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Revenue Neutral Shift Proposals/  
Demand-Side Management Programs/  
Low-Income Weatherization

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Sponsoring Party:

Public Counsel

Case No.:

ER-2016-0023

## REBUTTAL TESTIMONY

OF

**GEOFF MARKE**

Submitted on Behalf of the Office of the Public Counsel

**EMPIRE DISTRICT ELECTRIC COMPANY**

CASE NO. ER-2016-0023

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Denotes Highly Confidential Information that has been redacted

May 2, 2016

OPC Exhibit No. 2  
Date 6-2-16 Reporter KJSF  
File No. ER-2016-0023

**NP**

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI**


In the Matter of The Empire District )  
 Electric Company's Request for )  
 Authority to Implement a General ) Case No. ER-2016-0023  
 Rate Increase for Electric Service )

**AFFIDAVIT OF GEOFF MARKE**

STATE OF MISSOURI    )  
                                       ) ss  
 COUNTY OF COLE        )

Geoff Marke, of lawful age and being first duly sworn, deposes and states:


1. My name is Geoff Marke. I am a Regulatory Economist for the Office of the Public Counsel.
2. Attached hereto and made a part hereof for all purposes is my rebuttal testimony.
3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

  
Geoff Marke

Subscribed and sworn to me this 2<sup>nd</sup> day of May 2016.



JERENE A. BUCKMAN  
 My Commission Expires  
 August 23, 2017  
 Cole County  
 Commission #13754037

  
Jerene A. Buckman  
 Jerene A. Buckman  
 Notary Public

My Commission expires August 23, 2017.

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**REBUTTAL TESTIMONY**  
**OF**  
**GEOFF MARKE**  
**EMPIRE ELECTRIC COMPANY**  
**CASE NO. ER-2016-0023**

1 **I. INTRODUCTION**

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

3 A. Dr. Geoffrey Marke, Economist, Office of the Public Counsel (OPC or Public Counsel), P.O.  
4 Box 2230, Jefferson City, Missouri 65102.

5 **Q. Please describe your education and employment background.**

6 A. I received my BA in English from The Citadel, my MA in English from The University of  
7 Missouri, St. Louis, and a PhD in Public Policy Analysis from Saint Louis University (SLU).  
8 At SLU, I served as a graduate assistant where I taught undergraduate and graduate course  
9 work in urban policy and public finance. I also conducted mixed-method research in  
10 transportation policy, economic development and emergency management.

11 I have been in my present position with OPC since 2014 where I have been responsible for  
12 economic analysis and policy research in electric and gas utility operations. Prior to joining  
13 OPC, I was employed by the Missouri Public Service Commission ("Commission") as a  
14 Utility Policy Analyst II where my primary duties involved reviewing, analyzing and writing  
15 recommendations concerning electric integrated resource planning, renewable energy  
16 standards, and demand-side management programs for all investor-owned electric utilities in  
17 Missouri. I also have been employed by the Missouri Department of Natural Resources (later  
18 transferred to the Department of Economic Development), Energy Division where I served as  
19 the lead policy analyst on electric cases. I have worked in the private sector, most notably  
20 serving as the Lead Researcher for Funston Advisory based out of Detroit, Michigan. My  
21 experience with Funston involved a variety of specialized consulting engagements with both  
22 private and public entities.

1 **Q. Have you been a member of, or participated in, any work groups, committees, or other**  
2 **groups that have addressed electric utility regulation and policy issues?**

3 A. Yes. I am currently a member of the National Association of State Consumer Advocates  
4 (NASUCA) Distributed Energy Resource Committee that shares information and establishes  
5 policies regarding energy efficiency, renewable generation, and distributed generation, and  
6 considers best practices for the development of cost-effective programs that promote fairness  
7 and value for all consumers. I also serve as a member on NASUCA's Electricity Committee  
8 and Water Committee's, each tasked with analyzing current issues affecting residential  
9 consumers.

10 **Q. Have you testified previously before the Commission?**

11 A. Yes. A listing of the cases in which I previously have filed testimony and/or comments  
12 before this commission is attached in GM-1.

13 **Q. What is the purpose of your rebuttal testimony?**

14 A. The purpose of this rebuttal testimony is to respond to the rate design direct testimony  
15 regarding:

16 • Residential Customer Charge

- 17 ○ Empire District Electric ("Empire" or "Company") witness W. Scott Keith;  
18 ○ Missouri Public Service Commission Staff ("Staff") witness Robin Kliethermes; and  
19 ○ Missouri Division of Energy ("DE") witness Martin R. Hyman.

20 • Proposed Interclass Revenue Shift

- 21 ○ Company witness W. Scott Keith;  
22 ○ Midwest Energy Consumers Group ("MECG") Kavita Maini; and  
23 ○ Staff witness Sarah L. Kliethermes.

24 • Proposed Praxair Revenue Shift

- 25 ○ Company witness W. Scott Keith  
26

- 1 • Allocation of Energy Efficiency Costs
- 2 ○ Staff witnesses Sarah L. Kliethermes and Robin Kliethermes; and
- 3 ○ Company witness Nathaniel W. Hackney.
- 4 • Demand-Side Management (DSM) programs
- 5 ○ Staff witness Brad J. Fortson;
- 6 ○ DE witness Martin R. Hyman.
- 7 • Proposed Working Docket for Revised Block Rate Designs
- 8 ○ DE witness Martin R. Hyman
- 9 • Low-Income Weatherization Programs
- 10 ○ Company witness W. Scott Keith; and
- 11 ○ Staff witness Kory Boustead.

12 **Q. Please state OPC's position on the proposed residential customer charge increase.**

13 A. OPC is recommending that the Commission maintain the current residential customer charge  
14 of \$12.52. If there has to be an increase in rates, OPC advocates the increase be administered  
15 through the energy charge that places more control of the bill in low-income and fixed-  
16 income households and does not penalize efficient, conservative and environmentally  
17 responsible ratepayers. Increased customer charges are an inequitable and inefficient means  
18 to address utility revenue recovery and subsequently reinforce future supply-side investment  
19 at a time of increasing costs.

20 Additionally, OPC is proposing that the Commission direct Empire to adopt a consumer  
21 protection disclaimer for any and all future rooftop solar purchases. This disclaimer notifies  
22 potential rooftop solar customers that their Photovoltaic (PV) Systems investments' future  
23 payback periods are subject to the determination of the Commission through possible future  
24 rules and/or rate changes, such as increases to the customer charge or future fixed charge  
25 mechanisms (e.g., a future minimum systems or grid access charge). Furthermore, the  
26 disclaimer alerts consumers to the fact any future electric rate projections that may be

1 presented to a ratepayer are not produced, analyzed or approved by Empire District Electric  
2 or the Commission. These are based on projections formulated by external third parties not  
3 affiliated with Empire District Electric or the Commission.

4 **Q. Please state OPC's position on the proposed interclass revenue shift.**

5 A. OPC opposes the Company and Staff's proposed interclass revenue neutral shift to the  
6 residential class and supports an equal percentage increase across the classes.

7 **Q. Please state OPC's position on the proposed Praxair shift.**

8 A. OPC opposes the Company's proposed Praxair revenue neutral shift to the residential class.

9 **Q. Please state OPC's position on the allocation of energy efficiency costs.**

10 A. OPC opposes the proposed pre-MEEIA energy efficiency allocation set forth by Staff and the  
11 Company. The method that was utilized to determine the allocation of these costs between  
12 customer classes no longer reflect the costs caused by the customer classes based on the  
13 Company's 2014, 2015 and 2016 rebate expenditures to date. OPC has proposed a  
14 recalculated amount based on a percentage of the residential class participation with the  
15 excess amount divided between the remaining classes based on energy consumption minus  
16 opt-out designation.

17 Additionally, OPC is no longer opposing the accounting treatment for the collection of the  
18 residential solar rebates or the energy efficiency expenditures as was previously indicated in  
19 direct testimony.

20 **Q. Please state OPC's position on the continuation of Empire's demand-side management  
21 programs.**

22 A. OPC is currently reviewing assumptions behind the Company's recently filed triennial  
23 integrated resource plan (IRP) in EO-2016-0223 in regards to their preferred plan's treatment  
24 of demand-side resources. We reserve the right to comment further on this issue as  
25 appropriate.

1 **Q. Please state OPC's position on DE's proposed working docket for revised block rate**  
2 **designs.**

3 A. OPC supports DE's proposal and would offer some of this analysis has already occurred in  
4 Empire's IRP, Volume 6: Demand-Side Resource Analysis. Empire's IRP specifically  
5 examined the impact an inclining block rate (IBR) would have on future load assumptions  
6 and concluded that peak and average load would be reduced.

7 **Q. Please state OPC's position on Empire's low-income weatherization programs**  
8 **(LIWAP).**

9 A. OPC supports the Company's proposed increase but opposes Staff's proposed evaluation.  
10 Additionally, OPC is currently awaiting several data requests to the Company over the  
11 accumulated interest on its LIWAP account and subsequently reserves the right to offer  
12 further recommendation as appropriate.

13 **II. RESIDENTIAL CUSTOMER CHARGE**

14 **Overview of the issue**

15 **Q. Please provide a general summary of the customer charge debate.**

16 A. This issue centers on how Empire can collect their revenue from residential customers  
17 moving forward. As it stands, Empire utilizes a two-part tariff to price their electric service to  
18 their residential customer base. Those parts include a fixed customer charge (\$) and a  
19 variable energy charge (kWh)<sup>1</sup> based on consumption and season. For rate classes, like  
20 residential, that do not have meters with maximum demand (kW)<sup>2</sup> reading capability the  
21 high-versus-low-customer-charge debate centers on how the demand related costs should be  
22 recovered.

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<sup>1</sup> The kWh is a unit of energy. Energy is a measure of how fuel is contained within something, or used by something over a specific period of time.

<sup>2</sup> The kW is a unit of power. Power is the rate at which energy is generated or used. Power is often referred to as "load" or the "demand" as it is in this testimony.



1 At one extreme in this debate are those who advocate for a straight-fixed-variable (“SFV”)  
2 rate design where all fixed costs are recovered through the customer charge and only variable  
3 costs (e.g., fuel expense) are recovered through the energy charge. A fixed cost is a cost that  
4 is either sensitive to increases in the system’s ability to produce instantaneous kW (referred  
5 to as a “demand-related costs”) or is sensitive to connecting customers to the system (referred  
6 to as a “customer-related costs”). Under the SFV rate design, a fixed cost is any cost that is  
7 not sensitive to changes in the kWh level consumed or produced. Because electric utilities are  
8 extremely fixed-cost intensive, a SFV rate design will typically result in a very large  
9 customer charge. This results in lower bills for above average consumers of electricity,  
10 higher bills for below average consumers of electricity, less volatility of revenues for utility  
11 (e.g., weather, economy, rooftop solar), less control for customers to manage their bills  
12 (conservation, energy efficiency), and leads to increased electric system costs as well as more  
13 energy consumption.

14 At the other end are those who advocate for the lowest customer charge possible. The smaller  
15 the customer charge, the lower the bills for below-average consumers. Therefore, small  
16 customer advocates tend to want low customer charges. The lower the customer charge, the  
17 higher the energy charge, which also tends to be supported by those advocating for energy  
18 efficiency and conservation. These advocates are inevitably arguing the demand-related costs  
19 (and perhaps even a portion of the customer-related costs) should be recovered through the  
20 energy charge. This results in higher bills for above average consumers of electricity, lower  
21 bills for below average consumers of electricity, greater volatility of revenues for utility,  
22 greater control for customers to manage their bills (conservation, energy efficiency), and  
23 ultimately leads to decreased electric system costs as well as less energy consumption.

24 To be clear, no party in this case is advocating for an “extreme” approach. As mentioned  
25 above, both demand-related and customer-related costs are conventionally viewed as being  
26 “fixed” in that they are not sensitive to producing kWh of energy. These two cost  
27 classifications are sensitive to completely different services provided by the utility and

1           therefore it is inappropriate to comingle them into the same “fixed-cost” category and treat  
2           them as the same type of cost for rate-design purposes. Demand-related costs are sensitive to  
3           the utility serving customers’ (peak and average) loads while customer-related costs are  
4           sensitive to connecting a customer to the network irrespective of the customer’s load.  
5           Customer-related costs are positive even when kW demand and kWh are zero.

6           When having one or more customers on the system raises the utility’s cost regardless of how  
7           much the customer uses (billing is an example) then a fixed charge to reflect that additional  
8           fixed cost the customer imposes on the system makes perfect economic sense. Utilities can  
9           justify a customer charge recovering these basic costs because they are directly related to the  
10          number of customers receiving an essential monopoly service. The idea that each household  
11          has to cover its customer-specific fixed cost also has obvious appeal on grounds of equity.  
12          However, system-wide “fixed” costs such as maintaining the distribution network do not  
13          change if one customer were to drop off the system.

14          **Current proposals in front of the Commission**

15          **Q.     What are the proposed residential customer charges to date?**

16          A.     Presently there are three proposed amounts in front of the Commission regarding the  
17          residential customer charge. These amounts and the percentage change from the current  
18          amount are shown in Table 1.

19          Table 1: Proposed residential customer charge

Party	Proposed Residential Customer Charge	Percentage change
Empire District Electric	\$14.47	+ 15.58 %
Commission Staff	\$15.00	+ 19.80 %
Division of Energy & Office of the Public Counsel	\$12.52	No change

1 **Q. Did the Company perform a class cost of service study (CCOS) to support their**  
2 **recommendation?**

3 A. No. However, the Company did perform a CCOS last year in ER-2014-0351 in which this  
4 rate case can be seen, in part, as a continuation where Empire requested a 50% residential  
5 customer charge increase to \$18.75. That requested increase was largely predicated on the  
6 results of an embedded minimum-sized systems (“MSS”) study within the Company’s  
7 CCOS.

8 OPC rejected the Company’s CCOS and, as a result of a non-unanimous global settlement,  
9 Empire and the Commission agreed the residential customer charge would not be increased.

10 **Q. What is a MSS study?**

11 A. A MSS study estimates the hypothetical minimum costs of developing a system to serve  
12 customers with no load. Many distribution system assets could be classified as having both a  
13 customer and an energy component. For instance, distribution substations are built to serve  
14 customers, but are often expanded to meet increases in customer loads. A MSS study  
15 attempts to separate the customer-related portion of total system costs from those associated  
16 with serving loads.

17 The costs associated with these “minimum” components are then added together to derive the  
18 total minimum costs associated with a hypothetical system with no energy usage. This  
19 estimate is then divided by total actual system costs in order to approximate the customer-  
20 related share of overall distribution system costs.

21 Estimates are based on unverifiable assumptions and conjecture due to limitations in  
22 available data. Utilities typically do not retain the needed cost information with sufficient  
23 specificity to be able to calculate customer-related distribution costs with any degree of  
24 certainty. In Empire’s case, this amounted to the following allocations for residential  
25 customers seen in Figure 1:

1 Figure 1: Company allocation of FERC accounts 364-368 in ER-2014-0351

Account 364 (Poles, Towers and Fixtures)

- Primary Poles: 64% customer related, 36% demand related
- Secondary Poles: 100% customer related

Account 365 (Overhead Lines)

- Primary Overhead Lines: 31% customer related, 69% demand related
- Secondary Overhead Lines: 100% customer related

Account 366 (Underground Conduit)

- Primary: 100% customer related

Account 367 (Underground Lines)

- Primary: 34% customer related, 66% demand related

Account 368 (Line Transformers)

- Primary: 60% customer related, 40% demand related  
(but allocated 100% on a per customer basis in the Company's CCOS)

2  
3 Using the Company's MSS study utilized in accounts 364-368 (see above) as well as the  
4 other customer-related expense accounts (meter reading, customer service, etc...), Empire  
5 posited that the monthly customer charges should be increased by 50% from \$12.52 to  
6 \$18.45. This requested amount stood in stark contrast to how Empire has historically  
7 collected revenues and how revenues are typically collected by utilities throughout the  
8 country. Furthermore, such a departure would have resulted in an erosion of previously-  
9 enforced policy actions, be an added burden on those least able to shoulder the increase, and  
10 lead to continued costs for operation of marginal resources.

11 In contrast, OPC's CCOS allocated accounts 364-368 as demand-related and then  
12 recommended that the residential customer charge remain at \$12.52. This was based on  
13 arguments identified earlier in this testimony as well as due considerations of public policy,  
14 customer rate stability, customer understandability, and company revenue stability as

1           opposed to an abstract minimum system which placed a disproportionate share of the  
2           system's cost burden on lower-volume consumers.

3           In James Bonbright's seminal work, *Principles of Public Utility Rates*, routinely cited in by  
4           Missouri courts, he reasoned there was no sound basis for the allocation of these costs as  
5           either customer or demand:

6                     But if the hypothetical costs of a minimum-sized distribution system is  
7                     properly excluded from the demand-related costs for the reasons just given,  
8                     while it also denied a place among the customer costs for the reason stated  
9                     previously, to which cost function does it belong then? The only defensible  
10                    answer, in my opinion, is that it belongs to none of them. Instead, it  
11                    should be recognized as a strictly unallocable portion of total costs. And  
12                    this is the disposition that it would probably receive in an estimate of long-  
13                    run marginal costs. But the fully-distributed cost analyst dare not avail  
14                    himself of this solution, since he is the prisoner of his own assumption that  
15                    "the sum of the parts equals the whole." He is therefore under impelling  
16                    pressure to "fudge" his cost apportionments by using the category of  
17                    customer costs as a dumping ground for costs that he cannot plausibly  
18                    impute to any of his other cost categories (emphasis added).<sup>3</sup>

19           Historically, these costs have been recovered through the energy charge in light of economic  
20           and public welfare characteristics. More recently, an emphasis on public policy goals  
21           focusing on energy efficiency and environmental stewardship have reinforced those  
22           decisions. As a result of a non-unanimous global settlement in ER-2014-0351 it was agreed  
23           OPC's recommendation to not increase the residential customer charge was appropriate to  
24           signatory parties and reaffirmed by the Commission in its Report and Order

<sup>3</sup> Bonbright, J., et al. (1988) *Principles of Public Utility Rates* p. 492

1 **Q. What is the basis for the Company's \$1.95 increase to the residential customer charge**  
2 **in this case?**

3 A. Although the underlying argument is presumably the same, the actual proposed amount  
4 appears arbitrary. According to Company witness Keith:

5 I used the percentage increase granted by the Commission in the last rate  
6 case (Case No. ER-2014-0351) for the residential class, of 6.02 percent, plus  
7 the overall class percentage increase being requested in this case of 9.5  
8 percent, for a total of 15.5 percent or \$1.95.<sup>4</sup>

9 Mr. Keith justifies the increased residential customer charge by citing to the fact that the  
10 residential customer charge was not increased in the last rate case due to settlement and that  
11 such an increase would provide relief for high usage residential homes overall and low-  
12 income ratepayers in the winter. In an attempt to substantiate the presence of high-usage,  
13 low-income households, Mr. Keith provides the results of empirical data comparing average  
14 residential winter usage (1,168 kWh) with Low Income Home Energy Assistance Program  
15 ("LIHEAP") recipients' average winter usage (1,570 kWh). This results in the sweeping  
16 claim that low-income households are using 37% more electricity on average in the winter  
17 months than the average Empire household.

18 Finally, Mr. Keith makes an overall argument that the conversion of Riverton 12 is driving  
19 this case; therefore, fixed costs should be collected through fixed charges to justify the  
20 increased customer charge and provide "the proper price signal."

21 **Q. Please respond.**

22 A. Why Mr. Keith believes citing Company settlement in the last rate case is appropriate  
23 grounds for his request in this case is unclear. To his second point, regarding low-income  
24 residential ratepayers, I will respond in greater detail later in this testimony. Mr. Keith's final  
25 argument is without merit. Looking at how energy markets operate, it is apparent that the

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<sup>4</sup> ER-2016-0023 Direct Testimony of W. Scott Keith, p. 10, 10-13.

1 marginal cost of electricity generation goes up at higher-demand times, and all generation  
2 gets paid those high peak prices. That means extra revenue for Empire's baseload plants  
3 above its marginal costs, and those revenues can go to pay the fixed costs of said plants. The  
4 same argument goes for transmission lines, where price differentials between locations  
5 means that the transmission line generates revenue above its marginal cost (which is  
6 effectively zero), and can go to pay the fixed cost of transmission lines. In fact, the fixed  
7 costs of generation and transmission should generally be covered without resorting to  
8 increased fixed monthly charges.

9 Likewise, distribution costs are driven by demand, number of customers, and energy needs.  
10 This is true both in the short and long runs. Utilities are continually investing in distribution  
11 plants—new facilities, upgrades, and replacements—in response to changes in load and  
12 therefore costs can be avoided. Collecting this revenue through a fixed customer charge  
13 suggests that on-peak consumption is less costly than in fact it is.

14 An efficient price signal recognizes resource allocation is most efficient when all good and  
15 services are priced at marginal cost. For efficient electricity investments to be made, the  
16 marginal cost should be based on the appropriate timeframe. Bonbright states:

17 I conclude this chapter with the opinion, which would probably represent the  
18 majority position among economists, that, as setting a general basis of  
19 minimum public utility rates and of rate relationships, the more significant  
20 marginal or incremental costs are those of a relatively long-run variety—of a  
21 variety which treats even capital costs or “capacity costs” as variable costs.<sup>5</sup>

22 A fixed charge including long-run marginal costs provides no price signal relevant to  
23 resource allocation, since customers cannot reduce consumption enough to avoid the charge.

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<sup>5</sup> Bonbright, J., et al. (1961) *Principles of Public Utility Rates* (New York: Columbia University Press) p. 336

1 In contrast, an energy charge reflecting long-run marginal costs will encourage customers to  
2 consume electricity efficiently and, thereby avoiding inefficient future utility investments.<sup>6</sup>

3 **Q. Did the Staff perform a CCOS to support their recommendation?**

4 A. Yes. Staff was the only party to perform a CCOS in this case. In regards to the allocation of  
5 distribution and customer service costs, Staff witness Robin Kliethermes states:

6 In Case No. ER-2014-0351, Empire conducted a minimum distribution study  
7 to split the cost of poles, towers, fixtures; and overhead (“OH”) and  
8 underground (“UG”) distribution lines, conductors, and conduit between  
9 primary, secondary and customer related. Staff relied on information from  
10 this study in allocating distribution plant investment to the classes.<sup>7</sup>

11 A footnote to that final sentence states:

12 Staff does not draw the same conclusion as Dr. Overcast in that case in  
13 assuming all costs allocated to the classes on customer count are necessarily  
14 “customer-related” for purposes of determining the cost to be recovered  
15 through the customer charge.<sup>8</sup>

16 In short, Staff allocated distribution expenses as both customer-related and demand-related  
17 costs but at different percentages than Empire had in the previous case. However, in this case,  
18 Staff elected to recommend a higher residential customer charge than the Company’s request  
19 at \$15.00. This is in addition to the continued cost shifting increase recommendations for the  
20 residential class over and above the overall revenue requirement increase.

21  
22  

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<sup>6</sup> Whited, M. et al. (2016) Caught in a fix Synapse Energy Economics <http://www.synapse-energy.com/sites/default/files/Caught-in-a-Fix.pdf>

<sup>7</sup> ER-2016-0023 Staff’s Rate Design and Cost-of-Service Report p. 25, 22-25.

<sup>8</sup> Ibid, footnote #28



1 **Q. What is the basis for Staff's recommended \$2.48 increase to the residential customer**  
2 **charge in this case?**

3 A. Although not explicitly stated there are two plausible lines of reasoning for Staff's departure  
4 from their previous position both of which can be seen by reviewing the foundation for  
5 Staff's recommendation in ER-2014-0341. In that case, Staff calculated a customer charge of  
6 \$18.50 per month but recommended a \$0.27 increase to \$12.79. This was based on:

7 weighing the factors of rate simplicity, customer understandability, and  
8 public policy consideration relating to energy efficiency, Staff  
9 recommends limiting the residential customer charge to the level of the  
10 average residential class increase (emphasis added).<sup>9</sup>

11 A footnote in that final sentence states:

12 In the last Ameren Missouri rate case, Case No. ER-2012-0166, the  
13 Commission found that there were strong public policy considerations in  
14 favor of not increasing the customer charges, particularly, that a lower  
15 customer charge enables customers to see greater impact from conservation  
16 efforts and therefore encourages customers to engage in conservation efforts.  
17 In that case, the Commission rejected a proposed increase to the  
18 residential customer charge, noting that increasing the customer charge  
19 would send exactly the wrong message to customers and would  
20 discourage efforts to conserve electricity. The same concern is raised in  
21 considering raising the residential customer charge in this case. Any increase  
22 to the residential customer charge would slightly decrease the bill impact  
23 (and cost-effectiveness) of any conservation efforts that customers may have  
24 implemented or be considering (emphasis added).<sup>10</sup>

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<sup>9</sup> ER-2016-0023 Staff's Rate Design and Cost-of-Service Report p. 35, 21-22 & p. 36, 1-2.

<sup>10</sup> Ibid., footnote #22.

1 In regards to the first block quote: Staff's current rate design report ignores any public policy  
2 consideration relating to energy efficiency. This is presumably, in part, a response to  
3 Empire's triennial integrated resource plan filing that selected a preferred plan that did not  
4 pursue demand-side management programs moving forward.

5 In regards to the second block quote: in the last Kansas City Power & Light ("KCPL") rate  
6 case, Case No. ER-2014-0370, KCPL requested a 178% residential customer charge  
7 increase. Most parties, including Staff but not KCPL, entered into a non-unanimous  
8 stipulation to keep that residential customer charge at \$9.00 per month. The Commission  
9 rejected that part of the agreement and instead approved an \$11.88 per month customer  
10 charge based on an amended Staff report. Although this case is not cited in the current Staff  
11 report, the omission of the Commission's aforementioned policy position suggests that  
12 Staff's position is in flux.

13 **Q. Does OPC agree with Staff's recommendation?**

14 **A.** No. OPC opposes Staff's recommendation and will expound on those reasons later.

15 **Q. Did DE perform a CCOS to support their recommendation?**

16 **A.** No. However, DE witness Martin Hyman did provide a number of compelling arguments as  
17 to why a further increase to the already largest residential customer charge in Missouri is  
18 inappropriate. In summarizing DE's position, Mr. Hyman states:

19 DE recommends that the Commission reject the Company's rate design  
20 proposal, since it is not supported by cost of service, cost causation,  
21 efficiency, gradualism, or rate shock considerations. Instead, DE  
22 recommends that the Commission only approve an increase to the residential  
23 energy charges, in keeping with its decision in the prior rate case (ER-2014-  
24 0351) and general rate design considerations. Such considerations are

1 particularly important given Empire's already high residential customer  
2 charge compared to other investor-owned utilities in Missouri.<sup>11</sup>

3 **Q. Does OPC agree with DE's recommendation?**

4 A. Yes. OPC is generally supportive of Mr. Hyman's arguments.

5 **Q. Did OPC perform a CCOS?**

6 A. No. With the exception of Staff, there were no new CCOS's performed for this case.

7 **Q. What is OPC's position on the residential customer charge?**

8 A. OPC supports DE's position for the Commission to reject the Company and Staff's request to  
9 increase the residential customer charge. If there has to be an increase in rates, it should be  
10 administered through the energy charge that places more control of the bill in low-income  
11 and fixed-income households and does not penalize efficient, conservative or  
12 environmentally responsible ratepayers. Increased customer charges is an inequitable and  
13 inefficient way to address utility revenue concerns and subsequently reinforces expensive  
14 future supply-side investment at a time of increasing costs.

15 **Q. Please comment on the allocation process involved in the fixed distribution costs.**

16 A. The allocation of the fixed distribution costs is inherently arbitrary. If the allocation can be  
17 changed dramatically by replacement of one persuasive allocation criterion by another with  
18 no less plausibility, then the process ultimately functions as suggestive "guideposts" for the  
19 Commission to consider when setting how revenue will be collected. Economist William J.  
20 Baumol concurred:

21 No form of cost allocation can pretend to be compatible, generally, with  
22 efficiency in resource allocation, no matter how sophisticated its  
23 derivation.<sup>12</sup>

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<sup>11</sup> ER-2016-0023 Rate Design Testimony of Martin R. Hyman p. 17, 10-16.

<sup>12</sup> Baumol, W.J. & D. Fischer (1986) Superfairness: Applications and Theory. Cambridge. p. 146

1           Additionally, it is unfair to allocate these cost increases uniformly because any standard of  
2           “uniformity” inherently handicaps one class of customers to the benefit of another. As  
3           Economist Richard L. Schmalensee states:

4                     It is not a matter of improving cost studies or methodologies; costs that do  
5                     not vary with the volume of service cannot be allocated on a cost-causative  
6                     basis to individual services. Indeed, any allocation of fixed costs is  
7                     necessarily arbitrary. . . . Shippers of diamonds, coal and feathers would  
8                     prefer that the railroad allocate the fixed common costs of the railroad tracks  
9                     on the basis of volume, value, and weight respectively, but none of these  
10                    allocators is objectively better than the others. Since these fixed costs do not  
11                    vary with the volume shipped, there is no objectively ‘reasonable share of  
12                    the joint and common costs of facilities’ to allocate, and yet each party has a  
13                    passionate stake in the outcome of the allocation.<sup>13</sup>

14       **Q.    If allocations are in part arbitrary, what should the Commission rely on?**

15       A.    OPC suggests the Commission be cognizant that reasonable minds will differ over the  
16            appropriate allocation of the distribution system. Moreover, the Commission is not bound to  
17            set the customer charge based solely on the results of any CCOS. Cost studies (both marginal  
18            and embedded) rely on a host of simplifying assumptions in order to produce workable  
19            results. Since one objective of regulation is to serve as a proxy for competition, to impose  
20            upon a single provider the disciplines of competitive markets, it is reasonable to consider the  
21            structure of prices in competition when pricing monopoly services. Two relevant facts  
22            emerge. The first is that goods and services in competition are invariably available and priced  
23            on a unit basis. And the second is that the extent to which more restrictive pricing schemes  
24            exist is a measure of the lack of competition in that particular market. In competition, a  
25            consumer who does not consume a product or service does not nevertheless pay for the mere

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<sup>13</sup> Qtd in (1999) Federal Communications Commission filings found in:  
<http://apps.fcc.gov/ecfs/document/view;jsessionid=yRkfTYLdrdGzpzSNVhHML9FcznF98ppyPfQ1vMgySky3cDnL14LY!1281169505!1675925370?id=1319580003>

1 ability to consume it. Thus, as a general matter, prices should be structured so that, if a  
2 consumer chooses not to purchase a good or service, he or she has no residual obligation to  
3 pay for some portion of the costs to provide that good or service. In this sense, from the  
4 consumer's perspective, costs should be "avoidable."<sup>14</sup>

5 A 20% increase to the customer charge clearly violates the principles of rate stability (often  
6 referred to as "gradualism"). Rates should not change dramatically from one period to the  
7 next. As stated, rates should have a minimum of unexpected and adverse changes.

8 As presented, an increased customer charge coupled with a declining seasonal block rate  
9 encourages wasteful use of service. Increased consumption, through a diminished price signal  
10 does not promote economic efficiency because it tells a consumer little about the costs their  
11 consumption imposes on the system. This can lead to uneconomic consumption and the need  
12 for new investment in generation, transmission, and distribution capacity, which in turn  
13 would increase costs for all customers. Such a path runs counter to the Commission's  
14 expressed policy to promote least-cost production and consumption as articulated in the  
15 Commission's Electric Utility Resource Planning rules 4 CSR 240-22 (2) (B) which states  
16 that the resource planning process:

17 Use minimization of the present worth of long-run utility costs as the primary  
18 selection criterion in choosing the preferred resource plan.

19 **National Trends**

20 **Q. Is there a trend in the electric industry to increase the customer charge?**

21 A. Not presently, or at least not at the level it was a year ago. First, it should be noted that  
22 seeking to shift risk from shareholders to ratepayers through an increased customer charge is  
23 not a new "trend." Historically, utilities have attempted to make similar arguments in the

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<sup>14</sup> Weston F. (2000) Charging for distribution utility services: issues in rate design. The Regulatory Assistance Project. <http://www.oca.state.pa.us/cinfo/DistributedResourcesWorkshop/DistributionUtilityIssues/DistributionUtilityRateDesign.pdf>

1 early 80s after the Public Utility Regulatory Policies Act (PURPA)<sup>15</sup> and in the late 90s  
2 following electric deregulation in many U.S. states.<sup>16,17</sup> The arguments for shifting fixed cost  
3 recovery to a customer charge did not gain traction during the previous two rate design  
4 windows, but the issue did resurface in 2013 driven in part by a report from the Edison  
5 Electric Institute (EEI).<sup>18</sup> Sentiments of that report were stated in Dr. Overcast's testimony in  
6 the previous Empire rate case, ER-2014-0351, as well as throughout the ER-2014-0370  
7 KCPL rate case.

8 Two-years later, the author of the widely read EEI "death spiral" report, Peter Kind, publicly  
9 reversed his recommendation that utilities should actively seek "fixed" cost recovery through  
10 the customer charge as it represented a regressive revenue recovery instrument, undermined  
11 customer choice and contradicted stated policy objectives. In summarizing the current  
12 regulatory climate:

13 Utility sector investments, however, continue to trade close to all-time high  
14 valuations based on low interest rates. Threats to the utility sector are still in  
15 the early stages because customer adoption of new energy technologies  
16 remains low, but are growing. Furthermore, customers, rather than  
17 investors, are bearing the near-term cost of disruption through  
18 increased utility rates, somewhat offset by lower fuel costs (emphasis  
19 added).<sup>19</sup>

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<sup>15</sup> Sterzinger G.J. (1981) The customer charge and problems of double allocation of costs. *Public Utility Fortnightly* p. 30-32 (see GM-2)

<sup>16</sup> Weston, F. (2000) Charging for Distribution Utility Services: Issues in Rate Design. Regulatory Assistance Project. <http://www.oca.state.pa.us/cinfo/DistributedResourcesWorkshop/DistributionUtilityIssues/DistributionUtilityRateDesign.pdf>

<sup>17</sup> Marcus, W.B. & Coyle, E.P. (1999) Customer Charges in the Restructured World: Historical, Policy and Technical Issues. Adapted from a presentation to NARUC's Energy Resources and Environment Committee. JBS Energy, Inc. [http://www.jbsenergy.com/Energy/Papers/Customer\\_Charges/customer\\_charges.html](http://www.jbsenergy.com/Energy/Papers/Customer_Charges/customer_charges.html)

<sup>18</sup> Kind, P. (2013) Disruptive Challenges: Financial implications and strategic responses to a changing retail electric business. Edison Electric Institute. <http://www.eei.org/ourissues/finance/Documents/disruptivechallenges.pdf>.

<sup>19</sup> Kind, P. (2015) Pathway to a 21<sup>st</sup> Century Electric Utility. Ceres. <http://www.ceres.org/resources/reports/pathway-to-a-21st-century-electric-utility> p.5.

1 Policy and industry stakeholders in most states are neither proactively  
2 addressing industry model challenges from a comprehensive policy  
3 perspective, nor seeking the collaboration of all stakeholders to find a  
4 solution that benefits all parties. . . . In many states, despite customer and  
5 policy opposition, electric utilities are proposing increases in fixed charges,  
6 which discourage energy efficiency and impact low-income customers. This  
7 lack of progress in stakeholder collaboration is *not* in our collective best  
8 interests (emphasis in original).<sup>20</sup>

9 And finally:

10 The policy of adopting monthly fixed-charge increases has several flaws—  
11 principally that such increases would remove the price signals needed to  
12 encourage energy efficiency and efficient resource deployment—that need to  
13 be considered when assessing alternatives through a lens by which all  
14 principal stakeholders benefit. . . . It is clear from the wide array of state-  
15 mandated renewable portfolio standards, energy-efficiency programs, net  
16 energy metering tariffs, and inclining block rates that policymakers are  
17 focused on clean energy, consumer choice, efficiency and price signaling.<sup>21</sup>

18 GM-3 contains a reprinted list from Synapse Energy of recently held proceedings in which  
19 the customer charge was specifically addressed from September 2014 to November 2015.  
20 The timeline illustrates the scope of requested customer charge increases in rate cases across  
21 the country as well as the subsequent pushback by Public Service Commission decisions or  
22 settlement negotiations.

23  
24  
25  

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<sup>20</sup> Ibid.

<sup>21</sup> Ibid. p. 6 & 11

1 **Low-Usage, Low-Income**

2 **Q. Please respond to Mr. Keith's data comparing Empire's residential customer usage**  
3 **with LIHEAP customer usage data?**

4 **A.** The use of LIHEAP customer usage data is an inappropriate sample for this exercise. This is  
5 because heating/cooling assistance and energy crisis assistance are effectively energy  
6 subsidies for low-income households. They are more likely to increase energy consumption  
7 than to decrease it. Thus, the vast majority of the funding for LIHEAP serves to increase  
8 energy consumption and the program likely has a net positive effect on energy consumption.

9 Not only is Mr. Keith's comparison inappropriate, it generalizes the conclusion about  
10 LIHEAP recipients to all low-income households. The vast majority of low-income  
11 households fail to receive any LIHEAP funding. A low-income household who receive some  
12 form of financial energy assistance is an exception. According to the U.S. Department of  
13 Health and Human Services (HHS):

14 In FY2009, the most recent year for HHS data are available, an estimated 35  
15 million households were eligible for LIHEAP under the federal statutory  
16 guidelines. According to HHS, 7.4 million households received heating or  
17 winter assistance and approximately 900,000 households received cooling  
18 assistance in that year.<sup>22</sup>

19 Based on the most recent data from 2009, LIHEAP reached only 21% of the eligible  
20 households in the United States. Consider this fact within what Mr. Keith would have the  
21 Commission believe about consumption for all low-income ratepayers in Empire's service  
22 territory—that low-income households consume 34% more electricity in the winter months  
23 than average residential homes. Instead, at best, Empire's data stands for the entirely  
24 unremarkable proposition that LIHEAP is doing what it intended to do—heat and cool homes  
25 and, thereby increasing energy consumption.

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<sup>22</sup> Perl, L. (2013) LIHEAP: Program and Funding. Congressional Research Service <http://neada.org/wp-content/uploads/2013/08/CRSLIHEAPProgramRL318651.pdf>



1 Q. Does OPC believe that an increased customer charge would negatively impact low-  
2 income customers?

3 A. Yes. Low-income and fixed income customers with low usage and small general service  
4 customers that are seasonal in nature can all be seen as customer groups with inelastic  
5 demands. These groups would be subject to paying a higher mark-up above marginal costs  
6 than another type of customer under Empire's or Staff's proposal and can be seen as price  
7 discrimination. Low-income households in Missouri spend 14% of the annual income just on  
8 energy costs whereas middle and higher income families usually pay 3-6%. This means low-  
9 income families will often have to make difficult choices over necessities such as food,  
10 medication, housing, and utility bills.<sup>23</sup> Table 2 shows ratepayers living at the federal poverty  
11 level are more pronounced on a percentage basis in Empire's service territory compared to  
12 the rest of the state as a whole.

13 Table 2: 2016 Federal Poverty Guidelines & Empire serviced counties percentage in poverty<sup>24,25</sup>

2016 Federal Poverty Level		Poverty level of counties in which Empire provides service			
Family Size	Annual Income	Barry 20.2%	Greene 20.6%	Polk 18.1%	
1	\$11,880	Barton 19.1%	Hickory 22.1%	St. Clair 21.7%	
2	\$16,020	Cedar 21.4%	Jasper 19.6%	Stone 16.2%	
3	\$20,160	Christian 11.3%	Lawrence 18.6%	Taney 18.7%	
4	\$24,300	Dade 18.5%	McDonald 22.2%		
5	\$28,440	Dallas 21.7%	Newton 14.3%		
6	\$32,580				
7	\$36,730				
8	\$40,890				
					<b>Missouri = 15.5%</b>

14 <sup>23</sup> Bhattacharya, J. et al (2002) Heat or eat? Cold weather shocks and nutrition in poor American families. National Bureau of Economic Research. <http://www.nber.org/papers/w9004.pdf>

<sup>24</sup> U.S. Department of Health and Human Services (2016) U.S. Poverty Guidelines. <https://aspe.hhs.gov/poverty-guidelines>

<sup>25</sup> U.S. Census Bureau. Small Area Income and Poverty Estimates. [http://www.census.gov/did/www/saipe/data/interactive/saipe.html?s\\_appName=saipe&map\\_yearSelector=2014&map\\_geoSelector=aa\\_s&s\\_state=29](http://www.census.gov/did/www/saipe/data/interactive/saipe.html?s_appName=saipe&map_yearSelector=2014&map_geoSelector=aa_s&s_state=29)

1 In fact, poverty levels in fourteen of the sixteen counties in which Empire provides service  
2 exceed the state average. Equally relevant to this discussion is the fact that low-income  
3 households will not exhibit the same demand characteristics as above-average or more  
4 affluent households. Because distribution costs are largely driven by peak demands, which  
5 are highly correlated with energy usage, it would be inappropriate to penalize low-income,  
6 low usage households that are not causing those costs. Those who use more of the service  
7 should cover proportionately more of its costs.

8 **Q. Could you provide an illustrative example of how demand characteristics may differ for**  
9 **low-income customers?**

10 **A.** Low-income customers, particularly low-income multi-family housing customers, are likely  
11 to use proportionally less peak energy than larger customers.<sup>26,27</sup> This is because low-income,  
12 multi-family housing customers typically live in small dwellings, have fewer discretionary  
13 appliances, and are much more likely to have non-peak appliances such as refrigerators,  
14 lights, and electronic equipment than peak appliances such as a clothes washer and dryer.<sup>28</sup>  
15 Moreover, low-income workers are more likely to work between 6 p.m. and 6 a.m. or on  
16 weekends—non-peaking hours.<sup>29</sup> These differences in demand characteristics also extend to  
17 differences in electricity consumption. Recent research has demonstrated that there exists “a  
18 strong and significant correlation between monthly kWh consumption and monthly kW

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<sup>26</sup> Brockway, N. (2008) Advanced Metering Infrastructure: What regulators need to know about its value to residential customers. National Regulatory Research Institute. xi.  
[http://nrri.org/pubs/multiutility/advanced\\_metering\\_08-03.pdf](http://nrri.org/pubs/multiutility/advanced_metering_08-03.pdf)

<sup>27</sup> Faruqu, A. Sergici, S. & J. Palmer (2010) The Impact of Dynamic Pricing on Low Income Customers IEE Whitepaper. [http://www.edisonfoundation.net/IEE/Documents/IEE\\_LowIncomeDynamicPricing\\_0910.pdf](http://www.edisonfoundation.net/IEE/Documents/IEE_LowIncomeDynamicPricing_0910.pdf)

<sup>28</sup> Marcus, W.B. & G. Ruzsovan (2007) “Know Your Customers” A Review of Load Research Data and Economic Demographic, and Appliance Saturation Characteristics of California Utility Residential Customers. [http://www.jbsenergy.com/downloads/Know\\_Your\\_Customers\\_Paper.pdf](http://www.jbsenergy.com/downloads/Know_Your_Customers_Paper.pdf)

<sup>29</sup> Enchautegui, M.E. (2013) Nonstandard work schedules and the well-being of income families. Urban Institute. <http://www.urban.org/sites/default/files/alfresco/publication-pdfs/412877-Nonstandard-Work-Schedules-and-the-Well-being-of-Low-Income-Families.PDF>

1 demand,” which suggests that “it is correct to collect most of the demand-related capacity  
2 costs through the kWh energy charge.”<sup>30</sup>

3 **Q. Do you have any primary data to support your criticism of Mr. Keith’s conclusion?**

4 **A.** Yes. Empire recently concluded a residential survey to determine current customer electric  
5 usage, demographics, housing stock, and level of efficient appliance saturation. The results of  
6 this survey form the basis for the Company’s twenty-year resource planning forecast in its  
7 recently submitted triennial IRP in EO-2016-0231. Figure 2 summarizes the characteristics of  
8 an above-average and below-average Empire residential ratepayer.

9 Figure 2: Characteristics of above-average and below-average Empire residential ratepayers<sup>31</sup>

<u>Who uses more energy on average?</u>	<u>Who uses less energy on average?</u>
Homeowners	Renters
Homes with 3+ people living in them	Homes with 1 person living in them
Single-family homes and mobile homes	Multi-family apartments with 5+ units
Homes with more than 3,000 square feet	Homes with less than 1,000 square feet
Homes built 2000-2009 (pre-tornado)	Home built prior to 1970
High-income earning homes (\$75K+)	Low-income earning homes (<\$35K)

17 The results of Figure 2 further substantiate my argument against Mr. Keith’s LIHEAP data.

18 Moreover, with the possible exception of ratepayers living in mobile homes,<sup>32</sup> most

<sup>30</sup> Blank, L. & D. Gegax (2014) Residential winners and losers behind the energy versus customer charge debate. *The Electricity Journal*. Vol. 27, Issue 4, 31-39.

<http://www.sciencedirect.com/science/article/pii/S1040619014000773>

<sup>31</sup> See response to OPC DR-2008 for a copy of the Empire District Electric Company Residential Customer Energy Survey 2015. A summary of the percentage breakdown of relevant demographic data from the survey that was utilized for this table is provided in GM-4.

<sup>32</sup> Mobile homes are generally considered a historical artifact in that they are “affordable” homes built before 1976. These homes were succeeded in the marketplace by manufactured homes (or modular homes) that are built to a national standard. Manufactured homes are the only homes in Missouri subject to heightened state-enforced building codes and standards. Further inquiry into Empire’s survey may be warranted to determine how the term “mobile home” is being utilized for their report. Regardless, there exists a variety of best practices that focus on retrofitting this housing stock. (see Talbot, J. (2012) Mobilizing Energy Efficiency in Manufactured Housing Sector. *ACEEE*

1 demographic data suggests that a rate increase through the customer charge would be  
2 regressive.

3 Since 2013, The Federal Reserve Board (“the Fed”) has conducted a survey to “monitor the  
4 financial and economic status of American consumers.” In its most recent survey, on the  
5 issue of “Economic Fragility,” the Fed found economic hardships are common and many  
6 individuals are ill-prepared for a financial disruption and a surprising number would struggle  
7 to cover emergency expenses. Specifically:

- 8 • Just under one-quarter of respondents indicate that they or a family member  
9 living with them experienced some form of financial hardship in the year  
10 prior to the survey.
- 11 • Thirty-one percent of respondents report going without some form of  
12 medical care in the 12 months before the survey because they could not  
13 afford it.
- 14 • **Forty-seven percent of respondents say they either could not cover an**  
15 **emergency expense costing \$400,** or would cover it by selling something or  
16 borrowing money (emphasis added).<sup>33</sup>

17 Given that fourteen out of sixteen counties in which Empire provides service have higher  
18 levels of households living below the federal poverty line than the average Missouri county it  
19 would not be out-of-line to assume that many of Empire’s households suffer from the same  
20 level of heightened financial insecurity. The Commission should also consider this within the  
21 overall context of continued increases in medical expenses (average medical deductibles have

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<http://www.workingre.com/wp-content/uploads/2013/08/Mobilizing-Energy-Efficiency-in-Manufactured-Housing.pdf> )

<sup>33</sup> Board of Governors of the Federal Reserve System (2015) Report on the Economic Well-Being of U.S. Households in 2014. <http://www.federalreserve.gov/econresdata/2014-report-economic-well-being-us-households-201505.pdf>

1 increased over 255% in nine-years)<sup>34</sup> coupled with no corresponding cost-of-living increase  
2 in Social Security this year.<sup>35</sup>

3 **Q. Have Empire's ratepayers expressed similar frustrations in controlling their bill?**

4 **A.** Yes. A review of the submitted public comments in this rate case support my assertions.

5 Public comment excerpt:

6 I have done everything I can think of to reduce my bill—insulated, LED  
7 light bulbs, energy efficient appliances, etc. It is getting harder and harder to  
8 pay my bills (see GM-5).

9 Public comment excerpt:

10 I have resorted to unplugging all major appliances: I do not run the washer  
11 and dryer simultaneously, I have turned the water heater down to its lowest  
12 setting, I have even further weather stripped windows and doors and utilized  
13 blinds and curtains in every window, as well as closed off rooms I might not  
14 be using presently. I do not use the dishwasher, or hardly the oven. I installed  
15 efficiency lighting throughout the home. The attic has 3 feet of blasted  
16 insulation and the crawl space is 4 feet deep. . . . I have simple thermostat  
17 now versus the programmable device that came with the home, and if the  
18 cold is not extreme I will set it to lock out the heating coils in an attempt to  
19 save every single dollar on utility bills. Gentlemen, I burn candles to take the  
20 edge out of the room (see GM-6).

21  
22  

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<sup>34</sup> The average deductible for people with employer-provided health coverage rose from \$303 to \$1,077 between 2006 to 2015. See Claxton, et al. (2016) Payments for cost sharing increasing rapidly over time. Peterson-Kaiser Health System Tracker. <http://www.healthsystemtracker.org/insight/payments-for-cost-sharing-increasing-rapidly-over-time/>

<sup>35</sup> Social Security Administration (2016) Cost-of-Living Adjustment. <https://www.ssa.gov/news/cola/automatic-cola.htm>

1           Public comment excerpt:

2           When it this going to end. When we moved here, to Joplin, I thought about  
3           investing in Empire Elec. I am glad I didn't. I would have been earning  
4           money off of the backs of the poor and needy and elderly. That is not right.  
5           So I didn't invest. Also, when rates started up my wife and me did our best  
6           to save electricity. We hang our clothes out on a line, bought energy saving  
7           light bulbs, unplugged appliances, and our electric bill continues to go up.  
8           We put our thermostat at 68 degrees, bought three Eden Pure heater to save  
9           money and they helped, but rates continue to go up. In the summer time we  
10          set our thermostat at 78 to help, and our rates continue to climb. I take blood  
11          thinner medicine and wear heavy clothes in the winter to keep warm (see  
12          GM-7).

13           Public comment excerpt:

14          I wish to protest such a huge rate increase and then adding insult is the  
15          proposed \$1.95 monthly per customer charge. This electric company is  
16          doing well, buying additional land next their home office so now they own  
17          the whole city block. That is all well and good but they give little  
18          consideration to those of us that are on set incomes and everyone knows that  
19          all of us on Social Security has not received a raise for several years (see  
20          GM-8).

21   **Q.   Should the Commission be concerned about ratepayers whose primary heating is**  
22   **electric if the energy charge is increased?**

23   **A.   Of course. To get a sense of whether electric heating use was pronounced among Empire's**  
24   **low-income ratepayers, OPC contacted both the Missouri Department of Social Services**  
25   **LIHEAP and the DE's Low-Income Weatherization Assistance Program's ("LIWAP")**  
26   **respective management to get a sense of the number of recipients from both programs**

1 relative to their winter fuel source. Figure 3 and Figure 4 provide an overview of recipient  
2 households by winter fuel source based on community action partnerships (“CAP”) that  
3 implement the funds (LIHEAP) or weatherize the homes (LIWAP) in Empire’s service  
4 territory.

5 Figure 3: FY2015 LIHEAP recipient households by winter fuel source<sup>36</sup>

	Electric	Other <sup>37</sup>
Economic Security Corporation of the Southwest Area	41%	59%
West Central Missouri Community Action Agency	43%	57%
Ozarks Area Community Action Corporation	44%	56%
Overall Total	42%	58%

6  
7 Figure 4: Reported LIWAP recipient households by winter fuel source FY16 to date<sup>38</sup>

	Electric	Other <sup>39</sup>
Economic Security Corporation of the Southwest Area	30%	70%
West Central Missouri Community Action Agency	44%	56%
Ozarks Area Community Action Corporation	26%	74%
Overall Total	31%	69%

8  
9 Based on these numbers, the majority of LIHEAP and LIWAP recipients are not heating their  
10 homes through electric space heating. Additionally, it is important to note that LIHEAP’s  
11 knowledge of primary heating is strictly based on the client’s self-declaration. If a client has  
12 to decide between electricity and gas they might state their primary fuel is electric even if

<sup>36</sup> See GM-9

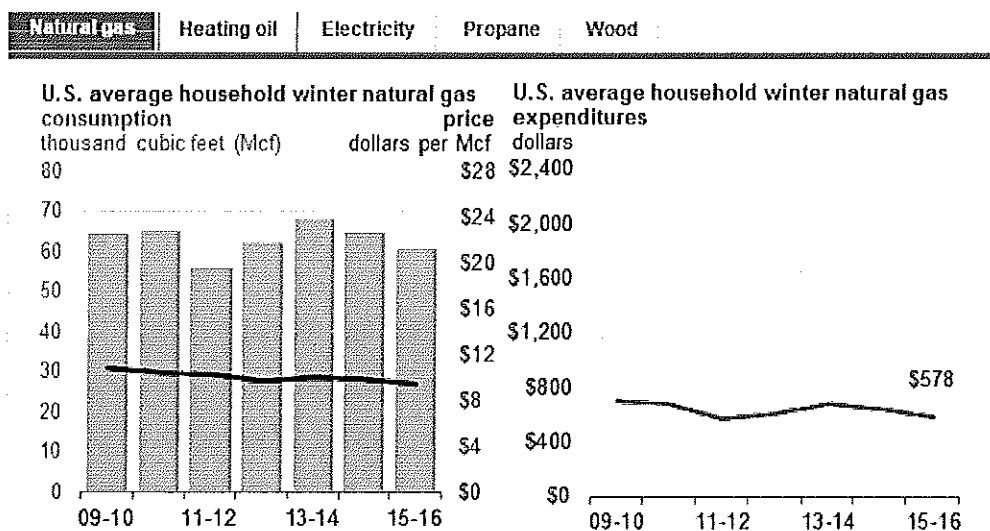
<sup>37</sup> This includes natural gas, propane, fuel oil, wood, kerosene, and cylinder propane (see results in GM-9).

<sup>38</sup> See GM-10

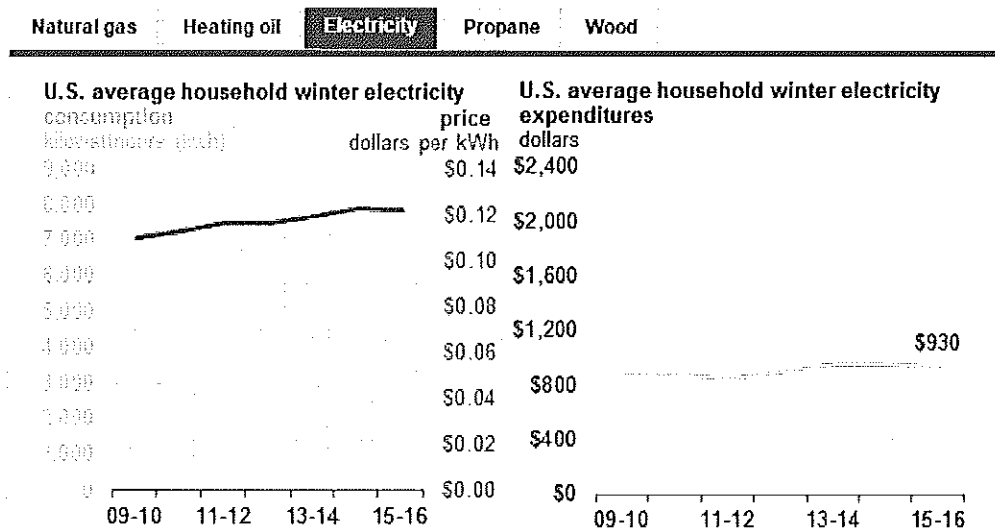
<sup>39</sup> This includes natural gas, propane, and wood (see results in GM-10).

1 they have a gas heating unit.<sup>40</sup> This is largely because natural gas is selling at historic lows  
 2 and is consequently much cheaper to heat compared to electricity according to the U.S.  
 3 Energy Information Administration (EIA) as seen in Table 3 and Table 4:

4 **Table 3: U.S. average household winter natural gas consumption and expenditures**<sup>41</sup>



7 **Table 4: U.S. average household winter electricity consumption and expenditures**<sup>42</sup>



<sup>40</sup> See GM-11.

<sup>41</sup> U.S. Energy Information Administration. (2015) Today in Energy.

[http://www.eia.gov/todayinenergy/detail.cfm?id=23232#tabs\\_3](http://www.eia.gov/todayinenergy/detail.cfm?id=23232#tabs_3)

<sup>42</sup> Ibid.



1 **Consumer Protection Regarding Fixed Charge Increases and Capital Investments**

2 **Q. Is OPC concerned with the frequency of requests to increase the residential customer**  
3 **charge?**

4 A. Yes. OPC strongly believes the customer charge should not be a conduit to address the  
5 Company's perceived external threats and certainly not at the expense of those who can least  
6 afford to lose further control over their financial lives. However, beyond low and fixed-  
7 income ratepayers, the next obvious subset of ratepayers who are unfairly penalized by an  
8 increased customer charge are those who have invested time and money in being efficient,  
9 conservative and environmentally responsible.

10 This is because increased customer charges offset the financial savings of any previous  
11 efficiency actions and erode the incentive to improve appliances or better insulate their home  
12 moving forward. Ratepayers who are considering making investments in energy efficiency  
13 measures will have longer payback periods over which to recoup their investments.  
14 Increasing the customer charge distorts these pricing estimates and would cancel out the  
15 energy saved by Empire's energy efficiency programs to date. This same logic applies to  
16 distributive generation (rooftop solar).

17 If a ratepayer considers making a large-scale capital investment they should be cognizant of  
18 the risk involved with that purchase. In some ways, this is no different than any other long-  
19 lived investment. For example, if you pay extra for an electric car, you run the risk that gas  
20 prices fall after you buy the car and your investment will not pay off. What's different about  
21 distributed generation or energy efficiency is much of the risk is subject to Commission  
22 orders. With most financial risks, there's a chance the underlying prices will go up or down  
23 5% but a much smaller chance that they'll change by over 50%. However, this is exactly the  
24 sort of risk ratepayers who have elected to become more efficient are faced with whenever a  
25 rate case docket is opened.

1 In the past three electric rate cases before this Commission, utilities (or Staff in this case)  
2 have proposed fixed monthly customer charge increases of 50%,<sup>43</sup> 178%,<sup>44</sup> and 21%<sup>45</sup>  
3 respectively. If the residential customer charge increase is raised, ratepayers who have made  
4 investments in energy efficiency or distributed generation will have longer payback periods  
5 over which to recoup their investments if any of those fixed monthly customer charges were  
6 accepted. Despite the increased customer charge tactic largely being abandoned by utilities  
7 throughout the country,<sup>46</sup> ratepayers who made good-faith investments are still exposed to  
8 future regulatory rate design departures or rulemaking decisions that could have an adverse  
9 impact on their past decisions to proactively take control of their bills.

10 **Q. Could you provide an extreme example?**

11 A. Yes. Recently, Nevada's Public Utility Commission ordered that ratepayers with installed  
12 solar would have their fixed charges tripled from \$12.75 to almost \$40.00 over the next four  
13 years. In addition, the Nevada Commission changed the netting to hourly rather than  
14 monthly, and instituted a low rate for sales to the grid.<sup>47</sup> These changes will be applied  
15 retroactively to Nevada's 18,000 existing solar customers, in addition to any new  
16 customers.<sup>48</sup>

17 **Q. Does OPC have a consumer protection proposal?**

18 A. Yes. OPC has drafted disclaimer language alerting potential buyers that their PV systems are  
19 subject to possible future rules and/or rate changes which could have an impact on the  
20 economic assumptions behind their purchase. OPC's proposed language to be included as a  
21 disclaimer is included in Figure 5.

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<sup>43</sup> ER-2014-0351 Direct Testimony of W. Scott Keith p. 14, 8.

<sup>44</sup> ER-2014-0370 Direct Testimony of Tim Rush p. 65, 9.

<sup>45</sup> ER-2016-0023 Staff's Rate Design and Class Cost-of-Service Report p. 3, 5.

<sup>46</sup> Trabish, H.K. (2015) Beyond fixed charges: 'Disruptive Challenges' author charts new utility path. Utilitydive.  
<http://www.utilitydive.com/news/beyond-fixed-charges-disruptive-challenges-author-charts-new-utility-pat/408971/>

<sup>47</sup> 15-070401 & 15-07042. Application of the Nevada Power Company and Sierra Pacific Power Company d/b/a NV  
Energy for approval of a cost-of-service study and net metering tariffs.

[http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS\\_2015\\_THRU\\_PRESENT/2015-7/9692.pdf](http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2015_THRU_PRESENT/2015-7/9692.pdf)

<sup>48</sup> Pyper, J. (2016) Does Nevada's controversial net metering decision set a precedent for the Nation?  
Greentechmedia. <http://www.greentechmedia.com/articles/read/nevada-net-metering-decision>

1 Figure 5: Proposed disclaimer language for future rooftop solar purchases

2 Disclaimer: Possible Future Rules and/or Rate Changes

3 Affecting Your Photovoltaic (PV) System

- 4
- 5 1. Your PV system is subject to the current rates, rules and regulations by the Missouri
- 6 Public Service Commission (Commission). The Commission may alter its rules and
- 7 regulations and/or change rates in the future. If this occurs, your PV system is subject to
- 8 those changes and you will be responsible for paying any future increases to electricity
- 9 rates, charges or service fees from Empire District Electric.
- 10 2. Empire District Electric's electricity rates, charges and service fees are determined by the
- 11 Commission and are subject to change based upon the decision of the Commission. These
- 12 future adjustments may positively or negatively impact any potential savings or the value
- 13 of your PV system.
- 14 3. Any future electricity rate projections which may be presented to you are not produced,
- 15 analyzed or approved by Empire District Electric or the Commission. They are based on
- 16 projections formulated by external third parties not affiliated with Empire District Electric
- 17 or the Commission.

18 This disclaimer would not regulate the financial contents of the solar provider's offer, but

19 would require all residential customers who are considering rooftop solar to be aware that the

20 price and payback assumptions seen today are not static and, in part, subject to considerable

21 regulatory oversight.

22 The disclaimer would be placed in Empire's tariff right before the applicant's signature in the

23 Net Metering Rider: Rider NM tariff sheet 16f and in the Solar Rebate Rider: Rider SR tariff

24 sheet 23h.

To be clear, OPC does not believe that rooftop solar is a present-day concern in regards to

revenue recovery in Empire's service territory. Moreover, it is certainly not a valid reason for

1 increasing the residential customer charge based on the minimum amount of residential  
2 ratepayers currently utilizing distributive generation which represents less than 1% of  
3 Empire's customer to date.<sup>49</sup>

4 **Q. Is OPC proposing similar language for energy efficiency purchases?**

5 A. No. It would be administratively burdensome to attempt to apply the same protections for the  
6 universe of efficient end-use measures. Additionally, OPC is cognizant that future fixed cost  
7 recovery proposals are more likely to be centered on rooftop solar given trends seen  
8 throughout the country.<sup>50</sup>

9 **III. PROPOSED INTERCLASS REVENUE NEUTRAL SHIFTS**

10 **Q. Please explain the Company's position?**

11 A. Based on Empire's revenue requirement, the Company is proposing a \$4,166,016 revenue  
12 neutral shift from a variety of customer classes (CB, SH, GP, TEB and LP classes) to the  
13 residential class. This represents a 2% increase on top of the Empire's overall 7.3% overall  
14 increase. Company witness Keith bases this proposal on the Commission's previous rate  
15 determination in ER-2014-0351.

16 **Q. Please respond.**

17 A. OPC opposes this recommendation. Mr. Keith offers no argument as to why a continued  
18 revenue neutral increase to the residential class is justified and instead assumes that Empire's  
19 operations and delivery have remained static in regards to its customer classes since the last  
20 rate case. Mr. Keith's reliance on the Commission's decision in ER-2014-0351 will be  
21 addressed in greater detail in my response to MECG's proposal.

22  

---

<sup>49</sup> There are 234 out of 126,469 households with rooftop solar in Empire's service territory. EO-2016-0279 Empire District Electric Company. Annual Renewable Energy Standard Compliance Report. p. 12.

<sup>50</sup> Arizona Public Service Electric Company (2016) Arizona's Bright Energy Future: Grid Access Charge. [https://www.azenergyfuture.com/getmedia/1ecf50f3-4c42-4d4b-947d-671fa806317a/Grid-Access-Charge\\_Summary-What-They-Said\\_040215.pdf?ext=.pdf](https://www.azenergyfuture.com/getmedia/1ecf50f3-4c42-4d4b-947d-671fa806317a/Grid-Access-Charge_Summary-What-They-Said_040215.pdf?ext=.pdf)

1 **Q. Please explain MECG's position?**

2 A. MECG supports the Company's proposed revenue neutral shift to the residential customer  
3 class and proposes an additional 10% reduction in the Large Power (LP) rate schedule's tail  
4 block energy charge based on the results of an Edison Electric Institute (EEI) report on  
5 electric rates across self-reported utilities and their customer classes in the U.S., MECG  
6 witness Kavita Maini states:

7 I found that Empire's rates were not competitive. Empire's average industrial  
8 rate was not only the highest amongst investor owned utilities in Missouri  
9 but also high when compared to the national average. Specifically, in that  
10 case, Empire's industrial rate was 16% above the national average, just 5  
11 years earlier the average industrial rate had been below the national average.  
12 Furthermore, I observed that Empire's residential rates were 3.5% below the  
13 national average (compared to industrial rates that were 16% higher)  
14 (emphasis in original).<sup>51</sup>

15 Later, Ms. Maini articulates support for the Company's proposed revenue neutral shift in this  
16 case by framing the residential customer class as a beneficiary of subsidized relief which  
17 needs to be eliminated:

18 These adjustments will continue the Commission's effort to eliminate the  
19 residential subsidy in a timely manner and help to push the Company's  
20 industrial rates towards the national average. These adjustments are also  
21 consistent with the Commission's recognition that competitive industrial  
22 rates are important for the retention and expansion of industries within  
23 Empire's service area.<sup>52</sup>

24  
25  

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<sup>51</sup> ER-2016-0023 Direct Testimony of Kavita Maini p. 7, 29-32.

<sup>52</sup> ER-2016-0023 Direct Testimony of Kavita Maini p. 14, 9-13.

1 **Q. Please respond.**

2 A. Ms. Maini's argument was misleading and inappropriate in ER-2014-0351 and remains so.  
3 To begin, the EEI report is based on answers from utilities representing extremely diverse,  
4 dynamic regulatory climates with an even greater diversity of customer classes and  
5 characteristics. This is far from a complete picture.

6 In terms of electric rates, Figure 6 lists just a few of many potential variables that can alter a  
7 given utility customer within a class.

8 Figure 6: List of variables that can influence rates

- 9
- Vertically Integrated
  - Deregulated
  - Fuel Adjustment Charge
  - Renewable Energy Standard
  - Energy Efficiency Standard
  - Member of an RTO
  - Decoupling
  - Formula Rates
  - Performance-Based Rates
  - Special Contracts
  - Economic Development Rates
  - Low-Income Rates
  - Cap-and-Trade Market
  - Weather
  - Economy
  - Size of Customers within the Class
  - Usage characteristics of Customers
  - Etc...

10 In ER-2014-0321, Ms. Maini's argument centered on two points both lifted from the EEI  
11 report.

12 1.) That Empire industrial customers are 16% above the national average; and

13 2.) Empire's residential customers are paying 3.5% below the national average.

14 OPC has put together a more finite table based on numbers lifted directly from the same EEI  
15 report that Ms. Maini referenced last year and again in this case. Table 5 lists nine sets of  
16 customer classes, a small, medium and large electric consumer for the residential,  
17 commercial and industrial groups. The table then lists low to high demand (kW) for larger  
18 customers and a low, medium and high energy load factor (kWh) to further differentiate  
19 intra-class differences. A positive or negative percentage is then listed. This represents the  
20 difference between Empire's typical monthly bill for a ratepayer with similar load

characteristics compared to a composite U.S. average. If a negative percent is listed, that means, according to EEI, the Empire ratepayer is paying less than the national average. If positive, the typical Empire ratepayer with those characteristics is paying more than the national average.

Table 5: EEI's percentage (+/-) of typical Empire monthly bill compared to US average<sup>53</sup>

Class of Service:	Res	Res	Res	Com	Com	Com	Ind	Ind	Ind
Demand (kW)					40	500	75	1,000	50,000
Low Load Factor (kWh)	500 (-) 2%	750 (-) 6.5%	1,000 (-) 10.3%	375 + 4.4%	10,000 (-) 11.8%	150,000 (-) 11.3%	15,000 (-) 9.6%	200,000 (-) 8.2%	15,000,000 (+) 1.2%
Mid Load Factor				1,500 + 1.5%	14,000 (-) 16.4%	180,000 (-) 11.3%	30,000 (-) 14.8%	400,000 (-) 7.8%	25,000,000 (-) 9.3%
High Load Factor							50,000 (-) 17%	650,000 (-) 7.1%	32,500,000 (-) 16.5%

**Q. Why is this table noteworthy?**

A. First, Empire's rates encourage energy consumption compared to the U.S. average. Moreover, almost all of the "typical" Empire ratepayers have rates below the national average. It should be noted this table suggests Empire's high load industrial ratepayers are very competitive with rates **16.5% lower** than what is seen nationally. The Commission should also be cognizant these numbers reflect rates prior to the additional competitive relief given to the commercial and industrial classes in the last rate case. Certainly, MECCG's "modest" request for a 10% reduction to the Industrial tail block hardly seems appropriate from this perspective.

At the other end of the table, Empire's low-usage residential ratepayers are -2% below the national average. Of course, just as Ms. Maini emphasized the importance of competitive

<sup>53</sup> See GM-12

1 industrial rates last year (successfully) and this year, it may be useful for the Commission to  
2 have some context for just how Empire's residential household incomes compare nationally.  
3 For example, in Empire's most populated city, Joplin, the median household income  
4 (\$37,899) is **41% lower** than the U.S. median household income (\$53,482).<sup>54</sup>

5 **Q. What is OPC's position on the EEI results?**

6 A. OPC would caution the Commission from drawing any strong conclusions from the EEI  
7 report. The basis for Ms. Maini's argument, that Empire's industrial customers need better  
8 competitively priced energy prices, is disproved from the same source she relies on.

9 **Q. Please explain Staff's position.**

10 A. Staff aptly points out all customer classes are producing a positive rate of return on current  
11 rates. Empire is in no danger of under recovery from any given class. Staff also offers an  
12 interclass revenue neutral shift of \$3,855,000 from the General Power customer class to the  
13 residential customer class. At Staff's present revenue requirement this would result in a  
14 6.62% increase. Based on Staff's recommendations, no class would receive a decrease while  
15 the Company's overall revenue requirement is increasing. That being said, General Power  
16 (+0.19%), Feed Mill (+0.08%) and Lighting (0.00%) would all show little to no overall  
17 increases.

18 **Q. Does OPC support this assessment?**

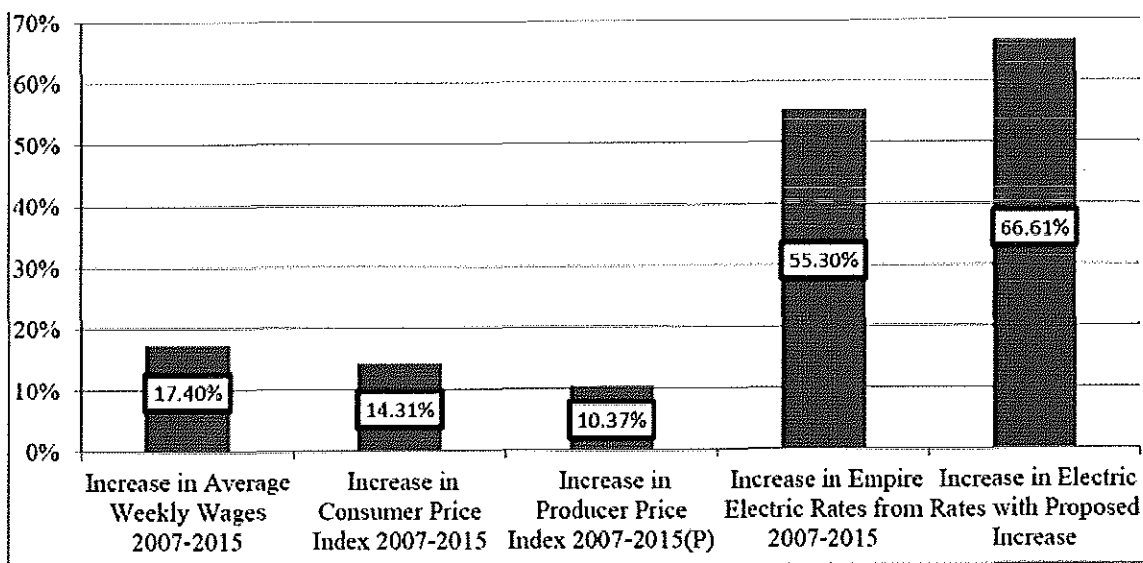
19 A. OPC is opposed to Staff's recommendation for a continued revenue neutral interclass shift to  
20 the residential class as this would represent over a double-digit rate increase for these  
21 customers in less than a year. As outlined in Staff's Economic Consideration section of its  
22 Revenue Requirement Report, Empire's ratepayers average weekly wages have experienced  
23 just a 17.4% overall increase in average weekly wages compared to the 55.3% increase in  
24 electric rates since 2007 as seen in Figure 7.

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<sup>54</sup> U.S. Census Bureau (2014) Joplin City, Missouri. Quick Facts.  
<https://www.census.gov/quickfacts/table/PST045215/2937592.00>



1 Figure 7: Comparison of weekly wages, CPI, PPI and electric rates <sup>55</sup>



2  
3 **Q. What is OPC's position?**

4 A. OPC is opposed to a further revenue neutral shift rate increase for the residential class in this  
5 rate case. In ER-2014-0321, OPC entered into a non-unanimous stipulation and agreement  
6 with all parties, save MECG, in which it was agreed the residential customer charge would  
7 not increase but that a positive 0.75 revenue neutral adjustment would be enforced. The  
8 Commission ultimately elected to dismiss the 0.75 revenue neutral adjustment and instead  
9 ordered a 25% revenue neutral increase to the residential class, citing the importance of  
10 competitive industrial rates and Ms. Maini's testimony specifically.

11 Based on principles of gradualism, the economic realities of the many Empire households,  
12 and the additional rate increases leveled at the residential class in the previous rate case, OPC  
13 cannot support a further increase above and beyond what is already being requested for the  
14 residential class. It is our position there should be no revenue neutral shift and an equal  
15 percentage increase occur across classes.  
16

<sup>55</sup> ER-2016-0023 Michael L. Stahlman. Staff Report. Revenue Requirement P. 18, 13.

1 **IV. PROPOSED PRAXAIR REVENUE SHIFT**

2 **Q. Please explain the Company's request?**

3 A. Empire witness Keith proposed a revenue neutral shift of \$242,000 from Praxair to the  
4 residential class based on the non-firm nature of the Praxair service. According to OPC DR-  
5 5039, the Company responded:

6 The Praxair exception is directly related to the non-firm nature of the service  
7 provided. Most of the case was related to the fixed cost of the Riverton  
8 conversion which is capacity related.

9 Since the cost drivers in the case were primarily fixed, Empire has requested  
10 a substantial portion of the increase be recovered by an increase in the fixed  
11 charge components of the rates where possible and practicable.<sup>56</sup>

12 A follow-up data request in OPC DR-5056 requested the Company provide a detailed  
13 explanation of why the costs associated with the Riverton conversion do not apply to Praxair.  
14 The Company responded:

15 The Riverton costs in the case are directly related to replacing capacity lost  
16 due to the retirement of Riverton units 7 and 8. Praxair is not a firm customer  
17 and Empire does not plan capacity decisions due to the Praxair load.<sup>57</sup>

18 **Q. Is it true that Empire does not plan capacity decisions due to the Praxair load?**

19 A. No, at least not according to the results of their recently filed triennial IRP in EO-2016-0223,  
20 Volume 3 Load Analysis and Load Forecasting Analysis. In the Long-Term Load Forecasts  
21 subsection, the Company quotes the Commission rules 4 CSR-240-22 (5) (B):

22 Long-term load forecasts—to serve as a basis for planning capacity and  
23 energy service needs. This can be served by any forecasting method or

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<sup>56</sup> See GM-13

<sup>57</sup> See GM-14

1 methods that produce reasonable projections (based on comparing model  
2 projections of loads to actual loads) of future demand and energy loads;

3 Empire then indicates the following classes that were specifically modeled to inform their  
4 twenty-year forecast. The customer classes modeled include:

- 5 a) Residential
- 6 b) Commercial
- 7 c) Wholesale (Monett, Mt. Vernon, Lockwood, and Chetopa)
- 8 d) Street and highway
- 9 e) Interdepartmental
- 10 f) Public authority
- 11 g) Industrial (oil and pipelines, Praxair, and other) (emphasis added).

12 Further review of Empire's load-forecast volume reveals that a single energy model was  
13 developed specifically to forecast Praxair's monthly energy usage. The Praxair load forecast  
14 model is as follows:

15 The Praxair model is a single regression model developed to forecast  
16 monthly energy. The model is created to provide a forecast based on the  
17 2013 through 2015 average annual energy usage and the seasonal pattern  
18 created by the varying number of days in each month. The model results are  
19 shown in Table 3-32 and Table 3-33.<sup>58</sup>

**Table 3-33 - Praxair Model Statistics**

<b>Statistics</b>	<b>Praxair Model</b>
Estimation	1/2001 – 3/2015
R2	0.191
Adj. R2	0.140
MAPE	6.50%
DW	1.376

20  
<sup>58</sup> EO-2016-0223 The Empire District Electric Company Integrated Resource Plan: Load Analysis and Load Forecasting. Vol. 3-50.

1 Mr. Keith's carve-out request for Praxair is without merit and should be rejected.

2 **IV. ALLOCATION OF ENERGY EFFICIENCY COSTS**

3 **Q. How are the energy efficiency costs allocated?**

4 A. Staff and the Company have allocated Empire's energy efficiency costs to each customer  
5 class based on each class's energy usage minus the energy usage of customers who opt-out of  
6 participation in those programs. This methodology was adopted in ER-2012-0345 under the  
7 assumption the programs would be a bridge to a Commission-approved MEEIA. That  
8 assumption has not come to fruition. As it stands, the methodology currently utilized places a  
9 disproportionate amount of expenses onto the residential class relative to their level of  
10 participation.

11 **Q. Do you agree with this methodology?**

12 A. No. Under this approach, residential customers are paying roughly half of the overall costs  
13 but have only caused approximately 30% of the costs in PY2014 and PY2015. Additionally,  
14 it has come to OPC's attention the Commercial and Industrial customer classes have  
15 potentially exceeded their annual budget for PY2016 (after four months). \*\*

16  
17 \*\*<sup>59</sup> If this methodology continues, it will further penalize  
18 residential customers for programs in which they are seeing no benefit but bearing almost all  
19 of the costs.

20 Preliminary estimates suggest the residential class is being overcharged approximately  
21 \$277K. However, OPC is currently reviewing several data requests recently received from  
22 the Company before we submit the recommended allocation for the energy efficiency  
23 charges for each of the customer classes.

24  

---

<sup>59</sup> See OPC DR-2027 2016 YTD EE Costs HC

1 **Q. Does OPC have any issue with the rate base treatment of energy efficiency costs?**

2 A. No. OPC has examined this issue internally and has reversed our previous position.

3 **V. DEMAND-SIDE MANAGEMENT PROGRAMS**

4 **Q. Please explain the Company's position on the future of their DSM programs?**

5 A. Based on current evidence, Empire is not proposing any substantive changes to their DSM  
6 portfolio. However, outside this rate case and following the Company's direct testimony,  
7 Empire has indicated its intent to discontinue its DSM programs based on the preferred  
8 resource plan submitted in its recent triennial IRP filing (EO-2016-0223).

9 **Q. What is Staff's position?**

10 A. Staff has not taken a formal position on this issue. Staff witness Brad J. Fortson identified a  
11 number of dated or otherwise incorrect information in Empire's tariff as it pertains to its  
12 DSM programs. He also noted in "the Chapter 22 Electric Utility Resource Planning" section  
13 of the *Staff Revenue Requirement* report that:

14 The triennial compliance filing will play a key role in understanding  
15 Empire's long-term DSM strategy and whether the strategy will provide  
16 benefits to all customers. Staff will review Empire's triennial compliance  
17 filing and may make specific recommendations concerning current DSM  
18 programs in rebuttal testimony to this case.<sup>60</sup>

19 **Q. What is DE's position?**

20 A. DE is in support of continuing the programs in pursuit of a Commission-approved MEEIA  
21 portfolio. DE witness Martin R. Hyman states:

22 DE encourages the Company to file a MEEIA portfolio application in order  
23 to fulfill the policy goal set forth in the MEEIA statute and to assist the  
24 Company's customers with the rate impacts resulting from this case.

---

<sup>60</sup> ER-2016-0023 Staff Report: Revenue Requirement p. 111, 17-20.

1                   However, since a MEEIA application is not required by statute, DE  
2                   recommends that, at the very least, the Commission order Empire to  
3                   continue its DSM program offerings at current funding levels until the  
4                   Company receives approval for a MEEIA portfolio.<sup>61</sup>

5                   DE has been the only party to formally offer a position on the future state of  
6                   Empire's DSM programs.

7                   **Q.    What is OPC's position?**

8                   A.    OPC is reserving the right to offer our position in surrebuttal testimony. We are currently  
9                   reviewing Empire's triennial IRP and the assumptions surrounding the Company's preferred  
10                  resource plan as well as awaiting the response to several Company-specific data requests.

11                  **VI.   WORKING DOCKET FOR REVISED BLOCK RATE DESIGN**

12                 **Q.    Please explain the DE's request?**

13                 A.    DE is requesting the Commission order a working docket where the parties can discuss the  
14                 implementation of revised block rate designs for Empire's residential customers. DE witness  
15                 Hyman suggests if the Commission is interested in moving towards an inclining block rate  
16                 design, DE could support up to a 10% tail block increase based on the Company's proposal.  
17                 Mr. Hyman acknowledges this would mostly impact residential electric space heating  
18                 ratepayers but a gradual increase would be preferential to avoid any potential "rate shock."

19                 **Q.    Do you agree with DE's request for a working docket?**

20                 A.    OPC is always willing to have a discussion regarding rate design. Empire's present winter  
21                 declining block rate is not unusual in Missouri but it does stand in stark contrast to many (if  
22                 not most) utilities across the country who adopted more conservation-minded rate designs  
23                 following the passage of The Public Utility Regulatory Policies Act (PURPA) in 1978.<sup>62</sup>

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<sup>61</sup> ER-2016-0023 Direct Testimony of Martin R. Hyman p. 33, 4-9.

<sup>62</sup> 16 U.S.C. Section 2601, et seq. <http://uscode.house.gov/search/criteria.shtml>

1 PURPA required all 50 state Public Commissions and all non-regulated utilities to consider  
2 adopting 6 ratemaking standards:<sup>63</sup>

- 3 1. Basing rates on costs of service by class
- 4 2. Eliminating declining block rates
- 5 3. Introducing time of day rates
- 6 4. Introducing seasonal rates
- 7 5. Introducing interruptible rates
- 8 6. Offering customers cost-effective load management techniques

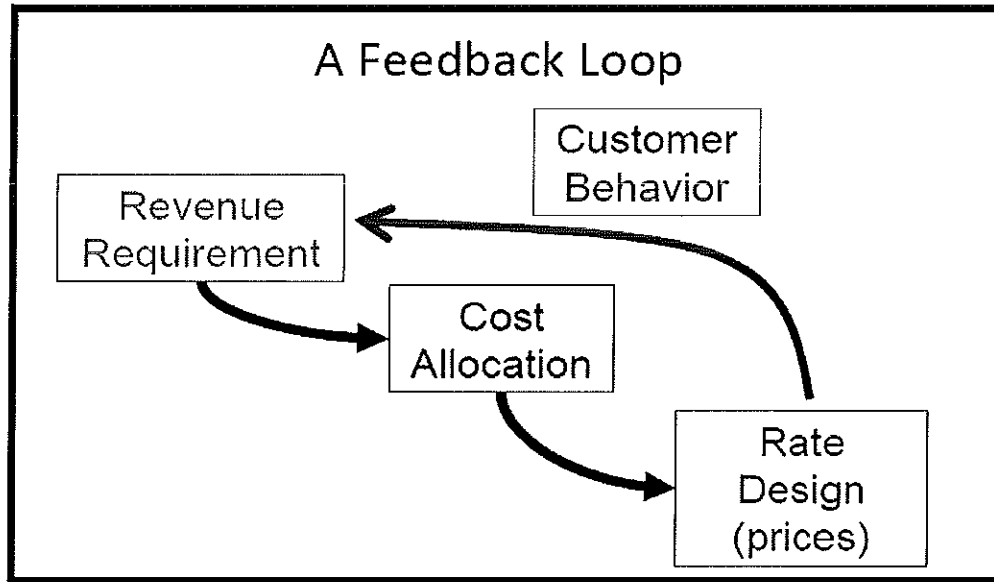
9 **Q. Why should the Commission be concerned with rate design?**

10 A. Price—both its level and its form—is a powerful determinant of consumer behavior.  
11 Accordingly, the setting and design of rates is one of the regulator’s most effective means by  
12 which to achieve desired policy objectives. Therefore, how rates are designed will have an  
13 impact on ratepayer behavior and future outcomes. For example, we know we can expect a  
14 different response to a high customer charge and a low volumetric charge than from a low  
15 customer charge and a high volumetric charge—even if the two are designed to produce  
16 equal revenues in the short run. In the long run, the chosen design will direct future costs  
17 because the price signal functions as a feedback loop designed to influence customer  
18 behavior. This is illustrated in Figure 8.

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<sup>63</sup> Orans, Ren, et al. (2006) Phase I Results: Incentives and rate design for energy efficiency and demand response—  
Appendix. Ernest Orlando Berkeley National Laboratory. <http://drrc.lbl.gov/sites/all/files/60133-app.pdf>

Figure 8: Feedback loop of rate design price signals



Q. What is an inclining block rate (IBR)?

A. Typically, the IBR rate is separated into two blocks, by a kWh threshold. The first block below the threshold is charged one rate and the second block above the threshold is charged another higher rate. The IBR is designed so that if you use more energy, you will pay more per unit of energy. This contrasts with a declining block rate that is designed so that if you use more energy, you will pay less per unit of energy. The former encourages conservation, the latter encourages consumption.

There are at least two policy rationales for inclining block rates: (1) to encourage conservation, efficiency, and self-generation by sending a price signal to high users and (2) to mitigate the effect of rate increases on lower consuming – presumably lower-income – customers and to ensure that essential uses of electricity remained affordable for all customers.<sup>64,65,66</sup>

<sup>64</sup> Borenstein, S. (2008) Equity effects of increasing-block energy pricing. Center for the Study of Energy Markets WP 180. <http://www.ucci.berkeley.edu/PDF/csemwp180.pdf>



1 Unlike other “conservative” demand-side rates and options, the IBR has low to zero  
 2 operation, maintenance and incentive costs. For example, according to Empire’s recently  
 3 filed triennial IRP in EO-2016-0223, a residential inclining block rate was the only “demand-  
 4 side rate” modeled for twenty-years because it was the only rate considered cost-effective.  
 5 All other demand-side rates considered would require two-way advanced metering  
 6 infrastructure (“AMI”) to be deployed that Empire presently does not have. The results of  
 7 that model are reprinted in Table 6.

8 **Table 6: Reprint of Empire’s twenty-year inclining block rate modeling results<sup>67</sup>**

**Table 60 Realistic Achievable Potential Incremental Net Coincident Demand Savings (MW)**

Demand Side Rates	Customer Class	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Critical Peak Pricing	Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non-Residential Non-Metered	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Small Non-Residential Metered	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Large Non-Residential Metered	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inclining Block Rate	Residential	0.21	0.62	1.24	1.86	2.06	2.06	2.07	2.07	2.08	2.09	2.09	2.10	2.11	2.12	2.13	2.14	2.15	2.16	2.17	2.18

**Table 61 Maximum Achievable Potential Incremental Net Coincident Demand Savings (MW)**

Demand Side Rates	Customer Class	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Critical Peak Pricing	Residential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non-Residential Non-Metered	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Small Non-Residential Metered	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Large Non-Residential Metered	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inclining Block Rate	Residential	0.28	0.83	1.65	2.48	2.75	2.75	2.76	2.77	2.77	2.78	2.79	2.80	2.82	2.83	2.84	2.85	2.86	2.88	2.89	2.90

9  
 10 **Q. Would the deployment of an inclining block rate influence the results of Empire’s**  
 11 **energy efficiency potential?**

12 **A. Yes.** Table 6 suggests pricing rates under an IBR design would accomplish more than all of  
 13 Empire’s DSM programs to date. Empire’s estimated results are actually conservative  
 14 compared to what was seen in Ameren Missouri’s recent triennial IRP seen in Table 7 as well  
 15 as what the Kansas Corporation Commission’s (KCC) residential rate study found, which  
 16 included KCPL Kansas and seen in Table 8.

65 US EPA (2009) Customer incentives for energy efficiency through electric and natural gas rate design.  
[https://www.epa.gov/sites/production/files/2015-08/documents/rate\\_design.pdf](https://www.epa.gov/sites/production/files/2015-08/documents/rate_design.pdf)

66 Faruqi, A. (2008) Inclining toward efficiency. Public Utilities Fortnightly  
<http://www.fortnightly.com/fortnightly/2008/08/inclining-toward-efficiency>

67 EO-2016-0223. The Empire District Electric Company Integrated Resource Plan: Demand-Side Resource  
 Analysis. Vo5. 5-103.

Table 7: Reprinted projected peak reductions to Ameren Missouri’s system peak demand<sup>68,69</sup>

**Projected Peak Reduction by Portfolio**

Combination	Participation Scenario	Residential Rate	SGS Rate	LGS Rate	Peak Reduction (MW)	Peak Reduction (% of System Peak)
1	Opt-In	TOU	TOU	CPP	69	0.82%
2	Opt-In	IBR	TOU	CPP	78	0.93%
3	Opt-Out	TOU	TOU	CPP	259	3.07%
4	Opt-Out	IBR	TOU	CPP	294	3.48%

Table 8: Reprinted tables from the Kansas Corporation Commission Rate Design Report<sup>70</sup>

**Table 5.1: Percentage Changes in Usage by Season and Utility, *SFV***

Utility	Summer	Winter
KCP&L	+3.0%	+1.1%
Westar	+6.8%	+2.5%
Midwest	+4.5%	+2.6%

Straight-Fixed Variable Rate Design Increases Consumption

**Table 5.2: Percentage Changes in Usage by Season and Utility, *IBR***

Utility	Summer	Winter
KCP&L	-2.3%	-3.4%
Westar	-0.3%	-3.7%
Midwest	-2.8%	-3.9%

Inclining Block Rate Design Decreases Consumption

These studies suggest that a properly designed inclining block rate has the potential to decrease total electricity consumption at levels that far exceed what has been realized in any utility’s MEEIA Cycle I or pre-MEEIA portfolio to date. Everything else being equal, providing energy consumption discounts to ratepayers would be at odds with ratepayers subsidizing energy efficient appliances. A conservative pricing change would also alter the assumptions and outcome behind the Company’s market potential study

<sup>68</sup> Faruqui A. & R. Hledik (2013) The potential impact of demand-side rate for Ameren Missouri: Final Report. The Brattle Group. EO-2015-0084, Chapter 8, Appendix B, Volume 7.

<sup>69</sup> “Ameren Missouri studies to date show that demand-side rates, specifically rates with inclining block structures, would likely reduce energy consumption by up to 1.8% per year.” p. 76 from above cited source.

<sup>70</sup> Hansen D. & M.T. O’Sheasy (2012) Residential rate study for the Kansas Corporation Commission Final Report. Christensen Associates Energy Consulting.

[http://www.kcc.state.ks.us/electric/residential\\_rate\\_study\\_final\\_20120411.pdf/AcroJS\\_DesignerJS.pdf](http://www.kcc.state.ks.us/electric/residential_rate_study_final_20120411.pdf/AcroJS_DesignerJS.pdf)

1 **Q. Is everything else “equal?”**

2 A. No. OPC is still currently reviewing the assumptions behind Empire’s triennial IRP filing.  
3 Any discussion about rate design needs to consider Empire’s resource mix, revenue  
4 requirement, and critical uncertainty factors. OPC will provide further comments on this  
5 topic in surrebuttal testimony if necessary. On a related note, it should be emphasized a  
6 declining block rate encourages consumption and further minimizes the argument for an  
7 increased customer charge.

8 **VII. LOW-INCOME WEATHERIZATION**

9 **Q. Please explain the Company’s request?**

10 A. Empire is requesting an increase in the budget it’s Low-Income Weatherization Program  
11 (LIWAP) of \$25,000 per year to \$250,000.<sup>71</sup>

12 **Q. Does OPC support this request?**

13 A. Yes.

14 **Q. Please explain Staff’s position and proposed recommendation?**

15 A. Staff did not opine on the proposed LIWAP amount. Staff witness Kory Boustead did  
16 recommend Empire perform a future evaluation of the LIWAP. Ms. Boustead states:

17 In order to get a better picture of the full impact of weatherization on low-  
18 income homes, Staff recommends that the evaluation include a  
19 representative sample of homes that use both electricity and natural gas for  
20 space conditioning. This sample should include homes served by Missouri  
21 Gas Energy (“MGE”) a division of Laclede Corporation, provided that

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<sup>71</sup> See ER-2016-0023 Direct Testimony of W. Scott Keith p. 11, 19-24.

1 Empire can obtain the information necessary to determine cost effectiveness  
2 from MGE.<sup>72</sup>

3 Ms. Boustead did not offer a budgeted amount for the proposed evaluation nor did  
4 she specify as to what exactly the evaluation would examine.

5 **Q. Does OPC support this request?**

6 **A.** No. At this point, it is unclear what benefit another low-income weatherization evaluation  
7 would provide stakeholders. Ratepayer dollars for weatherization can be best viewed as  
8 supplemental capital for the community action agencies that utilize federal tax dollars to  
9 perform LIWAP services. The Ozark Area Community Action Corporation (OACAC),  
10 which operates in the Branson area, does not spend their federal funds on one home and their  
11 Empire funds on a different home. In fact, OACAC will have multiple streams of funding  
12 that are pooled collectively to weatherize homes.

13 The primary funding stream for all CAPS that weatherize low-income homes comes from the  
14 U.S. Department of Energy (DOE) who administers evaluations, provides strict guidelines,  
15 and imposes specific cost-effective evaluations utilizing approved proprietary software with  
16 unique algorithms to account for changes in climate and building stock. In short, the  
17 community action agencies in Empire's service territory are already subject to considerable  
18 scrutiny.

19 Low-income communities are among the most surveilled in America. Adding an additional  
20 level of redundant bureaucratic red tape that applies to a small subset of funds raises  
21 prudence issues. Any funds that would be allocated to a third-party evaluator are better spent  
22 on weatherizing homes or deploying a minimalist approach focused on bill payment results  
23 that could be obtained internally by the Company.

24 If there are concerns above and beyond the cost-effectiveness of the measures or the  
25 correlation between weatherization and customer arrears (e.g., the administration and

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<sup>72</sup> ER-2016-0023 Staff Report: Revenue Requirement p. 114, 13-18

1 oversight of Empire's weatherization funds), OPC would offer that DE may be a more  
2 appropriate actor to address those issues as it is charged with administering both the DOE  
3 funds as well as most utility-sponsored weatherization programs.

4 **Q. Are there any other issues regarding weatherization you would like to address?**

5 A. Yes. It has come to OPC's attention that Empire is currently collecting interest on a  
6 significant amount of unspent funds that are supposed to be devoted to LIWAP activities.  
7 We are currently awaiting the responses to several data requests issued to the Company as to  
8 how the accumulated interests from these funds have been dealt with. Based on the responses  
9 the Company makes, there may be further recommendations in future testimony.

10 **Q. Does this conclude your testimony?**

11 A. Yes.

CASE PARTICPATION OF  
GEOFF MARKE, PH.D.

Company Name	Employed Agency	Case Number	Issues
The Empire District Electric Company	Office of Public Counsel (OPC)	ER-2016-0023	<b>Rebuttal:</b> Rate Design, Demand-Side Management, Low-Income Weatherization
Missouri American Water	OPC	WR-2015-0301	<b>Direct:</b> Consolidated Tariff Pricing / Rate Design Study <b>Rebuttal:</b> District Consolidation/Rate Design/Residential Usage/Decoupling <b>Rebuttal:</b> Demand-Side Management (DSM)/ Supply-Side Management (SSM) <b>Surrebuttal:</b> District Consolidation/Decoupling Mechanism/Residential Usage/SSM/DSM/Special Contracts
Working Case: Decoupling Mechanism	OPC	AW-2015-0282	Memorandum: Response to Comments
Rule Making	OPC	EW-2015-0105	Missouri Energy Efficiency Investment Act Rule Revisions, Comments
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2015-0084	Triennial Integrated Resource Planning Comments
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2015-0055	<b>Rebuttal:</b> Demand-Side Investment Mechanism / MEEIA Cycle II Application <b>Surrebuttal:</b> Potential Study / Overearnings / Program Design <b>Supplemental Direct:</b> Third-party mediator (Delphi Panel) / Performance Incentive <b>Supplemental Rebuttal:</b> Select Differences between Stipulations
The Empire District Electric Company	OPC	EO-2015-0042	Integrated Resource Planning: Special Contemporary Topics Comments
KCP&L Greater Missouri Operations Company	OPC	EO-2015-0041	Integrated Resource Planning: Special Contemporary Topics Comments
Kansas City Power & Light	OPC	EO-2015-0040	Integrated Resource Planning: Special Contemporary Topics Comments
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2015-0039	Integrated Resource Planning: Special Contemporary Topics Comments
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2015-0029	Ameren MEEIA Cycle I Prudence Review Comments

Kansas City Power & Light	OPC	ER-2014-0370	<b>Direct</b> (Revenue Requirement): Solar Rebates <b>Rebuttal:</b> Rate Design / Low-Income Weatherization / Solar Rebates <b>Surrebuttal:</b> Economic Considerations/ Rate Design / Cyber Security Tracker
Rule Making	OPC	EX-2014-0352	Net Metering and Renewable Energy Standard Rule Revisions, Comments
The Empire District Electric Company	OPC	ER-2014-0351	<b>Rebuttal:</b> Rate Design/Energy Efficiency and Low-Income Considerations
Working Case: Utility Pay Stations and Loan Companies	OPC	AW-2014-0329	Comments: Response to Staff Report
Union Electric Company d/b/a Ameren Missouri	OPC	ER-2014-0258	<b>Direct:</b> Rate Design/Cost of Service Study/Economic Development Rider <b>Rebuttal:</b> Rate Design/ Cost of Service/ Low Income Considerations <b>Surrebuttal:</b> Rate Design/ Cost-of-Service/ Economic Development Rider
KCP&L Greater Missouri Operations Company	OPC	EO-2014-0189	<b>Rebuttal:</b> CAM Sufficiency of Filing <b>Surrebuttal:</b> CAM Sufficiency of Filing
KCP&L Greater Missouri Operations Company	OPC	EO-2014-0151	Renewable Energy Standard Rate Adjustment Mechanism (RESRAM) Comments
Liberty Natural Gas	OPC	GR-2014-0152	<b>Surrebuttal:</b> Energy Efficiency
Summit Natural Gas	OPC	GR-2014-0086	<b>Rebuttal:</b> Energy Efficiency <b>Surrebuttal:</b> Energy Efficiency
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2012-0142	<b>Direct:</b> PY2013 EM&V results / Rebound Effect <b>Rebuttal:</b> PY2013 EM&V results <b>Surrebuttal:</b> PY2013 EM&V results
Kansas City Power & Light	Missouri Public Service Commission Staff	EO-2014-0095	<b>Rebuttal:</b> MEEIA Cycle I Application testimony adopted
KCP&L Greater Missouri Operations Company	Missouri Division of Energy (DE)	EO-2014-0065	Integrated Resource Planning: Special Contemporary Topics Comments
Kansas City Power & Light	DE	EO-2014-0064	Integrated Resource Planning: Special Contemporary Topics Comments
The Empire District Electric Company	DE	EO-2014-0063	Integrated Resource Planning: Special Contemporary Topics Comments
Union Electric Company d/b/a Ameren Missouri	DE	EO-2014-0062	Integrated Resource Planning: Special Contemporary Topics Comments
The Empire District Electric Company	DE	EO-2013-0547	Triennial Integrated Resource Planning Comments

# The Customer Charge and Problems Of Double Allocation of Costs

By GEORGE J. STERZINGER

AFTER several years of the "great rate debate" attention finally seems to be turning towards a forgotten part of rate design: the customer charge. Utilities, forced by the Public Utility Regulatory Policies Act to justify or do away with declining energy charges, have begun arguing for cost classification and subsequent rate design with increasingly large customer charges. Recently proposed customer charges seem to be consistently in the \$6 to \$9 range, accompanied by embedded cost-of-service studies supporting even greater charges.

Consumer and environmental groups concerned about rate design reform (rather than using the customer charge as a place to dump costs, as the utilities do) have seen it as a place to shave costs. Concerned primarily with getting a kilowatt-hour or usage charge to reflect incremental or marginal costs more accurately, these groups have attempted to resolve the problem of the resulting excess revenue by proposing that the customer charge be lowered enough to "lose" the



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surplus. Negative customer charges or lump sum monthly payments from the utility to consumers have been proposed by more imaginative analysts.<sup>1</sup>

Analyses of the proper customer charge have often yielded contradictory results depending upon whether incremental or embedded costs were used. Incremental analyses often, but not always, support low customer charges, while embedded cost analyses often, but not always, support high customer charges.

The importance of incremental price signals and the need to strike a balance between revenue constraints and

*This article is a critique of the currently most widely used methodology for classifying a portion of electric utility distribution plant as a customer cost. The author argues that this classification, combined with an allocation of the "above minimum" portion on a demand basis, leads to an overallocation of costs to low use residential customers of the electric system.*

proper price signals have produced wide agreement that the customer charge is the least "informative" of all parts of a rate design and should be the last place utility is allowed to collect revenues if incremental costs are found to be useful in designing rates.

Unfortunately, the debate on the proper definition and use of incremental costs remains unresolved, while traditional practices of embedded cost allocation seem to support very high customer charges. Regulators, forced with making a decision, have found some cost basis to be

<sup>1</sup> "Customer Charges and the Public Utility Regulatory Policies Act," by Edward F. Renshaw and Perry Renshaw, 104 PUBLIC UTILITIES FORTNIGHTLY 17, August 30, 1979, found high customer charges contrary to the intention of PURPA.



preferable to unresolved speculation, and raised the customer charge based on embedded cost-of-service studies.

Since incremental analyses cannot by themselves support a low customer charge, the embedded cost analyses which support high customer charges must also be closely investigated to determine if they meet current objectives of rate design. An examination of these methodologies reveals the following characteristics:

— Almost all of them rely for their justification on the determination of the cost of a minimum distribution system, and the classification of this system as a customer cost.

— Once the classification has been made, it is an inescapable conclusion of the allocated cost-of-service study that calculated customer costs will be substantial.

— However, an examination of the rationale for the classification and the implications of that classification lead equally inescapably to the conclusion that minimum use residential customers will be overcharged by such cost allocation practices.

— The only reasonable remedy for the problem of overcharging is to classify the entire distribution system on a consistent basis, which would be a demand basis.

— Once this is done, traditional cost-of-service studies no longer provide support for high customer charges.

A national survey of utility practices in classification of distribution system costs determine that the great majority used some form of minimum system to classify costs in the relevant Federal Energy Regulatory Commission accounts. (The survey was conducted by Carolina Power and Light Company, Raleigh, North Carolina.) The survey summarized the results of company practices to determine how much, on average, each distribution plant account was classified as demand. The results by FERC account were as follows:

— Account 364 — Poles and fixtures were separated into primary and secondary; the primary portion was split 50-50 between customer and demand costs, the secondary portion was classified 56.5 per cent customer and 43.5 per cent demand.

— Account 365 — Conductors and devices were also separated into primary and secondary; the primary portion was classified 44.3 per cent customer and 55.7 per cent demand, and the secondary portion was classified 46.4 per cent customer and 53.6 per cent demand.

— Account 368 — Line transformers were classified 34 per cent customer and 66 per cent demand.

— Account 369 — Services were classified 70.8 per cent customer and 29.2 per cent demand.

The difficulties with these methodologies only begin with the minimum distribution system. The concept is

very difficult to define and consequently susceptible to widely varying interpretations. No single method exists for calculating the cost of this system; nevertheless, a fairly standard approach is to reconstruct the existing distribution system using some type of minimum equipment. Minimum equipment could be of the type employed by the company, currently purchased by the company, currently used in the industry, or currently required by safety code. The cost of this equipment can be either booked or in current prices. Obviously, with this large a menu of definitions to choose from, a utility analyst can calculate costs for these systems over a wide range.

It should be mentioned here that one other method sometimes used to calculate the cost of a minimum system is the "zero-intercept" method whereby regression equations relating cost to various sizes of equipment are derived, and then solved for the cost of zero-sized or "zero-intercept" equipment. The strongest objections to this methodology arise from the limitations on data, the unreliability of the derived equations, and some fundamental problems that arise from making the statistical inference about the cost of the zero-sized equipment.

A typical utility in the sample discussed earlier, faced with the problem of classifying costs in Account 365<sup>1</sup> — overhead lines, for example, would determine the cost of the minimum equipment needed to replace all existing lines, calculate that cost as a fraction of the total costs of equipment in the account, and use that fraction to classify customer costs. Thus, a utility with 1,000 miles of overhead lines and two types of line costing \$1 per foot and \$2 per foot would calculate a minimum system cost of roughly \$5.28 million ( $\$1 \times 5,280$  feet per mile  $\times$  1,000 miles). This \$5.28 million can, of course, be varied if different types of minimum lines are used, or if for other reasons the cost of \$1 per foot is changed.

Beyond problems arising from the indeterminate nature of the minimum system, the appropriateness of classifying these costs as customer costs has been long debated. Strictly speaking, customer costs should be limited to those costs which can be shown to vary exclusively with number of customers. Distribution system costs, both as built and hypothetical minimum system, obviously depend to a great extent on geographical considerations — type of terrain and customer density. Several analysts have argued that the nature of cost causation — in this case at least in part due to geography — does not allow the costs to be neatly fit into either demand or customer cost categories; that the costs are simply unallocable. Recent statistical analyses support this notion.<sup>2</sup>

An additional and more severe problem with this methodology arises from the consequences of classifying distribution system costs into both customer and demand portions. Simply put, this practice leads

<sup>1</sup>"The Economics of Electric Distribution System Costs and Investments," by David J. Lessels, 106 PUBLIC UTILITIES FORTNIGHTLY 37, December 4, 1980, found no statistical justification for the classification of distribution costs as customer related.

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inevitably to a double allocation and possibly a double collection of these costs from low-use residential customers and a misallocation of costs among customer classes.

To see why this is so, one need only step back for a moment to consider what it is that a cost allocation study attempts to do, and what happens when distribution system costs are split into customer and demand portions and then allocated to individual classes.

An allocation study assigns costs to customers on the basis of usage characteristics; fairness requires that allocated costs follow, as closely as possible, the actual costs of serving customers. Splitting the distribution system into a minimum usage and an above minimum usage portion, and allocating the minimum portion on a customer basis, and the above minimum on a usage basis results in low-use residential customers paying for more of the system than is required to serve them. By splitting the distribution system into two parts, low-use residential consumers are charged twice: once, on a customer basis, for a portion of the system sized to meet their demands; and again on a demand basis for a portion of the system sized to serve demand beyond what would be needed to serve them. The only practical way satisfactorily to assure that low-use customers are charged only once for distribution equipment is to allocate the distribution system costs on a single consistent basis. Of the two considered, customer and demand, it is obvious that only demand can be used to classify and allocate distribution costs on a satisfactory basis.

In order to explain more fully why this method constitutes double charging of low-use customers, we can look more closely at the handling of FERC Accounts 364 and 365 which represent the cost of overhead lines and poles. To illustrate this, suppose the company had only 1,000 miles of overhead lines and 10,000 poles; and in addition it used two types of line — one costing \$1 per foot, for 500 miles of overhead, the other costing \$2 per foot, for the remainder; and two sizes of pole — 5,000 costing \$30 per pole and 5,000 costing \$60 per pole. Total cost of this system would be:

a) Line: 500 miles at \$1 per foot	\$2,640,000	
b) Line: 500 miles at \$2 per foot	5,280,000	
Subtotal		\$7,920,000
c) Poles: 5,000 poles at \$30 per pole	\$ 150,000	
d) Poles: 5,000 poles at \$60 per pole	300,000	
Subtotal		\$ 450,000
Total		\$8,370,000

A minimum system in this case would be determined by calculating the cost of the 1,000 miles of overheads if only the minimum-sized line was used, plus the cost of the 10,000 poles if only the minimum-sized pole was used.

Cost of the minimum system is:

a) Line: 1,000 miles at \$1 per foot	\$5,280,000
b) Poles: 10,000 poles at \$30 per pole	300,000
Total	\$5,580,000

Therefore, the cost of the above minimum (or capacity) system would be the remainder, or \$2,780,000.

The minimum system calculated in this fashion could and actually does, serve a considerable level of usage.

The minimum system is allocated on a customer basis — all customers are charged for an equal share of it. The remainder of the system, the more expensive facilities required to meet loads beyond those handled by minimum-sized equipment, is allocated on some demand basis; noncoincident peak demand is often used. In the calculation of the noncoincident peak demand allocation factors, usage at all levels of the residential and general service customer classes is used to determine allocation factors.

If, for example, the minimum overhead line conductors, and poles could supply a demand of two kilowatts per residential customer, that amount of usage would be paid for in the customer charge. In the determination of demand allocation factors, however, each residential customer's demand is calculated and added to determine the portion of the above minimum system costs to be allocated to the residential class to each customer through the appropriate rates. So a residential customer who has a demand of two kilowatts will have paid for all the distribution costs associated with his load through the customer charge, but will also have his two-kilowatt usage go into the demand allocation factor to allocate distribution costs associated with above minimum usage.

One way to solve the double allocation problem would be to determine, for each piece of minimum equipment, the demand level it would be capable of serving, and then adjusting the demand allocation factors used to allocate the costs of all equipment of that type in order to assure that minimum use customers and the residential class were not charged twice. In many cases this would mean calculating several allocation factors for each FERC distribution account, since more than one type of equipment is used in the account. Even after overcoming all the problems of this approach one is confronted with the dubious value of charging equipment on an up-front basis rather than through per kilowatt-hour charge at a time when conservation is recognized as an important goal of energy policy.

The direct way to assure that problems of overcollection are not built into the methodology used to determine class costs of service is to classify distribution costs as demand costs. If this methodology is used in embedded cost studies, the studies produce more equitable estimates of the cost of service for low-use residential customers.

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## APPENDIX B – RECENT PROCEEDINGS ADDRESSING FIXED CHARGES

The tables below present data on recent utility proposals or finalized proceedings regarding fixed charges based on research conducted by Synapse Energy Economics. These cases were generally opened or decided between September 2014 and November 2015.

Table 1. List of finalized utility proceedings to increase fixed charges

Utility	Docket/Case No.	Existing	Proposed	Approved	Notes
Alameda Municipal Power (CA)	AMP Board vote June 2015	\$9.25	\$11.50	\$11.50	
Ameren (MO)	File No. ER - 2012-0166 Tariff No. YE-2014-0258	\$8.00	\$8.77	\$8.00	Company initially proposed \$12.00. Settling parties agreed to \$8.77. Commission order rejected any increase, citing customer control
Appalachian Power Co (VA)	PUE-2014-00026	\$8.35	\$16.00	\$8.35	
Appalachian Power/Wheeling Power (WV)	14-1152-E-42T	\$5.00	\$10.00	\$8.00	
Baltimore Gas and Electric (MD)	9355, Order No. 86757	\$7.50	\$10.50	\$7.50	Settlement based on Utility Law Judge
Benton PUD (WA)	Board approved in June 2015	\$11.05	\$15.60	\$15.60	
Black Hills Power (WY)	20002-91-ER-14 (Record No. 13788)	\$14.00	\$17.00	\$15.50	
Central Hudson Gas & Electric (NY)	14-E-0318	\$24.00	\$29.00	\$24.00	
Central Maine Power Company (ME)	2013-00168	\$5.71	\$10.00	\$10.00	Decoupling implemented as well
City of Whitehall (WI)	6490-ER-106	\$8.00	\$16.00	\$16.00	
Columbia River PUD (OR)	CRPUD Board vote September 2015	\$8.00	\$20.45	\$10.00	
Colorado Springs Utilities (CO)	City Council Volume No. 5	\$12.52	\$15.24	\$15.24	
Connecticut Light & Power (CT)	14-05-06	\$16.00	\$25.50	\$19.25	Active docket
Consolidated Edison (NY)	15-00270/15-E-0050	\$15.76	\$18.00	\$15.76	Settlement
Consumers Energy (MI)	U-17735	\$7.00	\$7.50	\$7.00	PSC Order
Choptank Electric Cooperative (MD)	9368, Order No. 86994,	\$10.00	\$17.00	\$11.25	PSC approved smaller increase
Dawson Public Power (NE)	Announced June 2015	\$21.50	\$27.00	\$27.00	Based on news articles
Empire District Electric (MO)	ER-2014-0351	\$12.52	\$18.75	\$12.52	Settlement
Eugene Water & Electric Board (OR)	Board vote December 2014	\$13.50	\$20.00	\$20.00	
Hawaii Electric Light (HI)	2014-0183	\$9.00	\$61.00	\$9.00	Part of "DG 2.0"
Maui Electric Company (HI)	2014-0183	\$9.00	\$50.00	\$9.00	Part of "DG 2.0"
Hawaii Electric Company (HI)	2014-0183	\$9.00	\$55.00	\$9.00	Part of "DG 2.0"
Independence Power & Light Co (MO)	City Council vote September 2015	\$4.14	\$14.50	\$4.14	Postponed indefinitely
Indiana Michigan Power (MI)	U-17698	\$7.25	\$9.10	\$7.25	Settlement
Kansas City Power & Light (KS)	15-KCPE-116-RTS	\$10.71	\$19.00	\$14.50	Settlement
Kansas City Power & Light (MO)	File No. ER-2014-0370	\$9.00	\$25.00	\$11.88	
Kentucky Power (KY)	2014-00396	\$8.00	\$16.00	\$11.00	Settlement was \$14/month; PSC reduced to \$11
Kentucky Utilities Company (KY)	2014-00371	\$10.75	\$18.00	\$10.75	Settlement for KU LGE
Louisville Gas-Electric (KY)	2014-00372	\$10.75	\$18.00	\$10.75	Settlement for KU LGE

Utility	Docket/Case No.	Existing	Proposed	Approved	Notes
Madison Gas and Electric (WI)	3270-UR-120	\$10.29	\$22.00	\$19.00	
Metropolitan Edison (PA)	R-2014-2428745	\$8.11	\$13.29	\$10.25	Settlement
Nevada Power Co. (NV)	14-05004	\$10.00	\$15.25	12.75	Settlement
Northern States Power Company (ND)	PU-12-813	\$9.00	\$14.00	\$14.00	Under previous rates, customers with underground lines paid \$11/month
Pacific Gas & Electric Company (CA)	R.12-06-013, Rulemaking 12-06-013	\$0.00	\$10.00	\$0.00	\$10 minimum bill adopted instead
PacifiCorp (WA)	UE-140762	\$7.75	\$14.00	\$7.75	Commission order emphasized customer control
Pennsylvania Electric (PA)	R-2014-2428743	\$7.98	\$11.92	\$9.99	Settlement
Pennsylvania Power (PA)	R-2014-2428744	\$8.86	\$12.71	\$10.85	Settlement
Redding Electric Utility (CA)	City Council Meeting June 2015	\$13.00	\$42.00	\$13.00	Postponed consideration until 2/2017
Rocky Mountain Power (UT)	13-035-184	\$5.00	\$8.00	\$6.00	Settlement
Rocky Mountain Power (WY)	20000-446-ER-14 (Record No. 13816)	\$20.00	\$22.00	\$20.00	
Salt River Project (AZ)	SRP Board vote February 2015	\$17.00	\$20.00	\$20.00	Elected board of SRP voted Feb. 26 2015
San Diego Gas & Electric (CA)	A.14-11-003 & R.12-06-013, Rulemaking 12-06-013	\$0.00	\$10.00	\$0.00	\$10 minimum bill adopted instead
Sierra Pacific Power (NV)	13-06002, 13-06003, 13-06004	\$9.25	\$15.25	\$15.25	
Southern California Edison (CA)	A.13-11-003 & R.12-06-013, Rulemaking 12-06-013	\$0.94	\$10.00	\$0.94	\$10 minimum bill adopted instead
Stoughton Utilities (WI)	5740-ER-108	\$7.50	\$10.00	\$10.00	
We Energies (WI)	5-UR-107	\$9.13	\$16.00	\$16.00	
West Penn Power (PA)	R-2014-2428742	\$5.00	\$7.35	\$5.81	Settlement
Westar (KS)	15-WSEE-115-RTS	\$12.00	\$27.00	\$14.50	Settlement
Wisconsin Public Service (MI)	U-17669	\$9.00	\$12.00	\$12.00	Settlement
Wisconsin Public Service (WI)	6690-UR-123	\$10.40	\$25.00	\$19.00	
Xcel Energy (MN)	E002 / GR-13-868	\$8.00	\$9.25	\$8.00	Commission order emphasized customer control

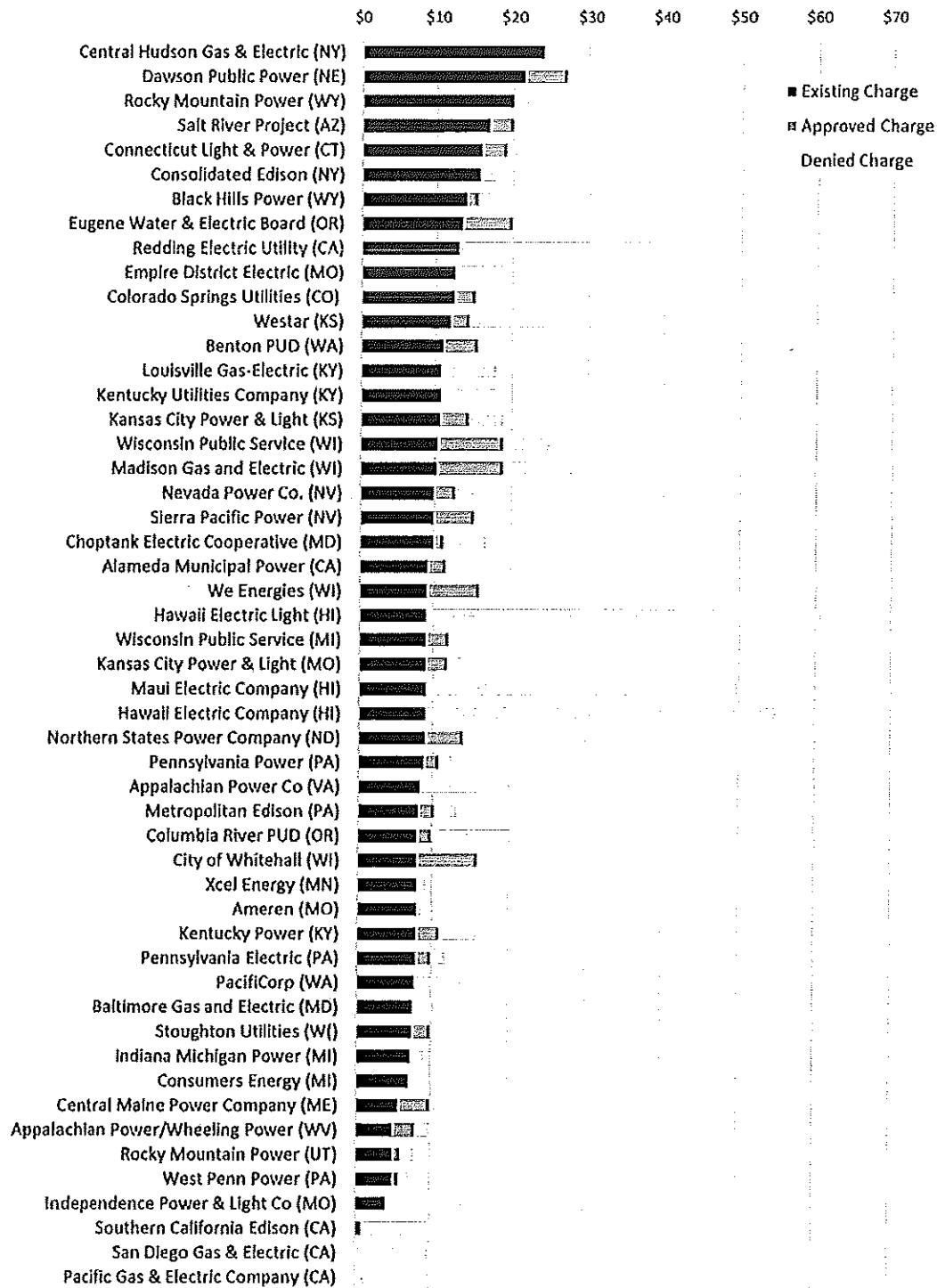
Source: Research as of December 1, 2015. List is not meant to be considered exhaustive.

Table 2. Pending dockets and proposals to increase fixed charges

Utility	Docket/Case No.	Existing	Proposed	Approved	Notes
Avista Utilities (ID)	AVU-E-15-05	\$5.25	\$8.50		Active docket
Avista Utilities (WA)	UE-150204	\$8.50	\$14.00		
Detroit Edison (MI)	U-17767	\$6.00	\$10.00		Proposed order has rejected residential increase
El Paso Electric (TX)	44941	\$7.00	\$10.00		Public hearings ongoing
El Paso Electric (NM)	15-00127-UT	\$5.04	\$10.04		Public hearings ongoing
Entergy Arkansas, Inc. (AR)	15-015-U	\$6.96	\$9.00		Active docket
Indianapolis Power & Light (IN)	44576/44602	\$11.00	\$17.00		Active docket, values reflect proposal for customers that use more than 325 kWh
Lincoln Electric System (NE)	City council proceeding	\$11.15	\$13.40		City council decision is pending
Long Island Power Authority (NY)	15-00262	\$10.95	\$20.38		Rejected by PSC, LIPA Board has ultimate decision
Montana-Dakota Utilities (MT)	D2015.6.51	\$5.48	\$7.60		BSC based on per day not per month, values converted to monthly
National Grid (MA)	D.P.U. 15-120	\$4.00	\$13.00		Proposed as part of Grid Mod plan, presented as "Tier 3" customer, for use between 601 to 1,200 kWh per month
National Grid (RI)	RIPUC DOCKET NO. 4568	\$5.00	\$13.00		Presented as "Tier 3" customer, for use between 751 to 1,200 kWh per month
NIPSCO (IN)	44688	\$11.00	\$20.00		Active Docket
Omaha Public Power District (NE)	Public power	\$10.25	\$30.00		Based on news coverage of stakeholder meetings. No specific number submitted, \$20, \$30, \$35 where floated past stakeholders
PECO (PA)	R-2015-2468981	\$7.12	\$12.00	\$8.45	Settlement not yet ratified
Public Service Company of New Mexico (NM)	15-00261-UT	\$5.00	\$13.14		Public hearings ongoing
Portland General Electric (OR)	UE 294	\$10.00	\$11.00		Proposed
Pennsylvania Power and Light (PA)	R-2015-2469275	\$14.09	\$20.00	\$14.09	Settlement not yet ratified
Santee Cooper (SC)	State utility	\$14.00	\$21.00		Pending, expected decision in December 2015
Springfield Water Power and Light (IL)	Municipal board	\$5.76	\$12.87		Pending as of Oct 1 2015
Sulfur Springs Valley Electric Coop (AZ)	E-01575A-15-0312	\$10.25	\$25.00		Active docket
Sun Prairie Utilities (WI)	5810-ER-106	\$7.00	\$16.00		
UNS Electric Inc. (AZ)	E-04204A-15-0142	\$10.00	\$20.00		Active docket, hearings in March 2015
Xcel Energy (WI)	4220-UR-121	\$8.00	\$18.00		

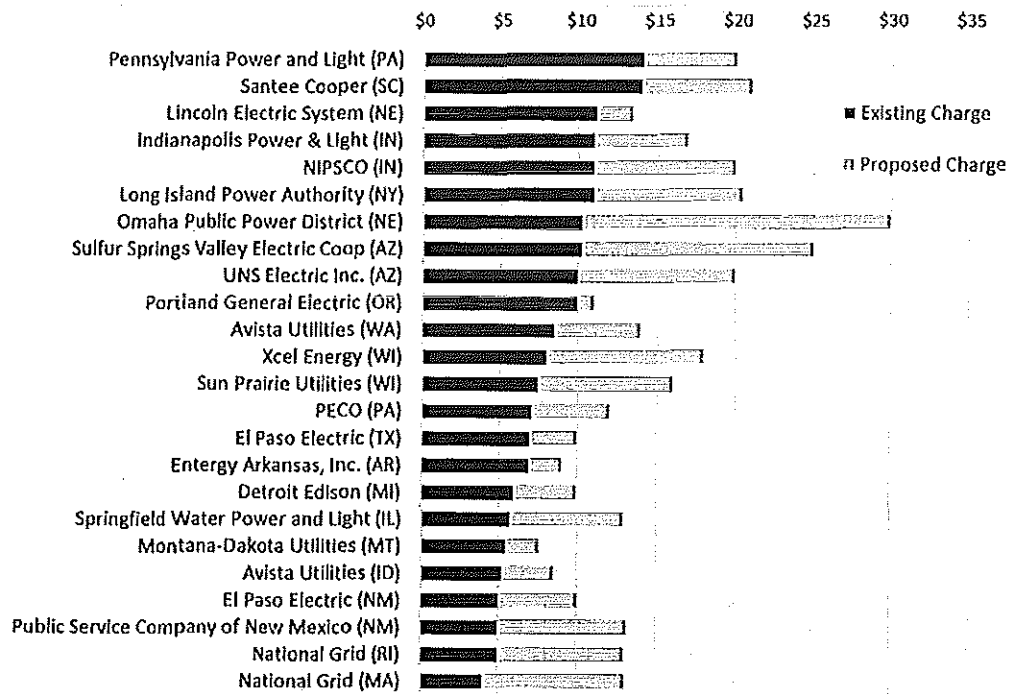
Source: Research as of December 1, 2015. List is not meant to be considered exhaustive.

Figure 12. Finalized decisions of utility proceedings to increase fixed charges



Notes: Denied includes settlements that did not increase the fixed charge.

Figure 13. Existing and proposed fixed charges of utilities with pending proceedings to increase fixed charges



Empire Average (2015)  
 13,775 kWh Annual Residential Average  
 1,147 kWh Monthly Residential Average

National Average (2014 EIA)  
 10,932 kWh Annual Residential Average  
 911 kWh Monthly Residential Average

Table X: 2015 Empire Residential Customer Energy Survey

Percentage Overall	Percentage Overall	33% Low 0 to 8,850	34% Medium 8,851 to 15,750	33% High + 15,751
77%	Own Residence	28%	34%	38%
23%	Rent Residence	48%	35%	17%
20%	1 Person in household	58%	29%	13%
40%	2 People in household	33%	38%	29%
40%	3+ People in household	20%	33%	47%
81%	Single-family detached house	30%	34%	36%
4%	Single-family house attached to others	45%	38%	17%
4%	Multi-family with 2-4 apartments/units	58%	38%	4%
4%	Multi-family with 5+ apartments/units	64%	32%	4%
6%	Mobile/Manufactured home	26%	29%	45%
13%	Home less than 1,000 square feet	57%	31%	12%
34%	1,000 to 1,499 square feet	38%	39%	23%
25%	1,500 to 1,999 square feet	25%	37%	38%
19%	2,000 to 2,999 square feet	21%	30%	49%
9%	Home is more than 3,000 square feet	21%	21%	58%
26%	Home is built prior to 1970	40%	36%	24%
23%	1970-1989	31%	35%	34%
19%	1990-1999	28%	32%	40%
24%	2000-2009	22%	35%	43%
8%	2010 to present	39%	30%	31%
30%	Annual Household income < 30K	45%	33%	23%
27%	30K – 49K	33%	40%	27%
23%	50K – 74K	25%	35%	40%
20%	75K +	23%	39%	48%



# Attachments

GM-5 through GM-11

have been deemed

“Highly Confidential”

in their entirety

# Typical Electric Bills

(In \$/month)

## Annualized Rates in effect July 1, 2015

The data below is presented in this format for each company:

Class of Service:	res	res	res	com	com	com	ind	ind	ind
Demand (kW):					40	500	75	1,000	50,000
low load factor(kWh):	500	750	1,000	375	10,000	150,000	15,000	200,000	15,000,000
mid load factor:				1,500	14,000	180,000	30,000	400,000	25,000,000
high load factor:							50,000	650,000	32,500,000



### Empire District Electric Company

\$70.00	\$96.59	\$121.75	\$68	\$1,120	\$14,828	\$1,800	\$23,179	\$1,495,764
			\$200	\$1,376	\$16,738	\$2,752	\$35,871	\$1,917,364
						\$3,983	\$51,261	\$2,183,564

### Kansas City Power & Light - L&P (formerly Aquila)

\$68.39	\$95.95	\$120.74	\$70	\$1,140	\$14,355	\$1,598	\$20,620	\$1,239,249
			\$223	\$1,481	\$16,187	\$2,556	\$32,835	\$1,849,982
						\$3,832	\$48,103	\$2,308,032

### Kansas City Power & Light - MPS (formerly Aquila)

\$69.73	\$96.02	\$120.09	\$63	\$999	\$12,429	\$1,583	\$19,316	\$1,135,529
			\$151	\$1,295	\$14,037	\$2,659	\$29,810	\$1,620,456
						\$3,915	\$41,779	\$1,971,881

### Kansas City Power & Light Company

\$67.69	\$92.65	\$114.69		\$1,050	\$14,359	\$1,715	\$24,026	\$1,346,920
				\$1,275	\$15,965	\$2,535	\$37,250	\$1,678,137
						\$3,490	\$44,160	\$1,881,137

### Average for:

#### Missouri

\$67.59	\$94.08	\$117.75	\$62	\$1,057	\$13,782	\$1,631	\$21,075	\$1,286,610
			\$182	\$1,358	\$15,556	\$2,606	\$33,203	\$1,738,769
						\$3,755	\$45,549	\$2,053,286

### North Dakota

#### Montana-Dakota Utilities Company

\$52.97	\$74.12	\$90.28	\$56	\$961	\$12,782	\$1,569	\$20,361	\$1,273,745
			\$141	\$1,167	\$14,329	\$2,342	\$30,677	\$1,789,545
						\$3,374	\$43,572	\$2,176,395

**Typical Electric Bills**  
(in \$/month)

**Annualized Rates in effect July 1, 2015**

The data below is presented in this format for each company:

Class of Service	res	res	res	com	com	com	ind	ind	ind
Demand (kW):					40	500	75	1,000	50,000
low load factor(kWh):	500	750	1,000	375	10,000	150,000	15,000	200,000	15,000,000
mid load factor:				1,500	14,000	180,000	30,000	400,000	25,000,000
high load factor:							50,000	650,000	32,500,000

Average for:

**Hawaii**

\$174.11	\$259.45	\$345.72	\$180	\$3,472	\$50,129	\$5,322	\$73,472	\$4,924,178
			\$570	\$4,653	\$57,896	\$9,748	\$125,252	\$7,513,199
						\$15,649	\$189,978	\$9,454,964

Average for:

**USA**

\$71.37	\$102.90	\$134.29	\$65	\$1,252	\$16,509	\$1,972	\$25,072	\$1,477,521
			\$197	\$1,602	\$18,630	\$3,158	\$38,663	\$2,095,274
						\$4,660	\$54,892	\$2,542,671

**OFFICE OF THE PUBLIC COUNSEL  
DATA REQUEST**

**EMPIRE DISTRICT ELECTRIC COMPANY  
CASE NO. ER-2014-0351**

Requested From: Empire District Electric

Requested By: OPC

Date Requested: October 30, 2015

Information Requested:

Please refer to page 7 lines 20-22 of the direct testimony of Scott Keith, where he states, "Empire has proposed rate increases in the various rate classes that follow the revenue allocation process used by the Commission in Empire's last case, Case No. ER-2014-0351, with a couple of exceptions." Please list and explain the rationale behind each exception proposed.

Response:

The Praxair exception is directly related to the non-firm nature of the service provided. Most of the case was related to the fixed cost of the Riverton conversion which is capacity related.

Since the cost drivers in the case were primarily fixed, Empire has requested a substantial portion of the increase be recovered by an increase in the fixed charge components of the rates where possible and practicable.

Date: 11-10-15  
Provided by: Scott Keith

**OFFICE OF THE PUBLIC COUNSEL  
DATA REQUEST**

**EMPIRE DISTRICT ELECTRIC COMPANY  
CASE NO. ER-2016-0023**

Requested From: Empire District Electric

Requested By: OPC

Date Requested: January 20, 2016

Information Requested:

Please refer to the Company's response to OPC DR 5039 where it states "The Praxair exception is directly related to the non-firm nature of the service provided. Most of the case was related to the fixed cost of the Riverton conversion which is capacity related."

- a. Please provide a detailed explanation of why the costs associated with the Riverton conversion do not apply to Praxair."

Response:

The Riverton costs in the case are directly related to replacing the capacity lost due to the retirement of Riverton units 7 and 8. Praxair is not a firm customer and Empire does not plan capacity decisions due to the Praxair load.

Date: January 21, 2016  
Provided by: W. Scott Keith