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**BEFORE THE**  
**GEORGIA PUBLIC SERVICE COMMISSION**

In Re:

Georgia Power Company's  
2019 Rate Case

Docket No. 42516

**Direct Testimony of**  
**Melissa Whited and Ben Havumaki**

**On Behalf of**  
**Sierra Club**

**October 16, 2019**

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1   **1.    INTRODUCTION AND QUALIFICATIONS**

2   **Q    Please state your name, title, and employer.**

3   **A    Ms. Whited:** My name is Melissa Whited. I am a Principal Associate at Synapse  
4       Energy Economics, located at 485 Massachusetts Avenue, Cambridge, MA 02139.

5   **A    Mr. Havumaki:** My name is Ben Havumaki. I am an Associate at Synapse Energy  
6       Economics, located at 485 Massachusetts Avenue, Cambridge, MA 02139.

7   **Q    Please describe Synapse Energy Economics.**

8   **A**Synapse Energy Economics (Synapse) is a research and consulting firm  
9       specializing in electricity and gas industry regulation, planning, and analysis. Our  
10      work covers a range of issues, including economic and technical assessments of  
11      demand-side and supply-side energy resources; energy efficiency policies and  
12      programs; integrated resource planning; electricity market modeling and  
13      assessment; renewable resource technologies and policies; and climate change  
14      strategies. Synapse works for a wide range of clients, including attorneys general,  
15      offices of consumer advocates, public utility commissions, environmental  
16      advocates, the U.S. Environmental Protection Agency, U.S. Department of Energy,  
17      U.S. Department of Justice, the Federal Trade Commission and the National  
18      Association of Regulatory Utility Commissioners. Synapse has over 30  
19      professional staff with extensive experience in the electricity industry.

20   **Q    Please summarize your professional and educational experience.**

21   **A    Ms. Whited:** I have 10 years of experience in economic research and consulting.  
22       At Synapse, I have worked extensively on issues related to utility regulatory  
23       models and rate design. I have been an invited speaker in numerous industry  
24       conferences, including as a panelist for NARUC's Subcommittee on Rate Design  
25       at the 2018 Annual Meeting.

1 I have sponsored testimony before the California Public Utilities Commission,  
2 Massachusetts Department of Public Utilities, the Hawaii Public Utilities  
3 Commission, the Public Service Commission of Utah, the Public Utility  
4 Commission of Texas, the Rhode Island Public Utilities Commission, the Maine  
5 Public Utilities Commission, and the Federal Energy Regulatory Commission. I  
6 hold a Master of Arts in Agricultural and Applied Economics and a Master of  
7 Science in Environment and Resources, both from the University of Wisconsin-  
8 Madison. Prior to rejoining Synapse, I published in the *Journal of Regional*  
9 *Analysis and Policy*, analyzed state water efficiency policies while at the  
10 Wisconsin Public Service Commission, and conducted econometric analyses of  
11 energy efficiency and demand response cost-effectiveness. My resume is attached  
12 as Exhibit MW-BH-1.

13 **A Mr. Havumaki:** I am an economist with approximately three years of experience  
14 in the energy field. At Synapse, I focus on rate design, cost-benefit analysis, and  
15 other regulatory issues. Recent projects include comments filed in a Mississippi  
16 value of solar docket, and a technical brief for the Lawrence Berkley National  
17 Laboratory on best practices in cost-benefit analysis. Prior to being hired by  
18 Synapse, I worked for the World Bank on a consulting team that authored a field  
19 manual on cost-benefit analysis for practitioners in the Developing World. My  
20 master's thesis addressed energy system design in Mauritius, and this research  
21 contributed to a journal article published in the October 2019 edition issue of  
22 *Energy Policy*. I hold a master's in applied economics from the University of  
23 Massachusetts, where I received the Arthur MacEwan Award for Excellence in  
24 Political Economy. My resume is attached as Exhibit MW-BH-2.

25 **Q On whose behalf are you testifying in this case?**

26 **A** We are testifying on behalf of the Sierra Club.

1 **Q Have either of you testified in front of the Georgia Public Service Commission**  
2 **previously?**

3 **A** No.

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

5 **A** The purpose of our testimony is to address Georgia Power Company's ("the  
6 Company") proposed rate design, focusing on the basic service charge (also known  
7 as a fixed customer charge) assessed to residential customers. The Company's  
8 proposal to dramatically increase this charge represents a substantial departure  
9 from its current practice. Our testimony explains that increasing the fixed charge  
10 by nearly 80 percent would violate the fundamental rate design principles of  
11 gradualism, equity, and efficient price signals. Further, such an increase would  
12 reduce customer control of their bills. These effects would disproportionately  
13 impact low-usage and low-income customers and decrease incentives for energy  
14 efficiency and distributed generation. We conclude our testimony with discussion  
15 of some alternative rates that would deliver the same revenue for the Company but  
16 would not produce such untoward results for low-income and low-use customers  
17 or otherwise violate key rate design principles.

18 **2. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS**

19 **Q Please summarize your primary conclusions.**

20 **A** Our conclusions are as follows:

- 21 1. The Company's proposed increase in the residential basic service charge of  
22 nearly 80 percent would result in rate shock for many customers, have  
23 inequitable impacts on customers, reduce customers' control over their bills,  
24 and reduce incentives for energy efficiency, conservation, and distributed  
25 generation.

- a. Increasing a single rate component by nearly 80 percent does not meet the widely accepted rate design criterion of rate stability and would result in rate shock for many customers.
  - b. The Company's proposal does not adhere to the widely accepted rate design principle of promoting customer equity, since low-usage and low-income customers would be hit with the highest rate increases.
  - c. The Company's proposal does not adhere to the widely accepted rate design principle of providing customers with an incentive to use electricity efficiently, since a larger proportion of the customer's bill will be divorced from energy usage.
2. The Company fails to demonstrate that increasing the basic service charge is necessary to recover its revenue requirement.
  - a. The Company fails to demonstrate that increasing the basic service charge is required for it to collect needed revenues.
  - b. The Company fails to demonstrate that customer adoption of distributed solar or energy efficiency is creating material inequities on its system. Indeed, there are currently only about 2,000 customer-sited solar generation systems on the Company's grid, with approximately 1,200 belonging to customers on the standard residential tariff. These systems provide valuable energy to the grid on hot summer days when demand is at its highest.<sup>1</sup>
3. The Company's calculated customer-related costs are based on the Minimum Distribution System methodology, which includes portions of the secondary distribution system, rather than costs that are directly customer-related. When calculated using the Basic Customer Method, the customer-related costs are much lower.

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<sup>1</sup> See Company response to data request STF-PIA-7-18, available at <https://psc.ga.gov/search/facts-document/?documentId=178360>, Document filing #178360.

1 **Q Please summarize your recommendations.**

2 **A** We recommend that the Commission reject the Company's proposed increase in  
3 the basic service charge and retain the existing basic service charge of \$10.00 in  
4 order to avoid rate shock, protect low-income and low-usage customers, encourage  
5 adoption of efficient technologies and distributed generation, and allow customers  
6 greater control over their bills.

7 In addition, we recommend that the Commission direct the Company to use the  
8 Basic Customer Method for determining customer-related costs. This is a widely  
9 accepted approach that more accurately accounts for the portion of system costs  
10 that vary with the number of customers, rather than with other drivers such as  
11 energy or demand.

12 **Q Are you sponsoring any exhibits with your testimony?**

13 **A** Yes. We are sponsoring three exhibits. Exhibit MW-BH-1 contains Ms. Whited's  
14 resume, Exhibit MW-BH-2 contains Mr. Havumaki's resume, and Exhibit MW-  
15 BH-3 contains excerpted text from *Principles of Public Utility Rates* by James  
16 Bonbright.

17 **3. OVERVIEW OF GEORGIA POWER'S RATE DESIGN PROPOSAL**

18 **Q Please summarize Georgia Power's proposal.**

19 **A** Georgia Power has requested a \$563 million increase in overall revenue  
20 requirements, which includes an increase in base revenue requirements of \$367  
21 million, effective January 1, 2020.<sup>2</sup> As a component of this increase, the Company  
22 has proposed major changes to its rate structure for the Domestic group with a  
23 substantial rise in the basic service charge.

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<sup>2</sup> See Direct testimony of Larry T. Legg at 5.

**Q How would residential rates change under the Company's proposal?**

Residential customers would see monthly fixed charges increase by nearly 80 percent over three years. From its current level of \$10.00 per month, the basic service charge is to be increased to \$14.90 per month in 2020, \$16.95 per month in 2021, and \$17.95 per month in 2022.<sup>3</sup>

Meanwhile, energy charges will only rise modestly. Customers on the most common residential rate, R-22, would see energy charges rise by only about 2.5 percent as they are transitioned to the new R-23 rate. While the energy charges on the other residential rates are all set to increase by slightly different measures, in all cases the relative changes to energy rates pale in comparison to the proposed increase to the basic service charge.

Table 1. Summary of Proposed Changes to Schedule R Rates below presents the Company's proposal for R-23.

**Table 1. Summary of Proposed Changes to Schedule R Rates**

Season	Component	Current	Proposed	Increase
Summer	Basic Service Charge	\$10.00	\$17.95	79.5%
	Energy: 0-650 kWh	\$0.057	\$0.058	2.5%
	Energy: 651-1000 kWh	\$0.094	\$0.096	2.5%
	Energy: 1001+ kWh	\$0.097	\$0.100	2.5%
Winter	Energy: 0-650 kWh	\$0.057	\$0.058	2.5%
	Energy: 651-1000 kWh	\$0.049	\$0.050	2.4%
	Energy: 1001+ kWh	\$0.048	\$0.049	2.5%

**Q How will the Company's rate design change the relationship between the various rate elements?**

**A** The proposed rate design radically changes the relationship between rate elements by increasing the basic service charge by a far greater measure than the volumetric energy charges.

<sup>3</sup> See Direct Testimony of Larry T. Legg, Exhibit LTL-1. Note that 2021 and 2022 values are estimated.



1     **4.     THE COMPANY’S CASE FOR INCREASING THE BASIC SERVICE CHARGE**

2     **Q     Why is the Company proposing to increase the residential basic service**  
3     **charge by nearly 80 percent?**

4     **A     The Company argues for the proposed increase to promote efficiency. According**  
5     to Company witness Larry T. Legg, “...implementing this adjustment will better  
6     align prices with costs and, in turn, send better price signals to customers. It will  
7     also result in more economically sound rate designs that will encourage more  
8     efficient use of Georgia Power’s electric system.”<sup>4</sup>

9     **Q     Do these reasons point to a need for a radical change to the residential basic**  
10    **service charge?**

11    No. The Company has failed to justify why it needs to implement drastic increases  
12    to the basic service charge in order to recover its costs. As we describe in more  
13    detail, the Company’s steep increase in the basic service charge is inconsistent  
14    with widely accepted rate design principles. In addition:

- 15           • The Company’s proposal would reduce incentives for energy  
16           efficiency and distributed solar, leading to higher electricity usage  
17           and ultimately increased costs on the system.
- 18           • The Company has not demonstrated that any cost-shifting is  
19           occurring, or that such cost-shifting is material.
- 20           • The Company’s proposal to steeply increase the basic service  
21           charge is inconsistent with widely accepted rate design principles  
22           and state energy policy goals and would disproportionately harm  
23           low-usage and low-income customers.

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<sup>4</sup> See Direct Testimony of Larry T. Legg at 7.

- The Company’s method for calculating the basic service charge is based on a methodology that includes a portion of distribution system costs, rather than only including direct customer costs.

**Q Do you agree that there is a need to modernize the Company’s rate design as discussed in the testimony of witness Ahmed Faruqui?**

**A** Dr. Faruqui states that, if appropriately used, modern rate design “sends the appropriate price signals to customers and achieves the goals of promoting economic efficiency and equity.”<sup>5</sup> Therefore, modernizing the Company’s rate design holds the promise of conferring benefits on the Company’s ratepayers.

However, there is nothing “modern” about increasing the basic service charge, since it does not enhance price signals to customers regarding the costs imposed on the system during different hours or seasons. The basic service charge is a flat fee imposed regardless of whether the customer uses any electricity, and a customer can do absolutely nothing to avoid it, short of leaving the grid. In contrast, truly modern rate designs, such as time-of-use rates and critical peak pricing, provide much more sophisticated price signals that encourage customers to reduce energy consumption when demand is high, thereby reducing the operation of high-cost peaker plants and the need for capacity additions.

**5. CORE RATEMAKING PRINCIPLES TO BE CONSIDERED IN RATE DESIGN**

**Q What ratemaking principles should be considered when designing rates?**

**A** In his seminal work, *Principles of Public Utility Rates*, Professor James Bonbright discusses eight key criteria for a sound rate structure. These criteria are:

1. The related, “practical” attributes of simplicity, understandability, public acceptability, and feasibility of application.
2. Freedom from controversies as to proper interpretation.

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<sup>5</sup> See Direct Testimony of Ahmed Faruqui at 2.

- 1 3. Effectiveness in yielding total revenue requirements under the fair-return  
2 standard.
- 3 4. Revenue stability from year to year.
- 4 5. Stability of the rates themselves, with minimum of unexpected changes  
5 seriously adverse to existing customers.
- 6 6. Fairness of the specific rates in the appointment of total costs of service among  
7 the different customers.
- 8 7. Avoidance of “undue discrimination” in rate relationships.
- 9 8. Efficiency of the rate classes and rate blocks in discouraging wasteful use of  
10 service while promoting all justified types and amounts of use:
- 11 a. in the control of the total amounts of service supplied by the Company;  
12 b. in the control of the relative uses of alternative types of service.<sup>6</sup>

13 **Q Are these principles widely recognized and used by commissions?**

14 **A** Yes. The principles listed above have been recognized for many years as the  
15 standard for rate design by commissions across the country. Even the Company  
16 acknowledges the central role of these principles in modern rate design when they  
17 indicated that Bonbright’s work is “almost universally cited in rate proceedings  
18 throughout the U.S.”<sup>7</sup>

19 **Q Is the Company’s rate design proposal consistent with Bonbright’s**  
20 **principles?**

21 **A** No. The Company’s proposal does not meet the principles of rate stability (often  
22 referred to as “gradualism”), fairness among customers, or efficiency. We will  
23 describe these failings in more detail below.

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<sup>6</sup> James Bonbright, *Principles of Public Utility Rates*, Columbia University Press, 1961, page 291, provided in Exhibit MW-BH-3.

<sup>7</sup> See Direct Testimony of Ahmed Faruqui at 5.

1     **6.     INCONSISTENCY WITH THE PRINCIPLE OF RATE STABILITY**

2     **Q     Please describe Bonbright’s principle regarding rate stability.**

3     **A     This principle means that customer rates should not change suddenly, particularly**  
4             **if this will cause harm to customers by significantly increasing a customer’s bill.**

5     **Q     In what way should customer rates exhibit stability?**

6     **A     Bonbright’s stability principle specifies that unexpected, adverse changes should**  
7             **be minimized. Large increases in customer bills can impose financial hardship on**  
8             **customers, particularly low-income customers, and cause customer confusion and**  
9             **frustration. Substantial changes to electricity rates are also difficult for customers**  
10            **to adjust to, since customers may make investments in household appliances and**  
11            **other durable goods under the assumption that rates will remain relatively stable.**  
12            **However, investments that made sense under one rate structure may no longer be**  
13            **cost-effective after a significant increase or change in structure.**

14    **Q     Is the Company’s proposal consistent with the principle of rate stability?**

15    **A     No. The Company proposes to increase the basic service charge for residential**  
16            **customers by nearly 80 percent by 2022. This drastic increase will be detrimental**  
17            **to many customers, particularly those who consume less energy than the average,**  
18            **many of whom are low-income customers. The Company’s requested increase is**  
19            **more than three times greater than the increase that resulted from the 2010 rate**  
20            **case and nearly eight times greater than the increase in the 2013 rate case, making**  
21            **this an unprecedented move by the Company with no justification for such a**  
22            **drastic increase.**

23    **Q     Does the Company’s plan to phase in its basic service charge increase over**  
24            **three years mitigate its harmful effects?**

25    **A     No. While the Company’s proposed three-year trajectory might be superior to an**  
26            **all-at-once 80 percent increase, the proposed yearly increases are still unduly large.**  
27            **The Company’s proposal for 2020 would increase the basic service charge by**

1 nearly 50 percent, from \$10.00 to \$14.90 per month—a move that cannot be  
2 considered “gradual” by any means.  
3

4 **7. INCONSISTENCY WITH THE PRINCIPLES OF FAIRNESS AND AVOIDANCE OF UNDUE**  
5 **DISCRIMINATION**

6 **Q Please describe Bonbright’s principles regarding fairness and avoiding undue**  
7 **discrimination.**

8 **A** These principles refer to treating similarly situated customers in a similar manner.

9 **Q Is the Company’s rate design proposal consistent with the principle of**  
10 **fairness and avoidance of undue discrimination?**

11 **A** No. The Company’s proposal would place a disproportionate strain on customers  
12 that use the least energy.

13 **Q How will the Company’s rate design unfairly impact low-use customers’ bills?**

14 **A** The Company has shown that low-use customers will see disproportionately large  
15 average monthly bill increases. According to results provided by the Company, an  
16 average low-use customer will experience a greater than 10 percent increase in  
17 monthly bills in 2020. This may be contrasted with the expected effects on typical  
18 and high-use customers, whose monthly bills are expected to increase by 8 percent  
19 and 6 percent, respectively, in the first year of the new rate design.<sup>8</sup>

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<sup>8</sup> According to the Company, the average “low” customer uses 673 kWh per month, a “typical” customer uses 1,000 kWh per month, and the average “high” customer uses 1,837 kWh per month. *See* Direct Testimony of Larry T. Legg, Exhibit LTL-4. Note, however, that the “typical” residential customer described by the Company does not appear to be identical to the average customer. According to data provided by the Company, in 2013, the average customer used 12,789 kWh per year. While it is unlikely that the average customer today consumes exactly the same quantity of energy as the average customer in 2013, it does not appear that per-customer consumption has dropped. *See* Company response to data request STF-PIA-5-25, Attachment STF-PIA-5-25b and Company response to data request STF-PIA-5-23, Attachment STF-PIA-5-23, available at <https://psc.ga.gov/search/facts-document/?documentId=178051>.

1 **Q How will the proposed increase in the monthly fixed charge affect customers**  
2 **with the lowest energy consumption?**

3 **A** Simply put, the lower a customer's monthly consumption, the greater the  
4 percentage by which the monthly bill will rise. Using data provided by the  
5 Company, we determined that a customer whose consumption ranks in the tenth  
6 percentile could expect an increase of 16 percent in the average monthly bill<sup>9</sup> –  
7 nearly *three times* as great as the impact on high-use customers. A summary of  
8 these differential effects is presented in the table below.

Customer	Monthly Energy (kWh)	Bill Impact
High-use	1,837	5.87%
Typical	1,000	7.93%
Low-use	673	10.07%
Tenth Percentile	367	15.75%

10 **Q Who are the low-use customers that will be most impacted by the proposed**  
11 **rate design?**

12 **A** Customers who consume less than average generally include customers who have  
13 worked hard to conserve energy—often through investing personal financial  
14 resources in energy efficient technologies or distributed generation—and low-  
15 income customers.

16 **Q What about the Company's claim that on-site generation customers use**  
17 **greater than average energy?**

18 **A** The data provided by the Company for residential customers enrolled in the  
19 Renewable and Non-Renewable Resources (RNR) tariff shows an average annual  
20 consumption of 15,089 kWh.<sup>10</sup> However, the data provided by the Company

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<sup>9</sup> See Company response to data request STF-PIA-5-25, Attachment STF-PIA-5-25b, available at <https://psc.ga.gov/search/facts-document/?documentId=178051>. This document provides the distribution of customers by annual electricity consumption. Note that this data is for 2013, and that we have assumed that present consumption patterns are consistent with this historical record.

<sup>10</sup> See Company response to data request STF-PIA-8-8, Attachment STF-PIA-8-8, available at <https://psc.ga.gov/search/facts-document/?documentId=178369>, Document Filing # 178369.

1 represents only a subset of all residential customers with distributed generation.  
2 Based on Company responses to other data requests, it appears that this subset may  
3 be only about 60 percent of all residential customers with on-site generation.<sup>11</sup>  
4 Critically, the Company's sample does not include residential customers who are  
5 only using their systems to offset energy, rather than selling energy back to the  
6 grid.  
7 Regardless of the amount of energy that customers with on-site generation use, the  
8 Company's proposed steep increase in the basic service charge will reduce the  
9 value of energy generated on-site relative to a rate design with a lower fixed  
10 charge.

11 **Q Why is it problematic to alter the rate structure for customers with on-site**  
12 **generation?**

13 Customers generally assume that the relationship between rate elements will  
14 remain relatively stable. While customers understand that rates will rise over time,  
15 those who have sunk resources into solar PV systems expect their investments to  
16 help mitigate against future rate increases that are patterned on the current  
17 relationship between fixed and volumetric charges. The Company's current  
18 proposal undercuts the efficacy of historical investments by drastically altering the  
19 relationship between rate components, which is inconsistent with the principle of  
20 gradualism.

21 **Q How might the Company's proposed increase in the fixed charge impact**  
22 **further adoption of on-site generation?**

23 **A** By increasing the proportion of a customer's bill that is fixed and that cannot be  
24 offset by on-site generation or other distributed resources, the Company's

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<sup>11</sup> See Company response to data request STF-PIA-7-18 and Company response to data request STF-PIA-7-23, available at <https://psc.ga.gov/search/facts-document/?documentId=178360>, Document filing #178360.

1 proposed rate design would reduce the incentive for future customers to invest in  
2 distributed resources.

3 **Q Why do you suggest that low-income customers would be hit hard by the**  
4 **increased basic service charge?**

5 **A** The Company's proposed basic service charge would tend to increase bills for  
6 low-usage customers the most. This is of particular concern, since low-income  
7 customers tend to use less energy on average. This means that higher basic service  
8 charges will raise electricity bills most for those who can least afford it.

9 **Q Why do you assert that low-income customers tend to use less energy than**  
10 **standard residential customers?**

11 **A** Data provided by the Company suggests that low-income customers use less  
12 energy than average. According to data provided by the Company, in 2013,  
13 customers with incomes above \$20,000 used approximately 13,000 kWh per year,  
14 while households with annual incomes under \$20,000 used an average of 11,477  
15 kWh per year—approximately 12 percent less energy.<sup>12</sup>

16 **Q What percentage of customers with incomes less than \$20,000 used less than**  
17 **the residential class average?**

18 **A** According to the data provided by the Company, 64 percent of customers with  
19 incomes of less than \$20,000 used less than the residential class average.<sup>13</sup> This  
20 indicates that nearly two-thirds of customers with incomes of less than \$20,000  
21 would be worse off under the Company's proposed increase to the basic service  
22 charge.

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<sup>12</sup> Calculated based on Company response to data request STF-PIA-5-25, Attachment STF-PIA-5-25b, <https://psc.ga.gov/search/facts-document/?documentId=178051>, Document Filing #178051.

<sup>13</sup> Calculated based on Company response to data request STF-PIA-5-25, Attachment STF-PIA-5-25b, which indicates that the average usage for all residential customers was 12,789 kWh per year in 2013.



1 **Q Did the Company provide any additional data on customer usage?**

2 **A** Yes. According to Company data, households under the federal poverty level  
3 consumed an average of 12,163 kWh per year for the period of July 2017–June  
4 2018.<sup>14</sup> This too is less than the average residential customer for the same period.<sup>15</sup>

5 **Q Did the Company also provide data on customers receiving federal LIHEAP**  
6 **heating assistance?**

7 **A** Yes. The data provided by the Company in Attachment STF-PIA-5-25a indicate  
8 that customers receiving LIHEAP or other assistance consume more energy on  
9 average. However, only a fraction of low-income customers are also LIHEAP  
10 customers,<sup>16</sup> as the application process requires applying in person at a Community  
11 Action Agency and providing multiple forms of identification, proof of income,  
12 and utility bills. It is likely that customers with higher than average energy usage  
13 would be those most likely to seek out assistance. Many low-income customers  
14 receive no assistance at all. Therefore, we find the Company's analysis of  
15 customers at various income levels a better representation of low-income customer  
16 usage.

17 **Q What equity implications does your analysis imply?**

18 **A** Our analysis shows that rate design has important equity implications, and the  
19 proposed residential basic service charge increase would have regressive impacts  
20 by increasing bills the most for customers who can least afford it. Although low-  
21 income customers generally use less energy than standard residential customers,  
22 these customers face high energy burdens (the proportion of income that goes to

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<sup>14</sup> See Company response to data request STF-PIA-5-25, Attachment STF-PIA-5-25a, available at <https://psc.ga.gov/search/facts-document/?documentId=178051>.

<sup>15</sup> Calculated based on data provided in STF-GDS-1-1, Attachment STF-GDS-1-1, available at <https://psc.ga.gov/search/facts-document/?documentId=177983>, Document Filing #177983.

<sup>16</sup> According to the Georgia Division of Family and Children Services, less than 150,000 households in Georgia received LIHEAP assistance in FY 2018, and only a portion of these customers would reside in Georgia Power's territory. In contrast, in Attachment STF-PIA-5-25b, Georgia Power lists more than 250,000 customers with income below \$20,000. See: <https://dfcs.georgia.gov/low-income-home-energy-assistance-program-liheap>.

1 paying energy bills). To illustrate, a 2016 study by the American Council for an  
2 Energy Efficient Economy found that low-income customers in Atlanta have the  
3 third-highest median energy burden out of 48 cities.<sup>17</sup> The study indicates that the  
4 median low-income customer in Atlanta spends 10 percent of household income  
5 on energy, which is more than double that of other Atlanta households.<sup>18</sup> As such,  
6 these are the households that are least able to absorb additional increases in  
7 monthly costs.

8 **Q How much of a bill increase can a low-usage, low-income customer expect?**

9 **A** To assess the specific impact of the Company's proposal on low-income customers  
10 with low usage levels, we used the data provided by the Company on energy  
11 consumption for households with incomes under \$20,000 per year and the  
12 Company's own customer stratification approach.<sup>19</sup> We used these to estimate the  
13 average monthly consumption of a low-use customer from this low-income cohort.  
14 While the low-use customer from the general population uses an average of 673  
15 kWh per month, according to Company data, the equivalent low-use customer  
16 from the population of households with incomes under \$20,000 uses only about  
17 325 kWh per month. This means that a low-use customer from the lowest income  
18 cohort uses less than half as much energy as the low-use customer from the general  
19 population.

20 For this low-income, low-use customer, the proposed rate would raise monthly  
21 bills by approximately 15 percent—more than twice the expected increase for a  
22 typical residential customer. The Company's proposal will exacerbate the financial  
23 strain that low-income customers already face.

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<sup>17</sup> Dreihobl, A. and L. Ross, "Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities" (American Council for an Energy Efficient Economy, April 2016), 5, available at: <https://aceee.org/sites/default/files/publications/researchreports/u1602.pdf>.

<sup>18</sup> *Id.*, at 46.

<sup>19</sup> See Company response to data request STF-PIA-5-19, where the company explains that it determines the average monthly energy use of a low-use customer by taking an average of the consumption of all customers in the bottom of three strata, which we assume are equally divided. Available at <https://psc.ga.gov/search/facts-document/?documentId=178051>, Document Filing #178051.

1     **8.     INCONSISTENCY WITH THE PRINCIPLE OF EFFICIENT USE**

2     **Q     How does Bonbright define the principle of efficiency?**

3     **A**Bonbright defines the principle of efficiency as “discouraging wasteful use of  
4           service while promoting all justified types and amounts of use.”<sup>20</sup> In other words,  
5           rates should be designed to send price signals that discourage wasteful use of  
6           energy and encourage customers to pursue cost-effective means of reducing their  
7           energy consumption.

8     **Q     Please explain the price signal that a basic service charge sends to customers.**

9     **A**A basic service charge sends the signal to customers that they have no control over  
10          a portion of their bill, since they will have to pay the fixed portion regardless of  
11          how much electricity they consume. As the fixed charge increases, the overall size  
12          of a customer’s bill is increasingly divorced from how much electricity they  
13          actually use, thereby diluting price signals associated with energy use.

14    **Q     What impact would the Company’s rate design proposal have on customer**  
15          **incentives to use electricity more efficiently or install distributed generation?**

16    **A**A higher basic service charge relative to the volumetric charge reduces customers’  
17          incentive to use electricity more efficiently because more of the costs are  
18          recovered through the fixed component of the rate. Since only the variable  
19          component is avoidable, increasing the basic service charge makes customer  
20          efforts to reduce their electricity bill by lowering their energy consumption less  
21          effective. As a consequence, the price signal sent by higher basic service charges is  
22          likely to discourage many customers from implementing efficiency measures or  
23          installing distributed generation—resulting in greater future energy consumption.

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<sup>20</sup>See James Bonbright, *Principles of Public Utility Rates*, 291 (1961) (provided in Exhibit MW-BH-3).

1 **Q Is an increased basic service charge necessary to avoid cost-shifting?**

2 **A** No. The Company suggests that customers who consume less than average  
3 amounts of energy, such as customers with energy efficiency and distributed solar,  
4 are shifting customer-related costs onto others. However, the Company has not  
5 demonstrated that this is occurring. To properly analyze cost-shifting, the  
6 Company would need to calculate the benefits provided to the system by these  
7 technologies (such as the value of reducing usage on peak summer days) compared  
8 to the costs imposed on the system. The Company has not provided such an  
9 analysis.

10 **Q If cost-shifting due to distributed generation were occurring, would the**  
11 **impacts be large?**

12 **A** No. Only a tiny fraction of Georgia’s residential customers—approximately one-  
13 tenth of one percent—have solar. This means that any cost-shifting from solar  
14 customers, if it exists, would be *de minimis*.<sup>21</sup>

15 **Q How might high basic service charges impact overall system costs?**

16 **A** Rate designs that feature high basic service charges tend to lead to higher costs on  
17 the system, since the associated lower volumetric charges induce customers to  
18 consume more energy. Higher energy use will ultimately lead utilities to procure  
19 more energy and generation capacity as well as expand investments in the capacity  
20 of power lines and substations. The end result is higher electricity costs for all  
21 customers. Somewhat paradoxically, lowering volumetric rates too far can actually  
22 have the effect of driving up future costs for all ratepayers.

23 **Q Will increasing the basic service charge impact the efficacy of the Company’s**  
24 **energy efficiency programs?**

25 **A** Yes, increasing the basic service charge more than the energy charge works at  
26 cross-purposes to the Company’s energy efficiency programs. In 2018, the

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<sup>21</sup> See Company response to data request STF-PIA-7-18, available at <https://psc.ga.gov/search/facts-document/?documentId=178360>, Document Filing #178360.

1 Company spent nearly \$34 million on energy efficiency programs for residential  
2 customers.<sup>22</sup> Disproportionately increasing the basic service charge over the  
3 energy charge reduces the cost-effectiveness of energy efficiency investments  
4 relative to an alternative rate design with a greater volumetric rate increase. If  
5 customers participate less in efficiency programs as a result, the Company may  
6 have to step up its spending on energy efficiency investments to achieve the same  
7 results, ultimately leading to an increase in rates.

8 **Q Has the State of Georgia prioritized energy efficiency?**

9 **A** Yes. The state code requires that utilities whose rates are regulated by the  
10 Commission, including the Company, “identify and describe existing and planned  
11 programs to discourage inefficient and excessive power use” through the  
12 integrated resource planning process.<sup>23</sup> Further, utilities are required to account for  
13 the full range of “economic, environmental, and other benefits” that would result  
14 from the use of energy efficiency.<sup>24</sup>

15 **Q Have other Commissions recognized the detrimental impact of higher fixed**  
16 **customer charges?**

17 **A** Yes, the negative effects of increasing basic service charges are well-recognized.  
18 One example comes from a 2016 rate case in Maryland. While the Potomac  
19 Electric Power Company requested to increase its basic service charge for  
20 residential customers from \$7.39 per month to \$12.00 per month, the Maryland  
21 Public Service Commission approved a much smaller increase to only \$7.60 per  
22 month and explained that the proposed change would result in customers having  
23 less control over their bills and would be antithetical to energy conservation  
24 efforts.

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<sup>22</sup> *Demand Side Management 2018 Demand and Side Management (DSM) True-Up Filing*, Docket No. 41062, Document Filing No. 176120, (Georgia Public Service Commission, March 15, 2019), available at <https://psc.ga.gov/search/facts-document/?documentId=176120>.

1 In arriving at this increase, we place emphasis on  
2 Maryland's public policy goals that intend to encourage  
3 energy conservation. Maintaining relatively low customer  
4 charges provides customers with greater control over their  
5 electric bills by increasing the value of volumetric charges.  
6 No matter how diligently customers might attempt to  
7 conserve energy or respond to AMI-enabled peak pricing  
8 incentives, they cannot reduce fixed customer charges.<sup>25</sup>

9 In 2013, the Maryland Public Service Commission rejected in total a \$0.86  
10 increase in the basic service charge, noting that doing so would reduce customer  
11 control of their bills and would be inconsistent with the state's policy goals.

12 Even though this issue was virtually uncontested by the  
13 parties, we find we must reject Staff's proposal to increase  
14 the fixed customer charge from \$7.50 to \$8.36. Based on the  
15 reasoning that ratepayers should be offered the opportunity  
16 to control their monthly bills to some degree by controlling  
17 their energy usage, we instead adopt the Company's  
18 proposal to achieve the entire revenue requirement increase  
19 through volumetric and demand charges. This approach also  
20 is consistent with and supports our EmPOWER Maryland  
21 goals.<sup>26</sup>

22 In 2012, the Missouri Public Service Commission rejected a proposed increase in  
23 the basic service charge for residential and small general service classes, writing:

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<sup>25</sup> *In The Matter of the Application of Potomac Electric Power Company for Adjustment to its Retail Rates for the Distribution of Electric Energy*, Case No. 9418, Order No. 87884, 110 (Maryland Public Service Commission, November 15, 2016), available at <https://www.psc.state.md.us/search-results/?q=9418&x.x=0&x.y=0&search=all&search=case>.

<sup>26</sup> *In The Matter of the Application of Baltimore Gas and Electric Company for Adjustment in its Electric and Gas Base Rates*, Case No. 9299, Order No. 85374, 99 (Maryland Public Service Commission February 22, 2013), available at <https://www.psc.state.md.us/search-results/?q=9299&x.x=22&x.y=10&search=all&search=case>.

1 Shifting customer costs from variable volumetric rates,  
2 which a customer can reduce through energy efficiency  
3 efforts, to fixed customer charges, that cannot be reduced  
4 through energy efficiency efforts, will tend to reduce a  
5 customer's incentive to save electricity. Admittedly, the  
6 effect on payback periods associated with energy efficiency  
7 efforts would be small, but increasing customer charges at  
8 this time would send exactly [the] wrong message to  
9 customers that both the company and the Commission are  
10 encouraging to increase efforts to conserve electricity.<sup>27</sup>

11 **Q How does the Company's proposed residential basic service charge compare**  
12 **with peer utilities' fixed charges?**

13 **While the Company furnishes a table comparing its current residential basic**  
14 **service charge with those levied by Georgia cooperatives,<sup>28</sup> this comparison does**  
15 **not provide accurate context, as the cooperatives are not regulated in the same way**  
16 **as the Company. To contextualize the Company's proposed increase, we reviewed**  
17 **the current residential fixed charges at the 20 largest investor-owned utilities**  
18 **(IOUs) by total residential customers, which are presented on the following page in**

19 **A Figure 1. Residential Fixed Charges at 20 Largest IOUs. While the Company**  
20 **currently ranks eighth in this list, its proposed basic service charge would propel it**  
21 **to the third highest position.**

<sup>27</sup> *In the Matter of Union Electric Company Tariff to Increase Its Annual Revenues for Electric Service*, File No. ER-2012-0166, Report and Order, 110-11 (Missouri Public Service Commission December 12, 2012)), available at <https://www.efis.psc.mo.gov/mpsc/DocketSheet.html>.

<sup>28</sup> See Direct Testimony of Larry T. Legg, Exhibit LTL-3.

**Figure 1. Residential Fixed Charges at 20 Largest IOUs<sup>29</sup>**

## **9. CONCERNS WITH COST OF SERVICE STUDY METHODOLOGY**

### **Q What is the purpose of the basic service charge?**

**A** The basic service charge is designed to recover customer-related costs.

### **Q How has the Company determined how much to increase its residential basic service charge?**

**A** The Company determined its proposed basic service charge increase through its cost-of-service study (COSS) using the Minimum Distribution System approach. The Minimum Distribution System approach employs regression analysis to estimate the portion of total investment in select categories of distribution system infrastructure that would be incurred even if there were no load—just to maintain a distribution system capable of serving of customers. The Company reports that its

<sup>29</sup> Data was sourced from Openei.org and utility tariff sheets. Where individual utilities offer multiple residential rates with differing monthly fixed charges, the reported values are for the traditional rate.



1 Minimum Distribution System analysis produced a basic service charge for the  
2 residential class of \$20.87 per month.<sup>30</sup>

3 **Q Do you have any concerns regarding the Company's calculation of the basic**  
4 **service charge?**

5 **A** Yes. The Company's calculated basic service charge is inflated for two separate  
6 reasons:

- 7 • First, it appears that the Company has changed the way in which it  
8 classifies certain types of costs since its previous rate case, resulting  
9 in a much larger proportion of costs being classified as customer-  
10 related.
- 11 • Second, the Company uses the Minimum Distribution System  
12 method, which overstates the costs that are truly customer-related.

13 **Q In what way has the Company changed its methodology since its prior rate**  
14 **case?**

15 **A** Under the Company's Minimum Distribution System methodology, certain  
16 distribution system accounts are classified as a combination of customer-related  
17 and demand-related. The portion classified as customer-related is theoretically  
18 based on the minimum size that would be required to serve a customer, while the  
19 remainder is classified as demand-related.

20 We examined the proportion of gross plant costs in Accounts 364 through 368  
21 labeled as customer-related versus demand-related in 2013<sup>31</sup> and compared those  
22 proportions to the same categories of costs in 2019. We found that in all accounts  
23 except one, the proportion of costs classified as customer-related increased over  
24 2013, in some cases dramatically.

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<sup>30</sup> See Company response to data request STF-DEA-2-14, Attachment STF-DEA-2-14, available at <https://psc.ga.gov/search/facts-document/?documentId=178314>, Document Filing #178314.

<sup>31</sup> Direct Testimony of Michael T. O'Sheasy on Behalf of Georgia Power Company, Docket No. 36989, Georgia Power Company Cost of Service Study for Historic Year Ended December 31, 2012, Exhibit \_\_\_\_ (MTO-3) and Exhibit \_\_\_\_ (MTO-4).

**Q To what extent have the costs classified as customer-related increased since 2013?**

**A** In 2013, the Company classified a maximum of 44 percent of the gross costs in Accounts 364 through 368 as customer-related, while in 2019, the Company classified up to 99 percent of these costs as customer-related. Only one category—Account 364 Poles—showed a decrease in customer-related costs, which is shown in Table 2.

**Table 2. Comparison of Customer-Related Gross Plant Costs in 2013 to 2019<sup>32</sup>**

Account	Description	Voltage Level	2013 Customer-Related Costs	2019 Customer-Related Costs	% Change
364	Poles	F	75%	62%	-12%
		G	72%	60%	-5%
365	Overhead Conductors	F	44%	73%	59%
		G	42%	56%	44%
366	Underground Conduit	F	13%	13%	20%
		G	6%	38%	89%
367	Underground Conductors	F	13%	13%	17%
		G	12%	12%	21%
368	Line Transformers	F	20%	26%	35%
		G	34%	99%	65%
Total Dollars			\$1.14 billion	\$1.97 billion	\$827 million
% Increase					73%

**Q What is the dollar impact of classifying a larger proportion of Accounts 364–368 as customer-related rather than demand-related?**

**A** The gross plant costs in categories 365 to 368 classified as customer-related have increased from \$1.14 billion to more than \$1.97 billion, an increase of 73 percent since 2013.

<sup>32</sup> Direct Testimony of Michael T. O’Shea on Behalf of Georgia Power Company, Docket No. 36989, Georgia Power Company Cost of Service Study for Historic Year Ended December 31, 2012, Exhibit \_\_\_\_ (MTO-3) and Exhibit \_\_\_\_ (MTO-4) and Direct Testimony of Lawrence J. Vogt on Behalf of Georgia Power Company, Docket No. 42516, Georgia Power Company Cost of Service Study for Historic Year Ended December 31, 2018, Exhibit \_\_\_\_ (LJV-3) and Exhibit \_\_\_\_ (LJV-4).

1 **Q What is the rationale for this change in cost classification?**

2 **A** The Company does not provide an explanation for this change in its direct  
3 testimony or response to data requests.

4 **Q What concerns do you have with the Minimum Distribution System**  
5 **methodology?**

6 **A** The Minimum Distribution System methodology classifies portions of the  
7 secondary distribution system as customer-related, when in fact these costs are  
8 directly related to the usage of electricity. Specifically, it classifies poles,  
9 conductors, conduit, and line transformers (Accounts 364-368) as customer-  
10 related. However, this makes little sense, as this equipment is constructed  
11 specifically to carry and transform electricity. If no electricity were used, then the  
12 secondary distribution system would not exist.

13 **Q The Company notes that the Minimum Distribution System methodology is**  
14 **described in the NARUC Electric Cost Allocation Manual. Does this mean**  
15 **that the methodology is sound?**

16 **A** While the Minimum Distribution System methodology is described in the 1992  
17 manual, an updated report published by NARUC in 2000 notes that the Minimum  
18 Distribution System approach relies on shaky assumptions. Specifically, the report  
19 states:

20 In the case of the minimum-size and zero-intercept methods, the  
21 threshold assumption is that there is some portion of the system  
22 whose costs are unrelated to demand (or to energy for that matter).  
23 From one perspective, this notion has a certain intuitive appeal –  
24 these are the lowest costs that must be incurred before any or some  
25 minimal amount of power can be delivered – but from another  
26 viewpoint it seems absurd, since in the absence of any demand no  
27 such system would be built at all.<sup>33</sup>

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<sup>33</sup> Frederick Weston, Charging for Distribution Utility Services: Issues in Rate Design (2000), at 30.  
Available at <https://pubs.naruc.org/pub.cfm?id=536F0210-2354-D714-51CF-037E9E00A724>.

1 **Q What method do you recommend instead of the Minimum Distribution**  
2 **System method?**

3 **A** We recommend the Basic Customer Method. This method is used by the majority  
4 of states<sup>34</sup> and is intuitive, as it includes only costs that are directly customer-  
5 related. Specifically, the basic customer method classifies only costs associated  
6 with meters, meter reading, and billing as customer-related.<sup>35</sup> It is also worth  
7 noting that some states go so far as to explicitly prohibit the use of methods that  
8 classify distribution costs as customer-related.<sup>36</sup>

9 **Q Can you provide any examples where Commissions have explicitly adopted**  
10 **the Basic Customer Method for rate design?**

11 Yes. We provide two examples below:

12 1) 1985, the Pennsylvania Public Utility Commission adopted the standard  
13 that defined “basic customer cost” as including meters, service drops, meter  
14 reading, and billing. At the same time, the Commission specifically  
15 excluded “assertedly ‘customer-related’ costs of transformation and  
16 distribution plant” which were “better recovered through energy charges to  
17 avoid subsidies from low usage customers to high usage customers.”<sup>37</sup> The  
18 Commission also later affirmed that the basic customer method should  
19 exclude indirect customer and administrative costs.<sup>38</sup>

20 2) In a 2015 rate case, the Washington Utilities and Transportation  
21 Commission rejected proposals to increase the customer charge, stating:

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<sup>34</sup> *Id.* at 29.

<sup>35</sup> *Id.* at 30.

<sup>36</sup> *Id.*, at 29. (citing the “basic customer” method as the method in use in more than 30 states),  
<https://www.raponline.org/wp-content/uploads/2016/05/rap-westonchargingfordistributionutilityservices-2000-12.pdf>

<sup>37</sup> *Pa. PUC v. West Penn Power Company*, 59 Pa. PUC 552 (1985) (“1985 *West Penn Power*”), Slip Opinion at 42.

<sup>38</sup> *Bureau of Investigation and Enforcement's (I&E) Exceptions*, Docket No. R-2012-2290597, p. 8, (Pennsylvania Public Utility Commission, November 8, 2012), available at [http://www.puc.state.pa.us/about\\_puc/consolidated\\_case\\_view.aspx?Docket=R-2012-2290597](http://www.puc.state.pa.us/about_puc/consolidated_case_view.aspx?Docket=R-2012-2290597).

1 The Commission is not prepared to move away from the  
2 long-accepted principle that basic charges should reflect  
3 only “direct customer costs” such as meter reading and  
4 billing. Including distribution costs in the basic charge and  
5 increasing it 81 percent, as the Company proposes in this  
6 case, does not promote, and may be antithetical to, the  
7 realization of conservation goals.<sup>39</sup>

8 Similarly, the Texas Public Utilities Commission has stated that “the customer  
9 charge shall be comprised of costs that vary by customer such as metering, billing  
10 and customer service.”<sup>40</sup>

11 In some states, the Basic Customer Method has been mandated by legislation. In  
12 2015, in response to substantial increases in the customer charge, the Connecticut  
13 legislature passed a law limiting the residential customer charge to “the fixed costs  
14 and operation and maintenance expenses directly related to metering, billing,  
15 service connections and the provision of customer service.”<sup>41</sup>

16 **Q Is the magnitude of the Company’s proposed increase to the basic service**  
17 **charge in this case in line with its previous rate cases?**

18 **A** No. In the prior rate case, the Company proposed to increase its residential basic  
19 service charge by just \$1.00 to \$10.00 per month to improve alignment with its  
20 calculated customer-related costs.<sup>42</sup>

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<sup>39</sup> *Final Order Rejecting Tariff Sheets, Resolving Contested Issues, Authorizing And Requiring Compliance Filings*, Docket UE-140762, p. 91, (Washington Utilities and Transportation Commission, March 25, 2015), available at <https://www.utc.wa.gov/docs/Pages/DocketLookup.aspx>.

<sup>40</sup> *Generic Issues Associated with Applications for Approval of Unbundled Cost of Service Rate Pursuant to PURA § 39.201 and Public Utility Commission Substantive Rule § 25.344*, Docket No. 22344, Order No. 40, p. 6, (Texas Public Utilities Commission, November 22, 2000).

<sup>41</sup> CGS § 16-243bb, June Sp. Sess. P.A. 15-5, S. 105.

<sup>42</sup> Georgia Power Company’s 2013 Rate Case, Docket No. 36989. Note that the Company rounded off proposed changes to the basic service charge for each tariff based on the results of its cost-of-service study. For example, if the COSS results suggested that the basic service charge should be higher than that achieved by the constant factor approach, then the Company rounded up.

1 **Q Were any concerns raised about the Company's basic service charge proposal**  
2 **in 2013?**

3 **A** Yes, several intervenors, including Public Interest Advocacy Staff and Georgia  
4 Watch raised concerns about this \$1.00 per month increase.

5 **Q What concerns did Staff raise?**

6 **A** First, Staff expressed concern about the size of the proposed increase, noting that if  
7 approved, the \$1.00 increase proposed in 2013 and \$1.50 increase granted in the  
8 previous rate case would have meant an overall rise in the basic service charge for  
9 residential customers of 33 percent. Second, Staff noted that “[c]ustomer costs  
10 should only reflect those costs that are required to connect a new customer and  
11 maintain that customer’s account.”<sup>43</sup>

12 **Q What did Staff recommend in that case?**

13 **A** Staff recommended using a “Direct Customer Cost” analysis, rather than the  
14 Minimum Distribution System method. Based on the description provided, this  
15 approach appears to be analogous to the Basic Customer Method discussed above.  
16 Using this approach, Staff found that \$9.50 per month would be a more appropriate  
17 basic service charge for the residential class.<sup>44</sup>

18 **Q Are the concerns raised in the 2013 rate case relevant today?**

19 **A** Yes, these concerns are just as relevant today, but with more serious customer  
20 impacts. Unlike the \$1.00 increase proposed in 2013, the Company is now  
21 proposing to increase the basic service charge by an additional \$7.95. This would  
22 result in a total increase in the basic customer charge of more than \$10.00 since  
23 2010.

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<sup>43</sup> Georgia Power Company’s 2013 Rate Case, Docket No. 36989, Joint Direct Testimony and Exhibits of Glenn A. Watkins and Jamie C. Barber on behalf of the Georgia Public Service Commission Public Interest Advocacy Staff, October 18, 2013, at 44, available at <https://psc.ga.gov/search/facts-document/?documentId=150292>.

<sup>44</sup> Staff also suggested that the Company could implement differentiated basic service charges for traditional and time-of-use residential rates. *See id.*

**10. SUMMARY AND RECOMMENDATIONS**

**Q Please summarize your position on the Company's proposed rate design.**

**A** The Company's proposed rate design would fundamentally alter the relationship between customer charges and volumetric rates by drastically increasing the fixed portion of customers' bills relative to the portion that customers can control through their usage. In doing so, the Company's rate design proposal would:

- a. Reduce customers' control over their bills;
- b. Dampen incentives for energy efficiency and conservation, and potentially lead to increased consumption and higher costs over time;
- c. Increase low-usage customers' bills the most, resulting in rate shock for these customers; and
- d. Disproportionately impact low-income customers.

**Q What alternatives exist for the Company to recover its revenue requirements?**

**A** Rather than increasing the basic service charge as proposed, the Company could either relegate all increases to the volumetric rates, or else equally increase both volumetric and fixed components. The latter is essentially what the Company proposed to do in 2013.

**Q Which of these alternatives do you recommend?**

**A** We recommend that the fixed charge be maintained at its current level of \$10.00, as this would provide customers with the most control over their bills; encourage customers to invest in efficient technologies, thereby reducing long-run costs on the system; and would promote the principles of fairness and equity.

**Q Do you recommend any other rate design changes?**

**A** Yes, we recommend that the Company encourage greater adoption of time-of-use rates among existing customers in order to improve the efficiency of price signals.

1   **Q**     **Does this conclude your direct testimony?**

2   **A**     It does.

M. Whited      10/16/2019

Melissa Whited, October 16, 2019

Ben Havumaki      10/16/2019

Ben Havumaki, October 16, 2019



**Exhibit MW-BH-1**

**Curriculum Vitae of Melissa Whited**

## **Melissa Whited, Principal Associate**

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### **PROFESSIONAL EXPERIENCE**

**Synapse Energy Economics**, Cambridge MA. *Principal Associate*, 2017 – present, *Senior Associate*, 2015 – 2017, *Associate*, 2012 – 2015

Consult and provide analysis of rate design proposals, alternative regulation, and other topics including distributed energy resources and electric vehicles. Develop expert witness testimony in public utility commission proceedings. Author reports on topics at the intersection of utility regulation, customer protection, and environmental impacts.

**University of Wisconsin - Madison**, Department of Agricultural and Applied Economics, Madison, WI. *Teaching Assistant – Environmental Economics*, 2011 – 2012

Developed teaching materials and led discussions on cost-benefit analysis, carbon taxes and cap-and-trade programs, management of renewable and non-renewable resources, and other topics.

**Public Service Commission of Wisconsin, Water Division**, Madison, WI. *Program and Policy Analyst - Intern*, Summer 2009

Researched water conservation programs nationwide to develop a proposal for Wisconsin's state conservation program. Developed spreadsheet model to calculate avoided costs of water conservation in terms of energy savings and avoided emissions.

**Synapse Energy Economics**, Cambridge, MA. *Communications Manager*, 2005 – 2008

Developed technical proposals for state and federal agencies, environmental and public interest groups, and businesses. Edited reports on energy efficiency, integrated resource planning, greenhouse gas regulations, renewable resources, and other topics.

### **EDUCATION**

**University of Wisconsin**, Madison, WI

Master of Arts in Agricultural and Applied Economics, 2012

Certificate in Energy Analysis and Policy

National Science Foundation Fellow

**University of Wisconsin**, Madison, WI

Master of Science in Environment and Resources, 2010

Certificate in Humans and the Global Environment (CHANGE)

Nelson Distinguished Fellowship

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**Southwestern University**, Georgetown, TX

Bachelor of Arts in International Studies, *Magna cum laude*, 2003.

## **ADDITIONAL SKILLS**

- Econometric Modeling – Linear and nonlinear modeling including time-series, panel data, logit, probit, and discrete choice regression analysis
- Nonmarket Valuation Methods for Environmental Goods – Hedonic valuation, travel cost method, and contingent valuation
- Cost-Benefit Analysis
- Input-Output Modeling for Regional Economic Analysis

## **FELLOWSHIPS AND AWARDS**

- Winner, M. Jarvin Emerson Student Paper Competition, Journal of Regional Analysis and Policy, 2010
- Fellowship, National Science Foundation Integrative Graduate Education and Research Traineeship (IGERT), University of Wisconsin – Madison, 2009
- Nelson Distinguished Fellowship, University of Wisconsin – Madison, 2008

## **PUBLICATIONS**

Hopkins, A. S., K. Takahashi, D. Glick, M. Whited. 2018. *Decarbonization of Heating Energy Use in California Buildings: Technology, Markets, Impacts, and Policy Solutions*. Prepared by Synapse Energy Economics for the Natural Resources Defense Council.

Whited, M., J. Kallay, D. Bhandari, B. Havumaki. 2018. *Driving Transportation Electrification Forward in Pennsylvania: Considerations for Effective Transportation Electrification Rate-making*. Synapse Energy Economics for Natural Resources Defense Council.

Woolf, T., J. Hall, M. Whited. 2018. *Earnings Adjustment Mechanisms to Support New York REV Goals: Outcome-Based, Program-Based, and Action-Based Options*. Prepared by Synapse Energy Economics for Advanced Energy Economy Institute.

Whited, M., A. Allison, R. Wilson. 2018. *Driving Transportation Electrification Forward in New York: Considerations for Effective Transportation Electrification Rate Design*. Prepared by Synapse Energy Economics on behalf of the Natural Resources Defense Council.

Allison, A. and M. Whited. 2018. “Electric Vehicles Still Not Crashing the Grid: Updates from California.” Prepared by Synapse Energy Economics on behalf of the Natural Resources Defense Council.

Fisher, J., M. Whited, T. Woolf, D. Goldberg. 2018. *Utility Investments for Market Transformation: How Utilities Can Help Achieve Energy Policy Goals*. Prepared by Synapse Energy Economics for Energy Foundation.

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Grabow, M., M. Hahn and M. Whited. 2010. *Valuing Bicycling's Economic and Health Impacts in Wisconsin*. Nelson Institute for Environmental Studies, Center for Sustainability and the Global Environment (SAGE) for State Representative Spencer Black.

Whited, M., D. Bernhardt, R. Deitchman, C. Fuchsteiner, M. Kirby, M. Krueger, S. Locke, M. Mcmillen, H. Moussavi, T. Robinson, E. Schmitz, Z. Schuster, R. Smail, E. Stone, S. Van Egeren, H. Yoshida, Z. Zopp. 2009. *Implementing the Great Lakes Compact: Wisconsin Conservation and Efficiency Measures Report*. Department of Urban and Regional Planning, University of Wisconsin-Madison, Extension Report 2009-01.

Whited, M. 2009. *2009 Wisconsin Water Fact Sheet*. Public Service Commission of Wisconsin.

Whited, M. 2003. *Gender, Water, and Trade*. International Gender and Trade Network Washington, DC.

## TESTIMONY

**Maine Public Utilities Commission (Docket No. 2018-00171):** Direct testimony of Melissa Whited regarding utility incentives for non-wires alternatives. On behalf of Maine Office of the Public Advocate. December 17, 2018.

**Rhode Island Public Utilities Commission (Docket No. 4780):** Direct testimony of Tim Woolf and Melissa Whited regarding National Grid's Power Sector Transformation proposals. On behalf of the Rhode Island Division of Public Utilities and Carriers. April 28, 2018.

**Rhode Island Public Utilities Commission (Docket No. 4770):** Direct testimony of Tim Woolf and Melissa Whited regarding National Grid's proposed performance incentive mechanisms, benefit-cost analyses, and request for recovery of costs for its Advanced Metering Functionality study and distributed energy resources enablement investments. On behalf of the Rhode Island Division of Public Utilities and Carriers. April 6, 2018.

**Rhode Island Public Utilities Commission (Docket No. 4783):** Direct testimony of Tim Woolf and Melissa Whited regarding National Grid's Advanced Metering Functionality Pilot. On behalf of the Rhode Island Division of Public Utilities and Carriers. February 22, 2018.

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**Virginia State Corporation Commission (Case No. PUR-2017-00044):** Direct testimony of Melissa Whited regarding Rappahannock Electric Cooperative's proposed increases to fixed charges for residential customers and small business customers. On behalf of Sierra Club. September 19, 2017.

**California Public Utilities Commission (Application 17-01-020, 17-01-021, and 17-01-022):** Joint opening testimony with Max Baumhefner and Katherine Stainken on fast charging infrastructure and rates; joint opening testimony with Max Baumhefner and Joel Espino on medium and heavy-duty and fleet charging infrastructure and commercial EV rates; joint opening testimony with Max Baumhefner and Chris King on residential charging infrastructure and rates. Rebuttal testimony on public fast charging rate design, commercial EV rate design, and residential EV rate design. On behalf of Natural Resources Defense Council, the Greenlining Institute, Plug In America, the Coalition of California Utility Employees, Sierra Club, and the Environmental Defense Fund. July 25, August 1, August 7, and September 5, 2017.

**New York Public Service Commission (Case 17-E-0238):** Direct and rebuttal testimony of Tim Woolf and Melissa Whited regarding Earnings Adjustment Mechanisms proposed by National Grid. On behalf of Advanced Energy Economy Institute. August 25 and September 15, 2017.

**Utah Public Service Commission (Docket No. 14-035-114):** Direct testimony of Melissa Whited regarding PacifiCorp's proposed rates for customers with distributed generation. On behalf of Utah Clean Energy. June 8, 2017.

**Texas Public Utilities Commission (SOAH Docket No. 473-17-1764, PUC Docket No. 46449):** Cross-rebuttal testimony evaluating Southwestern Electric Power Company's proposed revisions to its Distributed Renewable Generation tariff. On behalf of Sierra Club and Dr. Lawrence Brough. May 19, 2017.

**Massachusetts Department of Public Utilities (Docket No. 17-05):** Direct and surrebuttal testimony of Tim Woolf and Melissa Whited regarding performance-based regulation, the monthly minimum reliability contribution, storage pilots, and rate design in Eversource's petition for approval of rate increases and a performance-based ratemaking mechanism. On behalf of Sunrun and the Energy Freedom Coalition of America, LLC. April 28, 2017 and May 26, 2017.

**Public Utilities Commission of Hawaii (Docket No. 2015-0170):** Direct testimony regarding Hawaiian Electric Light Company's proposed performance incentive mechanisms. On behalf of the Division of Consumer Advocacy. April 28, 2017.

**Massachusetts Department of Public Utilities (Docket No. 15-155):** Joint direct and rebuttal testimony with T. Woolf regarding National Grid's rate design proposal. On behalf of Energy Freedom Coalition of America, LLC. March 18, 2016 and April 28, 2016.

**Federal Energy Regulatory Commission (Docket No. EC13-93-000):** Affidavit regarding potential market power resulting from the acquisition of Ameren generation by Dynegy. On behalf of Sierra Club. August 16, 2013.

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**Wisconsin Senate Committee on Clean Energy:** Joint testimony with M. Grabow regarding the importance of clean transportation to Wisconsin's public health and economy. February 2010.

## **TESTIMONY ASSISTANCE**

**Colorado Public Utilities Commission (Proceeding No. 16AL-0048E):** Answer testimony of Tim Woolf regarding Public Service Company of Colorado's rate design proposal. On behalf of Energy Outreach Colorado. June 6, 2016.

**Nevada Public Utilities Commission (Docket Nos. 15-07041 and 15-07042):** Direct testimony on NV Energy's application for approval of a cost of service study and net metering tariffs. On behalf of The Alliance for Solar Choice. October 27, 2015.

**Missouri Public Service Commission (Case No. ER-2014-0370):** Direct and surrebuttal testimony on the topic of Kansas City Power and Light's rate design proposal. On behalf of Sierra Club. April 16, 2015 and June 5, 2015.

**Wisconsin Public Service Commission (Docket No. 05-UR-107):** Direct and surrebuttal testimony of Rick Hornby regarding Wisconsin Electric Power Company rate case. On behalf of The Alliance for Solar Choice. August 28, 2014 and September 22, 2014.

**Maine Public Utilities Commission (Docket No. 2013-00519):** Direct testimony of Richard Hornby and Martin R. Cohen on GridSolar's smart grid coordinator petition. On behalf of the Maine Office of the Public Advocate. August 28, 2014.

**Maine Public Utilities Commission (Docket No. 2013-00168):** Direct and surrebuttal testimony of Tim Woolf regarding Central Maine Power's request for an alternative rate plan. December 12, 2013 and March 21, 2014.

**Massachusetts Department of Public Utilities (Docket No. 14-04):** Comments of Massachusetts Department of Energy Resources on investigation into time varying rates. On behalf of the Massachusetts Department of Energy Resources. March 10, 2014.

**State of Nevada, Public Utilities Commission of Nevada (Docket No. 13-07021):** Direct testimony of Frank Ackerman regarding the proposed merger of NV Energy, Inc. and MidAmerican Energy Holdings Company. On behalf of the Sierra Club. October 24, 2013.

## **PRESENTATIONS**

Whited, M. 2018. "Smart Non-Residential Rate Design: Designing for the Future." Presentation to the NARUC Annual Meeting, Orlando, FL. November 11.

Whited, M. 2016. "Energy Policy for the Future: Trends and Overview." Presentation to the National Conference of State Legislators' Capitol Forum, Washington, DC, December 8.



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Whited, M. 2016. "Ratemaking for the Future: Trends and Considerations." Presentation to the Midwest Governors' Association, St. Paul, MN, July 14.

Whited, M. 2016. "Performance Based Regulation." Presentation to the NARUC Rate Design Subcommittee. September 12.

Whited, M. 2016. "Demand Charges: Impacts and Alternatives (A Skeptic's View)." EUCI 2<sup>nd</sup> Annual Residential Demand Charges Summit, Phoenix, AZ, June 7.

Whited, M. 2016. "Performance Incentive Mechanisms." Presentation to the National Governors Association, Wisconsin Workshop, Madison WI, March 29.

Whited, M., T. Woolf. 2016. "Caught in a Fix: The Problem with Fixed Charges for Electricity." Webinar presentation sponsored by Consumers Union, February.

Whited, M. 2015. "Performance Incentive Mechanisms." Presentation to the National Governors Association, Learning Lab on New Utility Business Models & the Electricity Market Structures of the Future, Boston, MA, July 28.

Whited, M. 2015. "Rate Design: Options for Addressing NEM Impacts." Presentation to the Utah Net Energy Metering Workgroup, Workshop 4, Salt Lake City, UT, July 8.

Whited, M. 2015. "Performance Incentive Mechanisms." Presentation to the e21 Initiative, St. Paul, MN, May 29.

Whited, M., F. Ackerman. 2013. "Water Constraints on Energy Production: Altering our Current Collision Course." Webinar presentation sponsored by Civil Society Institute, September 12.

Whited, M., G. Brown, K. Charipar. 2011. "Electricity Demand Response Programs and Potential in Wisconsin." Presentation to the Wisconsin Public Service Commission, April.

Whited, M. 2010. "Economic Impact of Irrigation Water Transfers in Uvalde County, Texas." Presentation at the Mid-Continent Regional Science Association's 41st Annual Conference/IMPLAN National User's 8th Biennial Conference in St. Louis, MO, June

Whited, M., M. Grabow, M. Hahn. 2009. "Valuing Bicycling's Economic and Health Impacts in Wisconsin." Presentation before the Governor's Coordinating Council on Bicycling, December.

Whited, M., D. Sheard. 2009. "Water Conservation Initiatives in Wisconsin." Presentation before the Waukesha County Water Conservation Coalition Municipal Water Conservation Subgroup, July.

*Resume dated December 2018*

**Exhibit MW-BH-2**

**Curriculum Vitae of Ben Havumaki**

## **Ben Havumaki, Associate**

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bhavumaki@synapse-energy.com

### **PROFESSIONAL EXPERIENCE**

**Synapse Energy Economics, Inc.**, Cambridge, MA. *Associate*, July 2018 – present

Provides consulting, research, and analysis services on electric industry topics, with focus on performance-based regulation, rate design, and cost-benefit analysis.

**University of Massachusetts** Boston, MA. *Graduate Teaching and Research Assistant*, 2017 – 2018

- Facilitated ecosystem-valuation workshops with volunteers as part of EPA-funded initiative to shape resilience policymaking in the Great Bay region of New Hampshire; supported other faculty research projects in macroeconomics and education policy.
- Served as a teaching assistant in graduate econometrics course and undergraduate macroeconomics and urban economics courses.

**Notre Dame Education Center** Boston, MA. *STEM Advancement Specialist*, 2015 – 2017

- Taught foundational math to adult learners and standard high school math curriculum to students in non-traditional school program.
- Developed tech literacy workshops for students and staff to nurture basic skills and harmonize tech curriculum across the center.

**Jewish Vocational Service** Boston, MA. *Pre-college Math Instructor*, 2012 – 2014

- Taught math to diverse groups of non-traditional adult learners preparing for college.
- Developed new program curriculum, including a science and statistics-oriented biotechnology training program for nontraditional students.

**The City of New York** New York, NY. *Senior Investigator*, 2007 – 2010

- Investigated complaints against officers of the New York City Police Department and issued disciplinary recommendations in formal reports to the agency board.
- Conduct hundreds of interviews with police officers, city personnel, and witnesses.

### **SKILLS**

Language: Hebrew (working proficiency) and French (basic spoken and written)

Software and Statistical: Stata, R, Excel, ArcGIS

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## EDUCATION

**University of Massachusetts, Boston**, Boston, MA

Master of Arts in Applied Economics, 2018

*Recipient of the Arthur MacEwan Award for Excellence in Political Economy*

**McGill University**, Montreal, Quebec

Bachelor of Arts in History, 2007

## PUBLICATIONS

Timmons, D., A.Z. Dhunny, K. Elahee, B. Havumaki, M. Howells, A. Khoodaruth, A.K. Lema-Driscoll, M.R. Lollchund, Y.K. Ramgolam, S.D.D.V. Rughooputh, D. Surroop 2019. *Cost Minimization for Fully Renewable Electricity Systems: a Mauritius Case Study*. Energy Policy. 133, 110895.

Napoleon, A., T. Woolf, K. Takahashi, J. Kallay, B. Havumaki. 2019. *Comments in the New York Public Service Commission Case 18-M-0084: In the Matter of a Comprehensive Energy Efficiency Initiative*. Comments related to NY Utilities report regarding energy efficiency budgets and targets, collaboration, heat pump technology, and low- and moderate-income customers and requests for approval. Synapse Energy Economics on behalf of Natural Resources Defense Council.

Havumaki, B., E. Camp, B. Fagan, D. Bhandari. 2019. *Planning for the Future at the CTGS Site: Report on the Decommissioning Proposal of Maritime Electric*. Synapse Energy Economics for Carr, Stevenson, and MacKay.

Havumaki, B., J. Kallay, K. Takahashi, T. Woolf. 2019. *All-Electric Solid Oxide Fuel Cells as an Energy Efficiency Measure*. Synapse Energy Economics for Bloom Energy.

Takahashi, K., B. Havumaki, J. Kallay, T. Woolf. 2019. *Bloom Fuel Cells: A Cost-Effectiveness Brief*. Synapse Energy Economics for Bloom Energy.

Havumaki, B., T. Vitolo. 2019. *Comments to the Mississippi Public Service Commission: In response to the report of Acadian Consulting LLC*. Synapse Energy Economics for Gulf States Renewable Energy Industries Association, Sierra Club, and 25 x '25.

Whited, M., J. Kallay, D. Bhandari, B. Havumaki. 2018. *Driving Transportation Electrification Forward in Pennsylvania: Considerations for Effective Transportation Electrification Ratemaking*. Synapse Energy Economics for Natural Resources Defense Council.

Havumaki, B. 2018. *Hydropower in the Decarbonized Mauritian Grid: A Prospective Study*. Master's Thesis.

Havumaki, B., G. Mavrommati, C. Makriyannis. 2018. *World Bank Water Management, Sanitation, and Conservation Projects in Developing Countries: A Guide to Cost-Benefit Analysis*. Report for the World Bank.

*Resume dated October 2019*

**Exhibit MW-BH-3**

**Bonbright Principles**

of principles, these chapters are mere essays on the nature of the more controversial, largely unresolved, problems rather than attempts at systematic development. All of them have one theme in common: the thesis that the most formidable obstacles to further progress in the theory of public utility rates are those raised by conflicting goals of rate-making policy.

### CRITERIA OF A DESIRABLE RATE STRUCTURE

Throughout this study we have stressed the point that, while the ultimate purpose of rate theory is that of suggesting feasible *measures* of reasonable rates and rate relationships, an intelligent choice of these measures depends primarily on the accepted *objectives* of rate-making policy and secondarily on the need to minimize undesirable side effects of rates otherwise best designed to attain these objectives. No rational discussion, for example, of the relative merits of "cost of service" and "value of service" as measures of proper rates or rate relationships is possible without reference to the question what desirable results the rate maker hopes to secure, and what undesirable results he hopes to minimize, by a choice between or mixture of the two standards of measurement. Not only this: the very *meaning* to be attached to ambiguous, proposed measures such as those of "cost" or "value"—an ambiguity not completely removed by the addition of familiar adjuncts, such as "out-of-pocket" costs, or "marginal costs," or "average costs"—must be determined in the light of the purposes to be served by the public utility rates as instruments of economic policy. This is a commonplace; but it is a commonplace which, so far from being taken for granted, needs repeated emphasis.

What then, are the good attributes to be sought and the bad attributes to be avoided or minimized in the development of a sound rate structure? Many different answers have been suggested in the technical literature and in the reported opinions by courts and commissions; and a number of writers have summarized their answers in the form of a list of desirable attributes of a rate structure, comparable to the "canons of taxation" found in the treatises on public finance. The list that follows is fairly typical, although I have derived it from a variety of sources instead of relying on any

one presentation. The sequence of the eight items is not meant to suggest any order of relative importance.

1. The related, "practical" attributes of simplicity, understandability, public acceptability, and feasibility of application.
  2. Freedom from controversies as to proper interpretation.
  3. Effectiveness in yielding total revenue requirements under the fair-return standard.
  4. Revenue stability from year to year.
  5. Stability of the rates themselves, with a minimum of unexpected changes seriously adverse to existing customers. (Compare "The best tax is an old tax.")
  6. Fairness of the specific rates in the apportionment of total costs of service among the different consumers.
  7. Avoidance of "undue discrimination" in rate relationships.
  8. Efficiency of the rate classes and rate blocks in discouraging wasteful use of service while promoting all justified types and amounts of use:
- (a) in the control of the total amounts of service supplied by the company;
  - (b) in the control of the relative uses of alternative types of service (on-peak versus off-peak electricity, Pullman travel versus coach travel, single-party telephone service versus service from a multi-party line, etc.).

Lists of this nature are useful in reminding the rate maker of considerations that might otherwise escape his attention, and also useful in suggesting one important reason why problems of practical rate design do not readily yield to "scientific" principles of optimum pricing. But they are unqualified to serve as a base on which to build these principles because of their ambiguities (how, for example, does one define "undue discrimination"?), their overlapping character, and their failure to offer any rules of priority in the event of a conflict. For such a base, we must start with a simpler and more fundamental classification of rate-making objectives.

### THREE PRIMARY CRITERIA

General principles of public utility rates and rate differentials are necessarily based on simplified assumptions both as to the objectives of rate-making policy and as to the factual circumstances un-