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I. Introduction

Q. Please state your name, position and business address.

A. My name is Forest Bradley-Wright. I am the Energy Efficiency Director for Southern Alliance for Clean Energy (“SACE”), and my business address is 3804 Middlebrook Pike, Knoxville, Tennessee.

Q. On whose behalf are you testifying in this proceeding?

A. I am testifying on behalf of SACE.

Q. Please summarize your qualifications and work experience.

A. I graduated from Tulane University in 2001 and in 2013 received my Master of Arts degree from Tulane in Latin America Studies with an emphasis on international development, sustainability, and natural resource planning.

My work experience in the energy sector began in 2001 at Shell International Exploration and Production Co., where I served as Sustainable Development Team Facilitator.

From 2005 to 2018, I worked for the Alliance for Affordable Energy. As the Senior Policy Director, I represented the organization through formal intervenor filings and before regulators at both the Louisiana Public Service Commission and the New Orleans City Council on issues such as integrated resource planning, energy-efficiency rulemaking and program design, rate cases, utility acquisition, power plant certifications, net metering, and utility scale renewables. As a consultant, I also prepared and filed intervenor comments on renewable energy dockets before the Mississippi and Alabama Public Service Commissions. In 2014, I was a runoff candidate for the Louisiana Public

1 Service Commission First District seat.

2 Since 2018, I have been the Energy Efficiency Director for SACE. My responsibilities
3 include leading dialogue with utilities and regulatory officials on issues related to energy
4 efficiency in resource planning, program design, budgets, and cost recovery. This
5 includes formal testimony, comments, presentations, and/or informal meetings in the
6 states of Georgia, Florida, North Carolina, South Carolina, Mississippi, and in
7 jurisdictions under the Tennessee Valley Authority.

8

9 A copy of my resume is included as Exhibit FBW-1.

10

11 **Q: Have you been an expert witness on energy-efficiency matters before regulatory**
12 **commissions?**

13 A: Yes, I have filed expert witness testimony in Georgia related to Georgia Power
14 Company's 2019 Demand Side Management application and in North Carolina related to
15 the Duke Energy Carolinas DSM/EE Recovery Rider. This is my first time submitting
16 testimony to the Florida Public Service Commission ("Commission").

17

18 **Q: Please summarize your testimony and key findings.**

19 A: I have reviewed the utility filings as they relate to evaluation of low-income efficiency
20 opportunities and came to the following conclusion:

- 21 • With a low-income population totaling more than 5 million individuals (36.8%) across
22 their combined service territories, and a prevalence of high energy burdens that cause
23 financial vulnerability, there is an enormous need for energy efficiency that matches the
24 unique characteristics of this important customer segment.

25

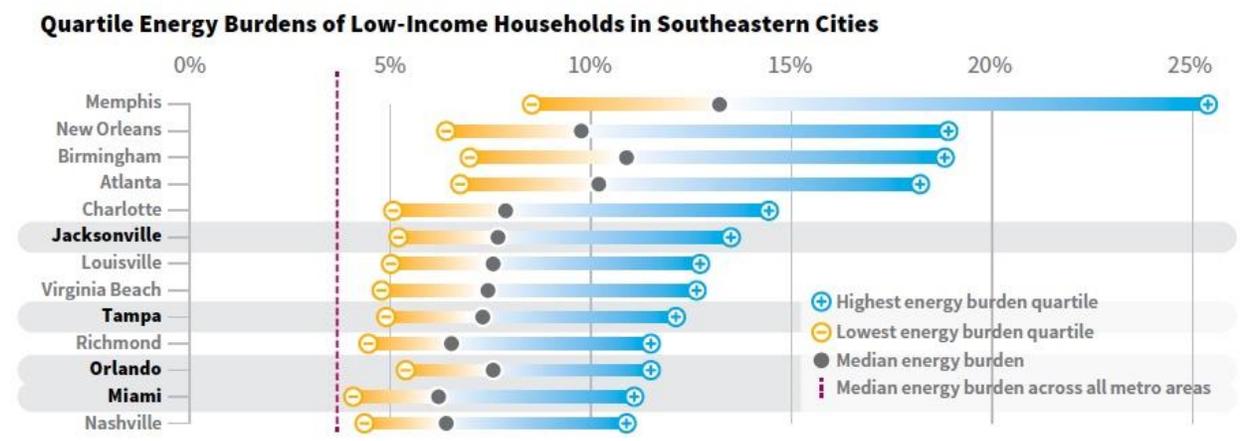
- 1 • Due to fundamental flaws in applicability of the Ratepayer Impact Measure (“RIM”) test
2 and the two-year screen, the Commission should establish evaluation standards for low-
3 income efficiency based primarily on the Total Resource Cost (“TRC”) test.
- 4 • I offer a methodology for calculating the low-income targets, provide specific savings
5 levels for each utility, and suggest they be incorporated into the overall savings goals set
6 by the Commission in this proceeding.
- 7 • I recommend the Commission set an expectation that all low-income customers will have
8 access to relevant efficiency programs going forward, through both neighborhood
9 deployment and deeper savings programs.

10
11 **II. Specific Energy Efficiency Targets Should Be Established For Serving Low-income**
12 **Customers**

13
14 **Q: Why is addressing energy burden for low-income customers an important**
15 **consideration for Commission action in this Florida Energy Efficiency Conservation**
16 **Act (“Energy Efficiency Act”) proceeding?**

17 A: For millions of Floridians living on limited income, paying the monthly energy bill
18 presents a significant financial challenge, one that can lead to difficult tradeoffs against
19 other essential needs. Research by the American Council for an Energy Efficient
20 Economy¹ shows that families with high energy burdens often struggle to move out of
21 poverty, may face increased economic hardship, and are at greater risk of negative health
22 effects related to respiratory diseases and increased stress. The National Association for
23 the Advancement of Colored People has recognized that advancing energy efficiency and
24 clean energy is essential to decreasing depending on harmful energy production practices
25 while preserving health and livelihoods of community members.²

1 **Figure 1. Quartile Energy Burdens of Low-Income Households in Southeastern Cities**



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9 **Low-income households in Florida cities in this study face high energy burdens. On average, half the low-income households in Jacksonville, Tampa, Orlando, and Miami have an energy burden greater than 7.2%, and a quarter of them, over 12%. The national average is 3.5%.**

10
11
12 Figure 1 above shows that total energy burdens (both household and transportation) in
13 major Florida cities are far above the threshold for unaffordability for households in the
14 top quintile.

15
16 According to U.S. Census data, more than 5 million people served by the utilities in this
17 proceeding live on incomes that are at or below 200% of the federal poverty levels, the
18 threshold used for determining eligibility for federally funded low income weatherization
19 assistance. In each of the utility service areas, this represents more than a third of the
20 population, ranging from 35% for Gulf Power Company (“Gulf”) to 43% for Orlando
21 Utilities Commission (“OUC”).

22
23 Table 1 below uses U.S. Census data to calculate the percentage of population in each
24 utility service territory that is at or below 200% of the federal poverty level.

Table 1. Service Territory Population At or Below 200% of the Federal Poverty Level ³

	Total Population	Population Below 200% Poverty Level	% Below 200% Poverty Level
Florida Power & Light	8,648,817	3,171,934	36.7%
Duke Energy Florida	3,099,509	1,158,262	37.4%
Tampa Electric	1,414,898	511,709	36.2%
Jacksonville Electric	777,039	289,477	37.3%
Gulf Power	524,860	183,894	35.0%
Orlando Utilities Comm.	169,278	73,238	43.3%
Total	14,634,402	5,388,514	36.8%

Energy efficiency is widely recognized as the best strategy for reducing high energy burdens. Its deployment should be scaled in both breadth and depth to truly and effectively improve conditions for the millions of families and individuals struggling to pay high monthly electric bills.

Q: How do energy efficiency programs address energy burden?

A: Utility energy efficiency programs that are designed to serve the unique needs of low-income customers address energy burdens at their root source. These programs strive to provide assistance to the neediest customers, like the elderly, disabled, struggling families, the working poor, and others for whom unaffordable energy bills can be the difference between their ability to make rent or afford medicine, food, or other

1 necessities.

2

3 Many low-income households reside in older homes, which are often poorly insulated,
4 have outdated appliances, and use heating and cooling systems that are less efficient.

5 During times of extreme hot or cold weather, these inefficient homes have much higher
6 energy bills, which can lead to difficult decisions between reducing or forgoing food or

7 medicine in order to pay energy costs, leaving the home at unhealthy temperatures, or

8 having their electricity service disconnected.⁴ According to a recent report by the Federal

9 Reserve, nearly 40 percent of Americans would struggle to cover an unexpected \$400

10 expense, such as a car repair or appliance replacement, and 12% wouldn't be able to pay

11 their current monthly bills,⁵ while others resort to high-interest short-term lending (e.g.

12 payday loans), which can lead to even greater financial risk.⁶

13

14 Energy efficiency improvements would substantially reduce energy bills for these

15 families, both in general and especially during periods of extreme hot or cold

16 temperatures. But without efficiency programs directed to serve low-income households,

17 the same financial constraints that make energy bills unaffordable will also make

18 efficiency improvements inaccessible, thus perpetuating a cycle of high electricity bills

19 and energy insecurity. In recognition of this, utility efficiency programs for low-income

20 customers typically provide the improvements for free, rather than covering just a portion

21 of the incremental cost like standard efficiency rebate offerings.

22

23 **Q: Has the Commission emphasized a need for utilities to provide energy efficiency to**
24 **low-income customers?**

25

1 A: The Commission made energy efficiency for low-income customers a key policy priority
2 in the 2014 Energy Efficiency Act target-setting proceeding. Support of energy
3 efficiency for low-income customers is a notable area of rare common interest between
4 Florida’s major utility companies and public interest advocates, like the Southern
5 Alliance for Clean Energy. I believe further growth and formalization of low-income
6 energy efficiency in this Energy Efficiency Act proceeding will be an important step
7 forward, one that will make a significant difference in the lives of those customers who
8 most need it.

9
10 In the 2014 Energy Efficiency Act final order, the Commission stated its concern for low-
11 income customers and the need for energy efficiency assistance.

12
13 “During the hearing, we voiced our concerns regarding how the FEECA Utilities’ goals-
14 setting analyses affected the low income customer base and questioned the FEECA
15 Utilities regarding the types of programs each utility marketed to their low income
16 customers.”⁷

17
18 Unfortunately, when the RIM test and two-year payback screen were applied, the most
19 affordable measures with some of the highest impacts had been removed from the target
20 setting process. This included measures that commonly make up low-income efficiency
21 program offerings. However, the Commission’s Order indicated that flexibility was
22 warranted when it came to incorporating measures with a short payback period, stating
23 generally:

24
25

1 “Using a two-year criterion to screen for potential free riders in the goals-setting stage is
2 not so rigid as to prevent low-cost measures from being included in carefully crafted
3 utility programs.”⁸

4
5 The Commission was even more specific with their guidance to utilities with regard to
6 addressing the two-year payback issue in their DSM implementation plans:

7
8 “When the FEECA Utilities file their DSM implementation plans, each plan should
9 address how the Utilities will assist and educate their low income customers, specifically
10 with respect to the measures with a two-year or less payback.”⁹

11
12 **Q: What actions has the Commission taken since to ensure this policy priority is**
13 **enacted?**

14 **A:** In responding to each utility’s 2015 DSM Plans, the Commission further reinforced and
15 specified their expectations regarding efficiency offerings for low-income customers.
16 Most significant was the Commission’s acceptance of measures and programs without
17 the RIM test and two-year payback screening requirements. The Commission addressed
18 each of these issues in their Order approving Tampa Electric Company’s (“TECO”) 2015
19 DSM Plan:

20
21 “In the goal-setting proceeding, we established a two-year payback methodology to
22 account for free riders, but that educational and low-income programs, including those
23 with measures with a less than two-year payback, were encouraged.”¹⁰

1 “The only programs in TECO’s DSM Plan to fail the RIM test were programs that target
2 eligible low-income ratepayers. These programs did pass the TRC test, and comply with
3 the requirements established in Order No. PSC-14-0696-FOF-EU, to assist and educate
4 low-income customers.”¹¹

5
6 In approving Florida Power & Light’s (“FPL”) 2015 DSM Plan, they again stated that the
7 utility’s low-income efficiency program had met the Commission’s requirements by
8 passing the TRC test, rather than the RIM test, and specifically noted inclusion of
9 measures for the low-income program without the two-year screen:

10
11 “The only program in FPL’s DSM Plan to fail the RIM test is the Residential Low
12 Income program, which targets eligible low income ratepayers for assistance with
13 weatherization, air conditioning, and water heating. The program does however pass the
14 TRC test, and complies with the requirements established in Order No. PSC-14-0696-
15 FOF-EU to assist and educate low-income customers.”¹²

16
17 “FPL has incorporated the two-year payback methodology into the design of its DSM
18 Plan, and only includes savings from measures with a less than two-year payback in its
19 residential low income program.”¹³

20
21 The Commission similarly approved the program plans for all Energy Efficiency Act
22 utilities that followed these guidelines.

23
24 **Q: Have the Utilities spoken to inclusion of low-income efficiency in their 2019 Energy**
25 **Efficiency Act applications?**

1 A: Yes, each utility has indicated their intention to continue offering specialized low-income
2 efficiency programs while including accommodations like those described above.

3
4 FPL stated in testimony that efficiency has been an important form of assistance for low-
5 income customers and indicated that addressing it is a requirement from the
6 Commission's 2014 Energy Efficiency Act target-setting Order. The Company went
7 further this time, requesting a specific target for low-income efficiency that is notable for
8 being approximately 34 times larger than the entire target they propose for all other
9 customers.

10
11 "As previously discussed, in the decades since FEECA was enacted, the marketplace has
12 evolved dramatically. While utility-provided incentives for traditional EE measures no
13 longer make sense because they are not cost-effective,¹⁴ they have been one of the
14 sources of assistance to low income customers. In recognition of these changes, FPL is
15 proposing to retain and expand its existing Low Income program. Although this program
16 is not cost-effective, FPL believes continuing to provide assistance to this vulnerable
17 group is appropriate and warranted to replace eliminated EE program options that will no
18 longer be available. This proposal is consistent with the Commission 2014 Goals docket
19 Order No. PSC-14-0696-FOF-EU, wherein the Commission recognized the importance
20 of supporting these customers. If approved, the estimated ten-year amounts of 14
21 Summer MW, 4 Winter MW and 34,000 MWh associated with this proposal should be
22 added to FPL's currently proposed 2020-2029 DSM Goals."¹⁵

23
24 TECO reiterated that there is additional flexibility for incorporating measures into low-
25 income programs, which they intend to continue:

1 “[TECO] is not limited to using any measures that could be utilized in a cost-effective
2 DSM Program. For example, the company is planning to retain its current weatherization
3 and energy education programs that include energy-efficiency kits which are made up of
4 both cost-effective and not cost-effective measures which focus on gaining participation
5 of low-income customers in the company’s DSM programs portfolio.”

6
7 OUC made a point of highlighting the higher than average level of households living in
8 poverty in their service territory. They describe the specific challenge these customers
9 face when attempting to access efficiency without specific utility programs. For
10 example, issues caused by use of the RIM test, which they note have “special weight” in
11 light of their low-income population.

12
13 “Approximately 40 percent of OUC’s residential customers have household incomes less
14 than \$35,000, which is approximately 1.4 times the federal poverty level for a family of
15 four.”¹⁶

16
17 “The fact that so many OUC residential customers are low-income and renters presents
18 challenges to the effective implementation of DSM measures and programs for OUC, and
19 particularly for this potential target population. Briefly, low-income customers simply do
20 not have the discretionary income to pay the customer’s cost to participate in a DSM
21 program, and renters have little if any control over such expenditures and investments by
22 their landlords.”¹⁷

1 “The negative RIM results for the 278 measures studied by Nexant have special weight
2 for OUC’s consideration because of the relatively high portions of low income customers
3 and renters we serve.”¹⁸

4
5 **Q: Should formal goals be established for each utility to delivering efficiency savings to**
6 **low-income customers?**

7 A: I strongly encourage the Commission to formalize targets for low-income efficiency as
8 part of this Energy Efficiency Act proceeding. Their scale of need is large, with more
9 than 5 million households (approximately 36.7%) in Energy Efficiency Act utility service
10 territories living on incomes that are at or below 200% of the federal poverty line - a
11 standard by which eligibility for low-income efficiency programs is commonly measured.
12 This need is even greater at a time when utilities are seeking to scale back standard
13 residential efficiency offerings, which are already less accessible to low-income
14 customers. As a matter of policy, further direction from the Commission on setting low-
15 income efficiency targets would bring additional clarity in evaluation standards,
16 consistency between utilities, and lead to greater savings impact for low-income
17 customers. As discussed later in this testimony, the superior performance results
18 achieved by some Energy Efficiency Act utilities demonstrate that substantially higher
19 savings attainment should be possible for their peers. By setting specific low-income
20 efficiency savings targets, the Commission can raise the bar to ensure all utilities deliver
21 optimal performance through their low-income efficiency programs.

22
23 **Q: Should the evaluation of DSM potential and the setting of overall efficiency savings**
24 **targets for each utility incorporate and reflect the low-income efficiency savings**
25 **goals?**

1 A: Yes, efficiency for low-income customers should be part of the broader efficiency
2 potential analysis required in this proceeding, and the results for low-income standard
3 efficiency offerings should be incorporated together into the total Energy Efficiency Act
4 savings targets authorized by this Commission. Later in this testimony, I discuss a
5 number of specific considerations that are needed for evaluating the low-income
6 efficiency potential upon which targets can be set.

7

8 **III. Formal Standards Are Needed for Evaluating Energy Efficiency Potential for Low-**
9 **income Customers**

10

11 **Q: Why is use of the RIM test problematic with evaluating low-income efficiency?**

12 A: The Commission has authorized utilities to proceed with low-income programs without a
13 requirement for passing RIM. I believe this is the right approach for several reasons.
14 In his testimony (relevant portions of which I summarize below), Mr. Grevatt raises a
15 number of significant concerns with use of the RIM test.

16

- 17 - RIM is not actually a test of cost-effectiveness, it indicates whether rates will be
18 impacted, which is at best an imperfect test of impact to non-participants.
- 19 - Lost revenues are not an added cost of energy efficiency.
- 20 - Potential rate impacts alone are not sufficient for regulatory decision-making, they
21 must be balanced with a consideration of benefits.
- 22 - Limiting measures only to those that pass RIM greatly constrains the savings targets
23 and reduces total financial benefit.
- 24 - No other state uses RIM as the sole or primary test.

25

1 Application of the RIM test is even more problematic when it comes to evaluating
2 efficiency for low-income customers. The central policy consideration emphasized by
3 the Commission in the previous Energy Efficiency Act cycle related to low-income
4 customers concerned the additional barriers (primarily financial) that limit their access to
5 efficiency and their vulnerability to high energy bills and rate increases.¹⁹ However, the
6 RIM test and the two-year screen, discussed below, caused many of the most common
7 and impactful measures for low-income customers to be cut. Most of the measures that
8 remained required significant up-front out-of-pocket expenditures that would likely be
9 out of reach for low-income customers.

10
11 In addition to limiting specific measures, screening with RIM results in much smaller
12 total budgets for energy efficiency than alternative screening methodologies. With less
13 investment, fewer customers are able to participate, further eroding low-income customer
14 access to efficiency. Without policy to ensure low-income efficiency programs are
15 provided at sufficient scale, customers with limited financial means would lose a critical
16 tool for controlling their energy costs and thereby remain vulnerable to the financial risk
17 of high energy bills.

18
19 I'm aware of no program that uses RIM for screening of low-income at the measure,
20 program, or portfolio level. As noted in the section above, since the 2014 Energy
21 Efficiency Act proceeding, the Commission and utilities do not require low-income
22 efficiency measures and programs to pass the RIM test.

23
24 **Q: Why is use of the Total Resource Cost Test the appropriate method for evaluating**
25 **low-income efficiency?**

1 A: For all the deficiencies of the RIM test noted above, there is clearly still a value in
2 screening low-income energy efficiency measures to ensure the investments will yield net
3 benefits. The Total Resource Cost test is the natural choice, since it is already statutorily
4 recognized²⁰ and its use is well established for this purpose.

5
6 The TRC test has several key advantages for screening low-income energy efficiency.
7 First, it is one of the most respected industry standard cost effectiveness tests for
8 evaluating energy efficiency.

9
10 Second, the utilities in this proceeding already calculated the TRC in their analysis of
11 technical, economic, and achievable potential, though Mr. Grevatt identified a number of
12 important technical issues. Third, the TRC can be applied effectively for screening
13 individual measures, setting savings goals, and developing programs. Fourth, analysis
14 with the TRC is not impacted by levels of utility incentives offered, meaning it can be
15 used to evaluate savings potential regardless of the portion of cost paid by the participant
16 or utility. Finally, use of the TRC test is the dominant method for evaluating cost
17 effectiveness for low-income energy efficiency across the country, imparting both
18 validity to its use and opportunities to learn from the practices employed in other
19 jurisdictions.²¹

20

21 **Q: Would use of the Participant Cost Test be a viable alternative?**

22 A: Use of the Participant Cost Test, while also statutorily recognized, would not be
23 appropriate as the primary test. Because low-income energy efficiency programs are
24 generally provided at no cost to customers, any measure that produces savings will
25 automatically pass, even if the cost of implementing the measure exceeds the value of its

1 energy savings potential. Moreover, just because something passes the Participant Cost
2 Test, low-income customers still may not be able to afford it.

3

4 **Q: Why is use of the two-year payback screen inconsistent with the energy efficiency**
5 **needs of low-income customers?**

6 A: As with RIM, there are a number of problems with the two-year screen that result in
7 double counting and suppression of targets based on assumptions that are at odds with
8 existing conditions and customer decision-making practices. The effect the two-year
9 screen has on reducing portfolio level savings for standard energy efficiency measures is
10 significant. But the problems with use of the two-year payback screen are even more
11 problematic when considering low-income efficiency because the free ridership
12 assumptions underpinning the screen simply do not apply to this group of customers.

13

14 As noted in Mr. Grevatt's testimony, the leading issue is that naturally occurring energy
15 efficiency adoption is already factored into the Nexant technical potential analysis,
16 thereby accounting for free ridership prior to application of the two-year payback screen.
17 This includes accounting for future government codes and standards, and identifies
18 customers who will purchase products that exceed those requirements without utility
19 efficiency programs. Because Nexant already accounted for free ridership at the
20 technical potential level, "the two-year payback screen is a redundant adjustment for free
21 riders that artificially makes cost-effective potential appear to be lower than it really is."²²

22

23 Mr. Grevatt also points out that no empirical evidence has been shown to validate the
24 claim that measures with payback shorter than two years are routinely implemented
25 across the customer base without utility incentive programs.²³ Mr. Grevatt additionally

1 identifies a number of market barriers in his testimony that can prevent customers from
2 adopting efficiency measures, including those with payback of two years or less.²⁴

3
4 For low-income customers, their financial constraints and housing conditions
5 significantly reduce their ability to purchase higher efficiency measures in the absence of
6 utility programs. For this reason, free ridership for low-income energy efficiency
7 programs is reasonably assumed to be zero or near-zero.

8
9 **Q: How do the measure screening results of the RIM test and two-year payback screen**
10 **compare to the measures used in utility low-income EE programs?**

11 A: The RIM and two-year payback screen have a profound impact on measure selection.
12 Four utilities – FPL, Gulf, OUC, and JEA – use these screening tests to eliminate literally
13 every single residential measure, including all measures included in their respective low-
14 income efficiency programs. By contrast, after applying the RIM and two-year screen
15 both TECO and DEF retain an array of residential measures including several that are
16 part of their low-income efficiency programs. As noted above, the Commission has
17 authorized utilities to deploy low-income efficiency programs regardless of whether they
18 pass the RIM and two-year screen. However, the utilities’ own analysis clearly shows
19 that the RIM and two-year screen are deeply and fundamentally flawed as tools for
20 evaluating low-income efficiency potential.

21
22 **Q: How do the measures screening results of the TRC test compare to the measures**
23 **used in utility low-income energy efficiency programs?**

24 A: As with the RIM and two-year screen analysis discussed above, significant
25 inconsistencies exist between the various utilities with regard to TRC screening.

1 However, in contrast to RIM and the two-year screen, at least a portion of the differences
2 in TRC analysis between utilities appear to be related to fairly discrete issues that can be
3 corrected by addressing specific input assumptions and calculation methodologies.

4
5 When low-income efficiency potential is analyzed using the TRC with the two-year
6 payback screen removed, the list of measures for most utilities looks far more applicable.

7
8 For instance, separate from any other screening factors, all of the following residential
9 measures pass TRC for Duke Energy Florida (“Duke”). In this list, the starred items
10 appear to generally align with the measures included in Duke’s two low-income
11 efficiency programs. The first group of measures, in purple, pass TRC, RIM, and the
12 two-year screen in Duke’s analysis. The second group of measures, in green, pass both
13 TRC and the two-year payback screen, but not RIM. The third group of measures, in
14 blue, would have also been removed by the two-year screen. Notably, CFL and LED
15 lights, faucet aerators, low flow showerheads, hot water pipe insulation, and water heater
16 temperature setbacks are all standard components of Duke’s largest and most impactful
17 low-income efficiency program, the Neighborhood Energy Saver, but would have been
18 removed by the two-year payback screen.

19
20 **Duke Residential TRC Economic Potential (“EP”):**

- 21 • * 14 SEER ASHP from base electric resistance heating
- 22 • * 15 SEER Air Source Heat Pump (only for single family homes)
- 23 • 15 SEER Central AC (only for single family homes)
- 24 • * 16 SEER Central AC (only for single family homes)
- 25 • * Air Sealing-Infiltration Control (only for existing homes)

- 1 ● * Ceiling Insulation (R12 to R38)
- 2 ● * Ceiling Insulation (R19 to R38) (only for single family homes)
- 3 ● * Ceiling Insulation (R2 to R38)
- 4 ● * Duct Repair (only for existing homes)
- 5 ● Energy Star Windows (only for existing homes)
- 6 ● Home Energy Management System
- 7 ● Spray Foam Insulation (Base R2) (only for single family homes)
- 8 ● Wall Insulation (only for existing single family and manufactured homes)
- 9 ● Thermostatic Shower Restriction Valve
- 10 ● Two Speed Pool Pump
- 11 ● Variable Speed Pool Pump
- 12 ● * LED Specialty Lamps – 5W Chandelier
- 13 ● * LED – 9W Flood
- 14 ● * CFL – 13W
- 15 ● High Efficiency Induction Cooktop
- 16 ● Energy Star Clothes Washer
- 17 ● ENERGY STAR Room AC
- 18 ● * CFL – 15W Flood (Exterior)
- 19 ● * CFL - 23W
- 20 ● * LED – 14W
- 21 ● * LED – 9W Flood (Exterior)
- 22 ● * LED – 9W
- 23 ● * Linear LED
- 24 ● * Low Wattage T8 Fixture
- 25 ● Energy Star Dehumidifier

- 1 • Heat Pump Pool Heater
- 2 • Removal of 2nd Refrigerator-Freezer
- 3 • * Faucet Aerator
- 4 • * Hot Water Pipe Insulation
- 5 • * Low Flow Showerhead
- 6 • * Water Heater Thermostat Setback
- 7 • Smart Power Strip

8

9 Using the same delineations and color coding, significant differences can be seen in FPL's

10 screening breakdown, but the general point is the same that RIM and the two-year screen

11 must be removed to produce common low-income efficiency measures, including those

12 offered by FPL. One more category has been added to this list in red, indicating measures

13 that FPL additionally removed using an administrative cost screen on top of the RIM and

14 two-year payback screen. It is notable that many measures that are included in Duke and

15 TECO's existing low-income programs are not currently offered by FPL, so those measures

16 are not starred.

- 17
- 18 • No residential measures pass RIM in FPL's analysis
 - 19 • Ceiling Insulation (R2 to R38)
 - 20 • ENERGY STAR Certified Roof Products
 - 21 • 14 SEER ASHP from base electric resistance heating
 - 22 • * Duct Repair (only for existing multi-family and manufactured homes)
 - 23 • Smart Thermostat (EE only) (only for new single family homes)
 - 24 • Two Speed Pool Pump
 - 25 • ENERGY STAR Air Purifier

- 1 • ENERGY STAR Clothes Washer
- 2 • Removal of 2nd Refrigerator/Freezer
- 3 • ENERGY STAR Certified Roof Products
- 4 • * Duct Repair (only for existing single family homes)
- 5 • ENERGY STAR Dehumidifer
- 6 • ENERGY STAR Room AC
- 7 • Programmable Thermostat (only for new single family homes)
- 8 • Heat Pump Pool Heater
- 9 • * Low Flow Showerhead (only for multi-family and single family homes)
- 10 • ENERGY STAR Dishwasher
- 11 • ENERGY STAR Imaging Equipment
- 12 • Programmable Thermostat (only for new multi-family and manufactured homes)
- 13 • CFL – 23W
- 14 • CFL – 15W Flood (Exterior)
- 15 • LED – 14W
- 16 • LED – 9W
- 17 • LED – 9W Flood (exterior)
- 18 • Linear LED
- 19 • Low Wattage T8 Fixture (Bulb)
- 20 • * Faucet Aerator (all homes except for new manufactured homes)
- 21 • * Hot Water Pipe Insulation
- 22 • * Low Flow Showerhead (only for manufactured homes)
- 23 • Water Heater Thermostat Setback
- 24
- 25 **Q: Are there issues with the administrative cost screen?**

1 A: The primary problem with the administrative cost test is that FPL appears to assign
2 highly unreasonable administrative costs to some of their residential measures; so even
3 the most cost effective and fastest payback measures are removed. For instance, the
4 administrative cost assigned to a CFL lightbulb is \$29. The same \$29 is added to the cost
5 of a single faucet aerator.²⁵ These costs are indefensible for any reasonable delivery
6 mechanism and suggest a heightened level of scrutiny is warranted on administrative
7 costs in these analyses going forward.

8
9 Mr. Grevatt provides context using administrative costs in other jurisdictions and adds
10 additional detail to the problem with the administrative cost test in his testimony.

11
12 **Q: Are there other factors in the utility modeling that would lead to overly-conservative**
13 **estimates of low-income potential?**

14 A: Because low-income free ridership is zero or near-zero, use of standard baselines likely
15 underestimates actual savings by a considerable degree. Additionally, deeper efficiency
16 programs for low-income customers can include early replacement for large energy using
17 equipment such as heating, air conditioning, water heaters, and refrigerators, but the
18 analysis in this proceeding appears not to appropriately capture this savings potential.
19 Additional instances of unreasonably high administrative costs could not be fully
20 reviewed prior to filing this testimony and reflect another factor that could result in a
21 potentially large underestimation of actual low-income efficiency savings potential.

22

23 **IV. Calculation of Specific Low-income Energy Efficiency Targets for Each Utility**

24

25

1 **Q: What methodology do you propose be used to evaluate low-income energy efficiency**
2 **savings potential as part of the Energy Efficiency Act goal setting process?**

3 A: I propose starting with the residential portion of each utility's achievable TRC potential,
4 with the following three adjustments described in Mr. Grevatt's testimony:

- 5
- 6 - Remove the two-year payback screen.
 - 7 - Add the 14 SEER Air Source Heat Pump from base electric resistance heating²⁶ (FPL
8 only).²⁷
 - 9 - Reduce Economic Potential by 50% to determine Achievable Potential.
- 10

11 This corrected Achievable Potential is then multiplied by the percentage of population for
12 each utility that is at or below 200% of the federal poverty level. This provides the total 10
13 year efficiency savings potential for low-income customers.

14

15 **Q: What are the total residential Achievable Potential savings used for these**
16 **calculations?**

17

18 Table 2 below has the residential Achievable Potential savings from Mr. Grevatt's
19 testimony used for calculating the low-income efficiency targets below. These figures
20 were drawn from Exhibit JMG-2 and FPL's were additionally adjusted to reflect the
21 addition of SEER 14 ASHP as per Grevatt Testimony Table 4.

22

23

24

25

Table 2. Residential Achievable Potential Savings from Grevatt Testimony

	10-Year Total	Summer Peak (MW)	Winter Peak (MW)
FPL	1,077 GWh	337	187
Duke	1,530 GWh	663	303
TECO	323 GWh	64	51
Gulf	381 GWh	83	79
OUC	155 GWh	37	19
JEA	336 GWh	80	49

Q: What is the low-income energy efficiency savings potential for each Energy Efficiency Act utility?

Table 3 below identifies the energy saving potential for each utility’s low-income customers for 2020-2029.

Table 3. Energy Saving Potential for Utilities’ Low-Income Customers (2020-2029)

	10-Year Total	Summer Peak MW	Winter Peak MW
FPL	395 GWh	124 MW	69 MW
Duke	572 GWh	248 MW	113 MW
TECO	117 GWh	23 MW	18 MW
Gulf	133 GWh	29 MW	28 MW
OUC	67 GWh	16 MW	8 MW
JEA	125GWh	30 MW	18 MW

1 **Q: How does the actual performance of Energy Efficiency Act utilities from 2015-2018**
2 **compare to these targets?**

3 A: A wide disparity can be seen between the low-income efficiency program performances
4 of these utilities since the start of the past Energy Efficiency Act cycle.

5
6 By a large degree, the top performers have been TECO, Duke, and Gulf. They have
7 served vastly more households and delivered far more energy savings, both in absolute
8 terms and in proportion to their relative size. Truly these utilities are to be commended
9 for the difference they are making in their communities and clearly they set the standard
10 by which the performance of the other utilities in Florida should be evaluated. However,
11 even these utilities have significant room for improvement.

12
13 FPL and OUC had by far the worst performance in both absolute and proportionate
14 terms. Adjusted for their respective total residential customer counts, Duke and Gulf
15 both delivered more than 20 times the low-income energy savings of FPL and OUC –
16 while TECO delivered nearly 50 times the savings of these lowest performing utilities.
17 Notably OUC dramatically reduced their kWh savings from its high point in 2015, down
18 to serving just 6 customers with their low-income program in 2018.

19
20 Table 4 below is a comparison between the average annual low-income efficiency targets
21 I recommend for years 2020-2029 and the actual four-year average low-income program
22 performance of each utility from 2015 – 2019, as reported annually by the utilities to this
23 Commission.

24
25

**Table 4. Recommended Average Annual Low-Income Efficiency Targets (2020-2029)
 Compared to Actual Four-Year Average Low-Income Program Performance**

	2020-2029 Ave Annual Target (GWh)	2015-2018 Ave Annual Performance (GWh)
FPL	39.5	0.9
Duke	57.2	7.9
TECO	11.7	7.5
Gulf	13.3	1.9
OUC	6.7	0.05
JEA	12.5	1.1

Q: How do these proposed targets for FPL compare to the company’s historic levels and their 2020-2029 proposed low-income target?

A: FPL has poverty levels that are similar to their peers in percentage terms (36.7%), but far larger in absolute terms (over 3 million). By contrast, as noted above, their historic performance (5,989 customers served) has lagged far behind their two next largest peers in Florida, Duke (22.9 times higher kWh saved, 65,284 customers served)²⁸ and TECO (51.6 times higher kWh saved, 27,346 customers served).²⁹ Their proposed low-income savings target, averaged over the next ten years, is just 3.8 times higher than their 2015-2018 performance, which would still lag behind the actual performance by Duke (6 times higher) and TECO (13.6 times higher) over the past four years. To their credit, FPL was the only utility to request Commission approval for a specific low-income efficiency target. Unfortunately, what they proposed falls far below what their peers have already accomplished and even farther below the target I recommend.

1 **SECTION V: ADDITIONAL COMMISSION GUIDANCE FOR PROGRAM PLANNING**

2

3 **Q: Could additional Commission direction to the utilities prior to their development of**
4 **DSM Plans lead to deeper savings, improved access for eligible customers, and**
5 **increased overall savings achieved?**

6 A: Yes. Direction from the Commission provides the utilities, intervenor parties, and the
7 public with clarity on the Commission policy goals and expectations. In the last
8 proceeding, Commission guidance focused Energy Efficiency Act utilities on deploying
9 energy efficiency programs for low-income customers, while affording them the
10 flexibility to offer some of the most impactful measures that otherwise would have been
11 screened out by the RIM test and two-year payback screen.

12

13 In this Energy Efficiency Act proceeding, I have recommended that the Commission
14 specify the TRC test as the standard for evaluating low-income efficiency potential and
15 formalize targets for each utility. I also believe there are two additional subjects that
16 warrant Commission guidance as part of its decision-making in this proceeding.

17

18 **Q: Please describe your first recommendation for each utility to offer distinct delivery**
19 **channels for far-reaching and deeper-savings efficiency programs.**

20 A: I recommend the Commission direct each of the FEECA the utilities to offer two distinct
21 delivery channels for efficiency programs.

22

23 One program delivery channel should aim to reach large numbers of customers quickly
24 and at relatively low cost. These neighborhood-style programs have a valuable role in
25 serving large numbers of low-income customers relatively inexpensively.

1 But the level of savings that come from a handful of minor efficiency measures do not, in
2 of themselves, reduce bills enough to significantly eliminate high energy burdens.

3 Lighting, faucet aerators, and minor air sealing projects are common features of Florida
4 utility programs targeting customers in low-income neighborhoods; but larger scale
5 improvements like HVAC equipment replacement, insulation, water heaters, and
6 appliances upgrades, and comprehensive air sealing for ductwork and building envelopes
7 do more to address the root causes of high energy burdens by eliminating significantly
8 more energy waste and therefore substantially reduce monthly energy bills.

9 Therefore, the other program delivery channel should strive to capture deep savings for
10 each participant, sufficient to reduce electric bills enough to materially improve the
11 financial standing of the low-income customers served every month for many years to
12 follow.

13
14 Duke, TECO, and FPL each offer both of these delivery channels, albeit there is currently
15 a wide chasm between these utilities in both program performance and transparency.³⁰
16 Gulf and JEA each have only broad-based neighborhood-style programs, while OUC has
17 historically just offered a deeper savings program. By offering both types of programs,
18 the utilities should be able to reach relatively large portions of their low-income
19 customers within a short number of years. The reach of these programs can be quite
20 impressive within a few years. From 2015-2018, Duke reached 15% of eligible
21 customers,³¹ while TECO reached 23.4%.³²

22
23 While the deeper-savings program could have its own intake system, the broad-based
24 neighborhood-style programs could also help identify candidate customers while in the
25 field, thereby leveraging administrative resources and helping identify otherwise hard to

1 reach customers that are in great need. Struggling families, the elderly, disabled
2 individuals, veterans, and otherwise hard to reach customers who are in need could all
3 benefit from this kind of pro-active outreach and deep savings projects. Separate tracking
4 and reporting on program performance for both the neighborhood-style program and the
5 deeper savings program should be standard practice going forward. TECO and Duke
6 already do this in their annual efficiency reporting to the Commission.

7
8 **Q: Please describe your second recommendation for each utility to ensure participation**
9 **opportunities for residents across all categories of housing.**

10 A: My second recommendation is to direct the utilities to provide meaningful program
11 participation opportunities for customers in all types of housing, including small and
12 large multifamily housing, manufactured homes and renters, as well as single-family
13 owner-occupied homes. Table 5 below shows the relative proportion of each housing
14 type by utility service territory. Exhibit FBW-5 also shows geographically where in the
15 state manufactured homes are located. Different housing types, physical conditions,
16 location and whether a customer owns or rents are all factors that should inform low-
17 income efficiency offerings and all low-income customer have the opportunity to
18 participate. For some utilities, many low-income customers are excluded from
19 participation because they live in a housing type that the utility does not serve, like multi-
20 family and manufactured homes in FPL's service territory.³³

Table 5. Relative Proportion of Housing Type by Utility Service Territory ³⁴

Residential Housing Stock	DEF	FPL	GPC	JEA	OUC	TECO
Single Family	65.1%	58.5%	68.2%	65.7%	50.4%	63.6%
Small/Medium Multifamily	16.3%	18.7%	15.4%	20.5%	31.3%	19.3%
Large Multifamily	7.7%	17.4%	6.9%	8.7%	16.3%	8.2%
Manufactured	10.8%	5.4%	9.3%	5.1%	1.9%	8.7%
Estimated # of Units	1,420,331	3,842,475	247,773	343,443	78,700	606,805

Q: Why should this guidance be given during this proceeding, rather than after the utilities file their 2020 DSM Plans?

A: Making these priorities known to the utilities prior to developing their DSM Plans will lead to better outcomes for all low-income customers and provide the utilities with assurances that developing such programs will be supported by the Commission. Ultimately, this should lead to greater certainty and consistency among the utilities, greater access to program participation for low-income customers, and deeper savings for the customers who most need it – all while increasing overall savings impact for low-income customers, which is a goal all parties to this proceeding should be able to get behind.

Q: Does this conclude your testimony?

A. Yes, it does.

¹ American Council for an Energy Efficient Economy (“ACEEE”), 2016 “Lifting the High Energy Burden in America’s Largest Cities.” <https://aceee.org/research-report/u1602>, Exhibit FBW-2.

² National Association for the Advancement of Colored People (“NAACP”) 2017 “Just Energy Policies: Model Energy Policies Guide.” https://www.naacp.org/wp-content/uploads/2014/03/Just-Energy-Policies_Model-Energy-Policies-Guide_NAACP.pdf, Exhibit FBW-3.

³ U.S. Census Bureau, 2013-2017 American Community Survey (ACS) 5-Year Estimates Tables S1701 Poverty Status in the Past 12 Months; B25033 Total Population in Occupied Housing Units by Tenure by Units in Structure; S0103 Population 65 Years; B25127 Tenure by Year Structure Built by Units in Structure via American Fact Finder: <https://factfinder.census.gov>.

⁴ U.S. Energy Information Administration, Household Energy Insecurity, released October 2017, revised May 2018: <https://www.eia.gov/consumption/residential/data/2015/hc/php/hc11.1.php>

⁵ Board of Governors of the Federal Reserve System, “Report on the Economic Well-Being of U.S. Households in 2018.” 2019 <https://www.federalreserve.gov/publications/files/2018-report-economic-well-being-us-households-201905.pdf>, Exhibit FBW-4.

⁶ Center for Financial Services Innovation.2012. “A Complex Portrait: An Examination of Small-Dollar Credit Consumers.”

www.fdic.gov/news/conferences/consumersymposium/2012/a%20complex%20portrait.pdf.

⁷ Florida Public Service Commission, Order No. PSC-14-0696-FOF-EU, issued December 16, 2014 in Docket Nos. 130199-EI, 130200-EI, 130201-EI, 130202-EI, 130203-EM, 130204-EM, 130205-EI, at p. 27.

⁸ *Id.*

⁹ *Id.*

¹⁰ Florida Public Service Commission, Order No. PSC-15-0323-PAA-EG, issued August 11, 2015 in Docket No. 150081-EG, at p. 9.

¹¹ *Id.* at 6.

¹² Florida Public Service Commission, Order No. PSC-15-0331-PAA-EG, August 19, 2015 in Docket No. 150085-EG, at p. 6.

¹³ *Id.*

¹⁴ FPL appears to assert here that efficiency programs are not cost-effective without a RIM score greater than 1.0, a subject discussed in greater detail further in my testimony.

¹⁵ Testimony of Tom Koch on behalf of Florida Power & Light, at 37, April 12, 2019.

¹⁶ Testimony of Kevin Noonan on behalf of OUC, at 11, April 12, 2019.

¹⁷ *Id.* at 12.

¹⁸ *Id.* at 29.

¹⁹ Florida Public Service Commission, Order No. PSC-14-0696-FOF-EU, issued December 16, 2014 in Docket Nos. 130199-EI, 130200-EI, 130201-EI, 130202-EI, 130203-EM, 130204-EM, 130205-EI, at p. 27.

²⁰ *Id.* at 22; *see also* section 366.82(3)(b), Fla. Stat.

²¹ ACEEE “State-Level Strategies for Tackling High Energy Burdens: A Review of Policies Extending State- and Ratepayer-Funded Energy Efficiency to Low-Income Households” 2018. https://aceee.org/files/proceedings/2018/node_modules/pdfjs-dist-viewer-min/build/minified/web/viewer.html?file=../../../../../assets/attachments/0194_0286_000404.pdf#search=%22drehob1%22, Exhibit FBW-6.

²² Testimony of Jim Grevatt on behalf of Southern Alliance for Clean Energy, at 17, June 10, 2019.

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.* at 32.

²⁶ *Id.* at 29-31.

²⁷ TECO’s economic potential analysis also contains the same issue, but I have not corrected for it in the following calculations.

²⁸ Duke Energy Florida Demand Side Management Annual Report for 2018. Filed March 1, 2019, Exhibit FBW-7.

²⁹ TECO Demand Side Management Annual Report for 2018. Filed March 1, 2019, Exhibit FBW-8.

³⁰ Note: As noted above, DEF and TECO’s performance greatly exceeds FPL and FPL does provide disaggregated data on their two delivery channels, while both DEF and TECO do.

³¹ Duke Energy Florida Demand Side Management Annual Report for 2018. Filed March 1, 2019 (NOTE: this is counting only Duke’s Neighborhood Energy Savers program. There are additional participants in Dukes Low Income Weatherization program that are not include here), Exhibit FBW-7.

³² TECO Energy Florida Demand Side Management Annual Report for 2018. Filed March 1, 2019, Exhibit FBW-8.

³³ Florida Public Service Commission, Order No. PSC-15-0331-PAA-EG, issued August 19, 2015 in Docket No. 150085-EG, at p. 3.

³⁴ U.S. Census Bureau, 2013-2017 ACS 5-year Public Use Microdata Samples (PUMS) Florida Housing Units Records (January 17, 2019), https://www2.census.gov/programs-surveys/acs/data/pums/2017/5-Year/csv_hfl.zip; 2013-2017 ACS 5-year Estimates Table B25024 Units in Structure via American Fact Finder <https://factfinder.census.gov> ; *see also* Platts Electric Power Data, Electric Utility Service Territories, U.S. Census Bureau, ACS 5-Year Census Tract Estimates Units in Structure.