Exhibit No.: _____
Issue: MEEIA Cycle 1
Witness: Kimberly Dragoo
Type of Exhibit: Direct Testimony
Sponsoring Party: The Empire District Electric Company
Case No.:
Date Testimony Prepared: September 2021

Before the Public Service Commission of the State of Missouri

Direct Testimony

of

Kimberly Dragoo

on behalf of

The Empire District Electric Company

September 2021

TABLE OF CONTENTS
FOR THE DIRECT TESTIMONY OF KIMBERLY DRAGOO
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION

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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Kimberly Dragoo, and my business address is 36 Fifth Street, Fall River, MA, 02721.

Q. By whom are you employed and in what capacity?

A. I am currently employed by Liberty Utilities Services Corp. ("LUSC") as a Senior Manager-Energy Efficiency for the East and Central Regions. Liberty's Central Region includes The Empire District Electric Company ("Empire" or "Company").

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

A. I am testifying on behalf of Empire.

Q. Please describe your educational and professional background.

A. I hold a B.S degree from Bridgewater State University and an M.B.A from Boston University. I have been developing and engaged in the implementation of energy efficiency programs since 2002, first for National Grid as the Manager of Commercial and Industrial energy efficiency programs and later as a consultant with ICF where I was a Senior Director. In June of 2020, I joined Liberty as the Senior Manager of Energy Efficiency overseeing the East and Central regions.

Q. Have you previously testified before the Missouri Public Service Commission ("Commission") or any other regulatory agency?

A. No. This is my first time testifying before this Commission or any other regulatory agency.

Q. What is the purpose of your Direct Testimony in this proceeding?

Q. In this testimony, I will discuss Empire's current energy efficiency offerings and introduce Empire's new portfolio of energy efficiency programs developed under the framework prescribed by the Missouri Energy Efficiency Investment Act ("MEEIA"). I will also describe Empire's proposed Demand-Side Investment Mechanism ("DSIM"), as prescribed by MEEIA.

II. CURRENT ENERGY EFFICIENCY OFFERINGS

Q. Does Empire currently offer energy efficiency programs in Missouri?

A. Yes. As originally approved in Commission Case No. ER-2016-0023, Empire currently offers four programs to its electric customers in Missouri: Commercial and Industrial ("C&I"), Residential HVAC Rebate program, Multi-Family Direct Install program, and the Low-Income Multi-Family Direct Install program.

Q. Were these programs modified in Empire's most recently completed general rate case (Case No. ER-2019-0374)?

A. No. Pursuant to the agreement of the parties, and the order of the Commission, there were no modifications approved by the Commission in Empire's last rate case.

Q. Has Empire proposed any changes to the energy efficiency programs in its pending general rate case (Case No. ER-2021-0312)?

A. No. As detailed in the Direct Testimony of Nathaniel W. Hackney - filed May 28, 2021 in Commission Case No. ER-2021-0312 - no changes to the energy efficiency programs are being suggested by the Company in that case.

Q. Please explain why there were no modifications made in either case.

A. As explained in the testimonies of Nathaniel W. Hackney in both cases, Empire has favored obtaining approval of an initial MEEIA portfolio to make changes to its energy efficiency offerings, rather than creating interim changes to its energy efficiency

offerings in a general rate case. Empire believed interim changes in a rate case and then approval of a MEEIA portfolio would create unnecessary confusion amongst its customers.

Q. Please address the stipulation in Case No. EM-2016-0213 regarding future expansion of Empire's Demand-Side Management ("DSM") programs?

A. On August 24, 2016, an *Amended Stipulation and Agreement as to Division of Energy and Renew Missouri* ("Amended Stipulation") was filed in Case No. EM-2016-0213. The Amended Stipulation was later approved by Commission Order issued September 7, 2016. The Amended Stipulation stated, in part:

> Empire will work with DE, the Staff of the Commission ("Staff"), the Office of the Public Counsel ("OPC") and other parties through the existing DSM Advisory Group to review and consider the viability of adopting additional energy efficiency programs for its customers. Within one year of the Commission's finding of substantial compliance of the Empire Integrated Resource Plan that follows Commission approval of a Statewide Technical Reference Manual (TRM), Empire will develop and submit an application for approval of a portfolio of DSM programs under the Missouri Energy Efficiency Investment Act (MEEIA), so long as any such portfolio is a part of Empire's adopted preferred resource plan in its Integrated Resource Plan, or has been analyzed through the integration process required by 4 CSR 240-22.060, and the portfolio and any DSIM submitted in the application is fully compliant with the MEEIA statute and applicable regulations.

Q. Has a statewide TRM been approved by the Commission at the time of this filing?

A. No. But Empire is very eager to file this portfolio and DSIM under the MEEIA framework, and has communicated this desire to regulatory stakeholders during the previous several months.

Q. Please describe the stakeholder process leading up to this MEEIA Cycle 1 Filing.

A. Empire met virtually with various regulatory stakeholders 15 to 20 times between August 2020 and May 2021, during which specifics regarding a variety of issues related

to program design, scope, timeline, and recovery were discussed at length, most often to consensus. These items will be discussed in the following sections.

III. MEEIA PROGRAM DESIGN

Q. When does Empire intend to begin implementation of its MEEIA portfolio?

A. Empire seeks to implement its MEEIA portfolio no more than sixty days from the date of this filing.

Q. How long will Empire offer these programs?

A. Empire will implement these programs through December 31, 2022.

Q. Why will Empire not be implementing a three-year portfolio?

A. Empire wishes to significantly expand the scope and comprehensiveness of its offerings from the level of Empire's MEEIA Cycle 1 Filing. Empire believes this portfolio is realistically ambitious, while serving as a bridge to build momentum, infrastructure, and vendor relationships to support an even more ambitious and robust three-year portfolio, for implementation in 2023. Implementing in 2023 will allow Empire to synchronize its implementation timeline with that of its peer IOUs in Missouri.

Q. Please describe the portfolio of programs Empire intends to offer under the MEEIA framework.

A. Empire's MEEIA Cycle 1 will offer the following residential programs:

- Residential Efficient Products,
- Residential Multifamily,
- Residential HVAC Rebate, and
- Residential Whole Home Energy (Pay-As-You-Save or "PAYS").

Empire will also offer the following nonresidential programs:

- Small Business Direct Install, and
- Commercial and Industrial Rebate Program.

Q. Please elaborate on the Residential Efficient Products program.

A. Customers can purchase qualifying measures at participating retailers either online or in-store and receive instant incentives at the point-of-purchase. This program is described in greater detail in Appendix A to Direct Schedule KD-1 attached hereto and incorporated by reference.

Q. What is the proposed budget for the Efficient Products program?

A. The proposed budget for this program through December 31, 2022 is $358,201. The budget breaks down as follows.

Incentives:	$125,562
Administration:	$219,442
Marketing:	$13,197

Q. What are the expected savings of the Efficient Products program?

A. The program is expected to create savings of 1,098 MWh of energy and 0.16 MW of peak by December 31, 2022. Calculations for these savings estimates are detailed in Appendix B to Direct Schedule KD-1.

Q. Is the Efficient Products program cost-effective?

A. Yes. The program has a Total Resource Cost ("TRC") score of 1.28.

Q. Please elaborate on the Residential Multifamily program.

A. Customers in qualifying multifamily dwellings receive free energy audits and installation of low-cost measures. Customers and building owners are also eligible for incentives for the purchase and installation of qualifying energy efficiency measures. This program is described in greater detail in Appendix A to Direct Schedule KD-1.

Q. What is the proposed budget for the Multifamily program?

A. The proposed budget for this program through December 31, 2022 is $103,642. The budget breaks down as follows:

Incentives:	$75,642
Administration:	$25,000
Marketing:	$3,000

Q. What are the expected savings of the Multifamily program?

A. The program is expected to create savings of 209 MWh of energy and 0.04 MW of peak by December 31, 2022. Calculations for these savings estimates are detailed in Appendix B to Direct Schedule KD-1.

Q. Is the Multifamily program cost-effective?

A. Yes. The program has a TRC score of 1.38.

Q. Please elaborate on the HVAC Rebate program.

A. Customers receive rebates for the purchase and installation of qualifying energy efficient HVAC systems installed through a Trade Ally Network. This program is described in greater detail in Appendix A to Direct Schedule KD-1.

Q. What is the proposed budget for the HVAC program?

A. The proposed budget for this program through December 31, 2022 is $415,081. The budget breaks down as follows.

Incentives:	$352,525
Administration:	$59,577
Marketing:	$2,979

Q. What are the expected savings of the HVAC program?

A. The program is expected to create savings of 830 MWh of energy and 0.16 MW of peak by December 31, 2022. Calculations for these savings estimates are detailed in Appendix B to Direct Schedule KD-1.

Q. Is the HVAC Rebate program cost-effective?

A. Yes. The program has a TRC score of 1.01.

Q. Please elaborate on the Residential Whole Home Energy: Pay-As-You-Save ("PAYS") program.

A. Customers receive free in-home evaluations and customized recommendations for energy efficient measure upgrades. Customers may choose to install any recommended upgrade, receive rebates for qualifying measures, and Liberty will cover the upfront full installation cost of qualifying measures, and allow customers to pay them back in monthly installments on their bills. The program guarantees a net reduction in energy usage, meaning that the monthly installments will be greater than or equal to the savings created on their bills over the course of a given year. This program is described in greater detail in Appendix A to Direct Schedule KD-1.

Q. What is the proposed budget for the PAYS program?

A. The proposed budget for this program through December 31, 2022 is $509,891. The budget breaks down as follows.

Incentives:	$441,556
Administration:	$62,123
Marketing:	$6,212

Q. What are the expected savings of the PAYS program?

A. The program is expected to create savings of 1,102 MWh of energy and 0.42 MW of peak by December 31, 2022. Calculations for these savings estimates are detailed in Appendix B to Direct Schedule KD-1.

Q. Is the PAYS program cost-effective?

A. Yes. The program has a TRC score of 1.28.

Q. Please elaborate on the Small Business Direct Install ("SBDI") program.

A. Customers receive an energy evaluation identifying potential energy savings. After the evaluation, customers may be eligible to receive an incentive, direct installation of measures and a customized recommendation for energy efficient equipment upgrades. This program is described in greater detail in Appendix A to Direct Schedule KD-1.

Q. What is the proposed budget for the SBDI program?

A. The proposed budget for this program through December 31, 2022 is $474,824. The budget breaks down as follows.

Incentives:	$410,558
Administration:	$15,000
Marketing:	$49,627

Q. What are the expected savings of the SBDI program?

A. The program is expected to create savings of 2,258 MWh of energy and 0.28 MW of peak by December 31, 2022. Calculations for these savings estimates are detailed in Appendix B to Direct Schedule KD-1.

Q. Is the SBDI program cost-effective?

A. Yes. The program has a TRC score of 1.18.

Q. Please elaborate on the Commercial and Industrial ("C&I") program.

A. Customers receive prescriptive and custom rebates for purchasing energy efficient equipment for commercial and industrial facilities. This program is described in greater detail in Appendix A to Direct Schedule KD-1.

Q. Are there significant administrative changes to the proposed C&I program from the current C&I program offered by Empire?

A. Yes. The program, previously exclusively Custom, now features a long list of measures eligible for prescriptive rebates. These measures are detailed in Appendix A to Direct Schedule KD-1. The program still features custom rebates for customers whose

measures are not covered under the prescriptive rebate. Custom rebates will continue to be paid at $0.10/kWh for first-year energy savings.

Q. Did Empire make any changes to the maximum rebate eligibility?

A. A $250,000 incentive cap is imposed per facility per program year. However, if funds are still available in the last three months of the program year, the cap may be exceeded. This is an increase from the current rebate of $50,000 per facility per program year.

Q. What is the proposed budget for the C&I program?

A. The proposed budget for this program through December 31, 2022 is $1,565,977. The budget breaks down as follows.

Incentives:	$1,413,457
Administration:	$121,555
Marketing:	$30,965

Q. What are the expected savings of the C&I program?

A. The program is expected to create savings of 11,705 MWh of energy and 1.29 MW of peak by December 31, 2022. Calculations for these savings estimates are detailed in Appendix B to Direct Schedule KD-1.

Q. Is the C&I program cost-effective?

A. Yes. The program has a TRC score of 1.31.

Q. What is the total portfolio budget?

A. The total portfolio budget is $3,992,313. It breaks down as follows.

Incentives:	$2,819,300
Marketing:	$216,984
Administration:	$725,424
EM&V:	$185,606
Research and Development:	$45,000

IV. MEEIA DEMAND-SIDE INVESTMENT MECHANISM

Q. Does Empire propose a Demand-Side Investment Mechanism ("DSIM") under the framework prescribed by MEEIA?

A. Yes.

Q. Please describe the DSIM.

A. The DSIM is comprised of three recovery components: Program Costs, Throughput Disincentive ("TD"), and Earnings Opportunity ("EO"). The combination of these three items is divided by projected retail sales[1], to arrive at a volumetric factor, measured in $/kWh. This factor will be charged to all eligible customers and trued up upon completion of the first program year. The proposed MEEIA tariff is attached as Appendix E to Direct Schedule KD-1. The tariff is also being submitted separately, with a proposed effective date 60 days after submission.

Q. What is the projected Program Cost component of Empire's MEEIA Cycle 1?

A. Projected costs are $3,992,314, as detailed in the previous section. Within this, $1,675,060 is allocated to residential customers, and $2,317,254 is allocated to non-residential customers. These projected costs are detailed in the previous section, and in Appendix A of Direct Schedule KD-1.

Q. What is the projected TD component of Empire's MEEIA Cycle 1?

A. Projected TD is $458,225. Of this, $150,383 is allocated to residential customers, and $307,842 is allocated to non-residential customers.

Q. Will Empire be collecting EO in this MEEIA cycle, which runs through December 31, 2022?

[1] Less the sales of projected sales of customers who opt out under Commission Rule 20 CSR 4240-20.094(7)(A).

A. It will not. Empire has designed an EO to be collected in year two, which will be based on performance in this period. This item is detailed in Appendix F of Direct Schedule KD-1.

Q. Please describe the structure of Empire's EO.

A. Empire's EO is designed to collect, at a maximum, 9.25 percent of the total portfolio budget. 9.25 percent is equal to Empire's current authorized rate of return, as approved in its most recently completed general rate case. 9.25 percent of the total portfolio budget of $3,992,314 is equal to $368,289. Empire will have the opportunity to earn 80 percent of this figure - $295,431 - if it spends 75 percent of its total approved budget. Empire will have the opportunity to earn the remaining 20 percent of this figure - $73,858 - if it spends 75 percent of the final budget allocated for energy efficiency measures.

Q. Are there any additional components of Empire's proposed EO?

A. Yes. Empire has an additional four "stretch" performance metrics, for which it can earn an additional 7.5 percent, or $27,697, each. They are as follows:

- Achieve the PAYS program's participation goal of 300 participants.
- Achieve the Multifamily program's participation goal of 500 participants.
- Achieve a custom project participant rate of at least 50% of all participants.
- Have a minimum of 20 SBDI participants install a measure beyond standard direct install measures.

The maximum to be earned from achievement of all four of these is a total of $110,787.

Q. What are the projected sales for the DSIM?

A. The projected residential sales are 2,103,039,929 kWh, and the projected non-residential sales[2] are 2,017,000,626 kWh.

Q. What is the proposed DSIM factor for residential customers?

[2] Less the sales of projected sales of customers who opt out under Commission Rule 20 CSR 4240-20.094(7)(A).

A. $0.00087/kWh.

Q. What is the proposed DSIM factor for non-residential customers?

A. $0.00130/kWh.

Q. What are the projected monthly impacts for an average residential customer using 1,000 kWh per month?

A. The average residential customer using 1,000 kWh will pay roughly $0.87/month for the DSIM surcharge.

Q. How will the DSIM appear on customers' bills?

A. The DSIM factor will be charged on customer bills as "Energy Efficiency Investment Cost." A sample bill featuring the MEEIA DSIM Charge can be found as Appendix C to Direct Schedule KD-1.

Q. How will Empire communicate this change to customers?

A. Empire will communicate the beginning of these programs with an enclosure to customer's monthly paper bills and an attachment to customer's monthly electronic bills. An example of such communication can be found as Appendix D to Direct Sch. KD-1.

Q. Does this conclude your Direct Testimony.

A. Yes.

VERIFICATION

I, Kimberly Dragoo, under penalty of perjury, on this 15th day of September, 2021, declare that the foregoing is true and correct to the best of my knowledge and belief.

___/s/ Kimberly Dragoo_____

Direct Schedule KD-1

The Empire District Electric Company

MEEIA Cycle 1

2021–2022 Filing

Table of Contents

INTRODUCTION

The Empire District Electric Company d/b/a Liberty ("Liberty" or the "Company") serves more than 170,000 electricity customers in Missouri, Oklahoma, Kansas, and Arkansas. This plan focuses on customers in the state of Missouri. Liberty has been offering demand-side management (DSM) programs to its customers for more than ten years.

This plan outlines Liberty's request to establish a DSM portfolio that is consistent with the Missouri Energy Efficiency Investment Act (MEEIA) and rules of the Missouri Public Service Commission ("MPSC"). MEEIA and the MPSC rules were established to support the state policy to value demand-side investments equal to traditional investments in supply and delivery infrastructure. It also allows recovery of all reasonable and prudent costs for delivery of cost-effective demand-side programs and provides guiding principles for filing new programs and reporting.

Liberty has developed a MEEIA Cycle 1 portfolio ("Cycle 1"), designed to run through December 31, 2022. Cycle 1 incorporates the existing Liberty DSM programs with the results of the 2019 Integrated Resource Planning ("IRP") analysis to offer an expanded platform of DSM programs. The proposed DSM portfolio includes a suite of programs that offer all customers a variety of opportunities to participate in DSM.

The proposed program design delivers an effective and balanced portfolio of energy and peak demand savings opportunities across all customer segments. Each program was designed to leverage a mix of best-practice measures and technologies, delivery strategies, and target markets in order to most effectively deliver programs and measures to all Liberty customers.

The programs described in Table ES1 build upon existing Liberty programs and expands the current portfolio with new offerings.

Table ES1 Proposed DSM Program Descriptions, 2021-2022

Program	Description
Residential Efficient Products	• Customers can purchase qualifying measures at participating retailers either online or in-store and receive instant incentives at the point-of-purchase. • Customers are eligible to receive a free online energy audit.
Residential Multifamily	• Free energy audits and installation of low-cost measures for multifamily customers. • Customers are also eligible for incentives for the purchase and installation of qualifying measures.
Residential HVAC Rebates	• Customers receive rebates for the purchase and installation of qualifying energy efficient HVAC systems installed through a Trade Ally Network.
Residential Whole Home Energy: PAYS	• Customers receive free in-home evaluations and customized recommendations for energy efficient measure upgrades. • Customers may choose to install any recommended upgrade, receive rebates for qualifying measures and Liberty will cover the upfront full installation cost of these upgrades.
Small Business Direct Install	• Customers receive an energy evaluation identifying potential energy savings. • Customers are eligible to receive an incentive, direct installation of measures and a customized recommendation for energy efficient equipment upgrades.
C&I Program	• Customers receive prescriptive and custom rebates for purchasing energy efficient equipment for commercial and industrial facilities.

Key Aspects of the Plan

Throughout the MEEIA planning process, Liberty made several decisions concerning key aspects of the plan, in consultation with stakeholders. Table ES-2 below provides a summary of these decisions:

Table ES2 Key Aspects of the 2021-2022 MEEIA Plan

Key Aspect	Decision
Stakeholder Engagement	• Liberty worked closely with stakeholders throughout the planning process to review portfolio topics such as program offerings, implementation contractors, avoided costs, the DSIM and other MEEIA characteristics.
Plan Duration	• The proposed MEEIA Cycle 1 portfolio is designed to run through December 31, 2022.
TRM	• The plan primarily uses the Arkansas Technical Reference Manual (TRM) Version 8.1 to estimate the savings for the measures included in the DSM portfolio. • The plan uses the Illinois TRM Version 9 and the Michigan TRM (for weatherization measures) to supplement the savings calculations in cases where the Arkansas TRM does not provide sufficient information.
Cost Effectiveness Tests	• The MEEIA plan evaluates cost-effectiveness on a measure-level and program-level basis through four cost-effectiveness tests: Total Resource Cost test (TRC), Utility Cost Test (UCT), Participant Cost Test (PCT), and Ratepayer Impact test (RIM).
Net-to-Gross	• The plan uses a net-to-gross factor of 82.5% across all the entire portfolio.
Avoided Costs	• The avoided costs assumptions are sourced from the 2019 IRP. Detail on the assumptions are included in Section 1.
Non-Energy Benefits (NEBs)	• The analysis includes quantifiable natural gas and water savings for dual fuel participants and water

	savings measures - developed from associated algorithms

Plan Organization

This plan details the 2021-2022 MEEIA DSM portfolio design. The plan layout is as follows:

- Portfolio Development
- Portfolio Summary
- Sector Programs
- Evaluation, Measurement, and Verification
- Demand-Side Investment Mechanism

Abbreviations and Acronyms

Throughout the plan we use several abbreviations and acronyms. The table below shows the abbreviation or acronym, along with an explanation.

Explanation of Abbreviations and Acronyms

Acronym	Explanation
EM&V	Evaluation, Measurement and Verification
C&I	Commercial and Industrial
DSIM	Demand-Side Investment Mechanism
DSM	Demand-Side Management
EE	Energy Efficiency
HVAC	Heating Ventilation & Air Conditioning
IOU	Investor-owned Utilities
IRP	Integrated Resource Plan
MEEIA	Missouri Energy Efficiency Act
MF	Multifamily
PAYS	Pay As You Save
PCT	Participant Cost Test
RIM	Rate Payer Impact Measure Test
SBDI	Small Business Direct Install
SF	Single Family
TRC	Total Resource Cost Test

TRM	Technical Reference Manual
UCT	Utility Cost Test

SECTION 1: PORTFOLIO DEVELOPMENT

Overview of Approach

Applied Energy Group, Inc. ("AEG") was retained by Liberty to assist in the design of the Cycle 1 MEEIA portfolio. To develop the portfolio, Liberty and AEG worked closely using a bottom-up approach to build programs into a comprehensive portfolio that offers opportunities to all Liberty customers. Historical performance was compared with the 2019 Integrated Resource Plan (IRP), and findings from the measure-level energy efficiency (EE) potential analysis as guidance in the development.

Liberty used a multi-criteria program development approach in formulating the Cycle 1 MEEIA portfolio. In consultation with Liberty, AEG developed a comprehensive "global" measure list that is applicable to Liberty's service territory. To develop the measure list – AEG began with the measures screened in the 2018 Potential Study, 2019 IRP filing[1], as well as measures offered by similar utilities by geography and/or size. AEG reevaluated these measures and the associated technical assumptions; cost-effectiveness; sector; end use; and delivery mechanism.

Liberty and AEG worked together to define portfolio goals and identify current portfolio gaps. This exercise was then used to refine the measure list and bundle measures together into programs based on sector, end-use, and the desired delivery mechanism of each program. Program modifications to current programs and the introduction of new programs were considered in order to provide all Liberty customers and market segments with access to cost-effective energy efficiency programs.

Cost Effectiveness

The Total Resource Cost Test (TRC) is the primary method of assessing the cost-effectiveness of energy efficient measures and programs for the Cycle 1 MEEIA filing.

[1] EO-2019-0049

MEEIA rules prescribe that "the commission shall consider the total resource cost test a preferred cost-effectiveness test."[2] [3]

TRC measures the net costs and benefits of an energy efficiency program as a resource option based on the total costs of the program, including both the participant's and the utility's costs. This test represents the combination of the effects of a program on both participating and non-participating customers. Additionally, captured within the net benefits are quantifiable benefits from any reduction in natural gas and water use from dual fuel and water-saving measures.

In total, four benefit-cost tests were used to analyze program design cost-effectiveness from different perspectives:

- *Total Resource Cost Test* measures the net costs and benefits of an energy efficiency program as a resource option based on the total costs of the program, including both the participant's and the utility's costs
- *Participant Cost Test* quantifies the benefits and costs to the customer due to program participation.
- *Ratepayer Impact Measure Cost Test* measures what happens to a customer's rates due to changes in utility revenues and operating costs.
- *Utility Cost Test* measures the net costs of a program as a resource option based on the costs incurred by the program administrator, excluding any net costs incurred by the participant.

The results of the four cost effectiveness tests are presented in Section 2 – Portfolio Overview and Appendix A – Program Descriptions.

The benefit-cost screening model used for the analysis, BenCost, is a proprietary AEG cost-effectiveness model that is utilized in multiple states throughout the country and is consistent with industry best practices. BenCost is a fully customizable cost-effectiveness modeling platform that enabled Liberty to evaluate the costs, benefits,

[2] 20 CSR 4240-20.094(I)

[3] 20 CSR 4240-20.094(J) Exception to this that "programs targeted to low-income customers or general education campaigns do not need to meet a cost-effectiveness test…"

and risks of DSM programs and services using utility-specific measures and programs. The input data required for the model includes:

Table 2-2 Cost-Effectiveness Model Inputs

General Inputs	Specific-Project Inputs
Retail Rate ($/kWh)	Utility Project Costs (Administrative & Incentives)
Commodity Cost ($/kWh)	Direct Participant Project Costs ($/Participant)
Demand Cost ($/kW-Year)	Measure Life (Years)
Discount Rate (%)	kWh/Participant Saved (Net and Gross)
Inflation Rate (%)	kW/Participant Saved (Net and Gross)
Line Losses (%)	Number of Participants

Avoided Costs Assumptions

The avoided costs utilized in the Cycle 1 MEEIA analysis are sourced from Liberty's 2019 IRP[4]. The avoided energy costs were developed using market prices from the Southwest Power Pool (SPP) and part of the SPP integrated marketplace (SPP IM). Liberty worked with ABB to create a forward view of the SPP-KSMO regional electricity market using its Fall 2018 Reference Case data set. The Cycle 1 MEEIA analysis draws on the Reference Case, which was produced using a combination of public data and proprietary forecasts to develop input assumptions for the key supply and demand drivers of power market outcomes.

The avoided capacity costs utilized in the Cycle 1 MEEIA analysis are sourced a sensitivity analysis conducted after the original 2019 IRP filing. As a commitment with stakeholders, Liberty agreed to run the analysis with a revised set of avoided capacity costs using zero avoided capacity costs until such time that Liberty needs capacity to meet SPP resource adequacy requirements, at which time the avoided capacity costs will be assumed to be equal to the ABB projected capacity cost for SPP KSMO for years in which Liberty can defer supply-side resources. These avoided capacity costs are being used as a constraint in determining the cost effectiveness of this proposed Cycle 1 MEEIA portfolio only and do not represent or replace official avoided capacity costs presented in the Company's most recent or future IRPs.

[4] EO-2019-0049

Budget Development

To develop the budget, Liberty identified an overall budget target that would use past program spending as the foundation for building individual programs and budgets and expand budgets to achieve portfolio goals. Program-level participation and budgets were calculated utilizing a bottom-up approach, where individual measure participation was determined, and budgets were an eventual derivative of program participation. Participation was adjusted taking into consideration cost-effectiveness, results of the Potential Study, IRP, and historic program performance.

Incentives were developed using multi-variable criteria including the measure's incremental cost, the program delivery mechanism, target market, and incentives made available by other electric utilities. Generally, for prescriptive rebate programs, incentives are calculated at approximately 30-50% of the measure's incremental cost. For audit and direct install components, there are no incentives because customers receive qualifying energy efficiency measures at no cost. These are services provided by the utility and counted as incentive costs. For business programs, incentives are calculated either on a percent of project expenses or dollar per kWh saved. This aligns with industry best practices.

Non-incentive expenses were also developed for the following categories:

Program Level

- **Program Administration** includes direct program costs to implement and deliver program incentives and services. More specifically, this represents costs incurred (primarily from third-party implementers) to coordinate with customers, set up appointments, process paperwork, process incentives, manage trade ally network, and any costs related to the develop and maintain online portals.
- **Program Marketing/Education/Training** includes direct program marketing expenses related to program specific campaigns, marketing materials, contractor training and workshops, and customer education campaigns.

Portfolio Level

- **Portfolio Administration** includes general expenses, internal utility labor, external planning consultant support, and costs to support/maintain the data tracking system.
- **Portfolio Marketing/Education/Training** category includes general portfolio marketing, education of internal staff, trade allies and external implementation partners, and internal/external training. These expenses apply to the portfolio as a whole, and not to any specific program or measure.
- **Portfolio Evaluation** expenses estimate that approximately four and a half percent of the portfolio will be spent on evaluation activities, such as process and impact evaluations.

Savings Targets

Technical assumptions were developed for each measure, including measure life, energy savings, peak demand savings, net-to-gross ratios, and measure incremental costs. Energy and peak demand savings were calculated using engineering algorithms and deemed savings from technical reference manuals, program evaluations, and assumptions from other electric utilities.

The Arkansas TRM (version 8.1) was used as the primary source to characterize measure savings and measure lifetime. The Illinois TRM (version 9) was used to supplement.

Targets for participation and savings were triangulated based on DSM Market Potential Study Realistic Achievable Potential (RAP) IRP Preferred Resource Plan, ten years of DSM program history and a diverse network of Liberty Utility programs.

Stakeholder Process and Introductory MEEIA Agreement

Liberty worked extensively with stakeholders throughout the planning process to review portfolio topics such as program offerings, implementation contractors, avoided costs, DSIM and other MEEIA characteristics. The stakeholder engagement process kicked off in August 2020, in which Liberty introduced program design methodology and key considerations around avoided costs, TRMs, energy goals and program offerings.

Next, Liberty engaged with stakeholders from October and November 2020 through a series of focused program workshops. Liberty and stakeholders continued to meet on various topics throughout the beginning of 2021 to refine the portfolio.

During this stakeholder engagement process, stakeholders proposed an alternative filing structure for Liberty in which Liberty would file for an "Introductory MEEIA Plan", referenced throughout at Cycle 1 MEEIA, which would last for a 15-month period rather than the 3-year period of a typical, full MEEIA Plan. The intention of this recommendation was to allow Liberty sufficient time to build programs, align timing of a full MEEIA filing with the triennial IRP filing, align with MEEIA filing schedules of the other Missouri utilities, and to streamline the regulatory process.

Throughout the entire stakeholder engagement, Liberty received invaluable feedback that was utilized to refine and improve the portfolio and gain consensus on portfolio offerings, proposed delivery infrastructure, EM&V and the demand-side investment mechanism.

SECTION 2: PORTFOLIO OVERVIEW

Portfolio Summary

Liberty's proposed program portfolio was designed to begin October 1, 2021 and extend through December 31, 2022. Given the filing date of the Application, the time period for MEEIA Cycle 1 will be less than originally contemplated. The portfolio is comprised of five residential programs and two business programs. Each program targets multiple end uses and offers residential, commercial and industrial customers an opportunity to achieve significant energy savings through participation.

Highlights of Liberty's portfolio include the following:

- Is cost-effective at the program and portfolio level in the program period.
- Expands and/or coordinates with existing Liberty energy efficiency programs.
- Capitalizes on Liberty Utilities' implementer network and current services.
- Provides a broad range of energy efficiency opportunities to all Liberty customers.

The proposed program design delivers an effective and balanced portfolio of energy and peak demand savings opportunities across all customer segments. Each program

was designed to leverage the mix of best-practice measures and technologies, delivery strategies, and target markets in order to most effectively deliver programs and measures to all Liberty customers.

Liberty's program portfolio uses a combination of education and customer incentives to advance energy efficiency in Missouri. Customer incentives are the primary focus within program delivery. Customers receive rebates to purchase energy efficient equipment and services through existing market actors, including equipment dealers and retailers. Additionally, in this Cycle 1 MEEIA, Liberty is expanding beyond traditional rebates to offer a personalized customer experience through an online audit and provision of do-it-yourself (DIY) kits to participating customers.

Historical Energy Efficiency Offerings

Liberty began offering DSM programs to its customers in 2007. Since that time, Liberty has offered a suite of residential, commercial, and industrial programs serving a variety of end-uses. Liberty's annual portfolio features have had an approximate budget of $1.5 million. Liberty is proud of its history of DSM programs, which have helped thousands of customers and saved millions of kilowatt-hours over the last thirteen years. Liberty is confident that its well-established history of successful DSM implementation will serve as the foundation for expansion and increased diversity through its Cycle 1 MEEIA program, and beyond to future MEEIA portfolios.

Plan Portfolio Structure

The Cycle 1 MEEIA portfolio combines Liberty's existing DSM programs with new offerings to propose an expanded DSM portfolio. The table below presents the proposed suite of programs for the Cycle 1 MEEIA portfolio.

Table 2-1 Proposed DSM Portfolio Programs

Sector	Program
Residential	Efficient Products
Residential	Multifamily
Residential	HVAC Rebate
Residential	Whole Home Energy
Business	Small Business Direct Install
Business	C&I Program

Cumulative Portfolio Energy and Demand Savings

The table below presents the targeted cumulative net energy and demand savings for the abbreviated Cycle 1. The business portfolio represents a significant portion of the total portfolio energy and demand savings.

Table 2-3 Proposed Cycle 1 MEEIA Portfolio Savings (Total)

Program	Net MWh Savings	Net kW Savings
Residential	3,239	779
Business	13,963	1,574
Total	**17,202**	**2,353**

Total Portfolio Budgets

The tables below present the targeted budgets for the total period of the portfolio broken out by the portfolio cost category and by program. Based on the information from the two tables below, a significant portion of the proposed portfolio budget is allocated to program incentives.

Table 2-4 Proposed Cycle 1 MEEIA Portfolio Costs (Total)

Portfolio Cost	Total Budget
Incentives	$2,819,300
Marketing	$216,984
Administration	$725,424
EM&V	$185,606
R&D	$45,000
Total	**$3,992,313**

Table 2-5 Proposed Cycle 1 MEEIA Portfolio Cost Detail (Total)

Sector	Program	Incentive	Administration	Marketing	Total Budget
Residential	Efficient Products	$125,562	$219,442	$13,197	$358,201
Residential	Multifamily	$75,642	$25,000	$3,000	$103,642
Residential	HVAC Rebate	$352,525	$59,577	$2,979	$415,081
Residential	Whole Home Energy	$441,556	$62,123	$6,212	$509,891
Business	SBDI	$410,558	$15,000	$49,267	$474,824

Business	C&I Program	$1,413,457	$121,555	$30,965	$1,565,977
Total Residential		$995,286	$366,141	$25,388	$1,386,815
Total Business		$1,824,014	$136,555	$80,232	$2,040,801
	Portfolio Administration		$222,727		$222,727
	Portfolio Marketing			$111,364	$111,364
	Portfolio EM&V				$185,606
	Portfolio R&D				$45,000
Total Portfolio		$2,819,300	$725,424	$216,984	$3,992,313

Portfolio Cost Effectiveness

The table below provides the ratios for four cost-effectiveness tests: the TRC, UCT, RIM, and PCT. The ratios represent the cost effectiveness of the total portfolio for the total time period of the proposed plan.

Table 2-6 Proposed Cycle 1 MEEIA Portfolio Cost Effectiveness (Total)

Test	Total Cost Effectiveness
TRC	1.15
UCT	1.62
RIM	0.18
PCT	4.92

SECTION 3: SECTOR PROGRAMS

This section provides an overview of the programs offered within each sector: residential and business. Each overview provides information on the pathways, eligibility requirements, cumulative energy and demand savings, costs, and cost effectiveness for each program. Additional details on each program are provided in Appendix A, Program Descriptions.

Residential Sector Programs

The Plan proposes five residential programs for the overall portfolio. The residential suite of programs is designed to serve residential customers, educate, and raise residential customer awareness about the benefits of energy efficiency products, and

encourage investment in energy efficient measures such as lighting and whole house efficiency. Table 3-1 below provides a short description of each residential program. Appendix A of this report provides more detailed descriptions of each program.

Table 3-1 Proposed Residential Cycle 1 MEEIA Programs

Program	Description
Residential Efficient Products	• Customers can purchase qualifying measures at participating retailers either online or in-store and receive instant incentives at the point-of-purchase. • Customers are eligible to receive a free online energy audit.
Residential Multifamily	• Free energy audits and installation of low-cost measures for multifamily customers. • Customers are also eligible for incentives for the purchase and installation of qualifying measures.
Residential HVAC Rebates	• Customers receive rebates for the purchase and installation of qualifying energy efficient HVAC systems installed through the Trade Ally Network.
Residential Whole Home Energy: PAYS	• Customers receive free in-home evaluations and customized recommendations for energy efficient measure upgrades. • Customers may choose to install any recommended upgrade, receive rebates for qualifying measures and Liberty will cover the full installation cost of measure that meet PAYS qualifications

The sections below provide more in-depth descriptions of select programs and provide any noteworthy aspects of these programs.

Residential Efficient Products

The Residential Efficient Products program allows Liberty's residential customers to purchase qualifying energy efficient lighting, water, and appliance measures at participating retailers either online or in-store. Customers that participate receive

instant incentives at the point-of-purchase. Incentives will vary depending upon the type of lighting/equipment, manufacturer, and the associated retail cost.

The program also offers Liberty's residential customers energy advice through an online energy audit tool available at no cost to the customer. The evaluation identifies potential energy efficiency upgrades, educates the customer on managing energy consumption, and provides further information on Liberty's other energy efficiency programs. Residential customers may order recommended energy efficient measures following the completion of an online audit through an online marketplace. The online marketplace will be available to all customers to purchase energy efficient products regardless of their participation in the online energy audit tool.

Residential Whole Home Energy: Pay As You Save ("PAYS ")

The Residential Whole Home Energy: PAYS program is a Residential Whole Home Energy program that customers may choose to participate in following the completion of a home energy audit.

For the PAYS program, customers receive free in-home evaluations and customized recommendations for energy efficient measure upgrades. Customers may choose to install any recommended upgrade, and Liberty will cover the full installation cost of measure that meet PAYS qualifications. The customer does not pay any upfront cost for the upgrades. Instead, customers pay a fixed tariff on their monthly energy bills that is attached to the metered location and is less than the estimated savings generated by the upgrades. Customers pay this tariff charge until Liberty fully recoups its original investment, then receive all the upgrade savings thereafter. All eligible rebates for the qualifying measures still apply for the customer.

For a project to be eligible for the PAYS program, the investment of the project must be able to be repaid via a monthly cost recovery charge that does not exceed 80% of expected average first-year energy savings, and that persists for a maximum of 80% of the expected useful life of the installed energy upgrades. For building efficiency upgrades, this period is typically around 12 years.

In cases where expected cost recovery payments are not sufficient to fully finance installed energy upgrades, the customer may contribute an upfront co-payment that

reduces the cost of the investment to a level that may be financed according to the PAYS program's cost effectiveness criteria.

Residential Sector Summary Table

Table 3-2 Cycle 1 MEEIA Residential Program Summary Table (Total)

Program	TRC	Total MWh Savings	Total MW Savings	Total Budget
Efficient Products	1.28	1,098	0.16	$358,201
Multifamily	1.38	209	0.04	$103,642
HVAC Rebate	1.01	830	0.16	$415,081
Whole Home Energy	1.28	1,102	0.42	$509,891
Residential Total	**1.21**	**3,239**	**0.78**	**$1,386,815**

Business Sector Programs

The Plan proposes two business programs for the overall portfolio. The business suite of programs is designed to serve commercial and industrial customers, educate and raise commercial and industrial customer awareness about the benefits of energy efficiency products, and encourage investment in energy efficient measures such as lighting, HVAC, and motors. Table 3-2 below provides a short description of each business program. Appendix A of this report provides more detailed descriptions of each program.

Table 3-2 Proposed Cycle 1 MEEIA Business Programs

Program	Description
Small Business Direct Install	• Customers receive an energy evaluation identifying potential energy savings. • Customers are eligible to receive an incentive, direct installation of measures and a customized recommendation for energy efficient equipment upgrades.

C&I Program	• Customers receive prescriptive and custom rebates for purchasing energy efficient equipment for commercial and industrial facilities.

The sections below provide more in-depth descriptions of the business programs and provide any noteworthy aspects of these programs.

Small Business Direct Install

The Small Business Direct Install program is designed to promote the installation of energy efficient technologies in small businesses. Customers receive an energy evaluation identifying potential energy savings. Following the completion of an energy evaluation, customers are eligible to receive an incentive, direct installation of measures at no cost, and a customized recommendation for energy efficient equipment upgrades. The customized recommendation will provide information on potential energy savings, installation costs, and anticipated payback. Incentives for direct install projects will vary by project.

C&I Program

The C&I Program is designed to encourage the purchase and installation of energy efficient equipment by providing incentives to lower the cost and purchasing of energy efficient equipment for commercial and industrial facilities. The program consists of two types of rebates: prescriptive and custom rebates. Prescriptive rebates are available for both new construction and retrofit projects whereas custom rebates are available for equipment that does not qualify for a prescriptive rebate. Custom applications must be pre-approved by Liberty before equipment is purchased and installed and must produce a Total Resource Cost Test benefit-cost ratio of at least 1.0. A $250,000 incentive cap is imposed per facility per program year. However, if funds are still available in the last three months of the program year, the cap may be exceeded.

Business Sector Summary Table

Table 3-3 Cycle 1 MEEIA Business Program Summary Table (Total)

Program	TRC	Total MWh Savings	Total MW Savings	Total Budget
SBDI	1.18	2,258	0.28	$474,824
C&I Program	1.31	11,705	1.29	$1,565,977
Business Total	**1.29**	**13,963**	**1.57**	**$2,040,801**

SECTION 4: EVALUATION, MEASUREMENT, AND VERIFICATION ("EM&V")

Liberty collaborated extensively with its regulatory stakeholders in the development of its MEEIA Cycle 1 filing, as described in Section 1. Liberty's unique opportunities and challenges were addressed in a variety of ways, such as the abbreviated portfolio length described in the Introduction of this filing. The abbreviated portfolio length gives Liberty a unique opportunity to phase in a higher level of DSM engagement and offerings between Cycles 1 and 2, effectively "ramping up" to a level commensurate to its peer Investor-owned Utilities ("IOUs"), which currently have more robust offerings in their later MEEIA cycles. This shorter portfolio timeline means that Liberty and its regulatory stakeholders must make some unique considerations regarding EM&V.

In a normal three-year portfolio, the EM&V process would begin at some point in the second year of administration of the portfolio. In Year 2 of the portfolio, theoretically, the programs will be running at or near full strength, having taken some time to implement new or modified programs and/or partners. The practice of beginning EM&V in Year 2 would also likely provide enough participation in the program to provide a statistically valid sample of past participants from which to draw the necessary data to conduct EM&V and discern trends and patterns. In Liberty's unique situation, by the latter part of year 2, it plans to be beginning implementation of its second MEEIA Cycle, which would be a standard three-year portfolio, and align with the timing of the fourth MEEIA cycles of its peer IOUs.

Because of this timing, Liberty collaborated with its regulatory stakeholder group to choose a portfolio of programs that would not only build a foundation for future MEEIA

expansion but would maximize the near-term potential for cost-effective programs and meaningful energy savings during Cycle 1. In doing so, Liberty and its stakeholders believe that this portfolio coupled with program verification strategies reduces the need to conduct EM&V for Cycle 1 to determine evaluated net energy savings.

Liberty intends to implement a robust EM&V plan as part of its Cycle 2 MEEIA ("Cycle 2"). This portfolio will feature a standard three-year timeframe, which would facilitate a better EM&V process for the reasons detailed above. For programs launched in Cycle 1 and continuing in Cycle 2, Liberty intends to align accelerate the EM&V for those programs during Cycle 2. Liberty plans to engage its stakeholders in the development of its Cycle 2 as it has in the development of its Cycle 1.

For its peer IOUs, the Demand-Side Investment Mechanism ("DSIM") features evaluated net energy savings as a primary driver for both Throughput Disincentive and Earnings Opportunity. With input from its regulatory stakeholders, Liberty designed its Cycle 1 DSIM to include a Throughput Disincentive based on deemed savings and actual participation and an Earnings Opportunity based on a on a combination of participation and expenditures. This methodology is discussed in greater detail in Section 5 of this report.

SECTION 5: DEMAND-SIDE INVESTMENT MECHANISM

The DSIM included in the Plan reflects a set of regulatory policies and practices that provide timely recovery of program costs, remove the financial disincentive associated with Liberty helping its customers use energy more efficiently and in a manner that sustains or enhances its customers' incentives to use energy more efficiently, and provides Liberty with an earnings opportunity based on achieving certain performance metrics. For MEEIA Cycle 1, Liberty proposes a DSIM that includes three components: 1) program cost recovery; 2) Throughput Disincentive recovery; and 3) an Earnings Opportunity. These components and other terms of the DSIM are summarized below. In addition, the DSIM methodology and its defined terms, which are explained in this report, are incorporated into the Energy Efficiency Investment Charge ("EEIC") tariff, described as the DSIM rider and included in Appendix E. Appendix D also includes the proposed notice to explain the proposed DSIM to customers, while Appendix C shows a sample of how the DSIM charge will appear on a residential and non-residential bill.

Program Costs

Presently, Liberty recovers through an energy efficiency cost recovery ("EECR") charge the delivery costs associated with its existing energy efficiency programs. The Company plans to continue the EECR charge until program costs associated with its existing energy efficiency programs are fully recovered.

The program cost recovery component of the DSIM will be used to recover projected program expenses over the period covered by MEEIA Cycle 1. The projected program expenses will be recovered through a newly established Energy Efficiency Investment Charge ("EEIC").

Each month, the cumulative difference between actual program expenses and actual EEIC revenues, adjusted to reflect carrying costs at the Company's short-term borrowing rate, shall be tracked and refunded to or recovered from customers through an EEIC in the next MEEIA cycle. Program expenses to be recovered through the EEIC charge include the cost of customer incentives, administration, and marketing at the sector level. Liberty will track these expenses by budget categories for each program in the MEEIA portfolio. Program expenses associated with the portfolio delivery will be projected at the portfolio level and tracked against the following categories: portfolio administration, portfolio marketing, portfolio EM&V and portfolio R&D.

Throughput Disincentive Mechanism

Presently, there is a financial disincentive associated with the Company's energy efficiency programs. Specifically, the energy efficiency programs result in a decline in kWh sales and revenues that hinders the Company's ability to recover its Commission-authorized revenues.

The MEEIA rules correct for the financial disincentive through the Throughput Disincentive component of the DSIM. The Throughput Disincentive component enables the Company to recover by service classification the projected monthly savings attributable to the energy efficiency programs for that service classification multiplied by the applicable tail block rate, adjusted by a net to gross factor, in this case 82.5%. The projected monthly savings are reconciled with actual savings following the completion of MEEIA Cycle 1. The Company's approach to calculate the Throughput Disincentive is consistent with the approach used by other Missouri electric utilities and

approved by the Commission; however, the Company plans to work with the Parties in the MEEIA and rate case proceedings on improved approaches to calculate the Throughput Disincentive future MEEIA cycles.

To remove the financial disincentive associated with energy efficiency programs, the revenues generated from the Throughput Disincentive component of the EEIC charge must meet specific accounting standards. Specifically, the following conditions must be satisfied to remove the financial disincentive: 1) The demand-side program must be established by an order from the utility's regulatory commission that allows for automatic adjustment of future rates (verification of the accuracy of the adjustment to future rates by the regulator would not preclude the adjustment from being considered automatic); 2) The Throughput Disincentive revenues must be objectively determinable and have a high probability of recovery; 3) The Throughput Disincentive revenues must be collected within 24 months following the end of the annual period in which they are recognized.

Earning Opportunity

The Earnings Opportunity component of the DSIM reflects a target incentive of approximately $370,00 and stretch incentive of $110,787 for the MEEIA Cycle 1, period of October 1, 2021 through December 31, 2022. The Earnings Opportunity amount is based on a combination of budget spending and program participation. The core Earnings Opportunity amount for MEEIA Cycle 1 requires achievement of two performance metrics: 1) a minimum threshold of 75% budget spend; 2) dedicating spending with residential projected participation; 3) commercial projected costs; and 4) commercial projected participation. Each performance metric has minimum and maximum performance targets. Liberty has developed an Earnings Opportunity calculator (included as Appendix F). The Earnings Opportunity calculator is a spreadsheet with a cover sheet summarizing the overall results and a sheet detailing the calculations for each metric that comprises the EO. After completion of MEEIA Cycle 1, actual performance will be compared to the performance targets to determine the Earnings Opportunity award, if any, which will be recovered from customers in the next EEIC charge.

Impact on Customers

Program expenses and the Throughput Disincentive related to the Residential programs (with the exception of the low-income program which are not recovered via the MEEIA) will be recovered from residential customers. Program expenses and the Throughput Disincentive related to the Commercial and Industrial programs will be allocated to each non-residential service classification based on retail sales (kWh), adjusted for opt-out customers. The Earnings Opportunity will also be allocated to each service classification based on retail sales (kWh), adjusted for opt-out customers.

APPENDIX A: Program Descriptions

Residential Programs

Residential Efficient Products

Objective	Raise customer awareness of the benefits of high efficiency products and to educate residential customers about energy use in their homes and to offer information, products, and services to residential customers to save energy cost-effectively.
Target Market	Residential customers.
Description	Customers are eligible to purchase qualifying energy efficient lighting, water, and appliance measures at participating retailers either online or in-store. Customers that participate receive instant incentives at the point-of-purchase. Incentives will vary depending upon the type of lighting/equipment, manufacturer, and the associated retail cost. Residential customers are also eligible to receive energy advice through an online energy audit tool available at no cost to the customer. The evaluation identifies potential energy efficiency upgrades, educates the customer on managing energy consumption, and provides further information on Liberty's other energy efficiency programs. Residential customers may order recommended energy efficient measures following the completion of an online audit through an online marketplace. The online marketplace will be available to all customers to purchase energy efficient products regardless of their participation in the online energy audit tool.
Implementation	**In-store:** Liberty will work with a third-party implementation contractor to: • Establish and maintain relationships with national and local retailers and engage retailers to participate in the program. • Provide in-store promotional materials and retail sales staff training. • Assist with program marketing and outreach. • Provide customer service support. • Establish systems to address customer attribution. • Track and process program performance, sales data, and payments to retailers and periodically report program activities, progress towards goals, and opportunities for improvement. **Online** Liberty will work with a third-party implementation contractor to: • Design and develop a comprehensive online customer portal where customers will be able to participate in the online audit tool, browse the marketplace through the offered energy efficient equipment and appliances, and purchase qualifying measures through an online marketplace that will offer instant rebates. • Implementation vendor will fulfill direct mail kit orders, provide customer service and advisory support. • Assist with program marketing and outreach. • Track and process program performance, sales data, and payments to retailers and periodically report program activities, progress towards goals, and opportunities for improvement. Activities will include in the launch of an online marketplace with utility-specific interfaces, efforts to raise awareness of the program, on-going refinements to the list of eligible measures, validating customer eligibility and processing incentives and conducting outreach to and securing partnerships with retailers, wholesalers, distributors, manufacturers and trade allies to assure all customers are able to easily purchase energy efficient products and equipment through the program.

APPENDIX A: Program Descriptions

Eligible Measures and Incentives

Measure	Unit	Incentive per Unit 2021-2022
Online Audit Tool	Per Project	-
Direct Mail Kit	Per Kit	$30.00
LED (In-Store)	Per Bulb	$0.50
LED (Online)	Per Bulb	$0.44
Specialty LED	Per Bulb	$0.50
ENERGY STAR Dehumidifier	Per Unit	$15.00
ENERGY STAR Air Purifier	Per Unit	$20.00
Smart Power Strip 5-Plug	Per Unit	$10.00
Advanced Thermostat	Per Unit	$50.00
Advanced Thermostat (Gas)	Per Unit	$50.00
Advanced Thermostat (Unknown)	Per Unit	$50.00
ENERGY STAR Bathroom Exhaust Fan	Per Unit	$13.05
ENERGY STAR Ceiling Fan	Per Unit	$13.80
Faucet Aerator (Kitchen)	Per Unit	$0.90
Faucet Aerator (Bath)	Per Unit	$0.90
Low Flow Showerhead	Per Unit	$2.10
Faucet Aerator (Kitchen) (Gas)	Per Unit	$0.90
Faucet Aerator (Bath) (Gas)	Per Unit	$0.90
Low Flow Showerhead (Gas)	Per Unit	$2.10

Estimated Participation

Measure	Total
Online Audit Tool	1,133
Direct Mail Kit	1,133
LED	13,733
Specialty LED	8,133
ENERGY STAR Dehumidifier	66
ENERGY STAR Air Purifier	66
Smart Power Strip 5-Plug	94
Advanced Thermostat (Electric)	378
Advanced Thermostat (Gas)	133
Advanced Thermostat (Unknown)	245
ENERGY STAR Bathroom Exhaust Fan	26
ENERGY STAR Ceiling Fan	66
Faucet Aerator (Kitchen)	155
Faucet Aerator (Bath)	147
Low Flow Showerhead	188
Faucet Aerator (Kitchen) (Gas)	183
Faucet Aerator (Bath) (Gas)	266
Low Flow Showerhead (Gas)	266

Estimated Savings

Net MWh Savings	Net MW Savings
Total	Total
1,098	0.165

APPENDIX A: Program Descriptions

Estimated Budget	<table><tr><th>Budget Category</th><th>Total</th></tr><tr><td>Incentives</td><td>$125,562</td></tr><tr><td>Marketing</td><td>$13,197</td></tr><tr><td>Administration</td><td>$219,442</td></tr><tr><td>EM&V</td><td>$0</td></tr><tr><td>Total</td><td>$358,201</td></tr></table>
Cost-Effectiveness	<table><tr><th>Test</th><th>Total</th></tr><tr><td>TRC</td><td>1.28</td></tr></table>

Multifamily

Objective	Deliver long-term energy savings and bill reductions to eligible customers in multi-family housing and multi-family common area energy savings.
Target Market	All multi-family buildings with three or more units are eligible to participate.
Description	The program will consist of two tiers: Tier 1: Direct Install. Multifamily customers will receive an energy audit and installation of low-cost measures at no cost. The energy audit will identify potential efficiency improvements. The measures to be installed may include LEDs, a faucet aerator, and a low flow showerhead. This will consist of common area and in unit assessments. Tier 2: Rebates. Multifamily customers are eligible for incentives for the purchase and installation of qualifying measures. Qualifying measures include: • Hot Water Pipe Insulation • Water Heater Wrap • Air Sealing • Advanced Thermostat • Smart Power Strip • Water Heater Temperature Set Back The Multi-Family Program will seek to work with each customer to determine and package the best energy savings opportunities based on the Company's current program offerings (e.g. direct installation of standard energy savings measures, prescriptive equipment replacement, custom solutions)
Implementation	Liberty will engage a third-party contractor to implement the program. An implementation contractor will: • Hire staff/engage local contractors to conduct audits and direct measure installation. • Engage customers, schedule energy audit appointments, and provide customer service support. • Establish relationships with local contractors to work with the program installing energy efficient measures. • Process rebate applications, including review and verification of applications and payment of customer rebates. • Track program performance, including customer and contractor participation as well as quality assurance/quality control (QA/QC). • Periodically report program progress.

APPENDIX A: Program Descriptions

Liberty will work with the implementation contractor to market the program to residential customers and contractors. will focus on informing property owners, managers, associations, tenant groups, municipalities, and community organizations about the availability and benefits of the program and how to participate. Marketing activities will also target lower and moderate-income multi-family sector.

It is important that the measures are properly installed and customer satisfaction is high. Liberty and/or the implementation contractor should conduct QA/QC of a random group of completed projects by project type and contractor. The QA/QC process should include verification of the equipment installed and customer satisfaction with the contractor and the program.

Eligible Measures and Incentives

Measure	Unit	Incentive per Unit 2021-2022
Audit	Per Unit	-
LED	Per Bulb	-
Faucet Aerator (Kitchen)	Per Unit	-
Faucet Aerator (Bath)	Per Unit	-
Low Flow Showerhead	Per Unit	-
Faucet Aerator (Kitchen) (Gas)	Per Unit	-
Faucet Aerator (Bath) (Gas)	Per Unit	-
Low Flow Showerhead (Gas)	Per Unit	-
Hot Water Pipe Insulation	Per Unit	$15.00
Water Heater Wrap	Per Unit	$35.00
Air Sealing	Per Sq. Ft.	$0.29
Air Sealing (Gas)	Per Sq. Ft.	$4.00
Advanced Thermostat	Per Unit	$50.00
Advanced Thermostat (Gas)	Per Unit	$50.00
Smart Power Strip 5-Plug (Tier 2)	Per Unit	$7.00
Water Heater – Temperature Set Back	Per Unit	$5.00

Estimated Participation

Measure	Total
Audit	500
LED	3,000
Faucet Aerator (Kitchen)	200
Faucet Aerator (Bath)	200
Low Flow Showerhead	200
Faucet Aerator (Kitchen) (Gas)	300
Faucet Aerator (Bath) (Gas)	300
Low Flow Showerhead (Gas)	300
Hot Water Pipe Insulation	-
Water Heater Wrap	-
Air Sealing	-
Air Sealing (Gas)	-
Advanced Thermostat	100
Advanced Thermostat (Gas)	-
Smart Power Strip 5-Plug (Tier 2)	375
Water Heater – Temperature Set Back	-

APPENDIX A: Program Descriptions

Estimated Savings

Net MWh Savings	Net MW Savings
Total	Total
209	0.036

Estimated Budget

Budget Category	Total
Incentives	$75,642
Marketing	$3,000
Administration	$25,000
EM&V	$0
Total	**$103,642**

Cost-Effectiveness

Test	Total
TRC	1.38

Residential HVAC Rebates

Objective

Encourage the purchase and installation of energy efficient HVAC systems by providing rebates to lower the cost of purchasing qualifying efficient equipment.

Target Market

Residential customers with central AC units or heat pumps.

Description

Customers receive rebates for the purchase and installation of qualifying energy efficient HVAC systems. Customers must complete and submit an application form, a load calculation verification form, an invoice for the installation of the equipment, and an AHRI certificate of the installed equipment to be eligible for a rebate. Incentives will vary depending upon the type of HVAC system installed.

Implementation

Liberty will work with a third-party implementation contractor to:

- Encourage qualified contractors to install efficient HVAC equipment.
- Process customer applications, verify customer and project eligibility, and process customer rebates.
- Conduct QA/QC to verify equipment installation.
- Provide customer service support related to application processing.
- Track program performance and report progress towards program goals and opportunities for improvement.

Liberty will work with the implementation contractor to market the program to residential customers and contractors. The implementation contractor will develop partnerships with contractors through education and training seminars, presentations at Chamber of Commerce meetings, and other informational events. Customer marketing activities may include, but not be limited to bill inserts, newspaper advertisements, email blasts, bill messaging and community events.

Eligible Measures and Incentives

Measure	Unit	Incentive per Unit 2021-2022
Central Air Conditioner (SEER 15)	Per Unit	$250
Central Air Conditioner (SEER 16)	Per Unit	$350

Central Air Conditioner (SEER 17)	Per Unit	$450
Central Air Conditioner (SEER 18)	Per Unit	$450
Central Air Conditioner (SEER 19)	Per Unit	$450
Central Air Conditioner (SEER 20+)	Per Unit	$450
Air Source Heat Pump (SEER 15)	Per Unit	$350
Air Source Heat Pump (SEER 16)	Per Unit	$450
Air Source Heat Pump (SEER 17)	Per Unit	$550
Air Source Heat Pump (SEER 18)	Per Unit	$550
Air Source Heat Pump (SEER 19)	Per Unit	$550
Air Source Heat Pump (SEER 20+)	Per Unit	$550
Mini-Split Heat Pump (SEER 15)	Per Unit	$100
Mini-Split Heat Pump (SEER 16)	Per Unit	$150
Mini-Split Heat Pump (SEER 17)	Per Unit	$225
Mini-Split Heat Pump (SEER 18)	Per Unit	$350
Mini-Split Heat Pump (SEER 19)	Per Unit	$350
Mini-Split Heat Pump (SEER 20+)	Per Unit	$350
Geothermal (SEER 20+)	Per Unit	$550

Estimated Participation

Measure	Total
Central Air Conditioner (SEER 15)	84
Central Air Conditioner (SEER 16)	109
Central Air Conditioner (SEER 17)	-
Central Air Conditioner (SEER 18)	-
Central Air Conditioner (SEER 19)	-
Central Air Conditioner (SEER 20+)	-
Air Source Heat Pump (SEER 15)	-
Air Source Heat Pump (SEER 16)	481
Air Source Heat Pump (SEER 17)	-
Air Source Heat Pump (SEER 18)	71
Air Source Heat Pump (SEER 19)	12
Air Source Heat Pump (SEER 20+)	13
Mini-Split Heat Pump (SEER 15)	1
Mini-Split Heat Pump (SEER 16)	4
Mini-Split Heat Pump (SEER 17)	36
Mini-Split Heat Pump (SEER 18)	5
Mini-Split Heat Pump (SEER 19)	4
Mini-Split Heat Pump (SEER 20+)	-
Geothermal (SEER 20+)	-

Estimated Savings

Net MWh Savings	Net MW Savings
Total	Total
830	0.16

Estimated Budget

Budget Category	**Total**
Incentives	$352,525
Marketing	$2,979
Administration	$59,577
EM&V	$0
Total	**$415,081**

APPENDIX A: Program Descriptions

Cost-Effectiveness	Test: TRC — Total: 1.01

Whole Home Energy: PAYS

Objective	Encourage whole-house improvements to existing homes by conducting home energy audits and encouraging the installation of energy efficient measures.
Target Market	Residential customers that own or rent a residence, including owners of rental properties and new construction.
Description	Customers receive free in-home evaluations and customized recommendations for energy efficient measure upgrades. Customers may choose to install any recommended upgrade, and Liberty will cover the full installation cost of these upgrades. The customer does not pay any upfront cost for the upgrades. Customers instead pay a fixed tariff on their monthly energy bills that is attached to the metered location and is less than the estimated savings generated by the upgrades. Customers pay this tariff charge until Liberty fully recoups its original investment, then receive all of the upgrade savings thereafter. All eligible rebates for the qualifying measures still apply for the customer. For a project to be eligible for the PAYS program, the investment of the project must be able to be repaid via a monthly cost recovery charge that does not exceed 80% of expected average first-year energy savings, and that persists for a maximum of 80% of the expected useful life of the installed energy upgrades. For building efficiency upgrades, this period is typically around 12 years. In cases where expected cost recovery payments are not sufficient to fully finance installed energy upgrades, the customer may contribute an upfront co-payment that reduces the cost of the investment to a level that may be financed according to the PAYS' cost effectiveness criteria.
Implementation	Liberty will engage a third-party contractor to implement the program. An implementation contractor will: • Hire/subcontract local, qualified individuals to complete the home energy audits, provide customized energy efficiency upgrade recommendations, and install these upgrades. • Engage customers, schedule home energy audit appointments, and provide any customer service support. • Process the on-bill financing for any PAYS projects and any rebate applications, including review and verification of applications and payment of customer rebates. • Track on-bill financing and program performance, including customer and contractor participation as well as quality assurance/quality control (QA/QC). • Periodically report program progress. Liberty will work with the implementation contractor to market the program to residential customers and contractors. The implementation contractor will develop partnerships with contractors through education and training seminars, presentations at Chamber of Commerce meetings, and other informational events. Customer marketing activities may include, but not be limited to bill inserts, newspaper advertisements, email blasts, bill messaging and community events.

APPENDIX A: Program Descriptions

Eligible Measures and Incentives

Measure	Unit	Incentive per Unit 2021-2022
Audit	Per unit	-
LED (DI)	Per bulb	$1.45
Faucet Aerator (Kitchen) (DI)	Per unit	$8.00
Faucet Aerator (Bath) (DI)	Per unit	$8.00
Low Flow Showerhead (DI)	Per unit	$12.00
Faucet Aerator (Kitchen) (Gas) (DI)	Per unit	$8.00
Faucet Aerator (Bath) (Gas) (DI)	Per unit	$8.00
Low Flow Showerhead (Gas) (DI)	Per unit	$12.00
Hot Water Pipe Insulation (DI)	Per unit	$15.00
Water Heater Wrap (DI)	Per unit	$35.00
Air Sealing	Per sq. ft.	$0.29
Attic Insulation R-38	Per sq. ft.	$0.45
Wall Insulation R-13	Per sq. ft.	$0.75
Floor Insulation-19	Per sq. ft.	$0.25
Duct Installation & Sealing	Per home	$150
ENERGY STAR Windows	Per sq. ft.	$4.00
Air Sealing (Gas)	Per sq. ft.	$4.00
Attic Insulation R-38 (Gas)	Per sq. ft.	$4.00
Wall Insulation R-13 (Gas)	Per sq. ft.	$4.00
Floor Insulation-19 (Gas)	Per sq. ft.	$4.00
Duct Installation & Sealing (Gas)	Per home	$4.00
ENERGY STAR Windows (Gas)	Per sq. ft.	$4.00
Central Air Conditioner (SEER 15)	Per unit	$250
Central Air Conditioner (SEER 16)	Per unit	$350
Central Air Conditioner (SEER 17)	Per unit	$450
Central Air Conditioner (SEER 18)	Per unit	$450
Central Air Conditioner (SEER 19)	Per unit	$450
Central Air Conditioner (SEER 20+)	Per unit	$450
Air Source Heat Pump (SEER 15)	Per unit	$350
Air Source Heat Pump (SEER 16)	Per unit	$450
Air Source Heat Pump (SEER 17)	Per unit	$550
Air Source Heat Pump (SEER 18)	Per unit	$550
Air Source Heat Pump (SEER 19)	Per unit	$550
Air Source Heat Pump (SEER 20+)	Per unit	$550
Mini-Split Heat Pump (SEER 15)	Per unit	$250
Mini-Split Heat Pump (SEER 16)	Per unit	$325
Mini-Split Heat Pump (SEER 17)	Per unit	$400
Mini-Split Heat Pump (SEER 18)	Per unit	$550
Mini-Split Heat Pump (SEER 19)	Per unit	$550
Mini-Split Heat Pump (SEER 20+)	Per unit	$550
Geothermal (SEER 20+)	Per unit	$550
Advanced Thermostat	Per unit	$50
Advanced Thermostat (Gas)	Per unit	$50
Furnace Blower Motor	Per unit	$45
Heat Pump Water Heater ≤55 gallons	Per unit	$300
Heat Pump Water Heater >55 gallons	Per unit	$400
ENERGY STAR Dehumidifier	Per unit	$15
ENERGY STAR Air Purifier	Per unit	$20
ENERGY STAR Refrigerator	Per unit	$30
Smart Power Strip 5-Plug	Per unit	$10
Water Heater – Temperature Set Back	Per unit	$10

APPENDIX A: Program Descriptions

Estimated Participation

Measure	Total
PAYS Audit	585
LED	3,510
Faucet Aerator (Kitchen)	234
Faucet Aerator (Bath)	234
Low Flow Showerhead	234
Faucet Aerator (Kitchen) (Gas)	351
Faucet Aerator (Bath) (Gas)	351
Low Flow Showerhead (Gas)	351
Hot Water Pipe Insulation	585
Water Heater Wrap	293
Air Sealing	176
Attic Insulation R-38	88
Wall Insulation R-13	59
Floor Insulation-19	29
Duct Installation & Sealing	117
ENERGY STAR Windows	88
Air Sealing (Gas)	410
Attic Insulation R-38 (Gas)	293
Wall Insulation R-13 (Gas)	176
Floor Insulation-19 (Gas)	29
Duct Installation & Sealing (Gas)	117
ENERGY STAR Windows (Gas)	88
Central Air Conditioner (SEER 15)	29
Central Air Conditioner (SEER 16)	18
Central Air Conditioner (SEER 17)	6
Central Air Conditioner (SEER 18)	6
Central Air Conditioner (SEER 19)	-
Central Air Conditioner (SEER 20+)	-
Air Source Heat Pump (SEER 15)	29
Air Source Heat Pump (SEER 16)	18
Air Source Heat Pump (SEER 17)	29
Air Source Heat Pump (SEER 18)	-
Air Source Heat Pump (SEER 19)	-
Air Source Heat Pump (SEER 20+)	-
Mini-Split Heat Pump (SEER 15)	88
Mini-Split Heat Pump (SEER 16)	117
Mini-Split Heat Pump (SEER 17)	59
Mini-Split Heat Pump (SEER 18)	29
Mini-Split Heat Pump (SEER 19)	12
Mini-Split Heat Pump (SEER 20+)	-
Geothermal (SEER 20+)	-
Advanced Thermostat	176
Advanced Thermostat (Gas)	293
Furnace Blower Motor	-
Heat Pump Water Heater ≤55 gallons	6
Heat Pump Water Heater >55 gallons	-
ENERGY STAR Dehumidifier	12
ENERGY STAR Air Purifier	12

APPENDIX A: Program Descriptions

	ENERGY STAR Refrigerator	12
	Smart Power Strip 5-Plug	439
	Water Heater – Temperature Set Back	293

Estimated Savings

Net MWh Savings	Net MW Savings
Total	Total
1,102	0.418

Estimated Budget

Budget Category	**Total**
Incentives	$441,556
Marketing	$6,212
Administration	$62,123
EM&V	$0
Total	**$509,891**

Cost-Effectiveness

Test	**Total**
TRC	1.28

APPENDIX A: Program Descriptions

Business Programs

Liberty's commercial and industrial DSM program serves non-residential customers, encouraging investment in efficient measures such as lighting, HVAC and motors.

Small Business Direct Install

<table>
<tr><td>Objective</td><td>Promote the installation of energy efficient technologies in small businesses.</td></tr>
<tr><td>Target Market</td><td>Small nonresidential customers.</td></tr>
<tr><td>Description</td><td>Customers receive an energy evaluation identifying potential energy savings. Customers are eligible to receive an incentive, direct installation of measures at no cost, and a customized recommendation for energy efficient equipment upgrades following the energy evaluation. The customized recommendation will provide information on potential energy savings, installation costs, and anticipated payback. Incentives for direct install projects will vary by project.</td></tr>
<tr><td>Implementation</td><td>Liberty will work with a third-party implementation contractor to assist in implementation and delivery of the program. The implementation contractor will:
Hire and/or provide any training needed for qualified, local individuals to conduct energy evaluations and install efficient measures.
Schedule customer evaluations and commercial equipment upgrades.
Assist with program marketing and outreach.
Provide customer service support.
Track program performance and periodically report progress towards program goals and opportunities for improvement.
The program will be marketed through partnerships with Liberty trade allies as well as newspaper advertisements, email blasts or targeted mailings to customers and contractors, bill inserts, and advertising in HVAC trade publications. One key barrier to participation is ensuring that enough vendors are properly educated to allow them to actively engage customers. Therefore, Liberty will work closely with trade allies to ensure they understand and promote the program.</td></tr>
<tr><td>Eligible Measures and Incentives</td><td>$1.70 per kWh saved.</td></tr>
<tr><td>Estimated Participation</td><td><table><tr><th>Measure</th><th>Total</th></tr><tr><td>SBDI Project</td><td>60</td></tr></table></td></tr>
<tr><td>Estimated Savings</td><td><table><tr><th>Net MWh Savings</th><th>Net MW Savings</th></tr><tr><th>Total</th><th>Total</th></tr><tr><td>2,258</td><td>0.280</td></tr></table></td></tr>
<tr><td>Estimated Budget</td><td><table><tr><th></th><th>Total</th></tr><tr><td>Incentives</td><td>$410,558</td></tr><tr><td>Marketing</td><td>$49,267</td></tr><tr><td>Administration</td><td>$15,000</td></tr><tr><td>EM&V</td><td>$0</td></tr><tr><td>Total</td><td>$474,824</td></tr></table></td></tr>
</table>

APPENDIX A: Program Descriptions

Cost-Effectiveness	

	Total
TRC	1.18

C&I Program

Objective	Encourage purchase and installation of energy efficient equipment by providing incentives to lower the cost of purchasing efficient equipment for commercial and industrial facilities.
Target Market	Commercial and industrial customers.
Description	The program provides incentives to lower the cost of purchasing energy efficient equipment for commercial and industrial facilities. The program consists of prescriptive and custom rebates. **Prescriptive**. Pre-qualified prescriptive rebates are available for new construction and retrofit projects. **Custom**. Equipment that does not qualify for a prescriptive rebate will be eligible for a custom rebate. Applications must be pre-approved by Empire before equipment is purchased and installed and must produce a Total Resource Cost Test benefit-cost ratio of at least 1.0. A $250,000 incentive cap is imposed per facility per program year. However, if funds are still available in the last three months of the program year, the cap may be exceeded.
Implementation	Liberty will engage a third-party implementation contractor. The contractor will be responsible for: • Processing customer applications for both prescriptive and custom projects, verifying customer and project eligibility (including pre-approval of custom projects), and processing customer rebates. • Conducting QA/QC to verify equipment installation. • Providing customer service support. • Tracking program performance and periodically reporting progress towards program goals and opportunities for improvement. The program will be marketed through partnerships with Liberty trade allies as well as newspaper advertisements, email blasts or targeted mailings to customers and contractors, bill inserts, and advertising in HVAC trade publications. One key barrier to participation is ensuring that enough vendors are properly educated to allow them to actively engage customers. Therefore, Liberty will work closely with trade allies to ensure they understand and promote the program. The measure list and incentive levels may be updated annually to reflect changes to the market. Incentives will be modified as needed to respond to market prices, with a goal of the incentive being no higher than 50% of the incremental cost. Proper incentives can reduce free ridership while still encouraging customers to participate in the program.
Eligible Measures and Incentives	

Measure	Unit	Incentive per Unit 2021-2022
Wall Switch Occupancy Sensor	Per Unit	$16.50
Air Cooled Chiller	Per Unit	$3,390.00
Water Cooled Chiller	Per Unit	$1,560.00
Room Air Conditioner (12 EER)	Per Unit	$20.00
CAC <65 kBtu	Per Unit	$146.00
CAC 65<135 kBtu	Per Unit	$350.00
CAC 135<240 kBtu	Per Unit	$700.00

CAC 240<760 kBtu	Per Unit	$875.00
CAC ≥760 kBtu	Per Unit	$2,275.00
Heat Pump <65 kBtu	Per Unit	$350.00
Heat Pump 65<135 kBtu	Per Unit	$700.00
Heat Pump 135<240 kBtu	Per Unit	$875.00
Heat Pump ≥240 kBtu	Per Unit	$2,275.00
Packaged Terminal Air Conditioner	Per Unit	$30.00
Packaged Terminal Heat Pump	Per Unit	$30.00
Guest Room Energy Management	Per Unit	$125.00
Variable Speed Drive - Chilled Water Pump	Per Unit	$500.00
Variable Speed Drive - Hot Water Pump	Per Unit	$500.00
Demand Controlled Ventilation	Per Unit	$600.00
ENERGY STAR Steamer	Per Unit	$750.00
ENERGY STAR Dishwasher	Per Unit	$30.00
ENERGY STAR Hot Food Holding Cabinets	Per Unit	$500.00
ENERGY STAR Ice Maker (2018)	Per Unit	$30.00
ENERGY STAR Electric Convection Oven	Per Unit	$400.00
ENERGY STAR Electric Fryer	Per Unit	$200.00
Vending Machine	Per Unit	$150.00
Evaporator Fan Control	Per Unit	$87.30
Strip Curtain for Walk-In Cooler/Freezer	Per Unit	$64.39
Night Covers for Open Refrigerated Display Cases	Per Unit	$175.00
Door Heater Controls	Per Unit	$125.00
Refrigeration Economizer	Per Unit	$800.00
Directional LED Bulb (<15W)	Per Bulb	$0.50
Directional LED Bulb (≥15W)	Per Bulb	$0.50
High Bay Fluorescent Fixture (HP T8 >4 lamps)	Per Unit	$22.50
High Bay Fluorescent Fixture (HP T8 ≤4 lamps)	Per Unit	$22.50
High Bay Fluorescent Fixture w/ HE Electronic Ballast (T5 >4 lamps)	Per Unit	$30.00
High Bay Fluorescent Fixture w/ HE Electronic Ballast (T5 ≤4 lamps)	Per Unit	$30.00
LED High & Low-Bay Fixture	Per Unit	$41.10
Low Wattage T8 Lamp	Per Unit	$4.50
LED Direct Linear Ambient fixtures <=35W	Per Unit	$15.60
LED Direct Linear Ambient fixtures 36W-60W	Per Unit	$39.30
LED Direct Linear Ambient fixtures 61W-100W	Per Unit	$51.90
LED linear replacement lamps (Type A or AB) 2 foot	Per Unit	$3.90
LED linear replacement lamps (Type A or AB) 4 foot	Per Unit	$4.50

LED Direct Linear Ambient fixtures <=35W (Exterior)	Per Unit	$15.60
LED Direct Linear Ambient fixtures 36W-60W (Exterior)	Per Unit	$39.30
LED Direct Linear Ambient fixtures 61W-100W (Exterior)	Per Unit	$51.90
LED linear replacement lamps (Type A or AB) 2 foot (Exterior)	Per Unit	$3.90
LED linear replacement lamps (Type A or AB) 4 foot (Exterior)	Per Unit	$4.50
LED Exit Sign	Per Unit	$9.75
LED Flood Light (≥15W)	Per Unit	$24.00
LED Recessed Fixture (1x4)	Per Unit	$22.50
LED Recessed Fixture (2x2)	Per Unit	$15.90
LED Recessed Fixture (2x4)	Per Unit	$22.80
Lighting Optimization - Remove 4ft Lamp from T8 System	Per Unit	$3.60
Lighting Optimization - Remove 8ft Lamp from T8 System	Per Unit	$4.80
Omnidirectional LED Bulb (<10W)	Per Bulb	$0.44
Omnidirectional LED Bulb (≥10W)	Per Bulb	$0.44
LED Parking Garage/Canopy (<45W)	Per Unit	$24.00
LED Parking Garage/Canopy (45-75W)	Per Unit	$74.40
LED Parking Garage/Canopy (≥75W)	Per Unit	$169.80
LED Wall Mounted Area Lights (<30W)	Per Unit	$24.00
LED Wall Mounted Area Lights (30-75W)	Per Unit	$74.40
LED Wall Mounted Area Lights (≥75W)	Per Unit	$169.80
LED Refrigerator Case Light	Per Unit	$3.30
Photocell Occupancy Sensor	Per Unit	$16.50
VFD Fans and Blowers	Per Unit	$814.80
Zero-Loss Condensate Drain	Per Unit	$73.20
Compressed Air Nozzle	Per Unit	$12.60
Custom Project	Avg Per Project	$0.10 per kWh saved
Large Custom Project	Avg Per Project	$0.10 per kWh saved

Please note that for planning purposed, average unit sizes were assumed in the development of incremental costs and savings for measures. Actual implementation may vary.

Please note that for the food service equipment, Liberty Empire will offer the standard size equipment, but this is subject to change as the program is implemented and evaluated.

APPENDIX A: Program Descriptions

Estimated Participation

Measure	Total
Wall Switch Occupancy Sensor	40
Air Cooled Chiller	1
Water Cooled Chiller	3
Room Air Conditioner (12 EER)	3
CAC <65 kBtu	4
CAC 65<135 kBtu	8
CAC 135<240 kBtu	5
CAC 240<760 kBtu	1
CAC ≥760 kBtu	1
Heat Pump <65 kBtu	7
Heat Pump 65<135 kBtu	13
Heat Pump 135<240 kBtu	1
Heat Pump ≥240 kBtu	1
Packaged Terminal Air Conditioner	1
Packaged Terminal Heat Pump	7
Guest Room Energy Management	3
Variable Speed Drive - Chilled Water Pump	11
Variable Speed Drive - Hot Water Pump	11
Demand Controlled Ventilation	3
ENERGY STAR Steamer	1
ENERGY STAR Dishwasher	1
ENERGY STAR Hot Food Holding Cabinets	1
ENERGY STAR Ice Maker (2018)	1
ENERGY STAR Electric Convection Oven	1
ENERGY STAR Electric Fryer	1
Vending Machine	1
Evaporator Fan Control	11
Strip Curtain for Walk-In Cooler/Freezer	3
Night Covers for Open Refrigerated Display Cases	1
Door Heater Controls	3
Refrigeration Economizer	13
Directional LED Bulb (<15W)	440
Directional LED Bulb (≥15W)	257
High Bay Fluorescent Fixture (HP T8 >4 lamps)	7
High Bay Fluorescent Fixture (HP T8 ≤4 lamps)	9
High Bay Fluorescent Fixture w/ HE Electronic Ballast (T5 >4 lamps)	44
High Bay Fluorescent Fixture w/ HE Electronic Ballast (T5 ≤4 lamps)	12
LED High & Low-Bay Fixture	3
Low Wattage T8 Lamp	15
LED Direct Linear Ambient fixtures <=35W	3
LED Direct Linear Ambient fixtures 36W-60W	3
LED Direct Linear Ambient fixtures 61W-100W	3
LED linear replacement lamps (Type A or AB) 2 foot	8
LED linear replacement lamps (Type A or AB) 4 foot	4
LED Direct Linear Ambient fixtures <=35W (Exterior)	3
LED Direct Linear Ambient fixtures 36W-60W (Exterior)	3
LED Direct Linear Ambient fixtures 61W-100W (Exterior)	3
LED linear replacement lamps (Type A or AB) 2 foot (Exterior)	8
LED linear replacement lamps (Type A or AB) 4 foot (Exterior)	4

APPENDIX A: Program Descriptions

	LED Exit Sign	37
	LED Flood Light (≥15W)	4
	LED Recessed Fixture (1x4)	27
	LED Recessed Fixture (2x2)	111
	LED Recessed Fixture (2x4)	165
	Lighting Optimization - Remove 4ft Lamp from T8 System	1
	Lighting Optimization - Remove 8ft Lamp from T8 System	1
	Omnidirectional LED Bulb (<10W)	440
	Omnidirectional LED Bulb (≥10W)	257
	LED Parking Garage/Canopy (<45W)	1
	LED Parking Garage/Canopy (45-75W)	8
	LED Parking Garage/Canopy (≥75W)	7
	LED Wall Mounted Area Lights (<30W)	23
	LED Wall Mounted Area Lights (30-75W)	111
	LED Wall Mounted Area Lights (≥75W)	220
	LED Refrigerator Case Light	8
	Photocell Occupancy Sensor	1
	VFD Fans and Blowers	13
	Zero-Loss Condensate Drain	3
	Compressed Air Nozzle	3
	Custom Project	123

Estimated Savings

Net MWh Savings	Net MW Savings
Total	Total
11,705	1.294

Estimated Budget

Budget Category	**Total**
Incentives	$1,413,457
Marketing	$30,965
Administration	$121,555
EM&V	$0
Total	**$1,565,977**

Cost-Effectiveness

Test	Total
TRC	1.31

APPENDIX B: MEASURE SAVINGS TABLES

Residential Program Measure Tables

Table C-1 Efficient Products

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
In Store POS	LED	Lighting	14.92	0.00	0.00	0.00	19	$1.45	1 bulb	ARK TRM v8.1	IL TRM v9
In Store POS	Specialty LED	Lighting	23.86	0.00	0.00	0.00	19	$1.65	1 bulb	ARK TRM v8.1	IL TRM v9
In Store POS	ENERGY STAR Dehumidifier	Appliances	201.03	0.05	0.00	0.00	12	$10.00	1 Unit	ARK TRM v8.1	IL TRM v9
In Store POS	ENERGY STAR Air Purifier	Appliances	486.67	0.06	0.00	0.00	9	$22.33	1 Unit	ARK TRM v8.1	IL TRM v9
In Store POS	Smart Power Strip 5-Plug	Appliances	169.47	0.03	0.00	0.00	10	$10.00	1 Unit	ARK TRM v8.1	IL TRM v9
In Store POS	Advanced Thermostat (Unknown)	HVAC	343.77	0.18	69.19	0.00	10	$125.00	1 Unit	Electric: AMMO MEEIA Gas: IL TRM v9	Electric: AMMO MEEIA Gas: IL TRM v9
In Store POS	ENERGY STAR Bathroom Exhaust Fan	HVAC	3.65	0.00	0.00	0.00	19	$43.50	1 Unit	ARK TRM v8.1	IL TRM v9
In Store POS	ENERGY STAR Ceiling Fan	HVAC	63.19	0.02	0.00	0.00	10	$46.00	1 Unit	IL TRM v9	IL TRM v9
In Store POS	Faucet Aerator (Kitchen)	Hot Water	33.90	0.00	0.00	359.00	10	$3.00	1 Unit	ARK TRM v8.1	IL TRM v9
In Store POS	Faucet Aerator (Bath)	Hot Water	33.90	0.00	0.00	359.00	10	$3.00	1 Unit	ARK TRM v8.1	IL TRM v9
In Store POS	Low Flow Showerhead	Hot Water	140.60	0.01	0.00	3053.00	10	$7.00	1 Unit	ARK TRM v8.1	IL TRM v9
In Store POS	Faucet Aerator (Kitchen) (Gas)	Hot Water	0.00	0.00	1.43	359.00	10	$3.00	1 Unit	ARK TRM v8.1	IL TRM v9
In Store POS	Faucet Aerator (Bath) (Gas)	Hot Water	0.00	0.00	1.43	359.00	10	$3.00	1 Unit	ARK TRM v8.1	IL TRM v9
In Store POS	Low Flow Showerhead (Gas)	Hot Water	0.00	0.00	13.36	3053.00	10	$7.00	1 Unit	ARK TRM v8.1	IL TRM v9
Online POS	LED	Lighting	14.92	0.00	0.00	0.00	19	$1.45	1 bulb	ARK TRM v8.1	IL TRM v9
Online POS	Specialty LED	Lighting	23.86	0.00	0.00	0.00	19	$1.65	1 bulb	ARK TRM v8.1	IL TRM v9

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
Online POS	ENERGY STAR Dehumidifier	Appliances	201.03	0.05	0.00	0.00	12	$10.00	1 Unit	ARK TRM v8.1	IL TRM v9
Online POS	ENERGY STAR Air Purifier	Appliances	486.67	0.06	0.00	0.00	9	$22.33	1 Unit	ARK TRM v8.1	IL TRM v9
Online POS	Smart Power Strip 5-Plug	Appliances	169.47	0.03	0.00	0.00	10	$10.00	1 Unit	ARK TRM v8.1	IL TRM v9
Online POS	Advanced Thermostat	HVAC	1120.93	0.18	0.00	0.00	10	$125.00	1 Unit	AMMO MEEIA	AMMO MEEIA
Online POS	Advanced Thermostat (Gas)	HVAC	226.56	0.18	79.26	0.00	10	$125.00	1 Unit	Electric: AMMO MEEIA Gas: IL TRM v9	Electric: AMMO MEEIA Gas: IL TRM v9
Online POS	ENERGY STAR Bathroom Exhaust Fan	HVAC	3.65	0.00	0.00	0.00	19	$43.50	1 Unit	ARK TRM v8.1	IL TRM v9
Online POS	ENERGY STAR Ceiling Fan	HVAC	63.19	0.02	0.00	0.00	10	$46.00	1 Unit	IL TRM v9	IL TRM v9
Online POS	Faucet Aerator (Kitchen)	Hot Water	33.90	0.00	0.00	359.00	10	$3.00	1 Unit	ARK TRM v8.1	IL TRM v9
Online POS	Faucet Aerator (Bath)	Hot Water	33.90	0.00	0.00	359.00	10	$3.00	1 Unit	ARK TRM v8.1	IL TRM v9
Online POS	Low Flow Showerhead	Hot Water	315.63	0.03	0.00	3053.00	10	$7.00	1 Unit	ARK TRM v8.1	IL TRM v9
Online POS	Faucet Aerator (Kitchen) (Gas)	Hot Water	0.00	0.00	1.43	359.00	10	$3.00	1 Unit	ARK TRM v8.1	IL TRM v9
Online POS	Faucet Aerator (Bath) (Gas)	Hot Water	0.00	0.00	1.43	359.00	10	$3.00	1 Unit	ARK TRM v8.1	IL TRM v9
Online POS	Low Flow Showerhead (Gas)	Hot Water	0.00	0.00	13.36	3053.00	10	$7.00	1 Unit	ARK TRM v8.1	IL TRM v9
Online Audit	0	0	0.00	0.00	0.00	0.00	0	$60.00	1 Unit	-	-
Online Audit Tool Kit	Direct Mail Kit	Kits	465.31	0.02	0.00	0.00	14	$30.00	1 Unit	IL TRM v9	IL TRM v9

Table C-2 Multifamily

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
Prescriptive	Audit	0	0.00	0.00	0.00	0.00	0	$-	1 Unit	-	
Prescriptive	LED	Lighting	14.92	0.00	0.00	0.00	19	$1.45	1 Bulb	ARK TRM v8.1	IL TRM v9
Prescriptive	Faucet Aerator (Kitchen)	Hot Water	75.23	0.01	0.00	766.50	10	$8.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Faucet Aerator (Bath)	Hot Water	75.23	0.01	0.00	766.50	10	$8.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Low Flow Showerhead	Hot Water	140.60	0.01	0.00	3053.00	10	$12.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Faucet Aerator (Kitchen) (Gas)	Hot Water	0.00	0.00	2.57	766.50	10	$8.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Faucet Aerator (Bath) (Gas)	Hot Water	0.00	0.00	2.57	766.50	10	$8.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Low Flow Showerhead (Gas)	Hot Water	0.00	0.00	13.36	3053.00	10	$12.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Hot Water Pipe Insulation	Hot Water	20.28	0.00	0.00	0.00	10	$15.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Water Heater Wrap	Hot Water	76.00	0.01	0.00	0.00	13	$35.00	1 Unit	ARK TRM v8.1	Mid-A TRM v9
Prescriptive	Air Sealing	Shell	1.07	0.00	0.00	0.00	11	$0.58	1500 sq ft	ARK TRM v8.1	Michigan TRM
Prescriptive	Air Sealing (Gas)	Shell	0.11	0.00	0.04	0.00	11	$0.58	1500 sq ft	ARK TRM v8.1	Michigan TRM
Prescriptive	Advanced Thermostat	HVAC	793.43	0.18	0.00	0.00	10	$125.00	1 Unit	AMMO MEEIA	AMMO MEEIA
Prescriptive	Advanced Thermostat (Gas)	HVAC	212.09	0.18	53.38	0.00	10	$125.00	1 Unit	Electric: AMMO MEEIA Gas: IL TRM v9	Electric: AMMO MEEIA Gas: IL TRM v9
Prescriptive	Smart Power Strip 5-Plug	Appliances	169.47	0.03	0.00	0.00	10	$10.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Water Heater - Temperature Set Back	Hot Water	81.56	0.01	0.00	0.00	2	$5.00	1 Unit	IL TRM v9	IL TRM v9

Table C-3 HVAC Rebate

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
Rebates	Central Air Conditioner (SEER 15)	HVAC	223.71	0.15	0.00	0.00	19	$108.00	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Central Air Conditioner (SEER 16)	HVAC	419.46	0.25	0.00	0.00	19	$221.00	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Central Air Conditioner (SEER 17)	HVAC	592.18	0.25	0.00	0.00	19	$620.00	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Central Air Conditioner (SEER 18)	HVAC	745.71	0.25	0.00	0.00	19	$620.00	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Central Air Conditioner (SEER 19)	HVAC	883.08	0.25	0.00	0.00	19	$620.00	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Central Air Conditioner (SEER 20+)	HVAC	1006.71	0.25	0.00	0.00	19	$620.00	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Air Source Heat Pump (SEER 15)	HVAC	718.18	0.15	0.00	0.00	16	$303.00	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Air Source Heat Pump (SEER 16)	HVAC	1353.46	0.25	0.00	0.00	16	$438.00	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Air Source Heat Pump (SEER 17)	HVAC	1919.45	0.25	0.00	0.00	16	$724.00	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Air Source Heat Pump (SEER 18)	HVAC	2426.91	0.25	0.00	0.00	16	$724.00	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Air Source Heat Pump (SEER 19)	HVAC	2564.28	0.25	0.00	0.00	16	$724.00	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Air Source Heat Pump (SEER 20+)	HVAC	2687.91	0.25	0.00	0.00	16	$724.00	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Mini-Split Heat Pump (SEER 15)	HVAC	582.20	0.21	0.00	0.00	16	$113.67	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Mini-Split Heat Pump (SEER 16)	HVAC	701.82	0.27	0.00	0.00	16	$113.67	1 Unit	ARK TRM v8.1	IL TRM v9

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
Rebates	Mini-Split Heat Pump (SEER 17)	HVAC	1047.70	0.27	0.00	0.00	16	$113.67	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Mini-Split Heat Pump (SEER 18)	HVAC	1357.82	0.27	0.00	0.00	16	$410.67	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Mini-Split Heat Pump (SEER 19)	HVAC	1441.77	0.27	0.00	0.00	16	$410.67	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Mini-Split Heat Pump (SEER 20+)	HVAC	1517.32	0.27	0.00	0.00	16	$410.67	1 Unit	ARK TRM v8.1	IL TRM v9
Rebates	Geothermal (SEER 20+)	HVAC	3828.64	0.95	0.00	0.00	25	$7,728.00	1 Unit	ENERGY STAR	ENERGY STAR

Table C-4 Whole Home Energy

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
PAYS	LED	Lighting	14.92	0.00	0.00	0.00	19	$1.45	1 Bulb	ARK TRM v8.1	IL TRM v9
PAYS	Faucet Aerator (Kitchen)	Hot Water	33.90	0.00	0.00	359.00	10	$3.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Faucet Aerator (Bath)	Hot Water	33.90	0.00	0.00	359.00	10	$3.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Low Flow Showerhead	Hot Water	140.60	0.01	0.00	3053.00	10	$7.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Faucet Aerator (Kitchen) (Gas)	Hot Water	0.00	0.00	1.43	359.00	10	$3.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Faucet Aerator (Bath) (Gas)	Hot Water	0.00	0.00	1.43	359.00	10	$3.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Low Flow Showerhead (Gas)	Hot Water	0.00	0.00	13.36	3053.00	10	$7.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Hot Water Pipe Insulation	Hot Water	20.28	0.00	0.00	0.00	10	$15.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Water Heater Wrap	Hot Water	76.00	0.01	0.00	0.00	13	$34.00	1 Unit	ARK TRM v8.1	Mid-A TRM v9
PAYS	Air Sealing	Shell	17.13	0.00	0.00	0.00	11	$0.58	1500 sq ft	ARK TRM v8.1	Michigan TRM
PAYS	Attic Insulation R-38	Shell	3.14	0.00	0.00	0.00	20	$0.58	900 sq ft	ARK TRM v8.1	Michigan TRM
PAYS	Wall Insulation R-13	Shell	3.42	0.00	0.00	0.00	20	$0.15	900 sq ft	ARK TRM v8.1	Michigan TRM
PAYS	Floor Insulation R-19	Shell	1.19	0.00	0.00	0.00	20	$0.27	375 sq ft	ARK TRM v8.1	Michigan TRM
PAYS	Duct Installation & Sealing	Shell	2504.80	1.67	0.00	0.00	18	$448.80	1 home	ARK TRM v8.1	IRP Model
PAYS	ENERGY STAR Windows	Shell	13.05	0.00	0.00	0.00	20	$4.28	864 sq ft	ARK TRM v8.1	Michigan TRM
PAYS	Air Sealing (Gas)	Shell	17.13	0.00	0.69	0.00	11	$0.58	1500 sq ft	ARK TRM v8.1	Michigan TRM
PAYS	Attic Insulation R-38 (Gas)	Shell	0.59	0.00	0.11	0.00	20	$0.58	900 sq ft	ARK TRM v8.1	Michigan TRM

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
PAYS	Wall Insulation R-13 (Gas)	Shell	0.53	0.00	0.27	0.00	20	$0.15	900 sq ft	ARK TRM v8.1	Michigan TRM
PAYS	Floor Insulation R-19 (Gas)	Shell	-0.14	0.00	0.06	0.00	20	$0.27	375 sq ft	ARK TRM v8.1	Michigan TRM
PAYS	Duct Installation & Sealing (Gas)	Shell	1136.10	0.76	59.87	0.00	18	$448.80	1 home	ARK TRM v8.1	Michigan TRM
PAYS	ENERGY STAR Windows (Gas)	Shell	4.88	0.00	0.36	0.00	20	$4.28	864 sq ft	ARK TRM v8.1	Michigan TRM
PAYS	Central Air Conditioner (SEER 15)	HVAC	223.71	0.15	0.00	0.00	19	$108.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Central Air Conditioner (SEER 16)	HVAC	419.46	0.25	0.00	0.00	19	$221.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Central Air Conditioner (SEER 17)	HVAC	592.18	0.25	0.00	0.00	19	$620.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Central Air Conditioner (SEER 18)	HVAC	745.71	0.25	0.00	0.00	19	$620.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Central Air Conditioner (SEER 19)	HVAC	883.08	0.25	0.00	0.00	19	$620.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Central Air Conditioner (SEER 20+)	HVAC	1006.71	0.25	0.00	0.00	19	$620.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Air Source Heat Pump (SEER 15)	HVAC	718.18	0.15	0.00	0.00	16	$453.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Air Source Heat Pump (SEER 16)	HVAC	1353.46	0.25	0.00	0.00	16	$588.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Air Source Heat Pump (SEER 17)	HVAC	1919.45	0.25	0.00	0.00	16	$874.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Air Source Heat Pump (SEER 18)	HVAC	2426.91	0.25	0.00	0.00	16	$874.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Air Source Heat Pump (SEER 19)	HVAC	2564.28	0.25	0.00	0.00	16	$874.00	1 Unit	ARK TRM v8.1	IL TRM v9

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
PAYS	Air Source Heat Pump (SEER 20+)	HVAC	2687.91	0.25	0.00	0.00	16	$874.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Mini-Split Heat Pump (SEER 15)	HVAC	582.20	0.21	0.00	0.00	16	$113.67	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Mini-Split Heat Pump (SEER 16)	HVAC	701.82	0.27	0.00	0.00	16	$113.67	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Mini-Split Heat Pump (SEER 17)	HVAC	1047.70	0.27	0.00	0.00	16	$113.67	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Mini-Split Heat Pump (SEER 18)	HVAC	1357.82	0.27	0.00	0.00	16	$410.67	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Mini-Split Heat Pump (SEER 19)	HVAC	1441.77	0.27	0.00	0.00	16	$410.67	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Mini-Split Heat Pump (SEER 20+)	HVAC	1517.32	0.27	0.00	0.00	16	$410.67	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Geothermal (SEER 20+)	HVAC	3828.64	0.95	0.00	0.00	25	$7,728.00	1 Unit	ENERGY STAR	ENERGY STAR
PAYS	Advanced Thermostat	HVAC	1120.93	0.18	0.00	0.00	10	$125.00	1 Unit	AMMO MEEIA	AMMO MEEIA
PAYS	Advanced Thermostat (Gas)	HVAC	226.56	0.18	79.26	0.00	10	$125.00	1 Unit	Electric: AMMO MEEIA Gas: IL TRM v9	Electric: AMMO MEEIA Gas: IL TRM v9
PAYS	Furnace Blower Motor	HVAC	690.00	0.26	0.00	0.00	6	$322.00	1 Unit	IL TRM v9	IL TRM v9
PAYS	Heat Pump Water Heater ≤55 gallons	Hot Water	3042.83	0.27	0.00	0.00	10	$1,199.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Heat Pump Water Heater >55 gallons	Hot Water	595.30	0.05	0.00	0.00	10	$1,797.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	ENERGY STAR Dehumidifier	Appliances	201.03	0.05	0.00	0.00	12	$10.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	ENERGY STAR Air Purifier	Appliances	486.67	0.06	0.00	0.00	9	$22.33	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	ENERGY STAR Refrigerator	Appliances	117.58	0.02	0.00	0.00	17	$40.00	1 Unit	ARK TRM v8.1	IL TRM v9

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
PAYS	Smart Power Strip 5-Plug	Appliances	169.47	0.03	0.00	0.00	10	$10.00	1 Unit	ARK TRM v8.1	IL TRM v9
PAYS	Water Heater - Temperature Set Back	Hot Water	81.56	0.01	0.00	0.00	2	$5.00	1 Unit	IL TRM v9	IL TRM v9

Commercial Program Measure Tables

Table C-5 SBDI

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
SBDI	SBDI Project	-	45,617.50	5.65	0.00	0.00	15	$11,632.46	1 Project	-	-

Table C-6 Commercial Program

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
Prescriptive	Wall Switch Occupancy Sensor	Prescriptive	73.57	0.06	0.00	0.00	8	$51.24	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	Air Cooled Chiller	Prescriptive	19809.81	21.70	0.00	0.00	20	$11,300.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Water Cooled Chiller	Prescriptive	6851.50	5.54	0.00	0.00	20	$5,200.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Room Air Conditioner (12 EER)	Prescriptive	18.09	0.07	0.00	0.00	9	$40.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	CAC <65 kBtu	Prescriptive	539.80	0.57	0.00	0.00	15	$262.50	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	CAC 65<135 kBtu	Prescriptive	596.62	0.73	0.00	0.00	15	$525.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	CAC 135<240 kBtu	Prescriptive	981.30	1.40	0.00	0.00	15	$787.50	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	CAC 240<760 kBtu	Prescriptive	3413.27	4.53	0.00	0.00	15	$791.67	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	CAC ≥760 kBtu	Prescriptive	3630.09	6.41	0.00	0.00	15	$1,266.67	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Heat Pump <65 kBtu	Prescriptive	506.73	0.21	0.00	0.00	15	$416.67	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Heat Pump 65<135 kBtu	Prescriptive	2123.53	0.56	0.00	0.00	15	$833.33	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Heat Pump 135<240 kBtu	Prescriptive	3475.97	0.47	0.00	0.00	15	$1,666.67	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Heat Pump ≥240 kBtu	Prescriptive	9497.23	2.25	0.00	0.00	15	$2,500.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Packaged Terminal Air Conditioner	Prescriptive	223.07	0.20	0.00	0.00	10	$70.00	1 Unit	ARK TRM v8.1	IL TRM v9

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
Prescriptive	Packaged Terminal Heat Pump	Prescriptive	443.13	0.07	0.00	0.00	10	$70.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Guest Room Energy Management	Prescriptive	744.00	0.08	0.00	0.00	15	$260.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	Variable Speed Drive - Chilled Water Pump	Prescriptive	845.51	0.00	0.00	0.00	15	$1,330.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	Variable Speed Drive - Hot Water Pump	Prescriptive	4383.87	0.00	0.00	0.00	15	$1,330.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	Demand Controlled Ventilation	Prescriptive	4283.64	0.59	0.00	0.00	15	$1,500.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	ENERGY STAR Steamer	Prescriptive	7796.30	1.50	0.00	0.00	12	$2,490.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	ENERGY STAR Dishwasher	Prescriptive	2159.82	0.28	0.00	0.00	10	$50.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	ENERGY STAR Hot Food Holding Cabinets	Prescriptive	3942.00	0.29	0.00	0.00	12	$1,800.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	ENERGY STAR Ice Maker (2018)	Prescriptive	629.63	0.07	0.00	0.00	10	$60.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	ENERGY STAR Electric Convection Oven	Prescriptive	2083.14	0.40	0.00	0.00	10	$1,000.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	ENERGY STAR Electric Fryer	Prescriptive	1934.16	0.37	0.00	0.00	12	$1,200.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Vending Machine	Prescriptive	95.30	0.00	0.00	0.00	14	$500.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	Evaporator Fan Control	Prescriptive	1901.80	0.22	0.00	0.00	16	$291.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Strip Curtain for Walk-In Cooler/Freezer	Prescriptive	666.22	1.60	0.00	0.00	4	$214.62	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Night Covers for Open Refrigerated Display Cases	Prescriptive	182.00	0.00	0.00	0.00	5	$42.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	Door Heater Controls	Prescriptive	219.00	0.00	0.00	0.00	12	$200.00	1 Unit	ARK TRM v8.1	IL TRM v9

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
Prescriptive	Refrigeration Economizer	Prescriptive	1128.29	0.13	0.00	0.00	15	$88.00	1 Unit	ARK TRM v8.1	PSCo 2019-2020 Plan
Prescriptive	Directional LED Bulb (<15W)	Prescriptive	77.52	0.03	0.00	0.00	10	$1.65	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	Directional LED Bulb (≥15W)	Prescriptive	90.52	0.03	0.00	0.00	10	$1.65	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	High Bay Fluorescent Fixture (HP T8 >4 lamps)	Prescriptive	854.67	0.20	0.00	0.00	12	$75.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	High Bay Fluorescent Fixture (HP T8 ≤4 lamps)	Prescriptive	539.37	0.13	0.00	0.00	12	$75.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	High Bay Fluorescent Fixture w/ HE Electronic Ballast (T5 >4 lamps)	Prescriptive	353.98	0.08	0.00	0.00	12	$100.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	High Bay Fluorescent Fixture w/ HE Electronic Ballast (T5 ≤4 lamps)	Prescriptive	189.76	0.05	0.00	0.00	12	$100.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED High & Low-Bay Fixture	Prescriptive	352.16	0.08	0.00	0.00	15	$137.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	Low Wattage T8 Lamp	Prescriptive	24.09	0.01	0.00	0.00	12	$15.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Direct Linear Ambient fixtures <=35W	Prescriptive	90.87	0.02	0.00	0.00	15	$52.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Direct Linear Ambient fixtures 36W-60W	Prescriptive	232.46	0.06	0.00	0.00	15	$131.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Direct Linear Ambient fixtures 61W-100W	Prescriptive	354.71	0.08	0.00	0.00	15	$173.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED linear replacement lamps (Type A or AB) 2 foot	Prescriptive	22.26	0.01	0.00	0.00	10	$13.00	1 Unit	IL TRM v9	IL TRM v9

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
Prescriptive	LED linear replacement lamps (Type A or AB) 4 foot	Prescriptive	45.25	0.01	0.00	0.00	10	$15.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Direct Linear Ambient fixtures <=35W (Exterior)	Prescriptive	107.17	0.00	0.00	0.00	15	$52.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Direct Linear Ambient fixtures 36W-60W (Exterior)	Prescriptive	274.16	0.00	0.00	0.00	15	$131.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Direct Linear Ambient fixtures 61W-100W (Exterior)	Prescriptive	418.35	0.00	0.00	0.00	15	$173.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED linear replacement lamps (Type A or AB) 2 foot (Exterior)	Prescriptive	26.25	0.00	0.00	0.00	10	$13.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED linear replacement lamps (Type A or AB) 4 foot (Exterior)	Prescriptive	53.37	0.00	0.00	0.00	10	$15.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Exit Sign	Prescriptive	47.34	0.01	0.00	0.00	5	$32.50	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Flood Light (≥15W)	Prescriptive	342.09	0.00	0.00	0.00	15	$80.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Recessed Fixture (1x4)	Prescriptive	85.03	0.02	0.00	0.00	15	$75.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Recessed Fixture (2x2)	Prescriptive	115.32	0.03	0.00	0.00	15	$53.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Recessed Fixture (2x4)	Prescriptive	144.88	0.03	0.00	0.00	15	$76.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	Lighting Optimization - Remove 4ft Lamp from T8 System	Prescriptive	70.80	0.02	0.00	0.00	11	$12.00	1 Unit	IL TRM v9	IL TRM v9

Subprogram	Measure	End Use	Gross Annual Electric Savings (kWh)	Gross Demand Savings (kW)	Gross Gas Savings (Therm)	Gross Water Savings (Gal)	EUL	Incremental Cost	Unit	Savings Source	Incremental Cost Source
Prescriptive	Lighting Optimization - Remove 8ft Lamp from T8 System	Prescriptive	140.86	0.03	0.00	0.00	11	$16.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	Omnidirectional LED Bulb (<10W)	Prescriptive	54.71	0.02	0.00	0.00	15	$1.45	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	Omnidirectional LED Bulb (≥10W)	Prescriptive	77.52	0.03	0.00	0.00	15	$1.45	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Parking Garage/Canopy (<45W)	Prescriptive	696.90	0.08	0.00	0.00	15	$80.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Parking Garage/Canopy (45-75W)	Prescriptive	1154.48	0.13	0.00	0.00	15	$248.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Parking Garage/Canopy (≥75W)	Prescriptive	1536.68	0.18	0.00	0.00	15	$566.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Wall Mounted Area Lights (<30W)	Prescriptive	342.09	0.05	0.00	0.00	15	$80.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Wall Mounted Area Lights (30-75W)	Prescriptive	566.71	0.00	0.00	0.00	15	$248.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Wall Mounted Area Lights (≥75W)	Prescriptive	754.32	0.00	0.00	0.00	15	$566.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	LED Refrigerator Case Light	Prescriptive	27.73	0.01	0.00	0.00	15	$11.00	12 ft	IL TRM v9	IL TRM v9
Prescriptive	Photocell Occupancy Sensor	Prescriptive	94.87	0.03	0.00	0.00	15	$55.00	1 Unit	ARK TRM v8.1	IL TRM v9
Prescriptive	VFD Fans and Blowers	Prescriptive	9493.83	1.48	0.00	0.00	13	$2,716.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	Zero-Loss Condensate Drain	Prescriptive	1969.66	0.30	0.00	0.00	10	$244.00	1 Unit	IL TRM v9	IL TRM v9
Prescriptive	Compressed Air Nozzle	Prescriptive	449.03	0.07	0.00	0.00	15	$42.00	1 Unit	IL TRM v9	IL TRM v9
Custom	C&I Custom Rebate	Custom	91235.00	11.30	0.00	0.00	15	$18,247.00	1 Unit	Estimate	Estimate
Custom	Large C&I Custom Rebate	Custom	1003585.00	0.00	0.00	0.00	15	$200,717.00	1 Unit	Estimate	Estimate

APPENDIX C: Customer Bill Example

Liberty

1 Date Mailed: 03/03/2021
Account Number: 000011-11-0

TOTAL AMOUNT DUE	**$135.24**
Due 3/24/21, add late fee of	$0.68
After 3/24/21, Pay	$135.92
TOTAL AMOUNT ENCLOSED	**$** _____

2 JOHN A. CUSTOMER
101 MAIN STREET
ANYWHERE, MO 11111

3 Remit to:
LIBERTY
PO BOX 650689
DALLAS, TX 75265-0689

1294820394000000880000000088441

To speak to a Liberty Customer Service Representative or to pay your bill by phone, please dial 1-800-206-2300

Liberty (www.libertyutilities.com)
602 S. Joplin Avenue
Joplin, MO 64801-2337

4 **Account Number: 000011-11-0**

Summary as of 03/02/21:

5	Previous Bill	02/11/21		$162.77	
	Payment Received	03/01/21	Check	($162.77)	Thank you
	Balance Forward			$0.00	
	Electric		000011-11-001	$135.24	***
6	**TOTAL AMOUNT DUE**			**$135.24**	

7 If you have a question or problem with billing or service or need help managing your charges with a delayed payment agreement, we welcome your call.

To use Liberty automated account information by phone, use the 11-digit location number on the back of your statement.

Pay your bill with a credit or debit card by phone by simply calling 800-206-2300. Pay your bill online at www.libertyutilities.com. Choose the Pay Your Bill option and select Make Payment.

When making a payment, use the nine-digit account number on the front of your statement.

To report an electric outage, use the 11-digit location number on the back of your statement.

Project Help - - - Neighbors Helping Neighbors

You may qualify for financial assistance with your Liberty bill. Visit www.libertyutilities.com and select Financial Help for options that may be right for you.

****** see Account Detail following message(s).***

1) Nine-digit account number needed to make a payment.
2) Customer and billing location information.
3) Liberty mailing address to remit payment. Information on additional payment methods can be found on the company's website, www.libertyutilities.com.
4) Customer account number.
5) Previous balance, recent payments, and remaining balance.
6) Total amount due for current month – detailed explanation on customer charges can be found on the back of the bill.
7) This area has important messages from the company.

Account Detail

8 **Electric 000011-11-001**	9 For Service at 101 Main Street, Anywhere, MO 11111		Rate: RG-Residential	
10 Read for: 00118237 From 01/30/21 to 03/01/21 (30 Days), Curr Read - 5690 Prev Read - 4690. Totaling 1,000 KwH				
11 03/01/21	Customer Charge	1 x 13.00	$13.00	
12 03/01/21	Usage Charge	600KWH x .13006	$75.21	
12 03/01/21	Usage Charge	400KWH x .10574	$40.37	
13 03/01/21	Energy Efficiency Program Cost	1000KWH x .00039	$0.45	
14 03/01/21	Energy Efficiency Investment Cost	1000KWH x **X**	$**X**	
15 03/01/21	Franchise Fee	$127.13 x .06383	$8.11	
16 03/01/21	Fuel Charge	1000KWH x .0019	CR $1.90	
17 03/01/21	Anywhere County Tax	111.18 x .00875	$0.97	
		18 **Current Months Charges:**	**$140.01**	
03/01/21	19 APP Installment			$140.01
		20 **Billed Charges:**		**$140.01**

Contract Update

APP

21 Status before payment is $140.01, after payment in full $6.40. This account will be reevaluated in October.

8) 11-digit location number to report outages or to use automated account information by phone.

9) Service address - this is important for customers who have multiple accounts with the company.

10) Meter number, previous meter read, current meter read, and usage information.

11) The company service includes a fixed monthly customer charge, no matter how much electricity is used.

12) The usage charge is for the kilowatt hours (KWH) used by a customer. The charge for each KWH used by a customer from June 16 through September 16 is $0.13006 per KWH. The charge for electricity for the other eight months of each year is $0.13006 per KWH for the first 600KWH and $0.10574 for each KWH thereafter.

13) The cost to provide programs for customers to improve the energy efficiency of their homes and businesses.

14) The Energy Efficiency Investment Cost is for the recovery of costs associated with delivering and administering the MEEIA energy efficiency programs, which help customers lower their energy consumption and improve the quality of their homes.

15) A contractual fee required for the company to use the city public right-of-ways.

16) The charge for the difference between fuel and purchased power costs established in the current rate structure and the actual fuel and purchased power costs incurred by the company. This rate changes twice a year. If fuel costs are less than what is established by the current rates, customers will see a credit in the Fuel Charge line. The cost includes no mark-up or profit for the company.

17) Taxes, fees, and other assessments.

18) Total charges for the billing period.

19) APP, average payment plan, is a payment contract that calculates a customer's expected annual usage and divides it into 12 equal payments. Each month one payment installment is due from the customer. At the end of 12 months the actual usage is reviewed and a customer's contract and installments are adjusted for the next 12 months.

20) The amount due from the customer by the due date.

21) Important information about a customer's payment contract.

APPENDIX D: MEEIA Customer Notice

NOTICE OF FILING REGARDING LIBERTY-EMPIRE'S NEW ENERGY EFFICIENCY PROGRAMS

On [date], The Empire District Electric Company (doing business as Liberty) filed a portfolio of energy efficiency customer programs under the legislative and regulatory framework known as the Missouri Energy Efficiency Investment Act ("MEEIA"). This new portfolio represents an increased investment in offering energy efficiency programs, which help lower the energy consumption and improve the quality of the homes and lives of its residential, commercial, and industrial retail customers.

Liberty's MEEIA Portfolio will replace its existing energy efficiency programs. It will continue the popular Residential HVAC Rebate Program and Custom Commercial and Industrial Rebate Program, as well as introducing new programs:

- Whole Home Energy
    - Allows customers to finance energy efficiency measures in their home on their electric bill, designed to pay for the monthly installments with savings created from the energy efficiency measures.
- Multi-family Direct Install
    - Offers free energy audits and installation of low-cost energy efficiency to select multi-family dwellings.
- Residential Efficiency Products
    - Allows customers to purchase energy efficient products at a discounted rate in retail outlets or an online marketplace hosted by Liberty.
- Small Business Direct Install
    - Allows small business customers to receive a free energy evaluation, as well as free energy efficient upgrades to their establishment.

These programs will be funded by a new line item on the electric bills of all eligible retail customers called the Energy Efficiency Investment Charge ("EEIC"). The EEIC is comprised of three items:

- Program Costs – The combined costs for administration, delivery, and customer incentives of the programs.
- Throughput Disincentive – Reimbursement to the Company for the reduced energy sales created by the energy efficiency programs.
- Earnings Opportunity – An incentive paid to the utility for successful implementation and achievement of energy savings and customer participation goals set by the Missouri Public Service under the provision of the MEEIA Rule.

These three factors will be combined and allocated between residential and non-residential classes, and divided by the retail sales projected for their respective customer sectors. This creates the per-kWh factor charged on customer bills as the EEIC.

THE EMPIRE DISTRICT ELECTRIC COMPANY d.b.a. LIBERTY

P.S.C. Mo. No. 6 Sec. 4 _____ Original Sheet No. 21

Canceling P.S.C. Mo. No. _____ Sec. _____ _____ Original Sheet No. _____

For ALL TERRITORY

DEMAND-SIDE INVESTMENT MECHANISM RIDER
SCHEDULE DSIM
For MEEIA Cycle 1 2021-22 Plan

APPLICABILITY

This rider is applicable to all non-lighting kilowatt-hours (kWh) of energy supplied to customers under the Company's retail rate schedules, excluding kWh of energy supplied to "opt-out" customers. The Demand Side Investment Mechanism (DSIM) Rider will be calculated and applied separately to the following rate classes: (1) Residential Service (RG) and (2) non-Residential Service, which includes: (a) Commercial Service (CB), (b) Small Heating Service (SH), (c) General Power Service (GP), (d) Total Electric Building Service (TEB), and (e) Large Power Service (LP).

Charges in this DSIM Rider reflect costs associated with implementation of the Missouri Energy Efficiency Investment Act (MEEIA) Cycle 1 Plan and any remaining unrecovered costs from prior MEEIA Cycle Plans or other approved energy efficiency plans. Those costs include:

1) Program Costs, Throughput Disincentive (TD), and Earnings Opportunity Award (EO) (if any) for the MEEIA Cycle 1 Plan, as well as Program Costs, TD and EO for commission approved business program projects completed for prior MEEIA Cycle Plans and any earned Earnings Opportunity earned (and ordered) attributable to prior MEEIA Cycle Plans.

2) Reconciliations, with interest, to true-up for differences between the revenues billed under this DSIM Rider and total actual monthly amounts for:

   i. Program Costs incurred in Cycle 1 and/or remaining unrecovered amounts for prior MEEIA Cycle Plans or other approved energy efficiency plans.
   ii. TD incurred in Cycle 1, and/or remaining unrecovered amounts for prior MEEIA Cycle Plans.
   iii. Amortization of any Earnings Opportunity Award (EO) ordered by the Missouri Public Service Commission (Commission), and/or remaining true-ups or unrecovered amounts for prior MEEIA Cycle Plans.

3) Any Ordered Adjustments. Charges under this DSIM Rider shall continue after the anticipated 18-month plan period of MEEIA Cycle 1 until such time as the costs described in items 1) and 2) above have been billed.

Charges arising from the MEEIA Cycle 1 Plan that are the subject of this DSIM Rider shall be reflected in one "DSIM Charge" on customers' bills in combination with any charges arising from a rider that is applicable to post-MEEIA Cycle 1 Plan demand-side management programs approved under the MEEIA. This will include any unrecovered amounts for Program Costs, unrecovered TD from prior MEEIA Cycle Plans and any Earnings Opportunity, etc. earned / remaining from prior MEEIA Cycle Plans that is expected to begin recovery in July 2021.

DEFINITIONS

As used in this DSIM Rider, the following definitions shall apply:

"Cycle 1 Earnings Opportunity" (EO) means the annual incentive ordered by the Commission based on actual performance verified through EM&V against planned targets. The Company's EO will be $369,289 if 100% achievement of the planned targets are met. EO is capped at $ 480,076. Potential Earnings Opportunity adjustments are described on Sheet No. ___. The Earnings Opportunity Matrix outlining the payout rates, weightings, and caps can be found at Sheet No. ____.

DEMAND-SIDE INVESTMENT MECHANISM RIDER
SCHEDULE DSIM
For MEEIA Cycle 1 2021-22 Plan

"Deemed Savings Table" means a list of Measures derived from the Company's TRM that quantifies gross energy and demand savings associated with Company-specific Measure parameters where available, as outlined in Appendix B to the MEEIA 2021-22 Plan and updated as provided for herein based on EM&V ex-post gross adjustments.

"Effective Period" (EP) means the billing months for which the approved DSIM is to be effective, i.e., the 18 billing months beginning with the July billing month of 2021 and ending with the December billing month of 2022.

"Evaluation Measurement & Verification" (EM&V) means the performance of studies and activities intended to evaluate the process of the Company's Program delivery and oversight and to estimate and/or verify the estimated actual energy and demand savings, cost effectiveness, and other effects from demand-side Programs.

"Incentive" means any consideration provided by the Company, including, but not limited to, buy downs, markdowns, rebates, bill credits, payments to third parties, direct installation, giveaways, and education, which encourages the adoption of Program Measures.

"Measure" means the Energy Efficiency measures described for each program in the Appendix C to the MEEIA 2021-22 Plan.

"MEEIA Cycle 1 Plan" consists of the demand-side programs and the DSIM described in the MEEIA Cycle 1 Filing, which became effective following Commission order and approval of the MEEIA Cycle 1 Plan under EO-XXXX-XXXX.

"Programs" means MEEIA Cycle 1 programs listed in Tariff Sheet No. ____ and added in accordance with the Commission's rule 20 CSR 4240-20.094(4).

"Program Costs" means any prudently incurred program expenditures, including such items as program planning, program design; administration; delivery; end-use measures and incentive payments; advertising expense; evaluation, measurement, and verification; market potential studies; and work on a statewide technical resource manual.

"Short-Term Borrowing Rate" means a rate equal to the weighted average interest paid on the Company's short-term debt during the month.

"Throughput Disincentive" (TD) means the utility's lost margins associated with the successful implementation of the MEEIA programs. The detailed methodology for calculating the TD is described beginning in Tariff Sheet No. ___.

"TRM" means the Technical Resource Manuals utilized to estimate the savings for the measures included in the DSM portfolio.

DETERMINATION OF DSIM RATES

The DSIM during the applicable EP is a dollar per kWh rate for each applicable Service Classification calculated as follows:

DEMAND-SIDE INVESTMENT MECHANISM RIDER
SCHEDULE DSIM
For MEEIA Cycle 1 2021-22 Plan

DSIM = [NPC + NTD + NEO + NOA] / PE

Where:

NPC = Net Program Costs for the applicable EP as defined below,

NPC = PPC + PCR

PPC = Projected Program Costs is an amount equal to Program Costs projected by the Company to be incurred during the applicable EP.

PCR = Program Costs Reconciliation is equal to the cumulative difference, if any, between the NPC revenues billed resulting from the application of the DSIM through the end of the previous EP and the actual Program Costs incurred through the end of the previous EP (which will reflect projections through the end of the previous EP due to timing of adjustments). Such amounts shall include monthly interest on cumulative over- or under-balances at the Company's monthly Short-Term Borrowing Rate.

NTD = Net Throughput Disincentive for the applicable EP as defined below,

NTD = PTD + TDR

PTD = Projected Throughput Disincentive is the Company's TD projected by the Company to be incurred during the applicable EP. For the detailed method for calculating the TD, see Sheet _____.

TDR = Throughput Disincentive Reconciliation is equal to the cumulative difference, if any, between the NTD revenues billed during the previous EP resulting from the application of the DSIM and the Company's TD through the end of the previous EP calculated pursuant to the MEEIA Cycle 1 application, as applicable (which will reflect projections through the end of the previous EP due to timing of adjustments). Such amounts shall include monthly interest on cumulative over- or under- balances at the Company's monthly Short-Term Borrowing Rate.

NEO = Net Earnings Opportunity for the applicable EP as defined below,

NEO = EO + EOR

EO = Earnings Opportunity is equal to the Earnings Opportunity Award monthly amortization multiplied by the number of billing months in the applicable EP, plus the succeeding EP. MEEIA Cycle 1 monthly amortization shall be determined by dividing the Earnings Opportunity Award by the number of billing months from the billing month of the first DSIM after the determination of the annual Earnings Opportunity Award and 12 calendar months following that first billing month.

EOR = Earnings Opportunity Reconciliation is equal to the cumulative difference, if any, between the NEO revenues billed during the previous EP resulting from the application of the DSIM and the monthly amortization of the EO Award through the end of the previous EP (which will reflect projections through the end of the previous EP due to timing of adjustments). Such amounts shall include monthly interest on cumulative over- or under- balances at the Company's monthly Short-Term Borrowing Rate.

DEMAND-SIDE INVESTMENT MECHANISM RIDER
SCHEDULE DSIM
For MEEIA Cycle 1 2021-22 Plan

NOA = Net Ordered Adjustment for the applicable EP as defined below,

NOA = OA + OAR

OA = Ordered Adjustment is the amount of any adjustment to the DSIM ordered by the Commission as a result of prudence reviews and/or corrections under this Rider DSIM. Such amounts shall include monthly interest at the Company's monthly short-term borrowing rate.

OAR = Ordered Adjustment Reconciliation is equal to the cumulative difference, if any, between the NOA revenues billed during the previous EP resulting from the application of the DSIM and the actual OA ordered by the Commission through the end of the previous EP (which will reflect projections through the end of the previous EP due to timing of adjustments). Such amounts shall include monthly interest on cumulative over- or under-balances at the Company's monthly Short-Term Borrowing Rate.

PE = Projected Energy, in kWh, forecasted to be delivered to the customers to which the Rider DSIM applies during the applicable EP.

The DSIM components and total DSIM applicable to the individual Service Classifications shall be rounded to the nearest $0.00001.

Allocation of MEEIA Cycle 1 Program Costs, TD and EO for each rate schedule for the MEEIA Cycle 1 Plan will be allocated as outlined in EO-XXXX-XXXX.

This Rider DSIM shall not be applicable to customers that have satisfied the opt-out provisions contained in Section 393.1075.7, RSMo or the Low-income exemption provisions described herein.

CALCULATION OF TD:

Monthly Throughput Disincentive = the sum of the Throughput Disincentive Calculation for all programs applicable to (1) Residential Service (RG): (2) Commercial Service (CB), (3) Small Heating Service (SH), (4) General Power Service (GP), (5) Total Electric Building Service (TEB); and (6) Large Power Service (LP).

The TD for each Service Classification shall be determined by the following formula:

TD = [MS x TBR x NTGF] + ATD

Where:

TD = Throughput Disincentive, in dollars, to be collected for a given month, for a given Service Classification.

MS = Monthly Savings, is the sum of all Programs' monthly savings, in kWh, for a given month, for a given Service Classification.

TBR = Tail Block Rate. Applicable monthly Tail Block Rate for each applicable Service Classification.

DEMAND-SIDE INVESTMENT MECHANISM RIDER
SCHEDULE DSIM
For MEEIA Cycle 1 2021-22 Plan

NTGF = Net-To-Gross Factor. For the EP, all TD calculations will assume a NTGF of 0.85 until such time as a NTGF is determined through EM&V for that EP. Thereafter, for each given EP, the NTGF determined through EM&V will be used prospectively starting with the month in which the Earnings Opportunity Award is determined.

MS = The sum of all Programs' Monthly Savings in kWh, for a given month, for a given class. The Monthly Savings in kWh for each Program shall be determined by the formula:

$$\mathbf{MS = (MAS_{CM} + CAS_{PM} - RB) \times LS + HER}$$

RB = Rebasing Adjustment. The Rebasing Adjustment shall equal the CAS applicable as of the date used for the MEEIA normalization in any general rate case resulting in new rates becoming effective during the accrual and collection of TD$ pursuant to MEEIA Cycle 1. In the event more than one general rate case resulting in new rates becoming effective during the accrual and collection of TD$ pursuant to MEEIA Cycle 1, the Rebasing Adjustment shall include each and every prior Rebasing Adjustment calculation.

LS = Load Shape. The Load Shape is the monthly load shape percent for each program.

MC = Measure Count. Measure Count, for a given month, for a given class, for each measure is the number of each measure installed in the current calendar month.

ME = Measure Energy. Measure Energy will be determined as follows, for each Measure:

i. Prior to finalization of EM&V for Cycle 1 programs, for Measures not listed under those programs listed in (c) below, the ME is the annual total of normalized savings for each measure at customer meter per measure defined in the TRM.
ii. After finalization of EM&V for Cycle 1 programs, for Measures not listed under those programs listed in (c) below, the ME is the annual total of normalized savings for each measure at customer meter per measure defined in the updated TRM (which will be updated based on EM&V ex-post gross adjustments determined for Year 1 no later than 24 months after the commencement of Cycle 1).
iii. For Measures in MEEIA Cycle 1 programs, the ME will be the annual value attributable to the installations reported monthly by the program implementer.

MAS = The sum of MC multiplied by ME for all measures in a program in the current calendar month.

CAS = Cumulative sum of MAS for each program for MEEIA Cycle 1.

CM = Current Calendar month

PM = Prior calendar month

HER = Monthly kWh savings for the Home Energy Reports and Income-Eligible Home Energy Reports programs measured and reported monthly by the program implementer.

ATD = Additional Throughput Disincentive to be calculated based on monthly savings from measures installed for certain commercial and industrial customers.

DEMAND-SIDE INVESTMENT MECHANISM RIDER
SCHEDULE DSIM
For MEEIA Cycle 1 2021-22 Plan

EARNINGS OPPORTUNITY AWARD DETERMINATION

The MEEIA Cycle 1 EO Award shall be calculated using the matrix in tariff Sheet No. _____. The cumulative EO will not go below $0. The EO target at 100% is $ $369,289 . Before adjustments reflecting TD EM&V including NTG, the EO cannot go above $ $480,076 . The cap is based on current program levels. If Commission-approved new programs are added during the EP and any program plan extensions through 2022, the Company may seek Commission approval to have the targets for the cap of the EO scale proportionately to the increase in savings targets

The Earnings Opportunity Award shall be adjusted for the difference between the TD$ billed and what the TD$ billed would have been if:

(1) The ME used in the calculation were the normalized savings for each measure at customer meter per measure determined through EM&V ex-post gross analysis for each program year, and,

(2) The NTGFs used in the calculation was the net-to-gross values determined through EM&V, except that if the NTG value determined through EM&V is less than 0.80, the recalculation shall use 0.80 and if the NTG value determined through EM&V is greater than 1.0, the recalculation shall use 1.0.

(3) If the above adjustments are negative in an amount greater than the otherwise applicable EO, these adjustments shall be limited to the value of the otherwise applicable EO.

FILING

After the initial DSIM Rider rate adjustment filing, the Company shall make a DSIM Rider rate adjustment filing to take effect each January 1 and July 1 under the Term of this MEEIA Rider. DSIM Rider rate adjustment filings shall be made at least sixty (60) days prior to their effective dates.

PRUDENCE REVIEWS

A prudence review shall be conducted no less frequently than at twenty-four (24) month intervals in accordance with 20 CSR 4240-20.093(11). Any costs, which are determined by the Commission to have been imprudently incurred or incurred in violation of the terms of this DSIM Rider, shall be returned to customers through an adjustment in the next DSIM Rider rate adjustment filing and reflected in factor OA above.

DISCONTINUING THE DSIM

The Company reserves the right to discontinue the entire MEEIA Cycle 1 portfolio, if the Company determines that implementation of such programs is no longer reasonable due to changed factors or circumstances that have materially and negatively impacted the economic viability of such programs as determined by the Company, upon no less than thirty days' notice to the Commission. As a result of these changes, the Company may file to discontinue this DSIM. Similar to Program discontinuance, the Company would file a notice indicating that it is discontinuing the DSIM Rider. This notice would include a methodology for recovery of any unrecovered Program Costs and TD.

THE EMPIRE DISTRICT ELECTRIC COMPANY d.b.a. LIBERTY

P.S.C. Mo. No. 6 Sec. 4 Original Sheet No. 21f

Canceling P.S.C. Mo. No. _____ Sec. _____ Original Sheet No. _____

For ALL TERRITORY

DEMAND-SIDE INVESTMENT MECHANISM RIDER
SCHEDULE DSIM
For MEEIA Cycle 1 2021-22 Plan

DEMAND SIDE INVESTMENT MECHANISM CHARGE

As approved in Commission Case No. EO-XXXX-XXXX MEEIA Cycle 1 Filing.

MEEIA 2021-22 DSIM Components
(MEEIA Cycle 1 2021-22 Plan)

Service Class	NPC/PE ($/kWh)	NTD/PE ($/kWh)	NEO/PE ($/kWh)	NOA/PE ($/kWh)	Total DSIM ($/kWh)
RG – Residential Service	$0.00080	$0.00007	n/a	n/a	$0.00087
CB – Commercial Service	$0.00115	$0.00015	n/a	n/a	$0.00130
SH – Small Heating Service	$0.00115	$0.00015	n/a	n/a	$0.00130
GP – General Power Service	$0.00115	$0.00015	n/a	n/a	$0.00130
TEB – Total Electric Building Service	$0.00115	$0.00015	n/a	n/a	$0.00130
LP – Large Power Service	$0.00115	$0.00015	n/a	n/a	$0.00130