

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of the Application of  
Louisville Gas & Electric Company for an  
Adjustment of Its Electric Rates and for  
Certificates of Public  
Convenience and Necessity**

**Case No. 2016-00371**

**DIRECT TESTIMONY OF  
JONATHAN WALLACH  
ON BEHALF OF  
SIERRA CLUB AND AMY WATERS**

Resource Insight, Inc.

**MARCH 3, 2017**

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1 **I. INTRODUCTION AND SUMMARY**

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

3 A: My name is Jonathan F. Wallach. I am Vice President of Resource Insight,  
4 Inc., 5 Water Street, Arlington, Massachusetts.

5 **Q: Please summarize your professional experience.**

6 A: I have worked as a consultant to the electric power industry since 1981. From  
7 1981 to 1986, I was a research associate at Energy Systems Research Group.  
8 In 1987 and 1988, I was an independent consultant. From 1989 to 1990, I  
9 was a senior analyst at Komanoff Energy Associates. I have been in my  
10 current position at Resource Insight since September of 1990.

11 Over the past four decades, I have advised and testified on behalf of  
12 clients on a wide range of economic, planning, and policy issues relating to  
13 the regulation of electric utilities, including: electric-utility restructuring;  
14 wholesale-power market design and operations; transmission pricing and  
15 policy; market-price forecasting; market valuation of generating assets and  
16 purchase contracts; power-procurement strategies; risk assessment and  
17 mitigation; integrated resource planning; mergers and acquisitions; cost  
18 allocation and rate design; and energy-efficiency program design and  
19 planning.

20 My resume is attached as Exhibit JFW-1.

21 **Q: Have you testified previously in utility proceedings?**

22 A: Yes. I have sponsored expert testimony in more than eighty state, provincial,  
23 and federal proceedings in the U.S. and Canada. Exhibit JFW-1 provides a  
24 detailed list of my previous testimony.

25

1

2 **Q: On whose behalf are you testifying in this proceeding?**

3 A: I am testifying on the behalf of the Sierra Club and Amy Waters.

4 **Q: What is the purpose of your testimony?**

5 A: On November 23, 2016, Louisville Gas and Electric Company (LG&E or  
6 “the Company”) filed an application (including supporting testimony) for  
7 authority to adjust its electric rates and for certificates of public convenience  
8 and necessity. My testimony addresses the following aspects of the  
9 Company’s filing:

- 10 • The Company’s proposal to increase the monthly residential basic  
11 service charge from \$10.75 to \$22.00.  
12 • The Company’s proposal to separate the residential energy rate into  
13 fixed and variable cost components.

14 Both of these proposals are supported in pre-filed direct testimony by  
15 Company witnesses Robert M. Conroy and William Steven Seelye.

16 **Q: Please summarize your findings and recommendations.**

17 A: The Company lacks a reasonable basis for its proposal to increase the basic  
18 service charge. The proposed increase would inappropriately shift load-  
19 related costs to the basic service charge, dampen price signals to consumers  
20 for reducing energy usage, disproportionately and inequitably increase bills  
21 for the Company’s lowest-usage residential customers, and exacerbate the  
22 subsidization of larger residential customers’ costs by those lower-usage  
23 customers. Consequently, the Commission should reject the Company’s  
24 proposal to increase the monthly basic service charge to \$22.00 and instead

1 find that it is reasonable to maintain the monthly charge at its current level of  
2 \$10.75.

3 The Company also proposes to separate the residential energy rate into  
4 “fixed” and “variable” cost components on its tariff for informational and  
5 educational purposes. The Commission should reject the Company’s proposal  
6 since it will only serve to confuse and misinform ratepayers regarding the  
7 distinction between fixed and variable costs recovered through the residential  
8 energy rate and regarding the rationale for recovering such costs separately.

9 My recommendations regarding both of these proposals are intended to  
10 promote rate designs that provide revenue adequacy, reasonably mitigate  
11 intra-class subsidies, and, in accordance with the Commission’s longstanding  
12 ratemaking standards, promote efficient behavior with appropriate price  
13 signals for conservation in order to avoid unnecessary costs being imposed  
14 on ratepayers:

15 For over 30 years, the Commission has historically noted the importance  
16 of energy efficiency (conservation) as a ratemaking standard. “It is  
17 intended to minimize the ‘wasteful’ consumption of electricity and to  
18 prevent consumption of scarce resources....”

19 [W]ith the potential for huge increases in the costs of generation and  
20 transmission as a result of aging infrastructure, low natural gas prices,  
21 and stricter environmental requirements, we will strive to avoid taking  
22 actions that might disincent energy efficiency.<sup>1</sup>

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<sup>1</sup> In re Applic. of Ky. Utils. Co. for an Adjustment of Its Elec. Rates, Case No. 2012-00221, Order (Dec. 20, 2012), at 7, 11 (internal citations omitted).

1           Indeed, the Commission’s focus on energy efficiency and conservation  
2           has sharpened over time, consistent with “the Commission’s belief that  
3           greater attention to energy efficiency is important.”<sup>2</sup>

4   **II. RESIDENTIAL BASIC SERVICE CHARGE**

5   **Q: What is the Company’s proposal with respect to the basic service charge  
6   for residential customers?**

7   A: The Company proposes to more than double the monthly basic service charge  
8   for residential customers from \$10.75 to \$22.00. Company witness Conroy  
9   contends that the Company’s proposal would result in a basic service charge  
10   that better reflects the fixed customer-related cost to serve a residential  
11   customer, as indicated by the results of the Company’s cost of service study  
12   (COSS). Mr. Conroy notes that the COSS estimates a customer-related cost  
13   for the residential class of \$22.04 per customer per month, which means that  
14   the proposed basic service charge would recover all of the embedded costs  
15   classified as customer-related and allocated to the residential class in the  
16   Company’s COSS.

17   **Q: What costs are classified as customer-related in the Company’s COSS?**

18   A: According to Company witness Seelye, the cost of meters, service drops, and  
19   all customer services are deemed to be customer-related in the Company’s

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<sup>2</sup> In re Applic. of Blue Grass Energy Coop. Corp. for an Adjustment of Rates, Case No. 2014-00339, Order (May 29, 2015), at 7; *see also* In re Applic. of Big Rivers Elec. Corp. for an Adjustment of Rates, Case No. 2012-00535, Order (Oct. 29, 2013), at 53 (“[A]s we have stated in many other orders ... “EE/DSM and conservation have become more important.”); In re 2012 Integrated Res. Plan of E. Ky. Pwr. Coop., Inc., Case No. 2012-00149, Staff Report (Sept. 26, 2013), at 30 (encouraging utility “to further educate and encourage [stakeholders] about the importance of DSM, energy efficiency, and energy conservation”).

1 COSS. In addition, the COSS classifies a portion of pole, conductor, and  
2 secondary transformer costs as customer-related, based on the results of a  
3 zero-intercept analysis of such distribution plant costs.

4 **Q: Why does LG&E want to move the residential basic service charge to the**  
5 **COSS estimate of customer-related costs?**

6 A: Mr. Seelye claims that the COSS estimate of customer-related costs, on a per-  
7 customer basis, represents the minimum monthly cost to provide a residential  
8 customer access to electric service no matter how much energy that customer  
9 uses in a month.<sup>3</sup> Mr. Seelye further asserts that any amount of that  
10 customer-related cost recovered through the energy charge represents a  
11 subsidy payment from above-average to below-average usage customers.<sup>4</sup>  
12 Thus, the Company’s proposal to increase the basic service charge from  
13 \$10.75 to \$22.00 would remove all of the customer-related costs from the  
14 energy charge and thereby eliminate the alleged subsidy payment from  
15 above-average to below-average customers.<sup>5</sup>

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<sup>3</sup> Direct Testimony William Steven Seelye, Case No. 2016-00371, November 23, 2016, p. 21, ll. 10-16. Mr. Seelye also refers to customer-related costs as “non-volumetric fixed costs.”

<sup>4</sup> To the extent that non-volumetric fixed costs are recovered through energy rates, a low-usage customer will contribute a smaller share toward recovery of such costs than a larger residential customer. Conversely, to the extent that volumetric costs are recovered through the basic service charge, a low-usage customer will contribute a larger share toward recovery of such costs than a larger residential customer.

<sup>5</sup> Company witness Conroy also notes that increasing the basic service charge might reduce spikes in monthly bills. However, concerns regarding monthly bill volatility could be addressed simply by encouraging customers to sign up for budget billing under the Company’s Budget Payment Plan and by offering cost-effective demand-side management programs targeting weather-related loads. In any event, customers experiencing financial hardship from periodically high bills—who tend to be lower-income consumers—would not likely find

1 **Q: Do you agree with Mr. Seelye’s claim that increasing the basic service**  
2 **charge would reduce subsidization of low-usage customers by larger**  
3 **residential customers?**

4 A: No. To the contrary, I conclude from a review of the Company’s COSS that  
5 customers with above-average usage are currently being subsidized by low-  
6 usage customers. Thus, the Company’s proposal would actually exacerbate  
7 intra-class subsidization and diminish rate affordability for smaller customers  
8 by shifting load-related costs inappropriately from high-usage to low-usage  
9 customers.

10 Specifically, I find that the Company overstates the minimum cost to  
11 serve a residential customer because it relies on the results of a zero-intercept  
12 analysis to derive its estimate of the minimum cost *per customer*. As  
13 discussed below, it is not appropriate to rely on the results of zero-intercept  
14 analyses for the purposes of estimating a *per-customer* minimum cost, since  
15 such analyses typically overstate the true minimum cost *per customer* for  
16 distribution plant. Correcting for this overstatement, I find that the minimum  
17 cost to serve a residential customer is less than the amount currently being  
18 recovered through the basic service charge, which indicates that low-usage  
19 customers are currently subsidizing high-usage customers.

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reprieve in an overall rate hike that smooths out billing periods by way of raising each of their monthly bills to varying degrees. In other words, consistently higher monthly bills are not made more palatable to vulnerable households simply because those bills are more uniform in their costliness.



1 **Q: Please describe the Company's zero-intercept analysis of pole,**  
2 **conductor, and line-transformer costs.**

3 A: In order to allocate the cost of its existing distribution plant to customer  
4 classes, the Company must first separate such plant costs into customer-  
5 related and demand-related portions. Those plant costs classified as  
6 customer-related can then be allocated to classes in proportion to the number  
7 of customers in each class, while those costs classified as demand-related can  
8 be allocated in proportion to class demand.

9 The Company's zero-intercept analysis determines the customer-related  
10 portion of distribution plant cost by estimating the "minimum" cost of the  
11 Company's existing distribution equipment, i.e., what the cost of all of the  
12 Company's existing poles, conductors or line transformers would be if those  
13 conductors or transformers were sized to carry zero load. In the Company's  
14 COSS, the "minimum" cost of the distribution system (as determined by the  
15 zero-intercept analysis) is classified as customer-related and then allocated to  
16 customer classes in proportion to the number of customers in each class.

17 The zero-intercept method derives the minimum cost of the existing  
18 distribution system by estimating what it would cost in theory to replicate the  
19 configuration of the existing distribution system (i.e., assuming the same  
20 number of poles, conductor-feet, and transformers) with equipment that did  
21 not have to carry any load. The zero-intercept approach derives the cost of  
22 this hypothetical zero-load equipment by estimating a functional relationship  
23 between equipment cost and equipment size based on the current system, and  
24 then extrapolating that cost function to estimate the cost of equipment that  
25 carries zero load (e.g., zero-kVA transformers), the smallest units legally

1 allowed (e.g., 25-foot poles), or the smallest units physically feasible (e.g.,  
2 the thinnest conductors that will support their own weight in overhead spans).

3 **Q: Is it appropriate to rely on the results of a zero-intercept analysis to**  
4 **estimate the minimum cost to connect a residential customer?**

5 A: No. As noted above, the purpose of a zero-intercept analysis is to determine  
6 the portion of distribution plant costs that are reasonably allocated to  
7 customer classes based on the number of customers in each class. The  
8 Company has not offered any evidence that zero-intercept analyses also yield  
9 reliable estimates of the minimum cost to connect an individual customer.

10 To the contrary, zero-intercept analyses overstate the minimum cost *per*  
11 *customer* because they assume that a minimum system carrying zero load  
12 would have the same number of poles, conductor-feet, and transformers as  
13 currently installed in a distribution system designed to carry actual  
14 distribution load. In other words, the zero-intercept method assumes that each  
15 piece of distribution equipment would serve the same number of customers  
16 on average, regardless of whether the customers are average-sized (as for the  
17 actual system) or have zero demand (as for the hypothetical minimum  
18 system.)

19 This is not a realistic assumption, since even a minimally sized piece of  
20 distribution equipment should be able to serve more minimal-demand  
21 customers than the number of average-demand customers served by average-  
22 sized distribution equipment. Consequently, the true minimum cost to serve a  
23 customer with minimal usage is likely to be less than the customer-related  
24 cost per customer derived using a zero-intercept analysis. Indeed, since the  
25 zero-intercept method estimates the minimum cost for hypothetical  
26 equipment that serves zero load, the true minimum plant cost *per customer*

1 must be zero because distribution equipment that carries zero load can serve  
2 an infinite number of customers with zero load.

3 **Q: Have you estimated the true minimum cost to serve one of the**  
4 **Company's residential customers?**

5 A: Yes. As noted above, the Company considers the minimum cost to serve a  
6 residential customer to include the cost per customer of meters, service  
7 drops, customer services, and the customer-related portion of pole,  
8 conductor, and transformer plant costs. However, since the true minimum  
9 cost of the Company's poles, conductors, and secondary transformers per  
10 customer is zero under a zero-intercept analysis, I derived the minimum cost  
11 to connect a residential customer based on the costs per residential customer  
12 of service drops, meters, meter-reading, billing, and other customer-service  
13 expenses.

14 Based on the calculations in Exhibit WSS-2, I estimate a minimum  
15 connection cost of \$8.01 per customer per month.<sup>6</sup> As indicated in Exhibit  
16 JFW-2, the total minimum connection cost breaks down to \$3.70 for  
17 customer-related distribution costs and \$4.31 for customer-service expenses.<sup>7</sup>

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<sup>6</sup> The spreadsheet version of Exhibit WSS-2 is part of the Company's COSS spreadsheet model. The COSS model was provided in response to Commission Staff Data Request No. 1-53.

<sup>7</sup> The only change I made to the calculations in Exhibit WSS-2 was to exclude the customer-related portions of pole, conductor, and transformer costs from the calculation of customer-related distribution cost. I adopted all other input assumptions and calculations in Exhibit WSS-2 for the purposes of deriving Exhibit JFW-2.

1           Thus, a monthly residential basic service charge of \$22.00, as proposed  
2           by the Company, would overstate the minimum connection cost by more than  
3           a factor of two.

4   **Q: What does this result tell us about cost subsidization within the**  
5   **residential class?**

6   A: The fact that the current basic service charge exceeds the minimum  
7   connection cost indicates that volumetric costs are also being recovered  
8   through the current charge. This means that residential customers with  
9   below-average usage currently bear a disproportionate share of volumetric  
10   costs and consequently subsidize larger customers under current rates, not the  
11   other way around as Mr. Seelye contends.

12   **Q: How would a change in the basic service charge affect cost subsidization**  
13   **within the residential class?**

14   A: Since the current basic service charge already exceeds the minimum cost to  
15   serve a residential customer, increasing the charge would exacerbate the  
16   subsidization of high-usage customers' costs by low-usage customers.  
17   Decreasing the basic service charge, on the other hand, would reduce the  
18   subsidy payment from low-usage to high-usage residential customers.

19           Consequently, if the Commission opts to address subsidies within the  
20   residential customer class, my estimate of the minimum connection cost  
21   suggests that a *reduction* – not an increase – in the basic service charge  
22   would be warranted to mitigate subsidization of high-usage customers' costs  
23   by low-usage customers.

1 **Q: Besides exacerbating subsidization of high-usage customers by low-usage**  
2 **customers, would the Company's proposal to increase the basic service**  
3 **charge have any other adverse effects?**

4 A: Yes. The difference between the Company's proposed basic service charge  
5 and the minimum cost to serve residential customers represents usage-related  
6 costs. Thus, the Company's proposal to increase the residential basic service  
7 charge would shift recovery of costs to the basic service charge that are more  
8 appropriately recovered through the energy charge. Such a cost shift would  
9 dampen price signals and discourage economically efficient conservation and  
10 investments in distributed generation by residential customers.

11 **Q: How should residential energy and basic service charges be set in order**  
12 **to provide appropriate price signals and encourage conservation?**

13 A: Energy charges should be set at levels that recover costs that tend to increase  
14 with customer usage. This includes costs directly driven by customer usage,  
15 such as generation, transmission, substations, and distribution conductor  
16 sizing and number. Energy charges should also include costs that tend to rise  
17 with customer usage level but are not directly caused by customer usage.  
18 Examples of this latter category might include bad debt, the costs associated  
19 with adding line transformers to avoid long runs of secondary conductor with  
20 high loads, or the additional distribution costs between very large suburban  
21 homes, as opposed to closely packed urban duplexes or apartments.

22 In contrast, the basic service charge is intended to reflect the  
23 incremental costs imposed by the continued presence of a customer who uses  
24 very little energy. Thus, the basic service charge should not be expected to  
25 cover all customer-related costs for the average residential customer, but only

1 the incremental cost to connect one more very small customer.<sup>8</sup> Since the  
2 Company would typically not need to add secondary conductor or a  
3 transformer to connect a very small customer, incremental connection costs  
4 would be limited to installation and maintenance costs for a service drop and  
5 meter, along with meter-reading, billing, and other customer-service  
6 expenses.<sup>9</sup>

7 **Q: What is the incremental cost to connect a residential customer in the**  
8 **Company's service territory?**

9 A: The per-customer minimum connection cost described above reflects the  
10 incremental cost to connect one more very small customer. Thus, I estimate  
11 an incremental cost of \$8.01 per customer per month.

12 The \$22.00 basic service charge proposed by LG&E overstates my  
13 estimated incremental connection cost by more than 100%. The excess over  
14 incremental connection cost represents usage-related costs that would be  
15 recovered through the basic service charge under the Company's proposal.  
16 Thus, the Company's proposal to increase the residential basic service charge  
17 would dampen price signals by inappropriately shifting recovery of usage-  
18 related costs from the energy charge to the basic service charge.

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<sup>8</sup> See, e.g., Jim Lazar & Wilson Gonzalez, *Smart Rate Design for a Smart Future*, Regulatory Assistance Project, 36 (July 2015).

<sup>9</sup> Remote residences might also require a line extension and a small transformer in order to connect to the distribution system. On the other hand, customers located in a multi-family building would probably not require their own service drop.

1 **Q: How does the proposed increase to the basic service charge affect the**  
2 **residential energy rate?**

3 A: With the basic service charge set at \$22.00, LG&E proposes to decrease the  
4 energy rate to 8.471¢/kWh in order to recover the test-year revenue  
5 requirement allocated to the residential class. If, instead, the basic service  
6 charge remained at its current rate of \$10.75, the energy rate would have to  
7 be increased to 9.647¢/kWh to recover the same allocated revenue  
8 requirement.<sup>10</sup> Thus, the energy rate under the Company's proposal to more  
9 than double the basic service charge would be 1.18¢/kWh, or about 12%, less  
10 than the energy charge without the proposed increase to the basic service  
11 charge.

12 **Q: To what extent would the lower energy charge under the Company's**  
13 **proposal for the basic service charge dampen price signals for**  
14 **conservation?**

15 A: Residential customers respond to the price incentives created by the electrical  
16 rate structure. Those responses are generally measured as price elasticities,  
17 i.e., the ratio of the percentage change in consumption to the percentage  
18 change in price. Price elasticities are generally low in the short term and rise  
19 over several years, because customers have more options for increasing or  
20 reducing energy usage in the medium to long term. For example, a review by  
21 Espey and Espey (2004) of thirty-six articles on residential electricity  
22 demand published between 1971 and 2000 reports short-run average-rate

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<sup>10</sup> Company Response to Sierra Club First Data Request No. 5.

1 elasticity estimates of about  $-0.35$  on average across studies and long-run  
2 average-rate elasticity estimates of about  $-0.85$  on average across studies.<sup>11</sup>

3 Studies of electric price response typically examine the change in usage  
4 as a function of changes in the marginal rate paid by the customer.<sup>12</sup> Table 1  
5 lists the results of seven studies of marginal-price elasticity over the last forty  
6 years.<sup>13</sup>

7 **Table 1: Summary of Marginal-Price Elasticities**

Authors	Date	Elasticity Estimates
Acton, Bridger, and Mowill	1976	$-0.35$ to $-0.7$
McFadden, Puig, and Kirshner	1977	$-0.25$ without electric space heat and $-0.52$ with space heat
Barnes, Gillingham, and Hageman	1981	$-0.55$
Henson	1984	$-0.27$ to $-0.30$
Reiss and White	2005	$-0.39$
Xcel Energy Colorado	2012	$-0.3$ (at years 2 and 3)
Orans et al, on BC Hydro inclining-block rate	2014	$-0.13$ in 3rd year of phased-in rate

8 **Q: What would be a reasonable estimate of the marginal-price elasticity for**  
9 **changes in the residential energy rate?**

10 A: From Table 1, it appears that  $-0.3$  would be a reasonable mid-range estimate  
11 of the effect over a few years.

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<sup>11</sup> In other words, on average across these studies, consumption decreased by 0.35% in the short term and by 0.85% in the long term for every 1% increase in average rates. The citation for this study is provided in Exhibit JFW-3.

<sup>12</sup> For the Company, that would be the energy rate.

<sup>13</sup> The citations for these studies are provided in Exhibit JFW-3.



1 **Q: What would be a reasonable estimate of the effect on energy use from**  
2 **the 12% reduction to the residential energy rate under the Company's**  
3 **proposal to increase the basic service charge?**

4 A: An elasticity of  $-0.3$  and a 12% reduction in energy price would result in a  
5 3.6% increase in energy consumption. This means that all else equal,  
6 residential load would be expected to increase by 3.6% over a several-year  
7 period as a result of implementing the Company's proposed basic service  
8 charge increase, rather than recovering the additional revenue requirement  
9 through energy charges.

10 For comparison, LG&E and Kentucky Utilities project that each year's  
11 installations under their Residential Incentives energy-efficiency program  
12 will save about 0.2% of their combined residential load.<sup>14</sup> Consequently, the  
13 consumption increase due to the Company's proposed increase in its basic  
14 service charge (and the resulting decrease in the energy charge) would undo  
15 about eighteen years of savings from the Residential Incentives program.

16 **Q: What do you recommend with regard to the Company's proposal to**  
17 **increase the residential basic service charge?**

18 A: The Company's proposal would inappropriately shift load-related costs from  
19 the energy charge to the basic service charge, dampen price signals to  
20 consumers for reducing energy usage, disproportionately and inequitably  
21 increase bills for the Company's smallest residential customers, and  
22 exacerbate the subsidization of larger residential customers' costs by  
23 customers with below-average usage. Consequently, the Commission should

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<sup>14</sup> 2014 Joint Integrated Resource Plan of Louisville Gas and Electric Company and Kentucky Utilities Company, Vol. 1.

1 reject the Company’s proposal to increase the monthly basic service charge to  
2 \$22.00 and instead find that it is reasonable to maintain the monthly charge at  
3 its current level of \$10.75.

4 **III. FIXED AND VARIABLE ENERGY RATES**

5 **Q: What does the Company propose with regard to the design of the**  
6 **residential energy rate?**

7 A: The Company proposes to split the residential energy rate into “fixed” and  
8 “variable” cost components on its tariff for informational and educational  
9 purposes. The fixed cost component (Infrastructure Energy Charge) would  
10 purport to recover all demand-related generation, transmission, and  
11 distribution costs allocated to the residential class. The variable cost  
12 component (Variable Energy Charge) would purport to recover all energy-  
13 related costs allocated to the residential class.<sup>15</sup>

14 According to Mr. Seelye, the Company proposes this design for the  
15 residential energy rate because:

16 As greater emphasis is placed on distributed generation and energy  
17 conservation in our society, it is important for customers, stakeholders  
18 and utility employees to understand the distinction between fixed and  
19 variable costs.<sup>16</sup>

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<sup>15</sup> As discussed above in Section II, the Company proposes to recover almost all customer-related costs (including minimum distribution plant costs) allocated to the residential class through the residential basic service charge.

<sup>16</sup> Seelye Testimony, p. 11, ll. 19-22.

1 **Q: What is the Company’s understanding of “the distinction between fixed**  
2 **and variable costs” recovered through the energy rate?**

3 A: Company witness Conroy appears to have a different understanding of this  
4 distinction than Company witness Seelye.

5 According to Mr. Conroy, the “fixed” costs recovered through the  
6 energy rate are those costs that vary with customer demand (however  
7 measured) regardless of energy usage, whereas the “variable” costs recovered  
8 through the energy rate consists of those costs that vary with energy usage  
9 regardless of demand.<sup>17</sup> In other words, Mr. Conroy considers a portion of  
10 the costs recovered through the energy rate to be “fixed” in the sense that  
11 they do not vary with energy usage, but do vary with demand.<sup>18</sup>

12 In contrast, Mr. Seelye contends that the “fixed” costs recovered  
13 through the energy rate do not vary with either customer demand or energy  
14 usage, whereas the “variable” costs recovered through the energy rate vary  
15 with energy usage.<sup>19</sup>

16 It is not clear whose understanding of the “distinction between fixed and  
17 variable costs” – Mr. Conroy’s or Mr. Seelye’s – the Company intends to  
18 convey to customers with its proposal to split the residential energy rate into  
19 fixed and variable cost components.

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<sup>17</sup> Testimony Robert M. Conroy, Case No. 2016-00371, November 23, 2016, p. 14, ll. 6-18.

<sup>18</sup> “Fixed” as used here, in the context of the proposed components of the energy rate, is to be distinguished from “fixed” customer-related costs to be recovered through the basic service charge under the Company’s proposal, which Mr. Conroy asserts do not vary with either demand or energy usage.

<sup>19</sup> Company Response to Sierra Club First Data Request No. 8.

1 **Q: Why does the Company want to educate customers about the distinction**  
2 **between the fixed and variable costs recovered through the residential**  
3 **energy rate?**

4 A: According to Mr. Conroy, the Company believes that educating customers  
5 about this distinction will provide “a better understanding of intra-class  
6 subsidies.”<sup>20</sup> Specifically, the Company believes that customers with above-  
7 average energy usage will pay more than their fair share of the residential  
8 class’s demand-related costs (and low-usage customers will pay less than  
9 their fair share) whenever demand-related costs are recovered through energy  
10 rates.

11 **Q: How likely is it that the recovery of demand-related costs through the**  
12 **residential energy rate would result in any significant subsidization of**  
13 **low-usage customers’ demand-related costs by high usage-customers?**

14 A: It seems unlikely that there would be subsidization to any notable degree or  
15 at all, since subsidization would occur only to the extent that (i) the  
16 percentage difference between the average *usage* for high-usage customers  
17 and for all customers exceeds (ii) the percentage difference between average  
18 *demand* for those same high-usage customers and for all customers. In other  
19 words, subsidization of low-usage customers would arise only if, and to the  
20 extent that, the average load factor for high-usage customers exceeds that for  
21 the residential class as a whole.<sup>21</sup>

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<sup>20</sup> Conroy Testimony, p. 16, line 4.

<sup>21</sup> Load factor is defined as the ratio of average hourly demand to peak hourly demand. For example, if the average residential customer consumes 12,000 kWh per year and has a peak demand of 4 kW, then the average load factor for the residential class would be equal to 12,000 kWh / 8,760 hours per year / 4 kW, or about 34%.

1           There is no reason to expect that customers with above-average usage  
2 would have a higher load factor on average than customers with below-  
3 average usage. To the contrary, it seems more likely that high-usage  
4 customers would have below-average load factors if their higher usage were  
5 driven by central air-conditioning or electric space heat load. In this case,  
6 low-usage customers would be subsidizing high-usage customers' demand-  
7 related costs, not the other way around as Mr. Conway contends.

8   **Q: What evidence has LG&E provided that supports its belief that high-**  
9 **usage customers are subsidizing low-usage customers' demand-related**  
10 **costs?**

11   A: None. In response to discovery, the Company acknowledges that it does not  
12 possess data regarding the demand of most of its residential customers.<sup>22</sup>  
13 Without such data, the Company cannot determine whether the average load  
14 factor for high-usage residential customers differs from that for the class as a  
15 whole. Thus, the Company has no evidence to support its speculation that the  
16 recovery of demand-related costs through the energy rate gives rise to  
17 subsidization of low-usage customers by high-usage customers.

18           Likewise, LG&E does not possess demand data for residential  
19 distributed generation ("DG") customers and therefore cannot determine  
20 whether the average load factor for these customers differs materially from  
21 the class average.<sup>23</sup> The Company therefore has no way of determining  
22 whether the growth of distributed generation in its service territory will

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<sup>22</sup> Company Response to Sierra Club Supplemental Data Request No. 1.

<sup>23</sup> Company Response to Sierra Club Supplemental Data Request No. 2.

1           exacerbate (or mitigate) subsidization of DG customers' demand-related  
2           costs by non-DG customers.

3   **Q: What do you recommend with regard to the Company's proposal to**  
4   **separate the residential energy rate into fixed and variable cost**  
5   **components?**

6   A: The Commission should reject this proposal because it will serve to confuse  
7   and misinform residential customers regarding the distinction between the  
8   "fixed" and "variable" costs recovered in the energy rate and regarding the  
9   extent to which recovery of "fixed" costs in the energy rate contributes to  
10   intra-class subsidization.

11 **Q: Does this conclude your direct testimony?**

12 A: Yes.

Qualifications of  
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**SUMMARY OF PROFESSIONAL EXPERIENCE**

- 1990–Present* **Vice President, Resource Insight, Inc.** Provides research, technical assistance, and expert testimony on electric- and gas-utility planning, economics, regulation, and restructuring. Designs and assesses resource-planning strategies for regulated and competitive markets, including estimation of market prices and utility-plant stranded investment; negotiates restructuring strategies and implementation plans; assists in procurement of retail power supply.
- 1989–90* **Senior Analyst, Komanoff Energy Associates.** Conducted comprehensive cost-benefit assessments of electric-utility power-supply and demand-side conservation resources, economic and financial analyses of independent power facilities, and analyses of utility-system excess capacity and reliability. Provided expert testimony on statistical analysis of U.S. nuclear plant operating costs and performance. Co-wrote *The Power Analyst*, software developed under contract to the New York Energy Research and Development Authority for screening the economic and financial performance of non-utility power projects.
- 1987–88* **Independent Consultant.** Provided consulting services for Komanoff Energy Associates (New York, New York), Schlissel Engineering Associates (Belmont, Massachusetts), and Energy Systems Research Group (Boston, Massachusetts).
- 1981–86* **Research Associate, Energy Systems Research Group.** Performed analyses of electric utility power supply planning scenarios. Involved in analysis and design of electric and water utility conservation programs. Developed statistical analysis of U.S. nuclear plant operating costs and performance.

**EDUCATION**

BA, Political Science with honors and Phi Beta Kappa, University of California, Berkeley, 1980.

Massachusetts Institute of Technology, Cambridge, Massachusetts. Physics and Political Science, 1976–1979.

**PUBLICATIONS**

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**Maryland PSC** Case No. 9324, Starion Energy marketing, Maryland Office of People's Counsel. September 2013.

Estimation of retail costs of electricity supply.

**Wisconsin PSC** Docket No. 6690-UR-122, Wisconsin Public Service Corporation gas and electric rates, Wisconsin Citizens Utility Board. Direct, August 2013; Rebuttal, Surrebuttal September 2013.

Cost allocation and rate design; rate-stabilization mechanism.

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Cost allocation and rate design.

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*2014* **Maryland PSC** Cases Nos. 9226 & 9232, administrative charge for standard-offer service; Maryland Office of People's Counsel. Reply, April 2014; surrebuttal, May 2014.

Proposed rates for components of the Administrative Charge for residential standard-offer service.

**Conn. PURA** Docket No. 13-07-18, rules for retail electricity markets; Office of Consumer Counsel. Direct, April 2014.

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**PUC Ohio** Cases Nos. 13-2385-EL-SSO, 13-2386-EL-AAM; Ohio Power Company standard-offer service; Office of the Ohio Consumers' Counsel. Direct, May 2014.

Allocation of distribution-rider costs.

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Cost allocation and rate design.

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Cost allocation and rate design.

**Nova Scotia UARB** Case No. NSUARB P-887(6), Nova Scotia Power fuel-adjustment mechanism; Nova Scotia Consumer Advocate. Evidence, December 2014.

Allocation of fuel-adjustment costs.

2015 **Maryland PSC** Case No. 9221, Baltimore Gas & Electric cost recovery; Maryland Office of People's Counsel. Second Reply, June 2015; Second Rebuttal, July 2015.

Proposed rates for components of the Administrative Charge for residential standard-offer service.

**Wisconsin PSC** Docket No. 6690-UR-124, Wisconsin Public Service Corporation electric and gas rates, Citizens Utility Board of Wisconsin. Direct, Rebuttal, September 2015; Surrebuttal, October 2015.

Cost allocation and rate design.

**Wisconsin PSC** Docket No. 4220-UR-121, Northern States Power Company gas and electric rates, Citizens Utility Board of Wisconsin. Direct, Rebuttal, Surrebuttal, October 2015.

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**Maryland PSC** Cases Nos. 9226 & 9232, administrative charge for standard-offer service; Maryland Office of People’s Counsel. Third Reply, September 2015; Third Rebuttal, October 2015.

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**Nova Scotia UARB** Case No. NSUARB P-887(7), Nova Scotia Power fuel-adjustment mechanism; Nova Scotia Consumer Advocate. Evidence, December 2015.

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2016 **Maryland PSC** Case No. 9406, Baltimore Gas & Electric base rate case; Maryland Office of People’s Counsel. Direct, February 2016; Rebuttal, March 2016; Surrebuttal, March 2016.

Allocation of Smart Grid costs. Recovery of conduit fees. Rate design.

**Nova Scotia UARB** Case No. NSUARB P-887(16), Nova Scotia Power 2017-2019 Fuel Stability Plan; Nova Scotia Consumer Advocate. Direct, May 2016; Reply, June 2016.

Base Cost of Fuel forecast. Allocation of Maritime Link capital costs. Fuel cost hedging plan.

**Wisconsin PSC** Docket No. 3270-UR-121, Madison Gas and Electric Company electric and gas rates, Citizens Utility Board of Wisconsin. Direct, August 2016; Rebuttal, Surrebuttal, September 2016.

Cost allocation and rate design.

**Wisconsin PSC** Docket No. 6680-UR-120, Wisconsin Power and Light Company electric and gas rates, Citizens Utility Board of Wisconsin. Direct, Rebuttal, Surrebuttal, Sur-surrebuttal, September 2016.

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**Minnesota PSC** Docket No. E002/GR-15-826, Northern States Power Company electric rates, Clean Energy Organizations. Direct, June 2016; Rebuttal, September 2016; Surrebuttal, October 2016.

Cost basis for residential customer charges.

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Sanctions for imprudent fuel-contracting practices.

**Louisville Gas and Electric Company**

**Minimum Connection Cost of Service Based on the Cost of Service Study  
For the 12 Months Ended June 30, 2018**

**Rate RS**

Description	Distribution	Customer Service Expenses	Total
(1) Rate Base	\$ 32,055,915	\$ 2,307,010	\$ 34,362,925
(2) Rate Base Adjustments	\$ -	\$ -	\$ -
(3) Rate Base as Adjusted	\$ 32,055,915	\$ 2,307,010	\$ 34,362,925
(4) Rate of Return	4.92%	4.92%	
(5) Return	\$ 1,575,629	\$ 113,395	\$ 1,689,025
(6) Interest Expenses	\$ 841,797	\$ 60,583	\$ 902,380
(7) Net Income	\$ 733,832	\$ 52,813	\$ 786,645
(8) Income Taxes	\$ 529,666	\$ 38,119	\$ 567,785
(9) Operation and Maintenance Expenses	\$ 12,245,835	\$ 18,688,875	\$ 30,934,710
(10) Depreciation Expenses	1,773,201	-	\$ 1,773,201
(11) Other Taxes	417,160	-	\$ 417,160
(12) Other Depreciation Expenses	-	-	\$ -
(13) Expense Adjustments - Prod. Demand	-	-	\$ -
(14) Expense Adjustments - Energy	-	-	\$ -
(15) Expense Adjustments - Trans. Demand	-	-	\$ -
(16) Expense Adjustments - Distribution	-	-	\$ -
(17) Expense Adjustments - Other	(8,276)	(596)	\$ (8,872)
(18) Revenue Adjustments - Prod Demand	-	-	\$ -
(19) Proforma Adjustments - Total	\$ (8,276)	\$ (596)	\$ (8,872)
(20) Total Cost of Service	\$ 16,533,216	\$ 18,839,794	\$ 35,373,010
(21) Less: Misc Revenue - Prod Demand			\$ -
(22) Less: Misc Revenue - Energy	-	-	\$ -
(23) Less: Misc Revenue - Other	(362,496)	(26,088)	\$ (388,585)
(24) Less: Misc Revenue - Total	(362,496)	(26,088)	\$ (388,585)
(25) Net Cost of Service	\$ 16,170,720	\$ 18,813,706	\$ 34,984,425
(26) Billing Units	4,369,310	4,369,310	
(27) Unit Costs	\$ 3.70	\$ 4.31	\$ 8.01

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## **CERTIFICATE OF SERVICE**

This is to certify that the foregoing copy of the DIRECT TESTIMONY OF JONATHAN WALLACH ON BEHALF OF SIERRA CLUB AND AMY WATERS, and Exhibits thereto, is a true and accurate copy of the document being filed in paper medium; that the electronic filing was transmitted to the Commission on March 3, 2017; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; and that a copy of the filing in paper medium is being hand delivered to the Commission.



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JOE F. CHILDERS