
Oklahoma	CenterPoint Energy Resources	CNP	Ca-PUD20190001 9	Natural Gas	Distribution	8/29/19	Fully Litigated	NA	NA
California	San Diego Gas & Electric Co.	SRE	A-17-10-007 (Gas)	Natural Gas	Distribution	9/26/19	Fully Litigated	NA	NA
California	Southern California Gas Co.	SRE	A-17-10-008	Natural Gas	Distribution	9/26/19	Fully Litigated	NA	NA
Michigan	Consumers Energy Co.	CMS	C-U-20322	Natural Gas	Distribution	9/26/19	Fully Litigated	9.90	41.78
Illinois	Northern Illinois Gas Co.	SO	D-18-1775	Natural Gas	Distribution	10/2/19	Fully Litigated	9.73	54.20
Louisiana	Entergy New Orleans LLC	ETR	D-UD-18-07 (gas)	Natural Gas	Distribution	11/7/19	Fully Litigated	9.35	50.00
Maryland	Columbia Gas of Maryland Inc	NI	C-9609	Natural Gas	Distribution	12/18/19	Fully Litigated	9.60	52.90
California	San Diego Gas & Electric Co.	SRE	A-19-04-017 (Gas)	Natural Gas	Distribution	12/19/19	Fully Litigated	10.20	52.00
California	Southern California Gas Co.	SRE	A-19-04-018	Natural Gas	Distribution	12/19/19	Fully Litigated	10.05	52.00

Georgia	Atlanta Gas Light Co.	SO	D-42315	Natural Gas	Distribution	12/19/19	Fully Litigated	10.25	56.00
Virginia	Washington Gas Light Co.	ALA	C-PUR-2018-00080	Natural Gas	Distribution	12/20/19	Fully Litigated	9.20	53.48
							Mean	9.77	52.33
							Median	9.77	52.88
							High	10.25	58.06
							Low	9.20	41.78

2020

State	Company	Parent Company Ticker	Docket	Rate Case Service Type	Case Type	Date of Decision	Decision Type	Return on Equity (%)	Common Equity to Total Capital (%)
Virginia	Roanoke Gas Co.	RGCO	C-PUR-2018-00013	Natural Gas	Distribution	1/24/20	Fully Litigated	9.44	59.64
Kansas	Atmos Energy Corp.	ATO	D-19-ATMG-525-RTS	Natural Gas	Distribution	2/24/20	Fully Litigated	9.10	56.32
Utah	Questar Gas Co.	BRK.A	D-19-057-02	Natural Gas	Distribution	2/25/20	Fully Litigated	9.50	55.00
Maine	Northern Utilities Inc.	UTL	D-2019-00092	Natural Gas	Distribution	3/26/20	Fully Litigated	9.48	50.00
Colorado	Black Hills Colorado Gas Inc.	BKH	D-19AL-0075G	Natural Gas	Distribution	5/19/20	Fully Litigated	9.20	50.15
Washington	Puget Sound Energy Inc.		D-UG-190530	Natural Gas	Distribution	7/8/20	Fully Litigated	9.40	48.50
Tennessee	Chattanooga Gas Co.	SO	D-20-00049	Natural Gas	Distribution	9/14/20	Fully Litigated	NA	49.23
Nevada	Southwest Gas Corp.	SWX	D-20-02023 (Southern)	Natural Gas	Distribution	9/25/20	Fully Litigated	9.25	49.26
Nevada	Southwest Gas Corp.	SWX	D-20-02023 (Northern)	Natural Gas	Distribution	9/25/20	Fully Litigated	9.25	49.26
Arkansas	CenterPoint Energy Resources	CNP	D-17-010-FR (2020 filing)	Natural Gas	Distribution	9/28/20	Fully Litigated	NA	33.07
Massachusetts	NSTAR Gas Co.	ES	DPU 19-120	Natural Gas	Distribution	10/30/20	Fully Litigated	9.90	54.77

Arizona	Southwest Gas Corp.	SWX	D-G-01551A-19-0055	Natural Gas	Distribution	12/9/20	Fully Litigated	9.10	51.10
Maryland	Baltimore Gas and Electric Co.	EXC	C-9645 (Gas)	Natural Gas	Distribution	12/16/20	Fully Litigated	9.65	52.00
Wisconsin	Wisconsin Power and Light Co	LNT	D-6680-UR-122 (Gas)	Natural Gas	Distribution	12/23/20	Fully Litigated	10.00	52.53
							Mean	9.44	50.77
							Median	9.42	50.63
							High	10.00	59.64
							Low	9.10	33.07

Rate of Return Office of Consumer Advocate

		DCF	
	Ratio	Cost	WACC
Long-Term Debt	46.54%	4.77%	2.22%
Long-Term Debt	5.14%	3.10%	0.16%
Common Equity	48.32%	9.28%	4.48%
Overall Rate of Return	100%		6.86%

The capital structure, and the costs of long-term debt and short-term debt are taken from Pike County Accounting Panel Exhibit E-2, Schedule 3. The recommended common equity cost of 9.28 percent is supported by Exhibit ____ MFG-6.

**ROE and ROR Analysis for Pike County
Beta Values Example from Fall 2019**

**Docket Nos. R-2020-3022134 and R-2020-302135
Exhibit ____ MFG-12**

**ROE and ROR Analysis for Jersey Central Power & Light
CAPM Analysis
Beta calculation for Comparison Group**

**Docket No. ER20-227-000
Exhibit MFG-7**

Company Name	Value Line Betas-- Comparison Group
ALLETE, Inc. **	0.65
Ameren Corporation **	0.55
Avista Corporation ***	0.60
Black Hills Corporation ***	0.60
CenterPoint Energy, Inc. ***	0.80
CMS Energy Corporation **	0.55
Dominion Energy, Inc. *	0.55
DTE Energy Company **	0.55
Exelon Corporation *	0.70
Hawaiian Electric Industries, Inc. ***	0.55
IDACORP, Inc. ***	0.55
NorthWestern Corporation ***	0.60
OGE Energy Corp. **	0.80
Otter Tail Corporation **	0.65
Portland General Electric Company ***	0.60
Public Service Enterprise Group Inc. *	0.65
Sempra Energy ***	0.75
Mean	0.629

Value Line Reports: *-August 16, 2019, **-September 13, 2019, ***-October 25, 2019

Pike County Light & Power Company 2020 General Base Rate Increase (Electric) Filing;
Docket No. R-2020-3022135

**PIKE COUNTY LIGHT & POWER COMPANY (ELECTRIC) RESPONSES
TO OFFICE OF CONSUMER ADVOCATE INTERROGATORIES, SET III**

4. Please refer to page 17, lines 22-23 of Pike County Light & Power Company's 2020 General Base Rate Increase (Electric) testimony of Company Accounting Panel Witnesses Chuck Lenns and Richard A. Kane, and Exhibit E-2, Scheduled 3. Please identify the short-term debt lending agreement or index relied on in arriving at the short-term debt cost of 3.10 percent.

RESPONSE: The short-term line of credit was negotiated in June of 2020, for both Pike County Light and Power Company and Corning National Gas Corporation. The Company anticipates that it will re-negotiate this line of credit during the next few months, and will entertain a bid from a competing bank for the Pike credit facility. The interest rate for short-term debt was negotiated with M&T Bank as part of our negotiations on the conversion of short-term debt into long-term debt, including the length of our long-term debt. The short-term line of credit was not negotiated separately.

PROVIDED BY: Charles Lenns, Richard A. Kane (Accounting Panel)

DATE: January 21, 2021

Pike County Light & Power Company 2020 General Base Rate Increase (Gas) Filing
Docket No. R-2020-3022134

**PIKE COUNTY LIGHT & POWER COMPANY (GAS) RESPONSES
TO OFFICE OF CONSUMER ADVOCATE'S INTERROGATORIES, SET III**

1. Please refer to page 17, lines 17-20 of Pike County Light & Power Company's 2020 General Base Rate Increase (Gas) testimony of Company Accounting Panel Witnesses Chuck Lenns and Richard A. Kane. Please provide all support relied on by the witnesses for their recommended cost of equity of 9.75 percent. The response should include, but not be limited to, electronic copies of previous Pennsylvania Pike County orders regarding cost of equity, electronic copies of any other Pennsylvania orders regarding cost of equity relied on, all cost of equity models applied, criteria applied in selecting a proxy group, all sources for inputs into cost of equity models, and "live" electronic versions in Excel of any spreadsheets used in the analysis.

RESPONSE:

The Company's Accounting Panel did not perform any calculations or use any cost of equity models to base its request for a 9.75 percent Return on Equity. The Accounting Panel relied on the PAPUC's "Report on the Quarterly Earnings of Jurisdictional Utilities for the Year Ended June 30, 2020." A copy of the PAPUC's report is included as an attachment entitled "**PAPUC ROE Report – June 2020.docx**." Appendix C indicates that with the exception of UGI Utilities, Inc. - Electric Division all other electric and gas utilities included in the Report had settled their last base rate filings with no stated Authorized ROE. UGI Utilities, Inc. - Electric Division had an Authorized ROE of 9.85%.

Appendix D of the PAPUC's Report indicated that for electric utilities the Commission has authorized an ROE for Distribution System Improvement Charges (DSIC) ranging from 9.45% for utilities with settled rate cases to 9.85% for UGI Utilities, Inc. - Electric Division. For Gas utilities the authorized ROE is 10.15%.

Pike's last electric and gas base rate case filing (Docket Nos. R-2013-2397237 and R-2013-2397353 respectively), were settled in 2014 with no stated Authorized Return on Equity. The Company's settlement workpapers showed that it used a 9.75% ROE in negotiations.

While the 9.75% ROE recommended by the Accounting Panel is lower than the returns currently authorized for gas companies by the Commission; the Company filed for both electric and gas rate relief, so it is requesting an ROE that weighs the cost of equity for both services.

PROVIDED BY: Charles Lenns, Richard A. Kane (Accounting Panel)

DATE: January 21, 2021

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	
v.	:	Docket No. R-2020-3022134
Pike County Light and Power Company	:	
-- Gas	:	

VERIFICATION

I, Marlon F. Griffing, hereby state that the facts set forth in my Direct Testimony, OCA Statement 3, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: February 2, 2021
*303195

Signature: 
Marlon F. Griffing

Consultant Address: PCMG and Associates, LLC.
22 Brookes Avenue
Gaithersburg, MD 20877

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission)	
)	
v.)	Docket No. R-2020-3022134
)	
Pike County Light & Power Company (Gas))	

REBUTTAL TESTIMONY OF

KARL RICHARD PAVLOVIC

**ON BEHALF OF THE
PENNSYLVANIA
OFFICE OF CONSUMER ADVOCATE**

February 22, 2021

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1 **I. STATEMENT OF QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is Karl Richard Pavlovic. My business address is 22 Brooks Avenue,
4 Gaithersburg, MD 20877.

5 **Q. ARE YOU THE SAME KARL RICHARD PAVLOVIC WHO SUBMITTED**
6 **DIRECT TESTIMONY IN THIS PROCEEDING ON FEBRUARY 2, 2021?**

7 **A.** Yes. Exhibit KRP-1 to my direct testimony summarizes my qualifications and
8 experience.

9 **II. PURPOSE OF TESTIMONY**

10 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

11 **A.** I am testifying on behalf of the Pennsylvania Office of Consumer Advocate (OCA).

12 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

13 **A.** I have been asked by the OCA to respond to the direct testimony of OSBA Witness
14 Knecht¹ regarding OSBA's proposed modifications to the classification and
15 allocation of FERC Account 376 Mains in the gas cost of service study (GCOS)
16 proposed by Pike County Light & Power (PCLP) in this proceeding
17

¹ OSBA Statement No. 1 (Gas), Direct testimony of Robert D. Knecht, pages 5 – 11.

1 **III. DISCUSSION**

2 **A. SUMMARY**

3 **Q. PLEASE SUMMARIZE THE SUBSTANCE OF YOUR TESTIMONY.**

4 **A.** As detailed below, I find that:

5 • OSBA’s rejection of PCLP’s use of the Minimum-Size Method to classify as customer-
6 related a portion of the costs in FERC Account 376 Mains is consistent with both the
7 Commission’s 2007 PGW finding and the principle of cost causation.

8 • OSBA’s proposed annual and excess method (which OSBA incorrectly refers to as the
9 “Average and Excess” or “A&E” methodology) of allocation of the costs in FERC Account
10 376 Mains is not consistent with either the Commission’s 2007 PGW finding or the
11 principle of cost causation.

12 Based on these findings, I recommend that:

13 • The Commission reject OSBA’s proposal to allocate the costs in FERC Account 376 Mains
14 using its proposed annual and excess method.

15

1 **B. OSBA’S PROPOSED MODIFICATIONS TO THE CLASSIFICATION**
2 **AND ALLOCATION OF PCLP’S COSTS IN FERC ACCOUNT 376**
3 **MAINS**

4 **Q. HOW DOES PCLP’S GCOS CLASSIFY AND ALLOCATE FERC ACCOUNT 376**
5 **MAINS?**

6 **A.** PCLP’s GCOS classifies the costs in FERC Account 376 Mains as both demand-related
7 and customer-related based on a minimum-size cost study of PCLP’s mains system.² The
8 demand-related portion of mains cost is allocated using design day peak sendout (peak
9 demand).³ The customer-related portion of mains cost is allocated using the number of
10 customers.⁴

11 **Q. IN WHAT WAY DOES OSBA PROPOSE TO MODIFY THE PCLP GCOS’**
12 **CLASSIFICATION AND ALLOCATION OF FERC ACCOUNT 376 MAINS?**

13 **A.** OSBA proposes that the PCLP GCOS’ customer-/demand- related classification and
14 allocation of the costs in FERC Account 376 Mains be replaced with wholly demand-
15 related classification and allocation using a 50/50% weighting of annual and excess
16 demand, which OSBA erroneously labels “the A&E method.”⁵ The annual component of
17 OSBA’s proposed allocation method is calculated as the daily average annual throughput
18 of each class divided by the system daily average throughput. The excess component is
19 calculated as the peak day demand of each class minus the average daily throughput of

² PCLP Exhibit G-6, Schedule GRP-4-G, page 3, lines 12-14, column (a) Description.

³ PCLP Exhibit G-6, Schedule GRP-4-G, page 3, line 13, column (b) Allocation Basis, Schedule GRP-4-G, page 15, line 12, column (b) Allocation Basis, and Schedule GRP-6-G, page 2, External Allocator No. 1.

⁴ PCLP Exhibit G-6, Schedule GRP-4-G, page 3, line 14, column (b) Allocation Basis, Schedule GRP-4-G, page 16, line 55, column (b) Allocation Basis, and Schedule GRP-6-G, page 2, External Allocator No. 4.

⁵ OSBA Statement No. 1 (Gas), page 11 lines 7-9; OSBA Workpaper RDK WP2G – Alternative GCOS.xlsx, Alloc tab, rows 9, 17, and 19.

1 each class divided by the sum of the class excesses. In other words, the excess
2 component is a measure of partial annual throughput.

3 **Q. WHAT SUPPORT DOES OSBA PROVIDE FOR THE PROPOSED**
4 **MODIFICATION TO PCLP'S ECOS?**

5 **A.** With regard to its rejection of customer-/demand- related classification and its proposed
6 annual and excess demand allocation method, OSBA references the Commission's
7 finding in the PGW 2007 proceeding that allocation should reflect both annual and peak
8 demand.⁶

9 **Q. WHAT IS YOUR ASSESSMENT OF OSBA'S PROPOSED MODIFICATION TO**
10 **THE PCLP GCOS' CLASSIFICATION AND ALLOCATION OF THE COSTS IN**
11 **FERC ACCOUNT 376 MAINS?**

12 **A.** OSBA's rejection of customer-related classification of the costs in FERC Account 376 is
13 supported by both the Commission's finding in the 2007 PGW proceeding and my direct
14 testimony on this point

15 OSBA's proposal to use its annual and excess allocation method is, however, neither
16 consistent with the Commission's finding nor the principle of cost causation. While the
17 annual component of OSBA's proposed allocation method does in fact reflect annual
18 demand,⁷ consistent with the Commission's 2007 PGW finding that "the allocation of
19 distribution mains investment costs should be done using both annual and peak
20 demands,"⁸ the excess component of the proposed allocation method is, as explained

⁶ OSBA Statement No. 1, page 10, lines 12-23; footnote 10.

⁷ See OSBA Workpaper RDK WP2G – Alternative GCOSS.xlsx, Alloc tab, rows 9 and 19.

⁸ PGW Docket No. R-00061931, 9/28/2007 Order, page 80.

1 above, merely a measure of partial annual throughput, not of peak demand, and is not
2 consistent with the Commission's 2007 PGW finding. In addition, the excess component
3 is not consistent with the principle of cost causation because it does not reflect peak
4 demand,⁹ which, as OSBA acknowledges, "is most consistent with cost causation."¹⁰

5 **Q. WHAT IS YOUR RECOMMENDATION REGARDING OSBA'S PROPOSED**
6 **MODIFICATION?**

7 **A.** Because OSBA's proposed allocation method is consistent with neither the Commission's
8 PGW decision nor the principle of cost causation, I recommend that the Commission reject
9 OSBA's proposal to allocate the costs in FERC Account 376 Mains using its proposed
10 annual and excess method.

11
12 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

13 **A.** Yes. However, I reserve the right to supplement this testimony if further information is
14 provided by PCLP.

⁹ See OSBA Workpaper RDK WP2G – Alternative GCOSS.xlsx, Alloc tab, rows 13, 17 and 19.

¹⁰ OSBA Statement No. 1 (Gas), page 9, lines 7-8.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission :
v. : Docket No. R-2020-3022134
Pike County Light and Power Company :
-- Gas :

VERIFICATION

I, Karl R. Pavlovic, hereby state that the facts set forth in my Rebuttal Testimony, OCA Statement 2-R, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: February 22, 2021
*304253

Signature:


Karl R. Pavlovic

Consultant Address: PCMG and Associates, LLC.
22 Brookes Avenue
Gaithersburg, MD 20877

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission)
v.) Docket No. R-2020-3022134
Pike County Light & Power Company)
Gas Base Rate Case

SURREBUTTAL TESTIMONY OF

DANTE MUGRACE

**ON BEHALF OF THE
COMMONWEALTH OF PENNSYLVANIA
OFFICE OF CONSUMER ADVOCATE**

March 4, 2021

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1 **I. PURPOSE OF SURREBUTTAL TESTIMONY**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is Dante Mugrace. My business address is 22 Brooks Avenue,
4 Gaithersburg, MD 20877.

5 **Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN THIS DOCKET?**

6 **A.** Yes. I submitted Direct Testimony on February 2, 2021, which was marked
7 as OCA Statement No. 1. My qualifications and experience are attached to
8 my Direct Testimony.

9 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

10 **A.** The purpose of my Surrebuttal Testimony is to address the Rebuttal
11 Testimonies of Company witnesses Mr. Lenns and Mr. Kane. I am also
12 making certain adjustments to proposals in my testimony and a revised
13 calculation of the Company's revenue requirement that incorporates the
14 effects of my adjustments. To the extent that I do not respond to or address
15 a particular issue or argument, or the Gas Company did not have an issue
16 regarding my adjustment(s) to certain proposals, I defer to my Direct
17 Testimony on those issues. I also note that the Gas Company has updated
18 its revenue requirement calculation and I have incorporated the
19 adjustments that Mr. Lenns and Mr. Kane addressed in their testimony
20 (PCLP Statement No. 2-R page 6 and in Exhibit G-3 and G-4) regarding the
21 adjustments to Rate Base and Revenue Requirement, respectively, as well
22 as the flow throughs of State and Federal Income Taxes.

23 **Q. HAS THE GAS COMPANY UPDATED ITS REVENUE REQUIREMENT**
24 **PROPOSAL?**

25 **A.** Yes. As shown on the Gas Company's updated Exhibit G-4, the Gas
26 Company proposed an updated revenue requirement increase of \$273,500.

27 **Q. WITH YOUR ADJUSTMENTS TO YOUR DIRECT TESTIMONY, WHAT IS**
28 **YOUR REVISED COMPANY REVENUE REQUIREMENT?**

1 **A.** With my revised adjustments, I have calculated an overall revenue
2 requirement of \$148,106 a decrease \$125,380 over the Gas Company's
3 updated revenue requirement increase of \$273,500. (See Revised
4 Schedules-DM-SR attached). This includes OCA Witness Griffing's overall
5 rate of return of 6.86% which includes a common equity component of
6 9.38%.

7

8 **II. REVENUE REQUIREMENT ISSUES**

9 **A. Rate Base**

10 1. Utility Plant in Service

11 **Q. WHAT IS THE GAS COMPANY'S POSITION ON YOUR PLANT IN SERVICE**
12 **BALANCE METHOD?**

13 **A.** Company witnesses Mr. Lennox and Mr. Kane (Accounting Panel) stated that it is
14 their understanding that the Gas Company is allowed to request plant additions for
15 a period of six-months beyond the end of the Future Test Year. (Statement No. 2-
16 R at 19). The Accounting Panel stated that rate changes which would go into effect
17 in the 3rd quarter of 2021 should provide the Gas Company with an opportunity to
18 recover the costs of plant to be added during the first year that new rates are in
19 effect. (Statement No. 2-R at 19). Allowing the net plant additions to go into
20 service during the six-months of that period will provide the Gas Company with an
21 opportunity to recover the carrying cost associated with the average balance of
22 plant to be added during the first year that new rates are in effect. (Statement No.
23 2-R at 19-20).

24 **Q. DO ANY OF THE REASONS CITED BY MR. LENNOX AND MR. KANE CHANGE**
25 **YOUR POSITION?**

26 **A.** No, they do not. While the Gas Company can request recovery of post-test year
27 plant additions, it is not a guarantee. As I stated in my direct testimony, under the
28 Gas Company's proposal, ratepayers will be charged for plant additions in advance

1 of the in-service dates which would create a mismatch since the Gas Company
2 would not have the level of rate base at the time when the Commission makes a
3 determination on rates. The Gas Company stated that the rate changes would go
4 into effect in the 3rd quarter of 2021 (July 1 through September 30, 2021). Given
5 that the Commission will likely make a ruling on rates prior to the 3rd quarter of
6 2021, it would be improper and unreasonable for the Gas Company to request
7 recovery of investments when they will not be placed in service, used and useful
8 and prudent in nature. The Gas Company's post-test year plant additions are
9 mostly comprised of recurring projects, upgrades and replacements that the Gas
10 Company typically places in service on a routine, normal and scheduled basis
11 which does not affect the Gas Company's operations or reliability. It does not
12 appear that the Gas Company's post-test year plant investments are major in
13 nature or capital intensive that requires rate recovery that will affect the Gas
14 Company's finances. Including post-test year plant additions would have the effect
15 of overcharging ratepayers and allowing the Gas Company to over-earn its
16 authorized rate of return when new rates are set. By reflecting the level of plant in
17 service, at the end of the test year (June 30, 2021) there is a better matching of
18 rate base, actual cost of service, and the associated revenues charged to
19 customers, and represents the appropriate rate base measurement when setting
20 rates. There has been no evidence from the Gas Company as to when the post-
21 test year projected plant will actually be placed in service through December 31,
22 2021. Expecting ratepayers to pay for plant additions 6-months in advance does
23 not produce just and reasonable rates.

24 **Q. WHAT DID THE GAS COMPANY STATE WITH RESPECT TO YOUR**
25 **COMMENT REGARDING THE PANDEMIC?**

26 **A.** The Accounting Panel disagreed with my statement regarding the Pandemic,
27 indicating that the worst of it is behind now that a vaccine is being distributed and
28 the economy will continue to improve moving forward. (Statement No. 2-R at 20).
29 The Accounting Panel stated that the economy has gone through cycles of
30 contraction and expansion, and the same trend will continue throughout all sectors

1 of the economy. The Gas Company has an obligation to serve the needs of its
2 customers regardless of the economic climate. (Statement No. 2-R at 20).

3 **Q. WHAT IS YOUR RESPONSE?**

4 **A.** The Pandemic is far from over, and the worst is not behind us. As of February 22,
5 2021, the United States reached the 500,000-death toll related to COVID-19, and
6 people are still being affected by it. The Stock Market should not be an indicator
7 of economic health, nor should it be a gauge to determine the health effect of
8 people. Customers continue to struggle to pay their bills as well as their utility bills.
9 As I stated in my direct testimony, the Commission should adopt the smallest
10 feasible rate increase that will allow the Gas Company to continue to be a viable
11 entity and be financially healthy. The development and distribution of a vaccine
12 has no bearing on the effect of economic health, until the majority of the public
13 have been vaccinated, immunity has been realized, and people are able to re-enter
14 the labor force. Unemployment is still higher than the pre-COVID period. Bringing
15 the economy back to pre-COVID levels will take many more months, if not years,
16 to achieve.

17 2. Other Rate Base Components

18 **Q. DID THE GAS COMPANY MAKE CORRESPONDING ADJUSTMENTS TO**
19 **OTHER RATE BASE COMPONENTS?**

20 **A.** Yes. Since the Gas Company updated its Gas Utility Plant in Service balance, it
21 also made adjustments to its Accumulated Depreciation and Accumulated
22 Deferred Income Taxes.

23 **Q. DID THE GAS COMPANY ADDRESS YOUR ADJUSTMENT RELATED TO**
24 **DEPRECIATION RESERVE?**

25 **A.** Yes. In Statement No. 2-R at 18, the Gas Company stated that I did not properly
26 account for retirements and the elimination of increase in the depreciation reserve
27 for the post June 30, 2021 changes to accumulated depreciation. The Gas
28 Company stated that if the Commission removes the post June 30, 2021 plant

1 additions it should use the adjustments proposed by Esyan Sakaya, and not my
2 calculation.

3 **Q. WHAT IS YOUR RESPONSE?**

4 **A.** I am accepting the Gas Company’s reasoning and have made an adjustment to
5 my accumulated depreciation balance.

6 **Q. DO YOU HAVE ANY ADJUSTMENTS TO THE COMPANY’S UPDATED RATE
7 BASE BALANCE, BESIDE THE POST-TEST YEAR PLANT ADDITIONS?**

8 **A.** No. I am accepting the Gas Company’s adjustments to its test year balance as of
9 June 30, 2021. The Gas Company updated its post-test year balance through
10 December 31, 2021, which I am continuing to recommend exclusion for rate
11 making purposes.

12

13 **B. Operating Income – Gas Cost of Service**

14 1. Operating and Maintenance Expenses – Gas

15 a. Amortization/Normalization Periods – Rate Case Expenses

16 **Q. WHAT DID THE GAS COMPANY STATE WITH RESPECT TO YOUR SIX-YEAR
17 AMORTIZATION PERIOD FOR RATE CASE COSTS?**

18 **A.** The Accounting Panel disagreed with my change in the proposed amortization
19 period from four-years to six-years related to rate case costs as well as the change
20 from an amortization to a normalization. (Statement No. 2-R at 27 and 43). The
21 Accounting Panel stated that a six-year period is not appropriate because the Gas
22 Company has to absorb carrying costs for the unrecovered balances for a longer
23 period of time. (Statement No. 2-R at 28). The Gas Company stated that PCLP is
24 now operating under different ownership than reflected in the historical data and
25 the Gas Company will be filing rate cases more frequently in order to maintain a
26 reasonable return on infrastructure investments. (Statement No. 2-R at 29).

1 **Q. WHAT REASONS DID THE GAS COMPANY STATE WHY THE GAS COMPANY**
2 **HAD TO WAIT TO FILE ITS CURRENT CASE?**

3 **A.** The Accounting Panel stated that it was precluded from filing for new rates until
4 2016, and that the settlement of the Corning Natural Gas Holding Company
5 (CNGH) acquisition in 2016 also had a stay-out provision that did not allow for a
6 change in base rates for two-years. (Statement No. 2-R at 29). Further, the
7 Accounting Panel stated that it has taken time for CNGH to staff and integrate
8 Pike's daily operations with that of its New York utility affiliate Corning Natural Gas
9 Company, Inc. (CNG). (Statement No. 2-R at 29). The Accounting Panel stated
10 that if an amortization period greater than four-years then carrying costs on the
11 unrecovered balance should be included. (Statement No. 2-R at 30).

12 **Q. IN ADDITION TO THE AMORTIZATION PERIOD, DID THE GAS COMPANY**
13 **HAVE AN ISSUE REGARDING DEFERRAL VERSUS NORMALIZATION OF**
14 **RATE CASE COSTS?**

15 **A.** Yes. The Gas Company stated that it opposes normalizing rate case costs
16 because it would require PCLP to write-off all rate case costs in the current period,
17 which would have a material and significant impact on the Gas Company's
18 earnings. (Statement No. 2-R at 30).

19 **Q. WHAT IS YOUR RESPONSE?**

20 **A.** I am continuing to recommend a six-year normalization period for rate case
21 expenses. As I stated in my direct testimony, this is the first base rate case
22 proceeding filed by the Gas Company in seven years. There are no prior costs that
23 can be used to compare rate case expenses in previous proceedings. The Gas
24 Company does not have any information regarding the prior base rate case that
25 was approved by the Commission in 2014 (I&E RE-16-D). There is uncertainty
26 with respect to the Gas Company's filing its next base rate case proceeding. If the
27 Gas Company were in such in dire straits that it had to file a base rate case sooner,
28 to cover its known plant investment costs and its O&M Expenses, it could have
29 petitioned the Commission for emergency relief. The Gas Company did not do so.

1 **Q. WHAT IS YOUR RESPONSE TO THE GAS COMPANY’S ARGUMENT ON**
2 **AMORTIZATION VERSUS NORMALIZATION?**

3 **A.** The Commission normalizes rate case expenses rather than amortizing these
4 costs. The Gas Company cannot change precedent or directives from the
5 Commission to benefit itself. In addition, the Gas Company’s proposed Rate Case
6 Costs are allocated 15% to the gas operations and 85% to the electric operations.
7 This results in an annual recovery (before taxes) of \$5,600 (Gas Company Exhibit
8 G-4 February 2021 Update Summary page 1 reference number 5). This is a
9 minimal amount which will not significantly affect the Company’s financials or have
10 a material impact on its operations. This is less than 1% of the Gas Company’s
11 revenue at present rates of \$1,632,000.

12
13 b. Gas Distribution Maintenance Expense

14 **Q. WHAT DID THE GAS COMPANY STATE WITH RESPECT TO YOUR THREE-**
15 **YEAR AVERAGE OF ITS GAS DISTRIBUTION MAINTENANCE EXPENSES?**

16 **A.** The Gas Company did not agree with my adjustment. The Gas Company stated
17 that these costs were primarily for the cost of inspecting, stripping and coating of
18 interior piping to the outlet of the Gas Company’s inside meter to conform to code
19 and the Gas Company’s manual and customer safety. (Statement No. 2-R at 32).

20 **Q. WHAT IS YOUR RESPONSE?**

21 **A.** The Gas Company booked about \$23,828 in 2018 and \$20,909 in 2019 related to
22 Maintenance Services (OCA Set I No. 2). In 2020 the Gas Company booked
23 \$103,088 related to Maintenance Services, or five times greater than 2019 costs.
24 If the Gas Company were ramping up its maintenance costs, the records would
25 have shown an increase in this cost over the years. The Gas Company stated that
26 these costs were not incurred in prior years (Statement No. 2- R at 32). My
27 adjustment provides for 2.5 times more dollars than in prior years
28 (\$49,275/\$20,909). (OCA Statement No. 1 at 21 lines 7-9). This adjustment

1 provides sufficient dollars for the Gas Company to carry on its maintenance
2 oversight, when compared to prior years' costs. To ramp up these costs by more
3 than five times does not appear to be reasonable. If the Gas Company hired an
4 individual to perform these tasks in 2019, the increased costs would have shown
5 up in 2019, but these costs actually went down by almost \$3,000.

6 **Q. GIVEN THAT THE GAS COMPANY HAS IMPLEMENTED AND HIRED AN**
7 **OUTSIDE CONTRACTOR TO PERFORM THESE DISTRIBUTION**
8 **MAINTENANCE SERVICES WOULD YOU BE AMENABLE TO ADJUSTING**
9 **YOUR EXPENSE LEVEL?**

10 **A.** If the Company would provide a detailed schedule that shows the breakdown of
11 the costs incurred and the tasks performed by date in 2020 to support its ongoing
12 level related to maintenance charges, I will review the documents and update my
13 recommendation.

14
15 c. Customer Accounts and Service Expense

16 **Q. WHAT DID THE GAS COMPANY STATE WITH RESPECT TO YOUR THREE-**
17 **YEAR AVERAGE OF ITS CUSTOMER ACCOUNTS AND SERVICE EXPENSE?**

18 **A.** The Gas Company did not agree with my adjustments. The Gas Company argued
19 that I did not look at the adjustments related to Customer Accounts Records and
20 Collection Expenses, but I solely looked at the Customer Accounts and Service
21 Expense separately from that in order to make my adjustment. (Statement No. 2-
22 R at 33-34). The Gas Company stated that if I averaged out the Customer
23 Accounts and Records and Collections, I would have computed an average
24 balance of \$11,680.

25 **Q. WHAT WERE THE REASONS THE GAS COMPANY STATED FOR THE**
26 **FLUCTUATION IN THE METER READING EXPENSE?**

1 **A.** The Gas Company stated that this was the result of employees incorrectly charging
2 Customer Records Expense rather than Meter Reading Expense. (Statement No.
3 2-R at 34).

4 **Q. WHAT IS YOUR RESPONSE?**

5 **A.** The Gas Company did not address the reason for the low Meter Reading Expense
6 in its filing until its rebuttal testimony. Nevertheless, knowing this information, I
7 utilized a three-year average to the Gas Company's Customer Records Expense
8 to account for the incorrectly charged costs (Statement No. 2-R at 34), to arrive at
9 a three-year average of \$11,680, an adjustment of \$5,892. My revised adjustment
10 is reflected on my Schedule SR-DM-12.

11

12 d. Administrative and General Expense

13 **Q. WHAT DID THE GAS COMPANY STATE WITH RESPECT TO YOUR THREE-**
14 **YEAR AVERAGE OF ITS ADMINISTRATIVE AND GENERAL EXPENSE?**

15 **A.** The Gas Company did not agree with my adjustment. (Statement No. 2-R at 35-
16 36). The Accounting Panel stated that I only focused on one category of
17 Administrative and General Expense (Office Supplies and Expenses). The Gas
18 Company stated that if I wanted to normalize the historic level of Administrative
19 and General Expenses, I should have done it in total and increased the Gas
20 Company's allowance by \$9,375.

21 **Q. WHAT IS YOUR RESPONSE?**

22 **A.** The use of three-year averages is to compute a normalized level of costs
23 prospectively, taking into consideration the year-to-year fluctuations in the account
24 balances. Most fluctuations are related to outside vendors or third-party providers
25 that the Gas Company has no control over. Other costs within the Gas Company's
26 Administrative and General Expenses that are related to Salaries and Wages,
27 Property Insurance, Injury and Damages and Employee Benefits *do* fluctuate from
28 year to year because of hiring employees and employees leaving the Gas

1 Company and the associated employee benefits and expenses. Also, given that
2 the Gas Company's employees made erroneous charges to certain expenses to
3 other accounts in the Customer Accounts Expense, it could be plausible that the
4 Gas Company employees made the same erroneous charges in the Administrative
5 and General Expense accounts. I reviewed the Gas Company's Administrative
6 and General Expenses to determine which costs appeared to be out of line or
7 abnormal over the 2018, 2019 and 2020 periods. I singled out the Office Supplies
8 and Expense category because that cost has fluctuated from year to year. It would
9 not be feasible to utilize a three-year average for the entire Administrative and
10 General Expense category because it would not address whether there were any
11 erroneous charges to certain accounts. The remaining accounts appear to remain
12 stable or fluctuated slightly over the years.

13
14 e. Intercompany Payroll

15 **Q. WHAT HAS THE GAS COMPANY STATED WITH RESPECT TO YOUR**
16 **ADJUSTMENT RELATED TO INTERCOMPANY PAYROLL?**

17 **A.** The Gas Company did not agree with my three-year average to reduce
18 Intercompany payroll by \$2,443. (Statement No. 2-R at 37). The Gas Company
19 stated that my three-year average is not representative of current operations.
20 (Statement No. 2-R at 38). The Gas Company stated that Intercompany payroll
21 charges will vary from year to year based upon the level of administrative support
22 provided by CNG to PCLP, and the level of services provided by CNG will be
23 increasing going forward as improvements in the Gas Company's COGNOS
24 operating software roll out for Work Management and budgeting. (Statement No.
25 2-R at 38). The Gas Company stated that the lower costs in the Intercompany
26 charges were due to lower accounting, financial reporting and invoice processing
27 charge to PCLP in that period. (Statement No. 2-R at 40).

28 **Q. WHAT IS YOUR RESPONSE?**

1 **A.** The Gas Company is correct in that these types of cost vary from year to year.
2 The reasoning that the Gas Company gave with respect to this expense increasing
3 going forward due to the implementation of the Gas Company's operating software
4 roll out is not supportive to justify the increase. In fact, costs should be going down,
5 given that the operating software could standardize some of the support without
6 increasing costs. The Gas Company has not provided any other information or
7 support related to increased costs for this account, nor has the Gas Company
8 addressed this cost adjustment in its direct testimony. The Gas Company only
9 raised this increased cost in its rebuttal testimony. Absent any further information
10 or when the improvements to the Gas Company's COGNOS operating software
11 roll-out will take place, I am recommending an adjustment to the Gas Company's
12 Intercompany Payroll Expense of \$2,443.

13

14 f. Incentive Compensation

15 **Q. WHAT HAS THE GAS COMPANY STATED WITH RESPECT TO YOUR**
16 **ADJUSTMENT TO INCENTIVE COMPENSATION?**

17 **A.** The Gas Company did not agree with my adjustment to remove costs related to
18 incentive compensation payments, and the associated adjustments to wage
19 increases, payroll ancillary costs, and payroll taxes. (Statement No. 2-R at 40).

20 **Q. WHAT WERE THE REASONS FOR THE GAS COMPANY TO REJECT YOUR**
21 **ADJUSTMENT RELATED TO INCENTIVE COMPENSATION?**

22 **A.** The Gas Company stated that its Incentive Program does include targeted goals
23 that benefit customers directly. (Statement No. 2-R at 40). The Gas Company
24 stated that certain goals were met for the incentive compensation to be paid out.
25 Such goals were (1) meeting PAPUC Gas and Electric mandates, et al.; (2)
26 requiring this instant rate case to be filed and completed in 2021; and (3) require
27 the Gas Company to operate within its operating and capital budget for 2021.
28 (Statement No. 2-R at 41).

1 **Q. WHAT IS YOUR RESPONSE?**

2 **A.** Nothing in the above reasons appear to be customer oriented or customer related
3 in nature. The Gas Company, by regulation, requires the above initiatives to be
4 met and maintained to provide safe, adequate, and reliable service to customers,
5 regardless of incentivizing employees to do so. Employees should not be
6 incentivized to perform the functions that they were initially hired to do so in the
7 first place.

8 Further, in response to the attachment in OCA-Set I No. 22 (Electric), there is
9 nothing in the document or in the filing that indicates whether the individual was
10 actually paid or the date of payment. While I agree that incentive type
11 compensation is typically part of an employee compensation package, I believe
12 that the Gas Company should pay for these types of compensation, and the Gas
13 Company is free to provide this incentive compensation to the employee(s), but
14 this cost should not be included in the revenue requirement for ratemaking
15 purposes thereby having the ratepayers pay for it. As I indicated in my direct
16 testimony, given that we are currently in a Pandemic, it would be improper for
17 ratepayers to pay for bonuses or incentive type payments when ratepayers are
18 continually struggling to pay their bills.

19

20 g. Payroll Ancillary Costs

21 **Q. WHAT HAS THE GAS COMPANY STATED WITH RESPECT TO YOUR**
22 **CHANGES REGARDING PAYROLL ANCILLARY COSTS?**

23 **A.** The Gas Company addressed my tracking adjustments to reduce payroll ancillary
24 costs that correspond to my adjustments to allocate payroll and incentive
25 compensation. (Statement No. 2-R at 42). The Gas Company stated it would agree
26 that any changes to the wage increase calculation should include a corresponding
27 adjustment to payroll ancillary costs as I have done. The Gas Company objected
28 to my adjustments made for payroll and incentive compensation. (Statement No.
29 2-R at 42). To the extent that my proposed payroll adjustments are eliminated or

1 modified, a corresponding adjustment to payroll ancillary costs should also be
2 made.

3 **Q. WHAT IS YOUR RESPONSE?**

4 **A.** I accept the Gas Company's reasoning in that if I do make adjustments to payroll
5 and incentive compensation, I should also make adjustments to the Payroll
6 Ancillary Costs.

7

8 h. Intercompany Charges

9 **Q. WHAT HAS THE GAS COMPANY STATED WITH RESPECT TO YOUR**
10 **ADJUSTMENTS RELATED TO INTERCOMPANY CHARGES?**

11 **A.** The Gas Company did not agree with my removal of the CPI index of 1.00%
12 (Statement No. 2-R at 43). The Gas Company stated that the entire purpose of
13 applying the CPI index to total intercompany charges other than payroll was to
14 recognize that some expenses will increase at rates that are higher than general
15 inflation, some will remain at the same level and others may decrease. (Statement
16 No. 2-R at 44).

17 **Q. WHAT IS YOUR RESPONSE?**

18 **A.** Although the CPI Index amounts to \$726, the argument here is that rate setting
19 principles should be based upon known and measurable changes. The costs
20 incurred should be just and reasonable and Gas Company can verify and
21 determine, these costs. There should not be some overall broad adjustment that
22 encompasses costs that may or may not increase or may or may not be incurred.
23 CPI index adjustments provide for a forecasting of cost adjustments that are
24 applied to all types of goods and services that may not be directly relate to costs
25 incurred by the Gas Company. While inflation adjustments are used to develop
26 economic data, it should not be used for ratemaking purposes. Goods and services
27 fluctuate, the costs increase and decrease over time. The Gas Company has not
28 provided any evidence that all of its costs that it applied an inflation factor to have

1 actually increased. The Gas Company has not provided any proof from its
2 vendors, third party suppliers, or updated services agreements that specifically
3 address annual increases or annual adjustments to the products and services
4 supplied to the Gas Company. The Gas Company has the opportunity to recover
5 all of its costs in rates, it is not a guarantee. My recommendation is the same as
6 under my Direct Testimony. All Inflation Adjustments should be removed from the
7 Gas Company's revenue requirement equation.

8
9 i. Uncollectible Accounts

10 **Q. WHAT HAS THE GAS COMPANY STATED REGARDING YOUR ADJUSTMENT**
11 **TO UNCOLLECTIBLE ACCOUNTS?**

12 **A.** The Gas Company accepted my tracking adjustment to calculate the uncollectible
13 accounts to match my recommended revenue requirement increase. The Gas
14 Company did not agree with my removal of the Gas Company's negative \$13,950
15 of uncollectible accounts balance from the cost of service. (Statement No. 2-R at
16 45). The Gas Company argued that if my changes were adopted, the total
17 uncollectible allowance would result in a ratio of 0.0095% rather than the 1.53%
18 the Gas Company is currently experiencing, which is two-thirds the actual factor
19 and does not provide an adequate allowance for uncollectible customer accounts
20 expense. (Statement No. 2-R at 45-46).

21 **Q. WHAT IS YOUR RESPONSE?**

22 **A.** It is my opinion that the Gas Company's proposal relates to collecting prior costs
23 in future rates. The level of Uncollectible Accounts should be based upon a
24 forward-looking method that is computed by taking the expected revenues
25 generated by a percentage of uncollectible accounts experienced in prior years.
26 As I indicated in my response to Pike Gas Interrogatory Set I Mgrace-I-6, the Gas
27 Company has not provided a schedule to show how the prior uncollectible account
28 balance of (\$13,950) was developed, and how much of that dollar amount was
29 collected from customers. If the Gas Company is having difficulty in collecting prior

1 balances owed to them, and it is unlikely of recovery of such, the Gas Company
2 should make an adjustment and write off the past unrecovered balance. As I
3 previously stated, ratemaking principles do not guarantee full recovery of all known
4 costs, but rather an opportunity to recover them.

5
6 j. Payroll Taxes

7 **Q. WHAT HAS THE GAS COMPANY STATED REGARDING YOUR PAYROLL**
8 **TAX ADJUSTMENT?**

9 **A.** The Gas Company accepted my tracking adjustment to reduce payroll taxes that
10 correspond to my adjustments to payroll. (Statement No. 2-R at 47). The Gas
11 Company would agree that any changes to payroll should include a corresponding
12 adjustment to payroll taxes. The Gas Company has opposed my adjustment to
13 payroll taxes with respect to my recommended payroll expense level.

14 **Q. WHAT IS YOUR RESPONSE?**

15 **A.** I accept the Gas Company's reasoning in that if I do make adjustments to payroll
16 and incentive compensation, I should also make adjustments to the payroll taxes.

17
18 k. TCJA of 2017

19 **Q. DID THE COMPANY UPDATE ITS ADJUSTMENTS WITH RESPECT TO THE**
20 **TCJA OF 2017?**

21 **A.** Yes. The Gas Company updated its Deferred Credit balance that shows the
22 breakdown of the two deferrals established related to the deferred income taxes.
23 The Gas Company addressed the separation of the Protected Assets and the Non-
24 Protected Assets and the related amortization of each. The Protected Assets are
25 being amortized over a fifty-year period and the Non-Protected Assets are being
26 amortized over a four-year period. (Statement No. 2-R at 9-10). The Gas
27 Company also updated its Other Operating Revenues to reflect the updated

1 balances related to the TCJA of 2017 and the flow-through of these balances to
2 the Income Statement. (Statement No. 2-R at 12).

3 **Q. WHAT IS YOUR RESPONSE?**

4 **A.** Upon reviewing the Gas Company's adjustments and updates, I am accepting the
5 Gas Company's adjustments related to the TCJA of 2017 as outlined on the Gas
6 Company's Updated Exhibit G-3 February 2021 Schedule 7 (Deferred Credit
7 Items) and Exhibit G-4 Summary page 1 of 3 (Gas Cost of Service).

8

9 I. Act 40

10 **Q. WHAT WAS THE GAS COMPANY'S RESPONSE RELATED TO MY INQUIRY**
11 **ON THE ACT 40 REQUIREMENTS?**

12 **A.** The Gas Company Accounting Panel stated that Pike currently does not have any
13 consolidated tax losses that it can utilize, and all of Pike's active affiliates are
14 regulated utilities other than its parent company Corning Natural Gas Holding
15 Company. (Statement No. 2-R at 53-54). The Gas Company further stated that
16 PCLP was in a tax loss position in prior rate filings, and it could not use all of its
17 own tax deductions, let alone provide taxable income that could be used by other
18 affiliates to apply against their tax losses. (Statement No. 2-R at 54).

19 **Q. WHAT DID THE GAS COMPANY STATE REGARDING THE DIFFERENTIAL**
20 **RELATED TO REVENUE USE?**

21 **A.** The Gas Company stated that PCLP had been in tax loss positions in prior cases
22 and as a result no consolidated tax adjustments had ever been applied to it. PCLP
23 was acquired by CNGH in September 2016, so any consolidated tax adjustments
24 that might have existed when it was part of CEI was gone. (Statement No. 2-R at
25 54-55).

26 **Q. WHAT IS YOUR RESPONSE?**

1 **A.** Based upon the Gas Company's response above, I am accepting the Gas
2 Company's response and reasoning related to Act 40.

3 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

4 **A.** Yes, it does. However, I reserve my right to update and adjust my testimony
5 pending any updated information that PCLP- Gas Company provides in this filing.
6

GAS REVENUE REQUIREMENT

	(1) Company Proposed	Adjustments	OCA	References
1 Rate Base - June 30, 2021	\$ 4,061,000	\$ (196,015)	\$ 3,864,985	DM-3
2 Rate of Return	7.09%		6.91%	DM-2
3 Return Requirement	\$ 287,925	\$ (20,788)	\$ 267,137	
4 Operating Income Present Rates	\$ 96,100	\$ 67,154	\$ 163,254	
5 Additional Return Requirement	\$ 191,825	\$ (87,942)	\$ 103,883	
6 Retention Factor (2)	1.425703		1.425703	
7 Total Revenue Requirement	\$ 273,485	\$ (125,380)	\$ 148,106	
% Increase	16.76%		9.07%	

(1) Company Exhibit G-4 Summary

(2) Additional Revenues	100.000000
Forfeited Discounts	0.170000
Less Revenue Taxes	0.000000
Less Uncollectibles	1.530000
Sub-Total	98.640000
Less State Income Taxes 9.99%	9.854136
Sub-Total	88.785864
Less Federal Income Taxes 21.00%	18.645031
Retention Factor	70.140833
Additional Revenues	100.000000
Retention Factor	70.140833
	1.425703

CONSOLIDATED COST OF MONEY

(1)

<u>Company Proposed</u>		Percent of Capital	Cost of Component	Weighted Cost
1	Long Term Debt	46.540%	4.770%	2.220%
2	Short Term Debt	5.140%	3.100%	0.159%
3	Common Stock Equity	48.320%	9.750%	4.711%
4	Total Capitalization	100.000%		7.090%

OCA Recommended

1	Long Term Debt	46.540%	4.770%	2.220%
2	Short Term Debt	5.140%	3.100%	0.159%
3	Common Stock Equity	48.320%	9.380%	4.532%
4	Total Capitalization	100.000%		6.912%

(2)

(1) Company Exhibit G-2 Schedule 3

(2) Per MFG-9

GAS RATE BASE

		(1)			
		Company		OCA	References
		Proposed	Adjustments		
<u>Gas Utility Plant</u>					
1	Utility Plant In Service	\$ 3,955,700	\$ (222,100)	\$ 3,733,600	DM-4
2	Common Plant In Service	\$ 367,900	\$ (60)	\$ 367,840	DM-4
3	General Plant In Service (Corning Gas)	\$ 29,500	\$ -	\$ 29,500	DM-4
4	CWIP not Taking Interest	\$ -	\$ -	\$ -	
5	Total Gas Utility Plant	\$ 4,353,100	\$ (222,117)	\$ 4,130,983	
<u>Gas Plant Reserves</u>					
6	Accumulated Depreciation - Gas Plant	\$ 192,600	\$ (39,400)	\$ 153,200	DM-5
7	Accumulated Depreciation - Common Plant	\$ 124,700	\$ 22,492	\$ 147,200	DM-5
8	Retirements W.I.P.	\$ -	\$ -	\$ -	
9	Total Gas Plant Reserves	\$ 317,300	\$ (16,900)	\$ 300,400	
10	Net Gas Plant in Service	\$ 4,035,800	\$ (205,217)	\$ 3,830,583	
<u>Additions to Net Gas Plant</u>					
Working Capital Allowance					
11	Cash Working Capital	\$ 72,500	\$ (5,625)	\$ 66,875	DM-6
12	Materials and Supplies	\$ 153,900	\$ -	\$ 153,863	DM-7
13	Prepayments	\$ 4,200	\$ -	\$ 4,200	DM-7
14	Deferred Debits (Net of Tax)	\$ -	\$ -	\$ -	DM-8
15	Total Additions to Net Gas Plant	\$ 230,600	\$ (5,662)	\$ 224,938	
<u>Deductions to Net Gas Plant</u>					
16	Deferred Credits (Net of Tax)	\$ (12,900)	\$ -	\$ (12,898)	DM-7
17	Customer Deposits	\$ 22,400	\$ -	\$ 22,401	DM-7
18	Accumulated Deferred Income Taxes	\$ 195,900	\$ (14,867)	\$ 181,033	DM-9
19	Total Deductions to Net Gas Plant	\$ 205,400	\$ (14,836)	\$ 190,535	
20	Total Gas Rate Base	\$ 4,061,000	\$ (196,015)	\$ 3,864,985	

(1) Company Exhibit G-3 Summary page 1 of 2

GAS PLANT IN SERVICE

		(1)			
		Company			
		Proposed	Adjustments	OCA	References
1	Gas Plant In Service - 6/30/2020	\$ 3,001,700	\$ -	\$ 3,001,700	
2	Additions - Completed CWIP - 6/30/2020	\$ 87,700	\$ -	\$ 87,700	
3	Additions - 7/1/2020 - 6/30/2021	\$ 700,000	\$ -	\$ 700,000	
4	Additions - 7/1/2021 - 12/31/2021	\$ 250,000	\$ (250,000)	\$ -	OCA Set I No. 26
5	Total	\$ 4,039,400	\$ (250,000)	\$ 3,789,400	
6	Retirements	\$ 83,700	\$ (27,900)	\$ 55,800	
7	Gas Plant In Service Balance 12/31/2021	\$ 3,955,700	\$ (222,100)	\$ 3,733,600	
8	Gas Common Plant In Service - 6/30/2020	\$ 1,957,164	\$ -	\$ 1,957,164	
9	Allocated to Gas - 15%	\$ 293,575	\$ -	\$ 293,575	
10	Additions - Completed CWIP - 6/30/2020	\$ 105,100	\$ -	\$ 105,100	
11	Additions - 7/1/2020 - 6/30/2021	\$ 400,000	\$ -	\$ 400,000	
12	Additions - 7/1/2021 - 12/31/2021	\$ 300,000	\$ (300,000)	\$ -	
13	Gas Plant Additions - 12/31/2021	\$ 805,100	\$ (300,000)	\$ 505,100	
14	Allocated to Gas - 15%	\$ 120,765	\$ (45,000)	\$ 75,765	
15	Retirements	\$ 310,000	\$ (300,000)	\$ 10,000	
16	Allocated to Gas - 15%	\$ 46,500	\$ (45,000)	\$ 1,500	
17	Gas Common Plant In Service - 12/31/2021	\$ 367,840	\$ -	\$ 367,840	
18	Intercompany Plant Allocated from Corning Gas Shared Corning Facilities (Net)				
19	Land- Williams Street	\$ 155,733	\$ -	\$ 155,733	
20	West Williams Street Office	\$ 1,207,576	\$ -	\$ 1,207,576	
21	Land Riverside	\$ 233,732	\$ -	\$ 233,732	
22	Riverside Operations Facility	\$ 1,643,541	\$ -	\$ 1,643,541	
23	Total	\$ 3,240,582	\$ -	\$ 3,240,582	
24	Allocated to Pike Gas 0.35%	\$ 11,238	\$ -	\$ 11,238	
	Intercompany Plant Office Furniture/Equipment				
25	Furniture	\$ 3,851	\$ -	\$ 3,851	
26	Machines	\$ (57,449)	\$ -	\$ (57,449)	
27	Computers	\$ 1,960,326	\$ -	\$ 1,960,326	
28	Total	\$ 1,906,728	\$ -	\$ 1,906,728	
29	Allocated to Pike Gas 0.96%	\$ 18,305	\$ -	\$ 18,305	
30	Total Proposed Gas Plant In Service (Lines 14, 26, 35, 42)	\$ 4,353,095	\$ (222,112)	\$ 4,130,983	

(1) Company Exhibit G-3 Schedule 1

ACCUMULATED DEPRECIATION

	(1)			
	Company			References
	Proposed	Adjustments	OCA	
1 Gas Reserve Balance - 6/30/2020	\$ 167,000	\$ -	\$ 167,000	
2 Additions 7/1/2020 - 6/30/2021	\$ 69,900	\$ -	\$ 69,900	
3 Additions 7/1/2021 - 12/31/2021	\$ 39,400	\$ (39,400)	\$ -	
4 Total Gas Reserve	\$ 109,300	\$ (39,400)	\$ 69,900	
5 Gas Retirements WIP	\$ (83,700)	\$ -	\$ (83,700)	
6 Net Additions	\$ 25,600	\$ (39,400)	\$ (13,800)	
7 Gas Reserve Balance - 12/31/2021	\$ 192,600	\$ (39,400)	\$ 153,200	
8 Common Gas Reserve Balance - 6/30/2020	\$ 718,684	\$ -	\$ 718,684	
9 Allocated to Gas - 15%	\$ 107,803	\$ -	\$ 107,803	
10 Additions - 7/1/2020 - 6/30/2021	\$ 272,700	\$ -	\$ 272,700	
11 Additions - 7/1/2021 - 12/31/2021	\$ 150,000	\$ (150,000)	\$ -	
12 Total Common Additions to Electric Reserve	\$ 422,700	\$ (150,000)	\$ 272,700	
13 Allocated to Gas - 15%	\$ 63,405	\$ (22,500)	\$ 40,905	
Common Gas Retirements	\$ (310,000)	\$ 300,000	\$ (10,000)	
14 Allocated to Gas - 15%	\$ (46,500)	\$ 45,000	\$ (1,500)	
15 Common Gas Ending Balance - 12/31/2021	\$ 124,708	\$ 22,500	\$ 147,208	
16 Lines 18, 23, 26)				
17 Total Gas Reserve Balance - (Lines 15, 28)	\$ 317,308	\$ (16,900)	\$ 300,408	

(1) Company Exhibit G-3 Schedule 2

CASH WORKING CAPITAL

		(1)			
		Company		OCA	References
		Proposed	Adjustments		
1	Revenue Recovery	\$ 65,140,740	\$ (4,261,122)	\$ 60,879,618	DM-10
2	PA Gross Receipts Tax	\$ -	\$ -	\$ -	
3	Total	\$ 65,140,740	\$ (4,261,122)	\$ 60,879,618	
4	Gas Supply Expense	\$ 26,871,960	\$ -	\$ 26,871,960	DM-13
5	SBC Expense	\$ -	\$ -	\$ -	
6	Salaries and Wages	\$ 2,322,056	\$ (62,689)	\$ 2,259,367	DM-14
7	401K Pension Matching	\$ 77,792	\$ (83)	\$ 77,709	DM-15
8	Employee Welfare Expenses	\$ 2,292,361	\$ (3,262)	\$ 2,289,099	DM-15
9	InterCo Charges	\$ 2,214,355	\$ (21,140)	\$ 2,193,215	DM-16
10	Uncollectible Accounts Accrual	\$ 994,775	\$ (59,288)	\$ 935,487	DM-17
11	Other O&M	\$ 2,148,830	\$ (344,265)	\$ 1,804,566	DM-12
12	<u>Amortizations:</u>				
13	Rate Case Expenses	\$ -	\$ -	\$ -	
14	PUC Assessment	\$ -	\$ -	\$ -	
15	Insurance	\$ -	\$ -	\$ -	
16	Depreciation & Amortization	\$ -	\$ -	\$ -	
17	Taxes Other - Payroll	\$ 177,100	\$ (4,258)	\$ 172,842	
18	Property Taxes	\$ -	\$ -	\$ -	
19	PA Gross Receipts Tax	\$ -	\$ -	\$ -	
20	Federal Income Taxes	\$ 997,343	\$ (1,124,631)	\$ (127,289)	
21	Deferred Federal Income Taxes	\$ -	\$ -	\$ -	
22	CBT (State)	\$ 581,697	\$ (603,726)	\$ (22,029)	
23	Deferred State Income Taxes	\$ -	\$ -	\$ -	
24	Return on Rate Base	\$ -	\$ -	\$ -	
25	Total Requirement	\$ 38,690,080	\$ (2,235,154)	\$ 36,454,926	
26	Net Lag	\$ 26,450,660	\$ (2,025,968)	\$ 24,424,692	
27	Working Capital (365 days)	\$ 72,500	\$ (5,583)	\$ 66,917	

(1) Company Exhibit G-3 Schedule 3

**MATERIALS AND SUPPLIES
 PREPAYMENTS
 CUSTOMER DEPOSITS**

		(1)			
		Company Proposed	Adjustments	OCA	References
<u>Materials and Supplies</u>					
1	September 2019 - August 2020	\$ 12,309,026	\$ -	\$ 12,309,026	
2	Gas Allocation - 15% (2)	\$ 1,846,354	\$ -	\$ 1,846,354	
3	12 Month Average	\$ 153,863	\$ -	\$ 153,863	
<u>Prepayments</u>					
4	September 2019 - August 2020	\$ 150,502	\$ -	\$ 150,502	
5	Gas Allocation - 100.00% (2)	\$ 50,075	\$ -	\$ 50,075	
6	12 Month Average	\$ 4,200	\$ -	\$ 4,200	
<u>Customer Deposits</u>					
7	September 2019 - August 2020	\$ 268,809	\$ -	\$ 268,809	
8	12 Month Average	\$ 22,401	\$ -	\$ 22,401	

(1) Company Exhibit E-3 Schedule 4, 5, 8

(2) Company Allocates 15% to Gas
 Company Allocates 100% to Gross
 Earnings and PAPUC Assessment and 15%
 to Property Tax and Property Insurance to
 Gas

DEFERRED ITEMS

		(1)			
		Company			
		Proposed	Adjustments	OCA	References
<u>Deferred Debits</u>					
3	Rate Case Expenses	\$ -	\$ -	\$ -	-
4	Less Tax Effect - 71.1079%	\$ -	\$ -	\$ -	-
7	Balance at June 30, 2021	\$ -	\$ -	\$ -	-
<u>Deferred Credits</u>					
8	FIT Tax Benefits (balance)	\$ (18,118)	\$ -	\$ (18,118)	
9	Less Tax Effect - 71.1079%	\$ (12,883)	\$ -	\$ (12,883)	
10	Deferred Credits	\$ -	\$ -	\$ -	-
11	Less Tax Effect - 71.1079%	\$ -	\$ -	\$ -	-
12	Balance at June 30, 2021	\$ (12,883)	\$ -	\$ (12,883)	

(1) Company Exhibit G-3 Schedule 6 & 7

ACCUMULATED DEFERRED INCOME TAXES

	(1) Company			
	Proposed	Adjustments	OCA	References
1 Balance at June 30, 2020	\$ 147,400	\$ -	\$ 147,400	
<u>Additions - 7/1/2020 - 6/30/2021</u>				
2 Tax Depreciation - Normalized	\$ 227,214	\$ -	\$ 227,214	
3 Book Depreciation	\$ 110,805	\$ -	\$ 110,805	
4 Net Schedule M Tax Deduction	\$ 116,409	\$ -	\$ 116,409	
5 Tax Effect - 28.8921%	\$ 33,633	\$ -	\$ 33,633	
<u>Additions 7/1/2021 - 12/31/2021</u>				
6 Tax Depreciation - Normalized	\$ 113,607	\$ (113,607)	\$ -	
7 Book Depreciation	\$ 61,900	\$ (61,900)	\$ -	
8 Net Schedule M Tax Deduction	\$ 51,707	\$ (51,707)	\$ -	
9 Tax Effect - 28.8921%	\$ 14,939	\$ (14,939)	\$ -	
10 Balance at June 30, 2021	\$ 195,995	\$ (14,962)	\$ 181,033	

(1) Company Exhibit G-3 Schedule 9

**GAS COST OF SERVICE
 INCOME STATEMENT**

(1)

		Company Proposed					OCA		References
		Balance at	Adjustments	Balance at	Proposed	Adjusted at	Adjustments	Present Rates	References
		June 30, 2020		June 30, 2021	Rate Change	June 30, 2021			
<u>Operating Revenues</u>									
1	Sales of Gas - Retail	\$ 1,448,200	\$ 191,500	\$ 1,639,700	\$ 273,500	\$ 1,913,200	\$ -	\$ 1,639,700	DM-11
2	Other Operating Revenues	\$ 2,500	\$ 300	\$ (7,700)	\$ 500	\$ (7,200)	\$ -	\$ (7,651)	DM-11
3	Total Operating Revenues	\$ 1,450,700	\$ 191,800	\$ 1,632,000	\$ 274,000	\$ 1,906,000	\$ (273,951)	\$ 1,632,049	
<u>Operating Expenses</u>									
4	Purchased Gas Costs	\$ 853,200	\$ 36,600	\$ 889,800	\$ -	\$ 889,800	\$ -	\$ 889,800	DM-12
5	Other Gas Supply Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	DM-12
6	Other Operating & Maintenance Expenses	\$ 420,600	\$ -	\$ 420,600	\$ 4,200	\$ 424,800	\$ (76,060)	\$ 348,740	DM-12
7	SBC Expense	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
8	Wages and Salaries	\$ -	\$ 7,000	\$ 7,000	\$ -	\$ 7,000	\$ (117)	\$ 6,883	DM-14
9	Material Management Positions	\$ -	\$ 16,400	\$ 16,400	\$ -	\$ 16,400	\$ -	\$ 16,400	DM-14
10	Payroll Ancillary Costs (HIWC)	\$ -	\$ 10,800	\$ 10,800	\$ -	\$ 10,800	\$ (101)	\$ 10,699	DM-15
11	OPEB Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	DM-15
12	Rate Case Costs	\$ -	\$ 5,600	\$ 5,600	\$ -	\$ 5,600	\$ (1,850)	\$ 3,750	DM-18
13	InterCo Other O&M Expenses	\$ -	\$ 700	\$ 700	\$ -	\$ 700	\$ (700)	\$ -	DM-18
14	Uncollectible Accounts Expense	\$ -	\$ 39,000	\$ 39,000	\$ -	\$ 39,000	\$ (11,648)	\$ 27,352	DM-19
15	Depreciation Expense	\$ 91,300	\$ 33,700	\$ 126,100	\$ 1,100	\$ 126,100	\$ (8,715)	\$ 117,385	DM-20
16	Taxes Other Than Income	\$ 10,200	\$ 9,000	\$ 19,200	\$ -	\$ 19,200	\$ (382)	\$ 18,818	DM-21
17	Misc. Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	OCA Set IV No. 4
Total Operating Expenses Before									
18	Income Taxes	\$ 1,375,300	\$ 158,800	\$ 1,535,200	\$ 5,300	\$ 1,539,400	\$ (99,573)	\$ 1,439,827	
19	Operating Income Before Income Taxes	\$ 75,400	\$ 33,000	\$ 96,800	\$ 268,700	\$ 366,600	\$ (174,378)	\$ 192,222	
20	State Income Taxes	\$ -	\$ 1,200	\$ 300	\$ 25,800	\$ 27,300	\$ (17,284)	\$ 10,016	DM-20
21	Federal Income Taxes	\$ (100)	\$ 2,200	\$ 400	\$ 48,800	\$ 51,400	\$ (32,448)	\$ 18,952	DM-21
22	Operating Income After Taxes	\$ 75,500	\$ 29,600	\$ 96,100	\$ 194,100	\$ 287,900	\$ (124,646)	\$ 163,254	
23	Additional Return Requirement							\$ 103,883	DM-1
24	Return Requirement					\$ 288,700	\$ (20,763)	\$ 267,137	DM-1
25	Rate Base	\$ 3,183,500	\$ 888,400	\$ 4,061,000		\$ 4,061,000		\$ 3,864,985	
26	Rate of Return	2.372%		2.366%		7.089%		6.912%	

(1) Company Exhibit G-4 Summary

OPERATING REVENUES

		(1)			
		Company			
		Proposed	Adjustments	OCA	References
1	Base Revenue	\$ 114,100	\$ -	\$ 114,100	OCA Set I No. 10
2	Delivery Revenue	\$ 635,800	\$ -	\$ 635,800	
3	Tax Cuts and Jobs Act of 2017 Credit	\$ -	\$ -	\$ -	
4	Rider Revenue (GCR)	\$ 889,800	\$ -	\$ 889,800	
5	Balance at June 30, 2021	\$ 1,639,700	\$ -	\$ 1,639,700	
Other Operating Revenues					
6	Late Payment Charges	\$ 2,769	\$ -	\$ 2,769	
7	Provision for FIT Refund	\$ (10,451)	\$ -	\$ (10,451)	
8	Other Misc. Sales Adjustment	\$ -	\$ -	\$ -	
9	Total Other Electric Revenues	\$ (7,682)	\$ -	\$ (7,682)	

(1) Company Exhibit G-4 Schedule 1

OTHER OPERATING EXPENSES

Work Sheet		(1) Company Balance			References
		June 30, 2020	Adjustments	OCA	
1	Purchased Gas Costs	\$ 853,200	\$ 36,600	\$ 889,800	DM-13
2	Other Gas Supply Expenses	\$ -	\$ -	\$ -	DM-13
3	Subtotal	\$ 853,200	\$ 36,600	\$ 889,800	
5	Distribution Expense - Maintenance	\$ 115,097	\$ (53,622)	\$ 61,475	OCA Set I No. 2
6	Customer Accounts Expense- Operation	\$ 36,191	\$ (20,680)	\$ 15,511	OCA Set I No. 2
8	Sales Expense	\$ 5,788	\$ 5,892	\$ 11,680	OCA Set I No. 2
<u>A&G Operation</u>					
9	A&G Salaries	\$ 69,049	\$ -	\$ 69,049	
10	Office Supplies and Expenses	\$ 53,070	\$ (3,481)	\$ 49,589	
11	Administrative Expenses - Transferred	\$ 51	\$ -	\$ 51	
12	Outside Svcs. Employed	\$ 55,136	\$ -	\$ 55,136	
13	Property Insurance	\$ 4,416	\$ -	\$ 4,416	
14	Injury & Damages	\$ 3,309	\$ -	\$ 3,309	
15	Other Employee Benefits Expense	\$ 68,915	\$ -	\$ 68,915	
16	Regulatory Commission Expense	\$ 5,480	\$ -	\$ 5,480	
17	Misc. General Expense	\$ 650	\$ -	\$ 650	
18	Misc. General Expense - Vehicle	\$ 13	\$ -	\$ 13	
<u>A&G Maintenance</u>					
19	Maintenance of General Plant	\$ 3,466	\$ -	\$ 3,466	
20	Sub-Total	\$ 420,631	\$ (71,891)	\$ 348,740	OCA Set I No. 13
21	Total Operation & Maintenance Expense	\$ 1,273,831	\$ (35,291)	\$ 1,238,540	

(1) Company Exhibit G-1 Schedule 5
 Company Exhibit G-4 Summary

PURCHASED GAS EXPENSE

	(1)				
	Company				
	Proposed	Adjustments	OCA	References	
1	Purchased Gas Expense	\$ 889,800	\$ -	\$ 889,800	OCA Set I-No. 11
2	Other Gas Expense	\$ -	\$ -	\$ -	
3	Net Purchased Power Expense	<u>\$ 889,800</u>	<u>\$ -</u>	<u>\$ 889,800</u>	

(1) Company Exhibit G-4 Schedule 2

PAYROLL / ADDITIONAL EMPLOYEES

		(1)			
		Company		OCA	References
		Proposed	Adjustments		
1	Gas Payroll - June 30, 2020	\$ 145,792	\$ -	\$ 145,792	
2	Less Incentive Compensation allocated	\$ -			OCA Set IV No. 9
3	Administrative Payroll	\$ 41,905	\$ (2,443)	\$ 39,462	OCA Set I No. 14
4	Total Gas Payroll	\$ 187,697	\$ (5,533)	\$ 182,164	
5	Annualized 10/2019 Increase (3%)	\$ 1,377	\$ -	\$ 1,377	
6	Annualized Test Year Payroll	\$ 189,074	\$ (5,533)	\$ 183,541	
7	October 2020 Increase - 3%	\$ 5,672	\$ (166)	\$ 5,506	
8	Total Payroll Increase (Line 4 and 6)	\$ 7,049	\$ (166)	\$ 6,883	(3)
Annual Salary - New Employees (2)					
9	Pike Material & Facilities Mgmt - CSR	\$ 60,000	\$ -	\$ 60,000	
10	Pike Gas Allocation - 20%	\$ 12,000	\$ -	\$ 12,000	
11	CNG- Accounting Manager	\$ 95,000	\$ -	\$ 95,000	
12	Pike Gas Allocation - 3%	\$ 2,850	\$ -	\$ 2,850	
13	CNG - Staff Accountant	\$ 50,000	\$ -	\$ 50,000	
14	Pike Gas Allocation - 3%	\$ 1,500	\$ -	\$ 1,500	
15	Total Additional Employees (Lines 9, 11, 13)	\$ 16,350	\$ -	\$ 16,350	

(1) Company Exhibit G-4 Schedule 3

(2) Company Exhibit G-4 Schedule 3

(3) These costs are allocated as follows:

Distribution Expense	\$ 2,975	42.65%
Customer Accounts	\$ 1,454	20.85%
A&G	\$ 2,546	36.50%
Total	\$ 6,975	100.00%

Allocated on the basis shown in OCA Set I No. 12 to total Salary and Wage Adjustment

ANCILLARY COSTS

		(1)			
		Company	Adjustments	OCA	References
		Proposed			
1	Proposed Wage Increase	\$ 7,049	\$ (166)	\$ 6,883	DM-14
2	Proposed Additional Staffing	\$ 16,350	\$ -	\$ 16,350	DM-14
3	Total	\$ 23,399	\$ (166)	\$ 23,233	
4	401K Pension Match Rate - 5.52%	\$ 1,292	\$ (9)	\$ 1,282	
5	Health & Life Insurance Match Rate - 38.27%	\$ 8,955	\$ (64)	\$ 8,891	
6	Workers Compensation Match Rate - 2.26%	\$ 529	\$ (4)	\$ 525	
7	Total Benefits Costs	\$ 10,775	\$ (76)	\$ 10,699	

(1) Company Exhibit G-4 Schedule 4

**RATE CASE EXPENSES
 INTERCOMPANY ADMINISTRATIVE
 & OPERATING CHARGES**

		(1)			
		Company		OCA	References
		Proposed	Adjustments		
<u>Rate Case Expenses</u>					
1	Company Proposed	\$ 150,000	\$ -	\$ 150,000	
2	Gas Allocation	15.00%		15.00%	
3	Estimated Rate Case Expenses	\$ 22,500	\$ -	\$ 22,500	
<hr/>					
4	Amortization Period	4		\$ 6	
5	Annual Rate Case Expenses	\$ 5,625	\$ (1,875)	\$ 3,750	
<hr/>					
<u>InterCompany Charges</u>					
6	InterCompany Allocations	\$ 72,623		\$ 72,623	
7	CPI Increase	1.01%		0.00%	
8	Net Change	\$ 726	\$ (726)	\$ -	

(1) Company Exhibit G-4 Schedule 5
 Company Exhibit G-4 Schedule 6

UNCOLLECTIBLE ACCOUNTS EXPENSE

	(1) Company Proposed	Adjustments	OCA	References
1 Operating Revenues Before Rate Change	\$ 1,639,700	\$ -	\$ 1,639,700	
2 Write Off Percentages 6/30/2020	1.53%		1.53%	
3 Uncollectible Expense - 6/30/2021	\$ 25,087	\$ -	\$ 25,087	
4 Less; Uncollectible Expense 6/30/2020	\$ (13,950)	\$ 13,950	\$ -	
5 Net Change in Uncollectible Expense	\$ 39,037	\$ (13,950)	\$ 25,087	
(2) Additional Uncollectibles				
Proposed Revenue Increase	\$ 262,200		\$ 148,106	
Write Off Percentage	1.53%		1.53%	
Balance	\$ 4,012	\$ (1,746)	\$ 2,266	

(1) Company Exhibit G-4 Schedule 7

(2) Company Exhibit G-4 Summary

DEPRECIATION EXPENSE

		(1)				OCA			
		Company Proposed				OCA			
		Gas Distr.	Common	Total	Adjustments	Gas Distr.	Common	Total	References
		Plant	Gen. Plant	Gas Plant		Plant	Gen. Plant	Gas Plant	
1	Plant Balance at 6/30/2020	\$ 3,001,661	\$ 293,575	\$ 3,295,236	\$ -	\$ 3,001,661	\$ 293,575	\$ 3,295,236	
2	Less: Acquisition Adjustment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
3	Gas Plant at 6/30/2020	\$ 3,001,661	\$ 293,575	\$ 3,295,236	\$ -	\$ 3,001,661	\$ 293,575	\$ 3,295,236	
4	Less: Non-Depreciable Plant	\$ -	\$ (46,650)	\$ (46,650)	\$ -	\$ -	\$ (46,650)	\$ (46,650)	
5	Depreciable Plant at 6/30/2020	\$ 3,001,661	\$ 246,925	\$ 3,248,586	\$ -	\$ 3,001,661	\$ 246,925	\$ 3,248,586	
<u>Additions - July 1 - June 30, 2021</u>									
6	Transfers of CWIP	\$ 87,700	\$ 15,763	\$ 103,431	\$ -	\$ 87,700	\$ 15,763	\$ 103,463	
7	Plant Additions - July 1 - June 30, 2021	\$ 700,000	\$ 60,000	\$ 760,000	\$ -	\$ 700,000	\$ 60,000	\$ 760,000	
8	Plant Additions - July 1 - Dec. 31, 2021	\$ 250,000	\$ 45,000	\$ 295,000	\$ (295,000)	\$ -	\$ -	\$ -	DM-4
9	Total Plant Additions	\$ 1,037,700	\$ 120,763	\$ 1,158,431	\$ (294,968)	\$ 787,700	\$ 75,763	\$ 863,463	
10	Retirements	\$ (83,740)	\$ (46,500)	\$ (130,240)	\$ -	\$ (83,700)	\$ (46,500)	\$ (130,200)	
11	Gas Depreciable Plant - 6/30/2021	\$ 3,955,621	\$ 321,188	\$ 4,276,817	\$ (294,968)	\$ 3,705,661	\$ 276,188	\$ 3,981,849	
12	Composite Depreciation Rate	2.0500%	14.0130%	2.9480%		2.0500%	14.0130%	2.9480%	
13	Depreciation Expense - 6/30/2021	\$ 81,090	\$ 45,008	\$ 126,100	\$ (8,715)	\$ 75,966	\$ 38,702	\$ 117,385	
14	Depreciation Expense - 6/30/2020	\$ 56,286	\$ 35,023	\$ 91,309	\$ -	\$ 56,286	\$ 35,023	\$ 91,309	
15	Increase in Depreciation Expense	\$ 24,804	\$ 9,985	\$ 34,791	\$ -	\$ 19,680	\$ 3,679	\$ 23,359	

(1) Company Exhibit G-4 Schedule 8

TAXES OTHER THAN INCOME

	(1) Company Proposed	Adjustments	OCA	References
<u>Payroll Taxes - Base Payroll</u>				
1 Test Year Payroll	\$ 145,792		\$ 142,702	DM-14
2 Allocated Payroll - CNGC	\$ 41,905	\$ (2,443)	\$ 39,462	
3 Wage Increase adjustment	\$ 7,049	\$ (166)	\$ 6,883	
4 Additional Employees Salaries	\$ 16,350	\$ -	\$ 16,350	
5 Total Proposed Wage Increase	\$ 211,096	\$ (5,699)	\$ 205,397	
6 FICA/Medicare Rate	7.65%		7.65%	
7 Total Proposed Adjustment	\$ 16,149	\$ (436)	\$ 15,713	
13 PA. Realty Tax	\$ 3,105	\$ -	\$ 3,105	
14 Total Taxes Other Than Income	\$ 19,254	\$ (436)	\$ 18,818	

(1) Company Exhibit G-4 Schedule 9

STATE GAS INCOME TAXES

	(1)			
	Company Proposed	Adjustments	OCA	References
1 Operating Income Before Income Taxes	\$ 369,200	\$ (176,978)	\$ 192,222	
2 Less: Interest Expense	\$ 96,652	\$ (4,692)	\$ 91,960	
3 Income Before Federal Income Tax	\$ 272,548	\$ (172,285)	\$ 100,263	
<u>Add:</u>				
4 Book Depreciation	\$ 126,100	\$ (8,715)	\$ 117,385	
5 Amortization of Rate Case Expenses	\$ 5,600	\$ (1,850)	\$ 3,750	
7 Total	\$ 131,700	\$ (10,565)	\$ 121,135	
<u>Deduct:</u>				
8 Tax Depreciation	\$ 227,125	\$ -	\$ 227,125	
9 Deferrred Rate Case Expense	\$ 22,500	\$ (22,500)	\$ -	
10 Deferred Purchased Gas Costs	\$ -	\$ -	\$ -	
11 Amortization - Deferred FIT Customer Cr.	\$ -	\$ -	\$ -	
12 Total	\$ 249,625	\$ (22,500)	\$ 227,125	
13 Taxable Income	\$ 154,623	\$ (160,351)	\$ (5,728)	
14 State Income Tax Rate - 9.99%	9.99%		9.99%	
15 State Income Tax	\$ 15,447	\$ (16,019)	\$ (572)	
16 Deferrred Income Tax Dr.	\$ 24,938	\$ (2,248)	\$ 22,690	
17 Deferred Income Tax Cr.	\$ (13,157)	\$ 1,056	\$ (12,101)	
18 Total State Income Tax	\$ 27,228	\$ (17,212)	\$ 10,016	

(1) Company Exhibit G-4 Schedule 10

FEDERAL GAS INCOME TAXES

	(1) Company			
	Proposed	Adjustment	OCA	References
1 State Taxable Income	\$ 154,623	\$ (160,351)	\$ (5,728)	
2 Less: State Income Tax	\$ (27,228)	\$ 17,212	\$ (10,016)	
3 Federal Tax Adjustment	\$ -		\$ -	
4 Adjusted Taxable Income	\$ 127,395	\$ (143,139)	\$ (15,744)	
5 Federal Income Tax Rate 21.00%	21.00%		21.00%	
6 Current Federal Income Tax	\$ 26,753	\$ (30,059)	\$ (3,306)	
<u>Deferred FIT Applicable To:</u>				
7 Book Depreciation	\$ (26,481)	\$ 1,830	\$ (24,651)	
8 Amortization of Rate Case Expenses	\$ (1,176)	\$ 389	\$ (788)	
9 Recovery of Prior Deferred Purchase Gas Cost	\$ -		\$ -	
10 Tax Depreciation	\$ 47,696	\$ -	\$ 47,696	
11 Deferred Rate Case Expenses	\$ 4,725	\$ (4,725)	\$ -	
12 Deferral of Def. Purchased Gas Cost	\$ -	\$ -	\$ -	
13 Total	\$ 24,764	\$ (2,506)	\$ 22,258	
14 Current Federal Income Tax	\$ 26,753	\$ (30,059)	\$ (3,306)	
15 Deferred Income Tax	\$ 24,764	\$ (2,506)	\$ 22,258	
Total	\$ 51,517	\$ (32,566)	\$ 18,952	

(1) Company Exhibit - E-4 Schedule 10

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission :
v. : Docket No. R-2020-3022134
Pike County Light and Power Company :
-- Gas :

VERIFICATION

I, Dante Mugrace, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement 1-SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: March 4, 2021
*304506

Signature: *Dante Mugrace*
Dante Mugrace

Consultant Address: PCMG and Associates
90 Moonlight Court
Toms River, NJ 08753

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission)	
)	
v.)	Docket No. R-2020-3022134
)	
Pike County Light & Power Company (Gas))	

SURREBUTTAL TESTIMONY OF

KARL RICHARD PAVLOVIC

**ON BEHALF OF THE
PENNSYLVANIA
OFFICE OF CONSUMER ADVOCATE**

March 4, 2021

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1 **I. STATEMENT OF QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is Karl Richard Pavlovic. My business address is 22 Brooks Avenue,
4 Gaithersburg, MD 20877.

5 **Q. ARE YOU THE SAME KARL RICHARD PAVLOVIC WHO SUBMITTED**
6 **DIRECT TESTIMONY IN THIS PROCEEDING ON FEBRUARY 2, 2021?**

7 **A.** Yes. Exhibit KRP-1 to my direct testimony summarizes my qualifications and
8 experience.

9 **II. PURPOSE OF TESTIMONY**

10 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

11 **A.** I am testifying on behalf of the Pennsylvania Office of Consumer Advocate (OCA).

12 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

13 **A.** I have been asked by the OCA to respond to the rebuttal testimony of Pike County
14 Light & Power (PCLP) regarding (1) just and reasonable rates in the context of the
15 continuing COVID pandemic; (2) PCLP's minimum system classification of FERC
16 Account 376 Mains; and (3) PCLP's customer charge rate design.¹

¹ PCLP Statement No. 1-R (Gas), rebuttal testimony of Paul M. Normand and Debbie L. Gajewski, pages 3-4, 9 and 10.

1 **III. DISCUSSION**

2 **A. SUMMARY**

3 **Q. PLEASE SUMMARIZE THE SUBSTANCE OF YOUR TESTIMONY.**

4 **A.** As detailed below, I find that:

- 5 • In rebuttal PCLP has not shown customer-related classification of PCLP' FERC Account
6 376 Mains be consistent with the principle of cost causation.
- 7 • In rebuttal PCLP has not shown my recommendation of no increase to class customer
8 charges to be inconsistent with a reasonable balancing of cost and non-cost policy goals.

9 Based on these findings, I find no reason to withdraw or modify my direct testimony
10 recommendations that:

- 11 • The Commission direct PCLP to revise its class cost of service study to classify FERC
12 Account 376 Mains as 100% demand-related.
- 13 • The Commission direct PCLP to maintain the current level of class customer charges.

14

15 **B. THE COVID PANDEMIC AND JUST AND REASONABLE RATES**

16 **Q. WHAT WAS YOUR TESTIMONY REGARDING THE COVID PANDEMIC AND**
17 **JUST AND REASONABLE RATES?**

18 **A.** In my direct testimony I explained the pandemic's unprecedented impact on the public
19 health and economic welfare of individuals and businesses that are the customers of PCLP.²
20 On that basis I urged the Commission to carefully balance PCLP's need for additional

² OCA Statement No. 1 (Gas), pages 4-12.

1 revenue against the pandemic induced needs of its customers in determining the just and
2 reasonable revenue increase and resulting rates in this proceeding.

3 **Q. IN REBUTTAL DID PCLP PROVIDE ANY REASON FOR YOU TO WITHDRAW**
4 **OR MODIFY YOUR RECOMMENDATION TO THE COMMISSION?**

5 **A.** No. I continue to urge the Commission to carefully balance PCLP's need for revenue
6 against the pandemic heightened needs of PCLP's customers, both residential and business,
7 in its determination of just and reasonable rates under the present circumstances.

8
9 **C. PCLP'S MINIMUM SYSTEM CLASSIFICATION OF FERC**
10 **ACCOUNT 376 MAINS AND CUSTOMER CHARGE RATE DESIGN**

11 **1. PCLP'S MINIMUM SYSTEM CLASSIFICATION OF FERC**
12 **ACCOUNT 376 MAINS** –

13 **Q IN SUMMARY WHAT IS PCLP'S REBUTTAL TESTIMONY REGARDING**
14 **OCA'S REJECTION OF MINIMUM SYSTEM CLASSIFICATION OF FERC**
15 **ACCOUNT 376 MAINS?**

16 **A.** In my direct testimony I demonstrated that minimum system classification as customer-
17 related of the costs in FERC Account 376 Mains contradicts the fundamental basic
18 definition of customer costs. Customer costs are defined as those costs that vary directly
19 with the number of customers. Because the connection (or disconnection) of a customer
20 has no impact on the costs in FERC Account 376 Mains, classifying all or a portion of
21 those costs as customer-related and allocating those costs on the number of customers is
22 not consistent with the principle cost causation. I also noted that PCLP does not use

1 minimum system classification for FERC Accounts 374, 375, and 378 which, like FERC
2 Account 376 Mains, do not vary directly with the number of customers on the system.³

3 In rebuttal PCLP responds that PCLP used the minimum system classification of mains to
4 (1) provide continuity with PCLP's previous COS filing, and (2) recognize that the 2 inch
5 and smaller mains are closer to customers and influenced by population density.⁴

6 **Q. WHAT IS YOUR RESPONSE TO PCLP'S FIRST REBUTTAL POINT?**

7 **A.** My response is that the fact that PCLP has used minimum system classification in past
8 COS filings is irrelevant to the question of whether PCLP has factually supported
9 minimum system classification in its COS filing in this proceeding. PCLP has not
10 provided any evidence that the costs recorded in FERC Account 376 Mains vary directly
11 with the number of customers.⁵

12 **Q. WHAT IS YOUR RESPONSE TO PCLP'S SECOND REBUTTAL POINT?**

13 **A.** As regards proximity to customers, it is true that PCLP's smaller mains that are
14 downstream of its larger mains are closer to PCLP's customers. However, PCLP has
15 provided no evidence that the costs of its 2 inch and smaller mains vary directly with the
16 number of customers. Nor has PCLP provided any evidence that the 2 inch equivalent
17 portion of the costs of its larger mains (which it classifies as customer-related) vary
18 directly with the number of customers. Similarly regarding population density, it may be
19 true that the costs of PCLP's secondary facilities are in fact affected by the density of

³ OCA Statement No. 2 (Gas), pages 13-16.

⁴ PSCLP Statement No. 1-R (Gas), page 3, line 10 to page 4, line 4 and page 9, lines 2-13.

⁵ Bonbright et al, Principles of Public Utility Rates (Bonbright), page 490 "Customer costs are those operating and capital costs found to vary with number of customers."; also see NARUC Gas Distribution Rate Design Manual (NARUC Gas Manual), page 22, "Customer costs are those operating capital costs found to vary directly with the number of customers served rather than the amount of utility service supplied."

1 customers on its system. However, PCLP has provided no evidence that the density of
2 customers on its system causes the costs of its 2 inch and smaller mains (2 inch
3 equivalent of its larger mains) to vary directly with the number customers. As Bonbright
4 explains,⁶ neither PCLP nor any gas utility can provide such evidence.

5 **Q. DOES PCLP’S REBUTTAL GIVE YOU REASON TO WITHDRAW OR MODIFY**
6 **YOUR RECOMMENDATION THAT PCLP’S CUSTOMER-RELATED**
7 **CLASSIFICATION OF FERC ACCOUNT 376 MAINS BE REJECTED BY THE**
8 **COMMISSION?**

9 **A.** No.

10 **2. CUSTOMER CHARGE RATE DESIGN**

11 **Q IN SUMMARY WHAT IS PCLP’S REBUTTAL TESTIMONY REGARDING**
12 **OCA’S RECOMMENDED CUSTOMER CHARGE RATE DESIGN?**

13 **A.** In my direct testimony,⁷ I recommended that, to the ends of incentivizing conservation
14 and maximizing customers’ control of their gas bills, there be no increase in PCLP’s
15 customer charges and that the entire class revenue increase be distributed to class
16 delivery charges.

17 In rebuttal PCLP states that PCLP’s existing and proposed customer charges are “a small
18 fraction of the actual service lateral and metering costs to connect the customer to the gas
19 grid” and result in the average and below use residential customers’ being subsidized by
20 larger use customers, especially SC2 customers.⁸

⁶ Bonbright, page 492.

⁷ OCA Statement No. 2 (Gas), page 20, line 9 to page 21, line 1 and Table 3.

⁸ PCLP Statement No. 1-R (Gas), page 10, lines 1-19.

1 **Q. WHAT IS YOUR RESPONSE TO PCLP'S REBUTAL REGARDING THE LEVEL**
2 **OF CUSTOMER CHARGES?**

3 **A.** First, I note that any shortfall between class customer charges and class customer costs is
4 significantly reduced if the mains costs in FERC Account 376 Mains are classified as
5 only demand-related. Second, I note that the recovery of distribution volumetric charges
6 creates intra-class subsidies of low volume customers by high volume customers⁹ that
7 both incentivize energy conservation and give customers greater control over their
8 monthly energy bills.

9 Rate making of tariff charges involves a balancing of cost and non-cost policy goals in
10 which no single policy goal should outweigh the others. My recommendation regarding
11 PCLP's tariff customer charges represents a fair balancing of the cost policy goal of
12 economic pricing efficiency and the non-cost policy goals of incentivizing conservation
13 and customer control over monthly bills.

14 **Q. DOES PCLP'S REBUTTAL GIVE YOU REASON TO WITHDRAW OR MODIFY**
15 **YOUR RECOMMENDATION THAT PCLP'S CUSTOMER CHARGES BE HELD**
16 **AT THE CURRENT LEVELS?**

17 **A.** No.

18

19 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

⁹ There is no inter-class subsidy between low volume residential customers and high volume commercial customers that results from volumetric charges.

1 **A.** Yes. However, I reserve the right to supplement this testimony if further information is
2 provided by PCLP.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission :
v. : Docket No. R-2020-3022134
Pike County Light and Power Company :
-- Gas :

VERIFICATION

I, Karl R. Pavlovic, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement 2-SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: March 4, 2021
*304505

Signature:


Karl R. Pavlovic

Consultant Address: PCMG and Associates, LLC.
22 Brookes Avenue
Gaithersburg, MD 20877

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission)	Docket No. R-2020-3022134
v.)	(Gas)
Pike County Light & Power Company)	
Gas and Electric Base Rate Cases)	

SURREBUTTAL TESTIMONY OF

MARLON GRIFFING, PH.D.

ON BEHALF OF THE

OFFICE OF CONSUMER ADVOCATE

COMMONWEALTH OF PENNSYLVANIA

Dated: March 4, 2021

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1 **I. INTRODUCTION**

2 **Q. Please state your name, occupation and business address.**

3 A. My name is Dr. Marlon F. Griffing. I am a Senior Consultant with the economic
4 consulting firm of PCMG & Associates Inc. ("PCMG"). My business address is 22
5 Brookes Drive, Gaithersburg, MD 20785.

6
7 **Q. Are you the same Dr. Marlon F. Griffing who filed Direct Testimony on behalf
8 of the Pennsylvania Office of the Consumer Advocate ("OCA") in this docket?**

9 A. Yes. I am filing Surrebuttal Testimony on behalf of the OCA regarding the cost of
10 capital for the electric and natural gas service public utility Pike County Light and
11 Power ("Pike" or "the Company") in this docket before the Pennsylvania Public
12 Utility Commission. As noted in my Direct Testimony, Pike is an operating
13 subsidiary of Corning Natural Gas Holding Company ("CNGH").

14
15 **Q. What is the purpose of your Surrebuttal Testimony?**

16 A. I respond to the Rebuttal Testimony of the Company Accounting Panel witnesses
17 Mr. Charles Lenns and Mr. Richard A. Kane.

18
19 **Q. How is your testimony organized?**

20 A. My testimony is organized as follows.

- 21 ■ First, I respond to criticisms of my return on equity ("ROE") analysis
22 made by Mr. Lenns and Mr. Kane.
- 23 ■ Second, I update my Constant-Growth DCF model ROE analysis.

- 1 ▪ Third, I update my CAPM ROE analysis.
- 2 ▪ Fourth, I review my ROE analyses and confirm my recommended ROE for
- 3 the Company.
- 4 ▪ Fifth, I confirm the recommended capital structure and overall rate of
- 5 return (“ROR”) for the Company.
- 6 ▪ Sixth, I summarize my testimony and recommendations.

7

8 **Q. Please state your conclusions regarding the Company’s ROE and ROR.**

9 A. I treated Pike as one company for the purposes of determining an ROE. I

10 recommend a ROE of 9.38 percent for the Company and a capital structure of

11 46.54 percent long-term debt, 5.14 percent short-term debt, and 48.32 percent

12 common equity. This ROE is the result of a correction in my DCF ROE analysis

13 in my Direct Testimony (See Corrected Exhibit ____ MFG-8). When these values

14 are combined with the long-term debt cost of 4.77 percent and short-term debt cost

15 of 3.10 percent recommended by Pike, the result is an overall ROR of 6.91 percent

16 for the Company.

17

18 **II. RESPONSE TO THE PIKE COUNTY ACCOUNTING PANEL’S**

19 **REBUTTAL TESTIMONY**

20 **Q. Pike Witnesses Lennox and Kane state that the CAPM ROE result should be**

21 **reflected in the ROE recommended for the Company. Do you agree?**

22 A. I do not agree that the CAPM ROE result in this docket should be reflected in the

23 recommended ROE for Pike.

1
2 **Q. Please explain your position regarding the exclusion of the CAPM ROE from**
3 **consideration in developing your recommended ROE for Pike.**

4 A. I typically do include the CAPM ROE as a factor in determining the
5 recommended ROE for a subject company of an ROE analysis. However, in this
6 docket the CAPM analysis ROE is so high as to be unreasonable. I reach this
7 conclusion based on the 11.60 percent ROE¹ from the CAPM analysis relative to
8 ROEs authorized in recent electric and gas rate cases across the United States.
9 This CAPM ROE is so much greater than results summarized for these electric
10 and gas rate cases that it should not be given any weight in this ROE analysis.

11
12 **Q. Please review how you evaluated the reasonableness of the results of the ROE**
13 **models you applied in your analyses.**

14 A. I checked the reasonableness of my DCF model and CAPM analyses outcomes by
15 comparing the ROEs with sets of recent ROEs authorized in U.S. electric and gas
16 rate cases. I collected fully litigated 2019-2020 authorized ROEs from U.S.
17 electric and gas rate cases from S&P Global Market Intelligence's Regulatory
18 Research Associates ("RRA") (See Exhibit ____ MFG-10, Schedule 1 and
19 Exhibit ____ MFG-10, Schedule 2). I checked the reasonableness of my DCF
20 model and CAPM ROE results against the means, medians, and ranges of these
21 data sets.

¹ I updated the CAPM ROE in this Surrebuttal Testimony. (See Exhibit ____ MFG-18, Schedule 7.) It increases to 12.35 percent, meaning the margin by which it exceeds the means, medians, and ranges of the recently authorized ROEs is even greater.

1
2 **Q. What were the means, medians and ranges of the authorized ROEs in the**
3 **2019-2020 electric cases.**

4 A. The mean ROE for the twenty-one 2019 cases was 9.50 percent, while the median
5 was 9.55. The range was from 8.38 percent to 10.50 percent. The mean ROE for
6 the fourteen 2020 cases was 9.59 percent and the median was 9.65 percent. The
7 range was from 9.15 percent to 10.00 percent.

8
9 **Q. What were the means, medians and ranges of the authorized ROEs in the**
10 **2019-2020 gas cases.**

11 A. The mean ROE for the ten 2019 cases was 9.77 percent, while the median was
12 also 9.77 percent. The range was from 9.20 percent to 10.25 percent. The mean
13 ROE for the thirteen 2020 cases was 9.46 percent, while the median was 9.42
14 percent. The range was from 9.10 percent to 10.00 percent.

15
16 **Q. Did you find the DCF model or CAPM ROE results to be unreasonable given**
17 **these characteristics of the 2019-2020 electric and gas authorized ROEs?**

18 A. Yes. Whereas the DCF ROE result of 9.38 percent is less than but close to the
19 means and medians, and well within the ranges of the 2019-2020 electric and gas
20 rate case authorized ROEs, the CAPM ROE result of 11.60 percent was 1.83
21 percent greater than the 2019 gas mean and median ROE value of 9.77. That 2019
22 gas mean and median was the highest of the means and medians among the sets of
23 electric and gas authorized ROEs. The 11.60 percent CAPM ROE was also at least

1 1.10 percent greater than top end of the ranges of electric and gas ROEs
2 authorized in 2019-2020. Therefore, I excluded the CAPM ROE from further
3 consideration as unreasonable and not representative of recent authorized ROEs.
4

5 **Q. Have you previously excluded results of other ROE analyses from**
6 **consideration in setting a recommended ROE?**

7 A. Yes. For example, in the Columbia Gas Pennsylvania Docket No. R-2018-
8 2647577 before the Commission, I found that a Multistage DCF ROE of 8.67
9 percent and an Empirical CAPM ROE result of 10.16 percent were outliers in my
10 analysis at that time and gave them little weight in determining the recommended
11 ROE.² By way of comparison, those 2018 ROE values were closer to the bottom
12 end and top end of the ranges of authorized gas ROEs from 2016-2018 than the
13 current CAPM ROE result is to the top end of the ranges of the 2019-2020
14 authorized ROEs.
15

16 **III. UPDATED CONSTANT-GROWTH DCF ANALYSIS**

17 **Q. Did you update your constant-growth DCF model ROE?**

18 A. Yes. I updated my constant-growth DCF model ROE analysis.
19

20 **Q. Please state what your update included.**

21 A. I based my updated constant-growth analysis on utilities selected by the same
22 screens as those I applied in selecting members of my Comparison Group. Thus,

² Pennsylvania Public Utility Commission v. Columbia Gas of Pennsylvania, Inc., Docket No. R-2018-2647577, Direct Testimony of Dr. Marlon F. Griffing, p. 38.

1 my proxy group to which I apply the constant-growth DCF model (and the
2 CAPM) is unchanged. As for input values, I rely on the same sources and same
3 rules for inclusion for common-equity prices, dividends, and EPS growth-rate
4 forecasts. I substitute current values for those employed in my Direct Testimony
5 (See Exhibit ____ MFG-15, Exhibit ____ MFG-16, and Exhibit ____ MFG-17).
6

7 **Q. You mention above that you corrected an error in your Direct Testimony**
8 **constant-growth DCF analysis. Please describe that error.**

9 A. My mistake in my application of the constant-growth DCF model was in how I
10 adjusted annualized dividends for expected growth over one year from the
11 present. The dividends of all the companies in the Comparison Group are
12 expected to increase over the next year. I stated in my testimony that I intended
13 to apply a full year's growth rate for a firm to the annualized dividend and add the
14 product to the annualized dividend yield to transform it into the expected dividend
15 yield.³ However, I only applied a half year's growth to the annualized dividends.
16

17 **Q. What effect did the mistake have on your constant-growth DCF ROE?**

18 A. The mistake caused the expected dividend yield component of my constant-
19 growth DCF ROE to be understated by 10 basis points. I have corrected the
20 analysis, which causes my DCF ROE to increase to 9.38 percent from 9.28
21 percent (See Corrected Exhibit ____ MFG-8).
22

³ I did properly apply this rule to the current dividends to calculate the expected dividend yields for the S&P 500 companies in the DCF analysis included in my CAPM analysis.

1 **Q. Did you correct the error in your updated constant-growth DCF model**
2 **analysis?**

3 A. Yes.

4
5 **Q. What ROE do you obtain from applying the updated, corrected constant-**
6 **growth model to the Comparison Group?**

7 A. The updated, corrected constant-growth DCF model ROE value is 9.22 percent
8 (See Exhibit ____ MFG-17).

9
10 **IV. UPDATED CAPM ANALYSIS**

11 **Q. Did you update your CAPM ROE?**

12 A. Yes. I updated my forward-looking CAPM ROE analysis.

13
14 **Q. Please explain your approach to the CAPM update.**

15 A. I follow the same approach in updating my CAPM ROE analysis as I did in
16 implementing my constant-growth DCF model update. I use the same set of
17 companies in the Comparison Group, and I substitute recent values for inputs.

18
19 **Q. Please describe the inputs and their sources you use in your CAPM update.**

20 A. I rely on the same sources and same rules. I find the yield on the risk-free
21 instrument, the 30-year U.S. Treasury bond, in the same way I did in my Direct
22 Testimony (See Exhibit ____ MFG-18, Schedule 1). The same is true of the beta
23 values for the companies (See Exhibit ____ MFG-18, Schedule 2). I follow the

1 same process in finding and applying common-equity prices, dividends, and
2 earnings per share (“EPS”) growth-rate forecasts for the S&P 500 DCF analysis
3 used in determining the return to the broad market in calculating the market risk
4 premium (See Exhibit ____ MFG-18, Schedules 3-4). I use the same table to find
5 the size premium for each company in the proxy group as I did previously (See
6 Exhibit ____ MFG-18, Schedule 5). Finally, I update the average value of the
7 Moody’s Baa-Rated Public Utilities Bond Index (See Exhibit ____ MFG-18,
8 Schedule 6).

9
10 **Q. What ROE do you obtain from applying the forward-looking CAPM to the**
11 **Comparison Group?**

12 A. The updated ROE produced by the application of the forward-looking CAPM to
13 the Comparison Group is a mean ROE of 12.35 percent (See Exhibit ____ MFG-
14 18, Schedule 7).

15
16 **V. RECOMMENDED ROE, CAPITAL STRUCTURE AND OVERALL RATE**
17 **OF RETURN**

18 **Q. What is your recommended ROE for Pike?**

19 A. My recommended ROE for Pike is 9.38 percent, the corrected result of my
20 constant-growth DCF analysis (See Corrected Exhibit ____ MFG-8).

21
22 **Q. Did you include your CAPM ROE results in arriving at your recommended**
23 **ROE for Pike?**

1 A. No. I found the CAPM ROE result of 12.35 percent to be unreasonably high. I
2 gave it no weight in determining my recommended ROE for Pike.

3
4 **Q. Please summarize your decision to exclude the CAPM ROE value from**
5 **setting your recommended ROE.**

6 A. I checked the reasonableness of my CAPM analysis outcome (and the outcome
7 for the constant-growth DCF model) as well as by comparing the ROE with
8 recent ROEs authorized in electric and gas rate cases across the United States. I
9 have shown above that when the CAPM ROE was 11.60 percent, it was markedly
10 higher than the means, medians, and top of the ranges of the sets of electric and
11 gas cases for 2019 and 2020. No U.S. regulatory commission has awarded
12 anything close to 11.60 percent in 2019-2020. The updated CAPM ROE of 12.35
13 percent simply emphasizes how unreasonable the CAPM outcome is at this time.

14
15 **Q. What do you recommend as the ROE for Pike?**

16 A. I recommend 9.38 percent as the Pike ROE. This is the ROE value produced by
17 my initial constant-growth DCF model analysis, as corrected for properly
18 calculating the expected dividend yield. The 9.22 percent ROE produced by the
19 update of the constant-growth DCF model is close to the original value, providing
20 support for continuing to recommend 9.38 percent given its position relative to
21 the means and medians of the recently authorized ROEs.

22
23 **Q. Why do you reject the Pike witnesses' recommendation that you incorporate**

1 **your CAPM ROE result in your recommended ROE by giving it a weight**
2 **other than 50 percent?**

3 A. I prefer to give all ROE analyses results equal weight if they are reasonable rather
4 than adjust the weights. When analysts adjust the weights for different models the
5 process can become results oriented. The weights assigned do not necessarily
6 reflect the reliability of a given model. Instead, an analyst may be pressured to
7 adjust the weights until the ROE comes close to a target value or narrow range of
8 values. If a model produces an ROE result that is far from reasonable, it is better
9 to exclude the model's result entirely, as I have elected to do, rather than attempt
10 to correct for its influence on the recommended ROE by weighting it differently
11 from other results.

12
13 **Q. What is the capital structure you recommend for the Company?**

14 A. I continue to recommend a capital structure of 46.54 percent long-term debt, 5.14
15 percent short-term debt, and 48.32 percent common equity. Pike identifies this
16 capital structure on page 22 of its Accounting Panel Rebuttal Testimony.

17
18 **Q. Do you also continue to accept Pike's requested cost of long-term debt and**
19 **cost of short-term debt?**

20 A. Yes. I accept the Company's proposed cost of long-term debt of 4.77 percent as
21 presented in Pike Exhibit E-2, Schedule 2, Page 2 of 2. I accept the Company's
22 proposed cost of short-term debt of 3.10 percent as presented in Pike Exhibit E-2,
23 Schedule 1.

1
2 **Q. What is the overall ROR that you recommend for the Company?**

3 A. When my recommended ROE of 9.38 percent is included with the proposed
4 capital structure and above costs of long-term debt and short-term debt, the ROR
5 is 6.91 percent. See Exhibit ____ MFG-19.
6

7 **VI. SUMMARY**

8 **Q. What are the criteria the Commission should consider in setting the**
9 **Company's ROE and ROR?**

10 A. The Commission should only consider whether the ROE and ROR meet the
11 *Bluefield* and *Hope* criteria for a fair return. Recounting, these criteria include
12 returns that are commensurate with returns being earned on other investments with
13 equivalent risks, a rate of return sufficient to enable the utility to attract capital, and
14 returns sufficient to enable the regulated company to maintain its credit rating and
15 financial integrity. The interpretation of the *Hope* and *Bluefield* criteria is that a
16 company should be given the opportunity to earn a ROE and ROR sufficient to
17 meet these standards.
18

19 **Q. What is your recommended return on equity and overall cost of capital for**
20 **Pike?**

21 A. I recommend a ROE of 9.38 percent and a ROR of 6.91 percent.
22

23 **Q. Does this conclude your testimony?**

1 | A. Yes.
2

**ROE and ROR Analysis for Pike County
Comparison Group
Discounted Cash Flow Constant-Growth Model Analysis
Common Equity Share Prices December 28, 2020-January 22, 2021
Zacks, Yahoo! Finance, and Value Line EPS Growth-
Rate Estimates--November 2020, January 2021**

**Docket No. R-2020-3022134
Corrected Exhibit ____ MFG-8**

	A	B	C	D
Company Name	Zacks EPS Growth Rate (%)	Yahoo! Finance EPS Growth Rates (%)	Value Line EPS Growth Rates (%)	Zacks-Yahoo! Finance-Value Line Mean Growth Rate (%)
Essential Utilities, Inc.	6.28%	6.40%	7.00%	6.56%
Exelon Corporation	2.98%	-2.40%	3.50%	3.24%
FirstEnergy Corp.	NA	-6.60%	8.50%	8.50%
NiSource Inc.	5.58%	1.65%	13.00%	6.74%
PPL Corporation	NA	-16.20%	2.50%	2.50%
UGI Corporation	8.00%	7.50%	5.50%	7.00%
Mean	5.71%	-1.61%	6.67%	5.89%

	E	F	G	H	I	J
Company Name	Average of Closing Prices	Annualized Dividend	Dividend Yield (Rate/Price)	Expected Dividend Yield	Required Rate of Return on Equity	Exceeds 5.11% threshold value for inclusion
Essential Utilities, Inc.	\$ 46.76	\$ 1.00	2.14%	2.29%	8.85%	Yes
Exelon Corporation	\$ 42.29	\$ 1.53	3.62%	3.73%	6.97%	Yes
FirstEnergy Corp.	\$ 30.47	\$ 1.56	5.12%	5.56%	14.06%	
NiSource Inc.	\$ 22.30	\$ 0.84	3.77%	4.02%	10.76%	Yes
PPL Corporation	\$ 27.86	\$ 1.66	5.96%	6.11%	8.61%	
UGI Corporation	\$ 35.95	\$ 1.32	3.67%	3.93%	10.93%	Yes
Mean			3.30%	3.49%	9.38%	

A: Zacks website, January 27, 2021. See Workpapers.

B: Yahoo! Finance website; January 27, 2021. See Workpapers.

C: Value Line Investment Survey: November 2020, December 2020, and January 2021. See Workpapers.

E: Yahoo! Finance website; December 28, 2020-January 22, 2021 (18 trading days).

F: Higher of Value Line Investment Survey and Zacks reports. See Exhibit MFG-7.

D: $(A + B + C)/3$

G: F/E

H: $G*(1+D)$

I: $D + H$

J: Minimum threshold of 5.11% is from Exhibit MFG-9, Schedule 6. (Moody's Baa Public Utility 10-Year Bonds index average + 0.2 * CAPM risk premium)

Shaded cell indicates company is excluded from the analysis.

ROE and ROR Analysis for Pike County
 Comparison Group
 Common Equity Share Prices
 Yahoo Finance, February 1-26, 2021

Essential Utilities (WTRG)		Exelon (EXC)		FirstEnergy (FE)		NiSource (NI)	
Date	Close	Date	Close	Date	Close	Date	Close
2/1/2021	\$ 47.12	2/1/2021	\$ 42.08	2/1/2021	\$ 31.18	2/1/2021	\$ 22.22
2/2/2021	\$ 47.58	2/2/2021	\$ 42.85	2/2/2021	\$ 31.91	2/2/2021	\$ 22.47
2/3/2021	\$ 47.75	2/3/2021	\$ 42.48	2/3/2021	\$ 32.40	2/3/2021	\$ 22.26
2/4/2021	\$ 47.73	2/4/2021	\$ 43.67	2/4/2021	\$ 32.23	2/4/2021	\$ 22.76
2/5/2021	\$ 48.13	2/5/2021	\$ 43.68	2/5/2021	\$ 32.28	2/5/2021	\$ 22.80
2/8/2021	\$ 47.86	2/8/2021	\$ 43.74	2/8/2021	\$ 32.13	2/8/2021	\$ 22.32
2/9/2021	\$ 47.97	2/9/2021	\$ 43.57	2/9/2021	\$ 32.53	2/9/2021	\$ 22.36
2/10/2021	\$ 48.39	2/10/2021	\$ 43.32	2/10/2021	\$ 31.75	2/10/2021	\$ 22.47
2/11/2021	\$ 47.90	2/11/2021	\$ 42.74	2/11/2021	\$ 31.12	2/11/2021	\$ 22.75
2/12/2021	\$ 46.66	2/12/2021	\$ 42.21	2/12/2021	\$ 31.24	2/12/2021	\$ 22.53
2/16/2021	\$ 46.00	2/16/2021	\$ 41.98	2/16/2021	\$ 31.93	2/16/2021	\$ 22.38
2/17/2021	\$ 45.39	2/17/2021	\$ 42.17	2/17/2021	\$ 31.95	2/17/2021	\$ 22.67
2/18/2021	\$ 45.65	2/18/2021	\$ 42.70	2/18/2021	\$ 34.25	2/18/2021	\$ 22.84
2/19/2021	\$ 45.57	2/19/2021	\$ 41.38	2/19/2021	\$ 34.03	2/19/2021	\$ 22.84
2/22/2021	\$ 44.74	2/22/2021	\$ 40.60	2/22/2021	\$ 33.88	2/22/2021	\$ 22.38
2/23/2021	\$ 44.77	2/23/2021	\$ 40.80	2/23/2021	\$ 33.53	2/23/2021	\$ 22.61
2/24/2021	\$ 44.09	2/24/2021	\$ 40.19	2/24/2021	\$ 34.25	2/24/2021	\$ 22.18
2/25/2021	\$ 43.25	2/25/2021	\$ 38.92	2/25/2021	\$ 33.51	2/25/2021	\$ 22.11
2/26/2021	\$ 42.06	2/26/2021	\$ 38.60	2/26/2021	\$ 33.14	2/26/2021	\$ 21.60
Mean	\$ 46.24	Mean	\$ 41.98	Mean	\$ 32.59	Mean	\$ 22.45

ROE and ROR Analysis for Pike County
 Comparison Group
 Common Equity Share Prices
 Yahoo Finance, February 1-26, 2021

PPL (PPL)

UGI (UGI)

Date	Close	Date	Close
2/1/2021	\$ 27.95	2/1/2021	\$ 36.38
2/2/2021	\$ 27.84	2/2/2021	\$ 36.00
2/3/2021	\$ 27.79	2/3/2021	\$ 36.15
2/4/2021	\$ 27.90	2/4/2021	\$ 36.76
2/5/2021	\$ 27.87	2/5/2021	\$ 37.30
2/8/2021	\$ 27.87	2/8/2021	\$ 37.18
2/9/2021	\$ 27.95	2/9/2021	\$ 37.59
2/10/2021	\$ 28.06	2/10/2021	\$ 38.33
2/11/2021	\$ 27.94	2/11/2021	\$ 38.66
2/12/2021	\$ 28.01	2/12/2021	\$ 38.88
2/16/2021	\$ 28.01	2/16/2021	\$ 40.09
2/17/2021	\$ 28.07	2/17/2021	\$ 40.25
2/18/2021	\$ 27.77	2/18/2021	\$ 39.53
2/19/2021	\$ 27.68	2/19/2021	\$ 40.29
2/22/2021	\$ 27.48	2/22/2021	\$ 40.24
2/23/2021	\$ 27.48	2/23/2021	\$ 39.61
2/24/2021	\$ 27.49	2/24/2021	\$ 40.18
2/25/2021	\$ 26.99	2/25/2021	\$ 39.75
2/26/2021	\$ 26.19	2/26/2021	\$ 38.31
Mean	\$ 27.70	Mean	\$ 38.50

**ROE and ROR Analysis for Pike County
Comparison Group
Dividends**

**Docket No. R-2020-3022134
Exhibit ____ MFG-16**

Name	Value Line	Zacks	Highest Dividend
Essential Utilities, Inc.	\$ 1.00	\$ 1.00	\$ 1.00
Exelon Corporation	\$ 1.53	\$ 1.53	\$ 1.53
FirstEnergy Corp.	\$ 1.56	\$ 1.56	\$ 1.56
NiSource Inc.	\$ 0.88	\$ 0.88	\$ 0.88
PPL Corporation	\$ 1.66	\$ 1.66	\$ 1.66
UGI Corporation	\$ 1.32	\$ 1.32	\$ 1.32

Value Line dividends taken from February 2021 (Exelon, FirstEnergy, PPL Corp. February 12; NiSource and UGI, February 26) and January 2021 (Essential Utilities, January 8) Research Reports

Zacks dividends taken from website on February 27, 2021

**ROE and ROR Analysis for Pike County
Comparison Group
Discounted Cash Flow Constant-Growth Model Analysis
Common Equity Share Prices February 1-26, 2021
Zacks, Yahoo! Finance, and Value Line EPS Growth-
Rate Estimates--January-February 2021**

**Docket No. R-2020-3022134
Exhibit ____ MFG-17**

Company Name	A	B	C	D
	Zacks EPS Growth Rate (%)	Yahoo! Finance EPS Growth Rates (%)	Value Line EPS Growth Rates (%)	Zacks-Yahoo! Finance-Value Line Mean Growth Rate (%)
Essential Utilities, Inc.	6.28%	6.40%	7.00%	6.56%
Exelon Corporation	2.99%	-0.34%	4.00%	3.50%
FirstEnergy Corp.	NA	-6.60%	8.50%	8.50%
NiSource Inc.	6.22%	1.65%	10.00%	5.96%
PPL Corporation	NA	-16.20%	2.50%	2.50%
UGI Corporation	8.00%	7.35%	5.50%	6.95%
Mean	5.87%	-1.29%	6.25%	5.74%

Company Name	E	F	G	H	I	J
	Average of Closing Prices	Annualized Dividend	Dividend Yield (Rate/Price)	Expected Dividend Yield	Required Rate of Return on Equity	Exceeds 5.25% threshold value for inclusion
Essential Utilities, Inc.	\$ 46.24	\$ 1.00	2.17%	2.31%	8.87%	Yes
Exelon Corporation	\$ 41.98	\$ 1.53	3.64%	3.77%	7.27%	Yes
FirstEnergy Corp.	\$ 32.59	\$ 1.56	4.79%	5.19%	13.69%	
NiSource Inc.	\$ 22.45	\$ 0.88	3.92%	4.15%	10.11%	Yes
PPL Corporation	\$ 27.70	\$ 1.66	5.99%	6.14%	8.64%	
UGI Corporation	\$ 38.50	\$ 1.32	3.43%	3.67%	10.62%	Yes
Mean			3.29%	3.48%	9.22%	

A: Zacks website, February 28, 2021. See Workpapers.

B: Yahoo! Finance website; February 26, 2021. See Workpapers.

C: Value Line Investment Survey; January 8, February 12, and February 26, 2021. See Workpapers.

E: Yahoo! Finance website; February 1-26, 2021 (19 trading days). See Exhibit MFG-15.

F: Higher of Value Line Investment Survey (See C) and Zacks (See A). See Exhibit MFG-16.

D: $(A + B + C)/3$

G: F/E

H: $G*(1+D)$

I: $D + H$

J: Minimum threshold of 5.25% is from Exhibit MFG-18, Schedule 7. (Moody's Baa Public Utility 10-Year Bonds index average + 0.2 * CAPM risk premium)

Shaded cell indicates company is excluded from the analysis.

**ROE and ROR Analysis for Pike County
Capital Asset Pricing Model (CAPM) Analysis
Risk-Free Rate Analysis**

**Docket No. R-2020-3022134
Exhibit ____ MFG-18, Schedule 1**

**Daily Treasury Yield Curve Rates (Percent)
February 1-26, 2021**

Date	1 mo	2 mo	3 mo	6 mo	1 yr	2 yr	3 yr	5 yr	7 yr	10 yr	20 yr	30 yr
2/1/2021	0.06	0.07	0.07	0.08	0.08	0.11	0.17	0.42	0.76	1.09	1.66	1.84
2/2/2021	0.04	0.05	0.07	0.08	0.08	0.11	0.18	0.45	0.79	1.12	1.69	1.87
2/3/2021	0.03	0.04	0.04	0.06	0.08	0.11	0.19	0.46	0.81	1.15	1.73	1.92
2/4/2021	0.03	0.04	0.04	0.06	0.07	0.11	0.18	0.46	0.81	1.15	1.75	1.93
2/5/2021	0.02	0.03	0.03	0.05	0.06	0.09	0.19	0.47	0.83	1.19	1.79	1.97
2/8/2021	0.04	0.03	0.05	0.05	0.07	0.11	0.20	0.48	0.83	1.19	1.78	1.96
2/9/2021	0.04	0.04	0.04	0.06	0.07	0.11	0.19	0.48	0.83	1.18	1.78	1.95
2/10/2021	0.05	0.04	0.05	0.06	0.07	0.11	0.19	0.46	0.80	1.15	1.75	1.92
2/11/2021	0.05	0.05	0.05	0.06	0.07	0.11	0.19	0.46	0.81	1.16	1.77	1.94
2/12/2021	0.03	0.04	0.04	0.05	0.06	0.11	0.20	0.50	0.85	1.20	1.83	2.01
2/16/2021	0.03	0.04	0.04	0.06	0.08	0.13	0.23	0.57	0.94	1.30	1.92	2.08
2/17/2021	0.03	0.04	0.04	0.06	0.07	0.11	0.21	0.57	0.94	1.29	1.92	2.06
2/18/2021	0.03	0.03	0.03	0.04	0.06	0.11	0.21	0.56	0.94	1.29	1.91	2.08
2/19/2021	0.03	0.03	0.04	0.06	0.07	0.11	0.22	0.59	0.98	1.34	1.98	2.14
2/22/2021	0.03	0.02	0.03	0.04	0.06	0.11	0.22	0.61	1.00	1.37	2.02	2.19
2/23/2021	0.03	0.02	0.04	0.05	0.08	0.11	0.22	0.59	1.00	1.37	2.03	2.21
2/24/2021	0.03	0.03	0.03	0.05	0.08	0.12	0.24	0.62	1.02	1.38	2.07	2.24
2/25/2021	0.04	0.03	0.04	0.06	0.09	0.17	0.34	0.81	1.23	1.54	2.25	2.33
2/26/2021	0.04	0.04	0.04	0.05	0.08	0.14	0.30	0.75	1.15	1.44	2.08	2.17
											Mean	2.04

Source: <https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield>

**ROE and ROR Analysis for Pike County
Comparison Group
Capital Asset Pricing Model (CAPM) Analysis
Beta calculation for Comparison Group**

**Docket No. R-2020-3022134
Exhibit ____ MFG-18, Schedule 2**

<u>Company Name</u>	<u>Value Line Betas-- Comparison Group</u>
Essential Utilities, Inc.	0.95
Exelon Corporation	0.95
FirstEnergy Corp.	0.85
NiSource Inc.	0.85
PPL Corporation	1.10
UGI Corporation	1.00
Mean	0.94

Shaded cell indicates company is excluded from the mean analysis.

Value Line betas taken from February 2021 (Exelon, FirstEnergy, PPL Corp. February 12; NiSource and UGI, February 26) and January 2021 (Essential Utilities, January 8) Research Reports

Constant-Growth DCF Analysis for S&P 500

All companies shown

A: IBES, March 1, 2021

B and E: Value Line Analyzer, March 1, 2021

$C = B * (1 + A)$

$D = A + C$

$F = E / (\text{Sum of E})$

$G = D * F$

Company Name	A	B	C	D	E	F	G
	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
3M Company	6.99	3.33	3.56	10.55	102,460.72	0.00284	0.0300
Abbott Labs.	15.74	1.47	1.70	17.44	216,901.67	0.00601	0.1049
AbbVie Inc.	4.77	4.78	5.01	9.78	191,869.92	0.00532	0.0520
ABIOMED Inc.	17.10	0.00	0.00	17.10	14,642.95	0.00041	0.0069
Accenture Plc	9.93	1.42	1.56	11.49	164,415.31	0.00456	0.0524
Activision Blizzard	17.83	0.49	0.58	18.41	73,949.80	0.00205	0.0377
Adobe Inc.	16.67	0.00	0.00	16.67	228,300.98	0.00633	0.1055
Advance Auto Parts	13.96	0.60	0.68	14.64	11,372.14	0.00032	0.0046
Advanced Micro Dev.	26.06	0.00	0.00	26.06	105,284.34	0.00292	0.0761
AES Corp.	7.40	2.14	2.30	9.70	18,623.67	0.00052	0.0050
Aflac Inc.	6.11	2.71	2.88	8.99	35,073.16	0.00097	0.0087
Agilent Technologies	10.80	0.62	0.69	11.49	38,256.12	0.00106	0.0122
Air Products & Chem.	9.01	2.28	2.49	11.50	58,253.39	0.00162	0.0186
Akamai Technologies	10.44	0.00	0.00	10.44	15,879.51	0.00044	0.0046
Alaska Air Group	(15.61)	0.00	0.00	-15.61	8,340.93	0.00023	-0.0036
Albemarle Corp.	15.00	0.96	1.10	16.10	17,128.93	0.00047	0.0076
Alexandria Real Estate	0.10	2.66	2.66	2.76	18,195.98	0.00050	0.0014
Alexion Pharmac.	8.78	0.00	0.00	8.78	33,833.31	0.00094	0.0082
Align Techn.	28.41	0.00	0.00	28.41	45,200.98	0.00125	0.0356
Allegion plc	1.70	1.32	1.34	3.04	9,972.32	0.00028	0.0008
Alliant Energy	5.70	3.39	3.58	9.28	11,871.14	0.00033	0.0031
Allstate Corp.	2.58	1.99	2.04	4.62	32,941.44	0.00091	0.0042

	A	B	C	D	E	F	G
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
Alphabet Inc.	16.95	0.00	0.00	16.95	1,414,704.88	0.03922	0.6649
Alphabet Inc. 'A'	16.95	0.00	0.00	16.95	1,419,522.62	0.03936	0.6671
Altria Group	4.57	7.64	7.99	12.56	83,628.85	0.00232	0.0291
Amazon.com	38.37	0.00	0.00	38.37	1,589,243.50	0.04406	1.6907
Amcort plc	7.64	4.12	4.43	12.07	18,472.79	0.00051	0.0062
Amer. Airlines	(45.70)	0.00	0.00	-45.70	11,097.74	0.00031	-0.0141
Amer. Elec. Power	6.00	3.89	4.12	10.12	38,288.17	0.00106	0.0107
Amer. Express	3.17	1.29	1.33	4.50	112,611.46	0.00312	0.0141
Amer. Int'l Group	16.74	2.82	3.29	20.03	39,135.63	0.00109	0.0217
Amer. Tower 'A'	15.58	2.40	2.77	18.35	99,845.03	0.00277	0.0508
Amer. Water Works	8.40	1.57	1.70	10.10	27,179.62	0.00075	0.0076
Ameren Corp.	6.60	3.08	3.28	9.88	18,085.62	0.00050	0.0050
Ameriprise Fin'l	10.11	1.79	1.97	12.08	27,534.49	0.00076	0.0092
AmerisourceBergen	9.20	1.67	1.82	11.02	21,484.57	0.00060	0.0066
AMETEK, Inc.	(1.20)	0.65	0.64	-0.56	28,300.29	0.00078	-0.0004
Amgen	6.51	3.14	3.34	9.85	133,003.22	0.00369	0.0363
Amphenol Corp.	11.30	0.89	0.99	12.29	38,774.31	0.00108	0.0132
Analog Devices	11.78	1.71	1.91	13.69	59,672.30	0.00165	0.0227
ANSYS, Inc.	8.00	0.00	0.00	8.00	33,085.55	0.00092	0.0073
Anthem, Inc.	13.36	1.48	1.68	15.04	75,041.16	0.00208	0.0313
Aon plc	10.63	0.79	0.87	11.50	53,564.04	0.00149	0.0171
Apache Corp.	(24.00)	0.48	0.36	-23.64	7,854.94	0.00022	-0.0051
Apple Inc.	14.69	0.69	0.79	15.48	2,108,796.00	0.05847	0.9052
Applied Materials	19.80	0.73	0.87	20.67	112,697.95	0.00312	0.0646
Aptiv PLC	43.37	0.00	0.00	43.37	41,913.28	0.00116	0.0504
Archer Daniels Mid'l'd	4.30	2.60	2.71	7.01	32,514.88	0.00090	0.0063
Arista Networks	6.60	0.00	0.00	6.60	21,657.98	0.00060	0.0040
Assurant Inc.	19.40	2.06	2.46	21.86	7,427.44	0.00021	0.0045

ROE and ROR Analysis for Pike County
 CAPM Analysis
 Standard and Poor's 500 with IBES EPS

	A	B	C	D	E	F	G
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
AT&T Inc.	1.23	7.22	7.31	8.54	209,333.83	0.00580	0.0496
Atmos Energy	7.10	2.93	3.14	10.24	11,363.33	0.00032	0.0032
Autodesk, Inc.	35.58	0.00	0.00	35.58	65,670.52	0.00182	0.0648
Automatic Data Proc.	10.26	2.18	2.40	12.66	75,611.02	0.00210	0.0265
AutoZone Inc.	6.10	0.00	0.00	6.10	27,194.25	0.00075	0.0046
AvalonBay Communities	2.54	3.55	3.64	6.18	26,019.14	0.00072	0.0045
Avery Dennison	9.56	1.37	1.50	11.06	15,064.57	0.00042	0.0046
Baker Hughes	3.25	2.86	2.95	6.20	17,227.75	0.00048	0.0030
Ball Corp.	13.60	0.70	0.80	14.40	28,257.57	0.00078	0.0113
Bank of America	1.11	1.98	2.00	3.11	315,106.19	0.00874	0.0272
Bank of New York Mellon	12.85	2.80	3.16	16.01	39,220.38	0.00109	0.0174
Baxter Int'l Inc.	9.00	1.25	1.36	10.36	40,102.04	0.00111	0.0115
Becton, Dickinson	12.00	1.36	1.52	13.52	71,684.05	0.00199	0.0269
Berkley (W.R.)	22.69	0.67	0.82	23.51	12,699.81	0.00035	0.0083
Berkshire Hathaway 'B'	23.30	0.00	0.00	23.30		-	0.0000
Best Buy Co.	9.63	2.12	2.32	11.95	29,272.68	0.00081	0.0097
Bio-Rad Labs. 'A'	17.80	0.00	0.00	17.80	17,741.69	0.00049	0.0088
Biogen	(11.06)	0.00	0.00	-11.06	43,513.68	0.00121	-0.0133
BlackRock, Inc.	12.68	2.32	2.61	15.29	108,592.40	0.00301	0.0460
Boeing	12.33	0.00	0.00	12.33	133,549.27	0.00370	0.0457
Booking Holdings	106.36	0.00	0.00	106.36	100,071.10	0.00277	0.2951
BorgWarner	16.86	1.48	1.73	18.59	11,247.87	0.00031	0.0058
Boston Properties	7.00	3.74	4.00	11.00	16,204.97	0.00045	0.0049
Boston Scientific	6.55	0.00	0.00	6.55	56,601.50	0.00157	0.0103
Bristol-Myers Squibb	21.35	3.13	3.80	25.15	141,437.88	0.00392	0.0986
Broadcom Inc.	8.60	2.99	3.25	11.85	194,275.52	0.00539	0.0638
Broadridge Fin'l	10.00	1.59	1.75	11.75	16,800.26	0.00047	0.0055
Brown-Forman 'B'	9.06	0.96	1.05	10.11	35,911.96	0.00100	0.0101

ROE and ROR Analysis for Pike County
 CAPM Analysis
 Standard and Poor's 500 with IBES EPS

Docket No. R-2020-3022134
 Exhibit ____ MFG-18, Schedule 3
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	A	B	C	D	E	F	G
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
C.H. Robinson	9.94	2.31	2.54	12.48	12,235.08	0.00034	0.0042
Cabot Oil & Gas 'A'	43.79	2.50	3.59	47.38	7,652.74	0.00021	0.0101
Cadence Design Sys.	11.10	0.00	0.00	11.10	38,888.56	0.00108	0.0120
Campbell Soup	8.64	3.20	3.48	12.12	14,935.52	0.00041	0.0050
Capital One Fin'l	4.19	1.28	1.33	5.52	56,936.78	0.00158	0.0087
Cardinal Health	7.57	3.73	4.01	11.58	15,449.70	0.00043	0.0050
CarMax, Inc.	6.34	0.00	0.00	6.34	19,864.06	0.00055	0.0035
Carnival Corp.	(44.47)	0.00	0.00	-44.47	22,418.30	0.00062	-0.0276
Carrier Global	5.53	1.28	1.35	6.88	32,457.43	0.00090	0.0062
Catalent, Inc.	15.97	0.00	0.00	15.97	19,590.81	0.00054	0.0087
Caterpillar Inc.	(1.11)	1.85	1.83	0.72	120,858.61	0.00335	0.0024
Cboe Global Markets	1.80	1.67	1.70	3.50	10,770.67	0.00030	0.0010
CBRE Group	11.00	0.00	0.00	11.00	25,889.18	0.00072	0.0079
CDW Corp.	11.59	0.99	1.10	12.69	23,147.88	0.00064	0.0081
Celanese Corp.	10.56	1.93	2.13	12.69	16,554.05	0.00046	0.0058
Centene Corp.	10.53	0.00	0.00	10.53	34,510.78	0.00096	0.0101
CenterPoint Energy	(5.88)	3.08	2.90	-2.98	11,337.68	0.00031	-0.0009
Cerner Corp.	11.51	1.25	1.39	12.90	21,533.62	0.00060	0.0077
CF Industries	(5.21)	2.67	2.53	-2.68	10,398.17	0.00029	-0.0008
Charter Communic.	33.74	0.00	0.00	33.74	117,886.64	0.00327	0.1103
Chevron Corp.	(4.18)	4.99	4.78	0.60	192,913.14	0.00535	0.0032
Chipotle Mex. Grill	52.56	0.00	0.00	52.56	40,543.25	0.00112	0.0591
Chubb Ltd.	17.14	1.83	2.14	19.28	77,031.83	0.00214	0.0412
Church & Dwight	8.71	1.27	1.38	10.09	19,518.39	0.00054	0.0055
Cigna Corp.	10.77	1.86	2.06	12.83	78,923.82	0.00219	0.0281
Cincinnati Financial	7.54	2.50	2.69	10.23	16,223.11	0.00045	0.0046
Cintas Corp.	12.55	0.89	1.00	13.55	35,517.81	0.00098	0.0133
Cisco Systems	6.60	3.24	3.45	10.05	193,068.53	0.00535	0.0538

ROE and ROR Analysis for Pike County
 CAPM Analysis
 Standard and Poor's 500 with IBES EPS

	A	B	C	D	E	F	G
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
Citigroup Inc.	1.28	2.97	3.01	4.29	142,822.47	0.00396	0.0170
Citizens Fin'l Group	(2.76)	3.36	3.27	0.51	19,807.64	0.00055	0.0003
Citrix Sys.	10.85	1.08	1.20	12.05	16,849.49	0.00047	0.0056
Clorox Co.	5.07	2.42	2.54	7.61	23,043.95	0.00064	0.0049
CME Group	4.60	1.79	1.87	6.47	71,857.23	0.00199	0.0129
CMS Energy Corp.	7.26	3.19	3.42	10.68	15,767.46	0.00044	0.0047
Coca-Cola	5.24	3.31	3.48	8.72	217,900.86	0.00604	0.0527
Cognizant Technology	2.34	1.28	1.31	3.65	40,387.27	0.00112	0.0041
Colgate-Palmolive	7.46	2.30	2.47	9.93	65,135.80	0.00181	0.0179
Comcast Corp.	14.35	1.87	2.14	16.49	244,607.03	0.00678	0.1118
Comerica Inc.	(10.70)	3.77	3.37	-7.33	10,022.70	0.00028	-0.0020
Conagra Brands	6.27	3.21	3.41	9.68	17,217.52	0.00048	0.0046
ConocoPhillips	(8.50)	3.15	2.88	-5.62	58,646.80	0.00163	-0.0091
Consol. Edison	2.95	4.65	4.79	7.74	22,814.09	0.00063	0.0049
Constellation Brands	8.83	1.43	1.56	10.39	43,280.74	0.00120	0.0125
Cooper Cos.	10.00	0.01	0.01	10.01	19,275.19	0.00053	0.0054
Copart, Inc.	22.30	0.00	0.00	22.30	26,126.10	0.00072	0.0162
Corning Inc.	4.00	2.48	2.58	6.58	29,397.43	0.00082	0.0054
Corteva, Inc.	18.07	1.29	1.52	19.59	34,503.89	0.00096	0.0187
Costco Wholesale	8.59	0.87	0.94	9.53	150,914.78	0.00418	0.0399
Crown Castle Int'l	19.60	3.46	4.14	23.74	69,477.20	0.00193	0.0457
CSX Corp.	15.42	1.20	1.39	16.81	71,407.04	0.00198	0.0333
Cummins Inc.	14.98	2.08	2.39	17.37	38,375.67	0.00106	0.0185
CVS Health	3.81	2.84	2.95	6.76	92,153.59	0.00256	0.0173
Danaher Corp.	12.19	0.38	0.43	12.62	158,396.91	0.00439	0.0554
Darden Restaurants	34.30	1.07	1.44	35.74	18,086.92	0.00050	0.0179
DaVita Inc.	16.13	0.00	0.00	16.13	11,311.01	0.00031	0.0051
Deere & Co.	34.17	1.04	1.40	35.57	108,343.31	0.00300	0.1068

ROE and ROR Analysis for Pike County
 CAPM Analysis
 Standard and Poor's 500 with IBES EPS

	A	B	C	D	E	F	G
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
Delta Air Lines	(22.24)	0.00	0.00	-22.24	31,631.61	0.00088	-0.0195
Dentsply Sirona	5.63	0.74	0.78	6.41	11,799.00	0.00033	0.0021
Devon Energy	25.00	1.98	2.48	27.48	8,529.41	0.00024	0.0065
DexCom Inc.	23.60	0.00	0.00	23.60	38,941.44	0.00108	0.0255
Diamondback Energy	49.63	2.17	3.25	52.88	11,649.33	0.00032	0.0171
Digital Realty Trust	30.98	3.46	4.53	35.51	28,232.97	0.00078	0.0278
Discover Fin'l Svcs.	6.27	1.80	1.91	8.18	30,024.35	0.00083	0.0068
Discovery Communic. 'C'	12.90	0.00	0.00	12.90	22,728.88	0.00063	0.0081
Discovery, Inc.	6.75	0.00	0.00	6.75	25,722.56	0.00071	0.0048
Dish Network 'A'	(30.83)	0.00	0.00	-30.83	16,521.30	0.00046	-0.0141
Disney (Walt)	48.53	0.00	0.00	48.53	351,765.31	0.00975	0.4733
Dollar General	17.31	0.75	0.88	18.19	47,189.45	0.00131	0.0238
Dollar Tree, Inc.	11.06	0.00	0.00	11.06	23,785.78	0.00066	0.0073
Dominion Energy	2.78	3.54	3.64	6.42	58,074.72	0.00161	0.0103
Domino's Pizza	10.88	0.89	0.99	11.87	14,361.93	0.00040	0.0047
Dover Corp.	9.50	1.58	1.73	11.23	18,084.93	0.00050	0.0056
Dow Inc.	(5.43)	4.71	4.45	-0.98	47,333.71	0.00131	-0.0013
DTE Energy	6.05	3.50	3.71	9.76	24,008.10	0.00067	0.0065
Duke Energy	4.99	4.47	4.69	9.68	64,282.24	0.00178	0.0173
Duke Realty Corp.	6.00	2.58	2.73	8.73	14,846.78	0.00041	0.0036
DuPont de Nemours	(8.99)	1.79	1.63	-7.36	52,627.74	0.00146	-0.0107
DXC Technology	(9.11)	0.00	0.00	-9.11	6,619.23	0.00018	-0.0017
Eastman Chemical	3.83	2.43	2.52	6.35	15,352.22	0.00043	0.0027
Eaton Corp. plc	15.56	2.29	2.65	18.21	52,886.25	0.00147	0.0267
eBay Inc.	18.79	1.21	1.44	20.23	40,615.92	0.00113	0.0228
Ecolab Inc.	17.07	0.89	1.04	18.11	61,710.36	0.00171	0.0310
Edison Int'l	(0.50)	4.75	4.73	4.23	21,374.63	0.00059	0.0025
Edwards Lifesciences	12.99	0.00	0.00	12.99	52,603.90	0.00146	0.0189

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	A	B	C	D	E	F	G
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
Electronic Arts	14.52	0.49	0.56	15.08	39,712.83	0.00110	0.0166
Emerson Electric	9.57	2.27	2.49	12.06	53,364.21	0.00148	0.0178
Enphase Energy	37.70	0.00	0.00	37.70	22,838.45	0.00063	0.0239
Entergy Corp.	5.15	4.29	4.51	9.66	18,014.87	0.00050	0.0048
EOG Resources	29.30	2.21	2.86	32.16	42,216.75	0.00117	0.0376
Equifax, Inc.	10.63	0.91	1.01	11.64	20,757.12	0.00058	0.0067
Equinix, Inc.	23.00	1.81	2.23	25.23	56,936.18	0.00158	0.0398
Equity Residential	6.10	3.47	3.68	9.78	25,775.39	0.00071	0.0070
Essex Property Trust	7.90	3.16	3.41	11.31	17,853.43	0.00050	0.0056
Etsy, Inc.	36.60	0.00	0.00	36.60	26,275.51	0.00073	0.0267
Everest Re Group Ltd.	32.22	2.53	3.35	35.57	9,780.72	0.00027	0.0096
Evergy, Inc.	5.90	3.98	4.21	10.11	12,373.69	0.00034	0.0035
Eversource Energy	7.05	3.01	3.22	10.27	27,474.04	0.00076	0.0078
Exelon Corp.	(0.34)	4.01	4.00	3.66	39,225.44	0.00109	0.0040
Expedia Group	(15.06)	0.00	0.00	-15.06	23,021.81	0.00064	-0.0096
Expeditors Int'l	4.20	1.13	1.18	5.38	15,579.41	0.00043	0.0023
Extra Space Storage	6.00	3.15	3.34	9.34	16,463.77	0.00046	0.0043
Exxon Mobil Corp.	13.95	6.14	7.00	20.95	239,727.59	0.00665	0.1392
F5 Networks	6.04	0.00	0.00	6.04	11,679.26	0.00032	0.0020
Facebook Inc.	21.50	0.00	0.00	21.50	753,019.19	0.02088	0.4489
Fastenal Co.	8.04	2.39	2.58	10.62	26,922.95	0.00075	0.0079
Federal Rlty. Inv. Trust	6.70	4.02	4.29	10.99	8,008.86	0.00022	0.0024
FedEx Corp.	28.61	1.00	1.29	29.90	68,934.37	0.00191	0.0571
Fidelity Nat'l Info.	13.97	1.12	1.28	15.25	86,452.80	0.00240	0.0365
Fifth Third Bancorp	(2.98)	2.98	2.89	-0.09	25,821.89	0.00072	-0.0001
First Republic Bank	10.99	0.47	0.52	11.51	30,689.07	0.00085	0.0098
FirstEnergy Corp.	(6.60)	4.55	4.25	-2.35	18,601.76	0.00052	-0.0012
Fiserv Inc.	18.79	0.00	0.00	18.79	79,812.62	0.00221	0.0416

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Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
FleetCor Technologies	12.04	0.00	0.00	12.04	24,200.98	0.00067	0.0081
FLIR Systems	6.40	1.24	1.32	7.72	7,174.89	0.00020	0.0015
Flowserve Corp.	7.76	2.07	2.23	9.99	5,038.20	0.00014	0.0014
FMC Corp.	10.56	1.87	2.07	12.63	13,620.59	0.00038	0.0048
Ford Motor	20.89	0.00	0.00	20.89	47,945.96	0.00133	0.0278
Fortinet Inc.	19.10	0.00	0.00	19.10	27,566.66	0.00076	0.0146
Fortive Corp.	7.05	0.41	0.44	7.49	22,808.21	0.00063	0.0047
Fortune Brands Home	9.25	1.19	1.30	10.55	12,121.55	0.00034	0.0035
Fox Corp. 'A'	3.47	1.35	1.40	4.87	20,135.68	0.00056	0.0027
Fox Corp. 'B'	9.20	1.40	1.53	10.73		-	0.0000
Franklin Resources	4.68	4.01	4.20	8.88	14,117.86	0.00039	0.0035
Freep't-McMoRan Inc.	38.67	0.79	1.10	39.77	59,941.98	0.00166	0.0661
Gallagher (Arthur J.)	9.55	1.55	1.70	11.25	23,978.12	0.00066	0.0075
Gap (The), Inc.	(1.59)	0.00	0.00	-1.59	9,705.30	0.00027	-0.0004
Garmin Ltd.	6.37	2.09	2.22	8.59	24,564.39	0.00068	0.0059
Gartner Inc.	9.95	0.00	0.00	9.95	16,375.97	0.00045	0.0045
Gen'l Dynamics	4.83	2.62	2.75	7.58	48,109.53	0.00133	0.0101
Gen'l Electric	311.40	0.31	1.28	312.68	114,929.54	0.00319	0.9964
Gen'l Mills	4.91	3.70	3.88	8.79	34,360.68	0.00095	0.0084
Gen'l Motors	11.84	0.00	0.00	11.84	75,716.20	0.00210	0.0249
Genuine Parts	(1.10)	3.07	3.04	1.94	15,339.47	0.00043	0.0008
Gilead Sciences	2.80	4.46	4.58	7.38	79,828.63	0.00221	0.0163
Global Payments	16.67	0.38	0.44	17.11	61,135.35	0.00170	0.0290
Globe Life Inc.	7.37	0.76	0.82	8.19	10,329.30	0.00029	0.0023
Goldman Sachs	16.27	1.51	1.76	18.03	113,763.31	0.00315	0.0569
Grainger (W.W.)	12.10	1.62	1.82	13.92	20,692.77	0.00057	0.0080
Halliburton Co.	15.50	0.81	0.94	16.44	19,708.95	0.00055	0.0090
Hanesbrands, Inc.	5.94	3.29	3.49	9.43	6,356.26	0.00018	0.0017

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	EPS Growth	Dividend	Expected	Rate of	Market Cap	Market Cap	Rate of
Company Name	Rate (%)	Yield (%)	Dividend	Return on	\$ (Mil)	Weight	Return on
			Yield (%)	Equity (%)		Factor	Equity (%)
Hartford Fin'l Svcs.	4.42	2.63	2.75	7.17	19,040.14	0.00053	0.0038
Hasbro, Inc.	17.50	2.99	3.51	21.01	12,457.40	0.00035	0.0073
HCA Healthcare	12.25	1.09	1.22	13.47	59,360.25	0.00165	0.0222
Healthpeak Properties	2.50	3.83	3.93	6.43	15,813.45	0.00044	0.0028
Henry (Jack) & Assoc.	10.02	1.21	1.33	11.35	11,535.10	0.00032	0.0036
Hershey Co.	7.60	2.18	2.35	9.95	30,713.30	0.00085	0.0085
Hess Corp.	(23.40)	1.45	1.11	-22.29	21,126.90	0.00059	-0.0131
Hewlett Packard Ent.	6.28	3.23	3.43	9.71	19,099.08	0.00053	0.0051
Hilton Worldwide Hldgs.	(6.25)	0.00	0.00	-6.25	35,305.74	0.00098	-0.0061
HollyFrontier Corp.	(12.53)	3.85	3.37	-9.16	6,229.52	0.00017	-0.0016
Hologic, Inc.	10.47	0.00	0.00	10.47	19,347.74	0.00054	0.0056
Home Depot	9.61	2.54	2.78	12.39	279,727.69	0.00776	0.0961
Honeywell Int'l	6.72	1.76	1.88	8.60	148,079.75	0.00411	0.0353
Hormel Foods	3.70	2.09	2.17	5.87	25,309.90	0.00070	0.0041
Horton D.R.	17.90	1.00	1.18	19.08	29,110.02	0.00081	0.0154
Host Hotels & Resorts	28.40	0.00	0.00	28.40	12,213.41	0.00034	0.0096
Howmet Aerospace	27.53	0.00	0.00	27.53	13,068.82	0.00036	0.0100
HP Inc.	15.07	2.79	3.21	18.28	36,472.88	0.00101	0.0185
Humana Inc.	12.28	0.73	0.82	13.10	50,391.71	0.00140	0.0183
Hunt (J.B.)	20.73	0.78	0.94	21.67	15,498.88	0.00043	0.0093
Huntington Bancshs.	(2.15)	3.70	3.62	1.47	16,500.79	0.00046	0.0007
Huntington Ingalls	0.38	2.42	2.43	2.81	7,618.05	0.00021	0.0006
IDEX Corp.	11.50	1.01	1.13	12.63	14,975.38	0.00042	0.0052
IDEXX Labs.	17.09	0.00	0.00	17.09	45,454.66	0.00126	0.0215
IHS Markit	10.38	0.88	0.97	11.35	36,153.24	0.00100	0.0114
Illinois Tool Works	7.15	2.24	2.40	9.55	64,391.93	0.00179	0.0171
Illumina Inc.	19.80	0.00	0.00	19.80	67,313.30	0.00187	0.0370
Incyte Corp.	20.89	0.00	0.00	20.89	17,721.54	0.00049	0.0103

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Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
Ingersoll Rand Inc.	16.06	0.00	0.00	16.06	20,085.79	0.00056	0.0089
Int'l Business Mach.	6.09	5.29	5.61	11.70	109,983.78	0.00305	0.0357
Int'l Flavors & Frag.	10.00	2.26	2.49	12.49	14,772.79	0.00041	0.0051
Int'l Paper	2.42	4.03	4.13	6.55	19,969.48	0.00055	0.0036
Intel Corp.	5.43	2.20	2.32	7.75	256,677.80	0.00712	0.0552
Intercontinental Exch.	10.73	1.18	1.31	12.04	62,529.06	0.00173	0.0209
Interpublic Group	5.05	4.00	4.20	9.25	10,521.90	0.00029	0.0027
Intuit Inc.	13.05	0.60	0.68	13.73	108,194.07	0.00300	0.0412
Intuitive Surgical	9.14	0.00	0.00	9.14	89,148.42	0.00247	0.0226
Invesco Ltd.	2.70	2.67	2.74	5.44	10,684.13	0.00030	0.0016
IPG Photonics	45.60	0.00	0.00	45.60	12,303.62	0.00034	0.0156
IQVIA Holdings	15.92	0.00	0.00	15.92	37,302.90	0.00103	0.0165
Iron Mountain	1.70	7.16	7.28	8.98	9,984.85	0.00028	0.0025
Jacobs Engineering	11.88	0.70	0.78	12.66	15,571.69	0.00043	0.0055
Johnson & Johnson	5.31	2.48	2.61	7.92	427,964.03	0.01187	0.0940
Johnson Ctrl. Int'l plc	14.14	1.85	2.11	16.25	40,407.26	0.00112	0.0182
JPMorgan Chase	1.28	2.35	2.38	3.66	467,167.62	0.01295	0.0474
Juniper Networks	6.65	3.45	3.68	10.33	7,782.88	0.00022	0.0022
Kansas City South'n	16.49	0.99	1.15	17.64	19,921.99	0.00055	0.0097
Kellogg	2.93	3.92	4.03	6.96	20,145.02	0.00056	0.0039
KeyCorp	11.40	3.43	3.82	15.22	21,027.46	0.00058	0.0089
Keysight Technologies	12.41	0.00	0.00	12.41	26,879.50	0.00075	0.0092
Kimberly-Clark	4.07	3.49	3.63	7.70	44,308.48	0.00123	0.0095
Kimco Realty	4.60	3.55	3.71	8.31	8,269.26	0.00023	0.0019
Kinder Morgan Inc.	1.13	6.68	6.76	7.89	35,594.12	0.00099	0.0078
KLA Corp.	15.81	1.10	1.27	17.08	50,631.10	0.00140	0.0240
Kraft Heinz Co.	(2.88)	4.26	4.14	1.26	45,984.80	0.00127	0.0016
Kroger Co.	8.03	2.20	2.38	10.41	25,086.50	0.00070	0.0072

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	EPS Growth	Dividend	Expected	Rate of	Market Cap	Market Cap	Rate of
Company Name	Rate (%)	Yield (%)	Dividend	Return on	\$ (Mil)	Weight	Return on
			Yield (%)	Equity (%)		Factor	Equity (%)
L Brands	11.44	0.00	0.00	11.44	14,358.70	0.00040	0.0046
L3Harris Technologies	12.88	2.13	2.40	15.28	41,509.56	0.00115	0.0176
Laboratory Corp.	10.93	0.00	0.00	10.93	23,814.30	0.00066	0.0072
Lam Research	22.97	0.87	1.07	24.04	85,479.07	0.00237	0.0570
Lamb Weston Holdings	9.70	1.14	1.25	10.95	12,233.81	0.00034	0.0037
Las Vegas Sands	(6.25)	0.00	0.00	-6.25	49,514.84	0.00137	-0.0086
Lauder (Estee)	21.10	0.72	0.87	21.97	106,737.41	0.00296	0.0650
Leggett & Platt	5.20	3.60	3.79	8.99	5,893.12	0.00016	0.0015
Leidos Hldgs.	10.55	1.50	1.66	12.21	12,833.96	0.00036	0.0043
Lennar Corp.	10.70	1.16	1.28	11.98	26,970.29	0.00075	0.0090
Lilly (Eli)	11.60	1.66	1.85	13.45	195,621.53	0.00542	0.0730
Lincoln Nat'l Corp.	24.92	2.88	3.60	28.52	11,479.35	0.00032	0.0091
Linde plc	11.71	1.71	1.91	13.62	133,633.83	0.00371	0.0505
Live Nation Entertain.	80.30	0.00	0.00	80.30	19,646.92	0.00054	0.0437
LKQ Corp.	33.50	0.00	0.00	33.50	12,167.27	0.00034	0.0113
Lockheed Martin	6.08	3.06	3.25	9.33	96,681.88	0.00268	0.0250
Loews Corp.	14.03	0.50	0.57	14.60	13,570.36	0.00038	0.0055
Lowe's Cos.	13.74	1.48	1.68	15.42	122,057.12	0.00338	0.0522
Lumen Technologies	3.00	8.03	8.27	11.27	13,660.60	0.00038	0.0043
LyondellBasell Inds.	(4.07)	3.91	3.75	-0.32	35,839.42	0.00099	-0.0003
M&T Bank Corp.	(4.80)	2.71	2.58	-2.22	20,801.77	0.00058	-0.0013
Marathon Oil Corp.	(19.63)	1.01	0.81	-18.82	9,353.60	0.00026	-0.0049
Marathon Petroleum	(6.76)	4.09	3.81	-2.95	36,879.15	0.00102	-0.0030
MarketAxess Holdings	10.47	0.48	0.53	11.00	20,708.39	0.00057	0.0063
Marriott Int'l	(8.90)	0.00	0.00	-8.90	51,082.29	0.00142	-0.0126
Marsh & McLennan	8.94	1.60	1.74	10.68	60,344.93	0.00167	0.0179
Martin Marietta	8.85	0.67	0.73	9.58	21,653.61	0.00060	0.0058
Masco Corp.	10.25	1.04	1.15	11.40	13,893.74	0.00039	0.0044

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MasterCard Inc.	14.91	0.48	0.55	15.46	366,585.38	0.01016	0.1572
Maxim Integrated	18.44	0.00	0.00	18.44	25,932.10	0.00072	0.0133
McCormick & Co.	5.50	1.60	1.69	7.19	22,626.68	0.00063	0.0045
McDonald's Corp.	12.77	2.45	2.76	15.53	158,909.81	0.00441	0.0684
McKesson Corp.	10.56	0.93	1.03	11.59	28,855.39	0.00080	0.0093
Medtronic plc	9.08	2.02	2.20	11.28	159,770.38	0.00443	0.0500
Merck & Co.	9.00	3.49	3.80	12.80	188,644.22	0.00523	0.0670
MetLife Inc.	4.20	3.09	3.22	7.42	53,935.87	0.00150	0.0111
Mettler-Toledo Int'l	13.80	0.00	0.00	13.80	26,467.03	0.00073	0.0101
MGM Resorts Int'l	(0.88)	0.03	0.03	-0.85	19,056.45	0.00053	-0.0004
Microchip Technology	11.80	0.99	1.11	12.91	42,340.82	0.00117	0.0152
Micron Technology	18.38	0.00	0.00	18.38	103,344.84	0.00287	0.0527
Microsoft Corp.	16.70	0.95	1.11	17.81	1,769,914.25	0.04907	0.8739
Mid-America Apartment	7.00	2.92	3.12	10.12	16,052.71	0.00045	0.0045
Mohawk Inds.	4.00	0.00	0.00	4.00	13,027.99	0.00036	0.0014
Molson Coors Beverage	3.00	0.00	0.00	3.00	10,187.07	0.00028	0.0008
Mondelez Int'l	9.45	2.43	2.66	12.11	77,683.38	0.00215	0.0261
Monolithic Power Systems Inc.	25.00	0.00	0.00	25.00	14,400.00	0.00040	0.0100
Monster Beverage	14.67	0.00	0.00	14.67	46,581.28	0.00129	0.0189
Moody's Corp.	9.94	0.89	0.98	10.92	52,322.27	0.00145	0.0158
Morgan Stanley	7.33	1.75	1.88	9.21	125,926.59	0.00349	0.0322
Mosaic Company	7.00	0.78	0.83	7.83	12,176.37	0.00034	0.0026
Motorola Solutions	5.88	1.57	1.66	7.54	30,674.95	0.00085	0.0064
MSCI Inc.	13.30	0.82	0.93	14.23	34,647.61	0.00096	0.0137
Nasdaq, Inc.	6.46	1.38	1.47	7.93	23,289.34	0.00065	0.0051
NetApp, Inc.	7.66	2.79	3.00	10.66	15,888.54	0.00044	0.0047
Netflix, Inc.	44.43	0.00	0.00	44.43	244,493.78	0.00678	0.3012
Newell Brands	2.03	3.77	3.85	5.88	10,351.12	0.00029	0.0017

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Newmont Corp.	2.40	3.85	3.94	6.34	45,855.68	0.00127	0.0081
News Corp. 'A'	49.01	0.84	1.25	50.26	14,064.88	0.00039	0.0196
NextEra Energy	8.63	2.09	2.27	10.90	144,569.59	0.00401	0.0437
Nielsen Hldgs. plc	(2.92)	0.99	0.96	-1.96	8,682.22	0.00024	-0.0005
NIKE, Inc. 'B'	34.30	0.81	1.09	35.39	213,648.73	0.00592	0.2096
NiSource Inc.	4.37	3.97	4.14	8.51	8,497.47	0.00024	0.0020
Norfolk Southern	14.44	1.51	1.73	16.17	66,488.20	0.00184	0.0298
Northern Trust Corp.	6.83	2.79	2.98	9.81	20,868.29	0.00058	0.0057
Northrop Grumman	6.37	1.92	2.04	8.41	50,303.52	0.00139	0.0117
NortonLifeLock Inc.	21.90	2.43	2.96	24.86	12,062.85	0.00033	0.0083
Norwegian Cruise Line	(24.13)	0.00	0.00	-24.13	8,618.61	0.00024	-0.0058
NOV Inc.	18.90	0.00	0.00	18.90	6,161.81	0.00017	0.0032
NRG Energy	(12.80)	3.38	2.95	-9.85	9,380.13	0.00026	-0.0026
Nucor Corp.	7.25	2.57	2.76	10.01	19,030.52	0.00053	0.0053
NVIDIA Corp.	18.84	0.11	0.13	18.97	358,995.22	0.00995	0.1888
NVR, Inc.	4.80	0.00	0.00	4.80	17,474.49	0.00048	0.0023
O'Reilly Automotive	9.97	0.00	0.00	9.97	33,402.51	0.00093	0.0092
Occidental Petroleum	(5.15)	0.28	0.27	-4.88	26,227.80	0.00073	-0.0036
Old Dominion Freight	15.57	0.38	0.44	16.01	25,497.20	0.00071	0.0113
Omnicom Group	9.80	3.95	4.34	14.14	15,237.29	0.00042	0.0060
ONEOK Inc.	(1.60)	8.24	8.11	6.51	20,757.60	0.00058	0.0037
Oracle Corp.	10.60	1.48	1.64	12.24	190,994.39	0.00530	0.0648
Otis Worldwide	8.97	1.24	1.35	10.32	27,876.42	0.00077	0.0080
PACCAR Inc.	22.61	3.50	4.29	26.90	32,649.16	0.00091	0.0244
Packaging Corp.	5.97	3.00	3.18	9.15	12,649.16	0.00035	0.0032
Parker-Hannifin	13.73	1.18	1.34	15.07	38,346.09	0.00106	0.0160
Paychex, Inc.	4.50	2.83	2.96	7.46	33,668.51	0.00093	0.0070
Paycom Software	19.10	0.00	0.00	19.10	22,291.40	0.00062	0.0118

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	A	B	C	D	E	F	G
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
PayPal Holdings	22.24	0.00	0.00	22.24	311,834.06	0.00865	0.1923
Pentair plc	7.90	1.40	1.51	9.41	9,506.67	0.00026	0.0025
People's United Fin'l	13.73	3.76	4.28	18.01	8,128.76	0.00023	0.0041
PepsiCo, Inc.	7.80	3.10	3.34	11.14	182,680.47	0.00507	0.0564
PerkinElmer Inc.	17.20	0.22	0.26	17.46	14,407.65	0.00040	0.0070
Perrigo Co. plc	10.00	2.40	2.64	12.64	5,686.59	0.00016	0.0020
Pfizer, Inc.	6.73	4.62	4.93	11.66	187,548.75	0.00520	0.0606
Philip Morris Int'l	11.21	5.48	6.09	17.30	136,363.66	0.00378	0.0654
Phillips 66	(7.75)	4.24	3.91	-3.84	38,110.80	0.00106	-0.0041
Pinnacle West Capital	3.50	4.68	4.84	8.34	8,238.25	0.00023	0.0019
Pioneer Natural Res.	86.01	1.50	2.79	88.80	24,670.31	0.00068	0.0607
PNC Financial Serv.	(1.62)	2.58	2.54	0.92	75,675.52	0.00210	0.0019
Pool Corp.	17.00	0.71	0.83	17.83	13,185.84	0.00037	0.0065
PPG Inds.	10.71	1.58	1.75	12.46	32,333.97	0.00090	0.0112
PPL Corp.	(16.20)	6.07	5.09	-11.11	21,137.26	0.00059	-0.0065
Price (T. Rowe) Group	13.83	2.60	2.96	16.79	37,630.32	0.00104	0.0175
Principal Fin'l Group	7.05	3.71	3.97	11.02	16,593.52	0.00046	0.0051
Procter & Gamble	9.13	2.47	2.70	11.83	314,359.69	0.00872	0.1031
Progressive Corp.	(4.03)	0.46	0.44	-3.59	51,380.55	0.00142	-0.0051
Prologis	(6.05)	2.40	2.25	-3.80	65,226.73	0.00181	-0.0069
Prudential Fin'l	6.34	5.12	5.44	11.78	35,553.29	0.00099	0.0116
Public Serv. Enterprise	3.00	3.64	3.75	6.75	28,249.20	0.00078	0.0053
Public Storage	17.00	3.30	3.86	20.86	42,315.79	0.00117	0.0245
PulteGroup, Inc.	13.80	1.19	1.35	15.15	12,502.49	0.00035	0.0053
PVH Corp.	(5.35)	0.00	0.00	-5.35	7,272.72	0.00020	-0.0011
Qorvo Inc.	16.50	0.00	0.00	16.50	20,297.52	0.00056	0.0093
Qualcomm Inc.	24.48	1.90	2.37	26.85	160,289.61	0.00444	0.1193
Quanta Services	14.96	0.30	0.34	15.30	11,264.33	0.00031	0.0048

	A	B	C	D	E	F	G
	EPS Growth	Dividend	Expected	Rate of	Market Cap	Market Cap	Rate of
Company Name	Rate (%)	Yield (%)	Dividend	Return on	\$ (Mil)	Weight	Return on
			Yield (%)	Equity (%)		Factor	Equity (%)
Quest Diagnostics	3.40	2.14	2.21	5.61	15,393.42	0.00043	0.0024
Ralph Lauren	4.97	0.00	0.00	4.97	8,763.23	0.00024	0.0012
Raymond James Fin'l	11.26	1.27	1.41	12.67	16,849.53	0.00047	0.0059
Raytheon Technologies	23.66	2.47	3.05	26.71	118,014.75	0.00327	0.0874
Realty Income Corp.	5.45	4.62	4.87	10.32	20,807.82	0.00058	0.0060
Regency Centers Corp.	9.10	4.23	4.61	13.71	9,434.25	0.00026	0.0036
Regeneron Pharmac.	11.11	0.00	0.00	11.11	48,199.32	0.00134	0.0148
Regions Financial	(21.60)	2.79	2.19	-19.41	21,327.04	0.00059	-0.0115
Republic Services	7.70	1.95	2.10	9.80	31,750.70	0.00088	0.0086
ResMed Inc.	22.10	0.78	0.95	23.05	29,241.94	0.00081	0.0187
Robert Half Int'l	2.70	1.85	1.90	4.60	9,379.89	0.00026	0.0012
Rockwell Automation	10.60	1.76	1.95	12.55	28,685.05	0.00080	0.0100
Rollins, Inc.	8.20	0.90	0.97	9.17	17,432.95	0.00048	0.0044
Roper Tech.	5.10	0.59	0.62	5.72	39,727.61	0.00110	0.0063
Ross Stores	4.82	0.00	0.00	4.82	44,060.66	0.00122	0.0059
Royal Caribbean	(70.20)	0.00	0.00	-70.20	20,753.19	0.00058	-0.0404
S&P Global	11.83	0.93	1.04	12.87	79,828.67	0.00221	0.0285
salesforce.com	12.92	0.00	0.00	12.92	219,789.58	0.00609	0.0787
SBA Communications	41.18	0.93	1.31	42.49	27,917.59	0.00077	0.0329
Schein (Henry)	14.43	0.00	0.00	14.43	9,261.06	0.00026	0.0037
Schlumberger Ltd.	41.84	1.70	2.41	44.25	40,948.31	0.00114	0.0502
Schwab (Charles)	9.36	1.16	1.27	10.63	83,090.23	0.00230	0.0245
Seagate Technology	6.74	3.61	3.85	10.59	17,823.01	0.00049	0.0052
Sealed Air	7.60	1.48	1.59	9.19	6,704.38	0.00019	0.0017
Sempra Energy	8.50	3.67	3.98	12.48	35,300.16	0.00098	0.0122
ServiceNow, Inc.	24.37	0.00	0.00	24.37	107,634.43	0.00298	0.0727
Sherwin-Williams	9.96	0.97	1.07	11.03	61,081.25	0.00169	0.0187
Simon Property Group	8.60	4.37	4.75	13.35	36,516.46	0.00101	0.0135

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	EPS Growth	Dividend	Expected	Rate of	Market Cap	Market Cap	Rate of
Company Name	Rate (%)	Yield (%)	Dividend	Return on	\$ (Mil)	Weight	Return on
			Yield (%)	Equity (%)		Factor	Equity (%)
Skyworks Solutions	11.95	1.05	1.18	13.13	31,390.36	0.00087	0.0114
SL Green Realty	(10.84)	5.26	4.69	-6.15	5,719.11	0.00016	-0.0010
Smith (A.O.)	8.00	1.70	1.84	9.84	9,916.50	0.00027	0.0027
Smucker (J.M.)	(0.42)	3.23	3.22	2.80	12,430.31	0.00034	0.0010
Snap-on Inc.	7.55	2.38	2.56	10.11	11,211.71	0.00031	0.0031
Southern Co.	6.49	4.49	4.78	11.27	61,676.36	0.00171	0.0193
Southwest Airlines	(16.03)	0.00	0.00	-16.03	34,997.29	0.00097	-0.0156
Stanley Black & Decker	9.84	1.62	1.78	11.62	30,954.49	0.00086	0.0100
Starbucks Corp.	50.81	1.82	2.74	53.55	122,876.14	0.00341	0.1825
State Street Corp.	15.22	2.71	3.12	18.34	27,101.95	0.00075	0.0138
STERIS plc	10.00	0.92	1.01	11.01	14,772.69	0.00041	0.0045
Stryker Corp.	10.36	1.01	1.11	11.47	93,506.56	0.00259	0.0297
SVB Fin'l Group	8.00	0.00	0.00	8.00	27,972.25	0.00078	0.0062
Synchrony Financial	3.05	2.19	2.26	5.31	23,479.07	0.00065	0.0035
Synopsys, Inc.	11.50	0.00	0.00	11.50	39,718.25	0.00110	0.0127
Sysco Corp.	22.94	2.22	2.73	25.67	41,299.64	0.00115	0.0294
T-Mobile US	41.48	0.00	0.00	41.48	148,086.00	0.00411	0.1703
Take-Two Interactive	15.28	0.00	0.00	15.28	21,519.37	0.00060	0.0091
Tapestry Inc.	48.12	0.00	0.00	48.12	11,581.48	0.00032	0.0155
Target Corp.	13.75	1.45	1.65	15.40	93,681.24	0.00260	0.0400
TE Connectivity	11.00	1.47	1.63	12.63	43,283.61	0.00120	0.0152
TechnipFMC plc	(2.90)	1.71	1.66	-1.24	3,410.95	0.00009	-0.0001
Teledyne Technologies	29.10	0.00	0.00	29.10	14,410.32	0.00040	0.0116
Teleflex Inc.	11.00	0.34	0.38	11.38	18,644.96	0.00052	0.0059
Teradyne Inc.	12.76	0.30	0.34	13.10	22,281.31	0.00062	0.0081
Tesla, Inc.	32.10	0.00	0.00	32.10	703,435.00	0.01950	0.6261
Texas Instruments	10.00	2.27	2.50	12.50	164,922.92	0.00457	0.0571
Textron, Inc.	22.52	0.15	0.18	22.70	12,235.69	0.00034	0.0077

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Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
Thermo Fisher Sci.	4.09	0.23	0.24	4.33	180,990.33	0.00502	0.0217
TJX Companies	63.31	1.49	2.43	65.74	83,876.08	0.00233	0.1529
Tractor Supply	11.08	1.29	1.43	12.51	18,724.90	0.00052	0.0065
Trane Technologies plc	12.15	1.52	1.70	13.85	37,098.82	0.00103	0.0143
TransDigm Group	15.48	0.00	0.00	15.48	33,293.09	0.00092	0.0143
Travelers Cos.	4.95	2.25	2.36	7.31	38,238.16	0.00106	0.0078
Trimble Inc.	10.00	0.00	0.00	10.00	19,027.71	0.00053	0.0053
Truist Fin'l	(9.10)	2.99	2.72	-6.38	81,116.26	0.00225	-0.0144
Twitter Inc.	0.43	0.00	0.00	0.43	57,136.63	0.00158	0.0007
Tyler Technologies	10.00	0.00	0.00	10.00	22,782.68	0.00063	0.0063
Tyson Foods 'A'	4.00	2.59	2.69	6.69	25,137.55	0.00070	0.0047
U.S. Bancorp	6.00	3.18	3.37	9.37	79,552.51	0.00221	0.0207
UDR, Inc.	(34.21)	3.45	2.27	-31.94	12,792.13	0.00035	-0.0113
Ulta Beauty	4.30	0.00	0.00	4.30	18,819.40	0.00052	0.0022
Under Armour 'A'	(4.50)	0.00	0.00	-4.50	9,952.70	0.00028	-0.0012
Under Armour 'C'	21.80	0.00	0.00	21.80	8,320.44	0.00023	0.0050
Union Pacific	12.92	1.84	2.08	15.00	141,755.77	0.00393	0.0589
United Airlines Hldgs.	(30.20)	0.00	0.00	-30.20	15,992.81	0.00044	-0.0134
United Parcel Serv.	10.06	2.62	2.88	12.94	138,236.45	0.00383	0.0496
United Rentals	8.60	0.00	0.00	8.60	22,563.01	0.00063	0.0054
UnitedHealth Group	12.41	1.50	1.69	14.10	315,267.31	0.00874	0.1232
Universal Health `B'	5.89	0.00	0.00	5.89	11,722.42	0.00033	0.0019
Unum Group	1.37	4.10	4.16	5.53	5,659.77	0.00016	0.0009
V.F. Corp.	9.89	2.39	2.63	12.52	32,045.21	0.00089	0.0111
Valero Energy	(13.00)	5.01	4.36	-8.64	31,872.01	0.00088	-0.0076
Varian Medical Sys.	9.90	0.00	0.00	9.90	15,962.64	0.00044	0.0044
Ventas, Inc.	(0.50)	3.22	3.20	2.70	20,847.59	0.00058	0.0016
VeriSign Inc.	8.00	0.00	0.00	8.00	22,339.37	0.00062	0.0050

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	EPS Growth	Dividend	Expected	Rate of	Market Cap	Market Cap	Rate of
Company Name	Rate (%)	Yield (%)	Dividend	Return on	\$ (Mil)	Weight	Return on
			Yield (%)	Equity (%)		Factor	Equity (%)
Verisk Analytics	10.32	0.68	0.75	11.07	27,265.68	0.00076	0.0084
Verizon Communic.	2.82	4.39	4.51	7.33	236,367.94	0.00655	0.0481
Vertex Pharmac.	18.33	0.00	0.00	18.33	56,468.17	0.00157	0.0287
ViacomCBS Inc.	(2.94)	1.46	1.42	-1.52	40,409.61	0.00112	-0.0017
Viatis Inc.	(3.65)	0.00	0.00	-3.65	17,890.00	0.00050	-0.0018
Visa Inc.	13.84	0.59	0.67	14.51	428,327.34	0.01188	0.1723
Vornado R'lty Trust	17.33	4.75	5.57	22.90	8,530.24	0.00024	0.0054
Vulcan Materials	13.65	0.85	0.97	14.62	23,066.86	0.00064	0.0093
Wabtec Corp.	7.30	0.64	0.69	7.99	14,223.02	0.00039	0.0031
Walgreens Boots	3.85	3.80	3.95	7.80	42,478.06	0.00118	0.0092
Walmart Inc.	6.29	1.65	1.75	8.04	377,117.50	0.01046	0.0841
Waste Management	11.17	2.06	2.29	13.46	47,274.80	0.00131	0.0176
Waters Corp.	7.17	0.00	0.00	7.17	17,360.52	0.00048	0.0035
WEC Energy Group	6.14	3.31	3.51	9.65	25,843.51	0.00072	0.0069
Wells Fargo	(4.08)	1.04	1.00	-3.08	158,234.08	0.00439	-0.0135
Welltower Inc.	13.00	3.32	3.75	16.75	30,195.14	0.00084	0.0140
West Pharmac. Svcs.	22.60	0.24	0.29	22.89	20,612.19	0.00057	0.0131
Western Digital	(22.00)	0.00	0.00	-22.00	21,582.18	0.00060	-0.0132
Western Union	9.25	3.78	4.13	13.38	9,777.69	0.00027	0.0036
WestRock Co.	23.62	1.78	2.20	25.82	11,814.27	0.00033	0.0085
Weyerhaeuser Co.	5.00	1.89	1.98	6.98	26,795.69	0.00074	0.0052
Whirlpool Corp.	3.00	2.58	2.66	5.66	11,998.24	0.00033	0.0019
Williams Cos.	5.00	6.86	7.20	12.20	29,002.83	0.00080	0.0098
Willis Towers Wat. plc	5.66	1.26	1.33	6.99	29,078.45	0.00081	0.0056
Wynn Resorts	(1.10)	0.00	0.00	-1.10	14,477.50	0.00040	-0.0004
Xcel Energy Inc.	6.20	3.04	3.23	9.43	32,359.14	0.00090	0.0085
Xerox Holdings	(17.00)	3.95	3.28	-13.72	5,214.83	0.00014	-0.0020
Xilinx Inc.	9.00	1.14	1.24	10.24	32,810.34	0.00091	0.0093

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	EPS Growth	Dividend	Expected	Rate of	Market Cap	Market Cap	Rate of
Company Name	Rate (%)	Yield (%)	Dividend	Return on	\$ (Mil)	Weight	Return on
			Yield (%)	Equity (%)		Factor	Equity (%)
Xylem Inc.	18.16	1.11	1.31	19.47	18,206.31	0.00050	0.0098
Yum! Brands	12.61	1.91	2.15	14.76	31,613.36	0.00088	0.0129
Zebra Techn. 'A'	10.00	0.00	0.00	10.00	27,409.43	0.00076	0.0076
Zimmer Biomet Hldgs.	11.29	0.61	0.68	11.97	33,932.94	0.00094	0.0113
Zions Bancorp.	(32.40)	2.39	1.62	-30.78	9,312.43	0.00026	-0.0079
Zoetis Inc.	10.58	0.63	0.70	11.28	75,587.39	0.00210	0.0236
					36,067,048	1.00	17.00
							Weighted
							Rate of
							Return on
							Equity (%)

Constant-Growth DCF Analysis for S&P 500

Companies not paying dividends, with EPS growth-rate estimates ≤ 0 percent, or > 20 percent excluded from return analysis

A: IBES, March 1, 2021

B and E: Value Line Analyzer, March 1, 2021

C = B * (1 + A) **D = A + C** **F = E/(Sum of E)** **G = D * F** **Weighted Return %**
 12.53

	A	B	C	D	E	F	G
	EPS Growth	Dividend Yield	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
Company Name	Rate (%)	(%)					

Companies not paying dividends

ABIOMED Inc.	17.10	0.00	0.00	17.10	14,642.95	0.45251	7.7380
Adobe Inc.	16.67	0.00	0.00	16.67	228,300.98	7.05522	117.6106
Advanced Micro Dev.	26.06	0.00	0.00	26.06	105,284.34	3.25362	84.7893
Akamai Technologies	10.44	0.00	0.00	10.44	15,879.51	0.49073	5.1232
Alaska Air Group	(15.61)	0.00	0.00	-15.61	8,340.93	0.25776	-4.0237
Alexion Pharmac.	8.78	0.00	0.00	8.78	33,833.31	1.04556	9.1800
Align Techn.	28.41	0.00	0.00	28.41	45,200.98	1.39685	39.6846
Alphabet Inc.	16.95	0.00	0.00	16.95	1,414,704.88	43.71887	741.0348
Alphabet Inc. 'A'	16.95	0.00	0.00	16.95	1,419,522.62	43.86775	743.5583
Amazon.com	38.37	0.00	0.00	38.37	1,589,243.50	49.11266	1884.4528
Amer. Airlines	(45.70)	0.00	0.00	-45.70	11,097.74	0.34296	-15.6731
ANSYS, Inc.	8.00	0.00	0.00	8.00	33,085.55	1.02245	8.1796
Aptiv PLC	43.37	0.00	0.00	43.37	41,913.28	1.29525	56.1751
Arista Networks	6.60	0.00	0.00	6.60	21,657.98	0.66930	4.4174
Autodesk, Inc.	35.58	0.00	0.00	35.58	65,670.52	2.02943	72.2070
AutoZone Inc.	6.10	0.00	0.00	6.10	27,194.25	0.84039	5.1264
Berkshire Hathaway 'B'	23.30	0.00	0.00	23.30	-	-	0.0000
Bio-Rad Labs. 'A'	17.80	0.00	0.00	17.80	17,741.69	0.54827	9.7593
Biogen	(11.06)	0.00	0.00	-11.06	43,513.68	1.34471	-14.8725

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	A	B	C	D	E	F	G
	Expected	Rate of	Market Cap	Market Cap	Market Cap	Rate of	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Dividend Yield (%)	Return on Equity (%)	\$ (Mil)	Weight Factor	Return on Equity (%)
Boeing	12.33	0.00	0.00	12.33	133,549.27	4.12710	50.8871
Booking Holdings	106.36	0.00	0.00	106.36	100,071.10	3.09251	328.9198
Boston Scientific	6.55	0.00	0.00	6.55	56,601.50	1.74917	11.4570
Cadence Design Sys.	11.10	0.00	0.00	11.10	38,888.56	1.20178	13.3398
CarMax, Inc.	6.34	0.00	0.00	6.34	19,864.06	0.61386	3.8919
Carnival Corp.	(44.47)	0.00	0.00	-44.47	22,418.30	0.69280	-30.8087
Catalent, Inc.	15.97	0.00	0.00	15.97	19,590.81	0.60542	9.6685
CBRE Group	11.00	0.00	0.00	11.00	25,889.18	0.80006	8.8006
Centene Corp.	10.53	0.00	0.00	10.53	34,510.78	1.06649	11.2302
Charter Communic.	33.74	0.00	0.00	33.74	117,886.64	3.64307	122.9172
Chipotle Mex. Grill	52.56	0.00	0.00	52.56	40,543.25	1.25291	65.8532
Copart, Inc.	22.30	0.00	0.00	22.30	26,126.10	0.80738	18.0046
DaVita Inc.	16.13	0.00	0.00	16.13	11,311.01	0.34955	5.6382
Delta Air Lines	(22.24)	0.00	0.00	-22.24	31,631.61	0.97752	-21.7400
DexCom Inc.	23.60	0.00	0.00	23.60	38,941.44	1.20341	28.4006
Discovery Communic. 'C'	12.90	0.00	0.00	12.90	22,728.88	0.70239	9.0609
Discovery, Inc.	6.75	0.00	0.00	6.75	25,722.56	0.79491	5.3656
Dish Network 'A'	(30.83)	0.00	0.00	-30.83	16,521.30	0.51056	-15.7406
Disney (Walt)	48.53	0.00	0.00	48.53	351,765.31	10.87066	527.5533
Dollar Tree, Inc.	11.06	0.00	0.00	11.06	23,785.78	0.73506	8.1297
DXC Technology	(9.11)	0.00	0.00	-9.11	6,619.23	0.20456	-1.8635
Edwards Lifesciences	12.99	0.00	0.00	12.99	52,603.90	1.62563	21.1169
Enphase Energy	37.70	0.00	0.00	37.70	22,838.45	0.70578	26.6079
Etsy, Inc.	36.60	0.00	0.00	36.60	26,275.51	0.81200	29.7191
Expedia Group	(15.06)	0.00	0.00	-15.06	23,021.81	0.71145	-10.7144
F5 Networks	6.04	0.00	0.00	6.04	11,679.26	0.36093	2.1800
Facebook Inc.	21.50	0.00	0.00	21.50	753,019.19	23.27068	500.3196
Fiserv Inc.	18.79	0.00	0.00	18.79	79,812.62	2.46646	46.3448

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	A	B	C	D	E	F	G
	Expected	Rate of	Market Cap	Market Cap	Market Cap	Rate of	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Dividend Yield (%)	Return on Equity (%)	\$ (Mil)	Weight Factor	Return on Equity (%)
FleetCor Technologies	12.04	0.00	0.00	12.04	24,200.98	0.74789	9.0046
Ford Motor	20.89	0.00	0.00	20.89	47,945.96	1.48168	30.9523
Fortinet Inc.	19.10	0.00	0.00	19.10	27,566.66	0.85190	16.2712
Gap (The), Inc.	(1.59)	0.00	0.00	-1.59	9,705.30	0.29992	-0.4769
Gartner Inc.	9.95	0.00	0.00	9.95	16,375.97	0.50607	5.0354
Gen'l Motors	11.84	0.00	0.00	11.84	75,716.20	2.33987	27.7041
Hilton Worldwide Hldgs.	(6.25)	0.00	0.00	-6.25	35,305.74	1.09106	-6.8191
Hologic, Inc.	10.47	0.00	0.00	10.47	19,347.74	0.59791	6.2601
Host Hotels & Resorts	28.40	0.00	0.00	28.40	12,213.41	0.37743	10.7191
Howmet Aerospace	27.53	0.00	0.00	27.53	13,068.82	0.40387	11.1185
IDEXX Labs.	17.09	0.00	0.00	17.09	45,454.66	1.40469	24.0062
Illumina Inc.	19.80	0.00	0.00	19.80	67,313.30	2.08019	41.1878
Incyte Corp.	20.89	0.00	0.00	20.89	17,721.54	0.54765	11.4404
Ingersoll Rand Inc.	16.06	0.00	0.00	16.06	20,085.79	0.62071	9.9687
Intuitive Surgical	9.14	0.00	0.00	9.14	89,148.42	2.75497	25.1804
IPG Photonics	45.60	0.00	0.00	45.60	12,303.62	0.38022	17.3381
IQVIA Holdings	15.92	0.00	0.00	15.92	37,302.90	1.15278	18.3522
Keysight Technologies	12.41	0.00	0.00	12.41	26,879.50	0.83066	10.3085
L Brands	11.44	0.00	0.00	11.44	14,358.70	0.44373	5.0763
Laboratory Corp.	10.93	0.00	0.00	10.93	23,814.30	0.73594	8.0438
Las Vegas Sands	(6.25)	0.00	0.00	-6.25	49,514.84	1.53017	-9.5635
Live Nation Entertain.	80.30	0.00	0.00	80.30	19,646.92	0.60715	48.7543
LKQ Corp.	33.50	0.00	0.00	33.50	12,167.27	0.37601	12.5962
Marriott Int'l	(8.90)	0.00	0.00	-8.90	51,082.29	1.57860	-14.0496
Maxim Integrated	18.44	0.00	0.00	18.44	25,932.10	0.80138	14.7775
Mettler-Toledo Int'l	13.80	0.00	0.00	13.80	26,467.03	0.81792	11.2872
Micron Technology	18.38	0.00	0.00	18.38	103,344.84	3.19368	58.6999
Mohawk Inds.	4.00	0.00	0.00	4.00	13,027.99	0.40261	1.6104

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			Expected	Rate of		Market Cap	Rate of
Company Name	EPS Growth	Dividend Yield	Dividend	Return on	Market Cap	Weight	Return on
	Rate (%)	(%)	Yield (%)	Equity (%)	\$ (Mil)	Factor	Equity (%)
Molson Coors Beverage	3.00	0.00	0.00	3.00	10,187.07	0.31481	0.9444
Monolithic Power Systems Inc.	25.00	0.00	0.00	25.00	14,400.00	0.44501	11.1251
Monster Beverage	14.67	0.00	0.00	14.67	46,581.28	1.43951	21.1176
Netflix, Inc.	44.43	0.00	0.00	44.43	244,493.78	7.55563	335.6968
Norwegian Cruise Line	(24.13)	0.00	0.00	-24.13	8,618.61	0.26634	-6.4268
NOV Inc.	18.90	0.00	0.00	18.90	6,161.81	0.19042	3.5989
NVR, Inc.	4.80	0.00	0.00	4.80	17,474.49	0.54002	2.5921
O'Reilly Automotive	9.97	0.00	0.00	9.97	33,402.51	1.03224	10.2915
Paycom Software	19.10	0.00	0.00	19.10	22,291.40	0.68887	13.1575
PayPal Holdings	22.24	0.00	0.00	22.24	311,834.06	9.63666	214.3193
PVH Corp.	(5.35)	0.00	0.00	-5.35	7,272.72	0.22475	-1.2024
Qorvo Inc.	16.50	0.00	0.00	16.50	20,297.52	0.62726	10.3498
Ralph Lauren	4.97	0.00	0.00	4.97	8,763.23	0.27081	1.3459
Regeneron Pharmac.	11.11	0.00	0.00	11.11	48,199.32	1.48951	16.5485
Ross Stores	4.82	0.00	0.00	4.82	44,060.66	1.36161	6.5630
Royal Caribbean	(70.20)	0.00	0.00	-70.20	20,753.19	0.64134	-45.0220
salesforce.com	12.92	0.00	0.00	12.92	219,789.58	6.79219	87.7552
Schein (Henry)	14.43	0.00	0.00	14.43	9,261.06	0.28620	4.1298
ServiceNow, Inc.	24.37	0.00	0.00	24.37	107,634.43	3.32625	81.0606
Southwest Airlines	(16.03)	0.00	0.00	-16.03	34,997.29	1.08153	-17.3369
SVB Fin'l Group	8.00	0.00	0.00	8.00	27,972.25	0.86443	6.9154
Synopsys, Inc.	11.50	0.00	0.00	11.50	39,718.25	1.22742	14.1153
T-Mobile US	41.48	0.00	0.00	41.48	148,086.00	4.57633	189.8260
Take-Two Interactive	15.28	0.00	0.00	15.28	21,519.37	0.66502	10.1615
Tapestry Inc.	48.12	0.00	0.00	48.12	11,581.48	0.35790	17.2224
Teledyne Technologies	29.10	0.00	0.00	29.10	14,410.32	0.44532	12.9589
Tesla, Inc.	32.10	0.00	0.00	32.10	703,435.00	21.73837	697.8017
TransDigm Group	15.48	0.00	0.00	15.48	33,293.09	1.02886	15.9268

	A	B	C	D	E	F	G
	EPS Growth	Dividend Yield	Expected Dividend	Rate of Return on	Market Cap	Market Cap	Rate of
Company Name	Rate (%)	(%)	Yield (%)	Equity (%)	\$ (Mil)	Weight Factor	Return on Equity (%)
Trimble Inc.	10.00	0.00	0.00	10.00	19,027.71	0.58802	5.8802
Twitter Inc.	0.43	0.00	0.00	0.43	57,136.63	1.76570	0.7593
Tyler Technologies	10.00	0.00	0.00	10.00	22,782.68	0.70406	7.0406
Ulta Beauty	4.30	0.00	0.00	4.30	18,819.40	0.58158	2.5008
Under Armour 'A'	(4.50)	0.00	0.00	-4.50	9,952.70	0.30757	-1.3841
Under Armour 'C'	21.80	0.00	0.00	21.80	8,320.44	0.25713	5.6054
United Airlines Hldgs.	(30.20)	0.00	0.00	-30.20	15,992.81	0.49423	-14.9257
United Rentals	8.60	0.00	0.00	8.60	22,563.01	0.69727	5.9965
Universal Health `B'	5.89	0.00	0.00	5.89	11,722.42	0.36226	2.1337
Varian Medical Sys.	9.90	0.00	0.00	9.90	15,962.64	0.49330	4.8836
VeriSign Inc.	8.00	0.00	0.00	8.00	22,339.37	0.69036	5.5229
Vertex Pharmac.	18.33	0.00	0.00	18.33	56,468.17	1.74505	31.9867
Viatis Inc.	(3.65)	0.00	0.00	-3.65	17,890.00	0.55286	-2.0179
Waters Corp.	7.17	0.00	0.00	7.17	17,360.52	0.53650	3.8467
Western Digital	(22.00)	0.00	0.00	-22.00	21,582.18	0.66696	-14.6731
Wynn Resorts	(1.10)	0.00	0.00	-1.10	14,477.50	0.44740	-0.4921
Zebra Techn. 'A'	10.00	0.00	0.00	10.00	27,409.43	0.84704	8.4704
<u>Companies with EPS ≤ 0%</u>							
AMETEK, Inc.	(1.20)	0.65	0.64	-0.56	28,300.29	0.87457	-0.4878
Apache Corp.	(24.00)	0.48	0.36	-23.64	7,854.94	0.24274	-5.7373
Caterpillar Inc.	(1.11)	1.85	1.83	0.72	120,858.61	3.73491	2.6871
CenterPoint Energy	(5.88)	3.08	2.90	-2.98	11,337.68	0.35037	-1.0445
CF Industries	(5.21)	2.67	2.53	-2.68	10,398.17	0.32134	-0.8609
Chevron Corp.	(4.18)	4.99	4.78	0.60	192,913.14	5.96163	3.5854
Citizens Fin'l Group	(2.76)	3.36	3.27	0.51	19,807.64	0.61212	0.3105
Comerica Inc.	(10.70)	3.77	3.37	-7.33	10,022.70	0.30973	-2.2714

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	Expected	Rate of	Market Cap	Market Cap	Market Cap	Rate of	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Dividend Yield (%)	Return on Equity (%)	Market Cap \$ (Mil)	Weight Factor	Return on Equity (%)
ConocoPhillips	(8.50)	3.15	2.88	-5.62	58,646.80	1.81237	-10.1815
Dow Inc.	(5.43)	4.71	4.45	-0.98	47,333.71	1.46276	-1.4273
DuPont de Nemours	(8.99)	1.79	1.63	-7.36	52,627.74	1.62636	-11.9715
Edison Int'l	(0.50)	4.75	4.73	4.23	21,374.63	0.66054	2.7916
Exelon Corp.	(0.34)	4.01	4.00	3.66	39,225.44	1.21219	4.4322
Fifth Third Bancorp	(2.98)	2.98	2.89	-0.09	25,821.89	0.79798	-0.0709
FirstEnergy Corp.	(6.60)	4.55	4.25	-2.35	18,601.76	0.57485	-1.3511
Genuine Parts	(1.10)	3.07	3.04	1.94	15,339.47	0.47404	0.9178
Hess Corp.	(23.40)	1.45	1.11	-22.29	21,126.90	0.65289	-14.5524
HollyFrontier Corp.	(12.53)	3.85	3.37	-9.16	6,229.52	0.19251	-1.7639
Huntington Bancshs.	(2.15)	3.70	3.62	1.47	16,500.79	0.50993	0.7498
Kraft Heinz Co.	(2.88)	4.26	4.14	1.26	45,984.80	1.42108	1.7867
LyondellBasell Inds.	(4.07)	3.91	3.75	-0.32	35,839.42	1.10755	-0.3535
M&T Bank Corp.	(4.80)	2.71	2.58	-2.22	20,801.77	0.64284	-1.4272
Marathon Oil Corp.	(19.63)	1.01	0.81	-18.82	9,353.60	0.28906	-5.4395
Marathon Petroleum	(6.76)	4.09	3.81	-2.95	36,879.15	1.13968	-3.3581
MGM Resorts Int'l	(0.88)	0.03	0.03	-0.85	19,056.45	0.58890	-0.5007
Nielsen Hldgs. plc	(2.92)	0.99	0.96	-1.96	8,682.22	0.26831	-0.5256
NRG Energy	(12.80)	3.38	2.95	-9.85	9,380.13	0.28988	-2.8560
Occidental Petroleum	(5.15)	0.28	0.27	-4.88	26,227.80	0.81052	-3.9589
ONEOK Inc.	(1.60)	8.24	8.11	6.51	20,757.60	0.64148	4.1748
Phillips 66	(7.75)	4.24	3.91	-3.84	38,110.80	1.17774	-4.5209
PNC Financial Serv.	(1.62)	2.58	2.54	0.92	75,675.52	2.33861	2.1473
PPL Corp.	(16.20)	6.07	5.09	-11.11	21,137.26	0.65321	-7.2593
Progressive Corp.	(4.03)	0.46	0.44	-3.59	51,380.55	1.58782	-5.6980
Prologis	(6.05)	2.40	2.25	-3.80	65,226.73	2.01571	-7.6500
Regions Financial	(21.60)	2.79	2.19	-19.41	21,327.04	0.65907	-12.7943
SL Green Realty	(10.84)	5.26	4.69	-6.15	5,719.11	0.17674	-1.0870

	A	B	C	D	E	F	G
	EPS Growth	Dividend Yield	Expected Dividend	Rate of Return on	Market Cap	Market Cap	Rate of
Company Name	Rate (%)	(%)	Yield (%)	Equity (%)	\$ (Mil)	Weight Factor	Return on Equity (%)
Smucker (J.M.)	(0.42)	3.23	3.22	2.80	12,430.31	0.38414	1.0742
TechnipFMC plc	(2.90)	1.71	1.66	-1.24	3,410.95	0.10541	-0.1307
Truist Fin'l	(9.10)	2.99	2.72	-6.38	81,116.26	2.50675	-15.9983
UDR, Inc.	(34.21)	3.45	2.27	-31.94	12,792.13	0.39532	-12.6265
Valero Energy	(13.00)	5.01	4.36	-8.64	31,872.01	0.98495	-8.5112
Ventas, Inc.	(0.50)	3.22	3.20	2.70	20,847.59	0.64426	1.7420
ViacomCBS Inc.	(2.94)	1.46	1.42	-1.52	40,409.61	1.24879	-1.9018
Wells Fargo	(4.08)	1.04	1.00	-3.08	158,234.08	4.88993	-15.0729
Xerox Holdings	(17.00)	3.95	3.28	-13.72	5,214.83	0.16115	-2.2113
Zions Bancorp.	(32.40)	2.39	1.62	-30.78	9,312.43	0.28778	-8.8592

Companies with EPS > 20%

Berkley (W.R.)	22.69	0.67	0.82	23.51	12,699.81	0.29341	6.8986
Bristol-Myers Squibb	21.35	3.13	3.80	25.15	141,437.88	3.26770	82.1770
Cabot Oil & Gas 'A'	43.79	2.50	3.59	47.38	7,652.74	0.17680	8.3778
Darden Restaurants	34.30	1.07	1.44	35.74	18,086.92	0.41787	14.9334
Deere & Co.	34.17	1.04	1.40	35.57	108,343.31	2.50310	89.0238
Devon Energy	25.00	1.98	2.48	27.48	8,529.41	0.19706	5.4142
Diamondback Energy	49.63	2.17	3.25	52.88	11,649.33	0.26914	14.2313
Digital Realty Trust	30.98	3.46	4.53	35.51	28,232.97	0.65228	23.1637
EOG Resources	29.30	2.21	2.86	32.16	42,216.75	0.97535	31.3649
Equinix, Inc.	23.00	1.81	2.23	25.23	56,936.18	1.31542	33.1832
Everest Re Group Ltd.	32.22	2.53	3.35	35.57	9,780.72	0.22597	8.0366
FedEx Corp.	28.61	1.00	1.29	29.90	68,934.37	1.59262	47.6131
Freep't-McMoRan Inc.	38.67	0.79	1.10	39.77	59,941.98	1.38487	55.0699

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	Expected	Rate of	Market Cap	Market Cap	Market Cap	Rate of	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Dividend Yield (%)	Return on Equity (%)	\$ (Mil)	Weight Factor	Return on Equity (%)
Gen'l Electric	311.40	0.31	1.28	312.68	114,929.54	2.65527	830.2365
Hunt (J.B.)	20.73	0.78	0.94	21.67	15,498.88	0.35808	7.7601
Lam Research	22.97	0.87	1.07	24.04	85,479.07	1.97486	47.4753
Lauder (Estee)	21.10	0.72	0.87	21.97	106,737.41	2.46600	54.1828
Lincoln Nat'l Corp.	24.92	2.88	3.60	28.52	11,479.35	0.26521	7.5632
News Corp. 'A'	49.01	0.84	1.25	50.26	14,064.88	0.32495	16.3324
NIKE, Inc. 'B'	34.30	0.81	1.09	35.39	213,648.73	4.93602	174.6750
NortonLifeLock Inc.	21.90	2.43	2.96	24.86	12,062.85	0.27869	6.9289
PACCAR Inc.	22.61	3.50	4.29	26.90	32,649.16	0.75431	20.2919
Pioneer Natural Res.	86.01	1.50	2.79	88.80	24,670.31	0.56997	50.6133
Qualcomm Inc.	24.48	1.90	2.37	26.85	160,289.61	3.70324	99.4139
Raytheon Technologies	23.66	2.47	3.05	26.71	118,014.75	2.72655	72.8380
ResMed Inc.	22.10	0.78	0.95	23.05	29,241.94	0.67559	15.5739
SBA Communications	41.18	0.93	1.31	42.49	27,917.59	0.64499	27.4076
Schlumberger Ltd.	41.84	1.70	2.41	44.25	40,948.31	0.94605	41.8638
Starbucks Corp.	50.81	1.82	2.74	53.55	122,876.14	2.83886	152.0345
Sysco Corp.	22.94	2.22	2.73	25.67	41,299.64	0.95416	24.4927
Textron, Inc.	22.52	0.15	0.18	22.70	12,235.69	0.28269	6.4181
TJX Companies	63.31	1.49	2.43	65.74	83,876.08	1.93783	127.3991
West Pharmac. Svcs.	22.60	0.24	0.29	22.89	20,612.19	0.47621	10.9025
WestRock Co.	23.62	1.78	2.20	25.82	11,814.27	0.27295	7.0477
<u>Companies included in rate of return analysis</u>							
3M Company	6.99	3.33	3.56	10.55	102,460.72	0.00471	0.0497
Abbott Labs.	15.74	1.47	1.70	17.44	216,901.67	0.00997	0.1739
AbbVie Inc.	4.77	4.78	5.01	9.78	191,869.92	0.00882	0.0862

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	Expected	Rate of	Market Cap	Market Cap	Market Cap	Rate of	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Dividend Yield (%)	Return on Equity (%)	\$ (Mil)	Weight Factor	Return on Equity (%)
Accenture Plc	9.93	1.42	1.56	11.49	164,415.31	0.00756	0.0868
Activision Blizzard	17.83	0.49	0.58	18.41	73,949.80	0.00340	0.0626
Advance Auto Parts	13.96	0.60	0.68	14.64	11,372.14	0.00052	0.0077
AES Corp.	7.40	2.14	2.30	9.70	18,623.67	0.00086	0.0083
Aflac Inc.	6.11	2.71	2.88	8.99	35,073.16	0.00161	0.0145
Agilent Technologies	10.80	0.62	0.69	11.49	38,256.12	0.00176	0.0202
Air Products & Chem.	9.01	2.28	2.49	11.50	58,253.39	0.00268	0.0308
Albemarle Corp.	15.00	0.96	1.10	16.10	17,128.93	0.00079	0.0127
Alexandria Real Estate	0.10	2.66	2.66	2.76	18,195.98	0.00084	0.0023
Allegion plc	1.70	1.32	1.34	3.04	9,972.32	0.00046	0.0014
Alliant Energy	5.70	3.39	3.58	9.28	11,871.14	0.00055	0.0051
Allstate Corp.	2.58	1.99	2.04	4.62	32,941.44	0.00151	0.0070
Altria Group	4.57	7.64	7.99	12.56	83,628.85	0.00384	0.0483
Amtel Corp.	7.64	4.12	4.43	12.07	18,472.79	0.00085	0.0103
Amer. Elec. Power	6.00	3.89	4.12	10.12	38,288.17	0.00176	0.0178
Amer. Express	3.17	1.29	1.33	4.50	112,611.46	0.00518	0.0233
Amer. Int'l Group	16.74	2.82	3.29	20.03	39,135.63	0.00180	0.0360
Amer. Tower 'A'	15.58	2.40	2.77	18.35	99,845.03	0.00459	0.0842
Amer. Water Works	8.40	1.57	1.70	10.10	27,179.62	0.00125	0.0126
Ameren Corp.	6.60	3.08	3.28	9.88	18,085.62	0.00083	0.0082
Ameriprise Fin'l	10.11	1.79	1.97	12.08	27,534.49	0.00127	0.0153
AmerisourceBergen	9.20	1.67	1.82	11.02	21,484.57	0.00099	0.0109
Amgen	6.51	3.14	3.34	9.85	133,003.22	0.00611	0.0602
Amphenol Corp.	11.30	0.89	0.99	12.29	38,774.31	0.00178	0.0219
Analog Devices	11.78	1.71	1.91	13.69	59,672.30	0.00274	0.0376
Anthem, Inc.	13.36	1.48	1.68	15.04	75,041.16	0.00345	0.0519
Aon plc	10.63	0.79	0.87	11.50	53,564.04	0.00246	0.0283
Apple Inc.	14.69	0.69	0.79	15.48	2,108,796.00	0.09693	1.5006

	A	B	C	D	E	F	G
			Expected	Rate of		Market Cap	
Company Name	EPS Growth	Dividend Yield	Dividend	Return on	Market Cap	Weight	Rate of
	Rate (%)	(%)	Yield (%)	Equity (%)	\$ (Mil)	Factor	Return on
							Equity (%)
Applied Materials	19.80	0.73	0.87	20.67	112,697.95	0.00518	0.1071
Archer Daniels Midl'd	4.30	2.60	2.71	7.01	32,514.88	0.00149	0.0105
Assurant Inc.	19.40	2.06	2.46	21.86	7,427.44	0.00034	0.0075
AT&T Inc.	1.23	7.22	7.31	8.54	209,333.83	0.00962	0.0822
Atmos Energy	7.10	2.93	3.14	10.24	11,363.33	0.00052	0.0053
Automatic Data Proc.	10.26	2.18	2.40	12.66	75,611.02	0.00348	0.0440
AvalonBay Communities	2.54	3.55	3.64	6.18	26,019.14	0.00120	0.0074
Avery Dennison	9.56	1.37	1.50	11.06	15,064.57	0.00069	0.0077
Baker Hughes	3.25	2.86	2.95	6.20	17,227.75	0.00079	0.0049
Ball Corp.	13.60	0.70	0.80	14.40	28,257.57	0.00130	0.0187
Bank of America	1.11	1.98	2.00	3.11	315,106.19	0.01448	0.0451
Bank of New York Mellon	12.85	2.80	3.16	16.01	39,220.38	0.00180	0.0289
Baxter Int'l Inc.	9.00	1.25	1.36	10.36	40,102.04	0.00184	0.0191
Becton, Dickinson	12.00	1.36	1.52	13.52	71,684.05	0.00329	0.0446
Best Buy Co.	9.63	2.12	2.32	11.95	29,272.68	0.00135	0.0161
BlackRock, Inc.	12.68	2.32	2.61	15.29	108,592.40	0.00499	0.0763
BorgWarner	16.86	1.48	1.73	18.59	11,247.87	0.00052	0.0096
Boston Properties	7.00	3.74	4.00	11.00	16,204.97	0.00074	0.0082
Broadcom Inc.	8.60	2.99	3.25	11.85	194,275.52	0.00893	0.1058
Broadridge Fin'l	10.00	1.59	1.75	11.75	16,800.26	0.00077	0.0091
Brown-Forman 'B'	9.06	0.96	1.05	10.11	35,911.96	0.00165	0.0167
C.H. Robinson	9.94	2.31	2.54	12.48	12,235.08	0.00056	0.0070
Campbell Soup	8.64	3.20	3.48	12.12	14,935.52	0.00069	0.0083
Capital One Fin'l	4.19	1.28	1.33	5.52	56,936.78	0.00262	0.0145
Cardinal Health	7.57	3.73	4.01	11.58	15,449.70	0.00071	0.0082
Carrier Global	5.53	1.28	1.35	6.88	32,457.43	0.00149	0.0103
Cboe Global Markets	1.80	1.67	1.70	3.50	10,770.67	0.00050	0.0017
CDW Corp.	11.59	0.99	1.10	12.69	23,147.88	0.00106	0.0135

	A	B	C	D	E	F	G
	EPS Growth	Dividend Yield	Expected Dividend Yield	Rate of Return on Equity	Market Cap	Market Cap Weight Factor	Rate of Return on Equity
Company Name	Rate (%)	(%)	(%)	(%)	\$ (Mil)		(%)
Celanese Corp.	10.56	1.93	2.13	12.69	16,554.05	0.00076	0.0097
Cerner Corp.	11.51	1.25	1.39	12.90	21,533.62	0.00099	0.0128
Chubb Ltd.	17.14	1.83	2.14	19.28	77,031.83	0.00354	0.0683
Church & Dwight	8.71	1.27	1.38	10.09	19,518.39	0.00090	0.0091
Cigna Corp.	10.77	1.86	2.06	12.83	78,923.82	0.00363	0.0465
Cincinnati Financial	7.54	2.50	2.69	10.23	16,223.11	0.00075	0.0076
Cintas Corp.	12.55	0.89	1.00	13.55	35,517.81	0.00163	0.0221
Cisco Systems	6.60	3.24	3.45	10.05	193,068.53	0.00887	0.0892
Citigroup Inc.	1.28	2.97	3.01	4.29	142,822.47	0.00656	0.0281
Citrix Sys.	10.85	1.08	1.20	12.05	16,849.49	0.00077	0.0093
Clorox Co.	5.07	2.42	2.54	7.61	23,043.95	0.00106	0.0081
CME Group	4.60	1.79	1.87	6.47	71,857.23	0.00330	0.0214
CMS Energy Corp.	7.26	3.19	3.42	10.68	15,767.46	0.00072	0.0077
Coca-Cola	5.24	3.31	3.48	8.72	217,900.86	0.01002	0.0874
Cognizant Technology	2.34	1.28	1.31	3.65	40,387.27	0.00186	0.0068
Colgate-Palmolive	7.46	2.30	2.47	9.93	65,135.80	0.00299	0.0297
Comcast Corp.	14.35	1.87	2.14	16.49	244,607.03	0.01124	0.1854
Conagra Brands	6.27	3.21	3.41	9.68	17,217.52	0.00079	0.0077
Consol. Edison	2.95	4.65	4.79	7.74	22,814.09	0.00105	0.0081
Constellation Brands	8.83	1.43	1.56	10.39	43,280.74	0.00199	0.0207
Cooper Cos.	10.00	0.01	0.01	10.01	19,275.19	0.00089	0.0089
Corning Inc.	4.00	2.48	2.58	6.58	29,397.43	0.00135	0.0089
Corteva, Inc.	18.07	1.29	1.52	19.59	34,503.89	0.00159	0.0311
Costco Wholesale	8.59	0.87	0.94	9.53	150,914.78	0.00694	0.0661
Crown Castle Int'l	19.60	3.46	4.14	23.74	69,477.20	0.00319	0.0758
CSX Corp.	15.42	1.20	1.39	16.81	71,407.04	0.00328	0.0552
Cummins Inc.	14.98	2.08	2.39	17.37	38,375.67	0.00176	0.0306
CVS Health	3.81	2.84	2.95	6.76	92,153.59	0.00424	0.0286

	A	B	C	D	E	F	G
	EPS Growth	Dividend Yield	Expected Dividend Yield (%)	Rate of Return on Equity (%)	Market Cap \$ (Mil)	Market Cap Weight Factor	Rate of Return on Equity (%)
Company Name	Rate (%)	(%)	(%)	(%)			
Danaher Corp.	12.19	0.38	0.43	12.62	158,396.91	0.00728	0.0919
Dentsply Sirona	5.63	0.74	0.78	6.41	11,799.00	0.00054	0.0035
Discover Fin'l Svcs.	6.27	1.80	1.91	8.18	30,024.35	0.00138	0.0113
Dollar General	17.31	0.75	0.88	18.19	47,189.45	0.00217	0.0395
Dominion Energy	2.78	3.54	3.64	6.42	58,074.72	0.00267	0.0171
Domino's Pizza	10.88	0.89	0.99	11.87	14,361.93	0.00066	0.0078
Dover Corp.	9.50	1.58	1.73	11.23	18,084.93	0.00083	0.0093
DTE Energy	6.05	3.50	3.71	9.76	24,008.10	0.00110	0.0108
Duke Energy	4.99	4.47	4.69	9.68	64,282.24	0.00295	0.0286
Duke Realty Corp.	6.00	2.58	2.73	8.73	14,846.78	0.00068	0.0060
Eastman Chemical	3.83	2.43	2.52	6.35	15,352.22	0.00071	0.0045
Eaton Corp. plc	15.56	2.29	2.65	18.21	52,886.25	0.00243	0.0443
eBay Inc.	18.79	1.21	1.44	20.23	40,615.92	0.00187	0.0378
Ecolab Inc.	17.07	0.89	1.04	18.11	61,710.36	0.00284	0.0514
Electronic Arts	14.52	0.49	0.56	15.08	39,712.83	0.00183	0.0275
Emerson Electric	9.57	2.27	2.49	12.06	53,364.21	0.00245	0.0296
Entergy Corp.	5.15	4.29	4.51	9.66	18,014.87	0.00083	0.0080
Equifax, Inc.	10.63	0.91	1.01	11.64	20,757.12	0.00095	0.0111
Equity Residential	6.10	3.47	3.68	9.78	25,775.39	0.00118	0.0116
Essex Property Trust	7.90	3.16	3.41	11.31	17,853.43	0.00082	0.0093
Evergy, Inc.	5.90	3.98	4.21	10.11	12,373.69	0.00057	0.0058
Eversource Energy	7.05	3.01	3.22	10.27	27,474.04	0.00126	0.0130
Expeditors Int'l	4.20	1.13	1.18	5.38	15,579.41	0.00072	0.0039
Extra Space Storage	6.00	3.15	3.34	9.34	16,463.77	0.00076	0.0071
Exxon Mobil Corp.	13.95	6.14	7.00	20.95	239,727.59	0.01102	0.2308
Fastenal Co.	8.04	2.39	2.58	10.62	26,922.95	0.00124	0.0131
Federal Rlty. Inv. Trust	6.70	4.02	4.29	10.99	8,008.86	0.00037	0.0040
Fidelity Nat'l Info.	13.97	1.12	1.28	15.25	86,452.80	0.00397	0.0606

	A	B	C	D	E	F	G
			Expected	Rate of		Market Cap	Rate of
Company Name	EPS Growth	Dividend Yield	Dividend	Return on	Market Cap	Weight	Return on
	Rate (%)	(%)	Yield (%)	Equity (%)	\$ (Mil)	Factor	Equity (%)
First Republic Bank	10.99	0.47	0.52	11.51	30,689.07	0.00141	0.0162
FLIR Systems	6.40	1.24	1.32	7.72	7,174.89	0.00033	0.0025
Flowserve Corp.	7.76	2.07	2.23	9.99	5,038.20	0.00023	0.0023
FMC Corp.	10.56	1.87	2.07	12.63	13,620.59	0.00063	0.0079
Fortive Corp.	7.05	0.41	0.44	7.49	22,808.21	0.00105	0.0079
Fortune Brands Home	9.25	1.19	1.30	10.55	12,121.55	0.00056	0.0059
Fox Corp. 'A'	3.47	1.35	1.40	4.87	20,135.68	0.00093	0.0045
Fox Corp. 'B'	9.20	1.40	1.53	10.73	-	-	0.0000
Franklin Resources	4.68	4.01	4.20	8.88	14,117.86	0.00065	0.0058
Gallagher (Arthur J.)	9.55	1.55	1.70	11.25	23,978.12	0.00110	0.0124
Garmin Ltd.	6.37	2.09	2.22	8.59	24,564.39	0.00113	0.0097
Gen'l Dynamics	4.83	2.62	2.75	7.58	48,109.53	0.00221	0.0168
Gen'l Mills	4.91	3.70	3.88	8.79	34,360.68	0.00158	0.0139
Gilead Sciences	2.80	4.46	4.58	7.38	79,828.63	0.00367	0.0271
Global Payments	16.67	0.38	0.44	17.11	61,135.35	0.00281	0.0481
Globe Life Inc.	7.37	0.76	0.82	8.19	10,329.30	0.00047	0.0039
Goldman Sachs	16.27	1.51	1.76	18.03	113,763.31	0.00523	0.0943
Grainger (W.W.)	12.10	1.62	1.82	13.92	20,692.77	0.00095	0.0132
Halliburton Co.	15.50	0.81	0.94	16.44	19,708.95	0.00091	0.0149
Hanesbrands, Inc.	5.94	3.29	3.49	9.43	6,356.26	0.00029	0.0028
Hartford Fin'l Svcs.	4.42	2.63	2.75	7.17	19,040.14	0.00088	0.0063
Hasbro, Inc.	17.50	2.99	3.51	21.01	12,457.40	0.00057	0.0120
HCA Healthcare	12.25	1.09	1.22	13.47	59,360.25	0.00273	0.0368
Healthpeak Properties	2.50	3.83	3.93	6.43	15,813.45	0.00073	0.0047
Henry (Jack) & Assoc.	10.02	1.21	1.33	11.35	11,535.10	0.00053	0.0060
Hershey Co.	7.60	2.18	2.35	9.95	30,713.30	0.00141	0.0140
Hewlett Packard Ent.	6.28	3.23	3.43	9.71	19,099.08	0.00088	0.0085
Home Depot	9.61	2.54	2.78	12.39	279,727.69	0.01286	0.1594

	A	B	C	D	E	F	G
			Expected	Rate of		Market Cap	Rate of
Company Name	EPS Growth	Dividend Yield	Dividend	Return on	Market Cap	Weight	Return on
	Rate (%)	(%)	Yield (%)	Equity (%)	\$ (Mil)	Factor	Equity (%)
Honeywell Int'l	6.72	1.76	1.88	8.60	148,079.75	0.00681	0.0585
Hormel Foods	3.70	2.09	2.17	5.87	25,309.90	0.00116	0.0068
Horton D.R.	17.90	1.00	1.18	19.08	29,110.02	0.00134	0.0255
HP Inc.	15.07	2.79	3.21	18.28	36,472.88	0.00168	0.0306
Humana Inc.	12.28	0.73	0.82	13.10	50,391.71	0.00232	0.0303
Huntington Ingalls	0.38	2.42	2.43	2.81	7,618.05	0.00035	0.0010
IDEX Corp.	11.50	1.01	1.13	12.63	14,975.38	0.00069	0.0087
IHS Markit	10.38	0.88	0.97	11.35	36,153.24	0.00166	0.0189
Illinois Tool Works	7.15	2.24	2.40	9.55	64,391.93	0.00296	0.0283
Int'l Business Mach.	6.09	5.29	5.61	11.70	109,983.78	0.00506	0.0592
Int'l Flavors & Frag.	10.00	2.26	2.49	12.49	14,772.79	0.00068	0.0085
Int'l Paper	2.42	4.03	4.13	6.55	19,969.48	0.00092	0.0060
Intel Corp.	5.43	2.20	2.32	7.75	256,677.80	0.01180	0.0914
Intercontinental Exch.	10.73	1.18	1.31	12.04	62,529.06	0.00287	0.0346
Interpublic Group	5.05	4.00	4.20	9.25	10,521.90	0.00048	0.0045
Intuit Inc.	13.05	0.60	0.68	13.73	108,194.07	0.00497	0.0683
Invesco Ltd.	2.70	2.67	2.74	5.44	10,684.13	0.00049	0.0027
Iron Mountain	1.70	7.16	7.28	8.98	9,984.85	0.00046	0.0041
Jacobs Engineering	11.88	0.70	0.78	12.66	15,571.69	0.00072	0.0091
Johnson & Johnson	5.31	2.48	2.61	7.92	427,964.03	0.01967	0.1558
Johnson Ctrl's. Int'l plc	14.14	1.85	2.11	16.25	40,407.26	0.00186	0.0302
JPMorgan Chase	1.28	2.35	2.38	3.66	467,167.62	0.02147	0.0786
Juniper Networks	6.65	3.45	3.68	10.33	7,782.88	0.00036	0.0037
Kansas City South'n	16.49	0.99	1.15	17.64	19,921.99	0.00092	0.0162
Kellogg	2.93	3.92	4.03	6.96	20,145.02	0.00093	0.0064
KeyCorp	11.40	3.43	3.82	15.22	21,027.46	0.00097	0.0147
Kimberly-Clark	4.07	3.49	3.63	7.70	44,308.48	0.00204	0.0157
Kimco Realty	4.60	3.55	3.71	8.31	8,269.26	0.00038	0.0032

	A	B	C	D	E	F	G
			Expected	Rate of		Market Cap	
Company Name	EPS Growth	Dividend Yield	Dividend	Return on	Market Cap	Weight	Rate of
	Rate (%)	(%)	Yield (%)	Equity (%)	\$ (Mil)	Factor	Return on
							Equity (%)
Kinder Morgan Inc.	1.13	6.68	6.76	7.89	35,594.12	0.00164	0.0129
KLA Corp.	15.81	1.10	1.27	17.08	50,631.10	0.00233	0.0398
Kroger Co.	8.03	2.20	2.38	10.41	25,086.50	0.00115	0.0120
L3Harris Technologies	12.88	2.13	2.40	15.28	41,509.56	0.00191	0.0292
Lamb Weston Holdings	9.70	1.14	1.25	10.95	12,233.81	0.00056	0.0062
Leggett & Platt	5.20	3.60	3.79	8.99	5,893.12	0.00027	0.0024
Leidos Hldgs.	10.55	1.50	1.66	12.21	12,833.96	0.00059	0.0072
Lennar Corp.	10.70	1.16	1.28	11.98	26,970.29	0.00124	0.0149
Lilly (Eli)	11.60	1.66	1.85	13.45	195,621.53	0.00899	0.1210
Linde plc	11.71	1.71	1.91	13.62	133,633.83	0.00614	0.0837
Lockheed Martin	6.08	3.06	3.25	9.33	96,681.88	0.00444	0.0414
Loews Corp.	14.03	0.50	0.57	14.60	13,570.36	0.00062	0.0091
Lowe's Cos.	13.74	1.48	1.68	15.42	122,057.12	0.00561	0.0865
Lumen Technologies	3.00	8.03	8.27	11.27	13,660.60	0.00063	0.0071
MarketAxess Holdings	10.47	0.48	0.53	11.00	20,708.39	0.00095	0.0105
Marsh & McLennan	8.94	1.60	1.74	10.68	60,344.93	0.00277	0.0296
Martin Marietta	8.85	0.67	0.73	9.58	21,653.61	0.00100	0.0095
Masco Corp.	10.25	1.04	1.15	11.40	13,893.74	0.00064	0.0073
MasterCard Inc.	14.91	0.48	0.55	15.46	366,585.38	0.01685	0.2605
McCormick & Co.	5.50	1.60	1.69	7.19	22,626.68	0.00104	0.0075
McDonald's Corp.	12.77	2.45	2.76	15.53	158,909.81	0.00730	0.1135
McKesson Corp.	10.56	0.93	1.03	11.59	28,855.39	0.00133	0.0154
Medtronic plc	9.08	2.02	2.20	11.28	159,770.38	0.00734	0.0829
Merck & Co.	9.00	3.49	3.80	12.80	188,644.22	0.00867	0.1110
MetLife Inc.	4.20	3.09	3.22	7.42	53,935.87	0.00248	0.0184
Microchip Technology	11.80	0.99	1.11	12.91	42,340.82	0.00195	0.0251
Microsoft Corp.	16.70	0.95	1.11	17.81	1,769,914.25	0.08135	1.4488
Mid-America Apartment	7.00	2.92	3.12	10.12	16,052.71	0.00074	0.0075

	A	B	C	D	E	F	G
	Expected	Rate of	Market Cap	Market Cap	Market Cap	Rate of	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Dividend Yield (%)	Return on Equity (%)	\$ (Mil)	Weight Factor	Return on Equity (%)
Mondelez Int'l	9.45	2.43	2.66	12.11	77,683.38	0.00357	0.0432
Moody's Corp.	9.94	0.89	0.98	10.92	52,322.27	0.00240	0.0263
Morgan Stanley	7.33	1.75	1.88	9.21	125,926.59	0.00579	0.0533
Mosaic Company	7.00	0.78	0.83	7.83	12,176.37	0.00056	0.0044
Motorola Solutions	5.88	1.57	1.66	7.54	30,674.95	0.00141	0.0106
MSCI Inc.	13.30	0.82	0.93	14.23	34,647.61	0.00159	0.0227
Nasdaq, Inc.	6.46	1.38	1.47	7.93	23,289.34	0.00107	0.0085
NetApp, Inc.	7.66	2.79	3.00	10.66	15,888.54	0.00073	0.0078
Newell Brands	2.03	3.77	3.85	5.88	10,351.12	0.00048	0.0028
Newmont Corp.	2.40	3.85	3.94	6.34	45,855.68	0.00211	0.0134
NextEra Energy	8.63	2.09	2.27	10.90	144,569.59	0.00664	0.0724
NiSource Inc.	4.37	3.97	4.14	8.51	8,497.47	0.00039	0.0033
Norfolk Southern	14.44	1.51	1.73	16.17	66,488.20	0.00306	0.0494
Northern Trust Corp.	6.83	2.79	2.98	9.81	20,868.29	0.00096	0.0094
Northrop Grumman	6.37	1.92	2.04	8.41	50,303.52	0.00231	0.0195
Nucor Corp.	7.25	2.57	2.76	10.01	19,030.52	0.00087	0.0088
NVIDIA Corp.	18.84	0.11	0.13	18.97	358,995.22	0.01650	0.3130
Old Dominion Freight	15.57	0.38	0.44	16.01	25,497.20	0.00117	0.0188
Omnicom Group	9.80	3.95	4.34	14.14	15,237.29	0.00070	0.0099
Oracle Corp.	10.60	1.48	1.64	12.24	190,994.39	0.00878	0.1074
Otis Worldwide	8.97	1.24	1.35	10.32	27,876.42	0.00128	0.0132
Packaging Corp.	5.97	3.00	3.18	9.15	12,649.16	0.00058	0.0053
Parker-Hannifin	13.73	1.18	1.34	15.07	38,346.09	0.00176	0.0266
Paychex, Inc.	4.50	2.83	2.96	7.46	33,668.51	0.00155	0.0115
Pentair plc	7.90	1.40	1.51	9.41	9,506.67	0.00044	0.0041
People's United Fin'l	13.73	3.76	4.28	18.01	8,128.76	0.00037	0.0067
PepsiCo, Inc.	7.80	3.10	3.34	11.14	182,680.47	0.00840	0.0936
PerkinElmer Inc.	17.20	0.22	0.26	17.46	14,407.65	0.00066	0.0116

ROE and ROR Analysis for Pike County
CAPM Analysis
Standard and Poor's 500 with IBES EPS

	A	B	C	D	E	F	G
			Expected	Rate of		Market Cap	Rate of
Company Name	EPS Growth	Dividend Yield	Dividend	Return on	Market Cap	Weight	Return on
	Rate (%)	(%)	Yield (%)	Equity (%)	\$ (Mil)	Factor	Equity (%)
Perrigo Co. plc	10.00	2.40	2.64	12.64	5,686.59	0.00026	0.0033
Pfizer, Inc.	6.73	4.62	4.93	11.66	187,548.75	0.00862	0.1005
Philip Morris Int'l	11.21	5.48	6.09	17.30	136,363.66	0.00627	0.1085
Pinnacle West Capital	3.50	4.68	4.84	8.34	8,238.25	0.00038	0.0032
Pool Corp.	17.00	0.71	0.83	17.83	13,185.84	0.00061	0.0108
PPG Inds.	10.71	1.58	1.75	12.46	32,333.97	0.00149	0.0185
Price (T. Rowe) Group	13.83	2.60	2.96	16.79	37,630.32	0.00173	0.0290
Principal Fin'l Group	7.05	3.71	3.97	11.02	16,593.52	0.00076	0.0084
Procter & Gamble	9.13	2.47	2.70	11.83	314,359.69	0.01445	0.1709
Prudential Fin'l	6.34	5.12	5.44	11.78	35,553.29	0.00163	0.0193
Public Serv. Enterprise	3.00	3.64	3.75	6.75	28,249.20	0.00130	0.0088
Public Storage	17.00	3.30	3.86	20.86	42,315.79	0.00194	0.0406
PulteGroup, Inc.	13.80	1.19	1.35	15.15	12,502.49	0.00057	0.0087
Quanta Services	14.96	0.30	0.34	15.30	11,264.33	0.00052	0.0079
Quest Diagnostics	3.40	2.14	2.21	5.61	15,393.42	0.00071	0.0040
Raymond James Fin'l	11.26	1.27	1.41	12.67	16,849.53	0.00077	0.0098
Realty Income Corp.	5.45	4.62	4.87	10.32	20,807.82	0.00096	0.0099
Regency Centers Corp.	9.10	4.23	4.61	13.71	9,434.25	0.00043	0.0059
Republic Services	7.70	1.95	2.10	9.80	31,750.70	0.00146	0.0143
Robert Half Int'l	2.70	1.85	1.90	4.60	9,379.89	0.00043	0.0020
Rockwell Automation	10.60	1.76	1.95	12.55	28,685.05	0.00132	0.0165
Rollins, Inc.	8.20	0.90	0.97	9.17	17,432.95	0.00080	0.0074
Roper Tech.	5.10	0.59	0.62	5.72	39,727.61	0.00183	0.0104
S&P Global	11.83	0.93	1.04	12.87	79,828.67	0.00367	0.0472
Schwab (Charles)	9.36	1.16	1.27	10.63	83,090.23	0.00382	0.0406
Seagate Technology	6.74	3.61	3.85	10.59	17,823.01	0.00082	0.0087
Sealed Air	7.60	1.48	1.59	9.19	6,704.38	0.00031	0.0028
Sempra Energy	8.50	3.67	3.98	12.48	35,300.16	0.00162	0.0203

	A	B	C	D	E	F	G
	Expected	Rate of	Market Cap	Market Cap	Market Cap	Rate of	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Dividend Yield (%)	Return on Equity (%)	\$ (Mil)	Weight Factor	Return on Equity (%)
Sherwin-Williams	9.96	0.97	1.07	11.03	61,081.25	0.00281	0.0310
Simon Property Group	8.60	4.37	4.75	13.35	36,516.46	0.00168	0.0224
Skyworks Solutions	11.95	1.05	1.18	13.13	31,390.36	0.00144	0.0189
Smith (A.O.)	8.00	1.70	1.84	9.84	9,916.50	0.00046	0.0045
Snap-on Inc.	7.55	2.38	2.56	10.11	11,211.71	0.00052	0.0052
Southern Co.	6.49	4.49	4.78	11.27	61,676.36	0.00283	0.0320
Stanley Black & Decker	9.84	1.62	1.78	11.62	30,954.49	0.00142	0.0165
State Street Corp.	15.22	2.71	3.12	18.34	27,101.95	0.00125	0.0228
STERIS plc	10.00	0.92	1.01	11.01	14,772.69	0.00068	0.0075
Stryker Corp.	10.36	1.01	1.11	11.47	93,506.56	0.00430	0.0493
Synchrony Financial	3.05	2.19	2.26	5.31	23,479.07	0.00108	0.0057
Target Corp.	13.75	1.45	1.65	15.40	93,681.24	0.00431	0.0663
TE Connectivity	11.00	1.47	1.63	12.63	43,283.61	0.00199	0.0251
Teleflex Inc.	11.00	0.34	0.38	11.38	18,644.96	0.00086	0.0098
Teradyne Inc.	12.76	0.30	0.34	13.10	22,281.31	0.00102	0.0134
Texas Instruments	10.00	2.27	2.50	12.50	164,922.92	0.00758	0.0947
Thermo Fisher Sci.	4.09	0.23	0.24	4.33	180,990.33	0.00832	0.0360
Tractor Supply	11.08	1.29	1.43	12.51	18,724.90	0.00086	0.0108
Trane Technologies plc	12.15	1.52	1.70	13.85	37,098.82	0.00171	0.0236
Travelers Cos.	4.95	2.25	2.36	7.31	38,238.16	0.00176	0.0129
Tyson Foods 'A'	4.00	2.59	2.69	6.69	25,137.55	0.00116	0.0077
U.S. Bancorp	6.00	3.18	3.37	9.37	79,552.51	0.00366	0.0343
Union Pacific	12.92	1.84	2.08	15.00	141,755.77	0.00652	0.0977
United Parcel Serv.	10.06	2.62	2.88	12.94	138,236.45	0.00635	0.0822
UnitedHealth Group	12.41	1.50	1.69	14.10	315,267.31	0.01449	0.2043
Unum Group	1.37	4.10	4.16	5.53	5,659.77	0.00026	0.0014
V.F. Corp.	9.89	2.39	2.63	12.52	32,045.21	0.00147	0.0184
Verisk Analytics	10.32	0.68	0.75	11.07	27,265.68	0.00125	0.0139

	A	B	C	D	E	F	G
	Expected	Rate of	Market Cap	Market Cap	Market Cap	Rate of	
Company Name	EPS Growth Rate (%)	Dividend Yield (%)	Dividend Yield (%)	Return on Equity (%)	\$ (Mil)	Weight Factor	Return on Equity (%)
Verizon Communic.	2.82	4.39	4.51	7.33	236,367.94	0.01086	0.0797
Visa Inc.	13.84	0.59	0.67	14.51	428,327.34	0.01969	0.2857
Vornado R'lty Trust	17.33	4.75	5.57	22.90	8,530.24	0.00039	0.0090
Vulcan Materials	13.65	0.85	0.97	14.62	23,066.86	0.00106	0.0155
Wabtec Corp.	7.30	0.64	0.69	7.99	14,223.02	0.00065	0.0052
Walgreens Boots	3.85	3.80	3.95	7.80	42,478.06	0.00195	0.0152
Walmart Inc.	6.29	1.65	1.75	8.04	377,117.50	0.01733	0.1394
Waste Management	11.17	2.06	2.29	13.46	47,274.80	0.00217	0.0292
WEC Energy Group	6.14	3.31	3.51	9.65	25,843.51	0.00119	0.0115
Welltower Inc.	13.00	3.32	3.75	16.75	30,195.14	0.00139	0.0232
Western Union	9.25	3.78	4.13	13.38	9,777.69	0.00045	0.0060
Weyerhaeuser Co.	5.00	1.89	1.98	6.98	26,795.69	0.00123	0.0086
Whirlpool Corp.	3.00	2.58	2.66	5.66	11,998.24	0.00055	0.0031
Williams Cos.	5.00	6.86	7.20	12.20	29,002.83	0.00133	0.0163
Willis Towers Wat. plc	5.66	1.26	1.33	6.99	29,078.45	0.00134	0.0093
Xcel Energy Inc.	6.20	3.04	3.23	9.43	32,359.14	0.00149	0.0140
Xilinx Inc.	9.00	1.14	1.24	10.24	32,810.34	0.00151	0.0154
Xylem Inc.	18.16	1.11	1.31	19.47	18,206.31	0.00084	0.0163
Yum! Brands	12.61	1.91	2.15	14.76	31,613.36	0.00145	0.0214
Zimmer Biomet Hldgs.	11.29	0.61	0.68	11.97	33,932.94	0.00156	0.0187
Zoetis Inc.	10.58	0.63	0.70	11.28	75,587.39	0.00347	0.0392
					21,756,401	1.00	12.53
							Weighted Rate of Return on Equity (%)
							Companies not paying dividends, with EPS growth-rate estimates ≤ 0 percent, or > 20 percent excluded

ROE and ROR Analysis for Pike County

CAPM Analysis

Size Premia

Duff & Phelps 2020 Cost of Capital Navigator

2020 CRSP Deciles Size Study -- Supplementary Data Exhibits

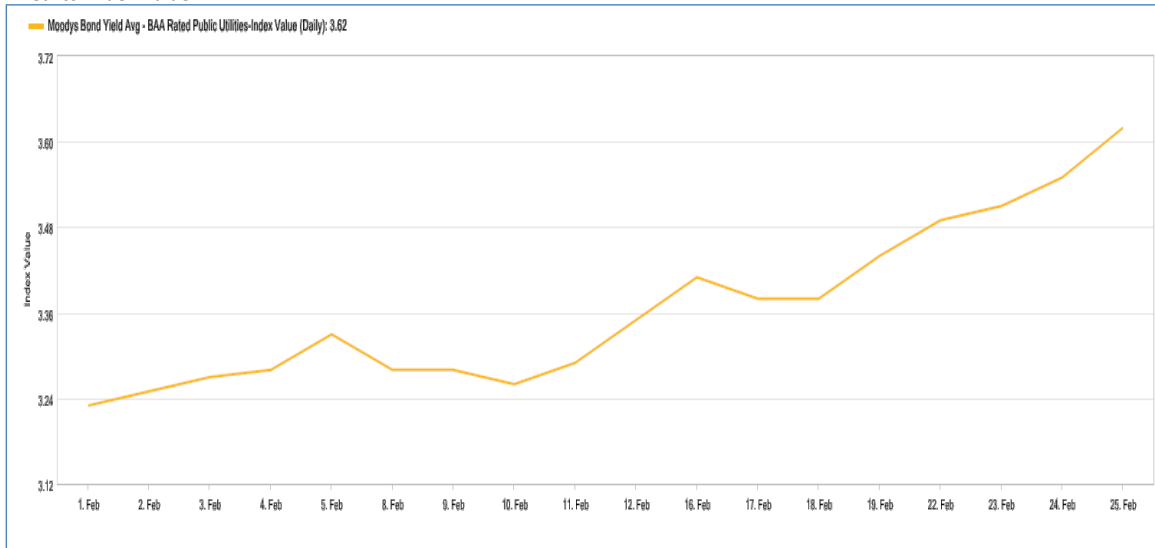
Docket No. R-2020-3022134

Exhibit ____ MFG-18, Schedule 5

	2019		
Decile	Minimum Market	Size	Premium
	Cap (millions)		
1	\$ 31,090.379		-0.28%
2	\$ 13,142.606		0.50%
3	\$ 6,618.604		0.73%
4	\$ 4,312.546		0.79%
5	\$ 2,688.889		1.10%
6	\$ 1,669.856		1.34%
7	\$ 993.855		1.47%
8	\$ 515.621		1.59%
9	\$ 230.024		2.22%
10	\$ 1.973		4.99%



Entities: Moodys Bond Yield Avg - BAA Rated Public Utilities
Metrics: Index Value



<u>Pricing Date</u>	<u>Moody's Bond Yield Avg - BAA Rated Public Utilities-</u>	
2/25/2021	3.62	
2/24/2021	3.55	
2/23/2021	3.51	
2/22/2021	3.49	
2/19/2021	3.44	
2/18/2021	3.38	
2/17/2021	3.38	
2/16/2021	3.41	Mean
2/12/2021	3.35	3.37
2/11/2021	3.29	
2/10/2021	3.26	
2/9/2021	3.28	
2/8/2021	3.28	
2/5/2021	3.33	
2/4/2021	3.28	
2/3/2021	3.27	
2/2/2021	3.25	
2/1/2021	3.23	

ROE and ROR Analysis for Pike County
CAPM ROE Analysis
Calculation for Proxy Group

Docket No. R-2020-3022134
Exhibit ____ MFG-18, Schedule 7

	A	B	C	D	E	F	G	H	I	J
	Market	Rf	MRP	Beta	RP	Unadjusted	Market Cap	Size Adj.	Adjusted	Filtered
	Return					ROE	(millions)		ROE	Results
Essential Utilities, Inc.	12.53%	2.04%	10.49%	0.95	9.97%	12.01%	\$ 11,481	0.73%	12.74%	12.74%
Exelon Corporation	12.53%	2.04%	10.49%	0.95	9.97%	12.01%	\$ 42,016	-0.28%	11.73%	11.73%
NiSource Inc.	12.53%	2.04%	10.49%	0.85	8.92%	10.96%	\$ 8,574	0.73%	11.69%	11.69%
UGI Corporation	12.53%	2.04%	10.49%	1.00	10.49%	12.53%	\$ 7,791	0.73%	13.26%	13.26%
					Mean	11.87%			12.35%	12.35%
					Median	12.01%			12.23%	12.23%

A: MFG-18, Sch 4

F: B + E

B: MFG-18, Sch 1

G: Value Line, Investment Analyzer, March 1, 2021

C: A - B

H: MFG-18, Sch 5

D: MFG-18, Sch 2

I: F + H

E: C * D

J: Low-end test < Column I < High-end test

Moody's 10-Year Baa Public Utilities Bond Index (Average,
February 1-25, 2021, S&P Global Intelligence)

Low-End Test:

3.37%

CAPM Risk Premium, Column C

10.49%

Moody's 10-Year Baa Public Utilities Bond Index + 20 percent
of CAPM risk premium

5.25%

High-End Test:

Proxy Group median, Column J

12.23%

150 percent of Proxy Group median

18.35%

**ROE and ROR Analysis for Pike County
Recommended ROE and ROR**

**Docket No. R-2020-3022134
Exhibit ____ MFG-19**

Rate of Return Office of Consumer Advocate

	Ratio	DCF Cost	WACC
Long-Term Debt	46.54%	4.77%	2.22%
Long-Term Debt	5.14%	3.10%	0.16%
Common Equity	48.32%	9.38%	4.53%
Overall Rate of Return	100%		6.91%

The capital structure, and the costs of long-term debt and short-term debt are taken from Pike County Accounting Panel Exhibit E-2, Schedule 3. The recommended common equity cost of 9.38 percent is supported by corrected Exhibit ____ MFG-8.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission :
v. : Docket No. R-2020-3022134
Pike County Light and Power Company :
-- Gas :

VERIFICATION

I, Marlon F. Griffing, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement 3-SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: March 4, 2021
*304507

Signature: 
Marlon F. Griffing

Consultant Address: PCMG and Associates, LLC.
22 Brookes Avenue
Gaithersburg, MD 20877