

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

In the Matter of:

**ELECTRONIC APPLICATION OF KENTUCKY)
POWER COMPANY FOR: (1) APPROVAL TO)
EXPAND ITS TARGETED ENERGY)
EFFICIENCY PROGRAM; (2) APPROVAL OF A)
HOME ENERGY IMPROVEMENT PROGRAM)
AND A COMMERCIAL ENERGY SOLUTIONS)
PROGRAM; (3) AUTHORITY TO RECOVER)
COSTS AND NET LOST REVENUES, AND TO)
RECEIVE INCENTIVES ASSOCIATED WITH)
THE IMPLEMENTATION OF ITS DEMAND-)
SIDE MANAGEMENT/ENERGY EFFICIENCY)
PROGRAMS; (4) APPROVAL OF REVISED)
TARIFF D.S.M.C.; (5) ACCEPTANCE OF ITS)
ANNUAL DSM STATUS REPORT; AND (6) ALL)
OTHER REQUIRED APPROVALS AND RELIEF)**

Case No. 2024-00115

TESTIMONY OF BRADLEY G. HARRIS

**ON BEHALF OF JOINT INTERVENORS MOUNTAIN ASSOCIATION,
APPALACHIAN CITIZENS' LAW CENTER,
KENTUCKIANS FOR THE COMMONWEALTH, AND
KENTUCKY SOLAR ENERGY SOCIETY**

August 21, 2024

**DIRECT TESTIMONY OF BRADLEY G. HARRIS
ON BEHALF OF JOINT INTERVENORS
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Table of Exhibits

1. Exhibit BGH-1 – Bradley Harris Resume
2. Exhibit BGH-2 – Duke Energy Progress, LLC’s Proposed Residential Tariffed On-Bill Program Tariff – Electric Customer Monthly Charge
3. Exhibit BGH-3 – Tariffed On-Bill Overview Presentation for Smart Electric Power Alliance
4. Exhibit BGH-4 – Duke Energy Progress, LLC’s Proposed Multi-Family New Construction Tariffed On-Bill Pilot
5. Exhibit BGH-5 – Ameren Missouri’s Revised Appendix A to their Missouri Energy Efficiency Investment Act (“MEEIA”) 2025-27 Plan

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Bradley G. Harris, and my business address is 3401 38th St. NW, Apt 121,
4 Washington DC, 20016.

5 **Q. BY WHOM ARE YOU EMPLOYED, AND IN WHAT CAPACITY, FOR THE**
6 **PURPOSES OF THIS PROCEEDING?**

7 A. I am providing comments and testimony on behalf of the Joint Intervenors, Mountain
8 Association, Appalachian Citizens' Law Center, Kentuckians for the Commonwealth, and
9 Kentucky Solar Energy Society, who have retained me as an independent contractor for this
10 proceeding.

11 **II. BACKGROUND**

12 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**
13 **PROFESSIONAL QUALIFICATIONS.**

14 A. I received a Bachelor's Degree in Political Science and Economics from Tufts University, a
15 Masters in Business Administration from the University of North Carolina Kenan-Flagler
16 School of Business, and a Masters Degree of Public Policy from Duke University's Sanford
17 School of Public Policy.

18 Previously, I worked for Duke Energy as a Rates and Regulatory Strategy Manager, where I
19 was responsible for several strategic initiatives related to pricing, demand-side management
20 ("DSM") programs, and various other types of customer programs from 2019 to January
21 2024. Highlights of my work include leading several aspects of the Company's

1 Comprehensive Rate Design Study in the Carolinas, net metering changes, and the creation
2 of a new low-income bill assistance program.

3 Since 2020, I have been a regular guest lecturer at the University of North Carolina Kenan-
4 Flagler Business School, where I teach about ratemaking, cost of service, rate design, and the
5 fundamentals of utility “grid edge” programs such as energy efficiency (“EE”), demand
6 response, and virtual power plants. A copy of my resume is attached as Exhibit BGH-1.

7 **Q. PLEASE DESCRIBE YOUR EXPERIENCE WITH INCLUSIVE UTILITY**
8 **INVESTMENT PROGRAMS.**

9 A. I co-led the Duke Energy stakeholder working group developing a Tariffed On-Bill (“TOB”)
10 program, which is now widely referred to as an Inclusive Utility Investment (“IUI”) program.
11 The working group culminated in filings with the North Carolina Utility Commission for two
12 IUI programs, a full program for retrofits and a pilot for new construction. I led the modeling
13 underpinning the retrofit program, as well as much of the stakeholder engagement and
14 drafting of the applications. Both programs have since been approved by the North Carolina
15 Utilities Commission.¹

16 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS OR ANY COMMISSION?**

17 A. I have not previously testified before the Kentucky Public Service Commission. I have
18 testified, on behalf of Duke Energy, in front of the North Carolina Utilities Commission and
19 the Public Service Commission of South Carolina.

¹ Order, *Application by Duke Energy Progress, LLC, for Approval of Residential Tariffed On-Bill Program* and *Application by Duke Energy Carolinas, LLC, for Approval of Residential Tariffed On-Bill Program* North Carolina Utilities Commission, Dockets No. E-2, Sub 1309; E-7, Sub 1279 (Aug. 23, 2023), <https://starw1.ncuc.gov/NCUC/ViewFile.aspx?Id=c1010fb1-05a9-4c60-a4a7-4a2d3a38e465>.

1 **III. PURPOSE OF TESTIMONY**

2 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

3 A. My testimony explains how an IUI program could benefit an Investor-Owned Utility
4 (“IOU”), program participants, and non-participating customers. I will discuss (1) how an
5 IUI program can work, (2) suggest three possible uses for an IUI program with evidence
6 from other IOUs, and (3) address Kentucky Power Company’s previously stated concerns
7 about an IUI program.

8 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS FOR THE KENTUCKY**
9 **PUBLIC SERVICE COMMISSION.**

10 A. I recommend that the Kentucky Public Service Commission require Kentucky Power to
11 convene an IUI working group to develop and file for approval of an IUI program by no later
12 than twelve months following the conclusion of this proceeding. If the working group cannot
13 reach a consensus, then Kentucky Power Company must file a report describing, at
14 minimum, the following:

- 15 • Points of agreement among participating groups in the working group;
- 16 • Remaining points of contention among participating groups in the working group;
- 17 • Pro-forma financials of proposed IUI programs specific to Kentucky Power
18 Company's service territory discussed by the working group; and
- 19 • Any alternative proposed programs that may serve to solve similar challenges that IUI
20 programs attempt to address.

21 **Q. ARE YOU SPONSORING ANY EXHIBITS TO YOUR TESTIMONY?**

22 A. Yes. I have prepared the following exhibits:

- 23 • Exhibit BGH-1 – a copy of my resume.

- 1 • Exhibit BGH-2 –Duke Energy Progress’s Application to the North Carolina Utilities
2 Commission for a Tariffed On-Bill Retrofit Program.
- 3 • Exhibit BGH-3 – Slides from a December 2023 Presentation I gave to the Smart
4 Electric Power Alliance on behalf of Duke Energy, titled “Tariffed On-Bill
5 Overview.”
- 6 • Exhibit BGH-4 – Duke Energy Progress’s Application to the North Carolina Utilities
7 Commission for a Multi-Family New Construction Tariffed On-Bill Pilot Program.
- 8 • Exhibit BGH-5 – Ameren Missouri’s Revised Appendix A to their Missouri Energy
9 Efficiency Investment Act (“MEEIA”) 2025-27 plan.

10 **IV. IUI PROGRAM FUNDAMENTALS**

11 ***A. What are IUI Programs?***

12 **Q. PLEASE DESCRIBE THE BASIC IDEA OF INCLUSIVE UTILITY INVESTMENTS.**

13 A. An IUI program allows for cost recovery of behind-the-meter improvements through on-bill
14 charges that are tied to a specific service location. Such a program can unlock energy savings
15 for participating customers, while providing benefits to the larger system through increasing
16 participation in a utility’s cost-effective DSM offerings. The terms of the investment are such
17 that the bill payer is expected to experience bill savings that are larger than the on-bill
18 charge. The savings are typically required to be 20% larger, but some programs have a 10%
19 savings limit instead. The on-bill charge is treated like any other regulated charge, with
20 identical terms of service, including rules regarding disconnection for non-payment.

1 **Q. HOW IS AN IUI MECHANISM DIFFERENT FROM AN ON-BILL FINANCING**
2 **PROGRAM?**

3 A. On-bill financing programs offer loans to a customer that are repaid on the customer’s bill.
4 The loan is structured as a loan backed by the credit of the customer. A loan requires a credit
5 check of a particular customer and is governed by the terms of service associated with
6 lending.

7 In contrast, an IUI program makes investments that are tied to a service location or meter
8 rather than a particular customer. Instead of a credit check, before an IUI is made, it must
9 meet a cost effectiveness test for the participating service location to ensure that net savings
10 are expected in the first year.² The IUI on-bill charge under an IUI mechanism has the same
11 terms of service as any other regulated charge on a utility bill.

12 **Q. HOW DOES THE IUI PROGRAM HANDLE OCCUPANT RELOCATION?**

13 A. If the occupant (whether owner or tenant) moves out after participating in the IUI program,
14 the responsibility for the IUI charge transfers to the next occupant of the premises. The IUI
15 charge is associated with the meter at the location rather than the individual customer. The
16 utility typically files a notice in the appropriate office for the county where the building is
17 located to ensure a new owner or tenant is informed about the project and its impact on their
18 electricity bill. The new tenant will continue to pay the TOB charge and benefit from the
19 energy efficiency upgrades. This ensures that the repayment for the upgrades continues
20 seamlessly, regardless of changes in occupancy.

² The focus on the first year is because it is likely the most challenging year to achieve net bill savings; nominal electricity rates are expected to rise over time, in turn increasing bill savings from any energy efficiency measure, while the IUI charge will remain the same.

1 **Q. WHAT COSTS ARE TYPICALLY RECOVERED THROUGH AN IUI CHARGE?**

2 A. The IUI charge recovers the costs related to the purchase, installation, annual maintenance,
3 warranties, and capital costs associated with the behind-the-meter investment.

4 **Q. ARE THERE ANY COSTS ASSOCIATED WITH AN IUI PROGRAM TO BE**
5 **RECOVERED FROM RATEPAYERS?**

6 A. Yes. An IUI pilot or program open to all customers in a certain rate class, e.g. residential
7 customers, benefits the entire class. Therefore, utilities usually seek to recover general costs
8 associated with the administration and implementation of an IUI program, such as
9 administrative, marketing, and third-party vendor costs, as operating expenses either through
10 base rates or through a DSM surcharge. These costs are associated with making the program
11 available for all customers in a class rather than with any specific project.

12 **Q. HOW CAN AN IUI PROGRAM BE UTILIZED?**

13 A. IUI programs can increase adoption of behind-the-meter energy resources in a variety of
14 ways. In my testimony, I'll highlight three potential ways that Kentucky Power Company
15 could consider utilizing an IUI program:

16 **A. Energy Efficiency (EE) Retrofit Program:** IUIs would be made to reduce the upfront
17 cost to customers of investing in energy efficiency improvements where the bill savings
18 associated with the EE upgrades are estimated to more than offset the associated IUI
19 charge. This program should work in coordination with energy audit programs as well as
20 utility or government EE rebate and incentive programs.

21 **B. New Construction Program:** IUIs would be made to increase the energy efficiency of
22 newly constructed buildings. Only the incremental cost of measures above the building

1 code would be eligible to be financed where the estimated bill savings above the
2 minimum required by the building code more than offsets the associated IUI charge.

3 **C. Weatherization Readiness Program:** IUIs would be made to provide supplemental
4 funding to reduce customer deferrals and increase participation in the Weatherization
5 Assistance Program and associated programs such as Kentucky Power’s Targeted Energy
6 Efficiency (“TEE”) Program where the estimated bill savings associated with
7 weatherization will more than offset the associated IUI charge.

8 Each of these potential ways to use an IUI program will be discussed in more detail later in
9 my testimony.

10 It is also important to note that investor-owned utilities are actively innovating and coming
11 up with new ways to use IUIs. For example, ComED in Illinois is developing an IUI rooftop
12 solar program.³ There have also been suggestions that IUI programs could help with
13 installation of electric vehicle charging infrastructure. Finally, some co-ops have explored
14 how IUI programs can benefit non-residential customers.

15 **Q. WHAT ARE SOME ADVANTAGES OF AN IUI MECHANISM?**

16 A. An IUI mechanism can increase adoption of beneficial behind-the-meter investments such as
17 energy efficiency by reducing upfront costs to customers. If these improvements have net

³ See David Meisegeier, *Energy in 30: Inclusive Utility Investment Programs*, ICF (June 27, 2024), <https://www.icf.com/insights/energy/energy-in-30-inclusive-utility-investment-programs> (podcast guest Nick Bafaloukos describing development of ComEd’s inclusive utility investment program: “And solar in particular is proving interesting and attractive to help customers realize savings . . . for the program, in a way that they see and feel it more in the near term, rather than having a lengthy project. . . . And so, I’m particularly excited for solar”); see also Illinois Commerce Commission, *Equitable Energy Upgrade Program*, <https://www.icc.illinois.gov/informal-processes/Equitable-Energy-Upgrade-Plan> (webpage for the Illinois Commerce Commission’s stakeholder process for developing the state Equitable Energy Upgrade Program for IUI) (last visited Aug. 16, 2024).

1 benefits, then increasing their adoption will create additional benefits for the system,
2 ultimately benefitting non-participating customers.

3 A participating customer can expect to experience net bill savings, assuming no changes in
4 other factors that affect bills, such as thermostat set points, weather, and rates.⁴ There may
5 also be other benefits, such as increased comfort and safety associated with these
6 improvements.

7 The capital provider, whether that is the utility or another entity, can expect to recover their
8 cost of capital with a similar risk profile to any other cost recovery through regulated charges
9 on customer bills. A utility or program administrator offering DSM/EE programs may also
10 benefit from performance incentives tied to greater participation in their programs.

11 **Q. WHY IS IT PRUDENT FOR KENTUCKY POWER COMPANY TO CONSIDER AN**
12 **IUI PROGRAM AT THIS POINT IN TIME?**

13 A. Federal incentives for energy efficiency, through tax credits, rebates, and grant programs,
14 offer a unique opportunity over the next few years for households to adopt energy efficiency
15 and behind-the-meter improvements to benefit the electric system. As discussed in more
16 detail subsequently, these federal programs greatly enhance the financial proposition of these
17 energy upgrades but may still require an upfront cost that is challenging or prohibitive for
18 many households. An IUI program can help overcome this upfront cost obstacle, thus helping
19 Kentucky Power Company's customers fully take advantage of the unique opportunity
20 afforded through these programs.

⁴ Rate changes generally increase customer savings with IUI. Because rates tend to increase, while the surcharge remains the same, net savings also tend to increase over time.

1 **Q. ARE IUI PROGRAMS NECESSARILY DEMAND-SIDE MANAGEMENT**
2 **PROGRAMS?**

3 A. Not necessarily, however, IUI programs are sometimes structured as DSM programs and are
4 often discussed in demand-side management or energy efficiency (“DSM/EE”) proceedings.
5 Some investor-owned utilities have bundled IUI programs with energy efficiency programs,
6 allowing them to be treated together as a DSM/EE program and are formally considered
7 under a DSM/EE mechanism. However, Duke Energy’s North Carolina utilities (Duke
8 Energy Carolinas and Duke Energy Progress, hereafter referred to as “Duke Energy NC”) are
9 notable for designing their IUI programs as stand-alone cost recovery mechanisms, which
10 stand apart from any DSM/EE program. Duke Energy NC explicitly intends for its IUI
11 programs to work in conjunction with DSM/EE programs, but for regulatory purposes they
12 are separate.

13 **Q. IF IUI PROGRAMS ARE NOT NECESSARILY DEMAND-SIDE MANAGEMENT**
14 **PROGRAMS THEN WHY IS THIS TOPIC INCLUDED IN YOUR TESTIMONY**
15 **FOR THIS DOCKET?**

16 A. In the rebuttal testimony of Kentucky Power Company Witness Brian K. West submitted in
17 Case No. 2023-00159, he stated that it would be more appropriate to raise the topic of IUI
18 programs in the Company’s 2024 DSM/EE filing.⁵ The fact that IUI programs are often
19 bundled with or closely coordinated with DSM/EE programs also suggests that it is
20 appropriate to consider these programs in a DSM/EE docket. In summary, even if IUI

⁵ Rebuttal Testimony of Brian K. West on Behalf of Kentucky Power Company, *Electronic Application Of Kentucky Power Company For (1) A General Adjustment Of Its Rates For Electric Service; (2) Approval Of Tariffs And Riders; (3) Approval Of Accounting Practices To Establish Regulatory Assets And Liabilities; (4) A Securitization Financing Order; And (5) All Other Required Approvals And Relief*, Case No. 2023-00159, at R21–R22 (Nov. 6, 2023) (“[T]he parties and the Commission will have the ability to evaluate such programs and measures in the Company’s upcoming DSM Plan filing, which the Company expects to file in 2024.”).

1 programs are not technically structured as DSM/EE programs, they are inherently and
2 necessarily linked.

3 ***B. Capital Considerations***

4 **Q. REGARDING PROVIDING UPFRONT CAPITAL, WHAT ARE SOME KEY**
5 **DESIGN CONSIDERATIONS FOR AN IUI MECHANISM?**

6 A. An IUI program will need a capital provider, and that provider will need to be able to earn an
7 appropriate return on that capital. Duke Energy NC decided to invest its own capital through
8 its IUI programs. Duke has received approval for recovering IUI investments including a
9 recovery of its pre-tax weighted average cost of capital (“WACC”) determined in its most
10 recent rate case through its IUI program. Some other utilities, such as the co-ops in South
11 Carolina, have decided to utilize other sources of capital, including government subsidized
12 capital – for example, from the U.S. Department of Agriculture.⁶

13 **Q. WHAT ARE SOME ADVANTAGES AND DISADVANTAGES OF USING UTILITY**
14 **CAPITAL IN IUI PROGRAMS?**

15 A. Utilizing utility capital aligns with the original intent of IUI programs, which are intended to
16 offer utilities an equivalent return to investments in supply-side resources. It also fits with the
17 recovery mechanism of an on-bill charge under the same regulatory treatment as any other
18 charge for regulated service. This structure should provide a sustainable source of capital
19 without creating any cross-subsidization concerns. Using the pre-tax WACC should also
20 resolve any utility concerns about opportunity cost negatively affecting their financial

⁶ See Environmental and Energy Study Institute, *The Help My House Model*, <https://www.eesi.org/obf/case-study/helpmyhouse> (“Loan capital for the pilot came primarily from a U.S. Department of Agriculture loan, supplemented by South Carolina co-op funds. Thanks in part to the success of the pilot, federal programs have been created to help co-ops around the country to develop similar programs.”) (last visited Aug. 17, 2024).

1 position. This concern could arise if the return is less than what the utility would make by
2 relying on supply-side investments.

3 The main disadvantage of using utility capital is that the interest rate is often higher for
4 participating customers than that of subsidized capital that may be available from
5 government programs.

6 **Q. IS THE RISK ASSOCIATED WITH RECOVERING CAPITAL THROUGH AN IUI**
7 **MECHANISM GREATER THAN INVESTMENTS IN SUPPLY-SIDE RESOURCES?**

8 A. No. The terms of service for the on-bill charges associated with an IUI program are
9 nearly identical to any other regulated charge. Therefore, the utility may disconnect for non-
10 payment or request the recovery of bad debt expense in the same manner for an IUI charge as
11 any other regulated charge. Since an IUI program requires there to be estimated net savings
12 for the first year, the risk of non-payment should in theory be lower for a customer
13 participating in an IUI program after they have participated because of their lowered bills.

14 For example, a customer with an average estimated bill of \$200 per month before
15 participating in an IUI program may have an average monthly savings of \$50 and an on-bill
16 charge of \$40 per month. Therefore, under the program, they would have an estimated bill of
17 \$190 per month after the program, compared to a bill of \$200 without the program. A
18 customer with a lower bill presents a lower bad debt risk compared to a customer with a
19 higher bill.

20 One aspect of an IUI mechanism that could present a risk to the capital provider is the risk of
21 vacancy; if the service location is vacated or no longer receives electric service then there is
22 no customer to pay the IUI charge. This can be resolved if a customer starts or restarts
23 service at that location—at which point the IUI charge (as well as the associated savings with

1 the IUI upgrade) would resume. Co-ops, such as those in South Carolina, have been offering
2 IUI programs for over a decade, and I am not aware of any examples of any significant
3 increase in bad debt expenses associated with these programs, suggesting that the vacancy
4 risk is limited and is likely offset by the net decrease in bills for participating customers. A
5 2019 tariffed on-bill feasibility study further suggests IUI programs do not present a
6 significant increase in the risk of bad debt expense. The analysis in the report concludes that
7 a “program loss reserve of 1% is established to mitigate the risk of any potential customer
8 charge-offs or missed payments, which is greater than the percentage of uncollectable
9 investments reported by PAYS programs to date.”⁷

10 *C. Marketing Considerations*

11 **Q. ARE THERE ANY OTHER NOTABLE FUNDAMENTAL DIFFERENCES**
12 **BETWEEN AN IUI PROGRAM AND TRADITIONAL DSM/EE PROGRAMS?**

13 A. Yes. Often DSM/EE programs are advertised broadly by program administrators, but specific
14 projects are driven by an individual customer’s interest in participating. Since IUI programs
15 work best for customers that have the potential for large bill savings, a more targeted
16 marketing approach would be recommended. A utility or program administrator should
17 leverage partnerships with community organizations, data analytics, and modeling tools to
18 find and connect with the best candidates for EE improvements.

19 In other words, an IUI is like any other utility investment. As such, the utility should leverage
20 all of its tools to ensure that it is investing in the highest-return projects. This should result in

⁷ Cadmus, *Tariffed On-Bill Financing Feasibility* at 11 (Aug. 2019) (prepared for the University of Minnesota Energy Transition Lab), https://energytransition.umn.edu/wp-content/uploads/2019/08/Minnesota-TOB-Financing-FINAL_AH-1.pdf.

1 a more efficient process than a broad marketing approach, which may reach many customers
2 who would not be as good of a fit for the program.

3 **Q. DOES THIS IMPLY THAT AN IUI WILL ONLY BENEFIT A SMALL SEGMENT**
4 **OF CUSTOMERS?**

5 A. No. Like any DSM/EE program, some customers will be better candidates than others for
6 participating in the program. However, an IUI program should be designed to create net
7 system benefits—*i.e.*, benefit all customers, whether they participate or not.

8 **V. IUI RETROFIT PROGRAMS**

9 **Q. WHAT WILL YOU DISCUSS IN THIS SECTION OF YOUR TESTIMONY?**

10 A. In this Section of my testimony, I will describe how IUI retrofit programs work and how they
11 can complement utility and federal rebate programs. Then I will provide some illustrative
12 examples to show how an IUI program can reduce upfront costs to customers. Finally, I will
13 discuss some risks for IUI programs and ways to mitigate them, as well as how these
14 programs are regulated by public utility commissions and other considerations.

15 **Q. WHAT IS AN IUI RETROFIT PROGRAM?**

16 A. It is an IUI program that invests in retrofitting existing buildings with energy efficiency
17 upgrades. They typically provide upfront funding for high-efficiency HVAC systems,
18 insulation, air sealing, and heat pump water heaters. The IUI charge is offset by the bill
19 savings associated with the energy efficiency improvements.

20 **Q. WHAT PROBLEMS DOES AN IUI RETROFIT PROGRAM INTEND TO SOLVE?**

21 A. An IUI retrofit program aims to resolve the obstacle of getting upfront capital to make cost-
22 effective improvements. This is a well-understood challenge of energy efficiency, which

1 often requires high upfront costs to create bill savings that will typically materialize over the
2 next 10 to 30 years.

3 An IUI retrofit program has also been recognized as a way of resolving the “split incentive”
4 problem, which occurs when a property is rented. The challenge is that the owner is
5 responsible for paying for any improvements to the property. However, the tenant pays the
6 utility bill and benefits from any potential bill savings. Therefore, the owner has no incentive
7 to invest in improvements since they will not benefit from the savings. Under an IUI
8 program, the tenant both pays for the improvements and benefits from the bill savings. If a
9 tenant moves out and another one moves in, then the new renter would assume the charges
10 on their utility bill as well as benefit from the bill savings.

11 **Q. ARE IUI RETROFIT PROGRAMS AVAILABLE IN KENTUCKY OR ANY OTHER**
12 **STATES?**

13 A. Yes, they are. Mountain Association operates the How\$martKY program, an IUI retrofit
14 program in Kentucky. In other states, several IOUs have already implemented IUI retrofit
15 programs, such as Ameren’s and Evergy’s Pay As You Save (“PAYS®”)⁸ programs in
16 Missouri and Duke Energy’s Improve & Save program in North Carolina. ComEd in Illinois
17 and Duke Energy in South Carolina are also preparing or have submitted applications for IUI
18 retrofit programs.

⁸ PAYS® is registered to Energy Efficiency Institute, Inc. See Energy Efficiency Inst., Inc., *Pays® Essential Elements & Minimum Program Requirements*, <https://www.eeivt.com/pays-essential-elements-minimum-program-requirements-2/> (last updated July 20, 2021).

1 The application for Duke Energy NC’s program is attached as Exhibit BGH-2 to provide an
2 example of an IUI retrofit program tariff and to provide Duke Energy NC’s reasoning, in
3 their own words, for filing such a program.⁹

4 **Q. PLEASE DESCRIBE THE GENERAL PROCESS FOR AN IUI RETROFIT**
5 **INVESTMENT.**

6 A. As a part of the screening process, a certified energy auditor will perform a comprehensive
7 in-home audit to determine estimated energy savings from any improvements. The customer
8 can then choose which upgrades they would like to proceed with and if they would like to
9 utilize the IUI program to cover some or all the remaining upfront cost after applying any
10 rebates or other incentives. The amount of the upfront cost that can be covered by the IUI
11 program is dependent on the modeling of the energy auditor. The estimated savings must be
12 greater than the IUI charge by a certain amount (typically 10-20%). Once the upgrades are
13 complete, the IUI charge is added as a separate line item to the customer’s bill, which is paid
14 until the end of the term of the IUI charge related to the specific project (often 10-15 years).

15 *A. Interactions With Other Programs*

16 **Q. HOW IMPORTANT ARE ENERGY EFFICIENCY REBATE PROGRAMS TO THE**
17 **SUCCESS OF AN IUI RETROFIT PROGRAM?**

18 A. Energy efficiency rebate programs such as Kentucky Power’s proposed Home Energy
19 Improvement Program are critical in IUI retrofit programs. Without them, the remaining

⁹ Application, *In re Application by Duke Energy Progress, LLC, for Approval of Residential Tariffed On-Bill Program*, North Carolina Utilities Commission, Docket No. E-2, Sub 1309 (Sept. 30, 2022) (attached as Exhibit BGH-2); see also Application, *In re Application by Duke Energy Carolinas, LLC, for Approval of Residential Tariffed On-Bill Program*, North Carolina Utilities Commission, Docket No. E-7, Sub 1279 (Sept. 30, 2022) (Duke Energy Carolinas' application for approval of same program).

1 upfront cost to customers, often referred to as a “co-pay” is likely to still be substantial and
2 likely will limit participation in IUI programs.

3 **Q. HOW DID DUKE ENERGY NC ADDRESS THIS CHALLENGE OF HIGH CO-**
4 **PAYS?**

5 A. Duke Energy NC’s IUI program is designed to work in tandem with their Smart \$aver
6 residential energy efficiency rebate program. Duke Energy NC revised their Smart \$aver
7 program to better reflect anticipated energy savings, and therefore to be able to offer higher
8 but still cost-effective rebates. They did this in two ways. First, the program adopted an “as
9 found” standard for measuring energy savings. The previous program had solely relied on the
10 federal baseline efficiency to determine energy savings for a given measure. For example, the
11 baseline efficiency for an HVAC system is the lowest standard available for purchase.
12 However, many customers currently utilize heating and cooling systems that are less efficient
13 than the federal baseline, either because they installed them before the federal baseline
14 changed or because they utilize a different technology, such as electric resistance heat. In
15 these circumstances, the North Carolina Utilities Commission allowed Duke Energy NC to
16 measure energy savings based on what the customer is actually using.¹⁰ This is called an “as-
17 found” standard. Exhibit BGH-3 is a slideshow from Duke Energy NC that includes a slide
18 demonstrating the appropriate application of this as-found standard.¹¹

¹⁰ See Order, *In re Application by Duke Energy Progress, LLC, for Approval of Residential Smart \$aver® Early Replacement and Retrofit Energy Efficiency Program*, and *In re Application by Duke Energy Carolinas, LLC, for Approval of Residential Smart \$aver® Early Replacement and Retrofit Energy Efficiency Program*, North Carolina Utilities Commission, Dockets No. E-2, Sub 1308 and E-7, Sub 1278 (Aug. 23, 2023), <https://starw1.ncuc.gov/NCUC/ViewFile.aspx?Id=792d4dbc-3522-4998-8979-6d77d276626e> (approving Duke’s use of an as-found standard and finding that the as-found standard “will provide a true comparison of the customer’s present energy costs and the reductions to be achieved by participating in the ERR program”).

¹¹ Duke Energy, *Tariffed On-Bill Overview*, at 5 (Dec. 2023) (Presentation to Smart Electric Power Alliance) (attached as Exhibit BGH-3).

1 The second reform was to utilize historical usage data to better estimate energy savings. In
2 general, higher energy users will save more energy from improvements than lower users. By
3 using data analytics, the utility believes it can more accurately predict savings for homes that
4 are in need of significant upgrades.

5 The combination of these reforms allows for significantly high energy efficiency rebates
6 while still demonstrating that these programs are cost effective and benefit all customers—
7 participants and non-participants alike. These higher rebates can then be applied to
8 significantly reduce or fully eliminate the co-pays in an IUI retrofit program.

9 **Q. ARE THERE OTHER WAYS TO REDUCE CO-PAYS FOR IUI PROGRAM**
10 **PARTICIPANTS?**

11 A. Yes. There are federal energy efficiency rebates, which are in the process of being made
12 available. For example, the Home Energy Performance-Based, Whole-House Rebates
13 program, will offer rebates of up to \$2,000 for efficiency upgrades that are predicted to
14 reduce household energy usage by at least 20%, and up to \$4,000 for retrofits saving 35% or
15 more for single family homes.¹² The High Efficiency, Electric Home Rebate program also
16 promises to offer rebates to households for high efficiency home appliances and equipment.¹³
17 For example, it offers up to \$1,600 for air sealing, ventilation, and insulation upgrades.¹⁴
18 Both programs offer increasing rebates for low- and moderate-income households. The

¹² 42 U.S.C. § 18795(c)(2)(A); *see also* U.S. Dep’t. of Energy, *Biden-Harris Administration Announces State and Tribe Allocations for Home Energy Rebate Program* (Nov. 2, 2022), <https://www.energy.gov/articles/biden-harris-administration-announces-state-and-tribe-allocations-home-energy-rebate>.

¹³ 42 U.S.C. § 18795a(c); *see also* U.S. Dep’t. of Energy, *supra* note 12.

¹⁴ 42 U.S.C. § 18795a(c)(3)(B)(ii); *see also* U.S. Dep’t. of Energy, Office of State and Community Energy Programs, *Home Energy Rebates Frequently Asked Questions*, <https://www.energy.gov/scep/home-energy-rebates-frequently-asked-questions> (question #24) (last visited Aug. 17, 2024).

1 availability of these rebates is contingent on the distribution of funds from the federal
2 government to state energy offices and finally to households.

3 Federal tax credits can also reduce the net cost of energy efficiency upgrades. These credits
4 can be substantial.¹⁵ For example, for insulation and air sealing the credit can be up to 30%
5 of the cost or up to \$1,200. These tax credits will not be a good option for all households
6 because their ability to benefit depends on their tax status. Furthermore, there may be a gap
7 of several months to over a year between when the upfront cost is paid for the improvements
8 and when the households receive the tax credit. Nevertheless, these credits will likely reduce
9 the net cost for many households.

10 ***B. Illustrative Examples***

11 **Q. PLEASE PROVIDE AN EXAMPLE OF AN IUI RETROFIT PROJECT.**

12 A. An illustrative customer may be using a lot of energy and could benefit from air sealing and
13 attic insulation improvements. Table 1 shows how the IUI program would work for this
14 illustrative customer if they also qualified for a federal rebate and had an income between
15 80% and 150% of the area median income. Sources for the inputs of this data are displayed in
16 Table 1 below.

17 **Table 1. Illustrative Example of IUI Project: Air Sealing and Attic Insulation**

<u>Inputs</u>			
	Amount	Description	Source/Calculation
(a)	\$2,200	Cost of Improvement	Duke Energy TOB Slide deck, Exhibit BGH-3, p. 6.
(b)	\$300	Utility Rebate	KPC proposed incentives for attic insulation and air sealing (KPC Response to KPSC Q1.5)

¹⁵ See 26 U.S.C. §25C; see also U.S. Internal Revenue Service, *Energy Efficient Home Improvement Credit*, <https://www.irs.gov/credits-deductions/energy-efficient-home-improvement-credit> (last updated Jul. 18, 2024).

(c)	\$1,100	Federal Rebate	High Efficiency Electric Home Rebate for household with income between 80% and 150% of area median income from the Inflation Reduction Act of 2022 (limited at 50% of measure cost) ¹⁶
(d)	100.58	kWh saved per month	Added the energy savings from these measures in KPC Supplemental Response to JI Q1.73, Attachment 1, and converted to a monthly value
Outputs			
(e)	\$800	Upfront Cost net of Utility and Federal Rebate	= (a)-(b)-(c)
(f)	\$800	Amount invested through IUI	Amount must ensure the savings ratio is at least 1.1 and cannot exceed (e)
(g)	\$0	Remaining Upfront Cost	= (e)-(f)
(h)	\$13.16	Estimated bill savings	= (d) multiplied by KPC's volumetric residential rate, including the 4.1248% environmental surcharge
(i)	\$9.80	IUI Charge	= payment when applying an 8.21% weighted average cost of capital over a ten-year period
(j)	\$3.37	Net Estimated Monthly Savings	= (h)-(i)
(k)	1.34	Savings/IUI Charge ratio	= (h)/(i)

1 The customer could also choose to provide an upfront payment to reduce the monthly IUI
2 charge. For example, a \$500 upfront payment would reduce the IUI charge from \$9.80 to
3 \$3.67 per month.

¹⁶ 42 U.S.C. § 18795a(c)(4)(A)(i).

1 **Q. WHAT IS THE FIVE-YEAR VALUE PROPOSITION¹⁷ OF THE ILLUSTRATIVE**
2 **EXAMPLE GIVEN ABOVE?**

3 A. Without the IUI program, the bill savings over five years would be \$789.77 (holding rates
4 and usage constant and not adjusting for inflation). Comparing this to the \$800 net upfront
5 cost would result in a net savings over five years of negative \$10.23. In other words, the
6 customer is worse off by \$10.23.

7 With the IUI program, assuming the customer pays nothing upfront, the customer would save
8 the same amount over five years: \$789.77. Over five years, they would have paid \$587.71,
9 resulting in a net benefit of \$202.06.

10 **Q. HOW WOULD THE ILLUSTRATIVE EXAMPLE CHANGE IF THE HOUSEHOLD**
11 **HAD AN INCOME OF LESS THAN 80 PERCENT OF THE AREA MEDIAN**
12 **INCOME?**

13 A. In this case, the federal rebate would increase from \$1,100 to \$1,600 since it can now cover
14 up to 100% of the measure cost or a maximum level of \$1,600. As a result of the extra \$500,
15 the amount invested through the IUI program would decrease from \$800 to \$300, resulting in
16 the customer's net estimated monthly savings to increase from \$3.37 to \$9.49.

17 **Q. HOW WOULD THIS ILLUSTRATIVE EXAMPLE CHANGE IF THE FEDERAL**
18 **REBATE WERE NOT AVAILABLE?**

19 A. Without the federal rebate, while the IUI program would reduce the upfront cost by \$975, the
20 customer would still have to contribute \$925 in a "co-pay." This upfront cost may be too
21 high for customers and discourage them from making the investment.

¹⁷ I chose to provide the five-year value proposition of the example provided to demonstrate the value for a participant even if they move partway through the recovery period for a typical IUI project.

1 However, it should be noted that many customers may qualify for a federal tax credit worth
 2 30% of the measure cost or in this case \$660. Therefore, net of the tax credit, the upfront cost
 3 would be \$265 for improvements that cost \$2,200. Eligibility for the tax credit will vary and
 4 normally there is a delay of several months between the investment and receiving the tax
 5 credit.

6 **Q. CAN YOU PROVIDE AN ILLUSTRATIVE EXAMPLE FOR A CUSTOMER WHO**
 7 **CAN ALSO BENEFIT FROM REPLACING THEIR HEATING AND COOLING**
 8 **SYSTEM?**

9 A. Yes. Table 2 shows the calculations for a customer who qualifies for the federal rebate and
 10 has an income between 80% and 150% of the area median income.

11 **Table 2. Illustrative Example of IUI Project: Air Sealing and Heating and Cooling**

<u>Inputs</u>			
	Amount	Description	Source/Calculation
(a)	\$15,000	Cost of Improvement	Duke TOB Slide deck, Exhibit BGH-3, p. 7.
(b)	\$800	Utility Rebate	KPC proposed incentives for attic insulation, air sealing, and an air-source heat pump (KPC Response to KPSC Q1.5)
(c)	\$7,500	Federal Rebate	High Efficiency Electric Home Rebate for household with income between 80% and 150% of area median income (limited to 50% of the cost of the measures) ¹⁸
(d)	378	kWh saved per month	KPC Supplemental Response to JI Q1.73, Attachment 1
<u>Outputs</u>			
(e)	\$6,700	Upfront Cost net of Rebates	= (a)-(b)-(c)
(f)	\$3,675	Amount invested through IUI	Amount to ensure the savings ratio is at least 1.1 and cannot exceed (e)
(g)	\$3,025	Remaining Upfront Cost	= (e)-(f)

¹⁸ 42 U.S.C. § 18795a(c)(3)-(4).

(h)	\$49.47	Estimated bill savings	= (d) multiplied by KPC’s volumetric residential rate, including the 4.1248% environmental surcharge
(i)	\$45.00	IUI Charge	= payment when applying an 8.21% weighted average cost of capital over a ten year period
(j)	\$4.47	Net Estimated Monthly Savings	= (h)-(i)
(k)	1.10	Savings/IUI Charge ratio	= (h)/(f)

1 The \$3,025 upfront co-pay is likely prohibitive for many customers in this scenario. This is
2 the reason for considering an “as-found” baseline for utility rebates, which allows the utility
3 to cost effectively increase the utility rebate. Duke found, using an as-found baseline, that the
4 utility rebate could cover the full upfront cost in some scenarios where the customer has high
5 usage and very inefficient equipment, when combined with an IUI retrofit program.

6 If the customer had an income of less than 80% of the area median income, they would
7 qualify for a higher federal rebate – up to \$9,600 based on the text of the Inflation Reduction
8 Act – a \$2,100 increase over the example shown above.¹⁹

9 ***C. Mitigating Risks***

10 **Q. WHAT ARE THE PRIMARY RISKS ASSOCIATED WITH IUI RETROFIT**
11 **PROGRAMS?**

12 A. One of the primary risks associated with an IUI retrofit programs is the risk that the upgraded
13 measure installed through the IUI program breaks or otherwise does not deliver the estimated
14 bill savings. There are ways to mitigate this risk.

¹⁹ *Id.*

1 **Q. UNDER DUKE ENERGY NC'S IUI RETROFIT PROGRAM, WHAT HAPPENS IF**
2 **THE IUI UPGRADE BREAKS AND IS NO LONGER OPERATIONAL?**

3 A. If the upgraded measure breaks, as can happen with an HVAC system or water heater, then
4 the IUI charge is paused until it can be fixed. This helps ensure that, when the customer is
5 paying the IUI charge, they are simultaneously benefiting from associated bill savings. Any
6 missed IUI charges during this pause are added to the end of the term. For example, if the
7 term is ten years (120 months) and two charges are missed then the term is extended to 122
8 months in order to recover 120 charges. Under Duke Energy NC's tariff, the term can be
9 extended by a maximum of two years or 24 months.

10 **Q. HOW DID DUKE ENERGY NC MINIMIZE THE RISK OF COMPLICATIONS DUE**
11 **TO IUI UPGRADES BREAKING?**

12 A. As a part of the total cost of the IUI project, Duke Energy NC requires the customer to
13 purchase an extended warranty. The IUI project cost also includes the cost of maintenance,
14 which is coordinated by Duke Energy NC. Providing maintenance and repairs with no
15 additional cost to the customer should limit any upgrades breaking and give participants no
16 reason to not get the upgrades repaired as soon as possible.

17 ***D. IUI Regulatory Structure***

18 **Q. HOW HAVE MOST INVESTOR-OWNED UTILITIES STRUCTURED IUI**
19 **RETROFIT PROGRAMS?**

20 A. Other IOUs, such as Ameren or Evergy in Missouri, have structured their IUI retrofit
21 programs as one program that incorporates all aspects of an energy audit, energy efficiency
22 rebates, and an IUI cost recovery function together in one program. From a regulatory
23 perspective, the entire program is evaluated together for cost-effectiveness purposes.

1 **Q. HOW DID DUKE ENERGY NC INTEGRATE ITS EE PROGRAMS WITH IUI**
2 **RETROFIT PROGRAMS IN NORTH CAROLINA?**

3 A. Duke Energy NC structured its IUI retrofit program to be independent, yet interoperable,
4 with its rebate and energy audit programs Each program can operate independently, giving
5 households greater choice in how to adopt energy efficiency through participation in one,
6 two, or all three of these programs. For example, a household could just get an energy audit
7 with a free energy savings kit—requiring no further actions. Similarly, a household could get
8 an energy audit and then take advantage of utility rebates to decrease the cost of additional
9 energy efficiency measures. Finally, a household could utilize the energy audit, rebates, and
10 the IUI retrofit programs all together, allowing them to identify cost-effective energy
11 efficiency measures, use rebates to reduce the overall cost, and use the IUI program to reduce
12 the upfront cost to the customer household.

13 For regulatory purposes, the IUI retrofit program stands apart from the energy audit or
14 energy efficiency rebate programs. When evaluated separately, the IUI program is simply a
15 cost recovery tool rather than a DSM program. It’s critical that an IUI is structured and
16 accounted for correctly, but it does not make sense to apply a cost effectiveness test for a cost
17 recovery tool. Of course, any energy efficiency programs used in conjunction with an IUI
18 should be evaluated like any other DSM program.

19 ***E. Other Considerations for an IUI Retrofit Program***

20 **Q. ARE IUI PROGRAMS INTENDED FOR CUSTOMERS WITH CERTAIN INCOME**
21 **CHARACTERISTICS?**

22 A. No. IUI programs are designed to be inclusive and accessible to all households. Low- and
23 moderate-income customers may value an IUI program because they may have less financial

1 savings and access to capital to cover the upfront costs of upgrades. Moreover, the interest
2 rate for IUI is much lower than other frequently used sources of credit, such as credit cards,
3 which often charge a rate in excess of 20%. Higher income property owners may value IUI
4 because it resolves the split incentive challenge if they are renting their property. Higher
5 income homeowners may also decide to take advantage of an IUI retrofit program if they
6 would like to upgrade their home but do not want to take on additional personal debt or
7 intend to sell their home in a few years. The fundamental features of an IUI program can be
8 useful to a wide array of customers who would like to upgrade their homes and reduce their
9 utility bills.

10 **Q. WOULD LOW-INCOME HOUSEHOLDS BE BETTER OFF PARTICIPATING IN**
11 **PROGRAMS SUCH AS THE WEATHERIZATION ASSISTANCE PROGRAM OR**
12 **TEE PROGRAM COMPARED TO AN IUI RETROFIT PROGRAM?**

13 A. Yes. If a household can participate in a program that provides the full cost of the upgrades,
14 then they would be better off because there would be no IUI charge. And if customers are
15 eligible for weatherization assistance and the TEE Program, these programs should be the
16 first option. However, these programs can run out of funding. If this occurs, a low-income
17 household may rationally decide to participate in an IUI retrofit program rather than waiting
18 for the budgets of other programs to be replenished in subsequent years.

19 **VI. IUI NEW BUILDING PROGRAMS**

20 **Q. WHAT IS AN IUI NEW CONSTRUCTION PROGRAM?**

21 A. An IUI program for new buildings is designed to help developers and owners to make
22 upfront investments during the construction phase to meet efficiency standards above the
23 building code minimum. An IUI is used to cover the incremental costs of meeting the higher

1 efficiency standards. These incremental costs are recovered through an IUI charge on the
2 occupant’s utility bill. As with an IUI retrofit program, the average estimated bill savings
3 must be greater than the IUI charge. Duke Energy’s application for an IUI new construction
4 program is included as Exhibit BGH-4 to provide an example of such a program.²⁰

5 **Q. WHAT PROBLEMS DOES AN IUI NEW CONSTRUCTION PROGRAM AIM TO**
6 **SOLVE?**

7 A. Many developers and owners have little incentive to build to an efficiency standard above the
8 minimum required by law. This is due to the fact that developers/owners would be
9 responsible for covering the incremental cost of any improvements, but occupants pay the
10 electricity bill. While in theory, a more efficient building could fetch a higher rent, in practice
11 it is difficult for prospective occupants to identify more efficient homes or estimate the bill
12 savings.

13 **Q. HOW IMPORTANT IS IT TO ENHANCE THE ENERGY EFFICIENCY OF NEW**
14 **HOMES?**

15 A. It is very important. New homes will eventually become old homes. Therefore, increasing the
16 energy efficiency of new construction will, over time, make a meaningful difference to
17 overall efficiency of the housing stock. Even in areas with decreasing population, there is
18 typically some level of new home construction to replace old housing stock that is no longer
19 desirable.

²⁰ Application, *In re Application by Duke Energy Progress, LLC, for Approval of Multi-Family New Construction Tariffed On-Bill Pilot*, North Carolina Utilities Commission, Docket No. E-2, Sub 1307 (Sept. 30, 2022) (attached as Exhibit BGH-4).

1 **Q. WHAT ARE SOME ADVANTAGES OF A NEW CONSTRUCTION IUI PROGRAM**
2 **COMPARED TO A RETROFIT PROGRAM?**

3 A. There are several advantages, often stemming from the reality that it is often easier to design
4 more efficient homes than to retrofit existing homes.

5 1) Existing homes may require “enabling upgrades,” such as fixing the electrical system,
6 repairing a leaky roof, or removing mold damage. All of these enabling upgrades increase
7 the cost of retrofitting homes without directly resulting in bill savings. New homes do not
8 require any enabling upgrades.

9 2) A group of new homes is often initially owned or built by a single entity. For example, a
10 developer may build an entire neighborhood of 25 houses at once. If this developer opted
11 to participate in an IUI program, they could incorporate IUI in the building of all of these
12 homes at once. Unlike existing homes, each of which may be in different conditions, all
13 of these new homes are likely somewhat standardized, making the process much easier
14 and more efficient.

15 3) A new construction IUI program is likely to be a better fit for multi-family homes.
16 Retrofitting multi-family homes is often challenging because their smaller size and
17 shared walls often limit potential bill savings from upgrades. However, in a new
18 construction program, the entire design of the property can be planned from the start to be
19 more efficient. Even if the energy savings for one home is small, the savings over the
20 entire property could be significant.

21 4) The customer experience may be simpler for a new construction project. The customer
22 does not have to worry about scheduling the multiple appointments necessary for a
23 retrofit project. Instead, the developer will handle all of the logistics. There is nothing an

1 individual occupant in one of these homes would need to do in order to benefit from the
2 program.

3 **Q. WHY WOULD DEVELOPERS OR HOMEOWNERS WANT TO PARTICIPATE IN**
4 **AN IUI NEW CONSTRUCTION PROGRAM?**

5 A. The program would allow them to upgrade their property at little to no cost, since the
6 incremental costs would be recovered from occupants through the IUI charge. Any net bill
7 savings would reduce total housing costs for tenants, possibly decreasing the risk of tenants
8 missing rent payments to prioritize electricity bills. Finally, increasing the energy efficiency
9 standards of buildings may also be valued by some developers keen to meet sustainability
10 goals.

11 **Q. HAVE OTHER INVESTOR-OWNED UTILITIES OFFERED AN IUI NEW**
12 **CONSTRUCTION PROGRAM?**

13 A. Yes. Duke Energy NC received approval in 2023 for an IUI new construction pilot called
14 Smart Saver® Built-In Savings in North Carolina.²¹ The pilot will enable IUI to be utilized
15 for 700 to 1,000 apartment buildings.

²¹ Order, *Application by Duke Energy Progress, LLC, for Approval of Multi-Family New Construction Tariffed On-Bill Pilot*, North Carolina Utilities Commission, Docket No. E-2, Sub 1307, (Sept. 22, 2023) <https://starw1.ncuc.gov/NCUC/ViewFile.aspx?Id=83848df8-3e73-473b-88f7-d3109f949b25> (approving pilot program with modifications).

1 **VII. IUI FOR WEATHERIZATION ASSISTANCE READINESS PROGRAM**

2 **Q. PLEASE DESCRIBE HOW IUI COULD AID THE WEATHERIZATION**
3 **ASSISTANCE PROGRAM.**

4 A. IUI could provide upfront capital to cover enabling upgrades to allow households to
5 participate in the Weatherization or TEE programs. The estimated savings from the
6 weatherization would need to be estimated to be greater than the IUI charge.

7 **Q. WHAT PROBLEMS WOULD THE IUI FOR WEATHERIZATION READINESS**
8 **PROGRAM ADDRESS?**

9 A. As discussed in KPC Witness Nolen’s testimony, there is a need for additional funding for
10 health, safety, and structural repairs in order to make homes eligible to receive funding under
11 the Weatherization Assistance Program. He notes that “as much as 50% of applicants under
12 the Weatherization Assistance Program are currently classified as deferrals (or denials) due
13 to a health, safety, or structural issue with the home.”²² An IUI program could provide an
14 additional backstop source of funding for these repairs, if other sources of funding such as
15 federal weatherization readiness funds and supplemental funds from Kentucky Power have
16 been exhausted and there still remains an upfront cost to the customer for health and safety
17 upgrades before weatherization can be completed.

²² Direct Testimony of Barrett L. Nolen on Behalf of Kentucky Power Company, *In re Electronic Application Of Kentucky Power Company For: (1) Approval To Expand Its Targeted Energy Efficiency Program; (2) Approval Of A Home Energy Improvement Program And A Commercial Energy Solutions Program; (3) Authority To Recover Costs And Net Lost Revenues, And To Receive Incentives Associated With The Implementation Of Its Demand-Side Management/Energy Efficiency Programs; (4) Approval Of Revised Tariff D.S.M.C.; (5) Acceptance Of Its Annual DSM Status Report; And (6) All Other Required Approvals And Relief*, Case No. 2024-00115, at 14 (May 1, 2024) (“Nolen Direct”).

1 **Q. PLEASE PROVIDE AN ILLUSTRATIVE EXAMPLE FOR HOW AN IUI**
2 **WEATHERIZATION READINESS PROGRAM WOULD WORK.**

3 A. For example, consider a home that needs \$500 from improvements to be ready to participate
4 in the Weatherization Assistance Program. This could be the total amount of readiness
5 funding needed or the remaining amount after application of other weatherization readiness
6 funding. Having an IUI with the same terms as the previous IUI retrofit program (10 years
7 with KPC's pre-tax WACC of 8.21%) would result in an IUI charge of \$6.12 per month. On
8 the other hand, the average energy savings from participating in Weatherization would be
9 210.92 kWh per month, resulting in bill savings of \$27.60 per month.²³ Therefore, through
10 participation in Weatherization and an IUI Readiness program, the participation would have
11 a net estimated bill savings of \$21.48 per month. Over five years, the participating customer
12 would be estimated to save \$1,288.84, assuming no changes to rates or usage. Therefore, it
13 would be beneficial for this customer to utilize an IUI readiness program to enable them to
14 participate in the Weatherization Assistance Program.

²³ See Direct Testimony of Scott E. Bishop on Behalf of Kentucky Power Company, *In re Electronic Application of Kentucky Power Company for: (1) Approval to Expand Its Targeted Energy Efficiency Program; (2) Approval of a Home Energy Improvement Program and a Commercial Energy Solutions Program; (3) Authority To Recover Costs And Net Lost Revenues, And To Receive Incentives Associated With The Implementation Of Its Demand-Side Management/Energy Efficiency Programs; (4) Approval Of Revised Tariff D.S.M.C.; (5) Acceptance Of Its Annual DSM Status Report; And (6) All Other Required Approvals And Relief*, Case No. 2024-00115, Revised Ex. SEB-2 (May 1, 2024) (revised and adopted by Tanner S. Wolfram on July 8, 2024).

1 **Q. WOULD AN IUI WEATHERIZATION READINESS PROGRAM REPLACE THE**
2 **NEED FOR THE WEATHERIZATION READINESS FUNDING REQUESTED BY**
3 **KENTUCKY POWER COMPANY?**

4 A. No. As I stated previously, the Weatherization Readiness Funds and supplemental funding
5 from KPC should be the first stop for income-eligible customers, and it is best that they
6 receive these resources at no cost if there are funds available to do so.

7 In addition, an IUI for Weatherization Readiness program would likely be the best fit for
8 relatively small costs, as the project cost would be limited by the requirement that the IUI
9 charge must be a margin less than the estimated bill savings. Since this is a program serving
10 exclusively low-income customers, it may be prudent to apply a higher minimum savings
11 threshold than an IUI Retrofit Program would use. For example, instead of requiring the
12 savings be 10% or 20% greater than the IUI charge, a weatherization readiness program may
13 require a 25% or 35% margin. Given this margin of savings, it is unlikely that such a
14 program could ever cover more expensive readiness upgrades, such as a roof replacement.
15 Furthermore, there is likely such a great need for funding for weatherization readiness that an
16 IUI program would complement the federal funding and supplemental funding from
17 Kentucky Power by allowing more households to be helped. Therefore, I see this proposal as
18 complementary to Kentucky Power's request for weatherization readiness funding, and it
19 certainly should not replace it.

1 **VIII. ADDRESSING KENTUCKY POWER’S PREVIOUS CONCERNS WITH IUI**
2 **PROGRAMS**

3 **Q. HAS KENTUCKY POWER CONSIDERED IUI PROGRAMS, TO YOUR**
4 **KNOWLEDGE?**

5 A. IUI programs such as PAYS® were not mentioned or included in the Market Potential Study
6 conducted by GDS Associates on Kentucky Power’s behalf for this DSM case.²⁴ However,
7 Kentucky Power stated that the Company requested that GDS Associates conduct a separate
8 “analysis of on-bill tariff or PAYS programs,” for which they prepared a 1.5-page summary
9 of their research.²⁵ In the summary, GDS Associates did not recommend pursuing a PAYS®
10 program.

11 **Q. PLEASE SUMMARIZE THE REASONS GDS ASSOCIATES DID NOT**
12 **RECOMMEND KENTUCKY POWER COMPANY PURSUE A PAY AS YOU SAVE**
13 **PROGRAM.**

14 A. GDS Associates asserted that PAYS® programs²⁶ have not demonstrated that they “can be
15 either cost effective or effectively reach the target market.”²⁷ According to GDS, the primary
16 reason for this is that the co-pays required are “prohibitive to participation . . . thus, all of the
17 upfront barriers may not be eliminated.”²⁸ They also note that PAYS® programs are “not
18 widely offered by investor-owned utilities.”²⁹ They conclude that “PAYS programs are best

²⁴ See Nolen Direct, Ex. BLN-1.

²⁵ See Response of Kentucky Power Company to Joint Intervenors’ Initial Request for Information, Case No. 2024-00115, Question 2, including Attach. 1 (July 8, 2024), (“KPC Response to JI Q1.2”).

²⁶ Not all IUI programs are PAYS® programs. PAYS® is a specific, branded version of an IUI program that is trademarked by the Energy Efficiency Institute. For example, the Duke Energy NC programs are examples of IUI programs that do not use the PAYS® trademark or necessarily follow the rules as described by the Energy Efficiency Institute.

²⁷ KPC Response to JI Q1.2, Attach. 1, at 1.

²⁸ *Id.*

²⁹ *Id.*

1 suited for a specific set of customers. Recognizing that Kentucky Power is committed to
2 establishing a portfolio for all customers, GDS found it would be more beneficial for
3 Kentucky Power to focus on program models that are known to be successful and cost-
4 effective as it ramps up energy efficiency activities.”³⁰

5 **Q. DO YOU AGREE WITH GDS’S REASONS FOR NOT RECOMMENDING THE**
6 **COMPANY PURSUE PAYS® OR OTHER IUI PROGRAMS?**

7 A. No. I believe that IUI programs are a great opportunity for Kentucky Power and other
8 investor-owned utilities to augment and complement their demand-side management
9 programs. Furthermore, the GDS Pay as You Save Program Research summary omits key
10 facts regarding the main example it discusses, Ameren Missouri’s PAYS® program.

11 **Q. GDS ASSOCIATES CLAIMS THAT PAYS® PROGRAMS ARE NOT WIDELY**
12 **OFFERED BY INVESTOR-OWNED UTILITIES. DO YOU AGREE?**

13 A. No. While it is true that IUI programs are relatively new for IOUs, GDS Associates appears
14 to have ignored the pace at which IOUs are launching IUI programs and pilots. I am aware
15 that the following IOUs have launched or applied for IUI pilots or programs in the last five
16 years: Ameren Missouri, Duke Energy NC, Duke Energy’s South Carolina utilities, Evergy
17 Missouri, Georgia Power, ComEd, and Liberty Utilities Missouri. This is not intended to be
18 an exhaustive list of the IOUs who have already launched IUI programs/pilots or intend to do
19 so in the future. It is my opinion that IOUs are increasingly interested in the potential of IUI
20 programs.

³⁰ *Id.* at 2.

1 **Q. DO YOU AGREE WITH GDS ASSOCIATES THAT THE COPAYS ASSOCIATED**
2 **WITH PAYS® PROGRAMS ARE PROHIBITIVE TO PARTICIPATION?**

3 A. No. As discussed previously, the copays in IUI programs can be substantial and inhibit
4 participation. However, considering the possibility of bundling the program with significant
5 utility and federal rebates, in addition to federal tax credits, the copays should be reduced
6 substantially or completely eliminated. The development of federal rebate programs suggests
7 that the next few years may be a unique moment in time where IUI programs are likely to be
8 especially effective.

9 **Q. DO YOU AGREE WITH GDS ASSOCIATES' ASSERTION THAT PAYS®**
10 **PROGRAMS ARE "BEST SUITED FOR A SPECIFIC SET OF CUSTOMERS"?**³¹

11 A. Yes. All energy efficiency programs are best suited for customers who can use energy more
12 efficiently. Not all customers have the potential to benefit from energy efficiency upgrades.
13 However, many IOUs have come to recognize that IUI programs can be a useful tool to
14 benefit a segment of customers. And to the extent IUI enables further uptake of cost-effective
15 energy efficiency measures, it will create net benefits for all customers—participants and
16 nonparticipants alike.

³¹ *Id.*

1 **Q. GDS ASSOCIATES CITES THE AMEREN MISSOURI PAYS® PROGRAM FOR**
2 **THE PREMISE THAT “PAYS PROGRAM ACTIVITY HAS NOT CONSISTENTLY**
3 **DEMONSTRATED THAT THEY CAN BE . . . COST EFFECTIVE.”³² DOES THE**
4 **AMEREN MISSOURI EXAMPLE SUPPORT THIS CLAIM?**

5 A. No. GDS Associates cites an old total resource cost (“TRC”) test score of 0.68 for the
6 Ameren Missouri PAYS® program from 2021 to support their claim that the Ameren
7 Missouri program has not demonstrated cost-effectiveness.³³ However, Ameren Missouri’s
8 TRC scores have significantly improved since then. As shown in Exhibit BGH-5, Ameren
9 Missouri now estimates TRC scores of 0.98, 1.09, and 1.19 for its residential PAYS®
10 program in years 2025, 2026, and 2027 respectively.³⁴ Given that a TRC score greater than
11 1.0 means the program is cost effective, this suggests that Ameren believes the program will
12 essentially be cost effective in 2025 and that this metric will continue to improve over the
13 next few years.

14 Furthermore, as discussed previously, IUI programs do not necessarily need to be bundled
15 with DSM programs. If an IUI program is structured separately, like the approach adopted by
16 Duke Energy NC, then it does not make sense to evaluate the cost effectiveness of the
17 program. It is simply a cost recovery tool.

³² KPC Response to JI Q1.2, Attach. 1, at 1.

³³ *Id.*

³⁴ Amended and Supplemented Application to Approve DSIM and Demand-Side Management Portfolio and Plan, and Request for Variances, Revised App’x A– Portfolio and Program Summary, *In the Matter of Union Electric Company d/b/a Ameren Missouri’s 4th Filing to Implement Regulatory Changes in Furtherance of Energy Efficiency as Allowed by MEEIA*, Missouri Public Service Commission, Case No. EO-2023-0136, at 11 (Jan. 25, 2024) (attached as Exhibit BGH-5).

1 **Q. DO YOU AGREE WITH GDS ASSOCIATES' CONCLUSION THAT KENTUCKY**
2 **POWER SHOULD NOT CONTINUE TO EVALUATE AN IUI PROGRAM?**

3 A. No. IUI programs can be a great tool to increase the adoption of beneficial behind-the-meter
4 investments, such as energy efficiency.

5 **IX. CONCLUSION**

6 **Q. WHAT DO YOU BELIEVE WOULD BE A CONSTRUCTIVE AND REASONABLE**
7 **OUTCOME OF THIS PROCEEDING?**

8 A. There is currently notable interest in IOUs launching IUI programs to benefit their customers.
9 Kentucky Power Company should evaluate the potential of these programs in a working
10 group with stakeholders aimed at filing a program for approval with the Commission within
11 12 months of the order in this proceeding. If a consensus among the work group cannot be
12 reached and a program filed for approval, then the Commission should require a report
13 describing remaining points of contention and demonstrating that the potential of IUI
14 programs have been fully investigated.

15 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

16 A. Yes.

VERIFICATION

The undersigned, Bradley Harris, being first duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing testimony and that the information contained therein is true and correct to the best of his information, knowledge, and belief, after reasonable inquiry.



Subscribed and sworn to before me by Bradley Harris this 20 day of Aug, 2024.



Notary Public

My commission expires: 09/30/2027



Exhibit BGH-1

BRADLEY HARRIS

harris.bradley.g@gmail.com

(610) 213-3971

EXPERIENCE

WEAVEGRID – Washington, DC 2024-Present

Manager, Policy and Regulatory Affairs

- Responsible for policy and regulatory affairs for the east coast

RESOURCES FOR THE FUTURE – Washington, DC Jan-Jun 2024

Director, Government Affairs

- Led the organization's engagement with Congress and the White House

DUKE ENERGY – Raleigh, NC 2019-2024

Manager, Rates and Regulatory Strategy

- Responsible for analysis of net metering in all four Duke Energy jurisdictions in the Carolinas
- Responsible for a wide array of rate design reforms through a Comprehensive Rate Design Study, leading reforms of EV rate design, time-of-use period reform, and residential rate design
- Led a redesign of Duke Energy Florida's retail rate designs
- Co-designed the Company's Tariffed-On Bill Energy Efficiency program, led stakeholder engagement
- Acted as an expert witness in two North Carolina rate cases on the Customer Assistance Program, which would offer roughly \$60 million per year to low-income households
- Led the Company's strategy regarding three programs stemming from the Inflation Reduction Act: Solar for All, High-Efficiency Electric Home Rebate, and Home Efficiency Rebate programs

EDUCATION

UNIVERSITY OF NORTH CAROLINA, Kenan-Flagler Business School – Chapel Hill, NC May 2019

Master of Business Administration, Full-Time MBA Program

DUKE UNIVERSITY, Sanford School of Public Policy – Durham, NC May 2019

Master of Public Policy

- Master's Thesis: "Residential Rate Design in North Carolina", Client: Duke Energy

TUFTS UNIVERSITY – Medford, MA May 2013

Bachelor of Arts, Economics and Political Science

PUBLICATIONS AND MEDIA APPEARANCES

- Bradley Harris. 2024. "Improving Electricity Affordability in the Clean Energy Transition", **Resources for the Future** [Webinar](#). June 26.
- Bradley Harris. 2024. "How Surging Demand is Shaping the US Power Sector", **Resources for the Future** [Podcast](#). April 9.
- Bradley Harris. 2024. "A Guide to Improving Electricity Affordability", **Resources for the Future** [blog post](#). May 6.
- Bradley Harris. 2024. "Rate Design for EV Fast Charging Stations", **UNC Chapel Hill Kenan-Flagler Energy Center Director's Blog** [white paper](#). May 2.

ADDITIONAL

- Recurring Guest lecturer in two courses at UNC Chapel Hill, Kenan-Flagler MBA Program: *The Business of Power* and *The Business of Renewable Energy*

Exhibit BGH-2



Kendrick C. Fentress
Associate General Counsel

Mailing Address:
NCRH 20 / P.O. Box 1551
Raleigh, NC 27602

o: 919.546.6733

Kendrick.Fentress@duke-energy.com

September 30, 2022

VIA ELECTRONIC FILING

Ms. A. Shonta Dunston
Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

**Re: Duke Energy Progress, LLC's Proposed Residential Tariffed On-Bill Program Tariff – Electric Customer Monthly Charge
Docket No. E-2, Sub 1309**

Dear Ms. Dunston:

Enclosed for filing with and approval by the North Carolina Utilities Commission (the "Commission") is Duke Energy Progress, LLC's ("DEP" or the "Company") proposed Tariffed On-Bill tariff ("TOB"), a utility tariff filed in accordance with House Bill 951, Part III, Section Five, Item (iii) that requires the Company to establish an on-utility-bill repayment program related to energy efficiency investments.

The purpose of this tariff is to provide a mechanism for customers to install energy efficient upgrades and pay for those upgrades over time through their monthly electric bill. Energy efficient upgrades may include high efficiency HVACs, air sealing and insulation, duct replacement, and heat pump water heaters. By using premises-specific modeling, applying all available rebates and incentives, and utilizing an initial copayment, if necessary, the customer's monthly TOB charge will not exceed the customer's projected average monthly energy savings.

The upfront costs of improvements have long been identified as a significant obstacle for customers wishing to improve the energy efficiency of their homes. Some utilities and electric cooperatives have been able to assist customers in overcoming the "first cost" barrier by allowing them to pay for residential energy efficiency investments in installments as part of their tariffed electric bill charges. The Company has developed its proposed TOB tariff in consideration of established on-utility-bill programs offered by other utilities and cooperatives, and in consultation with the Tariffed On-Bill Working Group ("TOB Working Group") that was established as part of DEP's July 23, 2020

Agreement and Stipulation of Settlement with Stipulating Parties, which was approved by the Commission in its *Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Customer Notice*, Docket Nos. E-2, Sub 1219 and 1193 on April 16, 2021. The proposed TOB tariff establishes customer protections, defines customer and utility obligations, and outlines general requirements necessary to ensure that both participants and non-participants benefit from making energy efficiency measures more affordable.

The Company's TOB program has several unique features designed to maximize the energy saving impact of the program. First, customers wishing to participate must have a twelve-month billing history to establish the baseline consumption necessary for modeling projected energy savings. The Company will use those projected savings to determine if the measure(s) qualify(ies) for Company program-related incentives and if an initial copayment is necessary to ensure that monthly savings exceed monthly repayment costs.¹ Second, as part of the TOB program, the Company will maintain and repair equipment, as needed. Customers agree to notify the Company when equipment is not functioning properly, and the Company agrees to repair it within five business days. If it cannot be repaired within five business days of notice to the Company, subsequent monthly payments may be suspended. The ongoing maintenance ensures that the projected energy savings do not degrade over time and that the benefits to the entire utility system are realized.² Thirdly, repayment of the TOB charge is an essential part of the customer's electric bill, and failure to pay could result in disconnection. This provision ensures that participants bear the primary expense of the upgrades and minimizes the risk of cost shifting. Lastly, the TOB tariff is tied to the meter at the premises, not to the individual customer. Therefore, when one customer moves out of the residence, the next occupant resumes paying the TOB charge and receiving the benefits of participating in the TOB program.

Initially, the Company will target customers with the best opportunity to achieve energy savings because they are the most likely participants to qualify for program-related incentives and achieve adequate bill savings without an initial copayment. However, over time, the Company expects that many customers will wish to avail themselves of the convenience of on-bill payment for worry-free energy efficient improvements to their home.

DEP requests the TOB tariff become effective on January 1, 2023. The Company is also aware that other parties have thirty days from the date of the filing in which to petition for intervention, protest, or file comments.

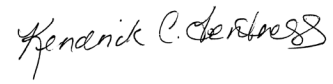
DEP respectfully requests that the Commission approve the Tariffed On-Bill tariff (provided on Attachment A) to become effective on January 1, 2023.

¹ The TOB charge includes the cost of the installed measure(s) plus interest in the amount of the Company's most recently approved weighted average cost of capital.

² Costs related to ongoing maintenance and repair, as well as the cost of IT and system upgrades to facilitate overall program billing will be collected outside of the EE/DSM cost recovery mechanism or included in any specific customer TOB charges.

If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "Kendrick C. Fentress". The signature is written in a cursive style with a large, stylized 'K' and 'F'.

Kendrick C. Fentress

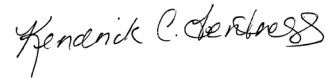
Enclosure

cc: Parties of Record

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Progress, LLC's Proposed Residential Tariffed On-Bill Program Tariff – Electric Customer Monthly Charge, in Docket No. E-2, Sub 1309, has been served on all parties of record either by electronic mail, hand delivery or by depositing a copy in the United States mail, postage prepaid.

This the 30th day of September, 2022.



Kendrick C. Fentress
Associate General Counsel
Duke Energy Corporation
P.O. Box 1551/ NCRH 20
Raleigh, North Carolina 27602
Tel: 919.546.6733
kendrick.fentress@duke-energy.com

RESIDENTIAL TARIFFED ON-BILL PROGRAM TARIFF- ELECTRIC CUSTOMER
MONTHLY CHARGE
PROGRAM TOB-1

PURPOSE

The purpose of the Residential Tariffed On-Bill Program Tariff- Electric Customer Monthly Charge program (the “Program”) enables customers to make investments in energy efficiency upgrades that will be repaid as part of the monthly electric bill associated with the premises through a Monthly Service Charge.

AVAILABILITY

Available to individually metered residential customers receiving concurrent service under a residential rate schedule.

The proposed project must also be approved by Duke Energy Progress, LLC (the “Company”), at its sole discretion. Projects will be screened to determine energy savings resulting from the upgraded measures that exceed the customer’s costs. If energy savings do not exceed the customer’s costs, then the Company may require the customer to make a co-payment to participate.

LIST OF ELIGIBLE MEASURES

A list of eligible measures (“Measures”) can be found on the Company’s website. Measures may include, but are not limited to, the following:

- Heating Ventilation and Air Conditioning (HVAC) equipment, service, and controls, including smart thermostats
- Thermal boundary improvements
- HVAC duct replacement
- Heat Pumps Water Heaters
- Other high efficiency equipment, products, and services as determined by the Company on a case-by-case basis.

CUSTOMER OR PARTICIPANT AGREEMENT:

To participate in the Program, the Duke Energy account holder at the participating location and the property owner, if different, must sign the Owner Participant Agreement. Participation in the Program will not require a credit check.

ACCOUNT STATUS

A residential customer’s account shall be current and not be on an active installment payment before an in-home assessment may be scheduled and before the installation of any measures.

EXISTING BUILDINGS

To qualify for participation in the Program, the Company must determine that an existing property is habitable for residential customers for the entire projected repayment period. Properties that the Company deems uninhabitable may be made habitable after improvements and upon inspection by the Company or an authorized agent. The Company, at its sole discretion, retains the right to deem properties habitable and to determine the appropriate improvements to become habitable.

RESIDENTIAL TARIFFED ON-BILL PROGRAM TARIFF- ELECTRIC CUSTOMER
MONTHLY CHARGE
PROGRAM TOB-1

PARTICIPANT CO-PAYMENT

A participant may be required to make a co-payment at the beginning of the project to reduce the overall amount subject to repayment and meet the required net bill savings threshold. Only the amount due for repayment would be subject to the Company's approved rate of return.

PARTICIPANT REPAYMENT COSTS

The Company will recover the full cost of the upgrades including installation, and its approved rate of return. These costs are assigned to the location (point of service or meter) where Measures are installed and paid by Customers occupying that location until all costs specified in the Owner Participant Agreement, as applicable, have been recovered.

Monthly Service Charge = (Total Amount Paid for Measures minus the incentive payment and minus the Participant Co-Payment) * Approved Rate of Return in the Company's most recently approved rate case at the time of the Owner Participant Agreement and Term Length are established.

If Monthly Service Charges are temporarily suspended for any reason or the Company has no customer at the location for a period of time, the term of recovery may be extended for an equivalent period, but in any event the Repayment Period will not exceed twelve (12) years.

COST RECOVERY

No sooner than 30 days after the Company or its authorized agent notifies the customer of a completed project the Customer shall be billed the Monthly Service Charge in accordance with this tariff and the "Owner Participant Agreement." The Company will bill and collect Monthly Service Charges until cost recovery is complete, except as described below. Prepayment of unbilled charges will not be permitted.

An account holder may request a final bill for all remaining payments at the time of discontinuing service, starting service, or transferring service to a new owner or occupant.

The Company will bill and collect Monthly Service Charges until the Company recovers all costs as described above.

VACANCY

If a location at which Measures have been installed becomes vacant and electric service is disconnected, the Monthly Service Charges will be suspended until such time as electric service is restored. If a property owner maintains service at an unoccupied residence, the Monthly Service Charges may revert to the property owner, as described in the "Owner Participant Agreement" as applicable. In buildings with multiple rental units, the Company may require a property owner to maintain service for locations receiving Program Measures.

TERMINATION OF SERVICE CHARGE

Monthly Service Charges will no longer be billed after the Company has recovered the full cost of the Measure(s) and applicable fees, as described in the "Owner Participant Agreement" as applicable.

RESIDENTIAL TARIFFED ON-BILL PROGRAM TARIFF- ELECTRIC CUSTOMER
MONTHLY CHARGE
PROGRAM TOB-1

TIED TO THE LOCATION

Until Monthly Service Charges are terminated, as described herein, the terms of this tariff together with the terms of the relevant “Owner Participant Agreement” shall be binding on any future account holder who shall receive service at a participating location.

DISCONNECTION FOR NON-PAYMENT

The Monthly Service Charges shall be considered an essential part of the Customer’s bill for electric service, and the Company may disconnect electric service for non-payment of Monthly Service Charges, subject to any applicable North Carolina law and Utility Commission rules or policies.

MAINTENANCE OF MEASURES

Participating Customers and property owners, if different, must keep the Measures in place for the duration of Monthly Service Charges, maintain the Measures per the manufacturers' instructions, and report any failure of any Measures to the Company and/or the Company’s Program operator as soon as possible and, in any event, within five (5) business days. Participating Customers and building owners must also agree to allow the Company and/or the Company’s Program operator access to perform maintenance and make repairs or adjustments to the Measures. The next Monthly Service Charge may be suspended if it cannot be repaired within five (5) business days of notice to the Company or the Company’s Program operator and may remain suspended until repairs are complete and equipment is operable. In the event, the billing cycle has commenced before the notification has been recorded, then customer may request a credit. Payment amounts will not be pro-rated.

REPAIRS

If, during the repayment period, the Company or its agent determines that a Measure is no longer functioning as intended and that the failure was not caused by the property owner/occupant, or other occupants in the residence, the Company will arrange for repair of the Measure and may elect to suspend Monthly Service Charges until repairs are complete.

If the Company determines that the property owner/occupant or other occupants in the residence caused, deliberately or negligently, the Measure’s failure, the Company may, in its sole discretion, seek to recover the costs of repairs from the Customer and/or seek, in addition to cost of repairs, immediate recovery of all remaining costs not to exceed the full cost of the Measure and applicable fees as specified in the “Owner Participant Agreement” as applicable.

If the Company is not responsible for maintenance and repairs per the terms of the “Owner Participant Agreement” then this does not apply.

NOTIFICATION TO SUCCESSOR CUSTOMERS

The Company will file Electricity Provider Notice of Tariffed on-Bill notice of a TOB charge in the real estate record.

The “Owner Participant Agreement” will include a requirement that any successive owner, or any future tenant who will be an account holder at the location, is provided successor owner notice or successor renter notice, as applicable, of that location’s enrollment in a tariffed on-bill program.

RESIDENTIAL TARIFFED ON-BILL PROGRAM TARIFF- ELECTRIC CUSTOMER
MONTHLY CHARGE
PROGRAM TOB-1

A landlord would be subject to a remedy as set forth in the “Owner Participant Agreement” for violating the terms of the “Owner Participant Agreement”.

The Company will also inform a successor account holder at the time of setting up a new service at a participating property that the monthly electric bill will include Monthly Service Charges.

GENERAL

Services and offerings under this Program are subject to the authority of the North Carolina Utilities Commission and are subject to changes or other modifications lawfully made thereby.

Effective for service rendered on and after _____
NCUC Docket No. E-2, Sub _____

Exhibit BGH-3

Tariffed On-Bill Overview

December 2023



What is Tariff on Bill (TOB)?

“An on-bill tariff program allows a utility to pay for energy efficiency improvements at a specific residence and recover payment for those improvements over time on the utility bill for that location. The on-bill tariff model differs from on-bill loans and repayment models in that tariffs are not a loan, but rather a utility expenditure for which cost recovery is tied to the utility meter according to terms set forth in a utility tariff.”¹

¹U.S. Department of Energy, 'Issue Brief: Low-Income Energy Efficiency Financing through On-Bill Tariff Programs', <https://betterbuildingssolutioncenter.energy.gov>, October 2023

Tariff On Bill @ Duke Energy

Tariffed-On-Bill (TOB) will enable residential customers – owners and renters – to pay for energy efficiency upgrades through their Duke Energy bill. These charges are tied to the premise not the account.



Improve & Save Program
NC - DEC & DEP

This Tariff on Bill (TOB) program will enable residential customers – owners and renters – to pay for energy efficiency upgrades through their Duke Energy bill



Smart \$aver Early Replacement and Retrofit
NC - DEC & DEP

This adjustment to an existing program will allow for greater EE incentives where appropriate



Launching in Q1 2024



Smart \$aver® Built-In Savings Pilot
DEP NC

This TOB multi-family new construction pilot seeks to solve the “split incentive” issue in newly built rental units by paying developers their incremental costs to install energy efficient upgrades



Launching in Q4 2023



Improve & Save Pilot
DEP SC

South Carolina TOB programs are governed by an existing SC statute. The Pilot will seek to understand how the utility can best serve customers within the current legislation.



Launch Date TBD



Improve & Save Program

Program Description

A residential program designed to make homes more efficient and save customers money by reducing energy usage through tariffed residential improvements that are paid for as part of the home's Duke Energy bill.

Duke Energy will pay for the installation and equipment up-front.

Improvements include:

- HVAC replacement w/ Duct Sealing
- Water Heater replacement
- Attic insulation and Air Sealing
- Smart thermostat

Solving Customer Problems



Average total monthly energy bill is less with the TOB charge than it is before the improvements so that customers can afford the upgrades.



No credit check or home lien. Access to low interest rates that may not otherwise be available to customers.



Customers will be able to update older homes and receive energy efficiency incentives.



The TOB charge is associated with the home. If someone moves out the TOB charge will persist with the next resident.



Maintenance will be provided to ensure the continued operation and efficiency of the equipment.

Smart \$aver Early Replacement and Retrofit

What happens if there is **no** program?

Failed HVAC replaced with efficient HVAC



Customer purchases federal baseline HVAC

New Construction



Developer purchases federal baseline HVAC

Replace Baseboard heat with Mini-Splits



Customer continues to use inefficient baseboard heat

Replace inefficient HVAC with efficient HVAC



Customer continues to use HVAC with a SEER rating **below** the federal baseline

What happens if there **is** program?



Customer purchases efficient HVAC



Developer purchases efficient HVAC



Customer purchases efficient HVAC



Customer purchases efficient HVAC



Utilize traditional federal standard baseline



Utilize traditional federal standard baseline



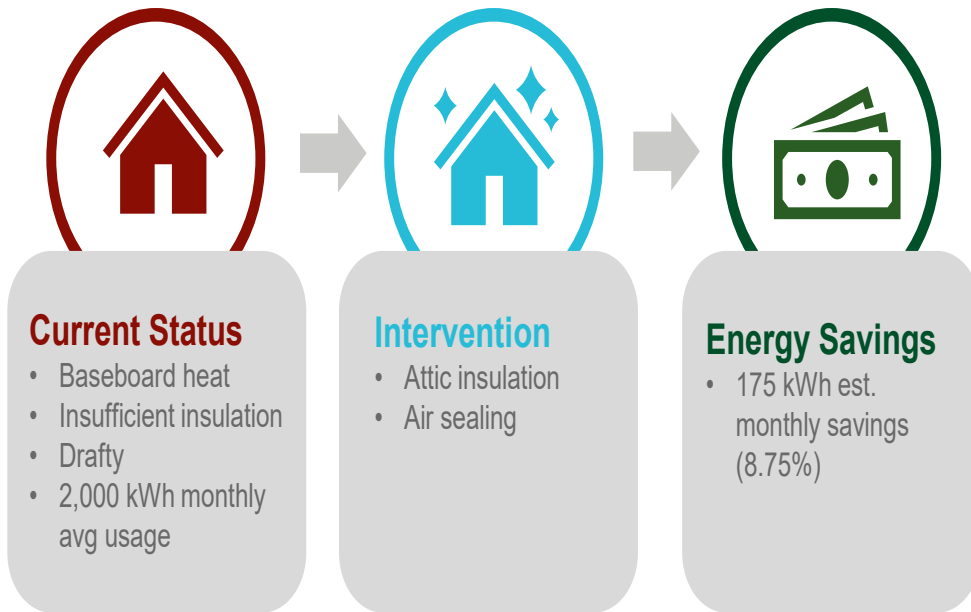
Utilize as-found baseline (higher incentive)



Utilize as-found baseline (higher incentive)

Example 1 – Building Envelope Measures, No IRA Rebate

Illustrative Example – all numbers subject to change



Total Cost	\$2,200
Smart Saver ER&R	-\$735
<hr/>	
Remaining Cost	\$1,465
ToB or Upfront Cost	-\$1,465
<hr/>	
Remaining Upfront Cost	\$0

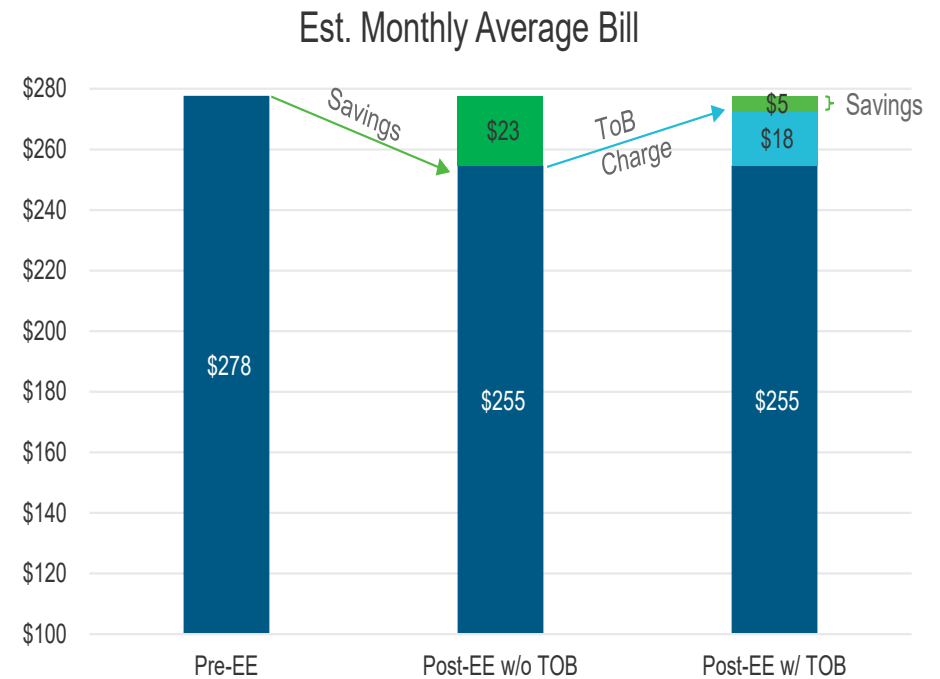
\$23
monthly
savings

\$18
monthly
charge

5-Year Customer Value Proposition		
ToB?	Yes	No
Upfront Cost	\$0	\$1,465
Bill Savings*	\$1,384	\$1,384
Net Savings**	\$317	(\$81)

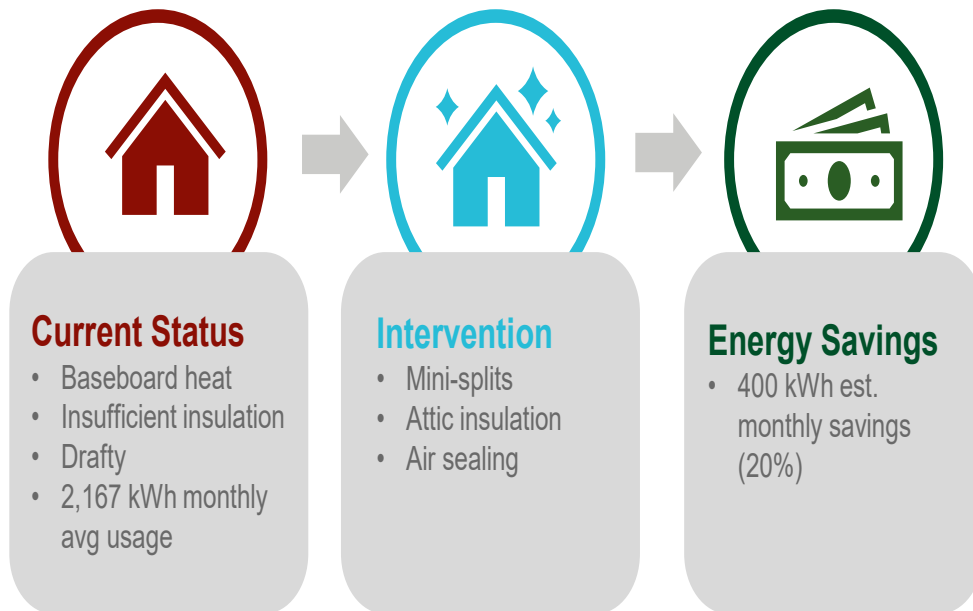
*Does not account for any future change in rates

**Does not account for the added value to the house



Example 2 – Deep Retrofit with IRA Rebate

Illustrative Example – all numbers subject to change

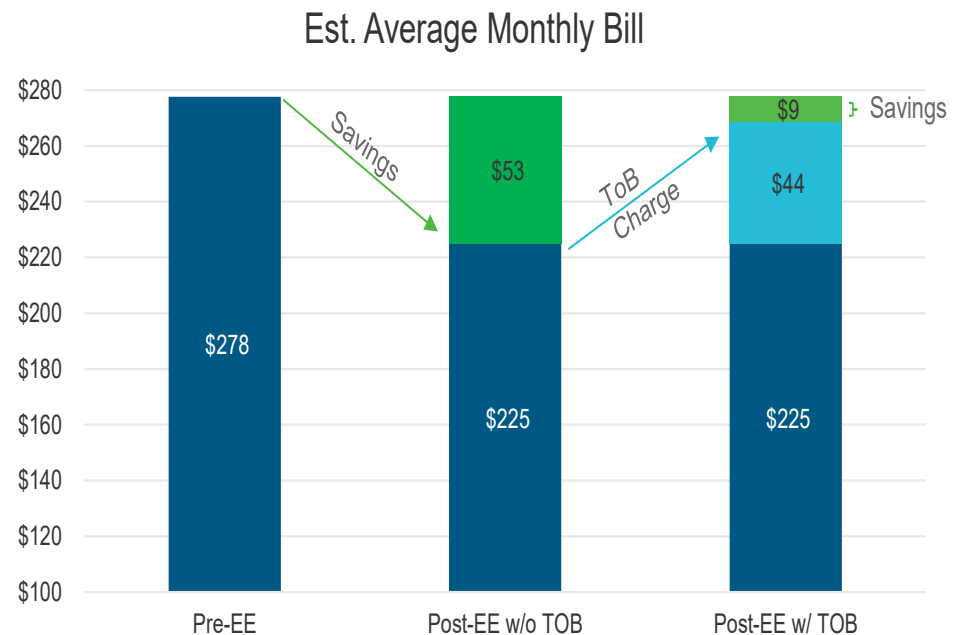


Total Cost	\$15,000	
Smart Saver ER&R	-\$4,000	\$53 monthly savings
IRA Rebate	-\$7,500	
<hr/>		
Remaining Cost	\$3,500	
ToB or Upfront Cost	-\$3,500	\$44 monthly charge
Remaining Upfront Cost	\$0	

5-Year Customer Value Proposition		
ToB?	Yes	No
Upfront Cost	\$0	\$3,500
Bill Savings*	\$3,164	\$3,164
Net Savings**	\$544*	(\$336)*

*Does not account for any future change in rates

**Does not account for the added value to the house



Built-In Savings DEP NC Pilot

Pilot Description

A 700-to-1000-unit pilot to enable multi-family project developers to upgrade to more energy-efficient equipment and building materials in DEP.

Multi-family project developers and renters will benefit from Energy Design Assistance modeling. Project developers will be paid the difference in costs between the upgrades and what is required by code, upon verification of the fully installed measures. The renters will repay the costs of the upgrades over time on their monthly electric bills less an energy efficiency incentive.

Improvements may include:

- HVAC and Insulation upgrades
- ENERGY STAR® Appliances

Pilot Goals

- Evaluate the willingness of developers to install energy efficiency upgrades in individual apartment units and have renters repay the cost of the upgrades over time through monthly charges on their electric bills.
- Determine how much more energy efficiency multi-family project developers will include in individual apartment units when they are reimbursed for the costs of the upgrades.
- Examine renters' acceptance of a separate charge on their electric bill for energy efficiency upgrades; understanding and appreciation of lower electric utility costs overall.

Product Features



Lower Energy Payment

Renter's average total monthly energy bill is less with the TOB repayment amount than it would have been with less efficient options.



Monthly on Bill Payment

The TOB repayment amount will show as a line item on the monthly electricity bill for the renter, with no undue notifications.



Non-Payment

Low risk of a customer not paying the TOB repayment amount as the electricity is subject to disconnect for non-payment.



Hassle-Free Move In / Move Out

The TOB repayment amount is associated with the premise. If someone moves out the TOB charge will persist with the next account.



Inclusive Maintenance

Property owner or management would provide routine maintenance to ensure the continued operation and efficiency of the equipment.

Improve & Save DEC SC Pilot

Program Description

A three-year pilot for up to 1,000 residential customers designed to make homes more efficient and save customers money by reducing energy usage through tariffed residential improvements that are paid for as part of the home's Duke Energy bill.

Duke Energy will pay for the installation and equipment up-front.

Improvements include:

- HVAC replacement w/ Duct Sealing
- Water Heater replacement
- Attic insulation and Air Sealing
- Smart t-stat

Solving Customer Problems



Affordable Payments

Average total monthly energy bill is less with the TOB charge than it is before the improvements so that customers can afford the upgrades.



No Credit Barriers

No credit check or home lien. Access to low interest rates that may not otherwise be available to customers.



Older Homes

Customers will be able to update older homes and receive Smart \$aver and other available incentives.



Moving Out

The TOB charge is associated with the home. If someone moves out the TOB charge will persist with the next resident.



Maintenance

Maintenance will be included in the customer charges to ensure the continued operation and efficiency of the equipment.

Target Customer & Market Size



Improve & Save seeks to serve 3,800 homes over five years.



Built-In Savings will serve up to 1,000 apartment units

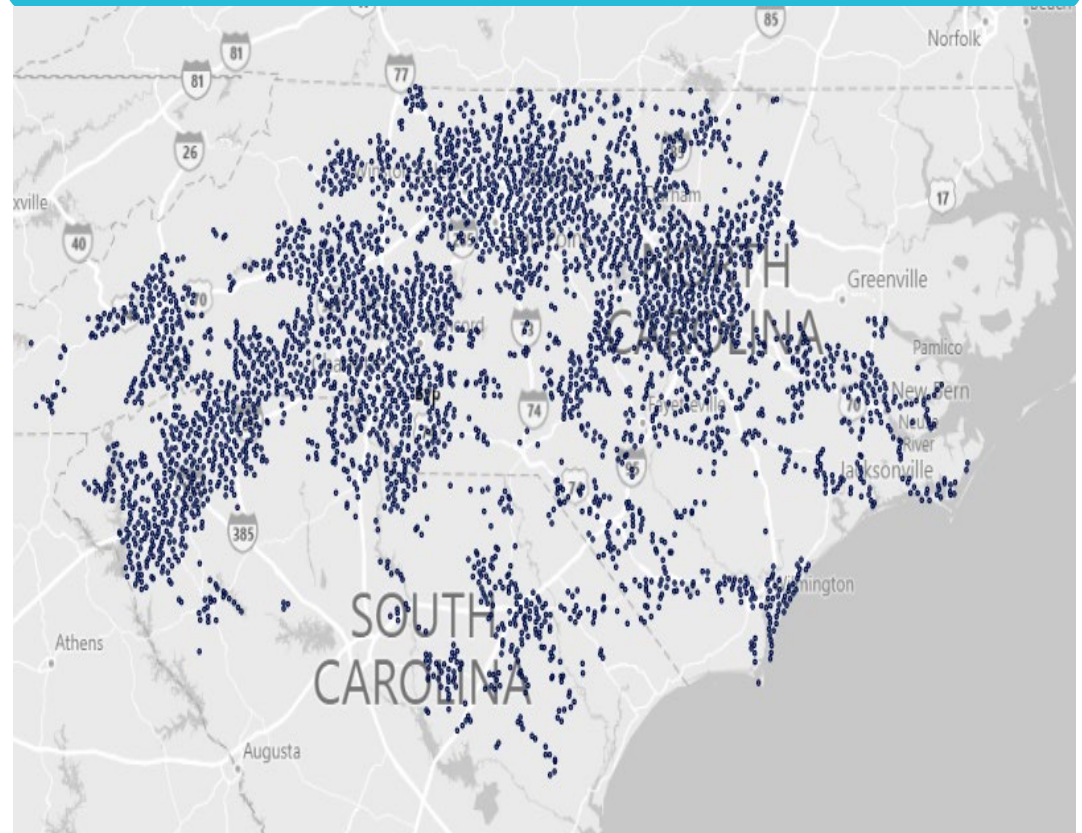


SC Pilot seeks to serve 1,000 customers



IRA Rebates coupled with TOB should help reach more residential customers.

Using Data Analytics we seek to reach Customers with the highest potential savings impacts.

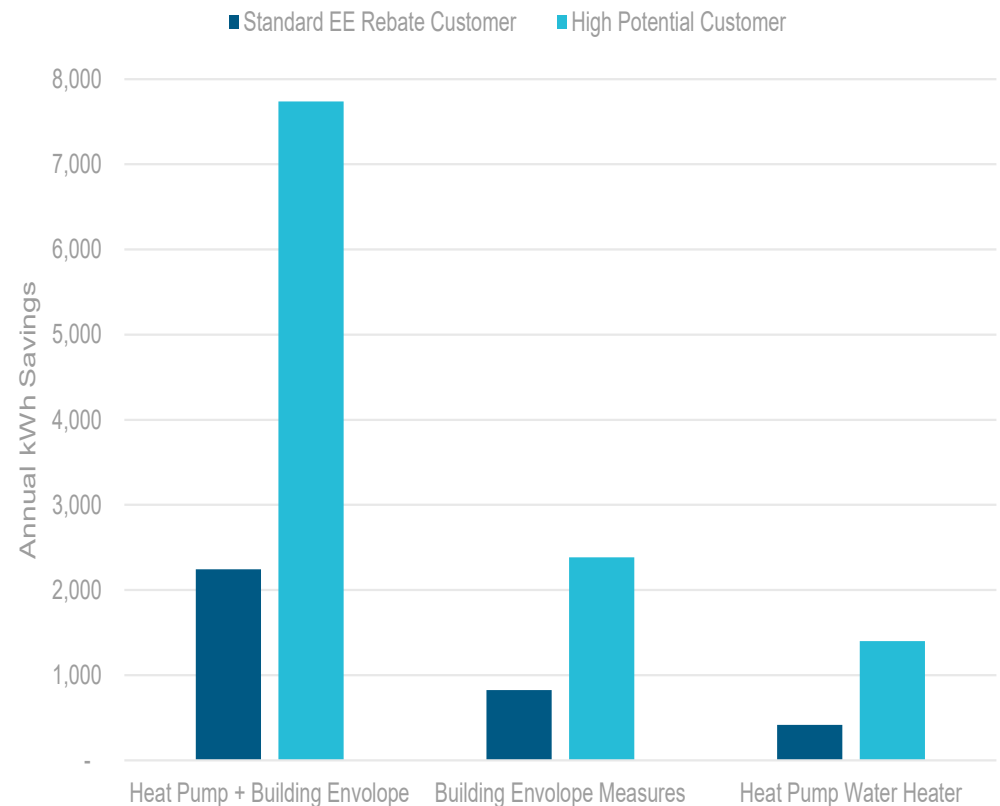


Leveraging AMI data to Maximize Impacts

- Utilizing 30-minute interval usage data from customers to go beyond simply high-energy users
 - ✓ Analyzing usage correlated to weather
 - ✓ Factoring in types of homes, heat source, and local weather factors
- Better data allows for:
 - ✓ Lower operating costs (higher conversation rate from audits to projects)
 - ✓ Higher customer bill savings
 - ✓ More energy and capacity savings

Using Data Analytics we seek to reach Customers with the highest potential savings impacts.

Finding High-Potential Customers is Key



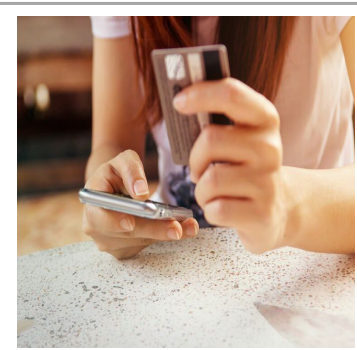


Exhibit BGH-4



Kendrick C. Fentress
Associate General Counsel

Mailing Address:
NCRH 20 / P.O. Box 1551
Raleigh, NC 27602

o: 919.546.6733

Kendrick.Fentress@duke-energy.com

September 30, 2022

VIA ELECTRONIC FILING

Ms. A. Shonta Dunston
Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

**Re: Duke Energy Progress, LLC's Proposed Multi-Family New
Construction Tariffed On-Bill Pilot
Docket No. E-2, Sub 1307**

Dear Ms. Dunston:

Enclosed for filing with and approval by the North Carolina Utilities Commission (the "Commission") is Duke Energy Progress, LLC's ("DEP" or the "Company") proposed Residential Multi-Family New Construction Tariffed On-Bill Pilot ("MFNC TOB Pilot" or "Pilot"), an energy efficiency ("EE") program filed in accordance with Commission Rule R8-68.

The Company also files this MFNC TOB Pilot pursuant to the Commission's April 16, 2021 *Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Customer Notice* ("Order"), in Docket Nos. E-2, Subs 1219 and 1193. In that Order, the Commission approved DEP's July 23, 2020 Agreement and Stipulation of Settlement with Stipulating Parties ("DEP Stipulation")¹ which, among other things, contains provisions relating to establishing a Tariffed On-Bill ("TOB") pilot program. The Stipulating Parties agreed to collaborate to design a TOB pilot program, either a Pay-As-You-Save® or other mutually agreeable alternative program designs. The Company further agreed to either: (1) file the mutually agreed upon Tariffed On-Bill pilot program, not less than three years in length and including no fewer than 700 but no more than 1000 residential customers, for

¹ Duke Energy Progress, LLC, the North Carolina Sustainable Energy Association ("NCSEA"), the North Carolina Justice Center ("NCJC"), the North Carolina Housing Coalition ("NCHC"), the Natural Resources Defense Council ("NRDC"), and the Southern Alliance for Clean Energy ("SACE") (collectively "NCSEA/NCJC et al.")

approval with the Commission or (2) file a status report with the Commission on or before September 30, 2022.

In April 2021, the Stipulating Parties organized the Tariffed On-Bill Working Group (“TOB Working Group”) with other interested stakeholders and commenced working to develop and design a TOB pilot program for existing single-family homes (“Retrofit Program”). During development, as costs were evaluated and opportunities were identified, the Stipulating Parties and other members of the TOB Working Group decided to pursue, design, and develop this MFNC TOB Pilot in parallel with the Retrofit Program. As such, DEP and Duke Energy Carolinas, LLC (“DEC”) have each filed a Retrofit Program, *Residential-Smart Saver*® *Energy Efficiency Program Early Replacement and Retrofit*, for approval with the Commission on September 30, 2022, in Docket Nos. E-2, Sub 1308 and E-7, Sub 1278, respectively. The enclosed MFNC TOB Pilot was developed in consultation with the TOB Working Group.

The purpose of this Pilot is to provide renters access to more energy efficient homes that reduce electricity usage by encouraging developers to include more energy efficient selections than would have been included without this Pilot. Renters will pay for the incremental costs of the energy efficiency improvements over time as part of the monthly utility bill. This Pilot will be offered to residential developers of multi-family new-construction buildings in the DEP service territory area.

DEP requests that the Multi-Family New Construction Tariffed On-Bill Pilot tariff become effective on January 1, 2023. The Company is also aware that under Commission Rule R8-68(d)(2) other parties have thirty days from the date of the filing in which to petition for intervention, protest, or file comments.


DEP respectfully requests that the Commission:

1. Approve the Multi-Family New Construction Tariffed On-Bill Pilot tariff (provided on Attachment G) to become effective on January 1, 2023.
2. Find that the Multi-Family New Construction Tariffed On-Bill Pilot tariff meets the requirements of a new EE program consistent with Rule R8-69.
3. Find that all costs incurred by DEP associated with Multi-Family New Construction Tariffed On-Bill Pilot tariff will be eligible for cost recovery through the annual Demand-Side Management and EE rider in accordance with Rule R8-69(b).
4. Approve the proposed utility incentives for inclusion in the annual DSM/EE rider in accordance with Rule R8-69.

The attached filing package contains a more detailed description of this program, prepared in accordance with Rule R8-68(c)(2) and (3).

If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "Kendrick C. Fentress". The signature is written in a cursive style.

Kendrick C. Fentress

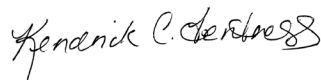
Enclosure

cc: Parties of Record

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Progress, LLC's Proposed Multi-Family New Construction Tariffed On-Bill Pilot, in Docket No. E-2, Sub 1307, has been served on all parties of record either by electronic mail, hand delivery or by depositing a copy in the United States mail, postage prepaid.

This the 30th day of September 2022.



Kendrick C. Fentress
Associate General Counsel
Duke Energy Corporation
P.O. Box 1551/ NCRH 20
Raleigh, North Carolina 27602
Tel: 919.546.6733
kendrick.fentress@duke-energy.com

Multi-Family New Construction Tariffed On-Bill Pilot

R8-68 Filing Requirements

Multi-Family New Construction Tariffed On-Bill Pilot (“MFNC TOB Pilot”)

Filing Requirements

(c)(2)(i)(a)	Measure / Program Name
	Multi-Family New Construction Tariffed On-Bill Pilot (“MFNC TOB Pilot”)
(c)(2)(i)(b)	Consideration to be Offered
	MFNC TOB Pilot customers will receive a combination of energy efficiency incentives and cash payments to cover the incremental cost of upgrading less efficient measures to more efficient measures.
(c)(2)(i)(c)	Anticipated Total Cost of the Measure / Program
	See Attachment B, line 13.
(c)(2)(i)(d)	Source and Amount of Funding Proposed to be Used
	The source of funding will come from the Duke Energy Progress, LLC (“DEP” or the “Company”) general fund, consisting of all sources and capital. Costs associated with the Program will also be subject to cost recovery through the Demand-Side Management (“DSM”)/Energy Efficiency (“EE”) annual cost recovery rider consistent with Commission Rule R8-68(b). See attachment B, line 13.
(c)(2)(i)(e)	Proposed Classes of Persons to Whom This Will be Offered
	This MFNC TOB Pilot is available to property owners of new construction apartment buildings with individually metered rental units and will be limited to 700-1000 apartment units.
(c)(2)(ii)(a)	Describe the Measure / Program’s Objective
	<p>The objective of this MFNC TOB Pilot is to evaluate the effectiveness of a tariffed on-bill program designed to provide renters access to more efficient apartment units by using a portion of their electricity bill savings to offset the cost of the upgrades.</p> <p>The Company will work with multi-family project developers to select and model energy efficiency upgrades to the rental units. The rental unit’s account holder will have a monthly charge on the electric bill to cover the cost of the upgrades. The average monthly total electric bill will be less with this charge than it would have been without the improvements.</p> <p>The MFNC TOB Pilot will provide valuable insights into the potential benefits of allowing a renter’s electric energy savings to offset the cost of building more efficient rental units. The MFNC TOB Pilot should achieve long-lasting energy savings and inform future opportunities for creating more energy efficient rental units.</p> <p>The MFNC TOB Pilot provides an opportunity to directly address the “split incentive” (landlords/building owners make the investment, but tenants see the bill savings) that has posed obstacles to effectively attracting participation in multifamily dwellings.</p> <p>Measures that may be offered through this MFNC TOB Pilot may include but are not limited to:</p> <ul style="list-style-type: none"> • Wall Insulation R-20 • 10% Improved Heat Pump Cooling Efficiency • 5% Improved Heat Pump Heating Efficiency • ENERGY STAR Clothes Washer • ENERGY STAR Clothes Dryer • ENERGY STAR Dishwasher • ENERGY STAR Refrigerator • Heat Pump Water Heater
(c)(2)(ii)(b)	Describe the Measure / Program Duration
	Duration - see Attachment A, line 1.
(c)(2)(ii)(c)	Describe the Measure / Program Sector and Eligibility Requirements
	The MFNC TOB Pilot is available to residential new construction multi-family developers and their respective renters. Due to MFNC TOB Pilot participation being limited to 700-1000 units, the Company may implement

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Multi-Family New Construction Tariffed On-Bill Pilot

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	eligibility requirements intended to ensure MFNC TOB Pilot participation is neither overly concentrated geographically nor dominated by one or more project developers.										
(c)(2)(ii)(d)	<p>Examples of Communication Materials and Related Cost</p> <p>Costs associated with communications materials for this MFNC TOB Pilot through various communication channels is approximately \$13,000 and is embedded in the cost displayed in Attachment B, line 9.</p> <p>This MFNC TOB Pilot may be promoted through various marketing channels that may include but are not limited to:</p> <ul style="list-style-type: none"> • Direct sales through Pilot Implementer • Outbound Calls • Targeted Email • Pilot website 										
(c)(2)(ii)(d) (continued)											
(c)(2)(ii)(e)	<p>Estimated Number of Participants</p> <p>The term participant as it appears in Attachment A does not represent the term customer. The estimated number of customers in the MFNC TOB Pilot is 700-1000. Each unit is expected to have multiple measures. Participation will be tracked by each installed measure and is represented in Attachment A. See Attachment A, lines 3 - 12.</p>										
(c)(2)(ii)(f)	<p>Impact that each measure or program is expected to have on the electric public utility or electric membership corporation, its customer body as a whole, and its participating North Carolina customers;</p> <p>Estimated DEP Program Impact - see Attachment A, lines 13 - 54.</p>										
(c)(2)(ii)(g)	<p>Any other information the electric public utility or electric membership corporation believes is relevant to the application, including information on competition known by the electric public utility or the electric membership corporation.</p> <p>Not applicable.</p>										
(c)(2)(iii)(a)	<p>Proposed Marketing Plan Including Market Barriers and how the Electric Public Utility Plans to Address Them.</p> <p>The Company and its authorized implementer will market the MFNC TOB Pilot through various marketing channels that may include, but are not limited to:</p> <ul style="list-style-type: none"> • Direct mail • Email • Outbound calls to developers <p>The Company may not be aware of all market barriers or understand the methods that can be used to address these market barriers. Potential market barriers include:</p> <table border="1"> <thead> <tr> <th>MARKET BARRIERS</th> <th>ACTIONS TO ADDRESS</th> </tr> </thead> <tbody> <tr> <td>Measures availability</td> <td>The Company anticipates there may be supply challenges related to some of the measures during the three-year Pilot timeframe.</td> </tr> <tr> <td>Multi-family project developers' do not receive the energy savings benefits of installing more efficient equipment in rental units.</td> <td>The Company proposes to pay a portion of incremental costs of the energy-efficiency upgrades when a multi-family project developer commits to including a specific bundle of measures benefiting individual apartment units; the remainder of the costs would be reimbursed upon verification of the fully installed measures.</td> </tr> <tr> <td>Developer's concern whether prospective renters will value the offer</td> <td>Property managers will be provided with specific information to illustrate the benefits of the program for renters.</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	MARKET BARRIERS	ACTIONS TO ADDRESS	Measures availability	The Company anticipates there may be supply challenges related to some of the measures during the three-year Pilot timeframe.	Multi-family project developers' do not receive the energy savings benefits of installing more efficient equipment in rental units.	The Company proposes to pay a portion of incremental costs of the energy-efficiency upgrades when a multi-family project developer commits to including a specific bundle of measures benefiting individual apartment units; the remainder of the costs would be reimbursed upon verification of the fully installed measures.	Developer's concern whether prospective renters will value the offer	Property managers will be provided with specific information to illustrate the benefits of the program for renters.		
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Multi-Family New Construction Tariffed On-Bill Pilot

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(c)(2)(iii)(b)	<p>Total Market Potential and Estimated Market Growth throughout the Duration of the Program;</p> <p>The MFNC TOB Pilot will be offered to 700 to 1,000 apartments. Due to the average number of apartment units in each development project, it will be limited to no more than ten development projects.</p> <p>Estimated Market Growth (Participation) - see Attachment A, lines 3 - 12.</p>
(c)(2)(iii)(c)	<p>Estimated Summer and Winter Peak Demand Reduction by Unit Metric and in the Aggregate by Year</p> <p>Estimated Summer and Winter Peak Demand Reduction – see Attachment A, lines 13 - 22 and 28 - 29 and Attachment E, lines 1 - 10.</p>
(c)(2)(iii)(d)	<p>Estimated Energy Reduction per Appropriate Unit Metric and in the Aggregate by Year</p> <p>Estimated Energy Reduction - see Attachment A, lines 23 - 27 and lines 30 - 34.</p>
(c)(2)(iii)(e)	<p>Estimated Lost Energy Sales per Appropriate Unit metric and in the Aggregate by Year</p> <p>Lost Energy Sales - see Attachment A, lines 35 - 44.</p>
(c)(2)(iii)(f)	<p>Estimated Load Shape Impacts</p> <p>See responses to (c)(2)(iii)(c) and (c)(c)(iii)(d).</p>
(c)(2)(iv)(a)	<p>Estimated Total and Per Unit Cost and Benefit of the Measure / Program and the Planned Accounting Treatment for Those Costs and Benefits</p> <p>Costs associated with this MFNC TOB Pilot will be expensed as the corresponding revenues are earned.</p> <p>Total estimated cost by category – see Attachment B lines 6 - 11. Total estimated benefit – see Attachment B line 12. Total estimated per unit cost by category – see Attachment D lines 1 - 25.</p> <p>Data shown on Attachment B represents present value of cost and benefits over the life of the measure.</p>
(c)(2)(iv)(b)	<p>Type, Amount, and Reason for Any Participation Incentives and Other Consideration and to Whom They Will be Offered, Including Schedules Listing Participation Incentives and Other Consideration to be Offered</p> <p>The Company will determine which measures are installed and the cost of those measures on a project-specific basis.</p>

Multi-Family New Construction Tariffed On-Bill Pilot

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(c)(2)(iv)(c)	Service Limitations or Conditions Planned to be Imposed on Customers Who do not Participate in the Measure / Program
	None
(c)(2)(v)	Cost-Effectiveness Evaluation (including the results of all cost-effectiveness tests and should include, at a minimum, an analysis of the Total Resource Cost Test, the Participant Test, the Utility Cost Test, and the Ratepayer Impact Measure Test) Description of the Methodology Used to Produce the Impact Estimates, as well as, if Appropriate, Methodologies Considered and Rejected in the Interim Leading to the Final Model Specification
	See Attachment B, line 14 for cost-effectiveness test scores.
(c)(2)(vi)	Commission Guidelines Regarding Incentive Programs (provide the information necessary to comply with the Commission's Revised Guidelines for Resolution of Issues Regarding Incentive Programs, issued by Commission Order on March 27, 1996, in Docket No. M-100, Sub 124, set out as an Appendix to Chapter 8 of these rules)
	The MFNC TOB Pilot does not provide any inducement or incentive affecting a residential customer's decision to install or adopt natural gas or electric service.
(c)(2)(vii)	Integrated Resource Plan (explain in detail how the measure is consistent with the electric public utility's or electric membership corporation's integrated resource plan filings pursuant to Rule R8-60)
	Energy and capacity reductions from this MFNC TOB Pilot will be included for planning purposes in future integrated resource plans, as will the impacts of the commercialized program upon the completion of the MFNC TOB Pilot and Commission approval.
(c)(2)(viii)	Other (any other information the electric public utility or electric membership corporation believes relevant to the application, including information on competition known by the electric public utility or the electric membership corporation)
	Not applicable.
Additional Filing Requirements	
(c)(3)(i)(a)	Costs and Benefits- Any Costs Incurred or Expected to be Incurred in Adopting and Implementing a Measure / Program to be Considered for Recovery Through the Annual Rider Under G.S. 62-133.9
	See Attachment C, lines 11 - 35.
(c)(3)(i)(b)	Estimated total costs to be avoided by the measure by appropriate capacity, energy and measure unit metric and in the aggregate by year
	See Attachment A, lines 45 - 54.
(c)(3)(i)(c)	Estimated participation incentives by appropriate capacity, energy, and measure unit metric and in the aggregate by year.
	Incentive per cumulative kW - see Attachment E, lines 31 - 39. Incentive per cumulative kWh - see Attachment F, lines 16 - 20. Incentive per participant - see Attachment D, lines 11 - 15.
(c)(3)(i)(d)	How the electric public utility proposes to allocate the costs and benefits of the measure among the customer classes and jurisdictions it serves.
	The program costs for EE programs targeted at North Carolina and South Carolina retail residential customers are allocated to North Carolina retail jurisdiction based on the ratio of North Carolina retail kWh sales to total retail kWh sales, then recovered only from North Carolina residential customers.
(c)(3)(i)(e)	The capitalization period to allow the utility to recover all costs or those portions of the costs associated with a new program or measure to the extent that those costs are intended to produce future benefits as provided in G.S. 62-133.9(d)(1).
	No costs from this MFNC TOB Pilot will be capitalized.
(c)(3)(i)(f)	The electric public utility shall also include the estimated and known costs of measurement and verification activities pursuant to the Measurement and Verification Reporting Plan described in paragraph (ii).
	Total portfolio evaluation costs are estimated to be \$175,000.
(c)(3)(ii)(a)	Measurement and Verification Reporting Plan for New Demand-Side Management and Energy Efficiency Measures: Describe the industry-accepted methods to be used to evaluate, measure, verify, and validate the energy and peak demand savings estimated in (2)(iii)c and d above.
	Evaluation, measurement, and verification activities will provide an independent, third-party report of energy savings attributable to the MFNC TOB Pilot, including an inherently net savings methodology and a process

Multi-Family New Construction Tariffed On-Bill Pilot

	<p>evaluation. The Company intends to follow industry-accepted methodologies for all measurement and verification activities.</p> <p>The process evaluation will examine process changes, measure program satisfaction, and develop recommendations for program improvements. The evaluator will conduct tenant surveys and property developer surveys.</p> <p>The MFNC TOB Pilot impact evaluation is planned to be measured by a consumption analysis using a linear fixed effects regression (LFER) consumption analysis approach. This methodology will assess energy changes in energy consumption attributable to the MFNC TOB Pilot, using a matched comparison group data to determine the energy savings for the program. This methodology will provide inherently net impacts.</p>
(c)(3)(ii)(b)	<p>Measurement and Verification Reporting Plan for New Demand-Side Management and Energy Efficiency Measures: Provide a schedule for reporting the savings to the Commission;</p> <p>The Company will report savings associated with the MFNC TOB Pilot in its annual DSM/EE cost recovery proceedings.</p>
(c)(3)(ii)(c)	<p>Measurement and Verification Reporting Plan for New Demand-Side Management and Energy Efficiency Measures: describe the methodologies used to produce the impact estimates, as well as, if appropriate, the methodologies it considered and rejected in the interim leading to final model specification; and</p> <p>See (c)(2)(v)</p>
(c)(3)(ii)(d)	<p>Measurement and Verification Reporting Plan for New Demand-Side Management and Energy Efficiency Measures: Identify any third party and include all of the costs of that third party, if the electric public utility plans to utilize an independent third party for purposes of measurement and verification</p> <p>The Company intends to use a third-party evaluator. See section (c)(3)(i)(f) for cost.</p>
(c)(3)(iii)	<p>Cost Recovery Mechanism- Describe the Proposed Method of Cost Recovery From its Customers</p> <p>The Company seeks to recover MFNC TOB Pilot costs, net lost revenues, and a utility incentive pursuant to the cost recovery mechanism approved by the North Carolina Utilities Commission in Docket E-2, Sub 931 on October 20, 2020.</p>
(c)(3)(iv)	<p>Tariffs or Rates- Provide Proposed Tariffs or Modifications to Existing Tariffs That Will be Required to Implement Each Measure / Program</p> <p>The tariff for the Multi-Family New Construction Tariffed On-Bill Pilot ("MFNC TOB Pilot") is included as Attachment G.</p>
(c)(3)(v)	<p>Utility Incentives- Indicate Whether it Will Seek to Recover Any Utility Incentives, Including, if Appropriate, Net Lost Revenues, in Addition to its Costs</p> <p>The Company seeks to recover pilot costs, net lost revenues, and a utility incentive in Rider EE consistent with the approved cost recovery mechanism approved by the North Carolina Utilities Commission in Docket E-2, Sub 931 on October 20, 2020.</p>

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Multi-Family New Construction Tariffed On-Bill Pilot

Attachment A Participation

Multi-Family New Construction Tariffed On-Bill Pilot		
1	Measure Life (Average)	17
2	Free Rider % (Average)	0.0%
3	Incremental Participants Year 1	0
4	Incremental Participants Year 2	0
5	Incremental Participants Year 3	4,500
6	Incremental Participants Year 4	4,500
7	Incremental Participants Year 5	0
8	Cumulative Participation Year 1	0
9	Cumulative Participation Year 2	0
10	Cumulative Participation Year 3	4,500
11	Cumulative Participation Year 4	9,000
12	Cumulative Participation Year 5	9,000
13	Cumulative Summer Coincident kW w/ losses (net free) Year 1	0
14	Cumulative Summer Coincident kW w/ losses (net free) Year 2	0
15	Cumulative Summer Coincident kW w/ losses (net free) Year 3	168
16	Cumulative Summer Coincident kW w/ losses (net free) Year 4	336
17	Cumulative Summer Coincident kW w/ losses (net free) Year 5	336
18	Cumulative Winter Coincident kW w/ losses (net free) Year 1	0
19	Cumulative Winter Coincident kW w/ losses (net free) Year 2	0
20	Cumulative Winter Coincident kW w/ losses (net free) Year 3	141
21	Cumulative Winter Coincident kW w/ losses (net free) Year 4	282
22	Cumulative Winter Coincident kW w/ losses (net free) Year 5	282
23	Cumulative kWh w/ losses (net free) Year 1	0
24	Cumulative kWh w/ losses (net free) Year 2	0
25	Cumulative kWh w/ losses (net free) Year 3	837,886
26	Cumulative kWh w/ losses (net free) Year 4	1,675,772
27	Cumulative kWh w/ losses (net free) Year 5	1,675,772
28	Per Participant Weighted Average Coincident Saved Winter kW w/ losses	0.0313
29	Per Participant Weighted Average Coincident Saved Summer kW w/ losses	0.0373
30	Per Participant Average Annual kWh w/ losses (net free) Year 1	0
31	Per Participant Average Annual kWh w/ losses (net free) Year 2	0
32	Per Participant Average Annual kWh w/ losses (net free) Year 3	186
33	Per Participant Average Annual kWh w/ losses (net free) Year 4	186
34	Per Participant Average Annual kWh w/ losses (net free) Year 5	186
35	Cumulative Lost Revenue (net free) Year 1	\$0
36	Cumulative Lost Revenue (net free) Year 2	\$0
37	Cumulative Lost Revenue (net free) Year 3	\$93,077
38	Cumulative Lost Revenue (net free) Year 4	\$189,876
39	Cumulative Lost Revenue (net free) Year 5	\$193,674
40	Average Lost Revenue per Participant (net free) Year 1	\$0.00
41	Average Lost Revenue per Participant (net free) Year 2	\$0.00
42	Average Lost Revenue per Participant (net free) Year 3	\$20.68
43	Average Lost Revenue per Participant (net free) Year 4	\$21.10
44	Average Lost Revenue per Participant (net free) Year 5	\$21.52
45	Total Avoided Costs/MW saved Year 1	\$0
46	Total Avoided Costs/MW saved Year 2	\$0
47	Total Avoided Costs/MW saved Year 3	\$179,598
48	Total Avoided Costs/MW saved Year 4	\$185,024
49	Total Avoided Costs/MW saved Year 5	\$190,595
50	Total Avoided Costs/MWh saved Year 1	\$0
51	Total Avoided Costs/MWh saved Year 2	\$0
52	Total Avoided Costs/MWh saved Year 3	\$31
53	Total Avoided Costs/MWh saved Year 4	\$30
54	Total Avoided Costs/MWh saved Year 5	\$31

Multi-Family New Construction Tariffed On-Bill Pilot

Attachment B Cost-Effectiveness Evaluation

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Multi-Family New Construction Tariffed On-Bill Pilot

		UCT	TRC	RIM	Participant
1	Avoided T&D Electric	\$396,301	\$396,301	\$396,301	\$0
2	Cost-Based Avoided Elec Production	\$715,493	\$715,493	\$715,493	\$0
3	Cost-Based Avoided Elec Capacity	\$223,169	\$223,169	\$223,169	\$0
4	Participant Elec Bill Savings (gross)	\$0	\$0	\$0	\$1,793,154
5	Net Lost Revenue Net Fuel	\$0	\$0	\$1,408,501	\$0
6	Administration (EM&V) Costs	\$140,044	\$140,044	\$140,044	\$0
7	Implementation Costs	\$260,168	\$260,168	\$260,168	\$0
8	Incentives	\$176,447	\$0	\$176,447	\$176,447
9	Other Utility Costs	\$398,144	\$398,144	\$398,144	\$0
10	Participant Costs (gross)	\$0	\$0	\$0	\$637,398
11	Participant Costs (net)	\$0	\$637,398	\$0	\$0
12	Total Benefits	\$1,334,963	\$1,334,963	\$1,334,963	\$1,969,601
13	Total Costs	\$974,804	\$1,435,754	\$2,383,305	\$637,398
14	Benefit/Cost Ratios	1.37	0.93	0.56	3.09

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Data represents present value of costs and benefits over the life of the program.

Multi-Family New Construction Tariffed On-Bill Pilot

Attachment C Program Costs by Year

Multi-Family New Construction Tariffed On-Bill Pilot		
1	Incremental Participants Year 1	0
2	Incremental Participants Year 2	0
3	Incremental Participants Year 3	4,500
4	Incremental Participants Year 4	4,500
5	Incremental Participants Year 5	0
6	Total Participant Costs Year 1	\$0
7	Total Participant Costs Year 2	\$0
8	Total Participant Costs Year 3	\$48,964
9	Total Participant Costs Year 4	\$97,928
10	Total Participant Costs Year 5	\$97,928
11	Administration (EM&V) Costs Year 1	\$0
12	Administration (EM&V) Costs Year 2	\$0
13	Administration (EM&V) Costs Year 3	\$0
14	Administration (EM&V) Costs Year 4	\$87,500
15	Administration (EM&V) Costs Year 5	\$87,500
16	Implementation Costs Year 1	\$64,752
17	Implementation Costs Year 2	\$206,860
18	Implementation Costs Year 3	\$362,949
19	Implementation Costs Year 4	(\$142,281)
20	Implementation Costs Year 5	(\$38,724)
21	Total Incentives Year 1	\$0
22	Total Incentives Year 2	\$0
23	Total Incentives Year 3	\$103,430
24	Total Incentives Year 4	\$103,430
25	Total Incentives Year 5	\$0
26	Other Utility Costs Year 1	\$225,000
27	Other Utility Costs Year 2	\$83,640
28	Other Utility Costs Year 3	\$70,227
29	Other Utility Costs Year 4	\$39,795
30	Other Utility Costs Year 5	\$0
31	Total Utility Costs Year 1	\$289,752
32	Total Utility Costs Year 2	\$290,500
33	Total Utility Costs Year 3	\$536,606
34	Total Utility Costs Year 4	\$88,444
35	Total Utility Costs Year 5	\$48,776

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Multi-Family New Construction Tariffed On-Bill Pilot

Attachment D Program Costs per Participant

Multi-Family New Construction Tariffed On-Bill Pilot		
1	Average Per Participant Administration (EM&V) Costs Year 1	\$0.00
2	Average Per Participant Administration (EM&V) Costs Year 2	\$0.00
3	Average Per Participant Administration (EM&V) Costs Year 3	\$0.00
4	Average Per Participant Administration (EM&V) Costs Year 4	\$19.44
5	Average Per Participant Administration (EM&V) Costs Year 5	\$0.00
6	Average Per Participant Implementation Costs Year 1	\$0.00
7	Average Per Participant Implementation Costs Year 2	\$0.00
8	Average Per Participant Implementation Costs Year 3	\$80.66
9	Average Per Participant Implementation Costs Year 4	(\$31.62)
10	Average Per Participant Implementation Costs Year 5	\$0.00
11	Average Per Participant Incentives Year 1	\$0.00
12	Average Per Participant Incentives Year 2	\$0.00
13	Average Per Participant Incentives Year 3	\$22.98
14	Average Per Participant Incentives Year 4	\$22.98
15	Average Per Participant Incentives Year 5	\$0.00
16	Average Per Participant Other Utility Costs Year 1	\$0.00
17	Average Per Participant Other Utility Costs Year 2	\$0.00
18	Average Per Participant Other Utility Costs Year 3	\$15.61
19	Average Per Participant Other Utility Costs Year 4	\$8.84
20	Average Per Participant Other Utility Costs Year 5	\$0.00
21	Average Per Participant Total Utility Costs Year 1	\$0.00
22	Average Per Participant Total Utility Costs Year 2	\$0.00
23	Average Per Participant Total Utility Costs Year 3	\$119.25
24	Average Per Participant Total Utility Costs Year 4	\$19.65
25	Average Per Participant Total Utility Costs Year 5	\$0.00

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Multi-Family New Construction Tariffed On-Bill Pilot

Attachment E MFNC TOB Pilot Costs per kW

Multi-Family New Construction Tariffed On-Bill Pilot		
1	Cumulative Winter Coincident kW w/ losses (net free) Year 1	0
2	Cumulative Winter Coincident kW w/ losses (net free) Year 2	0
3	Cumulative Winter Coincident kW w/ losses (net free) Year 3	141
4	Cumulative Winter Coincident kW w/ losses (net free) Year 4	282
5	Cumulative Winter Coincident kW w/ losses (net free) Year 5	282
6	Cumulative Summer Coincident kW w/ losses (net free) Year 1	0
7	Cumulative Summer Coincident kW w/ losses (net free) Year 2	0
8	Cumulative Summer Coincident kW w/ losses (net free) Year 3	168
9	Cumulative Summer Coincident kW w/ losses (net free) Year 4	336
10	Cumulative Summer Coincident kW w/ losses (net free) Year 5	336
11	Administration (EM&V) Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 1	\$0
12	Administration (EM&V) Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 2	\$0
13	Administration (EM&V) Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 3	\$0
14	Administration (EM&V) Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 4	\$311
15	Administration (EM&V) Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 5	\$311
16	Administration (EM&V) Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 1	\$0
17	Administration (EM&V) Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 2	\$0
18	Administration (EM&V) Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 3	\$0
19	Administration (EM&V) Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 4	\$261
20	Administration (EM&V) Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 5	\$261
21	Implementation Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 1	\$0
22	Implementation Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 2	\$0
23	Implementation Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 3	\$2,576
24	Implementation Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 4	(\$505)
25	Implementation Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 5	(\$137)
26	Implementation Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 1	\$0
27	Implementation Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 2	\$0
28	Implementation Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 3	\$2,162
29	Implementation Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 4	(\$424)
30	Implementation Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 5	(\$115)
31	Incentives / Cumulative Winter Coincident kW w/ losses (net free) Year 1	\$0
32	Incentives / Cumulative Winter Coincident kW w/ losses (net free) Year 2	\$0
33	Incentives / Cumulative Winter Coincident kW w/ losses (net free) Year 3	\$734
34	Incentives / Cumulative Winter Coincident kW w/ losses (net free) Year 4	\$367
35	Incentives / Cumulative Winter Coincident kW w/ losses (net free) Year 5	\$0
36	Incentives / Cumulative Summer Coincident kW w/ losses (net free) Year 1	\$0
37	Incentives / Cumulative Summer Coincident kW w/ losses (net free) Year 2	\$0
38	Incentives / Cumulative Summer Coincident kW w/ losses (net free) Year 3	\$616
39	Incentives / Cumulative Summer Coincident kW w/ losses (net free) Year 4	\$308
40	Incentives / Cumulative Summer Coincident kW w/ losses (net free) Year 5	\$0
41	Other Utility Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 1	\$0
42	Other Utility Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 2	\$0
43	Other Utility Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 3	\$498
44	Other Utility Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 4	\$141
45	Other Utility Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 5	\$0
46	Other Utility Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 1	\$0
47	Other Utility Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 2	\$0
48	Other Utility Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 3	\$418
49	Other Utility Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 4	\$119
50	Other Utility Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 5	\$0
51	Total Utility Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 1	\$0
52	Total Utility Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 2	\$0
53	Total Utility Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 3	\$3,809
54	Total Utility Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 4	\$314
55	Total Utility Costs / Cumulative Winter Coincident kW w/ losses (net free) Year 5	\$173
56	Total Utility Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 1	\$0
57	Total Utility Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 2	\$0
58	Total Utility Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 3	\$3,196
59	Total Utility Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 4	\$263
60	Total Utility Costs / Cumulative Summer Coincident kW w/ losses (net free) Year 5	\$145

Multi-Family New Construction Tariffed On-Bill Pilot

Attachment F MFNC TOB Pilot Costs per kWh

Multi-Family New Construction Tariffed On-Bill Pilot		
1	Cumulative kWh w/ losses (net free) Year 1	0
2	Cumulative kWh w/ losses (net free) Year 2	0
3	Cumulative kWh w/ losses (net free) Year 3	837,886
4	Cumulative kWh w/ losses (net free) Year 4	1,675,772
5	Cumulative kWh w/ losses (net free) Year 5	1,675,772
6	Administration (EM&V) Costs / Cumulative kWh w/ losses (net free) Year 1	\$0.00
7	Administration (EM&V) Costs / Cumulative kWh w/ losses (net free) Year 2	\$0.00
8	Administration (EM&V) Costs / Cumulative kWh w/ losses (net free) Year 3	\$0.00
9	Administration (EM&V) Costs / Cumulative kWh w/ losses (net free) Year 4	\$0.05
10	Administration (EM&V) Costs / Cumulative kWh w/ losses (net free) Year 5	\$0.05
11	Implementation Costs / Cumulative kWh w/ losses (net free) Year 1	\$0.00
12	Implementation Costs / Cumulative kWh w/ losses (net free) Year 2	\$0.00
13	Implementation Costs / Cumulative kWh w/ losses (net free) Year 3	\$0.43
14	Implementation Costs / Cumulative kWh w/ losses (net free) Year 4	(\$0.08)
15	Implementation Costs / Cumulative kWh w/ losses (net free) Year 5	(\$0.02)
16	Incentives / Cumulative kWh w/ losses (net free) Year 1	\$0.00
17	Incentives / Cumulative kWh w/ losses (net free) Year 2	\$0.00
18	Incentives / Cumulative kWh w/ losses (net free) Year 3	\$0.12
19	Incentives / Cumulative kWh w/ losses (net free) Year 4	\$0.06
20	Incentives / Cumulative kWh w/ losses (net free) Year 5	\$0.00
21	Other Utility Costs / Cumulative kWh w/ losses (net free) Year 1	\$0.00
22	Other Utility Costs / Cumulative kWh w/ losses (net free) Year 2	\$0.00
23	Other Utility Costs / Cumulative kWh w/ losses (net free) Year 3	\$0.08
24	Other Utility Costs / Cumulative kWh w/ losses (net free) Year 4	\$0.02
25	Other Utility Costs / Cumulative kWh w/ losses (net free) Year 5	\$0.00
26	Total Utility Costs / Cumulative kWh w/ losses (net free) Year 1	\$0.00
27	Total Utility Costs / Cumulative kWh w/ losses (net free) Year 2	\$0.00
28	Total Utility Costs / Cumulative kWh w/ losses (net free) Year 3	\$0.64
29	Total Utility Costs / Cumulative kWh w/ losses (net free) Year 4	\$0.05
30	Total Utility Costs / Cumulative kWh w/ losses (net free) Year 5	\$0.03

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MULTI-FAMILY NEW CONSTRUCTION (“MFNC”)
TARIFFED ON-BILL PILOT (MFNC TOB PILOT) TOBM-1

PURPOSE

The purpose of this Multi-Family New Construction Tariffed On-Bill Pilot (“Pilot” or “MFNC TOB Pilot”) is to:

- Understand if owners will improve the energy efficiency of individual rental units by utilizing a tariffed on-bill offer
- Learn about renters’ acceptance of paying an additional charge on their electric bill for more energy efficient units and energy efficient appliances, which are intended to lower total electric bills,
- Understand program design needs to support a MFNC offering at scale.

A Tariffed on-Bill Pilot was stipulated as part of the Agreement and Stipulation of Settlement dated July 23, 2020 and subsequently approved in Docket E-2, Sub 1219.¹ This pilot fulfills the terms of such Agreement.

AVAILABILITY

This MFNC TOB Pilot is available on a voluntary basis, at Company’s sole option, to at least 700 and no greater than 1000 residential multi-family new construction rental units that will receive electric service from the Company under a residential rate schedule. These units must be served under a residential rate schedule and individually metered.

- Participating property owners must complete an application for each property enrolled in the MFNC TOB Pilot and submit project design and building specifications for modelling. To qualify, the project design will be screened for cost-effectiveness and can be denied if the energy savings resulting from the upgraded measures do not meet certain thresholds. The Company reserves the right to deny participation in the MFNC TOB Pilot at its sole discretion.

Participating properties must enroll each individually metered rental unit (“Participating Location”) in the Company’s Revert to Owner Service.

PROGRAM DESCRIPTION

The Company is proposing to provide residential customers in Participating Locations a new MFNC TOB Pilot to improve the efficiency of their residence. The Company will pay participating property owners the incremental costs to install more energy efficient measures.

The Company will conduct engineering and efficiency studies of the planned rental units to determine the potential energy savings. The energy savings will be calculated in consideration of applicable building codes. The Company will verify the installation of the measures in the completed rental units.

Participating property owners will be required to adhere to the terms and conditions of the MFNC TOB Pilot including the application procedures, policies, and executing required documentation and notifying renters of the MFNC TOB Pilot monthly charges and benefits.

Participating property owners may be subject to financial remedies for failure to comply with the terms and conditions of the MFNC TOB Pilot.

¹ April 16, 2021 Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Customer Notice in Docket Nos. E-2, Subs 1219 and 1193.

MULTI-FAMILY NEW CONSTRUCTION (“MFNC”)
TARIFFED ON-BILL PILOT (MFNC TOB PILOT) TOBM-1

MFNC TOB PILOT MONTHLY CHARGE

The incremental costs, less any applicable energy efficiency incentives, will be repaid to the Company monthly as part of the account holder’s electric bill. The MFNC TOB Pilot monthly charge will be calculated as follows:

Monthly Charge = (Total Amount Paid for Incremental Measures – Incentive Payment) * Approved Rate of Return in the Company’s most recently approved general rate case /Term Length

TERM LENGTH

The term length shall not exceed twelve (12) years or 144 months. The MFNC TOB Pilot monthly charge will persist with the participating location throughout the length of the term as specified in the MFNC TOB Pilot terms and conditions. A property owner may choose to pay-off the remaining MFNC TOB Pilot charges for all units any time after three years from starting electric service at the property. The payoff amount will be equal to the MFNC TOB Pilot monthly charge times the number of months of the term remaining.

The participating property owner will be responsible for maintaining all installed measures and for timely repair of the measures in compliance with the terms and conditions of the MFNC TOB Pilot. The MFNC TOB Pilot monthly charge will not be suspended if the measures are inoperable or require maintenance per the property owner’s obligations in the MFNC TOB Pilot terms and conditions.

TIED TO THE LOCATION:

Until service charges are terminated, as described herein, the terms of this tariff shall be binding on any future customer who shall receive service at a Participating Location.

GENERAL

Services and offerings under this pilot are subject to the authority of the North Carolina Utilities Commission and are subject to changes or other modifications lawfully made thereby.

COMPANY RETENTION OF MFNC TOB PILOT BENEFITS

Incentives and other considerations offered under the terms of this MFNC TOB Pilot are understood to be an essential element in the recipient's decision to participate in the MFNC TOB Pilot. Upon payment of these considerations, Company will be entitled to any and all environmental, energy efficiency, and demand reduction benefits and attributes, including all reporting and compliance rights, associated with participation in the MFNC TOB Pilot.

Effective for service rendered on and after _____
NCUC Docket No. E-2, Sub _____

Exhibit BGH-5

Total Program Costs (All costs allocated)					
(In Millions of Dollars)					
Portfolio	2025	2026	2027	Total	
Income Eligible	\$ 23.64	\$ 25.91	\$ 27.83	\$ 77.38	
Demand Response	\$ 21.27	\$ 21.72	\$ 22.03	\$ 65.03	
Residential	\$ 26.48	\$ 26.86	\$ 27.86	\$ 81.19	
Business	\$ 47.40	\$ 49.02	\$ 49.93	\$ 146.35	
Portfolio Total	\$ 118.80	\$ 123.50	\$ 127.65	\$ 369.95	
Income Eligible					
Multi-Family Income Eligible	\$ 12.20	\$ 13.43	\$ 14.65	\$ 40.28	
Single-Family Income Eligible	\$ 10.12	\$ 11.15	\$ 11.86	\$ 33.13	
	\$ -	\$ -	\$ -	\$ -	
Business Social Services	\$ 1.32	\$ 1.32	\$ 1.32	\$ 3.97	
Income Eligible Total	\$ 23.64	\$ 25.91	\$ 27.83	\$ 77.38	
Demand Response					
Residential Demand Response	\$ 8.70	\$ 9.21	\$ 9.59	\$ 27.49	
Business Demand Response	\$ 12.57	\$ 12.51	\$ 12.45	\$ 37.54	
Demand Response Total	\$ 21.27	\$ 21.72	\$ 22.03	\$ 65.03	
Residential					
Efficient Products	\$ 5.03	\$ 5.14	\$ 5.30	\$ 15.47	
Heating and Cooling	\$ 11.98	\$ 12.33	\$ 12.81	\$ 37.12	
Energy Efficient Kits	\$ 0.49	\$ 0.48	\$ 0.48	\$ 1.44	
PAYS	\$ 3.10	\$ 3.14	\$ 3.24	\$ 9.48	
Multi-Family Market Rate	\$ 3.78	\$ 3.63	\$ 3.72	\$ 11.13	
New Construction Whole Home	\$ 0.96	\$ 0.99	\$ 1.31	\$ 3.26	
	\$ -	\$ -	\$ -	\$ -	
Residential Education	\$ 1.14	\$ 1.15	\$ 1.00	\$ 3.29	
Residential Total	\$ 26.48	\$ 26.86	\$ 27.86	\$ 81.19	
Business					
Custom	\$ 15.68	\$ 16.40	\$ 17.08	\$ 49.16	
Standard	\$ 20.82	\$ 21.22	\$ 21.03	\$ 63.07	
Agriculture	\$ 0.67	\$ 0.70	\$ 0.73	\$ 2.11	
Schools	\$ 1.83	\$ 1.89	\$ 1.91	\$ 5.64	
Business Midstream	\$ 3.55	\$ 3.77	\$ 4.01	\$ 11.33	
Retro-Commissioning	\$ 1.58	\$ 1.66	\$ 1.76	\$ 5.00	
Smart Meter Commissioning	\$ 1.73	\$ 1.79	\$ 1.84	\$ 5.36	
SBDI	\$ 1.54	\$ 1.58	\$ 1.56	\$ 4.68	
	\$ -	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	\$ -	
Business Education	\$ -	\$ -	\$ -	\$ -	
Business Total	\$ 47.40	\$ 49.02	\$ 49.93	\$ 146.35	

Notes:

- [1] Other Portfolio costs (EM&V & Other Portfolio Cost) have been distributed among the
- [2] Agriculture and Schools program are shown as distinct programs but will be implemented as measures under the Standard and Custom Programs. Similarly Smart Meter Commissioning will be implemented under the Retro-Commissioning program.
- [3] Because of rounding, the numbers in these tables may not sum properly. Please see Ameren Missouri's workpapers for necessary clarification regarding these sums.

Total Program Costs (EM&V + Other Portfolio Costs unallocated)				
(In Millions of Dollars)				
Portfolio	2025	2026	2027	Total
Income Eligible	\$ 21.27	\$ 23.44	\$ 25.30	\$ 70.00
Demand Response	\$ 20.41	\$ 20.96	\$ 21.39	\$ 62.77
Residential	\$ 23.84	\$ 24.30	\$ 25.33	\$ 73.47
Business	\$ 42.86	\$ 44.45	\$ 45.39	\$ 132.71
Portfolio Costs	\$ 10.41	\$ 10.35	\$ 10.24	\$ 31.00
Portfolio Total	\$ 118.80	\$ 123.50	\$ 127.65	\$ 369.95
Income Eligible				
Multi-Family Income Eligible	\$ 11.06	\$ 12.21	\$ 13.35	\$ 36.62
Single-Family Income Eligible	\$ 8.96	\$ 9.98	\$ 10.69	\$ 29.63
	\$ -	\$ -	\$ -	\$ -
Business Social Services	\$ 1.25	\$ 1.25	\$ 1.25	\$ 3.75
Income Eligible Total	\$ 21.27	\$ 23.44	\$ 25.30	\$ 70.00
Demand Response				
Residential Demand Response	\$ 8.33	\$ 8.88	\$ 9.31	\$ 26.51
Business Demand Response	\$ 12.09	\$ 12.09	\$ 12.09	\$ 36.26
Demand Response Total	\$ 20.41	\$ 20.96	\$ 21.39	\$ 62.77
Residential				
Efficient Products	\$ 4.53	\$ 4.66	\$ 4.84	\$ 14.04
Heating and Cooling	\$ 10.57	\$ 10.94	\$ 11.43	\$ 32.95
Energy Efficient Kits	\$ 0.44	\$ 0.44	\$ 0.44	\$ 1.32
PAYS	\$ 2.91	\$ 2.96	\$ 3.05	\$ 8.91
Multi-Family Market Rate	\$ 3.32	\$ 3.21	\$ 3.33	\$ 9.85
New Construction Whole Home	\$ 0.93	\$ 0.94	\$ 1.24	\$ 3.11
	\$ -	\$ -	\$ -	\$ -
Residential Education	\$ 1.14	\$ 1.15	\$ 1.00	\$ 3.29
Residential Total	\$ 23.84	\$ 24.30	\$ 25.33	\$ 73.47
Business				
Custom	\$ 14.22	\$ 14.91	\$ 15.57	\$ 44.69
Standard	\$ 18.57	\$ 18.98	\$ 18.85	\$ 56.41
Agriculture	\$ 0.61	\$ 0.64	\$ 0.66	\$ 1.91
Schools	\$ 1.67	\$ 1.73	\$ 1.75	\$ 5.14
Business Midstream	\$ 3.40	\$ 3.62	\$ 3.85	\$ 10.87
Retro-Commissioning	\$ 1.38	\$ 1.46	\$ 1.55	\$ 4.40
Smart Meter Commissioning	\$ 1.61	\$ 1.68	\$ 1.72	\$ 5.01
SBDI	\$ 1.40	\$ 1.44	\$ 1.43	\$ 4.27
	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -
Business Education	\$ -	\$ -	\$ -	\$ -
Business Total	\$ 42.86	\$ 44.45	\$ 45.39	\$ 132.71
EM&V & Other Portfolio				
Pilot/R&D Cost	\$ 3.52	\$ 3.69	\$ 3.84	\$ 11.05
EM&V Cost	\$ 3.25	\$ 3.39	\$ 3.52	\$ 10.17
Marketing & Inc. Labor Cost	\$ 2.64	\$ 2.77	\$ 2.88	\$ 8.29
Admin. Cost (Pot. Study, Data Track)	\$ 1.00	\$ 0.50	\$ -	\$ 1.50
EM&V & Other Portfolio Total	\$ 10.41	\$ 10.35	\$ 10.24	\$ 31.00

Notes:

[1] Agriculture and Schools program are shown as distinct programs but will implemented as measures under the Standard and Custom Programs. Similarly Smart Meter Commissioning will be implemented

[2] Because of rounding, the numbers in these tables may not sum properly. Please see Ameren Missouri's workpapers for necessary clarification regarding these sums.

Contractor Administrative Costs				
(In Millions of Dollars)				
Portfolio	2025	2026	2027	Total
Income Eligible	\$ 4.68	\$ 5.35	\$ 5.70	\$ 15.73
Demand Response	\$ 17.95	\$ 18.21	\$ 18.38	\$ 54.54
Residential	\$ 10.58	\$ 10.14	\$ 10.10	\$ 30.83
Business	\$ 11.00	\$ 10.98	\$ 10.73	\$ 32.70
Portfolio Total	\$ 44.22	\$ 44.68	\$ 44.91	\$ 133.80
Income Eligible				
Multi-Family Income Eligible	\$ 2.18	\$ 2.33	\$ 2.50	\$ 7.01
Single-Family Income Eligible	\$ 2.31	\$ 2.82	\$ 3.00	\$ 8.13
	\$ -	\$ -	\$ -	\$ -
Business Social Services	\$ 0.19	\$ 0.19	\$ 0.19	\$ 0.58
Income Eligible Total	\$ 4.68	\$ 5.35	\$ 5.70	\$ 15.73
Demand Response				
Residential Demand Response	\$ 5.87	\$ 6.13	\$ 6.29	\$ 18.28
Business Demand Response	\$ 12.09	\$ 12.09	\$ 12.09	\$ 36.26
Demand Response Total	\$ 17.95	\$ 18.21	\$ 18.38	\$ 54.54
Residential				
Efficient Products	\$ 1.96	\$ 1.97	\$ 2.04	\$ 5.97
Heating and Cooling	\$ 3.07	\$ 2.95	\$ 2.91	\$ 8.92
Energy Efficient Kits	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.13
PAYS	\$ 2.42	\$ 2.39	\$ 2.42	\$ 7.23
Multi-Family Market Rate	\$ 1.31	\$ 1.12	\$ 1.16	\$ 3.59
New Construction Whole Home	\$ 0.65	\$ 0.52	\$ 0.53	\$ 1.69
	\$ -	\$ -	\$ -	\$ -
Residential Education	\$ 1.14	\$ 1.15	\$ 1.00	\$ 3.29
Residential Total	\$ 10.58	\$ 10.14	\$ 10.10	\$ 30.83
Business				
Custom	\$ 3.02	\$ 3.05	\$ 3.05	\$ 9.13
Standard	\$ 6.11	\$ 6.06	\$ 5.82	\$ 17.99
Agriculture	\$ 0.17	\$ 0.17	\$ 0.17	\$ 0.51
Schools	\$ 0.38	\$ 0.38	\$ 0.36	\$ 1.12
Business Midstream	\$ 0.31	\$ 0.31	\$ 0.32	\$ 0.94
Retro-Commissioning	\$ 0.31	\$ 0.31	\$ 0.32	\$ 0.94
Smart Meter Commissioning	\$ 0.34	\$ 0.34	\$ 0.33	\$ 1.00
SBDI	\$ 0.37	\$ 0.36	\$ 0.35	\$ 1.08
	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -
Business Education	\$ -	\$ -	\$ -	\$ -
Business Total	\$ 11.00	\$ 10.98	\$ 10.73	\$ 32.70

Notes:

[1] Because of rounding, the numbers in these tables may not sum properly. Please see Ameren Missouri's workpapers for necessary clarification regarding these sums.

Incentive Costs				
(In Millions of Dollars)				
Portfolio	2025	2026	2027	Total
Income Eligible	\$ 16.58	\$ 18.09	\$ 19.60	\$ 54.27
Demand Response	\$ 2.46	\$ 2.75	\$ 3.01	\$ 8.23
Residential	\$ 13.26	\$ 14.16	\$ 15.22	\$ 42.64
Business	\$ 31.87	\$ 33.47	\$ 34.66	\$ 100.00
Portfolio Total	\$ 64.17	\$ 68.48	\$ 72.50	\$ 205.15
Income Eligible				
Multi-Family Income Eligible	\$ 8.88	\$ 9.87	\$ 10.85	\$ 29.60
Single-Family Income Eligible	\$ 6.65	\$ 7.16	\$ 7.69	\$ 21.50
	\$ -	\$ -	\$ -	\$ -
Business Social Services	\$ 1.06	\$ 1.06	\$ 1.06	\$ 3.17
Income Eligible Total	\$ 16.58	\$ 18.09	\$ 19.60	\$ 54.27
Demand Response				
Residential Demand Response	\$ 2.46	\$ 2.75	\$ 3.01	\$ 8.23
Business Demand Response	\$ -	\$ -	\$ -	\$ -
Demand Response Total	\$ 2.46	\$ 2.75	\$ 3.01	\$ 8.23
Residential				
Efficient Products	\$ 2.57	\$ 2.70	\$ 2.80	\$ 8.06
Heating and Cooling	\$ 7.50	\$ 8.00	\$ 8.53	\$ 24.03
Energy Efficient Kits	\$ 0.40	\$ 0.40	\$ 0.40	\$ 1.19
PAYS	\$ 0.50	\$ 0.56	\$ 0.63	\$ 1.69
Multi-Family Market Rate	\$ 2.01	\$ 2.09	\$ 2.17	\$ 6.26
New Construction Whole Home	\$ 0.28	\$ 0.42	\$ 0.70	\$ 1.41
	\$ -	\$ -	\$ -	\$ -
Residential Education	\$ -	\$ -	\$ -	\$ -
Residential Total	\$ 13.26	\$ 14.16	\$ 15.22	\$ 42.64
Business				
Custom	\$ 11.20	\$ 11.86	\$ 12.52	\$ 35.57
Standard	\$ 12.46	\$ 12.93	\$ 13.03	\$ 38.42
Agriculture	\$ 0.44	\$ 0.47	\$ 0.49	\$ 1.41
Schools	\$ 1.29	\$ 1.35	\$ 1.38	\$ 4.03
Business Midstream	\$ 3.09	\$ 3.31	\$ 3.53	\$ 9.93
Retro-Commissioning	\$ 1.08	\$ 1.15	\$ 1.23	\$ 3.45
Smart Meter Commissioning	\$ 1.27	\$ 1.34	\$ 1.39	\$ 4.01
SBDI	\$ 1.04	\$ 1.08	\$ 1.08	\$ 3.19
	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -
Business Education	\$ -	\$ -	\$ -	\$ -
Business Total	\$ 31.87	\$ 33.47	\$ 34.66	\$ 100.00

Notes:

[1] Because of rounding, the numbers in these tables may not sum properly. Please see Ameren Missouri's workpapers for necessary clarification regarding these sums.

EM&V Costs				
(In Millions of Dollars)				
Portfolio	2025	2026	2027	Total
Income Eligible	\$ 0.64	\$ 0.70	\$ 0.76	\$ 2.10
Demand Response	\$ 0.61	\$ 0.63	\$ 0.64	\$ 1.88
Residential	\$ 0.72	\$ 0.73	\$ 0.76	\$ 2.20
Business	\$ 1.29	\$ 1.33	\$ 1.36	\$ 3.98
Portfolio Total	\$ 3.25	\$ 3.39	\$ 3.52	\$ 10.17
Income Eligible				
Multi-Family Income Eligible	\$ 0.31	\$ 0.35	\$ 0.39	\$ 1.04
Single-Family Income Eligible	\$ 0.31	\$ 0.33	\$ 0.35	\$ 0.99
Business Social Services	\$ -	\$ -	\$ -	\$ -
Business Social Services	\$ 0.02	\$ 0.02	\$ 0.02	\$ 0.06
Income Eligible Total	\$ 0.64	\$ 0.70	\$ 0.76	\$ 2.10
Demand Response				
Residential Demand Response	\$ 0.25	\$ 0.27	\$ 0.28	\$ 0.80
Business Demand Response	\$ 0.36	\$ 0.36	\$ 0.36	\$ 1.09
Demand Response Total	\$ 0.61	\$ 0.63	\$ 0.64	\$ 1.88
Residential				
Efficient Products	\$ 0.14	\$ 0.14	\$ 0.14	\$ 0.41
Heating and Cooling	\$ 0.38	\$ 0.39	\$ 0.41	\$ 1.19
Energy Efficient Kits	\$ 0.01	\$ 0.01	\$ 0.01	\$ 0.04
PAYS	\$ 0.05	\$ 0.05	\$ 0.06	\$ 0.16
Multi-Family Market Rate	\$ 0.12	\$ 0.12	\$ 0.12	\$ 0.36
New Construction Whole Home	\$ 0.01	\$ 0.01	\$ 0.02	\$ 0.04
Residential Education	\$ -	\$ -	\$ -	\$ -
Residential Total	\$ 0.72	\$ 0.73	\$ 0.76	\$ 2.20
Business				
Custom	\$ 0.41	\$ 0.44	\$ 0.46	\$ 1.30
Standard	\$ 0.64	\$ 0.65	\$ 0.65	\$ 1.94
Agriculture	\$ 0.02	\$ 0.02	\$ 0.02	\$ 0.06
Schools	\$ 0.05	\$ 0.05	\$ 0.05	\$ 0.14
Business Midstream	\$ 0.04	\$ 0.04	\$ 0.05	\$ 0.13
Retro-Commissioning	\$ 0.06	\$ 0.06	\$ 0.06	\$ 0.18
Smart Meter Commissioning	\$ 0.03	\$ 0.03	\$ 0.04	\$ 0.10
SBDI	\$ 0.04	\$ 0.04	\$ 0.04	\$ 0.12
Business Education	\$ -	\$ -	\$ -	\$ -
Business Total	\$ 1.29	\$ 1.33	\$ 1.36	\$ 3.98

Notes:

[1] Because of rounding, the numbers in these tables may not sum properly. Please see Ameren Missouri's workpapers for necessary clarification regarding these sums.

Other Portfolio Costs				
(Marketing, Potential Study, Data Tracking & Incremental Labor)				
(In Dollars)				
Portfolio	2025	2026	2027	Total
Income Eligible	\$ 1,738,725	\$ 1,765,604	\$ 1,770,733	\$ 5,275,062
Demand Response	\$ 250,000	\$ 125,000	\$ -	\$ 375,000.00
Residential	\$ 1,918,969	\$ 1,826,113	\$ 1,772,793	\$ 5,517,875
Business	\$ 3,250,517	\$ 3,236,707	\$ 3,177,265	\$ 9,664,488
Portfolio Total	\$ 7,158,211	\$ 6,953,424	\$ 6,720,790	\$ 20,832,425
Income Eligible				
Multi-Family Income Eligible	\$ 836,175	\$ 878,494	\$ 905,757	\$ 2,620,426
Single-Family Income Eligible	\$ 848,027	\$ 835,609	\$ 816,524	\$ 2,500,160
	\$ -	\$ -	\$ -	\$ -
Business Social Services	\$ 54,523	\$ 51,501	\$ 48,452	\$ 154,476
Income Eligible Total	\$ 1,738,725	\$ 1,765,604	\$ 1,770,733	\$ 5,275,062
Demand Response				
Residential Demand Response	\$ 125,000	\$ 62,500	\$ -	\$ 187,500
Business Demand Response	\$ 125,000	\$ 62,500	\$ -	\$ 187,500
Demand Response Total	\$ 250,000	\$ 125,000	\$ -	\$ 375,000.00
Residential				
Efficient Products	\$ 363,929	\$ 340,675	\$ 320,708	\$ 1,025,312
Heating and Cooling	\$ 1,030,252	\$ 986,901	\$ 961,718	\$ 2,978,871
Energy Efficient Kits	\$ 32,947	\$ 29,368	\$ 26,606	\$ 88,921
PAYS	\$ 133,832	\$ 134,823	\$ 136,498	\$ 405,153
Multi-Family Market Rate	\$ 332,864	\$ 300,678	\$ 276,187	\$ 909,728
New Construction Whole Home	\$ 25,146	\$ 33,668	\$ 51,076	\$ 109,890
	\$ -	\$ -	\$ -	\$ -
Residential Education	\$ -	\$ -	\$ -	\$ -
Residential Total	\$ 1,918,969	\$ 1,826,113	\$ 1,772,793	\$ 5,517,875
Business				
Custom	\$ 1,047,083	\$ 1,056,529	\$ 1,062,089	\$ 3,165,701
Standard	\$ 1,610,776	\$ 1,585,460	\$ 1,522,985	\$ 4,719,221
Agriculture	\$ 45,914	\$ 46,219	\$ 46,377	\$ 138,510
Schools	\$ 118,286	\$ 117,438	\$ 114,454	\$ 350,179
Business Midstream	\$ 106,427	\$ 108,472	\$ 110,760	\$ 325,659
Retro-Commissioning	\$ 139,827	\$ 142,240	\$ 145,122	\$ 427,190
Smart Meter Commissioning	\$ 82,806	\$ 82,676	\$ 81,958	\$ 247,440
SBDI	\$ 99,398	\$ 97,672	\$ 93,520	\$ 290,589
	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -
Business Education	\$ -	\$ -	\$ -	\$ -
Business Total	\$ 3,250,517	\$ 3,236,707	\$ 3,177,265	\$ 9,664,488

Notes:

[1] Because of rounding, the numbers in these tables may not sum properly. Please see Ameren Missouri's workpapers for necessary clarification regarding these sums.

Incremental Gross MWh Savings				
Portfolio	2025	2026	2027	Total
Income Eligible	41,496	44,410	47,340	133,246
Demand Response	-	-	-	-
Residential	72,951	77,234	81,841	232,026
Business	220,972	220,654	215,500	657,126
Portfolio Total	335,419	342,298	344,681	1,022,398
Income Eligible				
Multi-Family Income Eligible	18,190	20,221	22,234	60,646
Single-Family Income Eligible	21,757	22,641	23,558	67,956
Business Social Services	1,548	1,548	1,548	4,645
Income Eligible Total	41,496	44,410	47,340	133,246
Demand Response				
Residential Demand Response	-	-	-	-
Business Demand Response	-	-	-	-
Demand Response Total	-	-	-	-
Residential				
Efficient Products	13,785	14,444	14,964	43,192
Heating and Cooling	41,585	44,410	47,426	133,420
Energy Efficient Kits	2,432	2,432	2,432	7,296
PAYS	3,707	4,163	4,619	12,489
Multi-Family Market Rate	10,890	10,961	11,031	32,882
New Construction Whole Home	553	824	1,370	2,747
Residential Total	72,951	77,234	81,841	232,026
Business				
Custom	62,426	63,069	63,020	188,515
Standard	122,112	120,956	116,232	359,300
Agriculture	3,450	3,494	3,507	10,451
Schools	7,662	7,621	7,383	22,666
Business Midstream	4,593	4,695	4,796	14,084
Retro-Commissioning	6,353	6,494	6,635	19,482
Smart Meter Commissioning	6,910	6,935	6,841	20,687
SBDI	7,466	7,388	7,086	21,940
Business Total	220,972	220,654	215,500	657,126

Notes:

[1] Because of rounding, the numbers in these tables may not sum properly. Please see Ameren Missouri's workpapers for necessary clarification regarding these sums.

Incremental Net MWh Savings				
Portfolio	2025	2026	2027	Total
Income Eligible	41,496	44,410	47,340	133,246
Demand Response	-	-	-	-
Residential	49,724	52,552	55,611	157,888
Business	178,722	178,394	174,090	531,206
Portfolio Total	269,942	275,357	277,042	822,340
Income Eligible				
Multi-Family Income Eligible	18,190	20,221	22,234	60,646
Single-Family Income Eligible	21,757	22,641	23,558	67,956
Business Social Services	1,548	1,548	1,548	4,645
Income Eligible Total	41,496	44,410	47,340	133,246
Demand Response				
Residential Demand Response	-	-	-	-
Business Demand Response	-	-	-	-
Demand Response Total	-	-	-	-
Residential				
Efficient Products	9,742	10,209	10,576	30,527
Heating and Cooling	24,951	26,646	28,455	80,052
Energy Efficient Kits	1,642	1,642	1,642	4,925
PAYS	3,151	3,539	3,926	10,616
Multi-Family Market Rate	9,801	9,864	9,928	29,593
New Construction Whole Home	438	653	1,084	2,174
Residential Total	49,724	52,552	55,611	157,888
Business				
Custom	46,820	47,302	47,265	141,386
Standard	101,353	100,394	96,472	298,219
Agriculture	2,760	2,795	2,806	8,361
Schools	6,359	6,326	6,128	18,813
Business Midstream	2,802	2,864	2,926	8,591
Retro-Commissioning	5,718	5,845	5,971	17,534
Smart Meter Commissioning	6,565	6,589	6,499	19,653
SBDI	6,346	6,280	6,023	18,649
Business Total	178,722	178,394	174,090	531,206

Notes:

[1] Because of rounding, the numbers in these tables may not sum properly. Please see Ameren Missouri's workpapers for necessary clarification regarding these sums.

Incremental Gross MW Savings				
Portfolio	2025	2026	2027	Total
Income Eligible	11.05	12.03	13.02	36.10
Demand Response	246.25	252.55	258.66	258.66
Residential	35.65	37.99	40.52	114.17
Business	61.77	62.15	61.61	185.53
Portfolio Total	354.72	364.73	373.80	594.46
Income Eligible				
Multi-Family Income Eligible	6.81	7.57	8.32	22.70
Single-Family Income Eligible	3.93	4.15	4.38	12.47
Business Social Services	-	-	-	-
	0.31	0.31	0.31	0.94
Income Eligible Total	11.05	12.03	13.02	36.10
Demand Response				
Residential Demand Response	66.25	72.55	78.66	78.66
Business Demand Response	180.00	180.00	180.00	180.00
Demand Response Total	246.25	252.55	258.66	258.66
Residential				
Efficient Products	5.73	5.98	6.16	17.87
Heating and Cooling	24.50	26.23	28.08	78.81
Energy Efficient Kits	0.24	0.24	0.24	0.71
PAYS	1.82	2.04	2.27	6.13
Multi-Family Market Rate	3.12	3.14	3.16	9.41
New Construction Whole Home	0.25	0.37	0.62	1.24
	-	-	-	-
Residential Total	35.65	37.99	40.52	114.17
Business				
Custom	23.02	23.39	23.62	70.03
Standard	25.10	24.92	24.07	74.09
Agriculture	0.72	0.73	0.74	2.19
Schools	2.19	2.19	2.16	6.54
Business Midstream	4.18	4.28	4.37	12.83
Retro-Commissioning	3.03	3.10	3.17	9.30
Smart Meter Commissioning	2.08	2.10	2.10	6.27
SBDI	1.46	1.44	1.39	4.29
	-	-	-	-
	-	-	-	-
Business Total	61.77	62.15	61.61	185.53

Notes:

- [1] Demand Response savings only are shown as cumulative values, all others are incremental savings.
[2] Because of rounding, the numbers in these tables may not sum properly. Please see Ameren Missouri's workpapers for necessary clarification regarding these sums.

Incremental Net MW Savings				
Portfolio	2025	2026	2027	Total
Income Eligible	11.05	12.03	13.02	36.10
Demand Response	246.25	252.55	258.66	258.66
Residential	23.44	24.95	26.60	74.99
Business	48.98	49.25	48.76	146.99
Portfolio Total	329.71	338.79	347.03	516.74
Income Eligible				
Multi-Family Income Eligible	6.81	7.57	8.32	22.70
Single-Family Income Eligible	3.93	4.15	4.38	12.47
Business Social Services	-	-	-	-
	0.31	0.31	0.31	0.94
Income Eligible Total	11.05	12.03	13.02	36.10
Demand Response				
Residential Demand Response	66.25	72.55	78.66	78.66
Business Demand Response	180.00	180.00	180.00	180.00
Demand Response Total	246.25	252.55	258.66	258.66
Residential				
Efficient Products	4.03	4.20	4.33	12.56
Heating and Cooling	14.70	15.74	16.85	47.28
Energy Efficient Kits	0.16	0.16	0.16	0.48
PAYS	1.55	1.74	1.93	5.21
Multi-Family Market Rate	2.80	2.82	2.84	8.47
New Construction Whole Home	0.20	0.30	0.49	0.99
	-	-	-	-
Residential Total	23.44	24.95	26.60	74.99
Business				
Custom	17.26	17.54	17.72	52.52
Standard	20.83	20.69	19.98	61.49
Agriculture	0.58	0.59	0.59	1.75
Schools	1.81	1.82	1.79	5.43
Business Midstream	2.55	2.61	2.66	7.82
Retro-Commissioning	2.73	2.79	2.85	8.37
Smart Meter Commissioning	1.97	1.99	1.99	5.96
SBDI	1.24	1.23	1.18	3.65
	-	-	-	-
	-	-	-	-
Business Total	48.98	49.25	48.76	146.99

Notes:

- [1] Demand Response savings only are shown as cumulative values, all others are incremental savings.
[2] Because of rounding, the numbers in these tables may not sum properly. Please see Ameren Missouri's workpapers for necessary clarification regarding these sums.

Total Resource Cost Test				
Portfolio	2025	2026	2027	Total
Income Eligible	1.23	1.22	1.23	1.23
Demand Response	1.48	1.51	1.55	1.51
Residential	1.46	1.53	1.59	1.52
Business	2.26	2.26	2.26	2.26
Portfolio Total	1.63	1.64	1.64	1.64
Income Eligible				
Multi-Family Income Eligible	1.09	1.11	1.13	1.11
Single-Family Income Eligible	1.49	1.42	1.41	1.44
Business Social Services	0.75	0.75	0.77	0.76
Income Eligible Total	1.23	1.22	1.23	1.23
Demand Response				
Residential Demand Response	1.07	1.10	1.17	0.86
Business Demand Response	1.76	1.80	1.85	1.80
Demand Response Total	1.48	1.51	1.55	1.51
Residential				
Efficient Products	1.62	1.68	1.70	1.67
Heating and Cooling	1.58	1.65	1.71	1.64
Energy Efficient Kits	1.49	1.52	1.53	1.51
PAYS	0.98	1.09	1.19	1.09
Multi-Family Market Rate	1.68	1.77	1.77	1.74
New Construction Whole Home	0.62	0.91	1.14	0.91
Residential Total	1.46	1.53	1.59	1.52
Business				
Custom	1.65	1.66	1.68	1.66
Standard	3.05	3.05	3.06	3.06
Agriculture	1.55	1.57	1.58	1.57
Schools	2.03	2.05	2.10	2.06
Business Midstream	1.27	1.25	1.23	1.25
Retro-Commissioning	4.31	4.23	4.16	4.23
Smart Meter Commissioning	2.33	2.28	2.25	2.29
SBDI	3.01	2.99	2.97	2.99
Business Total	2.26	2.26	2.26	2.26

Notes:

[1] "Portfolio Total" Includes Earnings Opportunity

[2] Residential Demand Response Total Resource Cost Test is based on cumulative savings and benefits.

Utility Cost Test				
Portfolio	2025	2026	2027	Total
Income Eligible	1.34	1.32	1.33	1.33
Demand Response	1.48	1.51	1.55	1.51
Residential	1.79	1.89	1.97	1.88
Business	3.33	3.27	3.21	3.27
Portfolio Total	1.99	2.00	1.98	1.99
Income Eligible				
Multi-Family Income Eligible	1.25	1.27	1.30	1.27
Single-Family Income Eligible	1.52	1.46	1.44	1.47
Business Social Services	0.75	0.76	0.77	0.76
Income Eligible Total	1.34	1.32	1.33	1.33
Demand Response				
Residential Demand Response	1.07	1.10	1.17	1.11
Business Demand Response	1.76	1.80	1.85	1.80
Demand Response Total	1.48	1.51	1.55	1.51
Residential				
Efficient Products	1.78	1.84	1.87	1.83
Heating and Cooling	2.12	2.23	2.32	2.22
Energy Efficient Kits	1.67	1.70	1.72	1.70
PAYS	1.07	1.19	1.30	1.18
Multi-Family Market Rate	2.17	2.31	2.29	2.25
New Construction Whole Home	0.64	0.95	1.21	0.95
Residential Total	1.79	1.89	1.97	1.88
Business				
Custom	3.25	3.19	3.13	3.19
Standard	3.76	3.70	3.65	3.71
Agriculture	3.31	3.26	3.20	3.26
Schools	3.14	3.07	3.02	3.08
Business Midstream	1.46	1.42	1.39	1.42
Retro-Commissioning	4.31	4.23	4.16	4.23
Smart Meter Commissioning	2.33	2.28	2.25	2.29
SBDI	3.13	3.07	3.02	3.08
Business Total	3.33	3.27	3.21	3.27

Notes:

[1] "Portfolio Total" Includes Earnings Opportunity

[2] Residential Demand Response Total Resource Cost Test is based on cumulative savings and benefits.

Participant Cost Test				
Portfolio	2025	2026	2027	Total
Income Eligible	5.94	6.12	6.32	6.13
Demand Response	0.00	0.00	0.00	0.00
Residential	4.68	4.91	5.15	4.91
Business	4.56	4.77	4.94	4.75
Portfolio Total	4.76	4.98	5.18	4.97
Income Eligible				
Multi-Family Income Eligible	3.95	4.14	4.33	4.14
Single-Family Income Eligible	9.78	10.13	10.50	10.13
Business Social Services	3.57	3.73	3.90	3.73
Income Eligible Total	5.94	6.12	6.32	6.13
Demand Response				
Residential Demand Response	0.00	0.00	0.00	0.00
Business Demand Response	0.00	0.00	0.00	0.00
Demand Response Total	0.00	0.00	0.00	0.00
Residential				
Efficient Products	5.94	6.26	6.60	6.26
Heating and Cooling	4.05	4.26	4.49	4.27
Energy Efficient Kits	5.80	6.14	6.48	6.12
PAYS	6.76	7.11	7.48	7.13
Multi-Family Market Rate	5.79	6.05	6.31	6.04
New Construction Whole Home	4.09	4.25	4.41	4.29
Residential Total	4.68	4.91	5.15	4.91
Business				
Custom	2.42	2.54	2.65	2.53
Standard	8.45	8.91	9.36	8.88
Agriculture	2.94	3.10	3.25	3.09
Schools	4.00	4.24	4.57	4.25
Business Midstream	1.99	2.07	2.15	2.06
Retro-Commissioning	9.19	9.67	10.16	9.66
Smart Meter Commissioning	0.00	0.00	0.00	0.00
SBDI	10.27	10.82	11.39	10.79
Business Total	4.56	4.77	4.94	4.75

Notes:

[1] "Portfolio Total" Includes Earnings Opportunity

[2] Residential Demand Response Total Resource Cost Test is based on cumulative savings and benefits.

Ratepayer Impact Measure (Net Fuel)				
Portfolio	2025	2026	2027	Total
Income Eligible	0.47	0.45	0.44	0.45
Demand Response	1.45	1.48	1.52	1.48
Residential	0.64	0.63	0.61	0.62
Business	0.83	0.79	0.76	0.79
Portfolio Total	0.72	0.70	0.68	0.70
Income Eligible				
Multi-Family Income Eligible	0.53	0.52	0.50	0.51
Single-Family Income Eligible	0.42	0.40	0.39	0.40
Business Social Services	0.42	0.41	0.40	0.41
Income Eligible Total	0.47	0.45	0.44	0.45
Demand Response				
Residential Demand Response	1.05	1.09	1.15	1.09
Business Demand Response	1.73	1.77	1.81	1.77
Demand Response Total	1.45	1.48	1.52	1.48
Residential				
Efficient Products	0.64	0.62	0.60	0.62
Heating and Cooling	0.51	0.53	0.53	0.52
Energy Efficient Kits	0.46	0.44	0.42	0.44
PAYS	0.51	0.53	0.53	0.52
Multi-Family Market Rate	0.61	0.59	0.57	0.59
New Construction Whole Home	0.39	0.47	0.52	0.47
Residential Total	0.64	0.63	0.61	0.62
Business				
Custom	0.98	0.94	0.91	0.95
Standard	0.73	0.70	0.67	0.70
Agriculture	0.78	0.74	0.71	0.74
Schools	0.81	0.78	0.75	0.78
Business Midstream	0.93	0.90	0.87	0.90
Retro-Commissioning	1.33	1.27	1.21	1.27
Smart Meter Commissioning	0.91	0.86	0.82	0.86
SBDI	0.69	0.65	0.63	0.66
Business Total	0.83	0.79	0.76	0.79

Notes:

[1] "Portfolio Total" Includes Earnings Opportunity

[2] Residential Demand Response Total Resource Cost Test is based on cumulative savings and benefits.

kWh Net to Gross (%)				
Portfolio	2025	2026	2027	Total
Income Eligible	100.0%	100.0%	100.0%	100.0%
Demand Response				
Residential	68.2%	68.0%	68.0%	68.0%
Business	80.9%	80.8%	80.8%	80.8%
Portfolio Total	80.5%	80.4%	80.4%	80.4%
Income Eligible				
Multi-Family Income Eligible	100.0%	100.0%	100.0%	100.0%
Single-Family Income Eligible	100.0%	100.0%	100.0%	100.0%
Business Social Services	100.0%	100.0%	100.0%	100.0%
Income Eligible Total	100.0%	100.0%	100.0%	100.0%
Demand Response				
Residential Demand Response				
Business Demand Response				
Demand Response Total				
Residential				
Efficient Products	70.7%	70.7%	70.7%	70.7%
Heating and Cooling	60.0%	60.0%	60.0%	60.0%
Energy Efficient Kits	67.5%	67.5%	67.5%	67.5%
PAYS	85.0%	85.0%	85.0%	85.0%
Multi-Family Market Rate	90.0%	90.0%	90.0%	90.0%
New Construction Whole Home	79.2%	79.2%	79.1%	79.2%
Residential Total	68.2%	68.0%	68.0%	68.0%
Business				
Custom	75.0%	75.0%	75.0%	75.0%
Standard	83.0%	83.0%	83.0%	83.0%
Agriculture	80.0%	80.0%	80.0%	80.0%
Schools	83.0%	83.0%	83.0%	83.0%
Business Midstream	61.0%	61.0%	61.0%	61.0%
Retro-Commissioning	90.0%	90.0%	90.0%	90.0%
Smart Meter Commissioning	95.0%	95.0%	95.0%	95.0%
SBDI	85.0%	85.0%	85.0%	85.0%
Business Total	80.9%	80.8%	80.8%	80.8%

Notes:

[1] Because of rounding, the numbers in these tables may not sum properly. Please see Ameren Missouri's workpapers for necessary clarification regarding these sums.