



Robert L. McGee, Jr.
Regulatory & Pricing Manager

One Energy Place
Pensacola, FL 32520-0780
850 444 6530 tel
850 444 6026 fax
rlmcgee@southernco.com

October 12, 2016

VIA ELECTRONIC FILING

Ms. Carlotta Stauffer
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Petition for an increase in rates by Gulf Power Company, Docket No. 160186-EI

Re: Petition for approval of 2016 depreciation and dismantlement studies, approval of proposed depreciation rates and annual dismantlement accruals and Plant Smith Units 1 and 2 regulatory asset amortization by Gulf Power Company, Docket No. 160170-EI

Dear Ms. Stauffer:

Attached is the Direct Testimony and Exhibit of Gulf Power Company Witness Robert L. McGee, Jr.

(Document 13 of 29)

Sincerely,

A handwritten signature in blue ink that reads "Robert L. McGee, Jr." in a cursive style.

Robert L. McGee, Jr.
Regulatory & Pricing Manager

**BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION**

DOCKET NO. 160186-EI



Gulf Power

**TESTIMONY AND EXHIBIT
OF
ROBERT L. MCGEE, JR.**

1 GULF POWER COMPANY

2 Before the Florida Public Service Commission

3 Direct Testimony of

4 Robert L. McGee, Jr.

5 Docket No. 160186-EI

6 In Support of Rate Relief

7 Date of Filing: October 12, 2016

8 Q. Please state your name and business address.

9 A. My name is Bob McGee. My business address is One Energy Place,
10 Pensacola, Florida 32520.

11 Q. What is your position?

12 A. I am the Regulatory and Pricing Manager for Gulf Power Company (Gulf or
13 the Company).

14 Q. What are your responsibilities as Regulatory and Pricing Manager?

15 A. As Regulatory and Pricing Manager, I am responsible for a team that
16 handles regulatory filings, cost recovery clause filings, pricing and
17 forecasting.

18 Q. Please state your prior work experience and responsibilities.

19 A. I began my career in 1984 as a research engineer with Harry Diamond
20 Laboratories, now part of the Army Research Lab, investigating missile
21 fuzing techniques and digital signal processors. Subsequently, I served
22 eight years in the United States Navy as an F-14 Naval Flight Officer,
23 ultimately serving in combat during Desert Storm in 1991. I joined Gulf in
24 1994 as a Market Analyst working on the forecast, load research, Real Time
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1 Pricing (RTP) and customized metering projects. I have served as a field
2 sales representative to large industrial customers, assistant to a previous
3 Power Generation Vice President, Supervisor of the Instrument & Control
4 team at Plant Crist, Operations Supervisor at Plant Crist, and Market
5 Research and Planning Manager. I have been in my current role since 2012.

6

7 Q. What is your educational background?

8 A. I received a Bachelor of Science degree in Electrical Engineering from the
9 University of Maryland at College Park in 1984. In 1993, I received a Master's
10 degree in Business Administration from the University of West Florida. I have
11 been a Certified Energy Manager since 1998.

12

13 Q. What is the purpose of your testimony?

14 A. My testimony presents a package of improvements to Gulf's residential rates.

15

16 Q. Are you sponsoring any exhibits?

17 A. Yes, I am sponsoring Exhibit RLM-1, Schedules 1 through 7. Exhibit RLM-1
18 was prepared under my direction and control, and the information contained
19 therein is true and correct to the best of my knowledge and belief.

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21 Q. Are you sponsoring any of the Minimum Filing Requirements (MFRs)
22 submitted by Gulf?

23 A. No.

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1 **I. CURRENT RESIDENTIAL PRICING**

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Q. Please describe Gulf’s current residential rate offerings.

A. Gulf’s standard rate for residential customers is the Residential Service (RS) rate. It is a traditional two-part rate consisting of a Base Charge of \$0.62 per day and an Energy Charge of 4.585 cents per kWh (11.4 cents per kWh when combined with current cost recovery clause rates). The Florida Public Service Commission (FPSC or Commission) approved the use of a daily base charge for residential rates in Order No. PSC-13-0670-S-EI, a change that has been well received by Gulf’s customers. Gulf has 396,000 residential non-lighting customers, 365,000 of whom are on this standard (or default) residential service rate RS. Gulf currently offers two additional rate options to residential customers: the Residential Service Variable Pricing (RSVP) rate, and the Residential Flat-1 rate. Gulf is also piloting a Residential Service Time-of-Use (RSTOU) rate which has limited availability.

Q. Please describe each of these options in a little more detail.

A. In 1990, with the approval of the FPSC in Docket No. 900090-EG, Gulf developed a first-of-its-kind Critical Peak Pricing (CPP) rate named RSVP to support the Transtext Pilot program which later became Gulf’s successful EnergySelect[®] Demand Side Management (DSM) program. This innovative CPP rate has become widely known throughout the electric utility industry. Currently, 17,000 of Gulf’s residential customers choose the RSVP rate. The RSVP rate consists of a Base Charge of \$0.62 per day and four tiers of Energy Charges—Low, Medium and High which have predetermined rates and time

1 periods and a Critical tier which has a pre-determined rate but may occur
2 anytime during the year under specific conditions.

3
4 In 2005, with the approval of the FPSC in Docket No. 040442-EI, Gulf began
5 offering the *FlatBill*[®] program using the Residential Flat-1 rate. This rate gives
6 customers who choose it the peace of mind that their monthly bill will not
7 change throughout the course of the year. Currently, 14,000 of Gulf's
8 residential customers choose the Residential Flat-1 rate which consists of an
9 annual contract amount specific to each customer billed in twelve equal
10 monthly increments.

11
12 In 2016, with the approval of the FPSC in Docket No. 150086-EG, Gulf began
13 offering the RSTOU rate in conjunction with a DSM pilot program named
14 *EnergySmart*. This limited availability experimental rate is limited to
15 approximately 400 subscribers and is currently fully subscribed. The RSTOU rate
16 consists of a Base Charge of \$0.62 per day and two tiers of Energy Charges—
17 On-Peak and Off-Peak—each of which have predetermined rates and time
18 periods and a Critical Peak Credit which is a pre-determined amount that may
19 occur anytime during the year under specific conditions.

20
21 All of Gulf's residential rates (RS, RSVP, Flat-1, and RSTOU) utilize the same
22 Base Charge (currently \$0.62 per day) and the same base rate Energy Charge
23 (currently 4.585 cents per kWh). The time-of-use rate options (RSVP and
24 RSTOU) utilize varying conservation clause factors to create different total
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1 energy prices in the time-of-use tiers. Exhibit RLM-1, Schedule 1 contains a
2 summary of Gulf's residential rates.

3 4 5 **II. OVERVIEW**

6
7 Q. Please provide some context for the rate improvements you recommend.

8 A. The residential market segment is Gulf Power's largest by far. Whether
9 measured in terms of revenue, number of customers, energy, or peak
10 demand, the residential market is the biggest segment of our business. In
11 light of this, it is important to note that the default residential service rate (RS),
12 the rate that over 90 percent of our residential customers choose, has a built-
13 in weakness—it does not recover costs appropriately from cost-causers.
14 Thus, some groups of residential customers are paying more than they
15 should—they are paying more than the costs the Company incurs to serve
16 them. Other residential customers are paying less than they should—they are
17 paying less than the costs the Company incurs to serve them. In the
18 aggregate, we estimate that this inequity is more than \$20 million annually.

19
20 Q. How do you propose to correct this inequity?

21 A. Gulf is proposing an Advanced Pricing Package that makes a structural
22 change to improve the equity of our existing two-part residential rates,
23 introduces new residential demand rate options that will also equitably
24 recover costs and will allow customers to select the pricing most beneficial to
25

1 their individual circumstances, and improves all residential customers'
2 experience with Gulf's product.

3

4 Q. How will the structural change to the existing two-part residential rates and
5 the new demand rates more equitably recover costs?

6 A. The proposed rate structure and new residential demand rates recover
7 demand-related costs more appropriately than current rates. Residential
8 demand-related costs from the cost of service study, as provided by Gulf
9 Witness O'Sheasy, are those costs associated with the generation,
10 transmission and distribution investment and expenses necessary to meet
11 residential customers' peak demand for electricity. In the case of the
12 proposed demand rates, the explicit demand charge appropriately recovers
13 demand-related costs in proportion to the amount of demand a customer
14 places on the system. In the case of the enhanced two-part rate structure, an
15 appropriate amount of demand-related costs are recovered through the fixed
16 component of the rate, the base charge. In both cases, costs are more
17 equitably recovered from cost-causers.

18

19 Q. What causes Gulf's current rate structure to inequitably recover costs from
20 residential customers?

21 A. Gulf's current residential rate structure does a fair job of appropriately
22 recovering customer-related costs through the base charge (also known as a
23 customer charge) and energy-related costs through the energy charge but
24 misses the mark when it comes to appropriately recovering demand-related
25 costs from cost-causers. Under the current rate structure, all residential

1 demand-related costs are collected through the energy charge. This causes
2 the energy charge, the variable component of the customer's rate (cents per
3 kWh charge), to be larger than it should be. This unnecessarily large energy
4 charge, which functions as a weak proxy for a demand charge, causes a
5 misalignment between cost-causers and those who pay. This misaligned
6 structure results in some customers paying more than they should for
7 demand-related costs and others paying less than they should. For example,
8 occupants of older, inefficient manufactured homes or other poorly-insulated
9 homes as a group are paying more than they should while condo owners,
10 small vacation home owners, and owners of private residential metered boat
11 docks as a group are paying less than they should for the demand-related
12 costs incurred to serve them.

13

14 Q. How will Gulf's proposed rate structure improve equity in recovery of demand-
15 related costs?

16 A. Gulf's proposed two-part rates are designed to collect revenue more like
17 optimum three-part demand rates without using explicit demand charges.
18 Details on how this is accomplished are provided later in my testimony but
19 can be summarized as a proper allocation of demand-related costs between
20 the energy charge and the base charge. A simple graphic representation of
21 rate structures and their relationship to costs is shown in Exhibit RLM-1,
22 Schedule 2.

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1 Q. How do the proposed rate structure change and new rates improve
2 customers' experience with Gulf's product?

3 A. Our customers can experience significant and unnecessary variations in their
4 monthly bills when the variable component of their rate (cents per kWh
5 charge) is larger than it should be. When the weather is particularly hot in the
6 summer or cold in the winter, or when a family entertains or hosts visitors,
7 electricity usage temporarily increases causing fluctuations in a customer's
8 electricity bill. This variability, on a percentage basis, is more acute for low-
9 use customers. A lower energy charge reduces variability in customers' bills.
10 For customers using less than 750 kWh per month, the proposed RS rate
11 reduces bill variability significantly. See Exhibit RLM-1, Schedule 3 for a
12 comparison of customer bill variability.

13

14 Q. What about those customers who value the ability to manage their electricity
15 bill through their usage more than stability of their bill?

16 A. For those customers who do not mind fluctuations in their bill and value more
17 highly the ability to actively manage their bill amount, we are adding new
18 demand rates to our existing menu of options which already includes a rate
19 (RSVP) that gives our residential customers significant flexibility to actively
20 manage their bills through their electricity use.

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III. DEMAND RATES

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Q. Do three-part demand rates appropriately recover costs from cost-causers?

A. Yes. Mr. O’Sheasy’s cost of service study develops three categories of costs associated with serving residential customers: customer-related costs, demand-related costs, and energy-related costs. A three-part demand rate best aligns rates with costs because it mirrors these cost categories with three discrete rate components: a customer charge, a demand charge and an energy charge.

Q. Since demand rates better align rates with costs, why has Gulf not required all residential customers to take service under a demand rate?

A. There are two reasons that demand rates have not been mandatory for residential customers in the past. The first is metering costs—demand meters cost more than simple energy-only meters. The second is limited customer acceptance.

Q. How has Advanced Metering Infrastructure (AMI) affected the first barrier to demand rate implementation in the residential class?

A. The first barrier to implementing demand rates throughout the residential class has historically been metering costs. With the deployment of AMI metering, Gulf Power is no longer constrained by metering costs in implementing demand rates for the residential class. Gulf’s existing AMI meters can be reprogrammed at very little cost to measure demand for billing purposes so there is no longer a requirement to purchase new, more

1 sophisticated and more expensive meters to implement a residential class
2 demand rate.

3

4 Q. You mentioned limited customer acceptance as a second barrier. Please
5 elaborate.

6 A. Three-part demand rates are more complex than two-part rates. Demand
7 rates in the residential market introduce a new concept called demand (rate of
8 use rather than quantity of use), another measurement (kW), another rate
9 component (\$ per kW), and another line item on the customer's bill. When
10 presented with the choice, most residential customers have not chosen to
11 manage this additional bill element (kW demand) which varies according to
12 coincidence of electrical use. Among the 10 or so investor-owned utilities in
13 the United States that offer optional demand rates to residential customers,
14 participation has been relatively low—averaging less than 3 percent of the
15 total residential customers served by these utilities. However, for the
16 customers that choose this option, they appreciate the value it provides by
17 allowing them to manage their bills through the more complex rate.

18

19 Q. What new residential demand rates is Gulf proposing?

20 A. The first of the two new rates is the Residential Service - Demand (RSD) rate.
21 It is a traditional three-part rate consisting of a Base Charge of \$0.73 per day,
22 an Energy Charge of 2.3 cents per kWh (8.7 cents per kWh with proposed
23 cost recovery clause rates) and a monthly Maximum Demand Charge of
24 \$5.00 per kW as provided by Gulf Witness Evans.

25

1 The second of the two new rates is the Residential Service - Demand Time-
2 of-Use Conservation (RSDT) rate. It is a traditional three-part Time-of-Use
3 (TOU) rate consisting of a Base Charge of \$0.73 per day, an Energy Charge
4 of 2.3 cents per kWh (8.7 cents per kWh with proposed cost recovery clause
5 rates), a monthly Maximum Demand Charge of \$2.17 per kW and a monthly
6 On-Peak Demand Charge of \$3.66 per kW as provided by Mr. Evans. The
7 On-Peak periods coincide with the RSVP High tier periods.

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10 **IV. NEW METHODOLOGY FOR SETTING THE**
11 **RESIDENTIAL BASE CHARGE**

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13 Q. Earlier you said some demand-related costs would be collected through the
14 base charge (fixed component of the rate) under your proposed rate structure
15 change. Doesn't traditional ratemaking dictate that only customer-related
16 costs be included in the base charge?

17 A. Historically, that is how ratemaking has been done. But there is no prohibition
18 against examining afresh how rates should be structured. If we start with the
19 premise that a mandatory three-part rate is not appropriate for the entire
20 residential class because of limited customer acceptance, we conclude that a
21 simpler two-part rate should be used. But where will we put demand-related
22 costs if we don't have an explicit demand charge in the rate structure? In the
23 past, all of those demand-related costs have been put into the energy
24 charge—hence its name in our tariff book is actually “Energy-Demand
25 Charge” which is technically correct although cumbersome.

1 Q. What has been the basis for putting all demand-related costs into the energy
2 charge and none into the fixed base charge?

3 A. There is a relationship, although a weak one, between energy and demand.
4 In other words, there is a loose connection between how much energy a
5 customer uses and how much demand they create on our system. Customers
6 who use more energy generally have higher kW demands—but there are
7 many exceptions to this general relationship. Load Factor is a term used to
8 describe the relationship between a customer's energy use and their demand.
9 If all residential customers had the same monthly load factor—in other words,
10 if all customers had the same relationship between their energy use and their
11 demand—it would make perfect sense to put all demand-related costs into
12 the energy charge. Under this hypothetical scenario, as a customer used
13 more energy, they would pay for that energy and for the additional demand
14 too. But the fact is that residential customers' monthly load factors vary
15 widely. Exhibit RLM-1, Schedule 4 shows the wide variation in monthly load
16 factors among Gulf Power's residential customers. Some customers use
17 more energy and less demand (these customers are efficient users of utility
18 capacity) and others use little energy and a lot of demand (these customers
19 have "spikes" in their load and are less efficient users).

20

21 Q. Since the relationship between energy and demand is weak, what other basis
22 do you propose to determine how to allocate demand-related costs?

23 A. Gulf proposes to use a methodology developed by Drs. Larry Blank and Doug
24 Gegax (Blank & Gegax methodology or B&G methodology) as an enhancement
25 to the current method for developing two-part rates. The B&G methodology was

1 published in a peer-reviewed article in the April 2016 issue of *The Electricity*
2 *Journal* and is described in more detail in Exhibit RLM-1, Schedule 5. This
3 enhanced methodology uses objective criteria to determine the best allocation
4 of demand-related costs in a two-part rate. When applied to Gulf's residential
5 customer data, the B&G methodology suggests that approximately half of
6 demand-related costs should be allocated to the energy charge and the other
7 half should be allocated to the base charge.

8
9 Q. What is the basis of the B&G methodology?

10 A. The B&G methodology begins with the premise that a three-part rate
11 appropriately aligns rates and costs. Using a three-part rate as a goal, the B&G
12 methodology identifies a two-part rate that will produce bills which best mimic
13 the bills that would have been produced by the three-part rate. The result is an
14 objective, optimum allocation of demand-related costs between the two parts of
15 the two-part rate—between the base charge and the energy charge.

16
17 Q. What rates are you proposing based on the B&G analysis for Gulf's
18 residential customer data?

19 A. As developed by Mr. Evans, the B&G analysis and revenue requirements for
20 Gulf's residential customers support a \$1.58 per day Base Charge
21 (approximately \$48 per month) and 3.3 cents per kWh Energy Charge.

1 Q. So if the new two-part rate structure better aligns rates with costs and collects
2 revenue more like the target three-part rate, why offer demand rates at all?

3 A. First, demand rates also align rates with costs very well. Secondly, some
4 customers will be pleased with the opportunity to manage their bill in even
5 more detail than in the past. We observe a similar desire in our customers
6 who currently choose CPP and TOU rates.

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V. EFFECT OF CHANGE

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11 Q. What effect will Gulf's proposed changes have on customers' bills?

12 A. The practical outcome of the proposed Advanced Pricing Package is not a
13 "one size fits all" effect. Recovering demand-related costs more equitably
14 through pricing will affect different customers differently. For example, the
15 owner of a vacation condo that is vacant much of the year might see an
16 overall increase as a reflection of the customer paying a more appropriate
17 share of demand-related costs while the occupant of an older, inefficient
18 manufactured home might benefit from the more appropriately priced, lower
19 energy charge. In either case, or in any other of a myriad of examples, the
20 key is that the proposed new rate structure more appropriately allocates costs
21 to the cost-causers.

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1 Q. Is the proposed increase from \$0.62 per day to the more equitable \$1.58 per
2 day a reasonable amount of change?

3 A. Yes. In combination with the 28 percent reduction in the energy charge, the
4 change in the base charge is certainly reasonable. The net effect of rate level
5 and rate structure changes on the average residential customer's monthly bill
6 is an increase of about \$10, or 7 percent. The majority of this \$10 increase is
7 a result of Gulf's requested general increase in base rates as supported by
8 other witnesses in this case, offset somewhat by a proposed decrease in our
9 clause rates for 2017.

10

11 Q. Would the proposed Base Charge change if the Commission approved a rate
12 increase other than the one Gulf has requested in this Docket?

13 A. Yes, but not by much. Under current rates, the B&G methodology would
14 support a Base Charge of about \$1.35 per day.

15

16 Q. What is the benefit of implementing optional demand rates at the same time
17 that Gulf implements a more equitable base charge in existing rates?

18 A. The benefit of implementing both changes at the same time is that any
19 customer who does not prefer the higher and more equitable base charge can
20 choose a demand rate option which has a lower base charge—one that only
21 includes customer-related costs. This customer would then be choosing to
22 pay for their demand-related costs through the demand charge. Because the
23 changes are being implemented at the same time, customers will receive
24 appropriate and equitable price signals from either rate type (two-part or

25

1 three-part). The customer simply chooses which option best suits their needs.
2 A table of example bills is supplied in Exhibit RLM-1, Schedule 6.

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5 **VI. LOW INCOME**
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7 Q. Is Gulf proposing anything to help low-income customers transition to the
8 more equitable base charge?

9 A. Yes. Recognizing that a more equitable allocation of demand-related costs in
10 Gulf's two-part residential rates results in a lower energy charge but increases
11 the base charge, Gulf is proposing to accompany its new rate structure with a
12 Low Income Rider, to be known as a Customer Assistance Program (CAP)
13 credit, if approved. The Low Income Rider is appropriate to achieve this
14 objective, but without the change in the residential rate structure the Low
15 Income Rider is simply unnecessary.

16
17 Q. Please describe the Low Income Rider.

18 A. The proposed Low Income Rider will apply a bill credit of \$0.69 per day
19 (approximately \$21 per month) to eligible customers' monthly bills. The new
20 Low Income Rider is specifically designed to fully offset the incremental
21 increase in the proposed higher base charge for qualifying low-income
22 customers in occupied homes. The calculation showing this result is provided
23 in Exhibit RLM-1, Schedule 7.

1 Q. What are the eligibility criteria for the new Low Income Rider?

2 A. Gulf Power's new Low Income Rider will be available to all Gulf Power
3 residential customers of record who are also participants in the Supplemental
4 Nutritional Assistance Program (SNAP), also known as Food Stamps, and
5 who apply for the credit.

6

7 Q. How many of Gulf's residential customers do you estimate will qualify?

8 A. We estimate that approximately 35,000 of Gulf's residential customers will
9 qualify for this credit.

10

11 Q. How will the Low Income Rider be funded?

12 A. Gulf proposes funding the Low Income Rider through the residential class
13 revenue.

14

15 Q. Isn't this just a subsidy from the entire group of residential customers to one
16 subset of them?

17 A. Yes, but it is a transparent and targeted subsidy. The current RS rate
18 structure has embedded in it an untargeted subsidy—an imprecise approach
19 to helping those in need. The current RS rate structure favors all low-use
20 customers regardless of their income. Low-use customers as a group pay
21 less than the costs incurred to serve them. Not all low-use customers are low-
22 income customers (condo owners, small vacation home owners, and owners
23 of private residential metered boat docks, for example) but all low-use
24 customers benefit from the subsidy built into the current rate structure. This
25 untargeted subsidy inadvertently subsidizes non-low-income customers.

1 High-use customers as a group, on the other hand, pay more than the costs
2 incurred to serve them. Not all high-use customers are high-income
3 customers (some customers whose primary residence is an older, inefficient
4 manufactured home or other poorly-insulated home, for example) but all high-
5 use customers are harmed by the subsidy built into the current rate
6 structure—because they are funding it through the high energy charge.

7
8 Gulf is proposing to replace the untargeted subsidy built into the current rate
9 structure with this targeted and explicit subsidy as a better, more efficient way
10 to help those customers who need it most. If the proposed change in the
11 residential rate structure is accepted and approved, the Low Income Rider will
12 accomplish this objective. If the residential rate structure were to remain
13 unchanged, the Low Income Rider would simply be unnecessary.

14
15 Q. How would you summarize the purpose of the Low Income Rider?

16 A. The Low Income Rider, in conjunction with the new rate structure, replaces a
17 subsidy for low-usage customers with a subsidy for low-income customers.

18
19 Q. Will the proposed Low Income Rider provide any additional value to Gulf or its
20 customers?

21 A. Yes, the Low Income Rider will help Gulf better serve a population within its
22 customer base that is otherwise difficult to identify. If the Low Income Rider is
23 implemented, self-identifying qualifying customers may also be able to benefit
24 from other programs offered by Gulf Power and other community
25 organizations that will help them better manage their energy use. For

1 example, Gulf can reach out to these qualifying low-income customers and
2 proactively offer an energy audit. Furthermore, Gulf can notify low-income
3 customers of other energy assistance programs offered through local
4 agencies such as LIHEAP and Weatherization Assistance Program (WAP).
5 Gulf could also leverage lessons learned from the Community Energy Saver
6 program approved as part of Gulf's 2015 Demand-Side Management Plan to
7 design a new program specifically for these self-identifying low-income
8 customers.

11 VII. CONSERVATION

- 13 Q. Why, in this filing, is Gulf proposing to add additional cost-effective
14 conservation measures?
- 15 A. The new residential rate structure lowers the variable charge (cents per kWh)
16 of Gulf's two-part residential rates, thereby improving the Rate Impact
17 Measure (RIM) cost-effectiveness test results for all residential conservation
18 measures. Gulf Witness Floyd discusses this in more detail in his testimony.
- 19
- 20 Q. What is the effect of the lower variable charge (cents per kWh) on the
21 Participant Test?
- 22 A. The lower variable charge reduces Participant Test results slightly. However,
23 the lower variable charge improves RIM test results with so little impact to
24 Participant Test results that the net effect is that more cost-effective
25 conservation is achievable.

1 Q. Does the new rate structure with its lower energy charge undermine existing
2 and future conservation investment?

3 A. Not at all. For example, the variable portion of the proposed RS rate, the RS
4 Energy Charge with proposed cost recovery clause rates, would be 9.7 cents
5 per kWh. Although this number is lower than it otherwise would be without the
6 rate structure change, it still provides substantial benefit for customers to
7 manage through investments in conservation.

8

9 Q. What additional conservation is Gulf proposing for residential customers?

10 A. As a result of the residential rate structure change, Mr. Floyd proposes to
11 expand an existing program, to increase the maximum incentives for other
12 existing programs in order to achieve higher energy savings, and to add a
13 new program. Mr. Floyd provides additional information regarding these new
14 and modified residential DSM programs in his testimony.

15

16 Q. How much energy savings do these additional conservation efforts represent?

17 A. These added residential conservation efforts represent an additional 3.5 GWh
18 of average annual savings.

19

20 Q. What other conservation benefits does your residential rate proposal have?

21 A. The two new demand rates will naturally encourage participating customers to
22 manage their peak demand. The new TOU demand rate will also encourage
23 participating customers to shift their peak demand to times when the load on
24 Gulf's system is not as heavy.

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VIII. CONCLUSION

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Q. Why should the Commission approve Gulf's proposed Advanced Pricing Package?

A. First, Gulf's proposal includes both a rate structure change (lower energy charge and higher base charge) and the addition of new optional demand rates. These two changes work hand-in-hand to give customers more options and better align our residential rates with our costs. Second, Gulf's proposal applies to all residential customers, not just a sub-segment of them. Third, Gulf's proposal includes a new low-income credit which ensures qualifying customers will benefit from the rate structure change. Fourth, Gulf is proposing to implement additional cost-effective conservation in conjunction with the rate structure change. Fifth, and most significantly, Gulf's proposed rate structure change relies on an objective, best-fit methodology for determining an appropriate allocation of demand-related costs to the base charge.

Q. Does this conclude your testimony?

A. Yes.

AFFIDAVIT

STATE OF FLORIDA)
)
COUNTY OF ESCAMBIA)

Docket No. 160186-EI

Before me the undersigned authority, personally appeared Robert L. McGee, Jr., who being first duly sworn, deposes, and says that he is the Regulatory and Pricing Manager of Gulf Power Company, a Florida corporation, and that the foregoing is true and correct to the best of his knowledge, information, and belief. He is personally known to me.

s/ Robert L. McGee, Jr.
Robert L. McGee, Jr.
Regulatory and Pricing Manager

Sworn to and subscribed before me this 5th day of October, 2016.

Melissa Darnes
Notary Public, State of Florida at Large

Commission No. FF 912698

My Commission Expires December 17, 2019



MELISSA DARNES
MY COMMISSION # FF 912698
EXPIRES: December 17, 2019
Bonded Thru Budget Notary Services

Exhibit

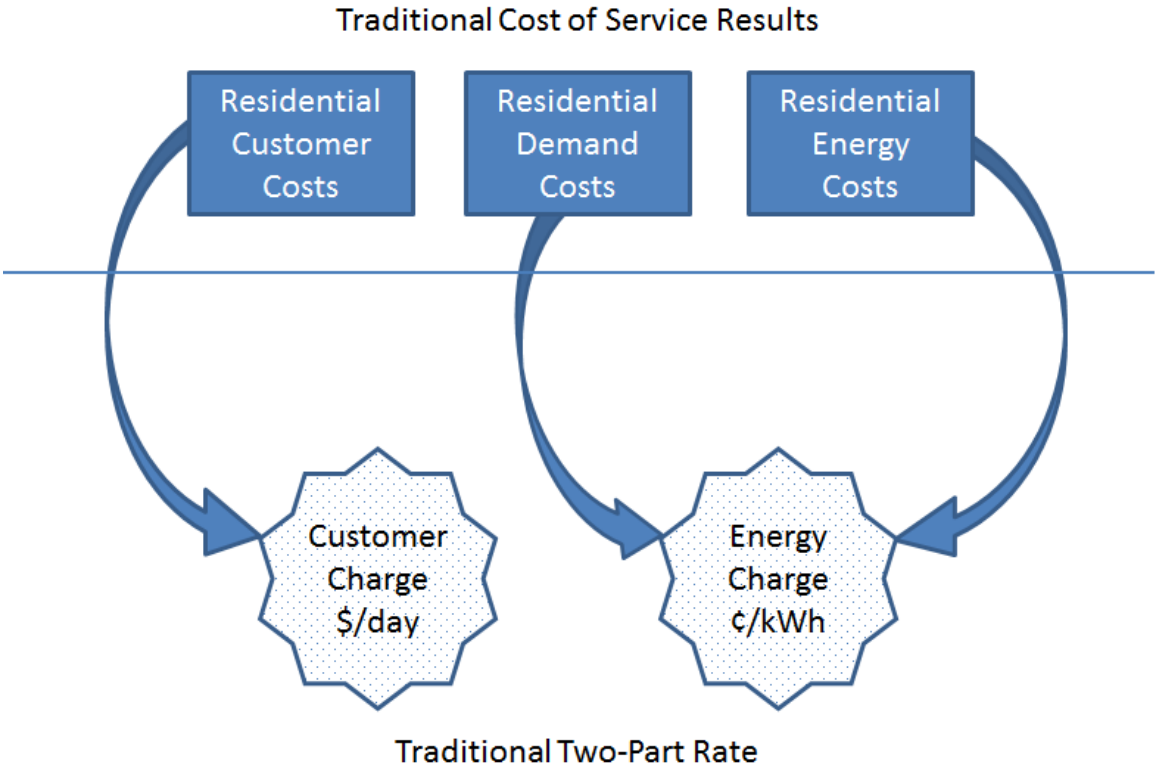
Gulf Power Residential Rates Summary Table

Current

	Base (\$/day)	Energy (¢/kWh)	Fuel (¢/kWh)	PPCC (¢/kWh)	ECRC (¢/kWh)	ECCR		Max Demand (\$/kW)	On-Peak Demand (\$/kW)
						(¢/kWh)	\$/Event		
RS	0.62	4.585	3.678	0.919	2.109	0.068			
RSTOU (Pilot)	0.62	4.585	3.678	0.919	2.109	On	17.000	(5.00)	
						Off	(3.096)		
RSVP	0.62	4.585	3.678	0.919	2.109		(3.000)		
						Low P ₁	(1.672)		
						Medium P ₂	5.672		
						High P ₃	56.374		
Critical P ₄									

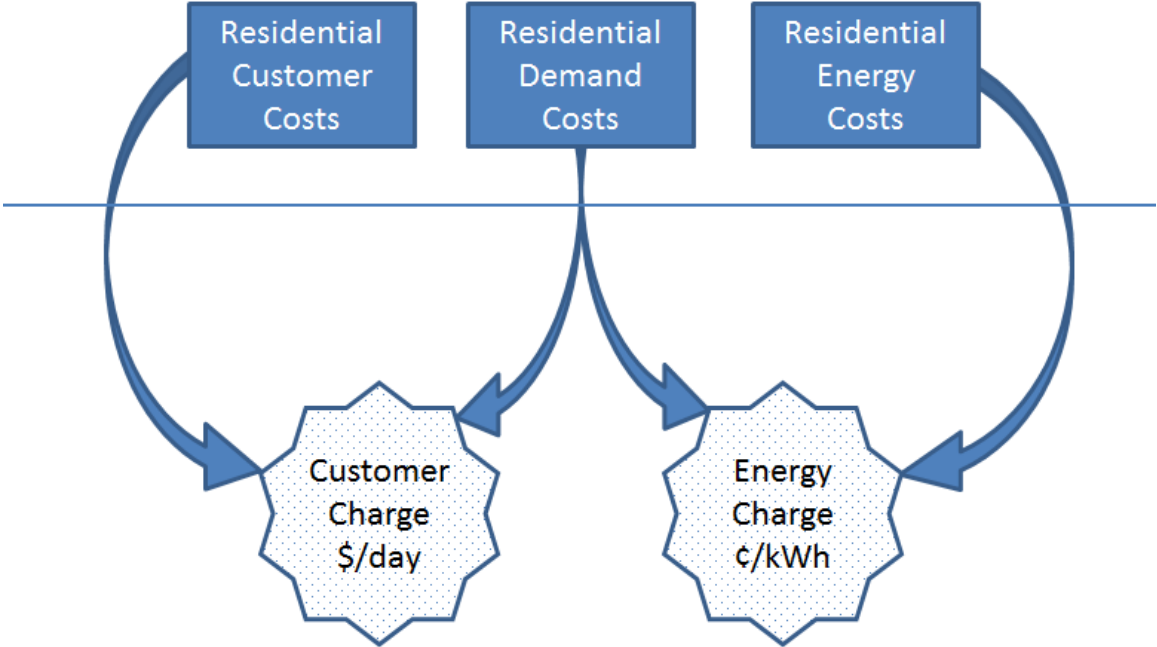
Proposed

	Base (\$/day)	Energy (¢/kWh)	Fuel (¢/kWh)	PPCC (¢/kWh)	ECRC (¢/kWh)	ECCR		Max Demand (\$/kW)	On-Peak Demand (\$/kW)
						(¢/kWh)	\$/Event		
RS	1.58	3.298	3.163	0.888	2.158	0.160			
RSD	0.73	2.334	3.163	0.888	2.158	0.160		5.00	
RSDT	0.73	2.334	3.163	0.888	2.158	0.160		2.17	3.66
RSTOU (Pilot)	1.58	3.298	3.163	0.888	2.158	On	17.000	(5.00)	
						Off	(3.106)		
RSVP	1.58	3.298	3.163	0.888	2.158		(3.000)		
						Low P ₁	(0.774)		
						Medium P ₂	7.247		
						High P ₃	62.627		
Critical P ₄									



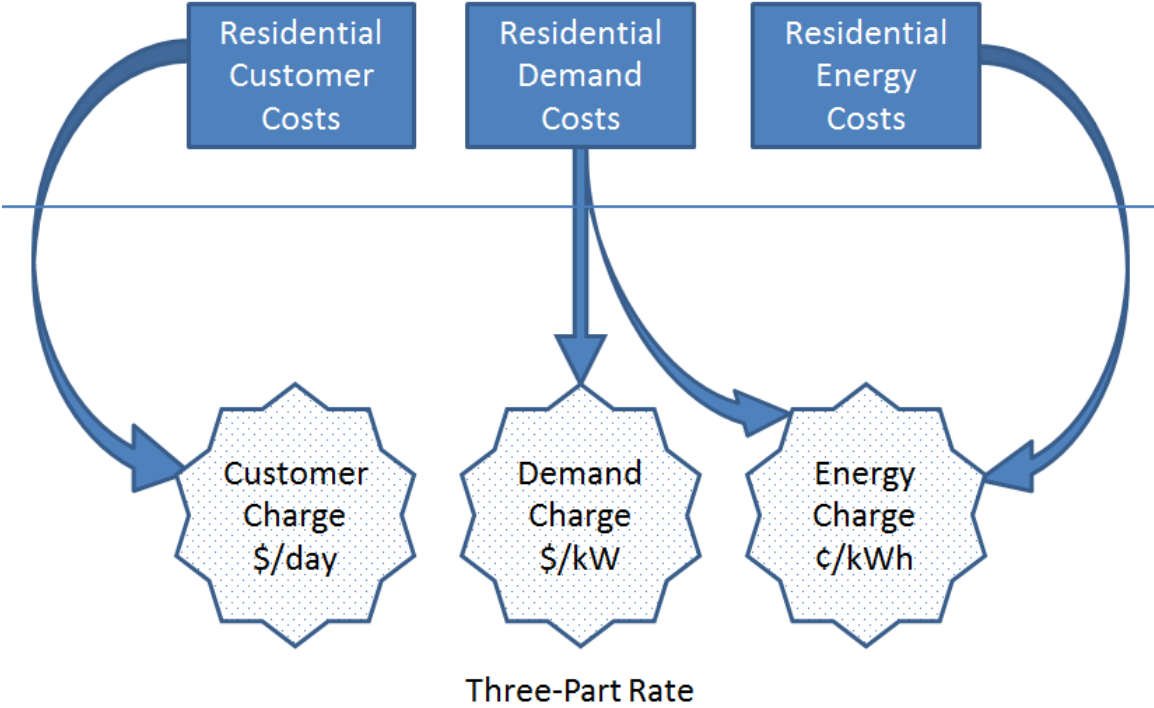
Note: Some two-part rates are designed to also include a portion of customer costs in the energy charge. This further misaligns the rate with costs.

Traditional Cost of Service Results



Enhanced Two-Part Rate

Traditional Cost of Service Results



Note: As depicted above, many demand rates are designed to include a portion of demand costs in the energy charge. This “rate tilt” reduces bill variability and rate impact on low load factor customers.

Bill Variability

Figure 1 shows the higher variability in customers' bills under the current RS rate structure as compared to the proposed RS rate structure. This is true for all customers but the effect is more pronounced at lower usage levels. The Average Coefficient of Variation (ACV) is a useful metric for comparing bill variability and is explained in more detail on page 3 of this Schedule. A customer with a 33 percent Coefficient of Variation (CV) experiences high bills that are twice the size of their small bills.

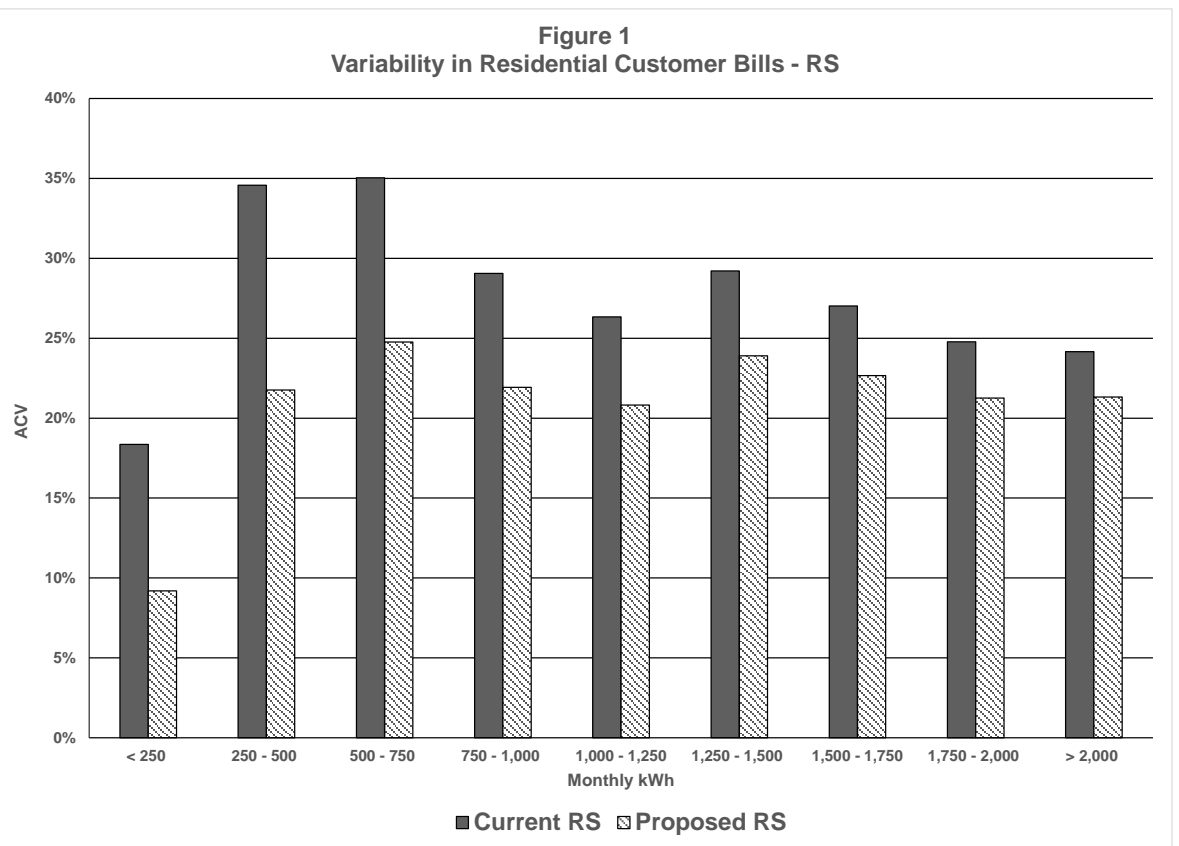
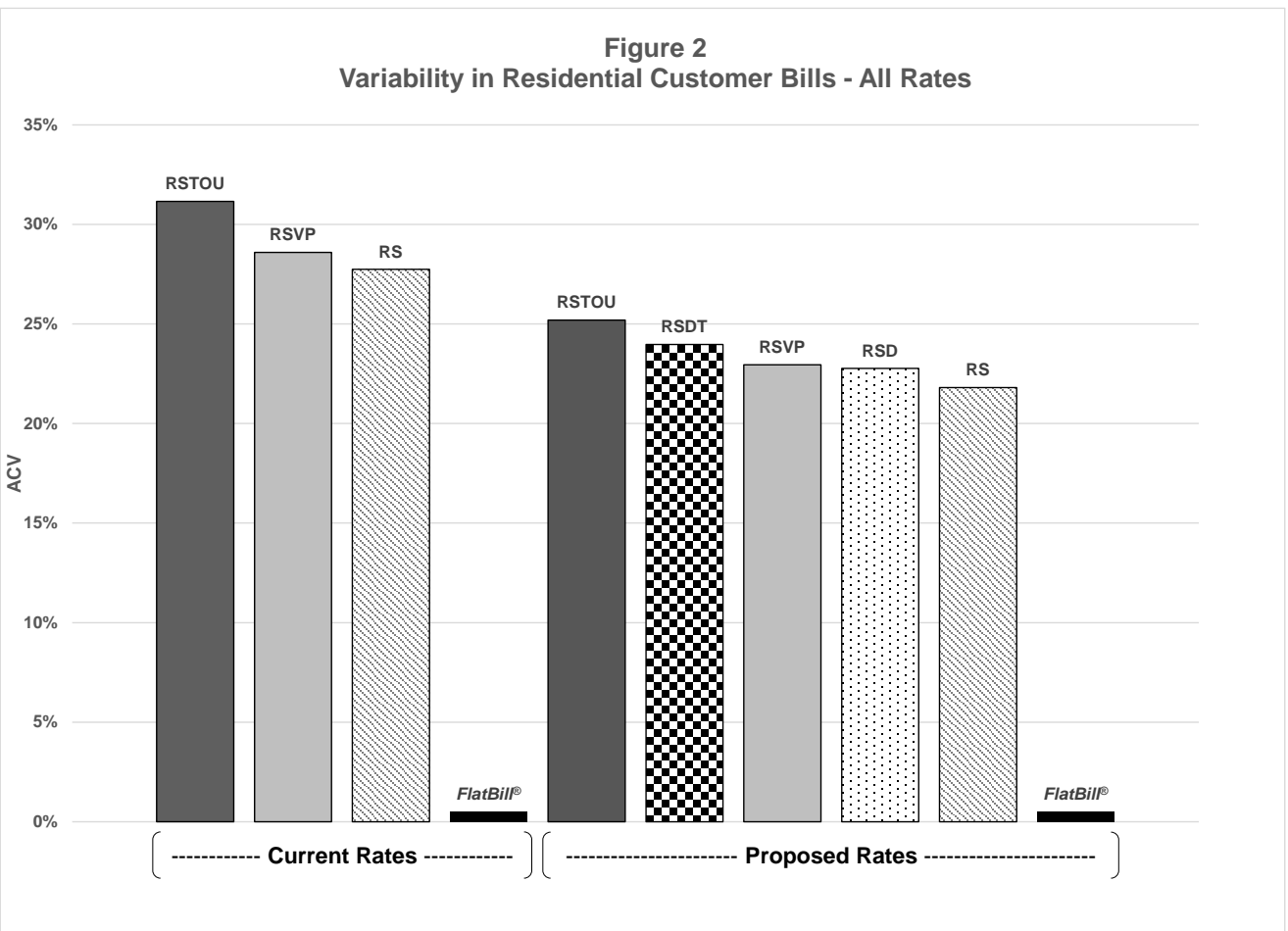


Figure 2 shows the variability in customers' bills under each of Gulf Power's residential rates (current and proposed). Note that, with the exception of FlatBill[®], all proposed rates have less variability than current rates.



The Average Coefficient of Variation (ACV) used in Figure 1 and Figure 2 is a measure of month-to-month bill variability for a set of customers on a particular rate.

ACV Calculation:

Given a single customer's twelve monthly bills on a particular rate, the standard deviation of those twelve monthly bill values is calculated. The mean of those twelve monthly bill values is also calculated. Then the Coefficient of Variation (CV) for this customer's twelve monthly bills is calculated as the standard deviation divided by the mean. This process is repeated so that a CV is calculated for each customer in the data set. Then the ACV is calculated as the average of all customers' Coefficient of Variation.

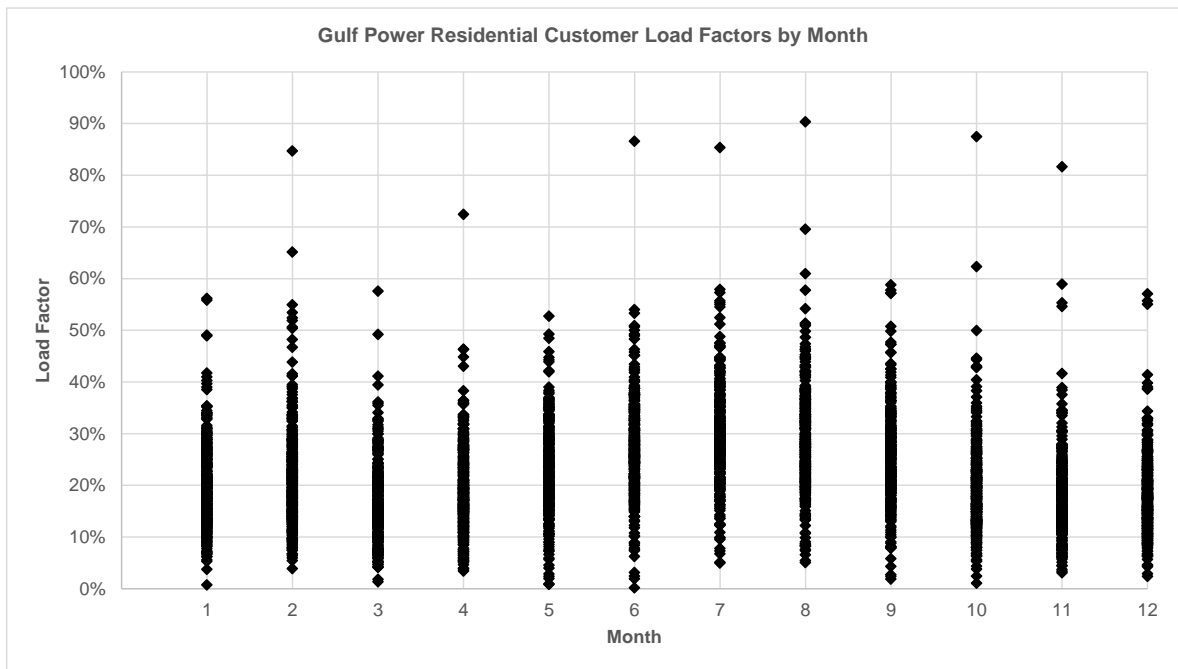
Interpretation:

The CV is a measure of relative dispersion in a particular customer's bills over a year. For example, if a customer's CV is 40 percent and their average monthly bill is \$100, then the customer's bills vary more than plus-or-minus \$40 (a spread of \$80). If another customer's CV is 30 percent and their average monthly bill is \$200, then this customer's bills vary more than plus-or-minus \$60 (a spread of \$120).

The ACV facilitates comparison by showing how much a set of customers' bills vary over a year. The ACV may be calculated for all customers on the same rate grouped into different usage levels, as shown in Figure 1, or it may be calculated for customers grouped by rate for different rates, as shown in Figure 2.

Residential Customer Load Factors

As shown in the graph below, Gulf Power residential customers have widely varying load factors, generally varying from less than 1 percent to a high of 30, 40, or 50 percent depending on the month of the year.



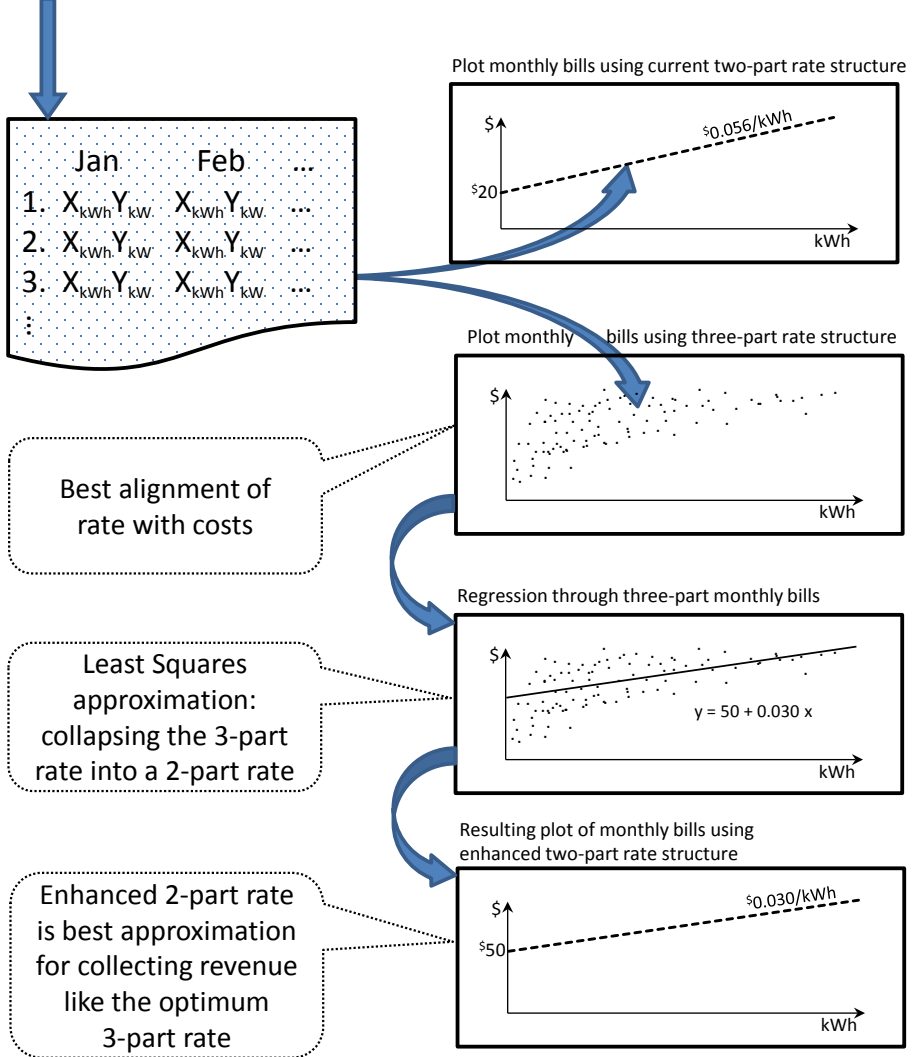
Load factor is a measure of the utilization rate, or efficiency of electrical energy usage. Monthly load factor is the ratio of total energy (kWh) used in the billing period divided by the possible total energy used within the period, if used at the highest actual demand (kW) during the billing period. In other words, monthly load factor is a number that describes the relationship between a customer's energy use and their peak demand during the billing period.

Blank and Gegax Methodology

Gulf proposes to use a methodology developed by Drs. Larry Blank and Doug Gegax (Blank & Gegax or B&G) as an enhancement to the current methodology for designing a residential two-part rate. The B&G methodology uses objective criteria to determine the best allocation of demand-related costs in a two-part rate. Below is a graphic depicting the methodology.

Summary of B&G Methodology

Start with residential customer monthly billing data (kWh and kW)



Below is the B&G methodology in narrative form:

1. Re-price historical residential bills under a three-part (demand) rate
2. Plot the resulting three-part bills using kWh on the x-axis and total (non-clause) bills on the y-axis
3. Run a linear least-squares regression through the plotted data points
4. The resulting regression line describes a two-part rate that collects revenue from that group of customers in a way that mimics the optimum three-part rate structure. The slope of the regression line is the per-kWh energy charge and the intercept of the regression line is the fixed monthly base charge.

The primary benefit of the B&G methodology is the fact that it provides an objective, best-fit criteria for determining an appropriate allocation of demand-related costs in a two-part electricity rate. Using least-squares regression, the B&G methodology optimizes the allocation of residential demand costs between the two components of the two-part rate—the base charge and the energy charge.

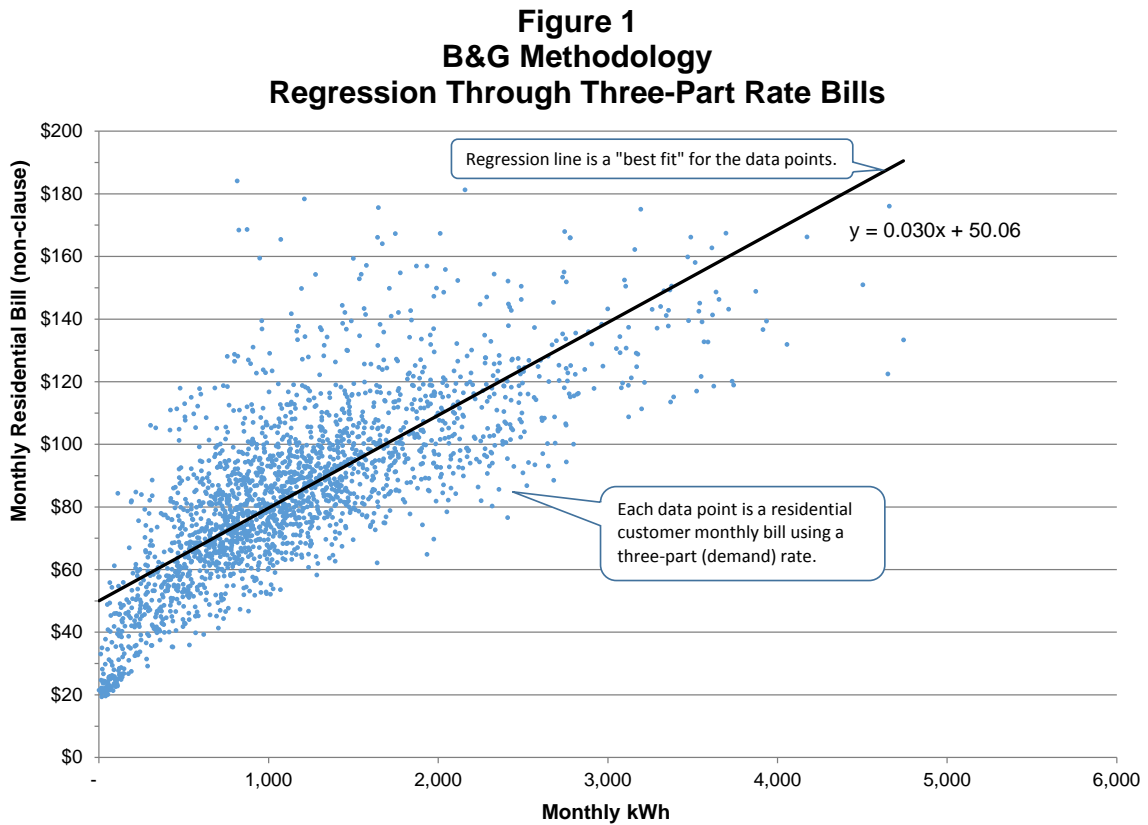
The B&G methodology does not affect the cost of service study, it simply takes the results of the study (residential costs in three categories: customer-related, demand-related, and energy-related) and allocates those costs in a two-part rate such that revenue is collected most like the optimal three-part rate.

The result is a two-part rate that more fairly collects revenue from cost-causers, which is another way of saying that the enhanced two-part rate is better aligned with costs.

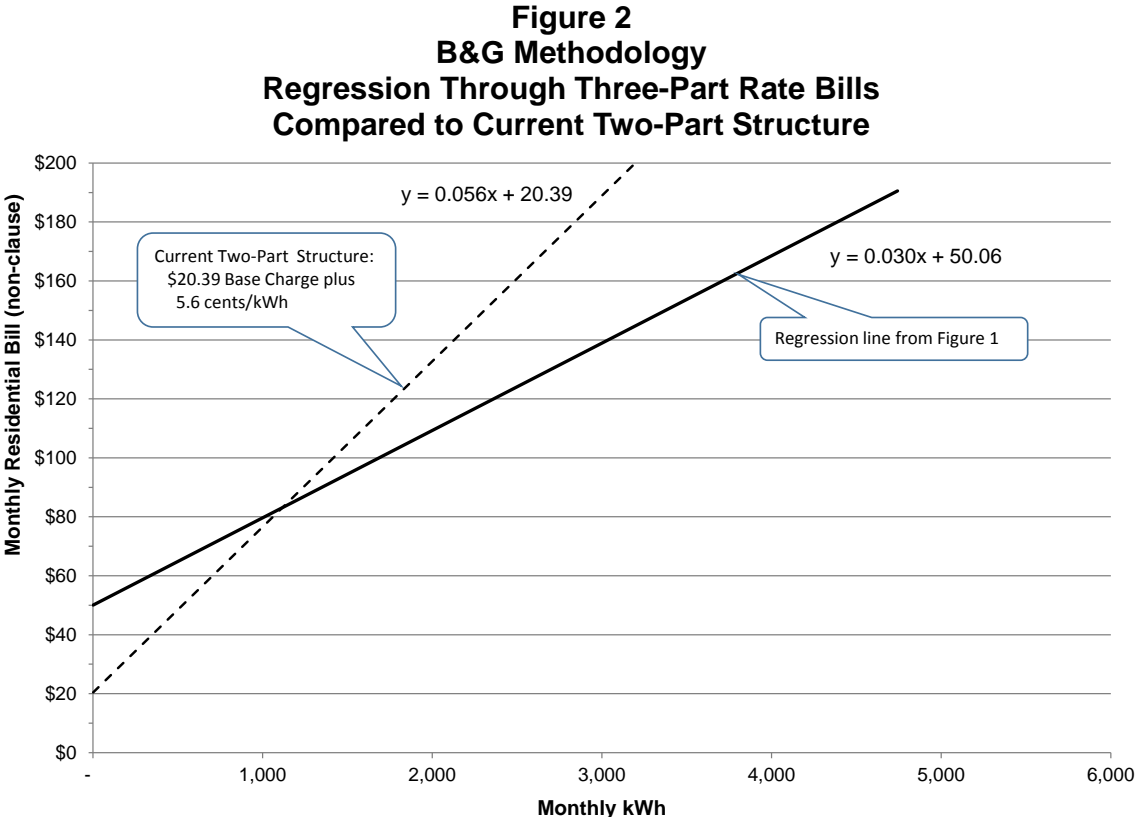
The B&G methodology breaks with tradition by allocating some demand-related costs to the fixed component of the residential two-part rate, but it is very much in line with traditional ratemaking principles, most notably, cost-causation.

Drs. Larry Blank and Doug Gegax published their methodology in an article in the April 2016 issue of *The Electricity Journal*, Volume 29, Issue 3, pages 42-47 entitled “An Enhanced Two-Part Tariff Methodology When Demand Charges Are Not Used” which can be accessed at (<http://www.sciencedirect.com/science/journal/10406190/29/3>). Dr. Douglas Gegax is a Professor of Economics at New Mexico State University (NMSU) College of Business and the Director of the Center for Public Utilities located at NMSU. Dr. Larry Blank is an Associate Professor of Economics at New Mexico State University College of Business and the Associate Director of the Center for Public Utilities.

Figure 1 below is an illustration of the B&G methodology using Gulf Power 2015 Load Research data. If residential customers were billed on a demand rate—a rate which appropriately aligns rates with costs—their monthly bills would look like the data points plotted in Figure 1. If, because we want to avoid the complexity of mandatory demand rates, we were to create a two-part rate for the residential class to approximate the revenue collected from that class under a demand rate, the best (least squares deviation) two-part rate would be the regression line shown in Figure 1. That regression line represents a two-part rate with an energy charge equal to the slope of the regression line and a base charge equal to the y-axis intercept.



As shown in Figure 2 below, where the traditional two-part rate structure (in which all demand-related costs are allocated to the energy charge) is compared to the regression line from Figure 1, there is a significant difference in the way revenue is collected using these two rate structures. Assuming the three-part rate is best because it appropriately aligns rates with costs and therefore the regression line also appropriately aligns rates with costs, we observe that, in general, high users are subsidizing low users under the current rate structure. We also note that the energy charge (slope of the line) is lower under the B&G methodology and the base charge (y-axis intercept) is higher.



Bill Comparison

Billing Determinants				Total ² Monthly Bill (\$)						
Energy ¹ (kWh)	Demand (kW) 10 th percentile	Demand (kW) 50 th percentile	Demand (kW) 90 th percentile	RS				RSD		
				Current Rates		Proposed Rates		Proposed Rates		
				Current Structure	Proposed Structure	Current Structure	Proposed Structure	Demand 10 th percentile	Demand 50 th percentile	Demand 90 th percentile
0	0.00	0.00	0.00	18.87	41.09	20.39	48.09	22.22	22.22	22.22
100	0.37	1.76	3.98	30.24	50.59	32.38	57.76	32.77	39.72	50.82
300	2.00	3.76	6.78	52.95	69.56	56.35	77.08	58.32	67.12	82.22
500	3.27	5.41	8.74	75.68	88.56	80.34	96.43	82.09	92.79	109.44
750	4.65	6.37	9.19	104.07	112.28	110.30	120.60	110.75	119.35	133.45
1000	4.98	7.09	10.10	132.46	136.00	140.27	144.76	134.15	144.70	159.75
1112	5.84	7.61	10.91	145.19	146.63	153.69	155.58	148.19	157.04	173.54
1250	6.06	7.96	11.21	160.86	159.73	170.25	168.94	161.32	170.82	187.07
1500	6.48	8.66	11.59	189.27	183.47	200.22	193.10	185.17	196.07	210.72
1750	7.19	9.40	13.36	217.66	207.19	230.18	217.27	210.48	221.53	241.33
2000	7.33	9.89	12.88	246.05	230.91	260.15	241.43	232.93	245.73	260.68

Note 1: Average monthly kWh in the 2017 test year is 1,112.

Note 2: Total Monthly Bill consists of Base Charge, Energy Charge, Clauses (2016 and 2017 proposed), and Demand Charge if applicable.

Florida Public Service Commission
 Docket No. 160186-EI
 GULF POWER COMPANY
 Witness: Robert L. McGee, Jr.
 Exhibit No. ___ (RLM-1)
 Schedule 6
 Page 1 of 1

Low Income Rider Credit

The new Low Income Rider credit is specifically designed to fully offset the incremental increase in the proposed higher base charge for qualifying low-income customers in occupied homes. The calculation showing this result is provided below.

Impact of Low Income Rider Credit		
Assumptions:		
Lowest monthly use for an occupied home	300	kWh
RS base charge - current structure	0.67	\$ per day
RS energy charge (base rate only) - current structure	5.619	cents per kWh
RS base charge - proposed structure	1.58	\$ per day
RS energy charge (base rate only) - proposed structure	3.298	cents per kWh
Clause rates energy charge	6.369	cents per kWh
Low Income Rider Credit	0.69	\$ per day
Number of days per month	30.4375	days
RS bill - current structure		
Base charge	\$20.39	
Energy charge	\$35.96	
Total	\$56.35	
RS bill - proposed structure		
Base charge	\$48.09	
Energy charge	\$29.00	
Sub-total	\$77.09	
Less Low Income Rider credit	(\$21.00)	
Total	\$56.09	
Difference	-\$0.26	