



COMMONWEALTH OF PENNSYLVANIA

June 5, 2025

E-FILED

Matthew L. Homsher, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

**Re: Pennsylvania Public Utility Commission v. Pike County Light & Power Company
(Gas) / Docket No. R-2024-3052357**

Dear Secretary Homsher:

Enclosed please find the admitted PreServed Testimony, Exhibits, and Verifications, on behalf of the Office of Small Business Advocate (“OSBA”), pursuant to the Order Granting Joint Stipulation and Admitting Evidence, that was issued on May 29, 2025, in the above-referenced proceeding:

- Direct Testimony and Exhibits of Mark D. Ewen, labelled OSBA Statement No. 1, with Exhibit IEC-1 and Exhibit IEC-2, including a Verification.
- Rebuttal Testimony of Mark D. Ewen, labelled OSBA Statement No. 1-R, including a Verification.

Copies will be served on all known parties in this proceeding, as indicated on the attached Certificate of Service.

If you have any questions, please do not hesitate to contact me.

Sincerely,

/s/ Rebecca Lyttle

Rebecca Lyttle
Assistant Small Business Advocate
Attorney ID No. 201399

Enclosures

cc: Mark D. Ewen
Parties of Record



COMMONWEALTH OF PENNSYLVANIA

April 3, 2025

The Honorable Marta Guhl
Administrative Law Judge
Pennsylvania Public Utility Commission
Philadelphia District Office
801 Market Street
Philadelphia, PA 19107

The Honorable Alphonso Arnold III
Administrative Law Judge
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

**Re: Pennsylvania Public Utility Commission v. Pike County Light & Power Company
(Gas) / Docket No. R-2024-3052357**

Dear Judge Guhl and Judge Arnold:

Enclosed please find the Direct Testimony and Exhibits of Mark D. Ewen, labelled OSBA Statement No. 1, with Exhibit IEC-1 and Exhibit IEC-2, on behalf of the Office of Small Business Advocate (“OSBA”), in the above-referenced proceeding.

As evidenced by the enclosed Certificate of Service, all known parties will be served, as indicated.

If you have any questions, please do not hesitate to contact me.

Sincerely,

/s/ Rebecca Lyttle

Rebecca Lyttle
Assistant Small Business Advocate
Attorney ID No. 201399

Enclosures

cc: PA PUC Secretary Rosemary Chiavetta (Cover Letter & Certificate of Service only)
Mark D. Ewen
Parties of Record

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
	:	
	:	
v.	:	Docket No. R-2024-3052357
	:	
Pike County Light & Power Company (Gas Division)	:	
	:	
	:	

Direct Testimony and Exhibits of

MARK D. EWEN

On Behalf of the

Pennsylvania Office of Small Business Advocate

Topics:

- Cost Allocation**
- Revenue Allocation**
- Rate Design**
- Late Payment Plans**

Date Served: April 3, 2025

Date Submitted for the Record: _____

DIRECT TESTIMONY OF MARK D. EWEN

1 **1. Introduction and Context**

2 **Q. Please state your name and briefly describe your qualifications.**

3 A. My name is Mark D. Ewen. I am a Principal and President of Industrial Economics,
4 Incorporated (“IEc”), a consultancy of 165 professionals headquartered at 2067
5 Massachusetts Avenue, Cambridge, MA 02140. My consulting practice focuses on
6 regulatory and environmental economics, expert case management and economic damages
7 estimation in a variety of litigation contexts, and financial analysis. I obtained a B.A degree
8 in Economics and Political Science from the University of North Dakota, and a Master of
9 Public Policy degree from the University of Michigan. I have participated and provided
10 testimony in a variety of proceedings before the PA Public Utilities Commission, including
11 electric and gas base rates cases, 1307(f) purchased gas cost filings, energy efficiency and
12 conservation cases, merger and acquisition cases, and default service provider (“DSP”)
13 petitions. My résumé and a listing of the expert testimony that I have filed in various
14 litigation and utility regulatory proceedings are attached in Exhibit IEc-1.

15 **Q. What is the purpose of this testimony?**

16 A. I was retained by the OSBA to review the base rates filing of Pike County Light & Power
17 Company Gas Division (the “Company” or “PCL&P”) base rates filing to evaluate whether
18 the Company’s proposed rate increases and tariff changes for small businesses are consistent
19 with sound regulatory and economic principles. In preparing this testimony, I relied in
20 substantial part on analyses that my colleague Robert D. Knecht prepared as part of his direct
21 testimony for the Company’s prior base rate proceeding (Docket No R-2020-3022134)
22 particularly with respect to cost allocation and rate design matters.

23 **Q. Please summarize the Company’s proposed rate increase in this proceeding.**

24 A. PCL&P proposes to increase its annual gas distribution rate revenues by approximately \$1.0
25 million, or 98 percent for the forecast test year ended June 2025.¹ This increase is proposed

¹ The Company measures its rate increase by comparing the revenues at present rates for the historical test year (“HTY”) ending June 2024 to the revenues at proposed rates for the future test year (“FTY”) ending June 2025. As such, the Company’s reported increase includes the effects of changes in both billing determinants and tariff charges.

1 to achieve a target return on equity of 5.16 percent and a weighted average return on rate
 2 base of 8.59 percent. The proposed increase would be achieved by assigning rate increases
 3 among the rate classes as shown in Table IEC-1 below. The classes shown in Table IEC-1 are
 4 those used in the Company’s cost of service study (“COSS”). In practice, however, the
 5 Company has only two rate classes: SC1 Residential and SC2 Commercial.

Table IEC-1		
PCL&P Gas Proposed FTY Rate Increases		
	Amount (\$000)	Percent
Residential Space Heating	\$901.7	109.8%
Residential Domestic	\$26.0	103.6%
Residential Other	\$3.7	109.9%
Sub-Total SC1 Residential	\$931.5	109.6%
Commercial	\$31.8	42.7%
Commercial Space Heating	\$40.6	40.5%
Sub-Total SC2 Commercial	\$72.4	41.4%
Total	\$1,003.8	97.9%
Source: IEC WPI		

6
 7 **Q. Please summarize your current conclusions and recommendations.**

8 A. As detailed herein, I conclude the following:

- 9 • The Company’s COSS uses one of the standard industry methods, which recognizes that
 10 there are economies of scale in gas distribution for serving larger customers.
- 11 • The Company’s revenue allocation proposal is broadly consistent with its cost allocation
 12 methodology, as evaluated using an unbiased revenue-cost metric. However, I propose
 13 an alternative revenue allocation in this testimony that would bring rates more into line
 14 with allocated costs for each rate class.

Consistent with Pennsylvania practice, I attempt to consistently measure rate increases based on FTY billing determinants in this testimony, which avoids the distortive effects of year-to-year changes in billing determinants.

- 1 • The Company’s rate design proposal for the SC2 commercial class is reasonable if its
2 files COSS methodology is approved.

3 **Q. How is your testimony organized?**

4 A. Sections 2 through 4 address cost allocation, revenue allocation, and rate design,
5 respectively. Section 5 addresses the Company’s responses to OSBA’s interrogatories about
6 the potential for PCL&P to implement a formal late payment plan for small businesses.
7 Appendix A provides an explanation as to why the indexed rate of return can be an unreliable
8 metric for evaluating progress toward cost-based rates.

9 **2. Cost Allocation**

10 **Q. What is a utility cost allocation study?**

11 A. A utility cost allocation study, in this case the Company’s gas class cost of service study
12 (“COSS”), is an analytical tool that assigns the utility’s test year total costs (i.e., the “revenue
13 requirement”) among the various utility rate classes. Pennsylvania electric and gas utilities
14 generally use an “embedded cost” approach to cost allocation, in which accounting book
15 costs are directly assigned among the rate classes, rather than a marginal cost approach. It is
16 generally agreed that costs should, to the extent practicable, be assigned among rate classes
17 based on “cost causation,” such that costs caused by a particular class of customers are
18 assigned to that class. A cost allocation study generally involves a three-step process, in
19 which costs are (a) segregated by function (“functionalization”), (b) further segregated by
20 cost causation factor, notably throughput, peak demand, “excess” demand, and customer
21 count (“classification”), and (c) allocated among the rate classes based on each class’s
22 contribution to the cost causation factor (“allocation”).

23 **Q. What purpose does the COSS serve in a utility rate proceeding?**

24 A. The COSS informs both the assignment of the rate increase among customer classes
25 (“revenue allocation”) and the design of rates to recover the revenues assigned to each rate
26 class. Revenue allocation is often used to move rate revenue more into line with allocated
27 costs from the COSS. For rate design, classified costs, such as customer-related and demand-
28 related costs, are used to inform the development of specific rate charges, such as monthly
29 customer and demand charges.

1 **Q. Please describe the Company's filing with respect to cost allocation in this proceeding.**

2 A. The Company's cost allocation analysis was filed in Exhibits G-6 and G-7, and an electronic
3 version was provided in OSBA-Pike-Gas-I-1. These analyses are based on the allocation of
4 embedded book costs. The company COSS is performed for the historical test year ("HTY")
5 ending June 2024, rather than for the future test year ("FTY") (or even a fully projected
6 future test year) as is normal utility practice in Pennsylvania. However, the Company has
7 also roughed out the implications of a FTY ECOSS, by taking the HTY allocated costs and
8 then reallocating the changes in revenues and costs between the FTY and HTY. This
9 approach is far from perfect, as it (a) lumps together many of the year-to-year revenue and
10 cost changes into aggregate accounts, and (b) fails to reflect changes in forecast loads,
11 demands and number of customers in the FTY. In effect, the Company allocates 2025 costs
12 with 2024 allocation factors.

13 In addition, the key classification and allocation factors used in this year's COSS are either
14 identical to those used in the 2013 base rates case or are updated simply for change in use
15 per customer. The most important of these parameters relate to the classification and
16 allocation of mains costs.

17 **Q. Please describe the basic issues involved in gas utility mains cost causation.**

18 A. Gas distribution mains are installed to meet two basic objectives: (a) to interconnect the
19 customer with the interstate pipeline system (or other gas supply sources), and (b) to be able
20 to transport sufficient gas to meet the demand of customers downstream under extreme peak
21 conditions.

22 However, having stated that, it is not easy to develop an analytical model capable of
23 reflecting these cost causation factors. Ideally, the cost of any particular segment of mains
24 would only be allocated to those specific customers who are served downstream from that
25 segment. In practice, undertaking such an analysis can be detailed, costly and time
26 consuming. Nevertheless, with the significant improvements in computer modeling of gas
27 distribution systems, one would expect that this approach could be implemented in 2024. To
28 my knowledge, no Pennsylvania natural gas utility has recently attempted such an approach.

1 And without significant efforts on the part of the utility, it is impossible for outsiders to
2 conduct this type of analysis.

3 **Q. What are the more traditional approaches to mains cost classification?**

4 A. In place of the detailed modeling approaches various analytical models are used. These
5 methods attempt to address the following questions:

- 6 • What causation factors best correlate with mains costs?
- 7 • Are mains costs causally related to the number of customers? And, if so, how should the
8 “customer component” of mains costs be derived?
- 9 • How should mains costs that are not causally related to number of customers be allocated
10 among the various rate classes?

11 Regarding the first question, the traditional cost allocation parameters include throughput,
12 peak demand, excess peak over average demand, and number of customers. As a matter of
13 arithmetic, a throughput allocation factor is equivalent to an “energy” allocator, a
14 “commodity” allocator, a “volumetric” allocator, and an “average demand” allocator.²

15 Regarding the second question, one argument is that more footage of mains must be installed
16 to interconnect many small customers than to connect one larger customer with the same
17 aggregate load. This approach is particularly appealing for small to medium business
18 customers who are often more geographically concentrated in commercial areas, thereby
19 requiring less mains footage. This conceptual argument is supported by aggregate industry
20 statistical analysis.

21 In this proceeding, the Company’s COSS does not include a customer component for mains
22 costs, based on a minimum system study (conducted for the last base rates proceeding). The
23 customer-related costs are allocated among the rate classes based on number of customers.

² Average demand is generally measured as annual throughput divided by 365 days. As such, it is arithmetically equivalent to annual throughput when used as an allocation factor. The ratio of average demand to peak day demand is generally referred to as load factor. High load factor customers typically use gas for manufacturing process applications; low load factor customers often rely on gas primarily for heating purposes.

1 **Q. If there are no customer component mains costs, what methods are in general use for**
2 **allocating these costs?**

3 A. The traditional allocation methods include three general approaches: a peak demand method;
4 a peak-and-average (“P&A”) method; and an average-and-excess (“A&E”) method.

5 Because mains must be sized to meet the design day peak demand of all downstream
6 customers, I conclude that the peak demand method is most consistent with cost causation.
7 Other analysts, however, favor the P&A method, in which allocation factors represent a
8 weighted average (most often 50/50) of a throughput allocator and a peak demand allocator.
9 Relative to the peak demand method, this approach assigns more cost to customers who use
10 gas on a more level basis throughout the year (high load factor customers) and less cost to
11 customers whose gas use is primarily for heating purposes. I respectfully disagree with the
12 use of this allocation method, because mains costs are not causally related to average use. A
13 main that serves a high load factor industrial customer with a design day load of 10 mcf per
14 day and a set of low load factor residential and small commercial customers with a combined
15 designed day demand of 10 mcf per day must be sized to meet maximum demand of 20 mcf
16 per day. Each class is equally responsible for the cost of that main. A peak demand allocator
17 would reflect that reality. By contrast, the P&A allocator would assign a majority of the costs
18 to the higher load factor industrial customer.

19 The A&E allocation factor is a weighted average of average demand (i.e., throughput) and
20 “excess” demand. Excess demand is measured as the difference between peak demand and
21 average demand. Because this allocation factor consists of an average demand component
22 and a “peak minus average” demand component, it is typically more similar in magnitude to
23 a peak demand allocator than to a P&A allocator. However, this observation depends on the
24 weighting factor used to derive the A&E factor. Under specific conditions, namely when the
25 weighting factor is based on the system load factor and there is no diversity of demand across
26 classes, the P&A allocator is arithmetically identical to the A&E factor.

27 In this proceeding, the Company uses a peak demand allocation factor for assigning the
28 portion of mains costs that are classified as demand-related. (The customer component of
29 mains costs is allocated based on number of customers.)

1 **Q. Has the Company adopted the same method for allocating mains costs in this**
2 **proceeding as in the 2020 base rates case?**

3 A. It has. Thus, for reasons of Commission precedent, I take no exception to this method.

4 **Q. Turning to a different topic, please comment on PCL&P's electronic payment fees.**

5 A. The Company proposes to include electronic payment fees charged by its third-party vendor
6 in the Company's COSS. Though the Company provided historical data related to this
7 change, it did not indicate where electronic payment fee costs are reflected in the COSS, or
8 explain how those costs are classified and allocated.³ I request that the Company provide
9 this information in rebuttal testimony.

10 **Q. Do you have any concerns regarding the Company's COSS?**

11 A. At this time, I have no identified concerns based upon my review of the Company's COSS.
12 The Company's cost allocation model is consistent with the methods which the Commission
13 has previously accepted. Table IEc-2 below reports revenue-cost ratios at the Company's
14 current and proposed rates. At both current and proposed rates, the SC1 classes are under-
15 recovering costs, while SC2 commercial rate classes are over-recovering costs. As I discuss
16 below, a smaller rate increase for SC2 customers, offset by a modest rate increase for
17 Residential customers, is justified to move revenues more in line with allocated costs for all
18 classes.

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³ OSBA-Pike-Gas-I-5.

Table IEC-2		
Summary of PCL&P Gas COSS: Revenue-Cost Ratios		
	Current Rates	Proposed Rates
Residential Space Heating	93.1%	99.6%
Residential Domestic	71.0%	74.0%
Residential Other	94.8%	101.4%
Sub-Total SC1 Residential	92.3%	98.6%
Commercial	227.7%	155.9%
Commercial Space Heating	134.4%	91.9%
Sub-Total SC2 Commercial	163.1%	111.6%
Total	100%	100%
Source: IEC WP1		

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3. Revenue Allocation

Q. What is revenue allocation?

A. Revenue allocation is the assignment of the dollar net increase or decrease to each of the Company’s rate classes in a base rates proceeding. In contrast, rate design determines how the allocated revenue is recovered from individual ratepayers within each class. From a cost recovery standpoint, revenue allocation addresses inter-class cross-subsidization issues, while rate design addresses intra-class cross-subsidization issues.

Q. What are the primary economic and regulatory criteria for revenue allocation?

A. In general, allocated cost is the primary criterion used by regulators in the revenue allocation process. Most utilities and regulators adopt a policy in a base rates proceeding of attempting to move revenues more into line with allocated costs by varying the magnitude of the rate increases for the individual classes. However, regulators also subject the rate increases to other non-cost criteria of ratemaking. Of the traditional rate design criteria, the most common non-cost considerations in the revenue allocation process are:

- The *gradualism* principle (or avoidance of “rate shock”), in which large rate increases for individual customers or classes of customers are avoided; and

- The *value of service* principle, which is often used to mitigate rate increases for customers or customer classes with relatively elastic demand.⁴

Using these criteria, the utility will develop a proposal for assigning the increase in the revenue requirement among the classes that reflects both cost and non-cost considerations. With this proposal, the COSS can be simulated at both present and proposed rates to evaluate the magnitude of “progress” that has been made toward the policy of achieving cost-based rates. I evaluate progress toward cost-based rates using a revenue-cost ratio methodology.⁵

Q. How does PCL&P proposed to allocate revenues in this proceeding?

A. The Company’s revenue allocation is shown in Exhibit G-8, page 1, but the rationale was not explained in the filing. According to PCL&P’s responses to OSBA’s interrogatories, the Company capped the rate increase for the SC2 General class to the base percentage increase for the system. The total revenue increase (less the capped revenue) at the Company’s claimed rate of return (8.59 percent) was then redistributed based on each class’s target base revenue increase.⁶ This approach results in the revenue allocation shown in Table IEC-3 below.

⁴ See, for example, *Principles of Public Utility Rates*, Second Edition, Bonbright, Daniels, Kamerschen, 1988, pages 383 to 387. Note that the criteria in this text apply to the overall development of a utility rate structure. The criteria that I discuss in this testimony are those that apply to the revenue allocation portion of the process, which is only one aspect of the overall development of utility rates.

⁵ See Appendix A.

⁶ OSBA-Pike-Gas-I-11.

Table IEC-3				
PCL&P Proposed Revenue Allcation Using PCL&P Filed COSS, \$000				
	Increase to Cost- Based Rates*	Percent	Proposed Increase*	Percent
Residential Space Heating	\$909.4	110.7%	\$901.7	109.8%
Residential Domestic	\$44.1	175.2%	\$26.1	103.6%
Residential Other	\$3.65	107.1%	\$3.7	109.9%
Sub-Total SC1 Residential	\$957.1	112.6%	\$931.5	109.6%
Commercial	-\$6.3	-8.5%	\$31.8	42.7%
Commercial Space Heating	\$53.0	52.8%	\$40.6	40.5%
Sub-Total SC2 Commercial	\$46.7	26.7%	\$72.4	41.4%
Total	\$1,003.833	97.9%	\$1,003.8	97.9%
*Excludes revenue increase from change in billing determinants				
Source: IEC WP1				

- 1 **Q. Do you agree with the Company’s approach?**
- 2 A. I conclude that the Company’s proposal is directionally consistent with the results of its
- 3 COSS, but contains flaws. Specifically, the Company proposes to assign a rate increase for
- 4 the SC1 class that is less than a cost-based rate increase, and vice versa for the SC2 class. In
- 5 addition, the Company assigns a larger percentage rate increase to the SC2 General class
- 6 than to the SC2 Space Heating class, even though the class rate of return for SC2 General is
- 7 far higher than that for SC2 Space Heating. The Company’s “Q1 - Pike Gas Rate Design 12-
- 8 24-24.xlsx” spreadsheet shows that the SC2 General class should receive a rate *decrease*
- 9 based on the Company’s revenue requirement. Instead, per OSBA-Pike-Gas-I-11, the
- 10 Company’s rationale is that it capped the rate increase for the SC2 class at the system base
- 11 increase percentage and then redistributed revenues based on each rate class’s target revenue
- 12 increase. In other words, the Company appears to assign a rate increase for SC2 commercial
- 13 customers that, though inconsistent with allocated costs, addresses rate gradualism concerns
- 14 for the other rate classes.

1 **Q. What is your alternative revenue allocation proposal?**

2 A. The results of my alternative revenue allocation proposal are summarized in Table IEC-4
3 below. My proposal brings rates into line with allocated costs for the SC1 and SC2 classes
4 overall. I propose a modest increase for the SC2 Commercial class and a slightly larger
5 increase than what the Company proposes for the SC2 Space Heating class.

Table IEC-4				
IEC Proposed Revenue Allocation Using PCL&P Filed COSS, \$000				
	IEC Proposed Increase*	Percent	Current R/C	IEC Proposed R/C
Residential Space Heating	\$909.4	110.7%	93.1%	100.0%
Residential Domestic	\$44.1	175.2%	71.0%	100.0%
Residential Other	\$3.65	107.1%	94.8%	100.0%
Sub-Total SC1 Residential	\$957.1	112.6%	92.3%	100.0%
Commercial	\$3.5	4.8%	227.7%	114.5%
Commercial Space Heating	\$43.2	43.0%	134.4%	93.6%
Sub-Total SC2 Commercial	\$46.7	26.7%	163.1%	100.0%
Total	\$1,003.833	97.9%	100%	97.9%
*Excludes revenue increase from change in billing determinants				
Source: IEC WP1				

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7 **4. Rate Design for the SC2 Class**

8 **Q. Please describe the Company's proposal for SC2 rate design.**

9 A. The current SC2 base rate design consists of a fixed monthly customer charge and two-tier
10 declining block commodity charge, demarcated at 30 Mcf per month. The vast majority (91
11 percent) of revenues are derived from the commodity charge. The Company proposes to
12 impose a 7.3 percent increase on the customer charge, a 36.3 percent increase to the
13 commodity charge for the first 30 Mcf per month, and a 47.1 increase to the commodity
14 charge over 30 Mcf per month. The Company's current and proposed tariff design is shown
15 in Table IEC-5 below.

Table IEc-5			
PCL&P Proposed Rate Design: Rate SC2			
	Current	Proposed	Percent
Customer Charge (\$/Mo.)	\$12.23	\$14.25	4.2%
First 30 Mcf/Month	\$5.089	\$6.938	36.3%
Over 30 Mcf/Month	\$3.537	\$5.204	47.1%
Source: IEc WP1			

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Q. Is the proposed customer charge reasonable?

A. The Company proposes a modest increase to the customer charge. I support this position given the Company’s proposed changes to the declining volumetric block charge, which I discuss below.

Q. Please discuss the general rationale for a declining block volumetric charge.

A. There are two generic reasons for such a charge. First, it is not uncommon for larger customers in a commercial/industrial rate class to have higher load factors than smaller customers. Because the volumetric charge is recovering peak-demand related costs, higher load factor large customers have a lower cost per mcf to serve than smaller customers, thereby justifying a lower rate for larger loads. The Company has not offered such an argument in this proceeding.

Second, utilities often argue that the customer charge is set below the allocated customer cost, and therefore the first block should be increased to better align customer-related costs and revenues. The Company put forward this argument in the last base rates proceeding.

Q. Does the Company’s rationale justify its proposal to retain the rate spread between the two blocks?

A. The Company’s proposed price spread between the two blocks is \$1.333 per mcf, relative to a current spread of \$1.439 per mcf. Because the Company has not provided evidence to support a large price differential between the two blocks, I support the Company’s proposal to reduce the differential if the Commission approves the Company’s revenue allocation. If the Commission approves a lower revenue requirement and/or adopts an alternative revenue

1 allocation, I recommend that the Company's rate design result in similar progress toward
2 reducing the price differential between the volumetric blocks.

3 **5. Late Payment Plan for the SC2 Class**

4 **Q. Did the Company provide statistics about the number of small business customers that**
5 **have been late on payments and have had services cancelled due to lack of payment?**

6 A. Yes. Per OSBA-Pike-Gas-I-16, PCL&P states that 30 small businesses (out of 106) have
7 been late on payments in the last three years, and that, over the same period, 4 small
8 businesses had their service canceled for lack of payment.

9 **Q. What is the Company's position on implementing a formal late payment plan for small**
10 **businesses?**

11 A. Per OSBA-Pike-Gas-I-17, PCL&P does not have a formal late payment plan for small
12 businesses. The Company may consider developing a plan if shown to be just, reasonable
13 and in the public interest.

14 **Q. Does this conclude your direct testimony?**

15 A. Yes, it does.

APPENDIX A

MEASURES OF PROGRESS TOWARD COST BASED RATES

PENNSYLVANIA UTILITY COST AND REVENUE ALLOCATION

1 Introduction

2 The Pennsylvania Commonwealth Court held that cost of service is “the polestar” criterion
3 for assigning a utility rate increase among the various rate classes.⁷ Parties to Pennsylvania base
4 rates proceedings generally agree that this criterion implies that the revenues for each class at the
5 rates approved by the Commission should be closer to allocated costs than the rates in place when
6 the rate case is filed. Thus, parties to the proceeding will typically compare some metric for cost
7 recovery under “proposed rates” with that same metric for cost recovery under “current rates.”
8 This comparison can show (a) *whether* the proposed rates result in class revenues that are closer
9 to allocated costs, and (b) *how much* progress the proposed rates make toward moving class
10 revenues toward allocated costs.

11 While different metrics are used for this analysis, the most common metric in Pennsylvania
12 is the “indexed rate of return” metric (also called the “relative rate of return” or “unitized rate of
13 return” metric). This appendix demonstrates why the indexed rate of return is not a reliable metric
14 for identifying whether proposed rates are closer to allocate costs than current rates, and that even
15 where the indexed rate of return correctly implies that there is progress toward cost-based rates, it
16 is not a reliable indicator of the amount of progress that is achieved.⁸ This appendix also compares
17 the indexed rate of return to three other metrics for evaluating progress toward cost-based rates,
18 namely the dollar subsidy, the rate of return differential, and revenue-cost ratio metrics.

⁷ Lloyd v. Pennsylvania Public Utility Commission, 904 A.2d 1010, 1020 (Pa. Cmwlth. 2006).

⁸ This problem with the indexed rate of return metric was identified in OSBA-sponsored testimony at least as early as 1994. This critique has been presented in expert testimony many times since. No credible rebuttal to these basic conclusions has been submitted, but the widespread use of this flawed metric continues.

The Structure of the Cost Allocation Study

The indexed rate of return metric is derived from the method that is most often used for utility cost allocation in Pennsylvania. When a utility or regulator develops a revenue requirement for a test year, it simply sums all of the individual cost items for that year, including operating and maintenance (“O&M”), administrative and general (“A&G”), depreciation, taxes other than income, income taxes and allowed return on rate base. Thus, the objective of a cost allocation study should be to simply allocate each of these cost elements to the various rate classes. Because the allowed return and associated income tax are derived from rate base, the cost allocation study allocates all net plant and other rate base items to the various rate classes, and the return and income taxes can then be allocated in proportion to rate base.

Cost allocation studies in Pennsylvania, however, are most often conducted on a class rate of return basis. That is, the cost allocation study calculates a class rate of return by taking revenues, deducting the allocated O&M, A&G, depreciation and taxes other than income, to produce a pre-tax class net income. Income taxes are then most often allocated based on the calculated pre-tax class income, and a net income by class value is derived by difference. The allocated pre-tax and net income figures are thus not a cost of capital, but represent the implied return provided by each class under the revenues (current or proposed) used in the cost allocation study. These net income values are then divided by the allocated rate base, to produce percentage class rates of return.⁹ Thus, with this approach to cost allocation, there is a desire by utilities and regulators to develop a metric for evaluating progress toward cost-based rates that is based on the class rates of return produced by the cost allocation study.

Defining Progress Toward Cost-Based Rates

It is not necessarily obvious what it means to “move rates more into line with allocated cost” between current and proposed rates. At the simplest level, one could argue that if the current rate revenues for a particular class are below the allocated cost for that class at the full proposed revenue requirement, any increase in rates will move that class’s revenues closer to allocated cost.

⁹ Some Pennsylvania utilities also calculate cost of service using a “levelized rate of return” method, in which return and income tax costs are allocated such that each class produces the system average rate of return. This approach is arithmetically equivalent to allocating return and income tax costs in proportion to rate base, as described above.

1 However, the objective of this exercise is to measure the progress toward cost-based rates for each
2 rate class compared to that for all of the other classes. Thus, a revenue allocation proposal must
3 be evaluated for its impact on all of the rate classes.

4 Also at the simplest level, of course, a proposed revenue allocation will by definition move
5 rates more into line with allocated cost if each class's revenues are moved exactly to the full
6 proposed allocated cost of service. Or, equivalently, rates are exactly cost-based when each class's
7 revenues are set such that the class produces the system average rate of return. Therefore, there is
8 no question that moving a class exactly to an indexed rate of return of unity (1.0) is necessarily
9 consistent with making rates more cost-based.

10 In many base rate proceedings, however, moving rates fully into line with allocated costs
11 cannot be achieved due to consideration of other rate design factors, most notably "rate
12 gradualism," which serves to limit the increase for any particular class of customers in any rate
13 proceeding, and has the aim of gradually moving rates into line with allocated cost.

14 Thus, in terms of determining whether a particular rate proposal moves rates into line with
15 allocated cost, this appendix takes the position that there is progress toward cost-based rates if the
16 proposed relative rate increases across the various classes, when followed for a number of base
17 rates proceedings (in which there is no change in the relative cost structure), will eventually result
18 in cost-based rates. Thus, for any particular metric, it is important to consider not only the
19 difference between the metric and current rates and proposed rates in one base rates case, but also
20 what that metric will imply going into the next base rates case.

21 As shown further in the numerical example below, this standard for defining progress
22 implies that for classes with revenues below allocated cost at current rates (or, equivalently, with
23 a class rate of return below system average), progress can only be achieved by assigning that class
24 a rate increase above the system average increase. This, of course, is just plain common sense. If
25 a class is under-recovering costs, it should be assigned an above average increase. As shown
26 below, however, the indexed rate of return metric fails at common sense.

1 **The Numerical Example**

2 This appendix takes the approach of defining a specific numerical example, and showing
3 the implications of various different metrics on different rate increase scenarios. The calculations
4 associated with this example are also provided in MS Excel electronic format (WP2), and parties
5 are able to simulate alternative examples to evaluate the rigor of this analysis.

6 The example attached to this appendix shows the arithmetic impacts of a single two-class
7 utility example under four different rate increase proposals. Each page shows the implications of
8 a different revenue-cost metric, namely the indexed rate of return, dollar subsidy, differential rate
9 of return, the revenue-cost ratio and the normalized revenue-cost ratio.

10 The example involves two rate classes, A and B, in which each generates the same revenue
11 at current rates, but in which Class A has a moderately higher cost to serve. The four rate increase
12 scenarios are (I) an across-the-board increase in which both classes get the same percentage
13 increase, (II) a scenario with a moderately higher percentage increase for Class B, and (III) a
14 slightly higher percentage increase for Class A, and (IV) a moderately higher percentage increase
15 for Class B.

16 The common-sense answer is that the across-the-board scenario (I) should show no
17 progress toward cost-based rates, Scenario II should indicate that revenues are moving farther
18 away from costs, and Scenarios III and IV should show that revenues are moving slightly and
19 modestly closer to allocated costs. The discussion of each metric below highlights where the
20 metric produces results that are at odds with these expectations.

21 To evaluate the question as to whether there is consistent progress toward cost-based rates,
22 the metrics are evaluated at both proposed rates in the “current” base rates proceeding, and for
23 what the values would imply going into the next base rates case after a uniform increase in costs.

24 **The Indexed Rate of Return Metric**

25 The indexed rate of return metric is measured as the class rate of return divided by the
26 system average rate of return, at current and proposed rates. If revenues are fully in line with
27 allocated costs, the class indexed rate of return is unity (1.0). Thus, if a class has an indexed rate

1 of return at present rates that is higher than system average, it is deemed to be over-recovering
2 costs, and conversely, where the indexed rate of is below unity, the class is under-recovering
3 allocated costs.

4 As a standalone measure for relative cost performance, there is nothing wrong with the
5 indexed rate of return metric – for any particular system average rate of return scenario, the farther
6 a class’s indexed rate of return is from unity, the farther it is from allocated costs.

7 Moreover, since an indexed rate of return of unity represents cost-based rates, it is
8 conceptually appealing to conclude that if the indexed rate of return moves closer to unity, there
9 is progress toward cost-based rates. Moreover, it is similarly appealing to conclude that progress
10 toward cost-based rates could be measured by how much closer the index gets toward unity
11 between current and proposed rates. Unfortunately, this intuitive approach fails in the actual
12 arithmetic.

13 Utilities have used this argument for decades in Pennsylvania. While it is not clear why
14 alternative methods have not been adopted, it may be that the metric is attractive to both utilities
15 and regulators in that it tends to show significant progress toward cost-based rates when in fact
16 there is little such progress. This then allows utilities to claim that they are following the cost
17 standard without having to make politically unpopular decisions regarding differentiating rate
18 increases among the various rate classes.

19 When applied in an actual example, the indexed rate of return fails even the simplest test.
20 In the example shown, the current rates class rates of return are 2.50% and 5.71% for Classes A
21 and B respectively, producing indexed rates of return of 0.625 and 1.429 relative to the system
22 average return of 4.00%. When a 30% increase is applied to both classes, the system average rate
23 of return rises to 8.00%, and the class returns rise to 6.25% and 10.00% respectively, yielding
24 indexed rates of return of 0.781 and 1.250.

25 Thus, despite the fact that both classes get the same percentage increase and common sense
26 says that there should be no progress toward cost-based rates, the indexed rate of return metric not
27 only implies that there is progress, but that there is significant progress. The Class A indexed rate

1 of return moves from 0.625 to 0.781, which appears to imply that the class has moved 42 percent
2 of the way to cost-based rates.¹⁰

3 The fallacy of this logic is shown in the implications for the next rate case. When costs
4 increase, the system average rate of return falls back to its lower level and the indexed rate of
5 return metrics all shift farther away from unity. Thus, as shown, an across-the-board increase in
6 the current rate case followed by an across-the-board cost increase for the next case will
7 demonstrate that, in fact, there is no progress toward cost-based rates and the indexed rates of
8 return are right back where they started.

9 The other revenue increase scenarios show similar problems with the indexed rate of return
10 metric. In Scenario II, despite a smaller percentage increase for the higher-cost Class A, the
11 indexed rate of return again implies that there is progress toward cost-based rates, which is
12 obviously nonsense. This is again demonstrated by the implications for the next base rates case,
13 which understandably show that rates are farther out of line than they were going into the current
14 rate case. It is simply unreasonable to believe that assigning larger percentage increases to the rate
15 class that is already over-recovering costs will somehow reduce inter-class subsidies. And yet
16 that is the implication of the indexed rate of return metric.

17 In Scenarios III and IV, the indexed rate of return does produce the correct directional
18 answer, namely that rates are moving more into line with allocated cost. But the indexed rate of
19 return metric implies that both scenarios result in enormous progress toward cost-based rates, when
20 in fact there is relatively little progress, particularly in Scenario III. As shown in the example,
21 despite a small differential in the rate increases, the indexed rate of return implies that revenues
22 have moved 50 percent of the way toward allocated cost. Realistically, however, as shown in the
23 implications for the next base rates case, the actual progress is much lower.

24 Thus, the indexed rate of return metric is a wholly unreliable guide for evaluating progress
25 toward cost-based rates in a utility rate proceeding, because it (a) may show progress toward cost-

¹⁰ “Progress” is measured by how much the metric has moved divided by how far it needs to move to become fully cost-based. Thus, in the residential class example, the index moves from 0.625 to 0.781, a difference of 0.156, compared to moving fully to cost-based rates, which would require the index to move from 0.625 to 1.000, a difference of 0.375. Progress is measured as 0.156/0.375, or 42 percent.

1 based rates when in fact revenues are moving farther away from costs, and (b) will overstate the
2 magnitude of progress toward cost-based rates when progress is occurring.

3 **The Dollar Subsidy Method**

4 While the indexed rate of return metric is the most common approach used by Pennsylvania
5 utilities, the Commission has also supported the use of the dollar subsidy metric. In an order
6 involving the City of Bethlehem – Water Department, the Commission concluded:

7 "As noted by the OSBA, the proper yardstick for measuring the degree of
8 movement toward cost of service is the change in the absolute level of class
9 subsidies at present and proposed rates."¹¹

10 In the dollar subsidy method, the total cost to provide service is calculated using the method
11 described above, in which each component to cost, including return and income taxes, is allocated
12 to each cost. The difference between current rate revenues and the allocated cost is the dollar
13 subsidy.¹²

14 In allocating the return and income tax costs under the “current rates” evaluation, the values
15 used represent only the return that the utility would achieve and the income taxes that it would
16 incur if it were assigned no rate increase. These values therefore do not represent the utility cost
17 of capital, but simply residual values of what is left from current rate revenues after O&M, A&G,
18 depreciation and other taxes are deducted.

19 When the dollar subsidy metric is applied to the four alternative revenue allocation
20 proposals in the attached example, it implies the following:

- 21 • For the across-the-board increase, the dollar subsidy metric indicates that the dollar
22 value of the revenue-cost difference increases under proposed rates, implying that rates

¹¹ *Pennsylvania Public Utility Commission v. City of Bethlehem -- Water Department*, Docket No. R-2020-3020256, Order entered April 15, 2021, at 36.

¹² This appendix uses the term “subsidy” as the difference between revenues and fully allocated cost in a utility cost allocation study. Theoretical economics generally defines subsidy based on incremental cost concepts, rather than fully allocated cost.

1 are moving farther away from costs. In dollar terms, that conclusion is correct,
2 although in percentage terms the subsidies remain the same.

- 3 • When a larger increase is assigned to Class B, the dollar subsidy metric indicates
4 correctly that rates are moving farther away from allocated cost, and that the problem
5 will be worse with the next base rates proceeding.
- 6 • When a modestly larger increase is assigned to Class A, the dollar subsidy metric
7 implies that there is no progress toward cost-based rates in the current rate proceeding,
8 and that the situation will be worse in the next base rates case. In effect, even though
9 the slightly higher rate increase for Class A will (eventually) lead to cost-based rates,
10 the dollar subsidy method implies that there is no progress.
- 11 • When a materially larger increase is assigned to Class A, the dollar subsidy metric
12 correctly indicates that there is progress toward cost-based rates.

13 Thus, overall, the dollar subsidy metric will tend to slightly understate progress toward
14 cost-based rates, but the distortion is far smaller (and in the opposite direction) of that of the
15 indexed rate of return metric.

16 **The Differential Rate of Return**

17 The differential rate of return metric is similar to the indexed rate of return metric, in that
18 both approaches calculate class rates of return and current and proposed rates, and compares each
19 class's return to the system average. However, where the indexed rate of calculates the *ratio* of
20 class to average return, the differential rate of return calculates the *difference* between class and
21 average rates of return. In the indexed rate of return, cost-based rates are achieved with an indexed
22 rate of return of unity (1.0); for the differential rate of return, cost-based rates are achieved with a
23 differential rate of return of zero.

24 When applied to the four revenue allocation scenarios in the example, the differential rate
25 of return produces results that are nearly the same as the dollar subsidy method. That is, the
26 differential rate of return calculation will slightly understate progress toward cost-based rates, but
27 the results are much less distorted than those from the indexed rate of return metric.

1 **Revenue-Cost Ratio**

2 The revenue cost ratio is similar to the dollar subsidy metric, except rather than taking the
3 difference between revenues and allocated costs, it takes the ratio of revenues to allocated cost.
4 Like the indexed rate of return, cost-based rates are achieved at a revenue-cost ratio of unity (1.0
5 or 100 percent).

6 Unlike the indexed rate of return metric, however, the revenue-cost ratio generally does
7 not distort the implications of a revenue allocation proposal. As shown in the example, in all four
8 revenue allocation proposals, the revenue-cost ratio correctly indicates when there is progress
9 toward cost-based rates and when there is not.

10 The only downside to this unadjusted revenue-cost ratio approach is that the progress
11 toward cost-based rates in the current case is not the same as that going into the next base rates
12 case. This results because the mix of operating costs allocated to each class is different from the
13 mix of rate base costs. This minor distortion is addressed in the final metric below.

14 **Normalized Revenue-Cost Ratio**

15 The normalized revenue-cost ratio makes a technical correction to the revenue-cost ratio
16 metric to reduce the distortion associated with using a non-cost parameter, namely the residual
17 return and income tax costs, as a measure of cost at current rates. This metric uses fully allocated
18 costs including the utility's allowed return on capital as the cost metric at both current and proposed
19 rates. In this metric, however, the revenues at current rates are "normalized" by applying the
20 system average rate increase to each class. Thus, in this metric, the current rates revenue-cost ratio
21 is the revenues that would be earned from each class if an across-the-board rate increase were
22 applied divided by the fully allocated class revenue requirement. This is then compared to the
23 revenue-cost ratio that results from the actual proposed revenue allocation.

24 As shown in the attached example, this metric correctly shows the progress toward cost-
25 based rates in each of the scenarios, and it also correctly predicts what each class's revenue-cost
26 performance will be going into the next base rates case if there is no change in the underlying cost
27 structure.

28

1 **Summary**

2 The indexed rate of return is a metric that has intuitive appeal, in that cost-based rates are
3 achieved when the index is at unity (1.0), and that it would seem therefore that moving the index
4 closer to 1.0 would represent progress toward cost-based rates.

5 Alas, it is not that simple. As shown in the examples attached, and as evidenced in
6 hundreds of utility rate proceedings in Pennsylvania, the indexed rate of return is not a reliable
7 metric for gauging progress toward cost-based rates for any particular revenue allocation proposal.
8 It may give a directionally correct answer, and it may not. And even when it does correctly show
9 progress, it implies that there is much more progress toward cost-based rates than actually exists.

10 Of the five metrics evaluated in this review, the indexed rate of return is the only metric to
11 fail the test and imply that there is progress toward cost-based rates when there is none, and even
12 when rates are moving substantially away from allocated cost.

13 All the other metrics evaluated in this review are superior to the indexed rate of return
14 approach. The dollar subsidy and differential rate of return have a modest disadvantage in that
15 they may imply that there is no progress toward cost-based rates when in fact some small progress
16 is occurring. This is a relatively modest disadvantage since the distortion is much smaller than
17 that in the indexed rate of return, and more so because it will encourage Pennsylvania utilities and
18 regulators to adopt revenue allocation proposals that are more aggressive in moving revenues into
19 line with allocated cost, consistent with the legal standard that cost of service be the polestar
20 criterion.

21 Overall, however, the revenue-cost metric, particularly the normalized revenue-cost
22 metric, does not suffer from the distortions of any of the other methods, and is the most reliable of
23 the methods on offer.

EXHIBIT IEc-1

**RÉSUMÉ AND EXPERT TESTIMONY LIST
FOR
MARK D. EWEN**

Overview

Mr. Ewen has a strong background in applied economics, empirical methodologies, and financial analysis. As a Principal at Industrial Economics, Incorporated (IEc), he focuses on expert case management and economic damages estimation in a variety of litigation contexts, regulatory and environmental economics, and financial analysis. Within his areas of expertise, Mr. Ewen has been qualified as an expert witness before judicial and regulatory bodies (see schedule of testimony and appearances). He has also served as a Managing Director of the firm.

Education

Master of Public Policy, University of Michigan

Bachelor of Arts, summa cum laude in Economics and Political Science, University of North Dakota

Project Experience

Examples of his project work include the following:

Mr. Ewen has participated in various proceedings concerning energy markets and regulated utilities. These efforts, which focus on issues related to cost allocation and rate design, include working on behalf of industry and consumer intervenor groups in rate-making cases before the public utility commissions in Pennsylvania and Alberta, Canada, and the U.S. Postal Rate Commission. For example, for the **Pennsylvania Office of Small Business Advocate**, he has provided consulting and analytic support relating to electricity and natural gas tariff design, revenue requirements, and other regulatory initiatives concerning electrical and natural gas distribution utilities. For the **Rhode Island Attorney General**, Mr. Ewen conducted a due diligence review of PPL's proposed acquisition of Narragansett Electric Company and its potential impacts on the state's ratepayers.

For the **New York State Energy Research and Development Authority (NYSERDA) and Department of Public Service (DPS)**, Mr. Ewen provided expert services assessing the economic impacts to municipal governments of extended electricity outages related to Tropical Storm Isaias. As part of this work, he constructed a model to estimate various costs of incremental staffing requirements for over 500 localities, including excess overtime, surge time (i.e., bringing on extra staff for outage response coordination and logistics), and idle time (e.g., crews waiting extended periods for downed lines to be de-energized). The review also included consideration of other direct costs, including, among others: effects to water systems; delivery of bottled water; operation of generators; and other constraints on the provision of essential governmental services. The litigation was settled to the satisfaction of the involved parties.

For the **NYSERDA and New York DPS**, Mr. Ewen directed the development of a Generic Environmental Impact Statement (GEIS), pursuant to the requirement of the State Environmental Quality Review Act (SEQRA) that assessed the environmental and economic impacts of the "Reforming the

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Energy Vision” and “Clean Energy Fund” initiatives within the state. He also directed the preparation of a Supplemental EIS to assess the environmental and economic impacts of the newly proposed Clean Energy Standard (CES). The CES is being developed to support the state’s goal of supplying 50 percent of electricity demand with renewable generation resources by the year 2030. More recently, he directed the development of a model to assess the financial viability of various waste-to-energy technologies, and related social welfare benefits. This model uses detailed capital budgeting scenarios for specific facilities to generate forecast scenarios.

For the **U.S. Department of the Interior, Bureau of Ocean Energy Management (BOEM)**, directing an assessment of the Bureau’s approach to calculating and presenting the operating fee included in offshore wind leases under BOEM’s jurisdiction. As part of this engagement, IEc provided a number of recommendations for simplifying the implementation of the operating fee formula and identified available data sources and approaches to estimating individual components of the fee formula. The review also addressed the structure and levels of fees associated with operations of renewable wind energy projects in the U.S. and worldwide. More recently, IEc has been supporting the development of Standard Operating Procedures for the fee calculation and lease management process. The overall goal is to provide information resources and a methodological approach that will allow lessees to derive accurate data for fee equation variables efficiently and consistently, and for BOEM to present the fee calculation clearly in the lease.

For **NYSERDA**, conducting a market analysis examining the potential economic development opportunities that could accrue in New York from hydrogen playing a role in achieving components of its Climate Leadership and Community Protection Act.

For the **U.S. Department of the Interior, Bureau of Ocean Energy Management**, managed the development of a model to assess the economic and fiscal impacts of offshore oil and gas activity in the Gulf of Mexico and other BOEM OCS regions. This model, the Lifecycle Impacts Model (LCIM), assesses the economic and fiscal impacts associated with a specific lease or group of leases, over the time horizon of the lease(s). IEc’s framework for the model was to build a capital budgeting forecasting tool for lease development, yielding estimates of industry expenditures, OCS revenues, industry profits, and employment impacts for a single lease or a set of leases. A key component of model development was to dynamically simulate the complex and unique timing parameters of lease development, incorporating the influence of critical exogenous factors like market prices and lease geology.

For the **U.S. Coast Guard, National Pollution Funds Center**, Mr. Ewen provides ongoing support to the NPFC in adjudicating damages claims resulting from oil spills. These claims include damages for business interruption, lost profits, property damage or value diminution, increased costs, and lost wages or employment, among other categories. Cases have also included damages for contract delays to construction projects and shipping demurrage. Industry sectors that Mr. Ewen has evaluated include: *electricity generation (nuclear and coal); railroads; cruise ships; oil ship transport; lodging and tourism; food and beverage; gambling; fisheries; marinas; real estate development, oil and gas development; and oil refining.*

Mr. Ewen's analytic work includes expert financial analysis and economic damages estimation in the context of general litigation and environmental enforcement actions. These efforts include assessing damages in breach of contract, nuisance, and cost recovery actions, and assessing the financial capabilities and economic benefit of noncompliance of firms accused of environmental violations. Clients in this area of his practice include the **U.S. Department of Justice, U.S. Coast Guard, U.S. Environmental Protection Agency, States**, and private parties.

Testimony and Appearances

Mr. Ewen has provided testimony or appeared in the following cases and regulatory proceedings.

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning the distribution system improvement charge (DSIC) case for PPL Electric Utilities Corporation (Docket No. R-2024-3048732, July 2024).

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning cost allocation, revenue allocation, and rate design in the base rates case for First Energy of PA (Docket No. R-2024-30447068, June 2024).

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning cost allocation, revenue allocation, and rate design in the base rates case for PECO Gas (Docket No. R-2024-3046932, June 2024).

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning cost allocation, revenue allocation, and rate design in the base rates case for Columbia Gas of Pennsylvania (Docket No. R-2024-3046519, June 2024).

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning the Default Service Plan for PPL Electric (Docket No. P-2024-3047290, June 2024).

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning the Default Service Plan for PECO Energy Company (Docket No. P-2024-3046008, April/May 2024).

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning recovery of purchased gas costs and revenue sharing for National Fuel Gas Distribution Corporation (Docket No R-2024-3045177, March 2024).

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning electricity price hedging under the default service plan for Pike County Light and Power (Docket No. P-2023-3039927; direct testimony June 2023; surrebuttal testimony August 2023).

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning base tariff rate development for Columbia Gas of Pennsylvania, including issues of cost allocation, revenue allocation, and rate design. (Docket No. R-2022-3031211, June/July 2022)

On behalf of Attorney General of the State of Rhode Island, submitted testimony before the Rhode Island Division of Public Utilities and Carriers concerning due diligence and related reviews of PPL Corporation's proposed acquisition of Narragansett Electric Company from National Grid USA (Docket No. D-21-09, November 2021).

Expert report and deposition testimony concerning economic damages and related financial matters, *Seaplane Adventures, LLC, vs. County of Marin, California*; expert report filed September 2021, deposition testimony given September 2021.

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Expert reports and deposition testimony on bankruptcy reorganization plan feasibility and related financial matters, *in re: First Energy Solutions Corp., et al., Debtors, Case No. 18-50757*; expert reports filed July 2019, deposition testimony given August 9, 2019.

Expert declaration concerning economic damages and related financial matters, *in re: Outer Banks Power Outage Litigation, all actions, No. 4:17-CV-141-D*, March 2018.

Expert report and deposition testimony on Economic Damages in *State of Alaska v. Williams Alaska Petroleum, Inc., et al., Case No. 4FA-14-01544 CI*; expert report filed December 2016, deposition testimony given February 15, 2017.

Expert reports and deposition testimony on Economic Benefit in *Sierra Club v. Energy Future Holdings Corp. et al., Case No. 5:10-cv-156 (E.D. Tex.)* and *Sierra Club v. Energy Future Holdings Corp. et al., Case No. 6:12-cv-108 (W.D. Tex.)*; expert reports filed in June and July 2013, deposition testimony given August 2013. Trial testimony given in *Case No. 6:12-cv-108 (W.D. Tex.) in March 2014*.

Expert testimony on ability-to-pay provided, in the matter of Mercury Vapor Processing Technologies, Inc., et al. (No. RCRA-05-2010-0015), July 2011.

Expert Declaration in a patent case concerning economic and financial matters in the context of environmental credits valuation -- In re Patent Application of: Jeff Andrienas et al., Application No.: 12/328,219, For: VALUING ENVIRONMENTAL CREDITS, submitted June 2011.

Expert report and deposition testimony on financial matters in *Evansville Greenway and Remediation Trust v. Southern Indiana Gas and Electric Company, Inc., et al. (03:07-cv-0066-SEB-WGH)*; expert report filed July 2009, deposition testimony given January 2010.

Expert testimony on ability-to-pay provided, in the matter of Robert J. Heser, Andrew J. Heser, and Heser Farms (No. CWA-05-2006-0002), May 2007.

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning tariff design issues for Columbia Gas of Pennsylvania (Docket No. R-00049783, May 2005).

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning cost allocation, revenue assignment, and rate design for Pennsylvania Power and Light (Docket No. R-00049255, August 2004).

Expert report on economic damages in *United States v. Southern California Edison No. CIV. F-01-5167 OWW DLB (E.D. Cal.)*, July 2004; deposition testimony provided September 2004.

Expert testimony on ability-to-pay provided in *U.S. v. Peter Thorson, Managed Investments, Inc., Construction Management, Inc., and Gerke Excavating, Inc. (No. 03-C-0074)*, May 2004.

Expert testimony on ability-to-pay provided in *U.S. v. Paul A. Heinrich and Charles Vogel Enterprises, Inc. (No. 03-C-0075-S)*, October 2003.

Expert testimony on ability-to-pay provided in the matter of Dearborn Refining Company (No. RCRA-05-2001-0019), February 2003.

IEc

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning recovery of purchased gas costs and revenue sharing for PFG Gas and Northern Penn Gas (Docket No. R-00027389, July 2002).

Expert report and testimony on economic damages in Carol Marmo et al. v. IBP, Inc.; expert report filed March 2002, deposition testimony given June 2002, September 2004, and testimony at trial given February 2005.

On behalf of Pennsylvania's Office of Small Business Advocate, submitting testimony before the Pennsylvania Public Utility Commission, concerning recovery of purchased gas costs and revenue sharing for National Fuel Gas Distribution Corporation (Docket No. R-00016789, March 2002).

On behalf of the Office of the Consumer Advocate, providing testimony before the United States Postal Rate Commission regarding cost allocation of city carrier street time costs. Docket No. R2000-1, July 11, 2000.

Expert report and declaration on ability-to-pay in re Indspec Chemical Corporation and Associated Thermal Services, Inc., and related testimony in U.S. EPA administrative court on February 24, 1998 (No. CAA-III-086).

Expert report on ability-to-pay in re Harrisburg Hospital and First Capital Insulation, Inc. and related testimony in U.S. EPA administrative court on October 8, 1997 (No. CAA-III-076).

EXHIBIT IEc-2

IEc ELECTRONIC WORKPAPERS

IEc WP1: Cost and Revenue Allocation***

*****Workpapers are in excel format ONLY; therefore, will be served via email ONLY
simultaneous to service of OSBA's Direct Testimony*****

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2024-3052357
	:	C-2025-3052972
v.	:	
	:	
Pike County Light & Power Company	:	
(Gas)	:	

CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the foregoing have been served via email (*unless otherwise noted below*) upon the following persons, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

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COMMONWEALTH OF PENNSYLVANIA

May 1, 2025

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Administrative Law Judge
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The Honorable Alphonso Arnold III
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Harrisburg, PA 17120

**Re: Pennsylvania Public Utility Commission v. Pike County Light & Power Company
(Gas) / Docket No. R-2024-3052357**

Dear Judge Guhl and Judge Arnold:

Enclosed please find the Rebuttal Testimony of Mark D. Ewen, labelled OSBA Statement No. 1-R, on behalf of the Office of Small Business Advocate (“OSBA”), in the above-referenced proceeding.

As evidenced by the enclosed Certificate of Service, all known parties will be served, as indicated.

If you have any questions, please do not hesitate to contact me.

Sincerely,

/s/ Rebecca Lyttle

Rebecca Lyttle
Assistant Small Business Advocate
Attorney ID No. 201399

Enclosures

cc: PA PUC Secretary Matthew L. Homsher (Cover Letter & Certificate of Service only)
Mark D. Ewen
Parties of Record

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket No. R-2024-3052357
	:	
v.	:	
	:	
Pike County Light & Power Company	:	
(Gas)	:	

Rebuttal Testimony of

MARK D. EWEN

On Behalf of the

Pennsylvania Office of Small Business Advocate

Topics:

**Cost Allocation
Revenue Allocation**

Date Served: May 1, 2025

Date Submitted for the Record: _____

REBUTTAL TESTIMONY OF MARK D. EWEN

1 **1. Introduction and Context**

2 **Q. Please state your name and briefly describe your qualifications.**

3 A. My name is Mark D. Ewen. I submitted direct testimony and associated exhibits on behalf
4 of the Pennsylvania Office of Small Business Advocate (“OSBA”) earlier in these
5 proceedings and my qualifications were presented therein.

6 **Q. What is the purpose of this rebuttal testimony?**

7 A. This rebuttal testimony responds to the following witnesses/topics:

8 Pennsylvania Office of Consumer Advocate (“OCA”) Witness Karl R. Pavlovic and
9 Bureau of Investigative Enforcement (“I&E”) Witness Ethan H. Cline on matters of cost
10 allocation and revenue allocation.

11 I also address errors in my direct testimony in the cost allocation section.

12 **2. Cost Allocation**

13 **Q. What are the positions of the various parties regarding the appropriate method for**
14 **classifying and allocating distribution mains for this proceeding?**

15 A. The parties’ positions are as follows:

16 • Pike County Light & Power Company Gas Division (the “Company” or
17 “PCL&P”): Utilizes a minimum system (or minimum-size) approach to classify
18 distribution mains as customer-related or demand-related, with the customer
19 component allocated to classes based on number of customers and the demand
20 component allocated to classes based on peak demand.

21 • OCA: Witness Pavlovic states that there is no basis in theory, system design and
22 operating practice, or empirical quantitative data to support the Company’s use of
23 the minimum-size method to classify as customer-related any portion of its
24 distribution costs in account 376 in its cost of service study (“COSS”). Witness
25 Pavlovic argues that such costs should be classified as 100 percent demand-related
26 and properly allocated to rate classes using the Company’s demand allocation

1 factors. Based on his simulation of the Company's COSS with this modification,
2 he offers an alternative revenue allocation.

- 3 • I&E: Witness Cline also claims that classifying mains costs as customer-related is
4 not appropriate for this proceeding. In addition, instead of the Company's proposed
5 peak demand allocation method, Witness Cline supports the use of the Peak and
6 Average ("P&A") method to allocate mains costs to rate classes. In response to
7 I&E-RS-11, the Company provided a schedule showing the allocation of mains
8 based on an allocation of 50 percent peak demand and 50 percent average demand.
9 Witness Cline recommends that the Commission use this alternative COSS based
10 on the P&A method to inform revenue allocation in this proceeding.

- 11 • OSBA: I did not object to the Company's COSS. However, I wish to make two
12 corrections to my direct testimony. On page 5, lines 21-22, I incorrectly stated that
13 "the Company's COSS does not include a customer component for mains costs..."
14 The COSS clearly does include a customer component. Similarly, on page 6, lines
15 1-2, I incorrectly stated that there are no customer component mains costs.

16 **Q. Witness Pavlovic claims that there is no basis in theory, system design and operation**
17 **practice for PCL&P to use a minimum size classification method. Do you agree?**

18 A. No. This assertion would only be reasonable if (a) the distribution system never expands
19 to new areas to serve new customers, and (b) the existing distribution system that was
20 expanded to interconnect new customers never needs to be replaced. If the gas distribution
21 system expands into new areas, it will incur additional costs to increase mains footage,
22 some of which are related to the increased demand and some of which are related to the
23 need to interconnect the new customers. Moreover, since much of the existing distribution
24 system was once expanded in a similar manner, i.e., to meet new demand and connect new
25 customers, the cost of replacing those assets are similarly related to both demand and
26 customers.

27 In addition, Witness Pavlovic's assertion does not recognize a second rationale for
28 including a customer component in distribution costs, namely that more footage of mains
29 must be installed to interconnect many small customers than to connect one larger customer
30 with the same aggregate load. This approach is particularly appealing for small to medium
31 business customers who are often more geographically concentrated in commercial areas,

1 thereby requiring less mains footage. This conceptual argument is supported by aggregate
2 industry statistical analysis.¹ Consequently, mains footage is causally related to the number
3 of customers, and therefore mains costs are partially customer-related.

4 The Company's COSS represents continuity with previous methods and analyses that
5 informed revenue allocation. For example, the Company's COSS utilizes the same
6 estimated customer-related and demand-related components as were used in the 2013 and
7 2020 proceedings.²

8 **Q. Please comment on Witness Pavlovic's claim that the Company's use of the minimum**
9 **system method does not reflect the planning, design, and operation of PCL&P's**
10 **distribution system.**

11 A. I disagree. In response to OSBA's interrogatories, the Company provided its analysis in
12 Excel spreadsheet format to develop its minimum system classification factors for mains.
13 See OSBA-Pike-Gas-I-8. The Company provided the same document to OCA.³ Witness
14 Pavlovic states: "Based on my inspection of PCLP's response to OCA-7-3, the response
15 clearly demonstrates that the number of customers on PCLP distribution system plays no
16 role in the design, planning, and operation of PCLP's distribution system recorded in
17 account 376." The Company's response to OCA 7.3 was to provide its Gas Operations &
18 Maintenance Manual. Based on my review of the manual, I find no evidence that supports
19 Witness Pavlovic's claim that the demand for gas is the sole cause or driver of costs
20 associated with distribution mains. PCL&P has consistently classified a portion of
21 distribution mains costs as customer-related, which in my view is sufficient evidence that
22 the Company considers the number of customers in designing and operating its distribution
23 system.

24 **Q. Turning to I&E's testimony, Witness Cline argues that the Company's alternative**
25 **COSS based on the Peak and Average allocation method should guide revenue**
26 **allocation in this proceeding. Do you agree?**

¹ See, for example, a report prepared by Black & Veatch for Gaz Métropolitain, at https://www.regie-energie.qc.ca/fr/participants/dossiers/R-3867-2013/doc/R-3867-2013-B-0005-Demande-Piece-2013_11_15.pdf, pages 12-16.

² See OSBA-Pike-Gas-I-8 and the accompanying "Q8 - 2013 Pike Gas Minimum System for Mains.xlsx" spreadsheet.

³ OCA 7.4.

1 A. No. I summarized my objections to the P&A allocation method in my direct testimony.
2 Further, Witness Cline cites the 2021 Columbia Gas Order at Docket No. R-2020-3018835
3 as evidence of the Commission’s “consistent support of the Peak and Average
4 Methodology due to the allocation of mains.” Commission Orders, including those for
5 Columbia Gas, in fact reaffirm that the terms and conditions of settlements are not relied
6 upon as precedential and that cost of service studies should be evaluated on a case-by-case
7 basis. In this proceeding, the Company’s classification and allocation of mains (based on
8 peak demand) are appropriate and should include a customer component.

9 **3. Revenue Allocation**

10 **Q. Do you agree with Witness Pavlovic’s proposed revenue allocation?**

11 A. Witness Pavlovic provides an alternative revenue allocation based on a COSS *without* the
12 minimum size classification. I conclude that Witness Pavlovic’s COSS modifications are
13 not consistent with cost causation. Therefore, Witness Pavlovic’s revenue allocation
14 proposal is not appropriate for this proceeding.

15 **Q. Do you agree with Witness Cline’s proposed revenue allocation?**

16 A. Witness Cline provides an alternative revenue allocation based on a COSS based on the
17 P&A method *without* a customer component in mains classification/allocation. I conclude
18 that the Company’s COSS modifications prepared in response to I&E’s interrogatories are
19 not consistent with cost causation. Therefore, Witness Cline’s revenue allocation proposal
20 is not appropriate for this proceeding.

21 **Q. Does this conclude your rebuttal testimony?**

22 A. Yes, it does.

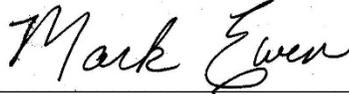
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VERIFICATION

I, Mark D. Ewen, hereby state that the facts set forth in the Rebuttal Testimony labelled OSBA Statement No. 1-R is 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).

Date: April 29, 2025



Mark D. Ewen

**BEFORE THE
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Pennsylvania Public Utility Commission	:	Docket Nos. R-2024-3052357
	:	C-2025-3052972
v.	:	
	:	
Pike County Light & Power Company	:	
(Gas)	:	

CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the foregoing have been served via email (*unless otherwise noted below*) upon the following persons, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

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Date: May 1, 2025

/s/ Rebecca Lyttle

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Attorney ID No. 201399

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Date: June 5, 2025

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