



FILED

DEC 01 2022

**MISS. PUBLIC SERVICE
COMMISSION**

2992 West Beach Boulevard
Gulfport, MS 39502
228.865.5594 tel
228.697.5594 cell
bsvance@southernco.com

December 1, 2022

VIA E-MAIL

Katherine Collier
Executive Secretary
Mississippi Public Service Commission
501 North West Street, Suite 201A
Jackson, MS 39201

**Re: Energy Delivery Plan for the Mississippi Public Service Commission's Annual
Evaluation of Mississippi Power Company Pursuant to IRP Rule
Regulatory Year 2023
Docket No. 2019-UA-231**

Dear Katherine:

On behalf of Mississippi Power Company for MPSC Docket 2019-UA-231, I enclose the Company's 2023 Energy Delivery Plan. Pursuant to the Commission's Order of March 12, 2020, this filing is only being made electronically. Physical copies shall be made only upon further order of the Commission.

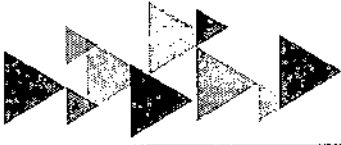
Thank you for your assistance.

Very truly yours,

MISSISSIPPI POWER COMPANY

BEN VANCE

BSV:alm
Enclosures



**Mississippi Power Company
2023 Annual Energy Delivery Plan**

**As set forth in the Mississippi Public Service Commission
Integrated Resource Planning and Reporting (IRP) Rules**

Table of Contents

I.	Introduction	3
II.	Demand Side Management.....	3
	A. 2021 DSM Program Results	5
	B. 2022 DSM Program Results	6
	C. 2023 Programs	8
	D. DSM Program Evaluation.....	10
	E. Cost Recovery	11
	F. Strategic Load Growth.....	11
	G. Strategic Load Growth Program Changes	12
III.	Distributed Energy Resources (DER).....	12
	A. DER Projects.....	12
	B. DER Programs	13
IV.	Transmission & Distribution Plan	16
	A. Summary.....	16
	B. T&D System Overview	19
	C. T&D System Relevant Planning Horizon.....	20
	D. T&D System Capital Budget Process, Project Estimating, & Funding Prioritization	20
	E. T&D System Grid Investment Program	24
	F. T&D System Reliability	38
	G. Transmission Planning.....	45
	H. Distribution Planning.....	47
	I. Adequacy of MPC's T&D Systems	49
	J. Vegetation Management Program	50
V.	Customers.....	57
	A. DSM & DER.....	58
	B. STEM & Workforce Line Worker Program Initiative.....	59
	C. ACT Work Ready Community	59
VI.	Enabling Technologies	60
	A. Enhanced Grid Investments	60
	B. Fiber Deployment	61

I. Introduction

In compliance with Rule 29: Integrated Resource Planning and Reporting, promulgated in Docket 2018-AD-64, Mississippi Power Company (“MPC” or “the Company”) submits its 2023 Energy Delivery Plan (“EDP” or “the Plan”). The Plan will provide details on how the Company proposes to address the following areas that are essential to maintaining an efficient energy delivery system in the future: Demand Side Management (“DSM”), Distributed Energy Resources (“DER”), Transmission and Distribution Systems, Customer Offerings for Low Income Residents, and Enabling Technology.

II. Demand Side Management

During 2022 MPC continued the transformation of the DSM portfolio to meet guidance from Rule 29. Some of the changes described further in this document are the inclusion of the Large General Service customers into the program portfolio, expansion of the low income ($\leq 200\%$ Federal Poverty Level) residential program to offer low/moderate income ($\leq 250\%$ Federal Poverty Level) eligibility, addition of multi-family and additional measures in the SELECT (income qualified) program, expansion of participation in the proactive Behavioral Analysis (“HER/eHER”) program, addition of outdoor lighting measures in the Commercial Programs and the expansion of the Demand Response pilot. In addition, MPC conducted a pilot to address those communities for which English is a second language (“ESL”) and determined the Vietnamese and Hispanic communities were underserved. New communication methods were implemented and will continue in 2023. MPC continues to enhance existing programs where appropriate and where market demands or technology advances warrant.

In 2021, MPC contracted with Brightline Group to conduct a Market Potential Study considering Energy Efficiency, Demand Response, and Strategic Load Growth, to support the ongoing Integrated Resource Planning and DSM Program planning activities. The Market Potential Study considered a wide range of energy efficiency measures that Mississippi Power could

implement and applies cost-effective measures to Mississippi Power's current and forecasted customer base. The study assessed opportunities across a 20-year time horizon (2022-2041). The study includes primary market research and a comprehensive review of current programs and projected energy savings opportunities to develop estimates of technical, economic, and achievable potential. Outcomes from this study, including measure-level cost effectiveness and measure savings potential, provide guidance in the development of Mississippi Power's 5-year program that began in 2022.

MPC has estimated the following trajectory for DSM investment and energy savings that is informed by the Company's Market Potential Study performed by the Brightline Consulting Group and the nearly 7 years of DSM program implementation experience.

Program Year	kWh	Budget*	% savings of retail sales**
2021	21,980,943	\$ 4,192,348	0.24%
2022	26,180,312	\$ 4,492,348	0.29%
2023	28,126,352	\$ 4,592,348	0.31%
2024	32,450,576	\$ 4,792,348	0.36%
2025	34,967,754	\$ 4,992,348	0.38%
2026	38,167,619	\$ 5,192,348	0.42%
2027	40,848,268	\$ 5,392,348	0.45%
2028	43,563,760	\$ 5,592,348	0.50%

*All budget amounts beyond 2023 are subject to revisions annually as program scope, design, and cost estimates are refined each year. **Based on reported retail sales for 2020

In accordance with Rule 29, MPC submits Appendix A, which includes 1) a summary of 2021 DSM program results, including program descriptions, participation levels, expenses, energy savings and demand savings, 2) a summary of 2022 DSM program results from January- September 2022, including program descriptions, participation levels, expenses, energy savings and demand savings, 3) proposed changes to 2022 DSM programs to be implemented in 2023 with projected participation levels, expenses, energy savings, demand savings and cost effectiveness test results; and 4) proposed strategic load growth programs including descriptions and cost effectiveness test results. Although detailed fully in Appendix A, MPC briefly describes below its DSM efforts for 2021 and 2022, as

well as its anticipated plans for 2023.

A. 2021 DSM Program Results

MPC offered nine DSM programs in 2021. A detailed analysis of the 2021 programs is provided in Appendix A. Each program is briefly described below followed by Table 1 showing program performance.

- ***SELECT (Residential Low Income):*** This program provides education and promotion of energy efficiency as well as installation of energy-saving measures to income-qualified customers. MPC/contractors audit approximately 75 homes per month and provide efficient LED lighting and insulation upgrades.
- ***Behavioral Analysis (HERs):*** This program bridges the customer engagement gap, providing MPC customers with the data regarding their personal and comparative energy usage as well as tools to understand how they can become better managers of their energy usage.
- ***Residential Energy Efficiency Program (REEP):*** This program increases energy awareness by offering home energy assessments to MPC's residential customers which help homeowners analyze their energy use, identify energy efficiency projects, and install low-cost, energy-saving measures in their residences through trade allies. It also offers HVAC unit replacement incentives.
- ***School Kits and Education:*** MPC presents energy efficiency tools to 4th and 5th grade students to educate on the benefits of energy conservation. Students receive an energy efficiency kit to install at home and schools are incentivized to participate.
- ***Welcome Kits:*** This program sends kits to new residential customers. The kits include light-emitting diode ("LED") bulbs, energy efficiency tips and a LED nightlight.
- ***New Home Program:*** This program provides tiered incentives that promote the installation of energy-efficient measures in new home construction that exceed baseline construction standards and improve the energy performance of participating homes. The Residential New Homes program was launched in Q4 2021 and focuses on a whole-building approach for improving the energy efficiency of new single-family homes.
- ***STAR Demand Response Pilot Program:*** This program began in 2021 and utilizes smart thermostats to test load management potential for income-qualified residential customers. The program allows MPC to heat and cool homes prior to the peak window then adjust the thermostats to lower usage during higher cost time periods. The purpose of the pilot is to assess energy efficiency, bill savings, and load management potential of connected smart thermostats as well as customer behavior during demand response events.

- **Commercial 100:** This program educates and provides direct-installed efficiency measures and incentives to business customers that have a ≤ 100 kW peak demand threshold.
- **Commercial 500:** This program provides facility walk through energy assessment audits and incentives toward a suite of energy efficiency measures, for customers with a peak demand ≤ 500 kW. The program is designed to help customers who manage commercial facilities, operate their buildings more efficiently by deepening their understanding of the technical and financial benefits of energy efficiency investments.

Table 1
2021 DSM Programs

Program Name	Number of Participants	Annual MWh Savings	kW Savings	Program Expenses
SELECT	1,571	2,626	941	\$1,132,180
Behavioral Program	53,472	9,076	681	\$300,476
Residential Energy Efficiency Program	637	1,861	673	\$576,511
School Kits and Education	4,334	654	191	\$214,457
Welcome Kits	6,419	1,345	315	\$201,762
New Home Pilot		-	-	\$-
DR Pilot	55	63	21	\$49,693
Commercial 100	160	3,195	881	\$516,988
Commercial 500	67	3,122	978	\$379,873
Totals	66,715	21,944	4,681	\$3,371,940

In addition to the \$3,371,940 spent on these nine programs, MPC incurred expenses of \$4,844 in Marketing and Advertising, \$474,954 in Energy Measures & Verification (“EM&V”) & Planning and \$339,439 for Cross-Cutting for 2021 programs.

B. 2022 DSM Program Results

In 2022, MPC continued the eight energy efficiency programs and one pilot demand response program designed to reach Residential and Non-Residential customer classes. Two new pilot programs were launched to reach the Low to Middle Income (“LMI”) customers in multi-

family housing and to reach LMI customers in communities where English is a second language (“ESL”). Also, the Commercial programs were expanded to include all Commercial and Industrial customers. Below are descriptions of any program changes MPC implemented during 2022 followed Table 2 showing YTD performance.

- ***SELECT (Residential Low Income):*** This program provides information and premise upgrades that promote energy efficiency to residential income-qualified customers. In 2022, the program expanded the criteria from 200% FPL to 250% to reach the LMI sector as well.

In a pilot for 2022, multi-family properties are eligible for air and duct sealing in addition to ceiling insulation.

An additional pilot program under SELECT for 2022 implemented a targeted effort to reach multi-cultural ESL communities within our program’s selected areas through local organizations and bilingual mailouts.

- ***Behavioral Analysis (HERs):*** In 2022, there will be 25,000 additional households targeted to achieve a total of 80,000 households (representing 51% of MPC’s total residential customers). Customers can receive paper or email energy reports and have access to a web portal for additional usage information.
- ***Residential Energy Efficiency Program (REEP):*** There were no changes to this program in 2022.
- ***School Kits and Education:*** MPC expanded this program in 2022 by increasing the total eligible schools by fifty-two.
- ***Welcome Kits:*** In 2022, MPC expects to have 7,000 participants in the program.
- ***New Home Program:*** The pilot became an official program in 2022 with no changes.
- ***STAR Demand Response Pilot Program:*** In 2022, MPC expanded enrollment by 19 participating customers.
- ***Small Business (formerly Commercial 100):*** There were no changes planned for this program in 2022.
- ***Large Commercial and Industrial Business (formerly Commercial 500):*** In 2022, this program became available to MPC’s Large General Service (“LGS”) customers. This change is based on the results of a survey to understand interest in program participation. Incentive changes include expanding lighting solutions to ensure a comprehensive list of existing and emerging technologies.

Table 2
2022 DSM Programs
January - September

Program Name	Number of Participants	Annual MWh Savings	kW Savings	Program Expenses
SELECT	1,220	2,889	1,022	\$1,230,689
Multi-family LI Pilot Program (included in SELECT)	85	680	191	
SELECT ESL Pilot (included in SELECT)	77	149	62	
Behavioral Analysis Program	80,659	9,620	2,632	\$330,572
Residential Energy Efficiency Program (REEP)	343	672	257	\$64,743
EE New Home Program	7	27	9	\$5,720
Welcome Kits	5,423	1,137	266	\$169,404
STAR DR Pilot	19	22	7	\$83,444
Home Revitalization Pilot	7	25	12	\$8,911
School Kits & Energy Education	3,665	553	161	\$86,393
Small Business	83	2,528	727	\$408,941
Large Commercial & Industrial	40	4,230	1,238	\$220,600
ODL	7	68	9	
Marketing & Advertising				\$1,738
EM&V & Planning				\$221,847
Cross-Cutting*				\$500,295
Totals	91,473	21,772	6,340	\$3,333,296

*Cross-Cutting – overhead costs that are not specific to any program but are allocated across all programs (i.e., labor)

C. 2023 DSM Programs

In 2023, MPC proposes additional enhancements to the eight existing programs and the demand response expanded pilot. A complete description and projected performance for 2023 is included in Appendix A. Below is a summary of the changes planned to MPC's portfolio in 2023 followed Table 3 showing projected performance.

- ***SELECT (Residential LMI):*** MPC plans to continue this program in 2023. In addition to the insulation and LED bulbs, the program includes HVAC tune-ups, air sealing, and duct sealing for low-income, multi-family (more than four) units. MPC will continue the contractor-led approach, internal identifiers, and community organizations to target low-income areas and maximize participation.

MPC also targets ESL customers and will continue to do so in 2023. This is done in partnership with ESL agencies and translated mailings and collateral.

- ***Manufactured Home Weatherization Pilot:*** MPC will begin a limited Manufactured Home Weatherization Pilot Program in 2023. The manufactured home must need weatherization and be customer owned. Measures offered, but not limited to, insulation, air and duct sealing, HVAC tune-ups and LED bulbs.

- **Behavioral Analysis (“HERs”):** There are no changes planned for this program in 2023.
- **Residential Energy Efficiency Program (“REEP”):** MPC plans to continue this program in 2023 with enhancements that will facilitate increased contractor participation and high SEER heat pumps.

Due to the upcoming increase in minimum SEER standard to 15 SEER, we are increasing eligibility for our rebates to >16 SEER for HVAC units to promote more energy efficient equipment.

Because of the increased cost of materials due to inflation, the air sealing rebate will increase for 2023.

- **New Home Program:** Due to the upcoming increase in federal minimum SEER rating to 15 SEER for the Southern and Southeastern states, we are increasing qualification for our rebates.
- **Home Revitalization Program:** There are no changes planned for this program in 2023.
- **STAR Demand Response Expanded Pilot Program:** MPC is currently evaluating the STAR program in conjunction with the Commission’s recently approved Mississippi Distributed Generation Rules. The Rule requires electric utilities to provide an incentive to residential customers for battery storage devices that meet certain criteria. The Rule also requires that participating battery storage customers enroll in a demand response program as described in Rule 29.107.1. The STAR program currently is designed to control only smart thermostats. MPC requires additional time to develop a program to support battery storage devices. MPC anticipates launching a program by April 1, 2023 to include both the thermostats and batteries.
- **School Kits and Education:** There are no changes planned for this program in 2023.
- **Small Business:** There are no changes planned for this program in 2023.
- **Small Business Kit Pilot:** For many small businesses, controlling day-to-day expenses is key to improving their bottom line. To help new small businesses, within our territory, reduce their energy use, Mississippi Power will offer a free energy efficiency kit.
- **Large Commercial and Industrial Business:** There are no changes planned for this program in 2023.

**Table 3
2023 DSM Programs**

Programs	Number of Participants	Annual MWh Savings	kW Savings	Total Program Budget
SELECT (Res Low Income)	1,070	2,943	1,016	\$1,157,743
Behavioral (HERs)	80,000	11,950	2,821	\$395,856
Residential Energy Efficiency Program	689	1,533	557	\$395,764
Welcome Kits	7,200	1,022	343	\$177,612
New Homes	25	131	47	\$35,000
Demand Response Pilot	TBD	TBD	TBD	TBD
School Kits and Education	4,970	363	122	\$231,113
Small Business	184	3,899	685	\$580,657
Large Commercial & Industrial	60	6,299	1,333	\$629,075
Outdoor Lighting				\$150,000
Marketing & Advertising				\$20,000
EM&V & Planning				\$183,985
Cross-Cutting*				\$796,782
Portfolio Total	94,198	28,139	6,924	\$4,753,587

**Cross-Cutting – overhead costs that are not specific to any program but are allocated across all programs (i.e., labor).*

D. DSM Program Evaluation

MPC completed a benefit-cost analysis to compare the value of the energy and demand savings resulting from the proposed 2023 DSM programs to the costs incurred by the programs. MPC utilized multiple cost-effectiveness tests including: The Total Resource Cost (“TRC”) Test, the Utility Cost Test (“UCT”), the Ratepayer Impact Measure (“RIM”) test, and the Participant Cost Test (“PCT”). Each test represents a unique perspective, so MPC considers test results for programs individually and holistically to assemble a comprehensive understanding. The TRC Test considers program offerings as a resource in comparison with other supply-side resources. The UCT assesses whether utility bills will increase, while RIM assesses whether utility rates will increase. Finally, PCT determines whether program participants benefit over the lifetime of the program-incentivized equipment or measure. Appendix A provides cost effectiveness tests

for each of the 2023 programs, as well as the entire portfolio.

E. Cost Recovery

Consistent with Section 107(1)(c) of Rule 29, the Company has deferred the costs related to DSM programs to a regulatory asset and includes the account(s) in jurisdictional rate base in the PEP plan. The deferred account(s) earn the Company's PEP weighted average cost of capital on the simple average balance, consistent with other regulatory assets and liabilities. Furthermore, the Company began amortizing the costs over six (6) years beginning in 2022.

MPC continues to support the Commission's directive in Rule 29 that allows for budget flexibility to address oversubscriptions and undersubscriptions. This flexibility also provides the ability to take advantage of emerging technologies and other opportunities to enhance customer value. Any such changes will be noted in the annual PEP filing in March.

F. Strategic Load Growth

Strategic load growth programs were launched in August 2021 primarily targeted toward electric transportation which results in cost savings, production efficiencies, and emission reductions for our customers. These programs also benefit all utility customers through the increased utilization of resources that spreads more energy usage over utility fixed costs thereby placing downward pressure on rates.

- ***Residential Electric Transportation Program:*** Encourages residential customers to purchase a Battery Electric or Plug-in Hybrid Electric Passenger Vehicle through education, customer support, and incentives. Educates customers on the strategic benefits of upgrading to electric technology from internal combustion engines, including reduced fuel and maintenance costs and decreased emissions.
- ***Commercial Electric Transportation Program:*** Encourages commercial customers to upgrade fossil fuel-powered transportation equipment to electric-powered alternatives through education, customer support, and incentives. Incentives are offered for both on-road and off-road vehicles like forklifts and lift trucks.
- ***Commercial Strategic Electrification Program:*** Offers a custom incentive path to support the installation of strategic electrification equipment such as Waste Heat Recovery, Electric Infrared Heating, Electric/Electrode Boilers and Variable Refrigerant Flow ("VRF") with heat recovery. The objective is to improve production

efficiencies, enhance the customer's competitive position, or assist with emission reduction goals. Eligibility for incentives through this program is based on customized analysis to determine the benefits and impacts of each project individually, to ensure cost effectiveness requirements are met for both the customer and Mississippi Power.

G. 2023 Strategic Load Growth Program Changes

As the electric transportation market continues to evolve, MPC will adjust programs to ensure that customers are educated on the benefits and that incentives are appropriately designed to encourage participation. Below are proposed changes to strategic load growth programs for 2023:

- ***Residential Electric Transportation Program:*** Two changes are proposed for the residential program: 1) Change criteria to allow a 240V outlet with dedicated circuit to qualify for the \$250 charge rebate and 2) Provide double rebate amount of \$500 for Low to middle income customers (250% of poverty level).
- ***Commercial Electric Transportation Program:*** No proposed changes.
- ***Commercial Strategic Electrification Program:*** No proposed changes.

III. Distributed Energy Resources

A. DER Projects

Walnut Grove Demonstration Project:

In April of 2021 the Mississippi Public Service Commission approved Docket 2019-UA-231 allowing Mississippi Power to construct, acquire, own, operate, maintain, repair and renew a 1.285 megawatt alternating current solar photovoltaic energy generating facility with a maximum capacity of 1.5 MW and a 5.14 MWh capacity battery storage system for the purposes of demonstrating the battery storage technology, and conducting research on bifacial solar and solar plus storage technology optimization as well as potential enhancement of the reliability in the Walnut Grove community in Leake County, Mississippi.

Construction started on Walnut Grove in November of 2021. The project is currently in the testing and commissioning phase. Current schedule has the project reaching commercial

operation in 4th quarter of 2022. Following commercial operation, MPC will enter into a research and testing phase at the facility. MPC has partnered with EPRI to conduct research in multiple areas including Bifacial analysis and DC coupled PV plus storage analysis which could include but is not limited to:

Bifacial PV analysis:

- Comparison of predicted, expected, and actual performance
- Actual energy yield comparisons
 - 1P versus 2L tracker performance
 - Bifacial versus monofacial modules
 - MLPE impacts
 - Effect of albedo enhancing material

DC-coupled PV plus Energy Storage system analysis:

- Clipped energy recovered through DC-DC converter
- Energy Storage grid applications, including solar energy time shifting, smoothing, ramp limiting, load peak shaving, and firming

B. DER Programs

Distributed Energy Resources (“DERs”) present themselves as a potentially viable option for meeting both Company as well as specific customer needs. MPC continues to expand its knowledge of integrating diverse technology-based generation resources as it deploys more complex systems across its service territory. Our 25 years of experience in customer sited integrated distributed generation solutions through our Standby Generation Program provides the Company with a solid platform for expanding this concept further to meet today’s needs and the expectations of our customers.

The Company has recently considered development of a Company owned, customer inclusive supply-side DER pilot. This pilot will consider conventional fuel-based standby generation solutions with possible additional DER technology such as Battery Energy Storage System (“BESS”). The aim of this pilot is to achieve dual benefit between the Company and the customer through capacity value as well as resiliency enhancement.

MPC continues to broaden its expertise in multiple DER technologies including EPA compliant generators, BESS, solar PV, and other such conventional and cutting-edge

technologies.

While customer tailored DER solutions continue to be deployed, the following more expansive programs are currently available.

1. Standby Generation

For over 25 years, MPC has offered a standby generation program to expand the use of customer-sited generation. The Standby Generation Program is facilitated through specific contracts with each customer.

Under this program, customer-sited EPA compliant electric generation is integrated into MPC's resource capacity requirements. The design of the customer Standby Generation Program allows units of 500kW and greater to seamlessly tie into the MPC electric system without interruption of customer service, and then export their electrical capacity into the MPC distribution grid up to 90% of the generation units' nameplate capacity.

MPC's program has successfully accomplished several key objectives for over 25 years.

The benefits are:

1. Fully integrated back-up generation for critical customer needs.
2. Customers increase reliability of the units by being able to exercise the units for maintenance runs seamlessly without disrupting their service (no blink tie in). This results in healthier generators for when they are needed following a power outage (less "wet stacking", less carbon buildup, higher reliability).
3. MPC can remotely dispatch the customer generating units.
4. MPC realizes a firm capacity outage of the units unlike many utility interruptible programs which only deliver the amount of load capacity that the customer drops when called to do so.
5. MPC capacity and energy credits are paid to the customer reflecting the value of the generation to MPC in order to offset customer costs of operations and contribute to the investment.
6. MPC's program solidifies MPC's participation in ensuring higher reliability of the standby generation needed for critical customer missions yielding increased customer satisfaction.

MPC's Standby Generation Program was the first of its kind within the local electric utility industry. The ability to parallel these generation units to MPC's electric distribution grid and export power is uncommon for utilities in that safety practices and coordination issues need to be addressed. MPC overcame these issues with sound engineering and safety

practices.

Customers participating in the Standby Generation Program over the years have included the following:

- Hospitals and healthcare facilities
- Airports
- Industrial Customers
- Large hotels, convention centers, and other public facilities
- Wastewater treatment plants
- Federal facilities
- Refrigeration storage such as with large food processing facilities

MPC has expanded the use of customer-sited generation under the Standby Generation Program to accompany a broader dispatchable DER program. The Standby Generation Program is facilitated through specific contracts with each customer. Other forms of DER can also be cost effective resources for MPC's use.

In 2021, MPC provided credits in the amount of \$573,973 to seven customers participating in the Standby Generation Program with a total contract capacity of 29.15 MW.

2. Renewable Energy Net Metering

MPC has been supporting residential and commercial customers with the installation of renewable energy options for years. As of October 28, 2022, MPC has 7.5 MW of behind the meter customer-sited renewable resources installed. Since the MPSC approved the renewable energy net metering rule in December 2015 in Docket 2011-AD-02, MPC has had 236 total customers enroll in the rate: 211 residential customers with a total of 2.22 MW and 25 commercial customers with a total of 1.67 MW for a combined total of 3.89 MW. MPC files an annual Net Metering and Interconnection Report with the Commission per the reporting requirements in the Mississippi Renewable Energy Net Metering Rule and Mississippi Distributed Generator Interconnection Rule under MPSC Docket 2016-UN-33. MPC's Net Metering and Interconnection report and avoided cost calculation utilized for the Renewable Energy Net Metering tariffs are included in Appendix B.

3. Solar Subscription Program

Mississippi Power Company was working on development of a solar subscription program (the Program). The Program was planned to be a voluntary solar subscription program to provide customers the ability to subscribe to solar generation, who either do not have the ability or the desire to place solar facilities on their property. In exchange for a monthly subscription fee, participating customers would receive bill credits associated with the solar generation produced by the facilities associated with the Program.

To better quantify customer interest in the Program and determine appropriate size for the Program, MPC conducted detailed customer surveys. Additionally, to verify pricing for solar purchase power agreements which was needed to finalize program subscription rates, MPC issued a request for proposal ("RFP") in February of 2022 seeking up to 200MW of solar power purchase agreements. In August of 2022, MPC completed the final analysis on the bids. Due to increased bid pricing, MPC did not move forward with PPA negotiations with the top tier projects as the economics no longer provided a cost-effective option for both participants and non-participants. Additionally, the Inflation Reduction Act ("IRA") was passed in August of 2022. Detailed review and analysis of the IRA is currently being conducted, but it is anticipated that IRA incentives will have an impact on solar pricing. Once the internal analysis of the impacts of the IRA are completed, MPC will determine whether another RFP will be issued, and the solar subscription program revisited.

IV. Transmission & Distribution Plan

A. Summary

Rule 29 requires all regulated gas and electric utilities to report to the Commission on their efforts to improve energy delivery through modernization of existing infrastructure, improvements to lower energy delivery costs, and/or through expansion of energy delivery to additional customers. This section addresses the following transmission and distribution system

reporting as required by the Rule:

- List of new transmission lines and other associated facilities which are under construction or for which there are specific plans to be constructed during the relevant planning horizon, including capacity and voltage levels, location, cost estimates and schedules for completion and operation, to the extent such have been developed. This includes reporting relevant collaborative transmission planning projects occurring within the context of any regional planning organization such as the Midcontinent Independent System Operator or the Southeastern Regional Transmission Planning group.
- To the extent practical, include similar information as noted in the bullet above concerning MPC's distribution plans.
- Discussion of the adequacy of MPC's transmission and distribution systems, including the reliability, resiliency, and storm hardening condition of the transmission and distribution systems.
- Overview of MPC's vegetation management plan to meet the requirement of the Staff's review of the Company's vegetation management plan every four years.

Overall, MPC has completed or is in the process of executing the Power Delivery programs and projects outlined in the Company's 2022 Energy Delivery Plan, except as noted herein.

For 2023, the overall Power Delivery capital budget is \$191 million, which is a \$3 million increase compared to the \$188 million budgeted in 2022. Excluding the major projects that involve reimbursement for the construction costs, such as the Morrow Affected System Upgrades and Cane Creek and Moonshot Solar Interconnections, MPC's overall Power Delivery capital budget is \$14 million less in 2023 compared to 2022. MPC plans this level of overall T&D spend to continue through the planning horizon.

	2022 ⁽¹⁾ Budget (\$ million)	2023 ⁽¹⁾ Budget (\$ million)
Power Delivery Total Budget	\$188	\$191
Morrow Affected System Upgrades	(\$22)	(\$32)
Cane Creek and Moonshot Solar Interconnections	\$0	(\$7)
TOTAL (Less Major CIAC Projects)	\$166	\$152

Table 4 (MPC's Power Delivery Overall Budget – 2022 & 2023)

The Company's transmission 2022 and 2023 budget amounts, excluding the General Plant projects managed by T&D, are provided in Table 5 below for comparison. The Morrow Affected

System Upgrade project budget totals for 2022 and 2023 are listed separately as a credit since Cooperative Energy will reimburse MPC the construction costs associated with these projects per the affected system agreement and as noted in Docket No. 2021-UA-64 approved by the Commission on July 23, 2021. The Cane Creek and Moonshot Solar Interconnection project totals are also listed in a separate row in Table 5 as a credit since the generator owner will reimburse MPC the constructions costs associated with these projects as noted in MPSC Docket No. 2022-UA-119.

	2022 Budget (\$ million)	2023 Budget (\$ million)
Transmission Projects	\$67	\$88
Morrow Affected System Upgrades	(\$22)	(\$32)
Cane Creek and Moonshot Solar Interconnections	\$0	(\$7)
TOTAL	\$45	\$49

Table 5 (MPC's Transmission Capital Budget – 2022 & 2023)

The Company's distribution 2022 and 2023 budget amounts are provided in Table 6.

	2021 Budget (\$ million)	2022 Budget (\$ million)
Distribution Projects	\$101	\$103

Table 6 (MPC's Distribution Capital Budget – 2021 & 2022)

Over the relevant planning horizon, MPC plans to construct and upgrade transmission facilities as part of transmission planning requirements and continue our transmission recurring maintenance programs, asset renewal programs, and grid investment efforts to maintain the transmission system's reliability and resiliency, in addition to identifying strategic projects that support and promote economic development.

The prudent expansion of fiber circuits on both our T&D systems in both underserved and unserved areas of our service territory will continue to be a focus as we move forward. The

Company will continue to programmatically perform storm hardening projects for both our T&D systems along our coastal service area as part of our continued resiliency efforts. Finally, MPC will continue investment in modernizing its distribution system and improving reliability to our customers through our Self-Healing Network (“SHN”) Program and various other reliability programs as listed in this plan. These efforts and others noted in this plan will continue to improve energy delivery to MPC’s customers in the years ahead.

B. T&D System Overview

MPC’s T&D system provides reliable service to more than 191,000 customers in 23 counties in southeast Mississippi. MPC’s service territory consists of a fragmented area of approximately 1,149 square miles within 23 counties. MPC’s customer base, by number of customers, is comprised of 82% residential and 18% commercial and industrial. MPC also serves over 70 wholesale delivery points from the Company’s transmission system.

The T&D facilities used to serve MPC’s retail and wholesale customers include 2,214 miles of transmission lines (46kV, 115kV, 230kV and 500kV), 5,561 miles of distribution overhead primary lines (4kV, 12kV, 13.8kV, 14.4kV, & 23kV), 639 miles of underground primary circuit miles, 147 substations, and 283 distribution circuits. Table 7 list the circuit miles by voltage class.

VOLTAGE CLASS	CIRCUIT MILES
----------------------	--------------------------

4kV	72
12kV	3,361
13.8kV	8
14.4kV	1
23kV	1,419
TOTAL DISTRIBUTION	4,861
46kV	254
115kV	1,192
230kV	690
500kV	78
TOTAL TRANSMISSION	2,141

Table 7 (MPC Circuit Miles by Voltage Class)

C. T&D Relevant Planning Horizon

The relevant planning horizon for MPC's transmission and distribution system is five years (2023-2027) which aligns with the Company's five-year budget plan.

D. T&D Capital Budget Process, Project Estimating, & Funding Prioritization

Each year, MPC's Power Delivery group develops a five-year T&D capital budget based on historical experience, projected maintenance, new business, planning requirements, infrastructure renewal, reliability, operational flexibility, technology demands, economic development, state and federal regulatory requirements, and safety priorities. Each Power Delivery functional area develops their capital budgets to balance cost with reliability, flexibility, and personnel safety.

MPC's T&D capital budgets consist of 1) routine expenses, 2) discrete, individual projects, 3) perpetual recurring programs, and 4) limited duration programs. An example of routine

expenses is employees' salaries and expenses. Examples of discrete, individual projects is transmission and distribution planning projects. Examples of perpetual recurring programs are asset management and maintenance programs. Examples of limited duration programs is reliability strategy programs designed to meet a pre-determined goal or objective.

The cost estimating process for T&D projects included in the Company's budget begins with the identification and justification of the need for the project or program. For transmission, once a project is identified to be included in the budget, the project manager (MPC Substation Engineer or Transmission Lines Engineer) drafts a document to define the scope of the project, i.e., work to be performed. Once the scope document has been created, the project manager will work with Southern Company Services' ("SCS") Technical & Project Services ("T&PS") group to estimate the cost of the project.

The project estimate is created using Southern Company's Transmission Estimating and Management System ("TEAMS") software application. The TEAMS application is a work order estimating and management software application that contains average unit cost of Southern Company standard materials and average unit labor costs for the design, installation, and removal of company assets. TEAMS interfaces with Southern Company's material management system to provide the estimated material cost. Design, material, and labor costs are updated on a periodic basis in the TEAMS application to maintain current estimating factors. The project manager may include entries in the TEAMS work order to adjust costs to account for any known factors that may be outside the normal construction process such as environmental conditions, permit fees, mobilization costs, etc. For example, the project manager may need to add costs to install matting for a temporary roadbed to facilitate vehicular access and construction activities in areas that contain saturated soils or wetlands.

TEAMS work orders are submitted by the project manager, per the prioritized construction schedule, to transmission management for review and approval. A unique work order number is assigned to the project to aid in tracking expenses for the project. The first phase of each approved

project is the completion of the detailed design package by the SCS T&PS design group which includes specifying and ordering material. Once the design package is completed and transmitted, construction will proceed per the construction schedule. The project manager will oversee the completion of the project and provide updates on any significant budget variances compared to actual cost.

For distribution, the cost estimating process will involve one of the following three estimating methods depending on the project or program.

- Individual distribution projects may be estimated using Southern Company's Job Estimating and Tracking System ("JETS") software application. The JETS application is a work order estimating and management software application that contains average unit cost of Southern Company standard materials and average unit labor costs for the installation and removal of company assets. JETS interfaces with Southern Company's material management system to provide the estimated material cost. Labor costs are updated on a periodic basis in the JETS application to maintain current estimating factors. The project manager may include entries in the JETS work order to adjust costs to account for any known factors that may be outside the normal construction process such as environmental conditions or permit fees. JETS work orders are submitted by the project manager to distribution management for review and approval. A unique work order number is assigned to the project to aid in tracking expenses for the project.
- Individual projects may also be estimated using recent known average costs of similar completed projects, e.g., recently completed cost to install a recloser or \$/mile for a reconductor project.
- For recurring T&D programs, such as maintenance and asset management programs, budget estimates are typically based on recent historical trends along with any additional estimated costs, such as targeting certain equipment that may be causing reliability issues.

MPC's T&D capital and project selection funding is prioritized in the following order 1) mandatory federal, state, or local code requirements, including North American Electric Reliability Corporation ("NERC") reliability requirements and National Electrical Safety Code ("NESC") requirements, 2) new business/economic development, 3) DOT roadway projects, 4) asset management and maintenance programs, 5) reliability programs, and 6) operational flexibility projects.

The individual recurring program budget levels and overall T&D budget totals may change from year-to-year for various reasons such as balancing the needs to fund capital projects in

other areas of the Company, as well as the Company's ability to fund the required capital while meeting the Company's financial plan. Submitted budgets are compared to prior years' actual costs and to earlier estimates of the budget period. Significant changes are analyzed and reconciled.

During the year, T&D budgets are reviewed and managed monthly by the Power Delivery Management Team with attention on actual spending in comparison to projected spending. Each functional area manager is responsible to explain variances and the team works to prioritize funding across all of Power Delivery that may become available due to the cancellation of projects, reduction in project or program scope, or moving of projects into future years. The Company's cross functional budget management team addresses any budget concerns at the overall Company level.

The Company's T&D capital budget must be flexible enough to accommodate the unforeseen, ever-changing priorities that occur within the calendar year and in forecast years. For example, unpredictable extreme weather events throughout the year can impact the availability of Company and contract resources to complete planned work due to the resources having to shift their focus to restoring service to customers. This applies to restoration work within MPC's service territory and when MPC resources are called upon to assist other utilities as part of our mutual assistance agreements. Also, new business and DOT projects that were not part of the Company's original capital plan can unexpectedly arise during the calendar year. For these reasons and other external factors, the management of the Company's T&D capital budget is an ongoing, constant process to ensure critical projects are completed and priorities are balanced while dealing with unplanned events and staying within budget.

E. T&D Grid Investment Programs

For the relevant planning horizon, MPC has categorized its capital T&D programs and projects into the following four grid investment categories, which support MPC's strategy going into the planning horizon to improve energy delivery, reliability, and resiliency, along with modernizing existing infrastructure, and expanding energy delivery to additional customers:

1. Reliability and Resiliency
2. Grid Optimization and Innovation
3. Tactical and Innovative Planning
4. General Business

Table 8 provides the grid investment category budget comparison for 2022 and 2023. As this comparison illustrates, funding for the different categories can change from one category to another from year-to-year based on business needs, programs, or project status (new, on-going, or completed), and project prioritization. The Tactical & Innovative Planning grid investment category includes the Morrow Affected System Transmission Upgrade totals for 2022 and 2023. The Morrow Affected System Upgrade totals are listed in a separate row in Table 8 as a credit since Cooperative Energy will reimburse MPC the construction costs associated with these projects as noted in Docket No. 2021-UA-64 approved by the Commission on July 23, 2021. The Tactical and Innovative Planning category also includes the Cane Creek and Moonshot Solar Interconnection project totals listed in a separate row in Table 8 as a credit since the generator owner for these transmission interconnections will reimburse MPC the construction costs associated with the projects as noted in MPSC Docket No. 2022-UA-119.

Category	2022 ⁽¹⁾ Budget (\$ million)	2023 ⁽¹⁾ Budget (\$ million)
----------	---	---

Reliability and Resiliency	\$93	\$98
Grid Optimization and Innovation	\$6	\$12
Tactical & Innovative Planning	\$48	\$44
General Business	\$41	\$37
Morrow Affected System Upgrades	(\$22)	(\$32)
Cane Creek and Moonshot Solar Generator Interconnections	\$0	(\$7)
TOTAL	\$166	\$152

¹ Budget amounts include corporate allocations. Grid investment category totals include General Plant projects managed by T&D.

Table 8 (MPC's Grid Investment Capital Budget – 2022 & 2023)

A categorized list of the Company's major power delivery projects that are under construction or for which there are specific plans to be constructed during the relevant planning horizon is provided in Appendix C.

A description of each grid investment category is provided, below. MPC's T&D programs (both recurring and specific projects) associated with each category are listed and described under each category to provide an overview of the multi-faceted approach the Company is undertaking as part of our grid investment plan. For 2023, there is one new additional distribution reliability and resiliency program (Distribution Strategic Undergrounding) compared to those listed in MPC's 2022 Energy Delivery Plan. The Distribution Strategic Undergrounding Program is described in more detail in the Reliability and Resiliency Category section below.

1. Reliability and Resiliency Category

The Reliability and Resiliency Category consist of programs and initiatives aimed at keeping the lights on (reliability) and upgrading the system to allow for a quicker recovery from storm or other catastrophic damage (resiliency). Improvements in either category often compliment the other, making the system less likely to have interruptions and improving the recovery time when an event does occur.

Several of MPC's T&D recurring capital programs are included in the Company's

Reliability and Resiliency Category and are outlined below, along with an overview of the types of projects included in each program.

- **Worst Performing Feeder Program (Distribution)** - the Worst Performing Feeder Program is an annual recurring program that is focused on improving the reliability of MPC's worst performing feeders. Feeders are ranked using the past 2-year rolling outage data. Historical outage information is reviewed for the feeders at the top of the list to identify the cause and location of outages to determine the best mitigation solution. Specific improvement projects and cost estimates are developed, along with a justification, to target the specific outage drivers based on established guidelines and proven reliability solutions. This information is presented to MPC's Reliability Committee for review. MPC's Reliability Committee is described in more detail in Sub-Section F of this plan. The Reliability Committee ranks the projects based on the information presented and input from the committee members to compete for available funding. This process allows for synergy and ensures projects are competing for funding using a consistent methodology with input from a cross functional team. Although a feeder may be ranked near the top of the list, that doesn't necessarily guarantee projects for the feeder will be approved. Other factors are taken into consideration for project approval such as recent completed improvement projects for the feeder and number of customers impacted. Only a select number of the worst performing feeder improvement plans are approved by MPC's Reliability Committee based on the available funding. Improvement projects for a worst performing feeder may include a variety of solutions such as relocating inaccessible sections of line to road right-of-way, replacing deteriorated conductor, or installing sectionalizing equipment. The benefits of this program include reduced outages to customer, reduced restoration time, and fewer number of customers impacted when an outage occurs due to improved sectionalizing.

MPC completed the 2022 worst performing feeder improvement projects in Beaumont, Biloxi, Ellisville, Gulfport, Hattiesburg, Hickory, Moss Point, and Ocean Springs as planned and noted in the Company's 2022 Energy Delivery Plan.

In 2023, worst performing feeder improvement projects are planned in Waynesboro, Laurel, Pachuta, Bay Springs, Hattiesburg, Meridian, Hickory, Seminary, Moss Point, Ocean Springs, Biloxi, Gulfport, Bay St. Louis, Lucedale, and Pascagoula. The scope of these projects includes a mixture of reconfiguring existing feeders to reduce customer exposure, reconductoring existing feeders to allow for contingency load transfer, or relocation of inaccessible lines.

The budget for the Worst Performing Feeder program is based on historical trends and funding that may be reallocated as part of the Company's overall reliability strategy for the calendar year.

- **Self-Healing Network Program (Distribution)** – the Self-Healing Network ("SHN") Program is an annual recurring program that includes the strategic deployment of automated devices (reclosers) along the Company's feeders to detect a fault on the distribution system, isolate the trouble to minimize the number of customers affected, and automatically restore service to the customers that are outside the affected area without human intervention. This results in a smaller area for response personnel to patrol and trouble-shoot which allows the trouble to be

identified quicker in most cases. A SHN requires two circuits with tie points and enough circuit and substation capacity to support the transferred load.

MPC recognizes that not all outages can be eliminated; therefore, when trouble does occur, the Company is deploying devices and technology, such as the SHN, to reduce the number of customers affected.

Since 2017, an estimated 35 minutes in SAIDI has been avoided due to the implementation of SHNs. Through September 2022, SHNs have avoided approximately 5 minutes in SAIDI. The estimated minutes avoided is determined by multiplying the number of customers restored by the SHN times 60 minutes which is the assumed time it would take crews to be dispatched and manually perform the switching. SAIDI is explained in more detail in Sub-Section F of this plan.

Since Q4 2020, MPC has increased the number of our customers in a self-healing network from 42% to 61%, meaning without human interaction, the cause of the outage is automatically isolated to a few customers until crews arrive to complete the necessary repairs. MPC plans to include approximately 95% of our customers in a SHN by the end of 2024. In order to achieve this goal, reconductors of existing ties between feeders and substations may be required or new ties constructed to increase capacity for load transfer that occurs when a SHN operates under certain contingency scenarios. Some of MPC's feeders are not candidates for SHNs because there is no alternate source available, and it would be cost prohibitive to install an additional source which prevents MPC from including 100% of customers within a SHN.

In 2022, MPC has completed the SHN expansion in the Hattiesburg and Laurel areas. The remaining planned expansion of the existing SHNs and implementation of the new SHNs as outlined in the Company's 2022 Energy Delivery Plan will be completed by year end.

In 2023, MPC plans to expand existing SHNs in Ellisville, Hattiesburg, Gulfport, Long Beach, Wiggins, Heidelberg, Laurel, Meridian, Forest, Pascagoula, and Pass Christian areas. In addition, MPC plans to install new SHNs in Beaumont, Decatur, and Quitman.

The budget for the SHN program is currently based on an annual amount to achieve the goal of 95% of MPC's customers being included in a SHN by the end of 2024.

- **Recloser and TripSaver® Sectionalizing Programs (Distribution)** – the Recloser Sectionalizing Program is an annual recurring program that targets the installation of automated reclosers for every 300+ customers, where applicable. The benefit of this sectionalizing strategy is to limit the number of customers that are impacted when a fault occurs on the distribution system. Several of the reclosers installed as part of this program are used to expand SHNs across MPC's service territory.

The Company has completed the installation of 90 of the 100 reclosers planned in 2022 as part of its Recloser Sectionalizing Program and as noted in the Company's 2022 Energy Delivery Plan. The Company plans to complete the installation of the remaining ten reclosers by year end.

The TripSaver® Sectionalizing Program is a recurring annual program that is focused on replacing certain line fuses with TripSaver® cutout-mounted reclosers based on historical performance, miles of exposure, and customers served. Most faults on the distribution system are temporary (70-80%)¹ and the use of these devices will allow temporary faults to be cleared and avoid extended outages to our customers and unnecessary truck rolls.

The benefit of using a TripSaver® device in place of a fuse is the TripSaver® can be programmed to provide automatic reclosing when a temporary fault occurs whereas a fuse will blow causing a sustained outage which requires personnel to be dispatched to restore service resulting in a longer outage time for customers.

In early 2021, MPC temporarily paused its TripSaver® program due to findings from a learning event and adopted revised construction standards to address operational flexibility and ensure reliable operations of TripSaver®. MPC began retrofitting existing TripSaver® installations in Q4 2021 to the new construction standard while continuing to move forward with new installations using the new construction standard. The retrofit of existing TripSaver® installations to the new construction standard is expected to take four years to complete based on the current plan.

MPC has completed the installation of 35 planned new TripSaver® installations in 2022 and has also completed the retrofits of 97 of the 103 existing installations. The 6 remaining retrofit installations are expected to be completed by year end.

The primary focus of the TripSaver® program in 2023 will be to continue to retrofit existing TripSaver® installations to the new construction standard and continue to install new installations on radial taps with 80 or more customers in the remote areas of MPC's service territory that are furthest from MPC's operating headquarters. The scope of this program may be expanded to include other radial taps in future years based on the results of the current program scope. MPC plans to install 10 new TripSaver® as part of the current TripSaver® Sectionalization program as well as retrofitting 30 existing TripSaver® locations to our new Southern Company construction standard.

The budget for the Recloser and TripSaver® Sectionalizing programs is based on historical trends plus funding that may be reallocated as part of the Company's overall reliability strategy for the calendar year. The Recloser Sectionalizing program is projected to be completed by the end of 2024 based on the current plan and funding level. The budget for the TripSaver® program will be a recurring over the planning horizon.

- **Capital Overhead and Underground Repair Programs (Distribution)** – the Capital Overhead and Underground Repair Programs are annual recurring repair programs that address emergency replacement of failed or damaged distribution overhead or underground equipment such as poles, conductor, underground cable, transformers, switchgear, reclosers, line regulators, etc. Although MPC has programs to proactively identify and replace equipment as it nears end-of-life to avoid

¹ Electrical Distribution – System Protection, Third Edition, Cooper Power Systems, 1990

prolonged outages to customers, unexpected failures do occur prior to equipment or facilities being replaced. Factors outside of MPC's control such as animals, weather, deterioration, acts of others, or premature failure can result in equipment outages or damage and require immediate attention to ensure the reliability of the system. This program funds these unplanned, reactive capital repairs.

The budget for the Capital Overhead and Underground Repair Programs is based on historical trends.

- **Overhead Line & Pole Inspection Program (Distribution)** – the Overhead Line & Pole Inspection Program is an annual recurring asset management program that supports a 10-year inspection interval on MPC's distribution overhead lines and poles. MPC currently owns 158,462 distribution wood poles; therefore, approximately 16,000 poles are inspected each year as part of this program. This program includes a visual inspection from the ground to the pole top. Wood poles are subject to rot, especially around the ground level. This inspection process includes excavation around the base of the pole to inspect for any rot and boring the pole to verify it is structurally sound. If needed, a fumigant preservative is used to treat the pole. Some poles are classified as "rejects" as part of the inspection process and must be replaced within a certain timeframe due to the amount of rot or decay or other structural damage. MPC's annual distribution pole rejection rate typically varies between 2-3%.

One of the benefits of performing the overhead inspection process is identification of safety issues that may pose a risk to the public that otherwise may have gone unreported. Inspection crews will make minor repairs during the inspection process such as installing missing guy guard markers, repairing broken pole grounds, etc. Another benefit of this program is proactively identifying poles for replacement before they fail and cause extended unplanned outages to customers.

The budget for the Overhead Line & Pole Inspection Program is based on historical trends.

- **Underground Cable Testing and Replacement Programs (Distribution)** – the Underground Cable Testing and Replacement Program is an annual recurring asset management program that includes testing primary cable that has been in service more than 20 years or that has a history of failures.

Cable that fails the testing criteria is scheduled for replacement, typically in the same calendar year. Cable that meets the testing criteria is guaranteed by the contractor performing the test to be good for another 15 or 20 years, depending on the type of cable. This proactive approach allows the Company to identify cable for replacement prior to it failing and avoids unplanned extended outages to customers. This program also avoids unnecessary capital expenditures that would be required if the cable was replaced based solely on the age of the cable.

The budget for the Underground Cable Testing and Replacement Program is based on historical trends, plus funding that may be reallocated as part of the Company's overall reliability strategy for the calendar year.

- **Distributed Strategic Underground Program (Distribution)** – the Distribution Strategic Underground Program is a new program that will begin in 2023. This program will be an annual recurring program designed to improve the resiliency of the distribution system, i.e. improve the efficiency of restoring electric service after a significant weather event. Projects will be prioritized based on several factors including reliability, accessibility, avoided O&M costs, infrastructure served and consideration of flooding and storm surge potential. MPC is currently working on the data analytics to prioritize where undergrounding projects will be performed for 2023.

The budget for the Distribution Strategic Underground Program is based on a set annual amount, plus funding that may be reallocated as part of the Company's overall reliability strategy for the calendar year.

- **Capital Customer Centered Maintenance ("CCM") Program (Transmission)** – MPC's Transmission CCM Program is an annual recurring repair program that addresses emergency replacement of failed or damaged transmission and substation equipment such as poles/structures, power transformers, breakers, regulators, circuit switches, etc. Although MPC has programs to proactively identify and replace equipment as it nears end-of-life to avoid prolonged outages to customers, unexpected failures do occur prior to equipment or facilities being replaced. Factors outside of MPC's control such as animals, weather, deterioration, acts of others, or premature failure can result in equipment outages or damage and require immediate attention to ensure the reliability of the system.

This program also includes the replacement of equipment that is identified as being at a high risk of failure or not operating properly during the Company's routine maintenance inspection process. This program funds these unplanned, reactive capital repairs.

The budget for the CCM Program is based on historical trends.

- **Ground Line and Line Inspection Programs (Transmission)** – the Transmission Ground Line and Line Inspection Programs are annual recurring asset management programs that support a 12-year wood pole inspection interval (ground line treatment) and a 6-year interval for a comprehensive ground patrol inspection of transmission lines.

Poles that are identified as critical for replacement as part of the ground line treatment inspection are replaced within a prescribed timeframe. Non-critical poles are recorded and typically included in the following year's work plan to potentially bundle with other improvement projects. This minimizes the number of scheduled line outages and saves mobilization costs. MPC currently has 6,955 wood transmission poles, 3,075 steel poles and 5,863 concrete poles. Concrete or steel poles are the standard poles used on all new construction and on any rebuild or reconductor projects so the number of wood poles in service is expected to decrease over time. MPC's annual transmission wood pole rejection rate typically varies between 4-5%.

The crews performing the comprehensive ground patrol inspection make minor repairs during the inspection process. Non-critical findings from this inspection are

recorded and bundled with other projects that are planned in the future for the specific line. One of the benefits of performing the ground line and line inspections is identification of safety issues that may pose a risk to the public that otherwise may have gone unreported. Inspection crews will make minor repairs during the inspection process such as installing missing guy guard markers, repairing broken pole grounds, etc. Another benefit of this program is proactively identifying poles for replacement before they fail and cause extended unplanned outages to customers.

The budget for the Transmission Ground Line and Line Inspection Program is based on historical trends.

- **Transmission Line & Substation End-of-life Renewal Programs (Transmission)**
- Transmission proactively replaces equipment that is at its end-of-life to reduce the risk of unplanned outages and catastrophic failures which can impact a large number of customers or entire communities. The transmission and substation end-of-life asset renewal programs target the replacement of critical equipment such as transformers, breakers, batteries, voltage regulators, switches, relays, Substation Integration Automation ("SIA") hardware, substation equipment monitors, conductors, and polymer insulators.

The end-of-life criteria used to identify transmission and substation equipment for replacement is based on historical performance, manufacturer recommendations, industry guidance, local operating and maintenance experience and certain equipment models and vintages.

The budget for the end-of-life programs is a recurring annual amount to support the program objective for each type of critical equipment.

- **Power Delivery Condition Based Maintenance Program** – the Condition Based Maintenance ("CBM") program is a Southern Company program to transition from interval-based maintenance to maintenance based on equipment and system health utilizing near real time information obtained from monitors installed on various equipment on the T&D system. Historically, this program has involved substation equipment, but will be expanded in the future to include equipment on T&D lines. Included in the program is software to retrieve, store, and analyze data from the equipment monitors that aid in the determination of equipment and system health that drives portions of the maintenance program.

In support of the CBM program, MPC is continuing to install and maintain equipment monitors and implement software solutions. These equipment monitors are being installed on equipment in substations such as power transformers, substation batteries, and breakers. These equipment monitors provide near real time data, alarms, and diagnostics to remotely monitor asset health, perform remote trouble shooting, and other remote activities to assist in reducing the cost of asset management while providing high levels of system reliability. The purpose of this program is to use near real time information to determine equipment and system health and proactively address maintenance issues and reduce interval-based maintenance inspections and expenses.

The budget for the Substation CBM Program is based on specific project needs in each year of the planning horizon.

- **Cyber and Physical Security Programs (Transmission and Distribution)** – MPC works in conjunction with Southern Company to ensure cyber security. This includes a plan to upgrade existing cyber security hardware and applications to protect against the latest cyber threats and the addition of new hardware and applications to protect the T&D systems from potential cyber threats.

NERC mandates Critical Infrastructure Protection (“CIP”) Reliability Standards. The CIP Standards require entities, such as MPC, to identify critical assets and to regularly perform a risk analysis of those assets, develop policies for monitoring and changing the configuration of critical assets, establish access controls, require the use of firewalls to block vulnerable ports and the implement cyber-attack monitoring tools. Organizations are also required to enforce IT controls protecting access to critical cyber assets as part of CIP and have comprehensive contingency plans for cyber-attacks, natural disasters, and other unplanned events. Penalties for non-compliance with NERC CIP can include fines, sanctions, or other actions against covered entities. There are currently 11 CIP Standards that are enforceable, each containing multiple requirements.

The Southern Company Services’ Operations Compliance group provides oversight of compliance with the NERC CIP Standards. Southern Company’s NERC CIP Procedures Manual and various CIP policies provide procedures, plans, and programs for complying with the NERC CIP Standards. Southern Company’s NERC CIP Procedures Manual applies to all Southern Company’s affiliate companies, which includes MPC, and the facilities and computer systems in scope for compliance activities with the NERC CIP Standards.

The Substation Physical Security Program is focused on improving the physical security of selected substations to minimize and deter potential threats and avoid equipment damage and unplanned outages to customers.

Attacks on substations and other critical utility infrastructure can result in hundreds of thousands of dollars in equipment damage, theft of materials or equipment, and/or power outages. MPC’s investment in substation physical security includes projects such as improved lighting, installation of impenetrable fencing, around-the-clock centralized monitoring, alarms/alerts which provide early intrusion awareness, perimeter monitoring, and badge reader installations.

The budget for the T&D Cyber and Physical Security Programs is based on specific project needs identified on a year-by-year basis.

- **Storm Hardening Program (Transmission and Distribution)** – In 2023, MPC plans to continue a strategic Storm Hardening Program to upgrade selected T&D lines and other critical facilities to higher grades of construction in the three coastal counties south of I-10 due to this area’s exposure to extreme weather events such as tropical storms and hurricanes.

MPC’s Storm Hardening Program focuses on proactively mitigating certain disaster risks rather than just managing disaster recovery following small and large storms. Although MPC continues to seek ways to be better prepared to repair and replace infrastructure following a major disaster, this program adds the benefit of resiliency which aids in our ability to restore service more expediently.

For our distribution system, MPC will continue to focus on upgrading our standards of construction for selected overhead lines to Grade B construction which consist of replacing poles on the mainline feeder with stronger poles that can withstand higher wind loadings.

In 2021, a pilot structural resiliency assessment and remediation evaluation was completed by a contractor on MPC's distribution poles on three of the Company's 23kV feeders (two in Pass Christian and one in Bay St. Louis). A pole loading analysis was performed for poles identified as >80% loaded from the load screening. The analysis included recommended solutions which involved using steel trusses to reinforce poles or replacement of existing poles. Based on the results of the pole structural resiliency assessments in 2021, MPC expanded the assessment to include all poles south of I-10 in 2022. The assessment identified approximately 4,700 structures that exceeded 80% loading based on the screening. MPC will address these structures over the planning horizon by using steel trusses or replacing poles.

For the transmission system, MPC will begin replacing wooden structures on selected lines with concrete and/or steel poles and upgrading aging lines to current design standards, including extreme wind. Additionally, the Company will continue to replace switch houses that are nearing end-of-life in areas along the coast with storm hardened designs and elevating those in areas that are prone to flooding and storm surge. In 2022, MPC completed the storm hardening on the 4.5-mile section of 115kV transmission line from Long Beach to Pass Christian's Menge Avenue substation as noted in the Company's 2022 Energy Delivery Plan. Appendix C provides a list of the planned transmission storm hardening projects over the planning horizon.

MPC recognizes that storm-hardening and grid resilience investments must carefully be balanced between the needs of the customers, regulators, shareholders, and the Company. There is no one solution to address all severe weather events that may impact MPC, and it is impractical and cost-prohibitive to implement all available storm-hardening measures at one time.

The budget for MPC's Storm Hardening Program for the planning horizon is based on a recurring annual amount to support the current program objective.

2. Grid Optimization and Innovation Category

The Grid Optimization and Innovation Category is leveraging technology to better serve customers and provide growth opportunities. The following programs and projects are part of MPC's Grid Optimization and Innovation Category.

- **Advanced Metering Infrastructure ("AMI")** - One of the key projects in the Grid Optimization and Innovation Category is MPC's AMI project that was approved by the Commission in Docket 2009-UA-398 and completed in 2020. This project has provided operational efficiency in automated customer outage reporting, reduced site visits to read and set/remove meters through the remote connect and disconnect function, and enabled MPC to offer increased service and convenience to our

customers. AMI has also provided MPC with the ability to troubleshoot certain customer service issues by providing remote communication with the meter to determine if a problem is on MPC's side of the meter or the customer's side of the meter which saves additional truck rolls. In 2023, MPC will continue to seek ways to optimize the existing AMI network and functionality and explore further use of data analytics using the data available through the AMI system to improve customer service. One of the projects that MPC's AMI and Lighting Services teams began in 2021 and will continue in 2023 is the Network Lighting Control Program being implemented by MPC's Lighting Business Unit. This program will utilize smart photocells attached to MPC's outdoor lighting to monitor the light and report when the light is out. The photocell will also be used to meter lights on the energy only rate for billing purposes. The smart photocells will use the AMI communication network to provide this functionality.

- **Fiber to Distribution ("FtD") and Transmission** - MPC's Grid Optimization and Innovation Category also includes the strategic expansion of MPC's T&D fiber network to improve reliability and aid in broadband development in underserved areas of Mississippi.

In 2022, MPC successfully completed the installation of fiber on the distribution system in Lauderdale County and George County MS. In total, approximately 17 miles of fiber was installed in these two areas.

In addition to the completion of these projects in 2022, MPC began implementing a multi-phase deployment of distribution fiber traversing Jasper and Jones Counties. This multi-phase project equates to approximately 60 miles of distribution fiber. The physical and optical design is complete for the entire route, the make ready construction is complete and the installation of fiber is planned to commence in Q4 2022. The remaining scope of work will be completed into the first half of 2023.

For 2023, in addition to the completion of the Jasper and Jones County Projects, MPC has identified approximately 60 miles of potential new fiber to distribution projects.

Fiber also continues to be installed on portions of MPC's transmission system as part of communication network upgrades. This initiative focuses on expanding the installation of Optical Ground Wire ("OPGW") on selected transmission lines to improve the protection and control and operation of the system. OPGW is designed to replace traditional static/shield wires on overhead transmission lines with the added benefit of containing optical fibers which can be used for telecommunications purposes. The conductive part of the cable serves to bond adjacent towers to earth ground and shields the high-voltage conductors from lightning strikes. The optical fibers within the cable are used for high-speed transmission of data between MPC's protection and control devices allowing for improved protection and operation of the transmission system.

The optical fibers can also be used for the Company's voice and data communication, or it may be leased or sold to third parties to serve as a high-speed fiber interconnection between cities. The cost difference of installing the OPGW compared to the standard overhead static/shield wire is minimum when compared to the overall cost of the project and the benefits that are gained with the fiber. The

budget for the transmission fiber communication network upgrades is based on specific project needs as identified by MPC's Protection and Control department and on planned transmission upgrades that include the replacement of the static/shield wire that is nearing end-of-life. MPC has projects planned in 2023-2025 to complete the installation of fiber on the Company's Waynesboro – Lucedale 115kV line as listed in Appendix C.

In 2020, MPC began the installation of a 120-mile fiber underground circuit along the length of the Company's transmission right-of-way between Plant Barry, in Alabama, and MPC's Logtown West Substation near the Louisiana-Mississippi border. This project is scheduled to be completed in Q1 2023 at a total estimated cost of \$18.4M and is replacing an existing overhead fiber circuit along this same route that has exceeded the manufacture's recommended service life. The new fiber being installed will have a 144-fiber count compared to the 36-fiber count of the existing overhead fiber circuit which will allow for increased capacity and ensure reliable operations going into the future. MPC filed a Certificate of Public Convenience and Necessity for this project in Docket No. 2019-UA-121 and the Commission approved an order for the project on March 17, 2020.

MPC will continue to look for partnership opportunities to install fiber optic cables to aid in broadband development in underserved areas of Mississippi. MPC and Southern Company have fiber networks that span the service territories and provide critical communication pathways between major cities. We see this as an opportunity for our assets, which run through rural communities, to serve as the backbone network to provide access to high-speed broadband networks to those communities through win-win partnerships.

3. Tactical and Innovative Planning Category

The Tactical and Innovative Planning Category includes investments in distribution and transmission planning solutions to meet applicable regulatory and local planning standards and provide for future capacity, redundancy, and operational flexibility needs.

MPC's transmission and distribution planning processes used to identify the planning projects in this category are described in more detail in Sub-Sections G and H of this plan, respectively.

The major power delivery planning projects in the relevant planning horizon are provided in Appendix C for reference. The budget for transmission planning projects is based on specific, discrete projects to comply with NERC reliability standards, support load growth, and provide operational flexibility.

The budget for distribution planning projects is typically based on historical

spending levels for baseline planning projects plus any additional cost associated with discrete projects such as reconductors or new feeders.

- **Distribution Voltage Conversion Program** - MPC is continuing the 4kV to 12kV Distribution Voltage Conversion Program in 2023. This program involves the conversion of MPC's last remaining 4kV distribution systems over the next 2-3 years. These 4kV distribution systems make up less than 2% of MPC's overall circuit miles. MPC uses predominantly 12kV and 23kV as its primary standard voltages with 12kV used primarily north of the three coastal counties and 23kV used along the three coastal counties. These voltages make up almost 97% of MPC's circuit miles. The scope of this program includes replacing existing 4kV overhead and padmount transformers with 12kV transformers and upgrading the primary insulating hardware to approved 12kV design standards, along with converting and updating the substations in the towns from 4kV to 12kV.

The Company has completed or plans to complete in 2023 the following projects as part of the Distribution Voltage Conversion Program that were noted in the Company's 2022 Energy Delivery Plan.

- The two Decatur Central 4kV feeders were converted from 4kV to 12kV in 2022 and are being served from the Decatur Industrial 46-12kV substation.
- The Decatur Central 46-4kV substation is being rebuilt to 46-12kV and renamed Decatur Conehatta Rd. The Project will be completed in 2023.
- The construction upgrades to the Union Industrial North 46-12kV substation to include two 46-12kV banks with two feeders on each bank to support the conversion of Union from 4kV to 12kV is underway and is expected to be completed in Q1 2023.
- The conversion of the Union Magnolia 4kV circuits to 12kV is underway and is expected to be completed in Q1 2023.
- The construction of the new Richton 46-12kV two bank substation to support the distribution voltage conversion of Richton from 4kV to 12kV was moved from 2022 to 2023. The existing Richton 46-4kV substation will be retired in 2023 once the conversion is completed.
- The construction of the new Purvis Industrial 46-12kV substation to allow retirement of Purvis Kaiser, Purvis Hess, and Purvis EOT assets and complete the distribution conversion of the Purvis area was moved from 2022 to 2023.
- MPC has filed a Certificate of Public Convenience and Necessity for the new Richton 46-12kV substation and the new Purvis Industrial 46-12kV substation projects noted above in MPSC Docket No. 2022-UA-108.

In 2023, the following projects are planned as part of the Distribution Voltage Conversion Program.

- Complete the rebuild of the Union Industrial North 46-12kV substation to include two 46-12kV banks with two feeders on each bank to support the conversion of Union from 4kV to 12kV.
- Construct new Richton 46-12kV two bank substations to support the distribution voltage conversion of Richton from 4kV to 12kV.
- Complete the conversion of the Union Magnolia 4kV circuits to 12kV.
- Construct new Purvis Industrial 46-12kV substation to allow retirement of Purvis Kaiser, Purvis Hess, and Purvis EOT assets and complete the distribution conversion of the Purvis area.
- Begin construction of the new Bassfield 46-12kV substation with an estimated completion date in 2024.

MPC plans to file a Petition for a Certificate of Public Convenience and Necessity with the MPSC for the proposed new Bassfield substation. MPC's Distribution Voltage Conversion Program is expected to be completed once the conversion is complete for Bassfield.

The benefits of the 4kV conversion project are reducing the need to stock 4kV distribution and substation material, standardizing on 12kV as our primary voltage for our service area north of the three coastal counties, increasing the load serving capacity and economic growth capacity in each of these areas due to the higher primary 12kV voltage, and providing additional redundancy, reliability, and resiliency in the towns where the conversions are planned. This program also establishes additional tie options and transfer options between feeders and substations in several of the towns which will allow MPC to expand its self-healing networks into these communities.

The budget for the Distribution Voltage Conversion Program is based on the estimated cost to complete the program in the next two to three years.

4. General Business Category

The General Business Category includes the remainder of MPC's T&D general

capital expenses. These include new business expenditures used to purchase and install new facilities or upgrade existing facilities required to serve new customers and new load, including outdoor lighting to residential, commercial, industrial, and governmental customers. Also included in the General Business Category is funding for commitment projects that are required by others such as DOT relocations. Engineering and supervision salaries and expenses associated with the capital projects, fleet (mechanized equipment and vehicles), tools and equipment, capital transformer account, and capital technology application development and support are also included in the General Business Category.

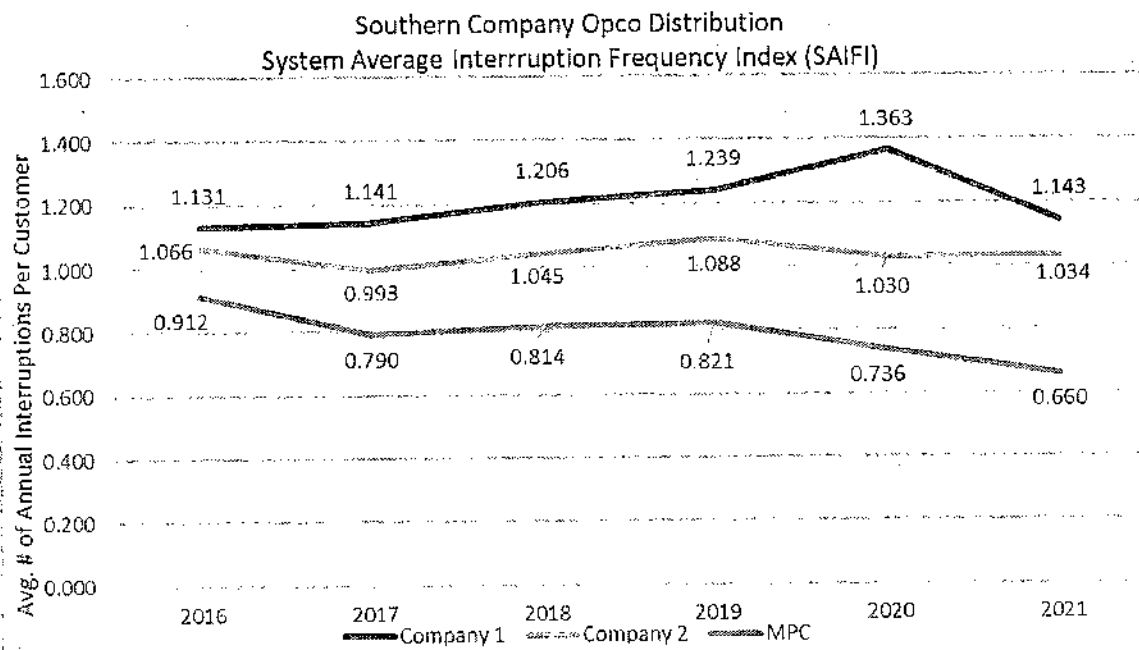
F. T&D Reliability

MPC's T&D reliability strategy and supporting programs listed in the previous sections of this plan are established by MPC's Power Delivery organization leadership team. To ensure a consistent and holistic approach to executing our reliability strategy and managing associated funding, MPC formed a Reliability Committee which is sponsored by Power Delivery leadership. The Reliability Committee has been in existence for many years and is chaired by MPC's Reliability Engineer. The committee members include cross-functional representation from various departments, including Transmission, Distribution, Operations, Planning & Reliability, Protection & Control, Materials, Grid Investment, Asset Management, and Divisions. The Reliability Committee is responsible for identifying, vetting, prioritizing, selecting, and executing several of MPC's reliability projects associated with the strategic reliability programs based on the available funding. This approach fosters synergy and sharing of knowledge and experience from the committee members, along with a forum to challenge proposed projects to ensure MPC's customers are reaping the results of cost-effective reliability solutions.

MPC uses two Institute of Electrical and Electronics Engineers ("IEEE") industry

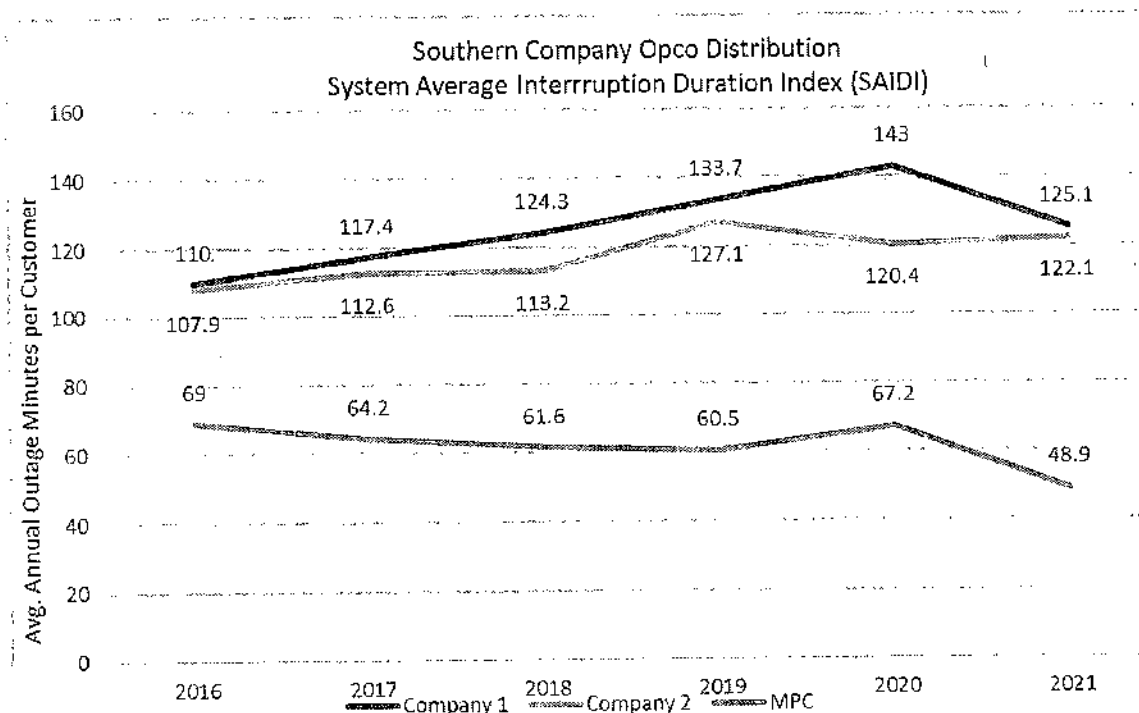
standard methods for measuring the reliability of our T&D systems, SAIDI and SAIFI. SAIDI is the System Average Interruption Duration Index and measures the average interruption of service duration that each customer has experienced in a given time period. SAIFI is the System Average Interruption Frequency Index and measures the average number of interruptions in service that each customer has experienced in a given time period. MPC reports its SAIDI and SAIFI results to Southern Company per the Southern Company Reliability Reporting Guidelines and to the Commission via the Performance Evaluation Plan "PEP-6" requirements. There are certain types of outages excluded in MPC's SAIDI and SAIFI reporting as allowed by the Southern Company Reliability Reporting Guidelines and PEP-6. For instance, the following types of outages are excluded per PEP-6: Named Storms, Tornadoes, Winter Storms (Ice/Snow), Scheduled Outages, Customer Trouble, Acts of Others, Vehicles, and Manufacturer's Defects.

The most relevant reliability performance comparisons MPC can make is with the other operating companies in Southern Company. MPC, along with the other Southern Company operating companies, utilize a common set of outage exclusion criteria to measure transmission and distribution reliability. The following types of outages are excluded in the Southern Company reliability reporting: Named Storms, Tornadoes, Winter Storms (Ice/Snow), Weather Anomalies, Scheduled Outages, and Customer Trouble. In addition, the Southern Company operating companies use similar materials and construction/design methods and generally experience similar weather patterns which results in a more relevant reliability comparison. MPC's transmission and distribution SAIDI and SAIFI reliability performance is shown below in Figures 1-4 as compared to the other operating companies in Southern Company.



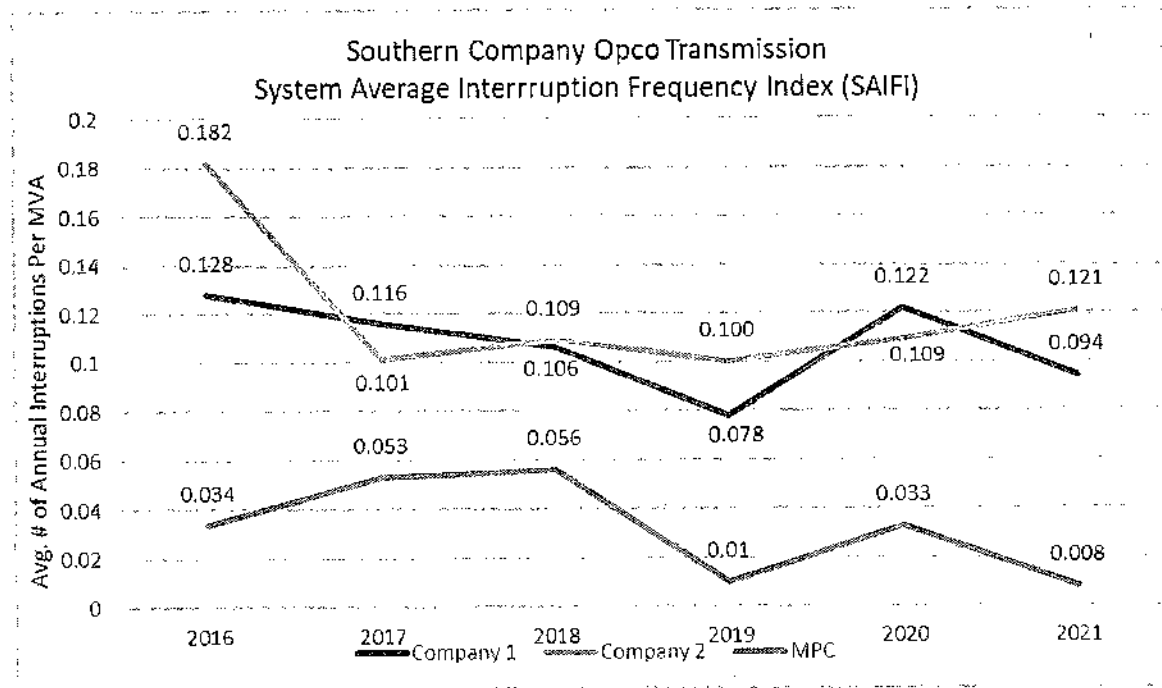
Note: The following types of outages are excluded in the Southern Company reliability results: Named Storms, Tornadoes, Winter Storms (Ice/Snow), Weather Anomalies, Scheduled Outages, and Customer Trouble.

Figure 1 (Comparison of MPC's Distribution SAIFI with SoCo Operating Companies 2016-2021)



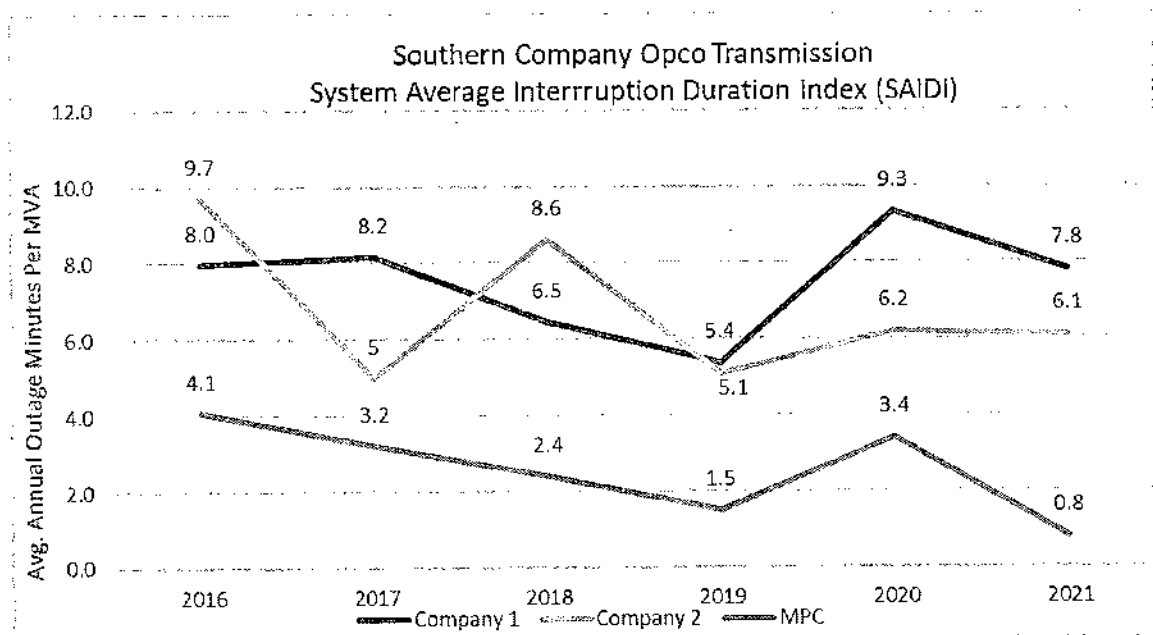
Note: The following types of outages are excluded in the Southern Company reliability results: Named Storms, Tornadoes, Winter Storms (Ice/Snow), Weather Anomalies, Scheduled Outages, and Customer Trouble.

Figure 2 (Comparison of MPC's Distribution SAIDI with SoCo Operating Companies 2016-2021)



Note: The following types of outages are excluded in the Southern Company reliability results: Named Storms, Tornadoes, Winter Storms (Ice/Snow), Weather Anomalies, Scheduled Outages, and Customer Trouble.

Figure 3 (Comparison of MPC's Transmission SAIFI with SoCo Operating Companies 2016-2021)



Note: The following types of outages are excluded in the Southern Company reliability results: Named Storms, Tornadoes, Winter Storms (Ice/Snow), Weather Anomalies, Scheduled Outages, and Customer Trouble.

Figure 4 (Comparison of MPC's Transmission SAIDI with SoCo Operating Companies 2016-2021)

Historical reliability data demonstrates that distribution and transmission reliability

results will experience some volatility from year-to-year, due to either extreme weather patterns or other factors. For instance, MPC's historical PEP reliability index results shown in Figure 5 indicate that one of our best years in reliability was in 2013 which was during a drought season. In 1987, our customers on average experienced 130 outage minutes. Over the last 5 years, customers experienced 63 outage minutes on average annually. This downward trend over the past few decades is an indicator of the improvement customers are seeing with the investments MPC has made in reliability projects. The PEP reliability results shown in Figure 5 include distribution, substation, and transmission outage types.

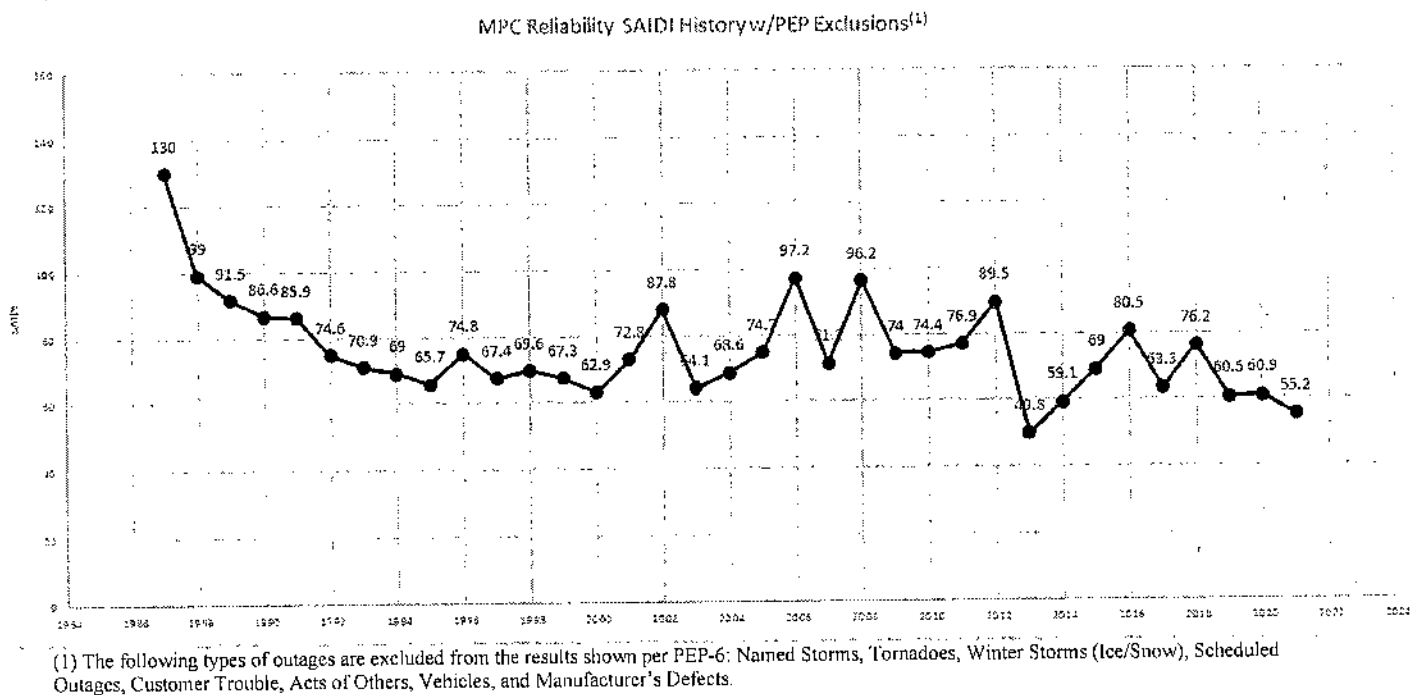


Figure 5 (MPC's PEP SAIDI Reliability History 1987-2021)

Figure 6 provides a comparison of MPC's distribution reliability with other southeastern utilities for 2019-2021 excluding major event days.

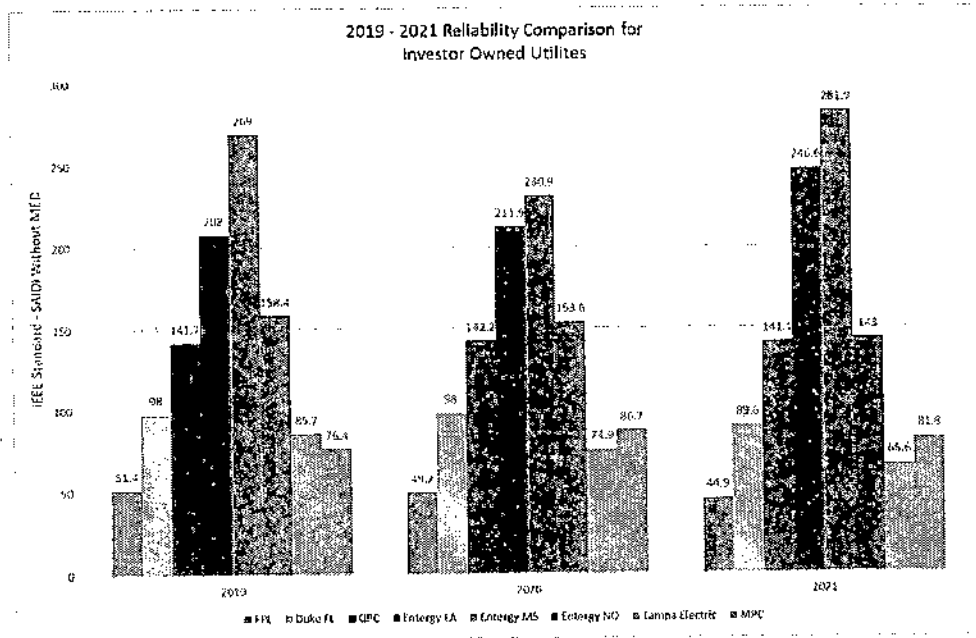


Figure 6 (Distribution Reliability Comparison – IEEE Standard SAIDI without Major Event Days 2019-2021)

MPC's January – September 2021 and 2022 summary of outage types, customer minutes interrupted, and number of outages by outage type (no exclusions) is provided in Table 9 below ranked by total customer minutes interrupted ("CMI"). Weather related outages (wind/rain, ice/snow, & lightning) are by far the greatest cause of outages (75% of total CMI).

Outage Cause Code	2021		2022	
	Sum of CMI	Outage Count	Sum of CMI	Outage Count
Wind/Rain	29,135,373	2,184	4,985,712	1,335
Trees/Limbs/Vines Failure	5,945,658	1,175	2,567,787	1,269
Scheduled/Customer Notified	2,696,064	2,402	2,152,313	2,286
Deterioration - Other	1,637,693	858	1,523,529	871
Lightning	2,459,270	924	1,435,979	962
Vehicle	2,409,716	299	1,261,419	402
Patrolled No Trouble Found	664,773	473	581,739	2,228
Emergency Repairs	663,377	46	379,945	45
Acts of Others	486,623	237	373,660	430
Customer Equipment	19,133	25	268,450	1,501
Animal	121,314	264	249,417	304
Fire	5,264	23	242,217	195
Trees/Limbs/Vines Growth	479,895	266	219,538	216
Contamination/Corrosion	19,133	25	173,511	231
Patrol In Progress	92,446	155	157,972	123
Unselected	-	-	143,244	131
Cable Failure	153,468	217	106,507	193
Scheduled/Customer NOT Notified	16,579	11	86,754	5
Deterioration - Fuse	169,153	240	84,317	228
Loose Connection	302,411	153	80,441	167
MPC	101,976	105	75,143	265
Patrol Later	81,915	1,345	64,067	1,082
Overload	111,265	38	21,933	61
Dig In	19,340	29	10,287	42
Manufacturer Defect	1,329	5	5,446	26
Ice/Snow	17,468,371	733	2,509	2
Improper Installation	12,306	22	1,564	24

Table 9 (MPC's Outage Summary – January-September 2021 & 2022)

MPC sets annual T&D reliability goals. The current goal methodology for distribution consists of using the past seven years of reliability results, excluding the best year and worst year, and calculating the average of the remaining five-years. A similar methodology is used for transmission reliability goals. This method removes some of the volatility in reliability results such as severe weather. For 2022, MPC's distribution SAIDI goal is 62.9 average

outage minutes per customers and the SAIFI goal is 0.801 outages per customer. MPC's transmission SAIDI goal is 5.8 average outage minutes per MVA, and the SAIFI goal is 0.074 outages per MVA.

G. Transmission Planning

MPC's transmission planning function is performed by the SCS Transmission group located primarily in Birmingham, AL. SCS Transmission is registered as the NERC Transmission Planner and Planning Coordinator entity for the Southern Company operating companies, which includes MPC. The transmission planning function ensures the system will operate reliably over a broad spectrum of system conditions and following a wide range of probable contingencies, e.g., line and/or unit outages, while adhering to NERC Reliability Standards. SCS Transmission also coordinates transmission planning activities with neighboring planning regions.

The SCS transmission planning assessment process covers the Near-Term (years 1-5) and Long-Term (years 6-10) Transmission Planning Horizons. The planning assessment covers a broad range of system conditions and contingency events for planning transmission in the Southern Bulk Electric System ("BES").

The goal of the transmission planning process is to provide transmission customers safe, reliable, and affordable delivery from their resource choices to their customer loads through dependable long-term firm physical transmission service. With this goal in mind, it is MPC's and the SCS Transmission Planning group's intent to fully meet or exceed NERC reliability requirements and related reliability criteria applicable to transmission planning.

The SCS Transmission Planning group works closely with the real-time operation group at MPC and within Southern Company to minimize challenges in the operating environment, to the extent practical, by identifying potential operating constraints and mitigations in advance and planning a transmission system which reliably supports transmission

customers' needs. Transmission Planning coordinates closely with system operators to review actual, stressed system conditions as well as anticipated future conditions to reflect them in transmission models. The transmission planning process considers both the reliability requirements of the NERC planning standards and the broader scope of operational implications such as impacts on operating reserves, regulation/ramping needs, power quality, resiliency, restoration capabilities, and other operational needs.

The SCS Transmission Planning group seeks to ensure that transmission system performance remains reliable, robust, and resilient to address both normal and severe operating conditions and events. To address the uncertainties inherent in transmission planning inputs (such as load forecasts, resource changes, variable generation; and fuel forecasts), the SCS Transmission Planning group assesses long-term firm physical delivery service needs and identifies cost-effective transmission expansion options considering a wide range of scenarios and operating conditions, providing not only a degree of margin in ensuring compliance with all applicable reliability standards, but also providing necessary operational flexibility in economically accessing firm network generation resources, scheduling maintenance/construction activities, and responding to significant system events.

To minimize costs to transmission customers, transmission expansion projects which are not in a construction stage are reassessed each year. Expansion projects may be deferred or removed if the reliability need is delayed or goes away. Expansion projects may be replaced if more economic solutions are identified. Expansion projects may need to be advanced if the reliability need is advanced. By timing completion to coincide with delivery service needs, transmission customers can commence their delivery service when requested, benefit from more cost-effective solutions that may arise during the interim and avoid premature carrying costs.

H. Distribution Planning

MPC's distribution planning process ensures the system infrastructure can accommodate projected growth and provide reliable service to our customers. The distribution planning process consists of using computer software tools to perform power flow analysis under peak load conditions during normal system configuration and applying long-range load growth projections. Projects are identified as part of the analysis to ensure adherence to MPC's planning guidelines. MPC's distribution planning function is performed within the MPC Power Delivery Operations department located in Gulfport, MS.

Detailed distribution planning studies are performed on each distribution feeder at least once every 10 years and more often in areas with high growth rates. This minimum requirement provides reasonable assurance that circuit problems such as low voltage and overloads will be identified before customer complaints develop.

Distribution planning studies are performed more frequently in areas with higher load growth to ensure necessary improvement projects can be budgeted, scheduled, and constructed according to normal processes. Typically, feeders or towns with moderate load growth (1-2% annually) are studied at least once every 5 years. Circuits with higher growth rates may require more frequent studies to ensure the integrity of the distribution system is maintained.

MPC's distribution studies generally include the following elements:

- Developing a base case model and load data
- Performing load growth analysis
- Identifying any substation, feeder, or equipment loading issues
- Recommending solutions for power factor correction
- Recommending solutions to resolve low or high voltage
- Recommending solutions to balance load

- Performing economic analysis of proposed corrective solutions
- Providing recommendations of corrective solutions
- Analyzing Distributed Generation (as necessary)
- Performing contingency analysis (ex: analyzing the loss of a feeder, substation bank, or substation and ability to transfer load via ties to other feeders or substations)
- Providing reliability analysis (including potential Self-Healing Network projects)

The equipment that makes up the distribution system must be sized to provide reliable service under all anticipated loading conditions. In most cases, subject matter experts within Southern Company provide loading guidelines for specialized distribution equipment. These guidelines were developed with consideration given to the manufacturer's rating, anticipated load cycles, life expectancy and other factors. The loading of power transformers, substation breakers, regulators, switches, reclosers, conductor, etc. is verified as part of the planning analysis. An annual screening analysis is performed on all substation transformer banks to identify potential overloads as far in advance as possible. This process ensures that a replacement transformer can be included in the appropriate budget forecast year. Also, the lead time for a substation transformer can be several months so this must be factored into the plan, along with the construction timeframe required to either replace the existing substation transformer or add an additional transformer to an existing substation.

When planning studies indicate that system improvements are required, the economics, longevity, and operation of the solutions are considered as part of the project selection process. In general, potential distribution planning solutions to capacity and voltage issues are evaluated in the following order from least cost to more costly:

- Load Shifts
- Phase Balancing
- Capacitor Banks

- Line Regulators
- Reconductoring and Phase Additions
- New Feeders and/or Substations

Reliability issues such as number of customers on feeders, key accounts on feeders, circuit length, and circuit route are considered as part of the distribution planning process and proposed projects.

MPC's Distribution Planning team assists with the interconnection evaluation process for DER connected behind the customer's meter. The majority of DERs presently connected on the customer's side of the meter consist of residential solar systems. The penetration of residential solar is still low within MPC's service territory.

I. Adequacy of MPC's T&D Systems

MPC uses a multifaceted approach focused on the planning, operation, maintenance, reliability, resiliency, and security of our T&D systems to ensure our system as a whole is adequate and provides reliable service to our customers presently and into the future while making prudent investments to maintain fair and reasonable rates. MPC's T&D system has proven to be reliable over the years as noted in Sub-Section F of this plan. We are continuing to identify projects and programs as described in this plan to go beyond just being reliable; we are moving toward modernizing our T&D systems to be more resilient. With our Storm Hardening strategy, we will focus on addressing facilities in our areas most susceptible to extreme weather events. The grid investment categories and associated programs and projects described in Sub-Section E of this plan and the major T&D projects listed in Appendix C support this multifaceted approach over the relevant planning horizon and helps us meet our customers' expectations to provide reliable service.

J. Vegetation Management Program

Rule 29 requires each electric utility to include an overview of their Vegetation Management (“VM”) Program. MPC’s VM Program provides a comprehensive, integrated approach to managing the vegetation in the vicinity of our transmission and distribution facilities. Outages due to vegetation are one of MPC’s top three causes of outages. There are two main environmental factors that contribute to vegetation being one of the major causes of outages in MPC’s service territory and the need to have a VM Program – 1) forest density and 2) an extended growing season.

MPC’s territory is in a high forest density area as shown in Figure 6 below. Due to this high tree density, MPC must perform ongoing vegetation management activities to maintain the right-of-way (“ROW”) floor and vegetation in proximity of our transmission and distribution lines.

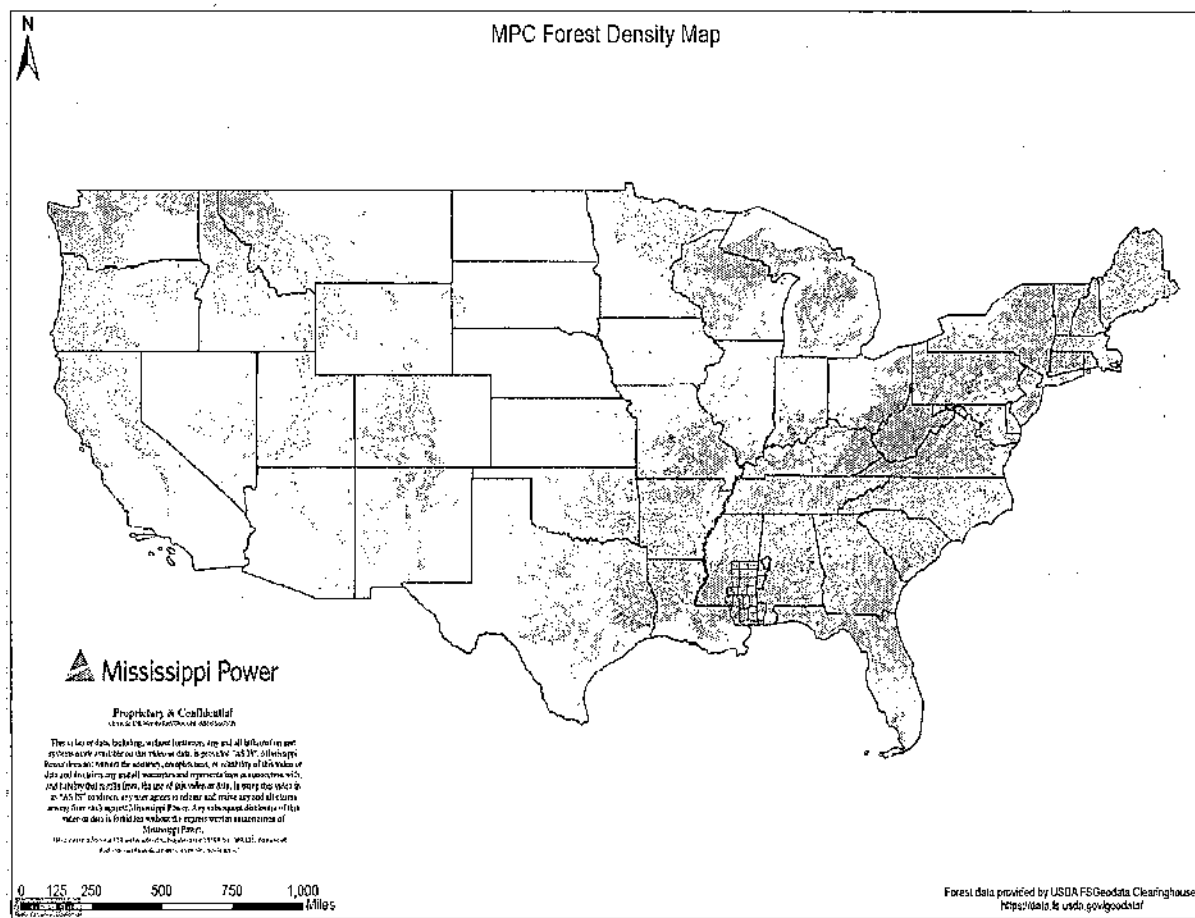


Figure 6 – MPC Forest Density Map

MPC's service territory is also within a vegetation zone that has some of the longest growing seasons in the nation as shown in Figure 7. This extended growing season requires MPC to obtain a greater clearance from the vegetation to the lines when trimming and trim more often to account for the vegetation regrowth rate and maintain safe and appropriate clearances between our facilities and vegetation.

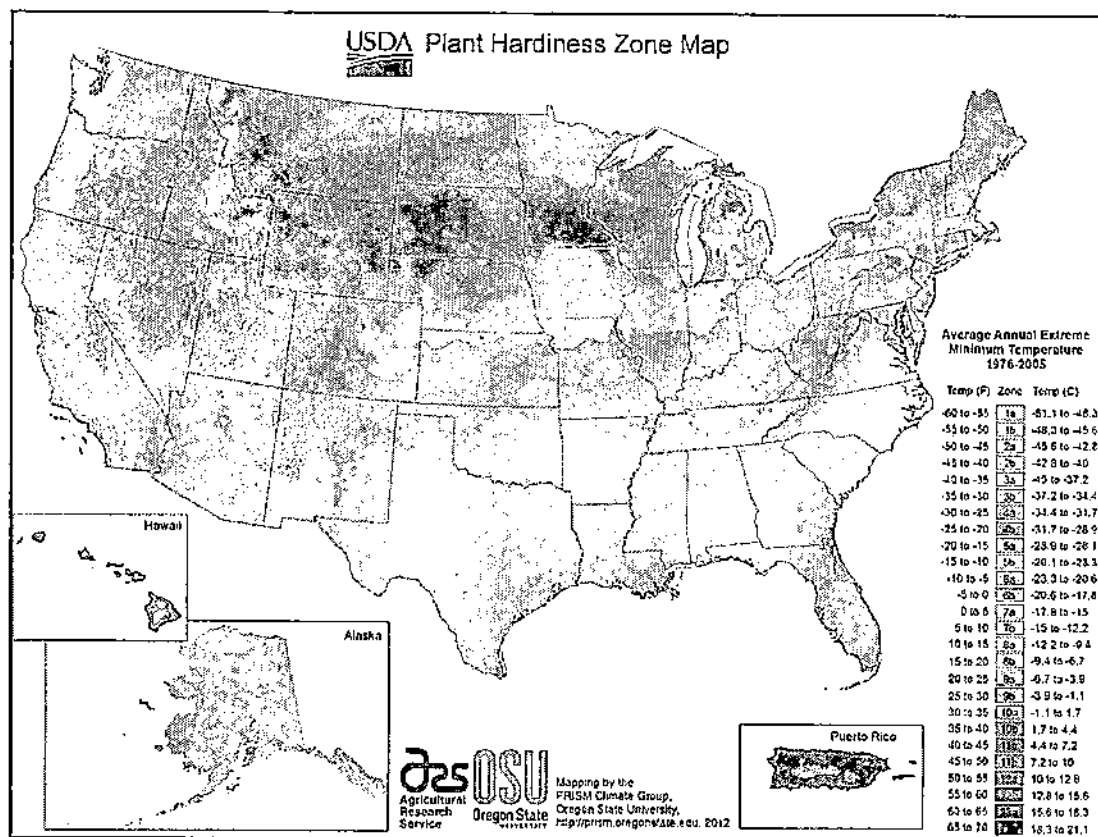


Figure 7 – USDA Plant Hardiness Zone Map

Vegetation management is one of the main preventative measures MPC uses to mitigate outages and safety issues associated with vegetation. Vegetation management is the periodic pruning of limbs and removal of trees that grow near our power lines. Vegetation management also involves maintaining the ground cover to an acceptable level under the lines, which includes mowing and herbicide application.

MPC's VM Program is an integrated program that utilizes a cyclic approach to the application of non-restrictive herbicide, mowing, pruning of trees, and removal of trees. There are two primary goals of MPC's VM Program:

1. Compliance with the North American Reliability Corporation ("NERC") FAC-003-4 "Transmission Vegetation Management" reliability standard requirements.
2. Minimize vegetation related interruptions and tree contact with energized conductors.

The NERC FAC-003-4 "Transmission Vegetation Management" reliability standard

mentioned above establishes requirements for Transmission Owners to maintain a reliable electric transmission system by managing vegetation located on transmission ROW and minimizing encroachments from vegetation located adjacent to the ROW. MPC's VM Program is guided by the Southern Company Transmission VM Optimum Program to ensure compliance with this NERC reliability standard. Failure to meet these standards can result in NERC issuing a Notice of Penalty to MPC which can include financial penalties.

Although it is neither realistic nor possible to eliminate all tree caused outages on a distribution system, an effective vegetation management program can minimize the impact on reliability. Vegetation management is important to the T&D system because vegetation growing into the system will cause power outages and could cause hazards to the public. The impact is worsened during rain, wind or ice which can cause the vegetation to fall into or contact the lines causing damage and prolonged power outages. Maintaining the ground cover under the lines is also important because brush density can impede response personnel from patrolling and accessing facilities to safely make repairs if the ground cover is too dense. If vegetation management is done improperly, or neglected, the impact can be significant and even catastrophic. There have been incidents over the years where inadequate vegetation management has been a factor in blackouts and other extreme events such as the northeast blackout of 2003 which affected an estimated 50 million people in eight states.⁵¹

MPC's VM Program involves a competitive bid process at both the local and Southern Company level to contract its vegetation management activities and control costs. MPC utilizes two bid methods to control vegetation management costs: 1) time and equipment (T&E) contracts and 2) unit pricing contracts. The T&E contracts allow flexibility to respond to unplanned or complex tasks while the unit pricing method involves contractors

² "August 14, 2003, "Northeast Blackout Impacts and Actions and the Energy Policy Act of 2005", David W. Hilt P.E., North American Electric Reliability Council.

submitting a bid to complete vegetation management activities on an entire circuit or multiple circuits using predetermined costs, thus placing productivity responsibility on the contractor.

The contractors performing all tree pruning services are required to perform pruning techniques that are in accordance with the most recent revision of the ANSI A300 standard which establishes utility pruning and trimming standards. There must be enough clearance from the conductor to the tree to prevent re-growth from contacting the conductors before the tree is pruned on the next designated cycle. A cycle is the length of time between trimming events.

MPC's VM Program is based on optimum trim clearances and trim cycles as noted in Table 10. These clearances and trim cycles have been identified as optimum based on MPC's experience in vegetation management over the past few decades, shared best practices from other utilities, trim clearances, and consideration of tree regrowth rates.

	Transmission	Distribution
Trim Cycle	<p>NERC Lines:</p> <p>500kV – 12yrs</p> <p>230kV - 8 yrs</p> <p>Non-NERC Lines:</p> <p>46kV – 6 yrs</p> <p>115kV – 8 yrs</p>	<p>North of Interstate 10 – 4 yrs</p> <p>South of Interstate 10 – 2 yrs</p>
Ground Maintenance Cycle (Mowing & Herbicide)	<p>6 yr mowing cycle;</p> <p>herbicide applied</p> <p>twice within 6yr</p> <p>mowing cycle.</p>	<p>Herbicide applied approximately</p> <p>12-18 months after pruning</p>
Desired Trim Clearance	<p>Side trimmed to</p> <p>edge of ROW and</p> <p>ground floor</p> <p>maintained to avoid</p> <p>encroachment into</p> <p>Minimum</p> <p>Vegetation</p> <p>Clearance Distance</p>	<p>10' to 15' for 4 yr cycle</p> <p>6' to 8' for 2 yr cycle</p> <p><i>NOTE: Distances are from center</i></p> <p><i>of line. Trim clearances</i></p> <p><i>dependent on tree species.</i></p>

Table 10 (MPC VM Program Trim Cycles & Trim Clearances)

Up until July of 2019, MPC's targeted trim cycle for the entire service territory was 3.5 years for distribution. In July of 2019, MPC initiated a 2-year trim cycle along coastal areas of its service territory south of Interstate 10. The area selected represents approximately 1,485 miles (27%) of the estimated 5,600 total distribution overhead line miles. MPC made this change to the trim cycle to resolve complaints from customers/communities on the amount of vegetation MPC was removing from trees in this mostly urban area and to improve storm resiliency to this portion of MPC's distribution system that has a greater exposure to tropical storms and hurricanes. In early 2020, MPC also changed the targeted trim cycle for its territory north of Interstate 10 from 3.5 years to 4 years. This change is expected to have minimal impact to system reliability and will reflect more realistic productivity levels based on recent historical trim rates.

MPC has reached its targeted optimum distribution trim cycle at year end 2021 and plans to continue being on cycle through year end 2022. MPC transmission is estimated to be on cycle by year end 2022 for the optimum trim schedule on NERC and non-NERC lines. MPC's VM Program expense is included in MPC's annual O&M budget. MPC's 2021-2023 VM Program budgets are provided in Table 11 below.

Description of Work	2021 Budget ⁽¹⁾	2022 Budget ⁽¹⁾	2023 Budget ⁽¹⁾
Transmission – NERC Lines (Trimming, Mowing, Herbicide)	\$1,295,000	\$1,315,000	\$1,058,192
Transmission – LiDAR	\$338,000	\$100,000	\$342,250
Transmission – Non-NERC Lines (Trimming, Mowing, Herbicide)	\$1,189,000	\$1,196,000	\$1,293,633
Distribution (Trimming)	\$12,500,000	\$12,252,000	\$12,252,471
Distribution (Herbicide)	\$338,000	\$343,000	\$343,692
TOTAL	\$15,660,000	\$15,206,000	\$15,290,238

(1) Costs include contract labor for tree pruning, tree removal, ground floor maintenance (mowing & herbicide), and other associated costs. Costs do not include clearing for new construction, major storm restoration work, or labor of MPC's management and staff that support vegetation management activities.

Table 11 (MPC T&D Vegetation Management Budget 2021, 2022, & 2023)

V. Customers

Rule 29 encourages utilities to consider low-income customers in relation to DSM and DER offerings and to contemplate the impediments, relative to such offerings, that lack of access to affordable capital creates. In MPC's service territory more than 25% of the households fall below the federal poverty level. Cognizant of the need, MPC devotes approximately 42% of its DSM portfolio budget to low-income programs and is actively engaged in finding ways to expand access to credit through on-bill payment options. Additionally, as permitted by Rule 29, MPC will target charitable giving to improve opportunities in its service territory.

A. DSM & DER

In 2022, MPC is projected to direct approximately 45% of the DSM budget to low-income customers participating in the following programs:

- ***SELECT Program (formerly Neighborhood Efficiency):*** As described in the 2022 DSM programs, SELECT is specifically targeted to income-qualified customers to educate and provide energy efficiency measures. MPC auditors/contractors reach approximately 50 homes per month and provide energy efficient lighting and insulation with no out-of-pocket cost for the customer. Qualifying neighborhoods are identified for the program in conjunction with community leaders, churches and low-income interest groups. Other individuals outside of the specific targeted area can qualify for participation through a partnership with Catholic Charities. The program will expand by targeting low-income, multi-family units with the addition of air and duct sealing as well as HVAC tune-ups.
- ***Behavioral Analysis:*** As described in the 2022 DSM programs, the Behavioral Analysis program provides customers with the data regarding their personal and comparative energy usage as well as tools to understand how they can become better managers of their energy usage. There will be 25,000 additional households targeted in 2022-2024 for a total of 80,000 (representing 51% of MPC's total residential customers). While MPC does not have data to show the exact percentage of participants that meet the low-income threshold, the random sampling assures us that a significant number of low-income participants are included.
- ***School Kits and Education:*** As described in the 2022 DSM programs, MPC targets 4th and 5th grade students across the service territory to educate them on the benefits of energy conservation. MPC plans to expand this program in 2022 by increasing the total eligible schools by fifty-two. MPC will continue to provide the option to use the virtual studio created in the fall of 2020 to make energy efficiency presentations to schools from our office to keep students and MPC employees safe and to comply with schools who have "no visitor" policies. The studio allows MPC to make presentations to multiple schools per day, eliminates travel time to schools, and eliminates transporting program equipment to schools. In-person presentations will be offered to schools without "no visitor" policies who request them and can provide a safe environment in which to make presentations. Kits will be delivered to schools prior to presentations and students will receive them the day of their schools' presentation. Since MPC targets schools in all communities across the service territory, it is certain that the program is reaching those most in need of assistance.
- ***STAR Demand Response Pilot Program:*** This program began in 2021 and utilizes smart thermostats to test load management potential for income-qualified residential customers. The program allows MPC to heat and cool homes prior to the peak window then adjust the thermostats to lower usage during higher cost time periods. The purpose of the pilot is to assess energy efficiency, bill savings, and load management potential of connected smart thermostats as well as customer behavior during demand response events. In 2022 the program was expanded to 47 participants.

B. STEM & Workforce Line Worker Program Initiative

In 2023, MPC will devote up to \$350,000 to continue support and development of Workforce Line Worker Training with Community Colleges within our service territory and help establish programs where they do not currently exist. We will continue to expand our efforts to develop utility line worker and electrical training programs in select area high school career technical centers. These will be like the “Energy Academy” MPC is currently operating in conjunction with Gulfport High School (GHS). The partnership with GHS was developed because this Career Technical Center is utilized by several area school districts within Harrison County. We will continue to utilize this model as we evaluate expanding these programs which provide an entry level exposure to the essential career fields of the energy industry.

MPC will aid the development and expansion of STEM-based learning activities such as regional and state-wide robotics competitions. MPC will support and sponsor the first state-wide robotics competition in 2023, as well as continue to support off-season summer competitions. These competitions provide a STEM based learning curriculum to increase student awareness in these much-needed career fields. These competitions are technical platforms for STEM education, workforce development, and allows students to explore the engineering design process.

MPC will continue to evaluate these programs and develop others that promote workforce development and STEM education and career technical training. MPC expects these programs to expand as the needs of our service territory and the state change and grow.

C. ACT Work Ready Community

MPC will continue to offer up to \$5,000 to each county in our 23-county service territory to help them achieve their gold certification as an ACT Work Ready Community. This

certification designates a county as having a qualified and work ready workforce through high school and community college student and unemployed testing. This certification is a vital economic development tool for our communities to have while demonstrating they possess a qualified and ready workforce. To date, 7 of our 23 counties have taken advantage of the grant and certification.

VI. Enabling Technologies

A. Enhanced Grid Investment

- ***Tesla Powerwall Battery Demo Project***

MPC is exploring the installation of approximately 20 Tesla Powerwall battery systems on income-qualified homes owned by an affordable housing agency to provide short-term backup power during outages. MPC also plans to install approximately 8 Tesla Powerwall battery systems on transition homes belonging to a local emergency shelter for children.

The Powerwall equipment is being supplied by Southern Company and will be installed by MPC. Each Powerwall can accommodate a 7kW peak load with 5kW continuous operation and a seamless transition for the customer. The project will allow MPC to test bi-directional data and dispatch capabilities with the Tesla Powerwalls. The data can then be used to inform program design including incentive levels based on technology performance and the customers' experience. Project costs are being estimated at this time.

- ***Residential Battery Demand Response Program***

In accordance with Exhibit B of the Commission's newly adopted Mississippi Distributed Generation Rule ("MDGR"), MPC is in the process of designing a demand response program for residential batteries. Residential customers who have a renewable

energy source and are participating in the MDGR will receive a \$2,000 incentive for installing a battery storage system after an MPC-approved energy audit is conducted. The incentive will be available until the Company reaches the \$1 million cap set by the Commission's Rule. The battery system will store and deploy excess energy to offset electricity consumption when the renewable resource is not able to produce energy.

There are relatively few battery storage demand response programs that have been in existence long enough to have established best practices. MPC is working with Southern Company Services research department to better understand the type of program structure that minimizes costs and ensures a positive customer experience. Some of the design elements we are exploring include:

- Enrollment Criteria
- Battery OEM Eligibility
- Device Control Software Integration
- Dispatch Practices to Maximize Battery Life
- Event Structure & Customer Optionality

MPC requires additional time to design an effective battery demand response program and anticipates an April 1, 2023 launch.

B. Fiber Deployment

Rule 29 highlights the importance of public utilities expanding their fiber optic infrastructure, particularly noting that "such expansion is consistent with a number of policy drivers that underlie public regulation," including reliable service, promotion of the public welfare and economic development. MPC continues to make investments, as described in Section IV – Transmission & Distribution Plan; Section E, T&D System Grid Investment Programs, that thoughtfully deploy fiber in keeping with the goals of Rule 29. The most

recent fiber to distribution projects completed include George and Lauderdale County.

- **George County Fiber Project**

On September 4, 2020, MPC filed a Notice with the Commission to install approximately 8 miles of 144-count fiber in Lucedale, MS. The fiber will interconnect with existing fiber owned by C Spire to complete a fiber ring. The agreement between MPC and C Spire will allow for a swap of 24 counts of fiber. MPC will install reclosing devices on the fiber infrastructure. C Spire and MPC partnered to identify a fiber project that would a) be mutually beneficial to each Company through enhanced infrastructure and b) increase access to broadband for residents, businesses, schools and industrial sites, and c) generate cost savings through collaboration and utilization of existing resources.

The utilization of fiber on MPC's distribution system will increase the speed and accuracy of the system's response to outages. It will allow MPC to properly coordinate more reclosing devices than what is currently possible through wireless communication. Additional reclosing devices will result in fewer customers being impacted by outages.

The fiber project could increase access to broadband services. MPC estimates there are 6,500 premises within 5 miles of the proposed fiber ring who could ultimately benefit from the fiber deployment. In addition, there are 8 schools within the vicinity who may choose to utilize their federal E-rate support to bring C Spire's all-fiber gigabit services to their campuses thereby enhancing connectivity. Additionally, MPC and C Spire may agree to jointly market their assets to third-party carriers, which could further increase access and produce a future revenue stream for MPC customers.

The fiber ring will extend to the George County Industrial Park and provide access to high-speed, fiber-based services. The park has three premier sites two of which are MS Power Project Ready certified. A 353-acre industrial rail site has been a leading candidate on several large projects in recent years. Fiber infrastructure has become more of a key component to infrastructure preparedness. With ongoing improvements related to electricity, water, wastewater, and natural gas, fiber access is the only remaining component not available. Additionally, the availability of increased reliable connectivity may foster internet business and work-from-home opportunities. MPC has completed the build out of this distribution fiber network and is in operation. The contract between MPC and CSpire is in the final stages of execution.

- **Kemper & Lauderdale County Fiber Project**

On September 4, 2020, MPC filed a Notice with the Commission to install 8.7 miles of 144-count fiber in Meridian, MS. The fiber has been installed on MPC's power distribution system and interconnect with existing fiber on MPC's power transmission system. MPC will utilize the new distribution fiber to enhance communication between new and existing reclosers which will increase system reliability.

East Mississippi Electric Power Association ("EMEPA") and MPC continue to collaborate to identify fiber deployment that would a) be mutually beneficial to each entity through enhanced infrastructure, b) increase access to broadband for customers, and c) generate cost savings through collaboration and utilization of existing resources. To date, MPC has partnered with EMEPA on two interconnect agreements to utilize dark fiber on MPC's transmission system.

The utilization of fiber on MPC's distribution system will increase the speed and accuracy of the system response to outages. It will allow MPC to properly coordinate more reclosing devices than what is currently possible through wireless communication. Additional reclosing devices will result in fewer customers being impacted by outages.

An interconnection agreement with EMEPA could allow for increased access to broadband services in the territories served by both MPC and EMEPA. The potential number of residences and businesses that could benefit from this agreement will depend on how EMEPA decides to deploy fiber from its delivery points. Additionally, MPC may market available fiber capacity to third-party carriers, which could further increase access and produce a future revenue stream for MPC customers.

Fiber extends to the industrial park and may be further deployed to provide access to high-speed, fiber-based services to ventures that locate. Fiber infrastructure has become more of a key component to infrastructure preparedness and provides further site appeal to developers. Additionally, the availability of increased reliable connectivity may foster internet business and work-from-home opportunities.

- **Jasper / Jones County Fiber Projects**

As MPC continues to execute the design, construction, and implementation of this multi-phased project, we continue to work in parallel to identify and create partnerships for the use of dark fiber.

MPC anticipates executing fiber lease agreements that will facilitate increased high-speed broadband access to consumers and businesses located in the areas and communities surrounding the proposed routes. MPC is currently negotiating specific routing and contract terms.

Fiber infrastructure, especially as it contributes to both electric reliability and high-speed broadband access, has become more of a key component to infrastructure preparedness and is also a leading indicator for economic development efforts. In addition to its benefits to nearby homes, the increased availability of high-speed broadband access in the area could also assist in attracting new commercial and industrial businesses and jobs to the area as well as retaining existing ones. The increased availability to nearby homes may also facilitate internet business and work-from-home opportunities for nearby residents.



2022

DSM Programs

Appendix A

December 1, 2022

CONTENTS

II. 2022 DSM Summary/Program Performance.....	5
A. SELECT (Residential Low Income)	6
B. Behavioral Energy Efficiency Program (HERs)	7
C. Residential Energy Efficiency Program (REEP)	15
D. Welcome Kits	15
E. New Home Program.....	16
F. STAR Demand Response Expanded Pilot Program.....	17
G. School Kits and Education	18
H. Small Business Program (formerly Commercial 100)	19
I. Large Commercial and Industrial (formerly Commercial 500)	20
J. Strategic Load Growth	21
III. 2023 DSM Program Changes	22
A. SELECT (Residential LMI)	24
B. Manufactured Home Weatherization Pilot.....	24
C. Behavioral Analysis Program (HERs).....	24
D. Residential Energy Efficiency Program	24
E. Welcome Kits	24
F. New Home Program.....	24
G. Home Revitalization Program.....	25
H. STAR Demand Response Expanded Pilot.....	25
I. School Kits and Education	25
J. Small Business Program.....	26
K. Small Business Kit Pilot.....	26
L. Large Commercial & Industrial Program	27
IV. 2023 DSM Program Cost Effectiveness	29
V. 2023 Strategic Load Growth Programs	30
A. Residential Electric Transportation Program	30
B. Commercial Electric Transportation Program	30
C. Commercial Strategic Electrification Program	30
VI. 2023 Strategic Load Growth Programs Cost Effectiveness	30

I. 2021 Executive Summary/Program Performance

In 2021, Mississippi Power Company ("MPC") moved into a full rollout of DSM programs to be offered in conformity with the new version of Rule 29. These consist of nine programs designed to reach Residential and Non-Residential customer classes. These included the new home and demand response pilot programs. The 2021 programs yielded annual energy savings of 21,964 MWhs while reaching 66,715 participants.

Table 1 briefly summarizes MPC's Energy Efficiency program performance for 2021. A description of each individual program follows.

Table 1: Summary of Portfolio Results

2021 DSM Programs

Program Name	Number of Participants	Annual MWh Savings	kW Savings	Program Expenses
SELECT	1,571	2,626	941	\$1,132,180
Behavioral Program	53,472	9,076	681	\$300,476
Residential Energy Efficiency Program	637	1,861	673	\$576,511
School Kits and Education	4,334	654	191	\$214,457
Welcome Kits	6,419	1,345	315	\$201,762
New Home Pilot		-	-	\$-
DR Pilot	55	63	21	\$49,693
Commercial 100	160	3,195	881	\$516,988
Commercial 500	67	3,122	978	\$379,873
Totals	66,715	21,944	4,681	\$3,371,940

**Cross-Cutting – overhead costs that are not specific to any program but are allocated across all programs (i.e., labor).*

In addition to the \$3,371,940 spent on these nine programs, MPC incurred expenses of \$4,844 in Marketing and Advertising, \$474,954 in EM&V & Planning and \$339,439 for Cross-Cutting for 2021 programs.

2021 Program Descriptions & Results

SELECT (Low Income): This program provides education and promotion of energy efficiency as well as installation of energy-saving measures to income-qualified customers. MPC/contractors audit approximately 75 homes per month and provide efficient LED lighting and insulation upgrades. In 2021, this program had 1,571 participants with annual energy savings of 2,626 MWhs. Program expenses totaled \$1,132,180.

Behavioral Analysis: This program bridges the customer engagement gap, providing MPC customers with the data regarding their personal and comparative energy usage as well as tools to understand how they can become better managers of their energy usage. In 2021, this program had 53,472 participants with annual energy savings of 9,076 MWhs. Program expenses totaled \$300,476.

Residential Energy Efficiency Program (REEP): This program increases energy awareness by offering home energy assessments to MPC's residential customers which help homeowners analyze their energy use, identify energy efficiency projects, and install low-cost, energy-saving measures in their residences through trade allies. It also offers HVAC unit replacement incentives. In 2021, this program had 637 participants, with annual energy savings of 1,861 MWhs. Program expenses totaled \$576,511.

School Kits and Education: MPC presents energy efficiency tools to 4th and 5th grade students to educate on the benefits of energy conservation. Students receive an energy efficiency kit to install at home and schools are incentivized to participate. In 2021, this program had 4,334 participants with annual energy savings of 654 MWhs. Program expenses totaled \$214,457.

Welcome Kits: This program sends kits to new residential customers. The kits include light-emitting diode ("LED") bulbs, energy efficiency tips and a LED nightlight. In 2021, this program had 6,419 participants with annual energy savings of 1,345 MWhs. Program expenses totaled \$201,762.

New Home Program: The program provides tiered incentives that promote the installation of energy-efficient measures in new home construction that exceed baseline construction standards and improve the energy performance of participating homes. The Residential New Homes program was launched in Q4 2021 and focuses on a whole-building approach for improving the energy efficiency of new single-family homes.

Star Demand Response Pilot Program: This program began in 2021 and utilizes smart thermostats to test load management potential for income-qualified residential customers. The program allows MPC to heat and cool homes prior to the peak window then adjust the thermostats to lower usage during higher cost time periods. The purpose of the pilot is to assess energy efficiency, bill savings, and load management potential of connected smart thermostats as well as customer behavior during demand response events. In 2021, this program had 55 participants with annual energy savings of 63 MWhs. Program expenses totaled \$49,693.

Commercial 100: This program educates and provides direct-installed efficiency measures and incentives to business customers that have a ≤ 100 kW peak demand threshold. In 2021, this program had 160 participants, with annual energy savings of 3,195 MWhs. Program expenses totaled \$516,988.

Commercial 500: This program provides facility walk through energy assessment audits and incentives toward a suite of energy efficiency measures, for customers with a peak demand ≤ 500 kW. The program is designed to help customers who manage commercial facilities, operate their buildings more efficiently by deepening their understanding of the technical and financial benefits of energy efficiency investments. In 2021, this program had 67 participants, with annual energy savings of 3,122 MWhs. Program expenses totaled \$379,873.

Table 2: Program customer class participation

	Residential	Residential – Low Income	Non- Residential
SELECT		X	
Behavioral Analysis	X	X	
REEP	X	X	
School Kits and Energy Education	X	X	
Welcome Kits	X	X	
New Home Pilot	X		
DR Pilot	X	X	
Commercial 100			X
Commercial 500			X

II. 2022 DSM Summary/Program Performance

Mississippi Power's demand-side management (DSM) portfolio remains an important piece of its resource plan. In 2022, Mississippi Power Company ("MPC") implemented nine programs designed to reach Residential and Non-Residential customer classes. Two new pilot programs were launched to reach the LMI customers in multi-family housing and to overcome language barriers to the English-as-a-second language (ESL) customers to offer provide the SELECT program measures. Also, the Commercial programs were expanded to include all Commercial and Industrial customers. The 2022 programs yielded annual energy savings of 21,835 MWhs through September. The programs reached 91,522 participants, which is a 43% increase in participation from this time last year for January - September. Besides conserving energy, the company avoided 10,952 tons of CO₂e.

Table 3 briefly summarizes MPC's Energy Efficiency program performance for January – September 2022. A detailed description of each individual program follows.

Table 3: Summary of Portfolio Results

2022 DSM Programs January - September				
Program Name	Number of Participants	Annual MWh Savings	kW Savings	Program Expenses
SELECT	1,220	2,889	1,022	\$1,230,689
Multi-family LI Pilot Program (included in SELECT)	85	680	191	\$-
SELECT ESL Pilot (included in SELECT)	77	149	62	\$-
Behavioral Analysis Program	80,659	9,620	2,632	\$330,572
Residential Energy Efficiency Program (REEP)	343	672	257	\$64,743
EE New Home Program	7	27	9	\$5,720
Welcome Kits	5,423	1,137	266	\$169,404
STAR DR Pilot	19	22	7	\$83,444
Home Revitalization Pilot	7	25	12	\$8,911
School Kits & Energy Education	3,665	553	161	\$86,393
Small Business	83	2,528	727	\$408,941
Large Commercial & Industrial	40	4,230	1,238	\$220,600
ODL	7	68	9	\$-
Marketing & Advertising				\$1,738
EM&V & Planning				\$221,847
Cross-Cutting*				\$500,295
Totals	91,522	21,835	6,361	\$3,333,296

*Cross-Cutting – overhead costs that are not specific to any program but are allocated across all programs (i.e., labor).

A. SELECT (Residential Low Income)

This program provides information and premise upgrades that promote energy efficiency to residential income-qualified customers. In 2022, the program expanded the criteria from 200% FPL to 250% to reach the LMI sector as well. MPC auditors/contractors audit and provide energy-efficient lighting and attic insulation at no cost to qualified customers. MPC uses internal methodologies to target specific low-income neighborhoods to maximize the number of customers it reaches. Qualification of neighborhoods is supplemented by interaction with community leaders, churches and low-income interest groups. Other individuals outside of the specific-targeted area can become eligible for participation through a partnership with Catholic Charities. Multi-family properties are eligible for air- and duct-sealing in addition to ceiling insulation.

In a pilot for 2022, multi-family properties are eligible for air and duct sealing in addition to ceiling insulation.

An additional pilot program under SELECT for 2022 implemented a targeted effort to reach multi-cultural (ESL) communities within our program's selected areas through local organizations and bilingual mailouts. This included Spanish speaking customers in the city of Forest and Vietnamese speaking customers in the cities of D'Iberville and Biloxi. Due to the success of the pilot the program

will continue to address these communities to help them become more energy efficient. Below are examples of the letters sent to the participating areas.

Table 4: Demographic information of targeted neighborhoods

SELECT Program	
Area	Month
Wiggins	January 2022-April 2022
Columbia	July 2021 - February 2022
Meridian	March 2022 - June 2022
Picayune	April 2022- July 2022
Lucedale	May 2022-September 2022
Leakesville	September 2022- Present
SELECT Multi-family	
Marion	June
Gulfport	August
Forest (Jones St)	June
Forest (Meadowlawn)	August
SELECT ESL	
Forest	July 2022 - Present
D'Iberville	August 2022 - Present
Biloxi	September 2022 - Present

B. Behavioral Energy Efficiency Program (HERs)

In November 2014, Mississippi Power and Opower launched the initial Home Energy Reports (HERs) program, an opt-out behavioral program designed to boost customer engagement and reduce residential energy consumption and costs. Participating households receive a series of personalized HERs and email Home Energy Reports (eHERs) designed to motivate and educate recipients to take actions to improve the energy efficiency of their homes. The behavioral energy efficiency program results in measurable and verifiable energy savings for Mississippi Power customers, while increasing customer engagement and awareness of other energy efficiency programs. The HER program is uniquely suited to reach a broad base of Mississippi Power's customers, providing benefits to customers of all income levels and demographics.

Program Highlights

i. Program Design and Participation

- Due to the effectiveness and customer response, a program expansion was launched in January 2022, where 36,000 customers were added to the HER program to total ~80,000 residential Mississippi Power customers in the HER program in 2021.
- HER program recipients receive paper HERs on a quarterly basis and email for each billing cycle.
- As of August 2022, a total of 236,894 paper HERs (Figure 1) and 344,358 email HERs (Figure 2) have been sent to customers in 2022.
- All recipients in the Home Energy Report program have access to Opower's online web portal, which allows them to track energy usage, find tips on how to save energy, and provide updates to their home profile.

Figure 1. Mississippi Power Print Home Energy Report

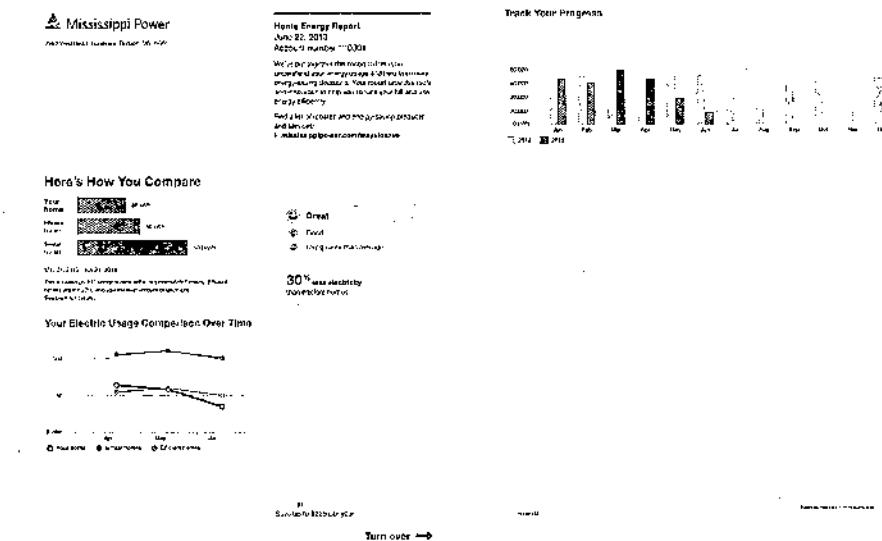
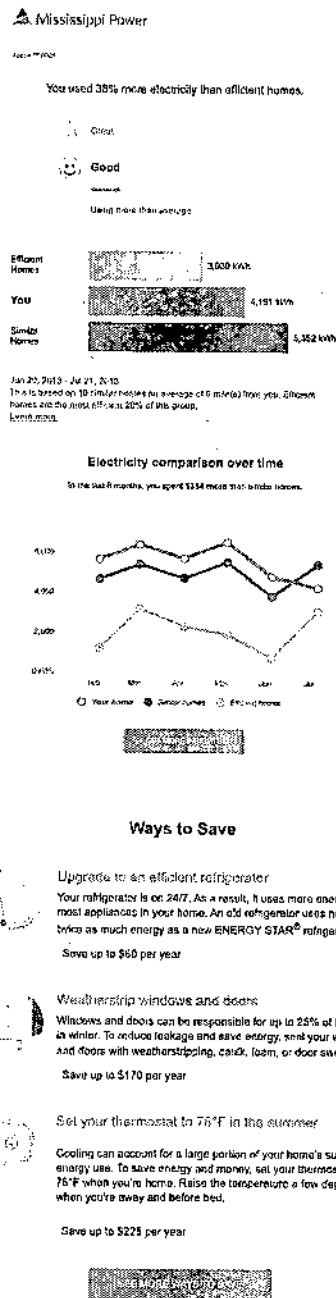


Figure 2. Mississippi Power Email Home Energy Report

MISSISSIPPI POWER COMPANY
MPSC DOCKET NO. 2018-AD-64
IRP PLANNING RULE



ii. **Program Results**
Energy Savings

Savings are measured and verified using a randomized control trial. A statistically equivalent group of approximately 37,000 households have been randomly assigned to serve as a control population; these households do not receive reports. Both samples (the treatment and control) were randomly selected from the same population to ensure unbiased measurement and verification of program results.

As of August 2022, HER treatment customers have an average savings of 1% and have saved over 7,000 MWh for the year.

iii. **2022 Program Innovations and Updates**

- In January 2022, a 36k household expansion was launched. They received the "Welcome" modules below in their paper Home Energy Report (Figure 3) and their Email Home Energy Report (Figure 4). Customers in the new expansion will receive 5 total print reports in 2022.

Figure 3. Print Home Energy Report Welcome Module

You have the power to save



Welcome to the Home Energy Reports program

Based on how your home uses energy, Home Energy Reports can help you use less, save more, and improve your home.

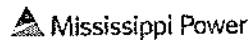
You'll get customized reports and online tools that include:

- Insights into your energy use.
- Personalized tips for comfort and savings.
- Ways to track your progress.



Visit mspo.opower.com to access your tools and more. Enjoy your first report!

Figure 4. Email Home Energy Report Welcome Module



Acct # ***0201

**Welcome to the Home Energy Report
program**

Based on how your home uses energy, we think these reports will help you save energy and money, as well as improve your home. You'll get personalized insights into your energy use, plus access to offers and programs to help you save. Enjoy your first report!

- In early 2022, Opower hosted a marketing workshop with Mississippi Power to review marketing priorities and create a marketing plan which would leverage the HERs to reach these marketing goals. Since the marketing workshop, we have created several new Marketing Modules which have run on print and email HERs (Table 1 and Figures 5-10).

Table 1. 2022 HER Marketing Modules

Module Name	Timing	Image
Earth Day Print Marketing Module	April 2022 Print	Figure 5
Earth Day Email Marketing Module	April 2022 Email	Figure 6

WIFI Thermostat Email Marketing Module	May 2022 Email June 2022 Email	Figure 7
Reliability Print Marketing Module	July 2022 Print	Figure 8
Reliability Email Marketing Module	July 2022 Email August 2022 Email September 2022 Email	Figure 9
Insulation Email Marketing Module	September 2022 Email	Figure 10

Figure 5. Earth Day Print Marketing Module

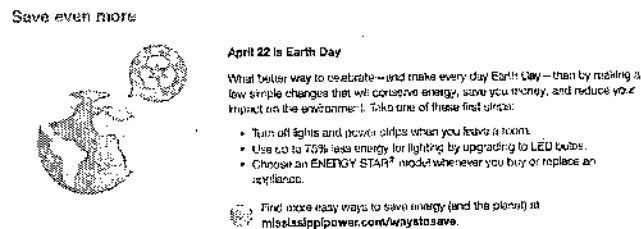


Figure 6. Earth Day Email Marketing Module

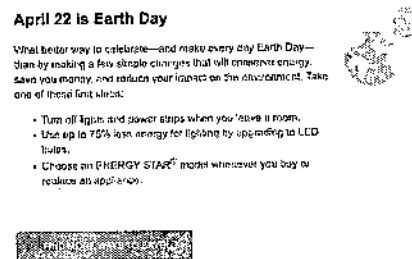


Figure 7. WIFI Thermostat Email Marketing Module

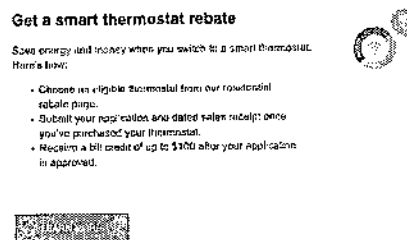


Figure 8. Reliability Print Marketing Module

Did you know?



We're here for you

We've installed automated equipment as part of our Self-Healing Network, which allows us to get your power back on faster following an outage.

You expect your power to be there when you need it, and we work around the clock to keep you connected.

Figure 9. Reliability Email Marketing Module

Did you know?



We've installed automated equipment as part of our Self-Healing Network, which allows us to get your power back on faster following an outage.

You expect your power to be there when you need it, and we work around the clock to keep you connected.

Figure 10. Insulation Email Marketing Module

Savings are great when you Insulate



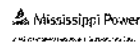
Is your home adequately insulated? Proper attic insulation can make your home more comfortable and provide energy savings. Don't let your money exit through the roof—keep it in your pocket, where it belongs.



- In Summer 2022, customers received a Summer Edition of the Home Energy Report. The Summer Edition reports spanned both July print and email reports (Figure 11 and Figure 12). The Summer Edition reports include updated insights and savings tips to help customers to better understand their energy usage in summer months and how cooling their home affects their energy use.

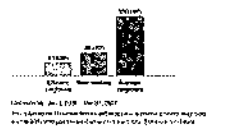
Figure 11. Mississippi Power Summer Edition Print Home Energy Report

MISSISSIPPI POWER COMPANY
MPSC DOCKET NO. 2018-AD-64
IRP PLANNING RULE



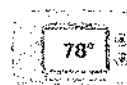
Summer Energy Report
July 21, 2018
Account Number: 0001
We've put together this report to help you understand your energy usage and how you can save money on your bills. For more information, visit mississippipower.com/energyreport.
Looking for ways to save? This Summer Report is just what you need.

Cooling use: How do you compare?



Good
Your cooling use is **\$17** more than the average.
To help you save, we've included some tips on how to reduce your cooling use.

Avoid high summer bills

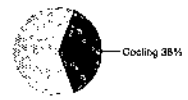


The Dept. of Energy recommends 78°F for a balance of savings and comfort. Lower 78°F when you're home. Turn down the temperature a few degrees when you're away.

Feeling too warm? Use fans along with your AC. Fans can help you feel more comfortable at 78°F or even higher. Use fans to circulate air.



How well your employer is doing



You can lower your bills by cooling your home efficiently.
Your cooling cost: **\$330** (per month)

Did you know?

We're here for you. We've included additional resources on how to get help. We're here to help you save money on your bills. We're here to help you save money on your bills. We're here to help you save money on your bills.

Emergency Answer Guidelines

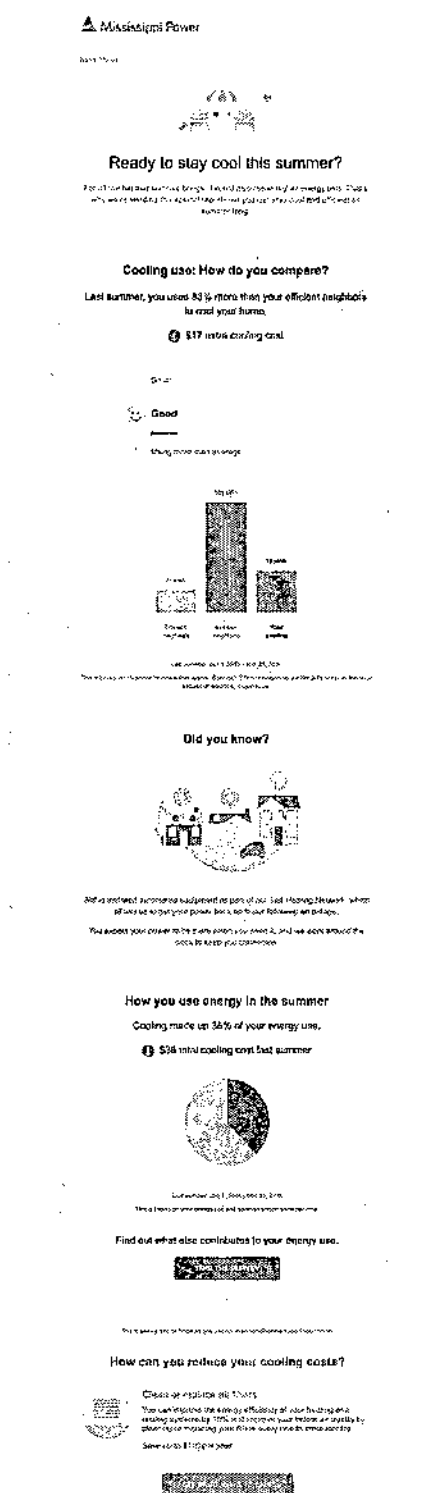
What to do:
If you have a gas leak, turn off the gas and call 911.
If you have a fire, call 911.
If you have a medical emergency, call 911.
If you have a power outage, call 800-455-6229.
If you have a water leak, call 800-455-6229.
If you have a sewer backup, call 800-455-6229.
If you have a tree down, call 800-455-6229.
If you have a downed power line, call 800-455-6229.
If you have a downed power line, call 800-455-6229.
If you have a downed power line, call 800-455-6229.

What to do:

Call 800-455-6229 for help.
Call 800-455-6229 for help.
Call 800-455-6229 for help.
Call 800-455-6229 for help.
Call 800-455-6229 for help.
Call 800-455-6229 for help.
Call 800-455-6229 for help.
Call 800-455-6229 for help.



Figure 12. Mississippi Power Summer Edition Email Home Energy Report



C. Residential Energy Efficiency Program (REEP)

This energy efficiency program allows homeowners to achieve significant, long-term energy savings. Homeowners achieve those savings by allowing trade allies to assess the home's unique energy-saving opportunities and carry out the work necessary to complete the identified opportunities. The program provides a direct benefit to MPC residential customers, as well as local contractors.

Program objectives are met through five key components: 1) identifying energy efficiency opportunities through home assessments through trade allies; 2) executing weatherization measures including air/duct sealing and ceiling insulation; 3) implementing direct install measures including LEDs; 4) providing mail-in rebate measures including smart thermostats, heat pump water heaters, window AC units, pool pumps, and heat pump water heaters; and 5) HVAC unit replacements of existing HVAC equipment with high-efficiency heat pump units or conventional air conditioning equipment.

REEP Measures & Incentive Levels:

Program	Who's Eligible?	What are the Measures?	What are the incentive amounts?
Residential Energy Efficiency Program	MPC Residential customers	15 SEER Central Air Conditioning	\$80/ per ton
		16+ SEER Central Air Conditioning	\$100/ per ton
		15 SEER Heat Pump	\$160/ per ton
		16+ SEER Heat Pump*	\$200/ per ton
		ENERGY STAR Smart Thermostat	\$100/ thermostat
		ENERGY STAR Pool Pump	\$250/ pump
		ENERGY STAR Window A/C	\$25/ unit
		Heat Pump Water Heater	\$350/ unit
		Ceiling Insulation >R19	\$.12/per sq. ft.
		Ceiling Insulation <R19	\$.20/per sq. ft.
		Air Sealing	\$.10/ per CFM50 reduced
		Duct Sealing	\$1.50/ per CFM25 reduced
		LED Lighting (direct-install only, combination program offering only)	\$3.50/per incandescent bulb replaced (limit of 12 per home)

D. Welcome Kits

This program provides six light-emitting diodes (LED) bulbs, energy efficiency tips and a LED nightlight to new residential customers in kits mailed to the customer.

2022 Welcome Kit Survey

A survey was conducted of Welcome Kit recipients to gain insight into the impact and awareness of LED bulbs and the benefits to the customers. Interviews were conducted from August 8-16, 2022, with an 8% response rate.

Survey Results:

- The Welcome Kit was recalled by 85% of new MPC customers
- Among those customers recalling the Welcome Kit, nearly all (94%) were able to use the LED bulbs contained in the kit
- Among those able to use the LED bulbs, six out of ten replaced incandescent bulbs
- Before receiving the kit, most customers (84%) were already aware of the energy savings associated with using LED light bulbs
- After receiving the kit, six out of ten said they were more aware of the energy savings associated with using LED light bulbs
- Nearly half (45%) said the Welcome Kit prompted them to visit Mississippi Power's website to learn more about their programs and services
- Nine out of ten (89%) were very satisfied/satisfied with the Welcome Kit they received

E. New Home Program

Residential New Homes Pilot –The program promotes the installation of energy-efficient measures beyond baseline standards in new home construction that exceed baseline construction standards and improve the energy performance of participating homes. The Residential New Homes program will focus on a whole-building approach for improving the energy efficiency of new single-family homes. The new offering will include tiered incentives. This program is launching Q4 of 2021.

Measures & Incentive Levels:

Incentive	Measures
Bronze - \$250 Rebate	HVAC: Heat pump with minimum SEER rating of 14 Water Heating: Conventional electric water heating
Silver - \$500 Rebate	HVAC: A/C with minimum SEER rating of 15 Lighting: LED required in all ceiling/recessed-mounted fixtures Attic Insulation: R38 equivalent
Gold - \$750 Rebate	HVAC: Heat pump with minimum SEER rating of 16 Water Heating: Conventional electric water heating Lighting: LED required in all ceiling/recessed-mounted fixtures Thermostats: Smart, Energy Star certified thermostat installed for each HVAC unit Attic Insulation: R38 equivalent
Platinum - \$1,000 Rebate	HVAC: Heat pump with minimum SEER rating of 17 Water Heating: Heat pump/hybrid water heater Lighting: LED required in all ceiling/recessed mounted fixtures Thermostats: Smart, Energy Star certified thermostat installed for each HVAC unit Attic Insulation: R38 equivalent
Additional - \$250 Rebate	EV: Electric vehicle charger installation

F. STAR Demand Response Expanded Pilot Program

MPC added a pilot program in 2021 that utilizes smart thermostats to test load management potential for income-qualified residential customers allowing MPC to heat and cool homes prior to the peak window. The purpose of the pilot is to assess energy efficiency, bill savings, and load management potential of connected smart thermostats as well as customer behavior during demand response events. The duration of the pilot will be one year with the option to continue as a pilot or develop into a full program for additional years.

The program offers rebate checks as incentives to participants. Each participating household receives a rebate check for \$50 at the beginning of the program. Participants will also receive a \$100 rebate check after 12 months in the program if they meet the following criteria:

- Participants must not opt out of the program.
- Participants must not remove or interfere with the connectivity of the thermostat.

- Participants must reside in the same premise for the duration of the study.

At the conclusion of the program, the smart thermostat will become the exclusive property of the participant. In addition, 12 energy efficient LED bulbs are given to all participating households.

MPC utilizes Uplight Orchestrated Energy Demand Response Management System (DRMS) to administer and manage the program. Through this system, MPC will be able to monitor program performance and coordinate demand response events.

Once the participants' existing thermostats are replaced by smart thermostats, MPC:

- Creates events to shift the load away from peak as necessary for the study
- Monitors customer interaction with events
- Collects data used to determine energy efficiency capabilities of low-income households

Additionally:

- MPC provides participants 24-hour notice prior to an event day via email. During an event, the thermostat notifies participants if they are in the preconditioning or active event period.
- The events reduce or raise the temperature setting on the smart thermostat by up to 4 degrees prior to the peak demand time and cycle off for no longer than a 2-hour duration.
- Customers will have the capability to manually override the change in the thermostat.
- Customers will be surveyed at the end of the program to gather feedback and assess satisfaction.

August 31, 2022, Smart Thermostats have been installed in income-qualified households as part of the pilot and 568 lightbulbs have been given out to participants of the DR program for a total energy savings of 63 MWh. Three demand response events have been executed in 2022, which are currently being analyzed.

G. School Kits and Education

The School Kits and Education program is designed to help educate 4th and 5th grade students about energy efficiency and ways to save electricity. MPC continues to carefully focus programs to benefit LMI customers and estimate that 43% of the 4,334 (Jan-Sept) total students participating in the Energy Efficiency Education program are members of LMI households. The students participate in a presentation about energy efficiency and then receive education kits to take home to share with their families. Kits includes several energy efficient measures to install around the house. The schools are incentivized to encourage participation by individual classrooms being awarded "mini grants" for returned parental attestation of their child's participation.

Student Education Program Measures & Incentive Levels:

Energy Efficiency kits are provided to each fourth and fifth grader who participates in the program. These kits include 3 LED light bulbs, 2 shower timers, 1 LED nightlight, 1 recommended thermostat setting magnet, a home energy survey and a parent/guardian card. Each kit costs ~\$16.45.

Each grade with 75% participation (student energy surveys and parent/guardian cards returned) receives a \$300 mini-grant.



Today, our Energy Efficiency Education Program kicked off its 9th year of teaching 4th and 5th graders how to use energy efficiently and safely. We hope to visit over 65 schools this year and reach 6,000 students for the 2022-2023 school year.



H. Small Business Program (formerly Commercial 100)

The Small Business program offers contractor and customer education on energy efficiency technologies that will potentially assist in generating [alternate or non-energy] revenue from projects in the small business market. MPC works directly with our qualified contractors to provide design and installation services for energy efficient technologies. Substantial incentives are in place to move small businesses (≤ 100 kW peak demand) to install energy efficient products, such as high efficiency lighting and refrigeration measures. The program overcomes market barriers by providing incentives to help pay for energy efficiency upgrades. In addition, the Small Business Program connects customers with contractors who are qualified to provide design and installation services for energy efficient technologies.

Small Business Measures & Incentive Levels:

The program will pay up to 70% of the project cost.

Small Business	Customers with peak demand less than or equal to 100 kW per service address	Lighting	\$3-\$150 per unit
		Lighting Controls	\$20-\$40 per component
		Anti-Sweat Refrigerated Door Cases	\$210 per component
		ENERGY STAR Smart Thermostat	\$100 per thermostat

I. Large Commercial and Industrial (formerly Commercial 500)

The Large Commercial & Industrial program targets large commercial/small industrial customers and is designed to help customers who manage, or own commercial facilities operate their buildings more efficiently by deepening their understanding of the technical and financial benefits of energy efficiency investments. In 2022, the Commercial programs were expanded to include all Commercial and Industrial customers. The program also helps these customers plan energy efficiency improvements. The Large Commercial & Industrial Program will offer simple rebates to reduce the incremental cost of eligible high efficiency equipment for all commercial customers.

Large Commercial & Industrial Measures & Incentive Levels:

Incentives are capped at \$30,000 per premise, per program year.

Large Commercial & Industrial	Any commercial customer	Lighting	\$2-\$100 per unit
		Lighting Controls	\$10-\$25 per component
		Energy Star Refrigerator or Freezer	\$75 per unit
		Cooler/Freezer Lighting	\$50 per component
		Anti-Sweat Refrigerated Door Cases	\$100 per component
		HVAC Replacements	A/C \$75 per ton HP \$100 per ton
		HVAC Tune-ups	\$40 per ton
		ENERGY STAR Smart Thermostat	\$100 per thermostat
		Ceiling Insulation	\$0.20 per sq ft
		Variable Frequency Drive	\$50 per hp
Outdoor Lighting	Any commercial customer	Custom	\$0.10 per kWh
		Wall Packs	\$30-\$50 per unit
		Pole Mounted Fixtures	\$30-\$75 per unit
		Controls	\$10 per unit

J. Strategic Load Growth

MPC proposed strategic load growth programs in the 2020 EDP filing that were implemented in August 2021. The strategic load growth programs as described in Rule 29 are designed to offer participant benefits that can include cost savings, improved comfort, production efficiencies and emission reductions. These programs also benefit all utility customers through the increased utilization of resources that spreads more energy usage over utility fixed costs thereby placing downward pressure on rates. Strategic load growth programs are evaluated for cost effectiveness using the RIM test in accordance with the California Standard Practice Manual.

Programs implemented in 2022 were:

- **Residential Electric Transportation Program:** Encourages residential customers to purchase a Battery Electric or Plug-In Hybrid Electric Passenger Vehicle through education, customer support, and incentives. Educates customers on the strategic benefits of upgrading to electric technology from internal combustion engines, including reduced fuel and maintenance costs and decreased emissions.

Equipment	Incentive
Battery Electric Vehicle	\$1,250
Battery Electric Vehicle (Leased)	\$1,000
Battery Electric Vehicle (Used costing above \$10K)	\$750
Plug-In Hybrid (New)	\$750
Plug-In Hybrid (Leased)	\$500
Plug-In Hybrid (Used costing above \$10K)	\$500
Level 2 Vehicle Charger	\$250

- **Business Electric Transportation Program:** Encourages commercial and industrial customers to upgrade fossil fuel-powered transportation equipment to electric-powered alternatives through education, customer support, and incentives. Incentives will be offered for both on-road and off-road vehicles like forklifts and lift trucks.

	Customer	Dealer
Class 1 Industrial Lift Truck – New	\$1,000	\$ 250
Class 1 Industrial Lift Truck – Existing	\$1,000	\$ 250
Class 2 Narrow Aisle Reach Truck – New	\$1,000	\$ 250
Class 2 Narrow Aisle Reach Truck – Existing	\$1,000	\$ 250
Class 3 Hand Driven & Pallet Jacks	\$ 250	\$ 250
Level 2 Electric Vehicle Charger	\$ 0	\$2,000
Truck Electric Parking	\$ 0	\$2,000
Truck Electric Transportation Refrigeration Unit	\$ 0	\$2,000

- **Commercial Strategic Electrification Program:** Offers a custom incentive path for installations of strategic electrification equipment such as Waste Heat Recovery, Electric Infrared Heating, Electric/Electrode Boilers and Variable Refrigerant Flow (VRF) with heat recovery. The objective is to improve production efficiencies, enhance the customer's competitive position, or assist with emission reduction goals. Eligibility for incentives through this program will be based on customized analysis to determine the benefits and impacts of each project individually, to ensure cost effectiveness requirements are met for both the customer and Mississippi Power.

2022 Strategic Electrification Results		
Class	Participation	Incentives
Commercial	13	\$66,750
Residential	54	\$70,750

III. 2023 DSM Program Changes

MPC plans to continue the nine programs listed in previous section and were implemented during 2022 with adjustments to help meet our customers' needs to improve the efficiency of their homes and businesses. The multi-family pilot under the SELECT program will also be incorporated into the 2023 plan and the focus on reaching the ESL communities will continue and no longer considered a pilot effort. Due to the upcoming increase in federal minimum SEER rating to 15 SEER for the Southern and Southeastern states, we are increasing qualification for our rebates to ≥ 16 SEER for HVAC units to promote the additional efficiency created by the new baseline. The residential offerings will include a pilot to help weatherize manufactured homes with air and duct sealing and insulation. We will be adding a Commercial program to provide kits to new customers that contain energy efficient measures. MPC is also researching the possibility of braiding funding with the new rebates for LI customers through the Inflation Reduction Act and the electric transportation rebates through the Federal Infrastructure Act.

Mississippi Power contracted with Brightline Group in 2021 to conduct a Market Potential Study considering Energy Efficiency, Demand Response, and Beneficial Electrification, to support the ongoing Integrated Resource Planning and DSM Program planning activities. The Energy Efficiency Potential Study considers a wide range of energy efficiency measures that Mississippi Power could implement and applies cost-effective measures to Mississippi Power's current and forecasted customer base. The study assesses opportunities across a 20-year time horizon (2022-2041) and includes primary market research of customer's willingness to participate and a comprehensive review of projected energy savings opportunities, to develop estimates of technical, economic, and achievable potential.

Outcomes from this study including measure-level cost effectiveness and measure savings potential are providing guidance in the development of Mississippi Power's 7-year program plans starting in 2022. Key findings from the study for energy-efficiency opportunities are the reduced savings opportunities for residential screw-in lamps in the near term. Commercial lighting potential is also forecasted to transform from primarily LED fixture opportunities to a larger contribution from lighting controls technologies. Industrial sector opportunities grow most significantly. Mississippi Power's program plans

MISSISSIPPI POWER COMPANY
MPSC DOCKET NO. 2018-AD-64
IRP PLANNING RULE

for 2023 are designed to address the transforming residential and commercial lighting markets and provide incentives to target opportunities identified in the Market Potential Study.

Table 5 briefly summarizes Mississippi Power's 2023 DSM program performance projections. A description of proposed changes for each program and results of the cost effectiveness tests follows.

Table 5: Summary of Portfolio Projections

2023 DSM Programs & Targets				
Programs	Number of Participants	Annual MWh Savings	kW Savings	Total Program Budget
SELECT (Res Low Income)	1,070	2,943	1,016	\$1,157,743
Behavioral (HERs)	80,000	11,950	2,821	\$395,856
Residential Energy Efficiency Program	689	1,533	557	\$395,764
Welcome Kits	7,200	1,022	343	\$177,612
New Homes	25	131	47	\$35,000
STAR Demand Response Pilot	TBD	TBD	TBD	TBD
School Kits and Education	4,970	363	122	\$231,113
Small Business	184	3,899	685	\$580,657
Large Commercial & Industrial	60	6,299	1,333	\$629,075
Outdoor Lighting				\$150,000
Marketing & Advertising				\$20,000
EM&V & Planning				\$183,985
Cross-Cutting*				\$796,782
Portfolio Total	94,198	28,139	6,924	\$4,753,587

*Cross-Cutting – overhead costs that are not specific to any program but are allocated across all programs (i.e., labor).

MPC has developed a 2022-2028 trajectory for DSM investment and energy savings that is informed by the Company's Technical Potential Study as well as nearly 7 years of DSM program implementation experience.

Program Year	kWh	Budget*	% Savings of retail sales**
2021	21,980,943	\$ 4,192,348	0.24%
2022	26,180,312	\$ 4,492,348	0.29%
2023	28,126,352	\$ 4,592,348	0.31%
2024	32,450,576	\$ 4,792,348	0.36%
2025	34,967,754	\$ 4,992,348	0.38%
2026	38,167,619	\$ 5,192,348	0.42%
2027	40,848,268	\$ 5,392,348	0.45%
2028	43,563,760	\$ 5,592,348	0.50%

*Budget numbers beyond 2022 are for modeling purposes only. **Based on reported retail sales for 2020

2023 Residential Program Changes

A. SELECT (Residential LMI)

MPC plans to continue this program in 2023. In addition to the insulation and LED bulbs, the program includes HVAC tune-ups, air sealing, and duct sealing for low-income, multi-family (more than four) units. MPC will continue the contractor-led approach, internal identifiers, and community organizations to target low-income areas and maximize participation.

MPC also targets English second language (ESL) customers and will continue to do so in 2023. This is done in partnership with ESL agencies and translated mailings and collateral.

B. Manufactured Home Weatherization Pilot

MPC plans to evaluate a limited Manufactured Home Weatherization Pilot Program in 2023. The manufactured home must need weatherization and be customer owned. Measures offered, but not limited to, insulation, air & duct sealing, HVAC tune-ups and LED bulbs.

C. Behavioral Analysis Program (HERs)

There are no changes planned for this program in 2023.

D. Residential Energy Efficiency Program

MPC plans to continue this program in 2023 with enhancements that will facilitate increased contractor participation and high SEER heat pumps.

Due to the upcoming increase in minimum SEER standard to 15 SEER, we are increasing eligibility for our rebates to ≥ 16 SEER for HVAC units to promote more energy efficient equipment.

Because of the increased cost of materials due to inflation the air sealing rebate will increase for 2023.

E. Welcome Kits

MPC plans to continue this program in 2023. Based on historical trends, program participants will increase to 7,000. Single-family new connect customers receive a kit containing six LED bulbs and a LED nightlight. In addition, a brochure promoting Mississippi Power's website and other products and services is in the kit. Global supply-chain pressures have put pressure on this offering, but MPC is committed to continuing to make it available to every qualifying (new) customer.

F. New Home Program

This addition provides tiered incentives for increasing levels of energy efficiency measures over an industry established baseline incorporated into new homes built in MPC's service territory.

Measures & Incentive Levels:

Incentive	Measures
Bronze - \$250 Rebate	HVAC: Heat pump with minimum SEER rating of 15 Water Heating: Conventional electric water heating HVAC: A/C with minimum SEER rating of 16
Silver - \$500 Rebate	Lighting: LED required in all ceiling/recessed-mounted fixtures Attic Insulation: R38 equivalent HVAC: Heat pump with minimum SEER rating of 17 Water Heating: Conventional electric water heating
Gold - \$750 Rebate	Lighting: LED required in all ceiling/recessed-mounted fixtures Thermostats: Smart, Energy Star certified thermostat installed for each HVAC unit Attic Insulation: R38 equivalent HVAC: Heat pump with minimum SEER rating of 18 Water Heating: Heat pump/hybrid water heater
Platinum - \$1,000 Rebate	Lighting: LED required in all ceiling/recessed mounted fixtures Thermostats: Smart, Energy Star certified thermostat installed for each HVAC unit Attic Insulation: R38 equivalent
Additional - \$250 Rebate	EV: Wired for 240-v circuit OR the Installation of EV charger

G. Home Revitalization Program

This program promotes retrofit residential efficiency standards by providing upgrades to historic Laurel residences featured in the HGTV Home Town series. There will be approximately 8 to 10 homes benefiting from our program.

H. STAR Demand Response Expanded Pilot

MPC is currently evaluating the STAR program in conjunction with the Commission's recently approved Mississippi Distributed Generation Rules. The Rule requires electric utilities to provide an incentive to residential customers for battery storage devices that meet certain criteria. The Rule also requires that participating battery storage customers enroll in a demand response program as described in Rule 29.107.1. The STAR program currently is designed to control only smart thermostats. MPC requires additional time to develop a program to support battery storage devices.

I. School Kits and Education

There are no changes planned for this program in 2023.

Non-Residential Programs

J. Small Business Program

MPC will continue the Small Business Program in 2023. This program will be more accessible for contractors to participate given improvements in the qualification and application of incentives for measures using an online contractor. Contractor engagement and marketing efforts will be key to delivery of the Small Business Program.

Category	Measure Name	Program Rebate
Lighting	LED Screw-in PAR Lamp	\$3
	LED Screw-in	\$4
	TLED 2' U-lamp (Type A)	\$4.50
	TLED 2' U-lamp (Type C)	\$20
	TLED (Type A or Type B) Lamp	\$4.50
	TLED (Type C) Lamp	\$20
	8' TLED (Type C) Lamp	\$30
	LED 1' X 4' Troffer Fixture	\$40
	LED 2' X 2' Troffer Fixture	\$40
	LED 2' X 4' Troffer Fixture	\$40
	LED Downlight	\$15
	LED Exit Signs	\$15
	LED High Bay ≤250w HID	\$45
	LED High Bay >250W, <400w HID	\$90
	LED High Bay >400w HID	\$150
	LED Wall Pack ≥75W	\$75
	LED Wall Pack <75W	\$100
	LED Garage Light < 150W HID	\$50
	LED Garage Light >150W HID	\$100
Lighting Controls	Occupancy Sensors	\$20
	Daylight Sensors	\$40
HVAC	Smart Thermostat	\$100
Refrigeration	Anti-Sweat Refrigerated Case Doors	\$210

K. Small Business Kit Pilot

Program Objectives

For many small businesses, controlling day-to-day expenses is key to improving their bottom line. To help new small business, within our territory, reduce their energy use, Mississippi Power will offer a pilot program providing free energy efficiency kits. This program will increase customer awareness of energy

efficiency opportunities, while bringing attention to additional rebates available for Small Business customers.

Customer Eligibility

This program is available to new Mississippi Power Commercial Customers with peak demand less than 150 kW and three months of established billing. The program will focus on businesses that operate independently, businesses that are owned by minorities or considered a minority operated business, and businesses that are located within a Downtown/Main Street area. Eligibility for customers receiving incentives through Mississippi Power's Small Business Program will be verified based on the customer data and Mississippi Power account number.

Business Kit Contents

Each new customer will be limited to one kit per location. Once the customer is qualified as eligible, the kit will be delivered by a Mississippi Power representative. Program funding is limited, and participation is on a first-come, first-served basis.

Category	Measure Name	Qty
Lighting	LED Screw-in A-LAMP	2
	LED Exit Sign Retrofit Kit	1
Lighting Controls	Occupancy Sensors	1
HVAC	EnergyStar Smart Thermostat	1
Collateral	Energy Efficiency tips and Energy Efficiency Program Information	

Program Goals and Budget

Participation	62
Energy Savings (kWh)	67,944
Demand Savings (kW)	13
Total Delivery Costs (\$)	\$19,858

L. Large Commercial & Industrial Program

MPC plans to continue the Large Commercial and Industrial Program in 2023. This program ensures customers are aware that all Commercial class customers can take advantage of the program offerings. Incentive changes include expanding lighting solutions to ensure a comprehensive list of existing and emerging technologies.

MISSISSIPPI POWER COMPANY
MPSC DOCKET NO. 2018-AD-64
IRP PLANNING RULE

Incentives are capped at \$30,000 per premise, per program year. For outdoor lighting, for outdoor pole-mounted lighting, the maximum rebate is \$10,000 per premise, per year up to 50% of total project cost.

Category	Measure Name	Program Rebate
Lighting	LED Screw-in A-LAMP	\$2
	TLED (Type A or Type B) Lamp	\$3
	TLED (Type C) Lamps	\$15
	8' TLED (Type C) Lamps	\$15
	LED 2' X 4' Troffer Fixture	\$25
	LED 2' X 2' Troffer Fixture	\$10
	LED Downlight (ROB)	\$10
	LED Exit Signs (ROB)	\$7
	LED High Bay ≤250w HID	\$30
	LED High Bay >250W, <400w HID	\$60
	LED High Bay >400w HID	\$100
	LED Wall Pack (<75W)	\$30
	LED Wall Pack (>75W)	\$50
	Parking Garage (<150W)	\$40
	Parking Garage (>150W)	\$75
Lighting Controls	LED Cooler/Freezer Lighting	\$50
	Occupancy Sensors	\$10
Lighting Controls	Daylight Sensors	\$25
	Anti-Sweat Refrigerated Case Doors	\$100
Commercial Kitchen Equipment	EnergyStar Freezer	\$75
	EnergyStar Refrigerator	\$75
HVAC	Air Conditioner	
	16 SEER	\$80 per ton
	17+ SEER	\$100 per ton
	Heat Pump	
	16 SEER	\$160 per ton
	17+ SEER	\$200 per ton
	EnergyStar Smart Thermostat	\$100
Other	Commercial tune-up (up to 25 tons)	\$40 per ton
	VFDs	\$50 per HP
	Wall and Ceiling Insulation	\$0.20 per sq. ft.
	Guest Room Energy Management	\$100 per room
	Custom Projects	\$0.10 per kWh saved

► **Outdoor Lighting Program**

Energy saving outdoor lights offer numerous advantages for businesses. Because of this, MPC will continue to include outdoor lighting during the 2023 program year.

Incentives for pole-mounted, outdoor lighting, the maximum rebate is \$10,000 per premise, per year up to 50% of the total project cost.

Category	Measure Name	Program Rebate
Outdoor Lighting	Parking Lot Lighting <100W HID	\$30
	Parking Lot Lighting 250-101W HID	\$50
	Parking Lot Lighting 750W-251W HID	\$75
	Parking Lot Lighting >751W HID	\$100
	LED Wall Pack (<75W)	\$30
	LED Wall Pack (>75W)	\$50
Lighting Controls	Lighting Sensors	\$10

IV. 2023 DSM Program Cost Effectiveness

This table contains estimates of program cost effectiveness in accordance with the California Standard Practice Manual. Table 6 summarizes the results of the cost effectiveness assessment for the Mississippi Power portfolio of programs for 2023.

Table 6: Summary of 2023 Portfolio Cost Effectiveness Results

Program	TRC Test	UCT Test	RIM Test	PCT Test
SELECT	1.87	1.84	0.50	3.94
Behavioral	1.25	1.25	0.29	0.00
REEP	1.74	2.33	0.50	4.33
EE School Kits	0.35	0.31	0.16	4.30
Welcome Kits	1.06	0.80	0.23	5.65
New Homes	0.73	1.45	0.39	0.00
Small Business	1.57	1.72	0.43	1.78
Large Comm & Ind (includes ODL)	1.79	2.30	0.42	2.10
Totals	1.38	1.49	0.41	2.14

V. 2023 Strategic Load Growth Programs

A. Residential Electric Transportation Program

This program will continue with two changes: 1) allow a 240V outlet with dedicated circuit to qualify for the \$250 charger rebate and 2) Provide an increased rebate amount of \$500 for low to middle income customers who install chargers.

B. Commercial Electric Transportation Program

There are no proposed changes to this program in 2023.

C. Commercial Strategic Electrification Program

There are no proposed changes to this program in 2023.

VI. 2023 Strategic Load Growth Programs Cost Effectiveness

Table 6: Summary of 2023 Strategic Load Growth Cost Effectiveness Results

Program	RIM Test
Residential Electric Transportation	1.28
Commercial Electric Transportation	3.57
Commercial Strategic Electrification	Case by Case



2992 West Beach Boulevard
Gulfport, MS 39502
228.865.5046 tel
228.229.0915 cell
ssshurde@southernco.com

March 30, 2022

VIA E-MAIL

Katherine Collier, Executive Secretary
Mississippi Public Service Commission
501 North West Street, Suite 201A
Jackson, MS 39201

**Re: Notice of Intent of Mississippi Power Company to Establish the Renewable Net
Energy Metering Rate
Docket No. 2016-UN-33**

Dear Katherine:

On behalf of Mississippi Power Company, I have enclosed the Company's Net Metering Report and Interconnection Report for the year ended 2021.

Very truly yours,

MISSISSIPPI POWER COMPANY

A handwritten signature in black ink, appearing to read "SS" or "Shawn Shurden".

SHAWN SHURDEN

SSS:alm

Enclosures

cc: Ms. Sally Doty, Esq.
Sam Mabry
Ross Hammons

2021 MRENMR AND MDGIR REPORT

I. Introduction

The Mississippi Public Service Commission ("Commission") opened its net metering docket in 2011 for the purpose of investigating the development and implementation of net metering and interconnection standards. Mississippi Power Company ("MPC" or the "Company") submitted written comments to the Commission on numerous occasions and also participated in and provided comments at the Commission's October 6, 2015, public hearing. Following years of discussion, public comment, and study, the Commission finalized its Mississippi Renewable Energy Net Metering Rule ("MRENMR") and Mississippi Distributed Generator Interconnection Rule ("MDGIR"). This report is intended to satisfy the reporting requirements established by the MRENMR and MDGIR.

Prior to approval of MPC's Renewable Energy Net Metering ("RENMR") rate on September 8, 2016, the Company's customers sold their excess renewable energy production to MPC exclusively through the Company's Cogeneration and Small Power Production Purchases ("CSPP") rate. Some customers owning renewable generation still choose to participate in the CSPP rate.

Based on the foregoing, information related to both CSPP and RENMR customers, will be provided below, in order to provide a more complete picture of MPC's renewable customers in 2021.

II. MRENMR Required Reporting

Consistent with the requirements of Chapter 5 of the MRENMR, MPC submits its 2021 MRENMR Report consisting of the following information for calendar year 2021:

- 1. Total energy expressed in kilowatt hours supplied to the EU's grid by RENMICs and a description of any estimation methodology used.*

<u>CSPP rate:</u>	35,090 kWh
<u>RENMR rate:</u>	946,777 kWh

- 2. Total number of RENMICs that were paid for excess energy exported to the EU at the end of any Billing Periods during the prior calendar year.*

<u>CSPP rate:</u>	4
<u>RENMR rate:</u>	200

- 3. The total dollar amount by month that the EU paid to RENMICs for excess energy exported to the EU during the prior calendar year.*

Month	CSPP Rate:	RENM Rate:
January	(\$87.97)	(\$3,518.31)
February	(\$62.94)	(\$3,105.61)
March	(\$166.04)	(\$4,947.79)
April	(\$177.69)	(\$5,851.02)
May	(\$109.25)	(\$5,510.42)
June	(\$62.24)	(\$4,848.00)
July	(\$47.98)	(\$3,764.29)
August	(\$47.70)	(\$3,570.44)
September	(\$42.59)	(\$3,596.87)
October	(\$68.53)	(\$4,187.35)
November	(\$82.10)	(\$4,747.96)
December	(\$63.72)	(\$4,047.55)
TOTALS:	(\$1,018.75)	(\$51,695.61)

4. *The total number of net metering DGFs by resource type that were interconnected at the end of the prior calendar year.*

Quantity of Solar/Photovoltaic CSPP DGFs: 4

Quantity of Solar/Photovoltaic RENM DGFs: 217

5. *The total nameplate direct current generating capacity of net metering DGFs installed during the prior calendar year broken out by resource type.*

Capacity of Solar/Photovoltaic CSPP DGFs: 0 kWdc

Capacity of Solar/Photovoltaic RENM DGFs: 714.1 kWdc

6. *The percentage of the EU's total system peak demand from the prior calendar year represented by the total rated nameplate direct current generating capacity of net metering DGFs.*

A) 2021 12-month Retail Level 1 CP Demand: 1,517,650 kW¹

B) Capacity of Solar/Photovoltaic RENM DGFs: 2,965.29 kWdc

Ratio B/A: 0.1954 %

¹ At the time of this report, 2020 12-month Retail Level 1 CP Demand is the most recent available data.

C) Total Capacity of CSPP and RENM Solar/Photovoltaic DGFs: 3,044.72 kWdc

Ratio C/A: 0.2006 %

III. MDGIR Required Reporting

Consistent with the requirements of Chapter 5 of the MRENMR, MPC submits its 2021 MDGIR Report consisting of the following information for calendar year 2021:

1. *The total number of and the Nameplate Capacity of the Interconnection Requests received, approved and denied under Level 1, Level 2, and Level 3 reviews.*

2021			
Level	Quantity	Capacity (kW-dc)	Status
1	47	446.60	received
2	1	704.80	received
3	0	0	n/a

2021			
Level	Quantity	Capacity (kW-dc)	Status
1	41	387.25	approved
2	2	786.40	approved
3	0	0	n/a

2021			
Level	Quantity	Capacity (kW-dc)	Status
1	31	286.70	commissioned
2	4	427.40	commissioned
3	0	0	n/a

2. *The number of Interconnection Requests that were not processed within the timelines established in this rule.*

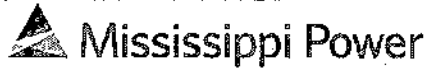
MPC is not aware of any instances where requests were not processed within the established timelines.

3. *The number of Scoping Meetings held and the number of feasibility studies, impact studies, and facility studies performed and the fees charged for these studies.*

No Scoping Meetings or defined studies were required in the processing of 2021 Interconnection Requests.

4. *The justifications for the actions taken to deny Interconnection Requests.*

No Interconnection Requests were denied in 2021.



2992 West Beach Boulevard
Gulfport, MS 39502
228.865.5046 tel
228.229.0915 cell
ssshurde@southernco.com

June 30, 2022

VIA E-MAIL

Katherine Collier, Executive Secretary
Mississippi Public Service Commission
501 North West Street, Suite 201A
Jackson, MS 39201

**Re: Mississippi Power Company's Estimated Avoided Cost Filing for 2021
2007-UN-395**

Dear Katherine:

On behalf of Mississippi Power Company, we submit the Company's Estimated Avoided Cost Filing for 2022. This filing is being made pursuant to 18 C.F.R. § 292.302, which requires that MPC make available for public inspection with the Mississippi Public Service Commission not less often than every two years data from which avoided costs may be derived. As contemplated by the Commission's Rule 29, MPC files its avoided cost annually.

Very truly yours,

MISSISSIPPI POWER COMPANY

A handwritten signature in black ink, appearing to read "Shawn Shurden".

SHAWN SHURDEN

cc: Ross Hammons, Esq.
Emily Kruger, Esq.
Sam Mabry

Mississippi Power Company 2022 PURPA Filing					
Estimated Avoided Costs (Cents/kWh)					
Year	MW Blocks	Period 1 Peak Season Peak Hours	Period 2 Peak Season Off-Peak Hours	Period 3 Off-Peak Season Peak Hours	Period 4 Off-Peak Season Off-Peak Hours
2022	001 - 100	3.98	2.87	3.02	2.77
	101 - 200	3.97	2.85	3.00	2.75
	201 - 300	3.96	2.84	2.98	2.74
	301 - 400	3.95	2.83	2.97	2.73
	401 - 500	3.94	2.81	2.95	2.71
	501 - 600	3.94	2.80	2.94	2.70
	601 - 700	3.93	2.79	2.92	2.69
	701 - 800	3.92	2.77	2.91	2.68
	801 - 900	3.91	2.76	2.90	2.67
	901 - 1000	3.90	2.74	2.89	2.65
2023	001 - 100	3.40	2.46	2.60	2.41
	101 - 200	3.39	2.45	2.58	2.40
	201 - 300	3.39	2.45	2.56	2.38
	301 - 400	3.38	2.44	2.55	2.37
	401 - 500	3.38	2.43	2.53	2.36
	501 - 600	3.37	2.43	2.51	2.35
	601 - 700	3.37	2.42	2.50	2.33
	701 - 800	3.36	2.41	2.49	2.32
	801 - 900	3.36	2.40	2.47	2.31
	901 - 1000	3.35	2.40	2.46	2.30
Pricing Period Definitions					
Period 1 Peak Season Peak Hours	June through September (Billing Months of July through October), Monday through Friday, 10:00 AM to 9:00 PM, except Holidays listed below.				
Period 2 Peak Season Off-Peak Hours	June through September (Billing Months of July through October), Monday through Friday, 9:00 PM to 10:00 AM, and all hours on Weekends and Holidays listed below.				
Period 3 Off-Peak Season Peak Hours	October through May (Billing Months of November through June), Monday through Friday, 7:00 AM to 9:00 PM, except Holidays listed below.				
Period 4 Off-Peak Season Off-Peak Hours	October through May (Billing Months of November through June), Monday through Friday, 9:00 PM to 7:00 AM, and all hours on Weekends and Holidays listed below.				
Notes:					
1. Holidays: New Year's Day (January 1), Independence Day (July 4), Labor Day (first Monday of September), Thanksgiving Day (fourth Thursday of November), Christmas Day (December 25).					
2. These costs are based on the dispatch of system units at marginal spot fuel rates. Each 100-MW block decrements from territorial load. Any variable O&M and CAA compliance costs are included. Transmission costs are not included, and therefore this data represents the cost at the generator buses.					

Mississippi Power Company 2022 PURPA Filing					
Estimated Avoided Costs (Cents/kWh)					
Year	MW Blocks	Period 1 Peak Season Peak Hours	Period 2 Peak Season Off-Peak Hours	Period 3 Off-Peak Season Peak Hours	Period 4 Off-Peak Season Off-Peak Hours
2024	001 - 100	3.65	2.60	2.36	2.26
	101 - 200	3.63	2.59	2.35	2.25
	201 - 300	3.62	2.58	2.34	2.24
	301 - 400	3.61	2.57	2.33	2.24
	401 - 500	3.60	2.55	2.32	2.23
	501 - 600	3.58	2.54	2.31	2.22
	601 - 700	3.57	2.53	2.30	2.21
	701 - 800	3.56	2.52	2.29	2.20
	801 - 900	3.54	2.51	2.28	2.19
	901 - 1000	3.53	2.50	2.27	2.18
2025	001 - 100	3.73	2.66	2.39	2.32
	101 - 200	3.71	2.65	2.38	2.31
	201 - 300	3.70	2.64	2.37	2.30
	301 - 400	3.69	2.63	2.36	2.29
	401 - 500	3.67	2.61	2.35	2.28
	501 - 600	3.66	2.60	2.34	2.27
	601 - 700	3.64	2.59	2.33	2.26
	701 - 800	3.63	2.58	2.32	2.25
	801 - 900	3.62	2.56	2.31	2.25
	901 - 1000	3.60	2.55	2.31	2.24
Pricing Period Definitions					
Period 1	June through September (Billing Months of July through October),				
Peak Season	Monday through Friday, 10:00 AM to 9:00 PM, except Holidays listed below.				
Peak Hours					
Period 2	June through September (Billing Months of July through October),				
Peak Season	Monday through Friday, 9:00 PM to 10:00 AM,				
Off-Peak Hours	and all hours on Weekends and Holidays listed below.				
Period 3	October through May (Billing Months of November through June),				
Off-Peak Season	Monday through Friday, 7:00 AM to 9:00 PM, except Holidays listed below.				
Peak Hours					
Period 4	October through May (Billing Months of November through June),				
Off-Peak Season	Monday through Friday, 9:00 PM to 7:00 AM,				
Off-Peak Hours	and all hours on Weekends and Holidays listed below.				
Notes:					
1. Holidays: New Year's Day (January 1), Independence Day (July 4), Labor Day (first Monday of September), Thanksgiving Day (fourth Thursday of November), Christmas Day (December 25).					
2. These costs are based on the dispatch of system units at marginal spot fuel rates. Each 100-MW block decrements from territorial load. Any variable O&M and CAA compliance costs are included. Transmission costs are not included, and therefore this data represents the cost at the generator buses!					

Mississippi Power Company 2022 PURPA Filing

Estimated Avoided Costs (Cents/kWh)

Year	MW Blocks	Period 1 Peak Season Peak Hours	Period 2 Peak Season Off-Peak Hours	Period 3 Off-Peak Season Peak Hours	Period 4 Off-Peak Season Off-Peak Hours
2026	001 - 100	3.88	2.81	2.51	2.45
	101 - 200	3.87	2.80	2.50	2.43
	201 - 300	3.85	2.78	2.48	2.42
	301 - 400	3.84	2.76	2.47	2.41
	401 - 500	3.83	2.75	2.46	2.40
	501 - 600	3.81	2.73	2.45	2.39
	601 - 700	3.79	2.72	2.44	2.37
	701 - 800	3.77	2.71	2.42	2.36
	801 - 900	3.75	2.69	2.41	2.35
	901 - 1000	3.74	2.68	2.40	2.34
2027	001 - 100	4.01	2.93	2.58	2.50
	101 - 200	4.00	2.92	2.57	2.49
	201 - 300	3.99	2.91	2.56	2.48
	301 - 400	3.98	2.89	2.55	2.47
	401 - 500	3.96	2.88	2.54	2.46
	501 - 600	3.95	2.87	2.53	2.45
	601 - 700	3.93	2.85	2.52	2.44
	701 - 800	3.92	2.83	2.50	2.43
	801 - 900	3.90	2.81	2.49	2.43
	901 - 1000	3.88	2.79	2.48	2.42

Pricing Period Definitions

Period 1	June through September (Billing Months of July through October),
Peak Season	Monday through Friday, 10:00 AM to 9:00 PM, except Holidays listed below.
Peak Hours	
Period 2	June through September (Billing Months of July through October),
Peak Season	Monday through Friday, 9:00 PM to 10:00 AM,
Off-Peak Hours	and all hours on Weekends and Holidays listed below.
Period 3	October through May (Billing Months of November through June),
Off-Peak Season	Monday through Friday, 7:00 AM to 9:00 PM, except Holidays listed below.
Peak Hours	
Period 4	October through May (Billing Months of November through June),
Off-Peak Season	Monday through Friday, 9:00 PM to 7:00 AM,
Off-Peak Hours	and all hours on Weekends and Holidays listed below.

Notes:

1. Holidays: New Year's Day (January 1), Independence Day (July 4), Labor Day (first Monday of September), Thanksgiving Day (fourth Thursday of November), Christmas Day (December 25).
2. These costs are based on the dispatch of system units at marginal spot fuel rates. Each 100-MW block decrements from territorial load. Any variable O&M and CAA compliance costs are included. Transmission costs are not included, and therefore this data represents the cost at the generator buses.

Mississippi Power Company 2022 PURPA Filing

Projected Capacity Additions 2023 - 2032

<u>Year</u>	<u>Amount</u>	<u>Type</u>	<u>Estimated Capacity Cost (\$/kW)</u>	<u>Estimated Energy Cost (cents/kWh)</u>
2023	0			
2024	0			
2025	0			
2026	0			
2027	0			
2028	0			
2029	0			
2030	0			
2031	0			
2032	0			

Projected Capacity Retirements 2023 - 2032

<u>Year</u> ¹	<u>Amount (MW)</u> ²
2023	250
2024	0
2025	100
2026	100
2027	500
2028	0
2029	0
2030	0
2031	0
2032	0

Notes:

1. Retirements are December 31st of year indicated.
2. Amounts are nameplate ratings.

2023-2027 MPC Major Power Delivery Capital Project List

Grid Investment Category	Proj #	Project Desc	2023	2024	2025	2026	2027	Projected In-Service Date
General Business	Future Project	DISTRIBUTION NEW BUSINESS COMMERCIAL OVERHEAD - COAST DIVISION	219,141	238,933	246,120	239,534	243,298	Recurring
	Future Project	DISTRIBUTION NEW BUSINESS RESIDENTIAL UNDERGROUND MULTI-FAMILY FACILITY - COAST DIVISION	350,898	102,324	103,824	98,463	98,563	Recurring
		EZMAX VENDOR TECHNOLOGY APPLICATION	165,600	0	0	0	0	2023
		MPC KUBRA STORM CENTER MAP 5 TECHNOLOGY APPLICATION UPGRADE	100,000	0	0	0	0	2023
		DISTRIBUTION LTE INSTALLATIONS	1,673,249	2,250,290	2,818,692	2,887,806	1,353,886	Recurring
		DISTRIBUTION NEW BUSINESS RESIDENTIAL OVERHEAD SINGLE-FAMILY - COAST DIVISION	752,223	843,856	892,331	888,954	925,060	Recurring
		DISTRIBUTION NEW BUSINESS COMMERCIAL UNDERGROUND - COAST DIVISION	754,555	809,722	819,378	783,044	783,842	Recurring
		DISTRIBUTION NEW BUSINESS RESIDENTIAL UNDERGROUND SINGLE-FAMILY - COAST DIVISION	907,481	974,696	986,413	942,847	943,807	Recurring
		TRANSMISSION DIGITAL TRANSFORMATION APPLICATION	240,000	0	0	0	0	2023
	Future Project	DISTRIBUTION NEW BUSINESS RESIDENTIAL UNDERGROUND SINGLE-FAMILY - NORTH DIVISION	869,357	931,497	945,605	903,869	904,789	Recurring
	11045903	ENVIVA 115-12KV NEW SUBSTATION - WIGGINS	950,389	3,689,647	0	0	0	2024
	10588136	KILN PICAYUNE NORTH 2 TL - Mooshot Solar	253,437	0	0	0	0	2023
	10588135	LAUREL NORTH HEIDELBERG TL - Cane Creek Solar	253,437	0	0	0	0	2023
	10571464	MARKETING LIGHTING SERVICES NEW BUSINESS STREET LIGHTS P10571464	7,676,540	7,676,540	7,676,540	7,676,540	7,676,540	Recurring
	10571482	MARKETING LIGHTING SERVICES NEW BUSINESS PROTECTION & SECURITY LIGHTS P10571482	2,613,167	2,613,167	2,613,167	2,613,167	2,613,167	Recurring
		11048338 DISTRIBUTION LINE TRANSFORMERS	5,241,188	5,622,211	5,677,124	6,086,288	6,092,485	Recurring
	10578666	ENERGY MANAGEMENT SYSTEM (EMS) REPLACEMENT SOFTWARE P10578666	1,697,872	1,730,459	1,539,786	1,149,124	0	2026
	10586660	MPC ADVANCED DISTRIBUTION MANAGEMENT SYSTEM (ADMS) TECHNOLOGY APPLICATION PHASE I P10586660	2,642,292	0	0	0	0	2023
		AUTOMATED RESOURCE MANAGEMENT SYSTEM (ARMS) 7 APPLICATION UPGRADE	43,125	0	0	0	0	2023
		AUTODESK LICENSES	12,420	0	0	0	0	2023
		CYME DISTRIBUTION PLANNING SOFTWARE UPGRADE	24,840	0	0	0	0	2023
		DISTRIBUTED ENERGY RESOURCE MGMT SYSTEM (DERMS) APPLICATION	186,300	0	0	0	0	2023
		VEGETATION MANAGEMENT APPLICATION	29,118	0	0	0	0	2023
		PRIMSTONE ENTERPRISE PROJECT APPLICATION	44,850	0	0	0	0	2023
		SCOUTAGE SUMMARY APPLICATION UPGRADE	13,800	0	0	0	0	2023
		SEDS APPLICATION UPGRADE	20,700	0	0	0	0	2023
		SOUTHERN COMPANY ADVANCED DISTRIBUTION MANAGEMENT SYSTEM APPLICATION PROJECT	682,595	1,072,035	1,072,035	1,072,035	1,072,035	2027
		TRAILS 4 APPLICATION ENHANCEMENTS	22,080	0	0	0	0	2023
		TTRS STORM APPLICATION REPLACEMENT	22,080	0	0	0	0	2023
		CAMP 2023 SOFTWARE UPGRADES	11,040	0	0	0	0	2023
		EQUIPMENT CHANGE MANAGEMENT SOFTWARE APPLICATION ENHANCEMENTS	5,520	0	0	0	0	2023
		JOB ESTIMATING TRACKING SYSTEM (JETS) UPGRADE	11,040	0	0	0	0	2023
		OPERATIONS CONTENT MANAGEMENT SOFTWARE APPLICATION	5,520	0	0	0	0	2023
		OPERATIONS DATABASE (OPS DB) APPLICATION ENHANCEMENTS	5,520	0	0	0	0	2023
		POWER DELIVERY MOBILE WORKBENCH APPLICATION	11,040	0	0	0	0	2023
		POLE FOREMAN SOFTWARE APPLICATION ENHANCEMENTS	11,040	0	0	0	0	2023
		POWER QUALITY DATA ENTERPRISE SOLUTION APPLICATION	8,280	0	0	0	0	2023
		TEAMS APPLICATION ENHANCEMENTS	5,520	0	0	0	0	2023
		TRANSMAP APPLICATION ENHANCEMENTS	5,520	0	0	0	0	2023
		WORK REQUEST TOOL APPLICATION	5,520	0	0	0	0	2023
		SOCKET APPLICATION UPGRADE	8,280	0	0	0	0	2023
		SUBSTATION TRANSMISSION OPERATIONS & MAINTENANCE PROGRAM (STOMP) OPERATIONS APPLICATION ENHANCEMENTS	5,520	0	0	0	0	2023
		CYME DISTRIBUTION PLANNING SOFTWARE EXTRACTOR UPGRADE	11,040	0	0	0	0	2023
	11044703	PURCHASE POWER DELIVERY FIELD MOBILE COMPUTERS P11044703	235,853	252,590	255,471	243,452	243,699	Recurring
	11044710	ALTERNATE TRANSMISSION CONTROL CENTER CONSOLE REPLACEMENT & UPGRADES P11044710	281,714	0	0	0	0	2023
	11044737	INSTALL NEW DISTRIBUTION CONTROL CENTER VISUAL SITUATIONAL AWARENESS TECHNOLOGY EQUIPMENT	1,048,238	0	0	0	0	2023
	11044738	REPLACE END-OF-LIFE TRANSMISSION CONTROL CENTER VISUAL SITUATIONAL AWARENESS TECHNOLOGY EQUIPMENT	1,048,238	0	0	0	0	2023
	11045529	METERING NEW BUSINESS P11045529	19,654	21,083	21,289	20,288	20,918	Recurring
		METERS	625,098	685,294	707,211	739,560	762,522	Recurring
		DISTRIBUTION NEW BUSINESS RESIDENTIAL OVERHEAD SINGLE-FAMILY - NORTH DIVISION	713,209	800,542	844,368	839,775	873,124	Recurring
		DISTRIBUTION GOVERNMENTAL PROJECTS	655,148	702,776	709,641	676,254	676,943	Recurring
		TRAINING LAB EQUIPMENT	65,515	70,278	70,964	67,625	67,694	Recurring
		TOOLS, IMPLEMENTS & EQUIPMENT - TRANSMISSION LINES	264,323	282,501	279,296	321,189	347,226	Recurring
		TOOLS, IMPLEMENTS & EQUIPMENT - TRANSMISSION SUBSTATIONS	264,323	282,501	279,296	321,189	347,226	Recurring
		DISTRIBUTION CAPITAL TOOLS - COAST DIVISION	39,309	43,432	45,171	44,338	45,714	Recurring
		DISTRIBUTION CAPITAL TOOLS - FLEET SERVICES	104,824	115,818	120,457	118,234	121,905	Recurring
		DISTRIBUTION CAPITAL TOOLS - NORTH DIVISION	39,309	43,432	45,171	44,338	45,714	Recurring
		DISTRIBUTION CAPITAL TOOLS - METERING	262,059	289,544	301,143	295,565	304,762	Recurring
		DISTRIBUTION NEW BUSINESS COMMERCIAL OVERHEAD - NORTH DIVISION	205,988	224,609	230,532	223,425	226,902	Recurring
		DISTRIBUTION NEW BUSINESS INDUSTRIAL OVERHEAD - COAST DIVISION	12,264	13,521	14,023	13,714	14,080	Recurring
		DISTRIBUTION NEW BUSINESS INDUSTRIAL OVERHEAD - NORTH DIVISION	11,321	12,481	12,944	12,659	12,997	Recurring
		DISTRIBUTION NEW BUSINESS COMMERCIAL UNDERGROUND - NORTH DIVISION	702,068	753,523	761,369	726,280	727,020	Recurring
		DISTRIBUTION NEW BUSINESS RESIDENTIAL UNDERGROUND MULTI-FAMILY FACILITY - NORTH DIVISION	323,905	94,453	95,376	90,889	90,991	Recurring
	11045530	METERING SIZE-FOR-SIZE REPLACEMENTS P11045530	52,412	56,222	56,771	54,100	55,780	Recurring
		DISTRIBUTION STREET LIGHTING REPLACEMENT - GOVERNMENTAL - NORTH DIVISION	50,315	53,973	54,500	51,936	51,989	Recurring
		DISTRIBUTION STREET LIGHTING REPLACEMENT - GOVERNMENTAL - COAST DIVISION	54,508	58,471	59,042	56,264	56,322	Recurring
	11048824	DISTRIBUTION STREET LIGHTING GOVERNMENTAL REPLACEMENT - COAST DIVISION	1,023,544	1,101,300	1,117,118	1,071,076	1,072,167	Recurring
	Future Project	DISTRIBUTION STREET LIGHTING GOVERNMENTAL REPLACEMENT - NORTH DIVISION	991,842	1,068,383	1,083,092	1,038,161	1,039,238	Recurring

2023-2027 MPC Major Power Delivery Capital Project List

Grid Investment Category	Proj #	Project Description	2023	2024	2025	2026	2027	Projected In-Service Date
Grid Optimization and Innovation		TRANSMISSION CAPITAL LEGAL FEES	26,104	30,535	33,122	38,276	44,335	Recurring
		SUBSTATION SATELLITE CLOCK INSTALLATION	50,687	0	0	0	0	2023
		AMI FRAMEWORK SOFTWARE UPDATES	5,520	0	0	0	0	2023
	Future Project	FIBER TO DISTRIBUTION	7,861,781	8,438,316	8,515,686	8,115,081	8,123,314	Recurring
	10300782	WAYNESBORO TO LUCEDALE 115KV TRANSMISSION LINE - PHASE 1 OF OPGW FIBER INSTALL P10300782	1,267,185	3,816,876	0	0	0	2024
		DISTRIBUTED NETWORK PROTOCOL (DNP) TO INTERNET PROTOCOL (IP) REMOTE TRANSMITTING UNIT (RTU) CONVERSION - DISTRIBUTION SUBSTATION	950,389	477,110	0	0	0	2024
		DISTRIBUTED NETWORK PROTOCOL (DNP) TO INTERNET PROTOCOL (IP) REMOTE TRANSMITTING UNIT (RTU) CONVERSION - TRANSMISSION SUBSTATION	950,389	477,110	0	0	0	2024
		DISTRIBUTED NETWORK PROTOCOL (DNP) TO INTERNET PROTOCOL (IP) REMOTE TRANSMITTING UNIT (RTU) CONVERSION - TRANSMISSION TAP SWITCHES	570,233	381,688	0	0	0	2024
	11045531	METERING AMI NETWORK NEW ADDITIONS P11045531	229,802	281,111	248,374	236,689	244,038	Recurring
		METERING AMI PHASE 2	292,696	323,866	336,349	330,147	340,397	Recurring
Reliability & Resiliency	11045581	METERING REPLACE AMI NETWORK DEVICES P11045581	78,618	84,333	85,157	81,151	83,670	Recurring
	10584124	HATTIESBURG HWY 11 115 12KV DS - Add TO equipment (SAR-H)	19,008	0	0	0	0	2023
	10584138	HATTIESBURG COUNTY DRIVE DS - Add TO equipment (SAR-H)	19,008	0	0	0	0	2023
	10584142	HATTIESBURG FARM SOLAR 115KV SS - Add TO equipment (SAR-H)	19,008	0	0	0	0	2023
	10584141	ELLISVILLE HWY 11 DS - Add TO equipment (SAR-H)	19,008	0	0	0	0	2023
	10584888	PURVIS HWY 589 46 12KV DS - Install IT firewall	6,336	0	0	0	0	2023
	10584889	NASA SATURN DRIVE 115 13 8KV DS - Install IT firewall	6,336	0	0	0	0	2023
	10584891	SALICER DS DS - Install IT firewall	6,336	0	0	0	0	2023
	10584892	PETAL GEORGE STREET DS DS - Install IT firewall	6,336	0	0	0	0	2023
	10584893	SAVANNAH GULF DS - Install IT firewall	6,336	0	0	0	0	2023
	10584894	SHUBUTA DS - Install IT firewall	6,336	0	0	0	0	2023
	10584896	UNION INDUSTRIAL AREA DS - Install IT firewall	12,672	0	0	0	0	2023
	10584897	TAYLORSVILLE DS - Install IT firewall	6,336	0	0	0	0	2023
	10584898	YELLOW CREEK GATLIN RD DS - Install IT firewall	6,336	0	0	0	0	2023
	10584899	QUITMAN NORTHWEST TS - Install IT firewall	6,336	0	0	0	0	2023
	10584139	ELLISVILLE HWY 590 DS - Add TO equipment (SAR-H)	19,008	0	0	0	0	2023
	10586681	SINGING RIVER MALL SS TS - Add TO equipment (SAR-H)	19,008	0	0	0	0	2023
	10586682	OCEAN SPRINGS NORTHEAST TS - Add TO equipment (SAR-H)	19,008	0	0	0	0	2023
	10586684	MOSS POINT ELDER FERRY ROAD DS - Add TO equipment (SAR-H)	19,008	0	0	0	0	2023
	10584890	NEWTON HOYE AVENUE DS - Install IT firewall	6,336	0	0	0	0	2023
		DISTRIBUTION OVERHEAD TO UNDERGROUND CONVERSIONS - COAST DIVISION	13,103	14,056	14,193	13,525	13,539	Recurring
		DISTRIBUTION OVERHEAD TO UNDERGROUND CONVERSIONS - NORTH DIVISION	13,103	14,056	14,193	13,525	13,539	Recurring
		GRIDNET - POWER DELIVERY NETWORK ENHANCEMENTS FOR THREAT PREPAREDNESS	2,070	0	0	0	0	2023
	10589970	LOGTOWN WEST TRANSMISSION TS - Install IR cameras	117,848	0	0	0	0	2023
	10589972	MOSS POINT EAST TRANSMISSION TS - Install IR cameras	171,070	0	0	0	0	2023
	10590085	PLANT WATSON TS - Install IR cameras	183,742	0	0	0	0	2023
	10590086	CHEVRON COGENERATING STATION TS - Install IR cameras	117,848	0	0	0	0	2023
	10590087	DELISLE DUPONT DS - Install IR cameras	105,176	0	0	0	0	2023
	10590089	NASA 115 13 8 DS - Install IR cameras	63,359	0	0	0	0	2023
	10590092	NASA LEONARD KIMBLE RD 115 23KV DS - Install IR cameras	101,375	0	0	0	0	2023
	10590095	PASCAGOULA CHEVRON PREP 115KV SS - Install IR cameras	139,390	0	0	0	0	2023
	10590091	NASA SATURN DRIVE 115 13 8KV DS - Install IR cameras	91,237	0	0	0	0	2023
	11045700	SIZE FOR SIZE PROTECTION & SECURITY LIGHTS - COAST DIVISION P11045700	255,484	279,030	285,792	280,134	288,832	Recurring
	11045701	SIZE FOR SIZE PROTECTION & SECURITY LIGHTS - NORTH DIVISION P11045701	41,873	46,180	47,942	47,069	48,581	Recurring
	11045702	SIZE FOR SIZE STREET LIGHTS - COAST DIVISION P11045702	468,715	512,250	525,512	514,930	530,918	Recurring
	11045703	SIZE FOR SIZE STREET LIGHT - NORTH DIVISION P11045703	252,651	276,749	284,045	278,624	287,275	Recurring
	10590346	PLANT SWEATT TS - Install blastwall barrier	513,210	0	0	0	0	2023
		CYBERSECURITY SENSOR INSTALLATION - DISTRIBUTION SUBSTATIONS	887,029	954,219	955,455	1,025,252	1,108,363	Recurring
		CYBERSECURITY SENSOR INSTALLATION - TRANSMISSION SUBSTATIONS	887,029	954,219	955,455	1,025,252	1,108,363	Recurring
	Future Project	DISTRIBUTION UNDERGROUND SYSTEM IMPROVEMENTS RECURRING TROUBLE - POWER DELIVERY SHARED SERVICES	65,515	73,792	78,238	78,285	82,283	Recurring
	10574682	NEW PURVIS INDUSTRIAL 46-12KV DISTRIBUTION SUBSTATION P10574682	145,726	0	0	0	0	2023
		DISTRIBUTION UNDERGROUND REPAIRS - COAST DIVISION	787,010	845,314	856,127	819,086	819,920	Recurring
	Future Project	DISTRIBUTION UNDERGROUND CABLE REPLACEMENT INJECTION	1,310,297	1,405,553	1,419,281	1,352,509	1,353,886	Recurring
	10574831	LONG REACH COMMISSION RD DISTRIBUTION SUBSTATION - REPLACE & ELEVATE CONTROL HOUSE P10574831	1,520,622	0	0	0	0	2023
	10576258	BLOOM PERCY STREET DISTRIBUTION SUBSTATION - REPLACE & ELEVATE CONTROL HOUSE P10576258	1,457,262	0	0	0	0	2023
	10589335	QUITMAN NORTHWEST SUBSTATION - REPLACE 115-12KV TRANSFORMER P10589335	1,457,262	0	0	0	0	2023
	10586045	NEW BASSFIELD 46-12KV SUBSTATION P10586045	2,914,525	858,797	0	0	0	2024
	10586300	LAWRENCE DISTRIBUTION SUBSTATION - REPLACE 46-12KV SINGLE PHASE TRANSFORMERS P10586300	1,102,451	0	0	0	0	2023
	10585327	WALNUT GROVE DISTRIBUTION SUBSTATION - REPLACE 46-12KV SINGLE PHASE TRANSFORMERS P10585327	1,330,544	0	0	0	0	2023
	10583899	PLANT EATON TO PETAL GEORGE ST 115KV TRANSMISSION LINE REBUILD P10583899	2,154,214	0	0	0	0	2023
	10246561	Carriere SW to Poplarville TL - Replace switch	439,713	0	0	0	0	2023
	10347196	Replace CEPA ANSLEY 115KV TL - Replace switch	439,713	0	0	0	0	2023
	10352156	LUCEDALE TO WATSON 115KV TRANSMISSION LINE GROUND LINE TREATMENT POLE REPLACEMENT P10352156	1,900,777	0	0	0	0	2023
	10432029	CARRIERE SOUTHWEST 230 115KV TS - Replace autotank	88,703	0	0	0	0	2023
	10566410	NEW RIGHTON PECAN ST 46-12KV DISTRIBUTION SUBSTATION P10566410	380,155	0	0	0	0	2023
	10567308	LAUREL INDUSTRIAL BLVD 115 12KV DS - Replace bus tie breaker	57,023	0	0	0	0	2023
	10567749	QUITMAN NORTHWEST TS - Replace breaker and regulators	139,390	0	0	0	0	2023

2023-2027 MPC Major Power Delivery Capital Project List

Grid Investment Category	Proj #	Project Desc	2023	2024	2025	2026	2027	Projected In-Service Date
	10576507	PICAYUNE NORTH SUBSTATION - UPGRADE 115KV BUS P10576507	34,214	0	0	0	0	2023
	10582421	PLANT WATSON TO GULFPORT LONDON RD #3 115KV TRANSMISSION LINE GROUND LINE INSPECTION POLE REPLACEMENT P10582421	1,419,247	0	0	0	0	2023
	10584593	OCEAN SPRINGS NE - PASC TELEPHONE TL - Replace Ground Line Treatment reject poles	240,765	0	0	0	0	2023
	10585016	PASCAGOULA TELEPHONE ROAD DS - Replace breaker	133,054	0	0	0	0	2023
	10588303	PLANT WATSON TRANSMISSION SUBSTATION - REPLACE 230/115KV AUTOBANK 2A P10588303	4,942,020	0	0	0	0	2023
Future Project	10547042	TRANSMISSION LINE 115KV CUSTOMER CENTERED MAINTENANCE (CCM) PROJECTS	7,338,173	4,902,355	5,074,971	5,630,480	6,234,667	Recurring
	10547121	DISTRIBUTION SUBSTATION CONDITIONED BASED MAINTENANCE (CBM) EQUIPMENT MONITORS	1,077,107	1,908,438	636,970	2,050,504	2,216,725	Recurring
	10547183	DISTRIBUTION LINE OVERHEAD REPAIRS - NORTH DIVISION	3,532,655	3,798,309	3,844,131	3,674,896	3,678,637	Recurring
	10564367	DISTRIBUTION LINE OVERHEAD SYSTEM IMPROVEMENTS KNOWN DEFECTS	3,275,742	7,027,764	7,096,405	5,762,543	6,769,428	Recurring
	10564367	DISTRIBUTION LINE UNDERGROUND RELIABILITY IMPROVEMENTS KNOWN DEFECTS	1,048,238	1,180,664	1,251,806	1,252,558	1,316,325	Recurring
	11048336	DISTRIBUTION LINE STORM HARDENING	6,551,485	7,027,763	7,096,405	8,115,051	8,123,314	Recurring
	11048821	DISTRIBUTION LINE OVERHEAD VOLTAGE CONVERSIONS	3,930,891	2,108,329	2,128,922	0	0	2025
	11048822	DISTRIBUTION STRATEGIC UNDERGROUNDING	2,620,594	2,811,105	5,677,124	5,410,034	6,769,428	Recurring
10583895	11048840	BEALMONT TO RICHTON 45KV TRANSMISSION LINE REBUILD	5,322,176	0	0	0	0	2023
		DISTRIBUTION OVERHEAD SYSTEM IMPROVEMENTS RECURRING TROUBLE	65,515	73,792	78,238	78,285	82,283	Recurring
		DISTRIBUTION UNDERGROUND REPAIR PROJECTS - NORTH DIVISION	761,821	818,586	827,540	789,643	790,447	Recurring
		DISTRIBUTION POLE REINFORCEMENT TRUSSES	131,030	147,583	156,476	156,570	164,566	Recurring
		PETAL GAS SUBSTATION RELAY REPLACEMENT	57,023	0	0	0	0	2023
		DISTRIBUTION SUBSTATION ADDITIONS/IMPROVEMENTS	505,874	508,917	509,576	546,801	591,127	Recurring
		SUBSTATION PHYSICAL SECURITY UPGRADES	505,874	508,917	509,576	546,801	591,127	Recurring
		TRANSMISSION LINE 45KV CUSTOMER CENTER MAINTENANCE (CCM) PROJECTS	801,662	814,267	834,430	970,572	1,108,363	Recurring
		TRANSMISSION LINE 230KV CUSTOMER CENTERED MAINTENANCE (CCM) PROJECTS	804,662	814,267	834,430	970,572	1,108,363	Recurring
		TRANSMISSION SWITCH REPLACEMENTS	421,872	419,856	191,091	451,111	487,680	Recurring
		TRANSMISSION SUBSTATION CONDITIONED BASED MAINTENANCE (CBM) EQUIPMENT MONITORS	823,670	1,908,438	636,970	2,050,504	2,216,725	Recurring
		TRANSMISSION SUBSTATIONS PROACTIVE INSTRUMENT TRANSFORMER REPLACEMENT	82,367	165,398	165,612	177,710	192,116	Recurring
		DISSOLVED GAS ANALYZER (DGA) REFRESH - DISTRIBUTION SUBSTATIONS	266,109	267,181	267,577	287,071	310,342	Recurring
		DISSOLVED GAS ANALYZER (DGA) REFRESH - TRANSMISSION SUBSTATIONS	399,163	400,772	401,291	430,606	465,512	Recurring
		DISTRIBUTION CYBER SECURITY PROJECTS	161,000	217,000	218,000	327,000	329,000	Recurring
10585207		COLLINS 115 12KV DS - Replace cap switcher	234,429	0	0	0	0	2023
10585208		LAKE DISTRIBUTION SUBSTATION 46-12KV REPLACE SINGLE PHASE TRANSFORMERS P10585208	1,267,185	0	0	0	0	2023
10585209		MERIDIAN HAWKINS CROSSING RD DISTRIBUTION SUBSTATION REPLACE 115-12KV TRANSFORMER P10585209	1,330,544	0	0	0	0	2023
10585210		POPLARVILLE HWY 26 115 12KV DS - Replace circuit switcher	380,155	0	0	0	0	2023
10585234		OCEAN SPRINGS VANCELEAVE ROAD DS - Replace switch house	570,233	693,761	0	0	0	2024
10588086		DISTRIBUTION SUBSTATION SPARE EQUIPMENT P10588086	2,344,292	0	0	0	0	2023
10588093		HATTIESBURG NORTH TRANSMISSION TS - Replace breaker	253,437	0	0	0	0	2023
Future Project	10547182	DISTRIBUTION OVERHEAD GROUND LINE POLE REPLACEMENT - SHARED SERVICES	1,572,356	1,728,830	1,789,259	1,747,804	1,793,324	Recurring
	10547183	DISTRIBUTION OVERHEAD REPAIRS - COAST DIVISION	3,695,330	3,969,069	4,030,203	3,866,694	3,870,631	Recurring
10582641		EUCUTTA DENBURY 115 4KV DS - Replace battery bank	44,351	0	0	0	0	2023
10582422		DIBERVILLE PLANT WATSON #1 TL - Replace Ground Line Treatment reject poles	696,952	0	0	0	0	2023
10584697		WADE SS - PASC AMOCO - Replace Ground Line Treatment reject poles	240,765	0	0	0	0	2023
10585213		MOSS POINT EAST TRANSMISSION TS - Replace 230KV switches	105,176	0	0	0	0	2023
10585714		WADE SS TS - Replace 230KV switches	74,764	0	0	0	0	2023
10585284		LAUREL EAST TRANSMISSION TS - Replace 730KV switches	145,726	0	0	0	0	2023
10585285		PURVIS SWEPA 230KV INTERCONNECT TS - Replace 230KV switches	74,764	0	0	0	0	2023
10585286		OCEAN SPRINGS NORTHEAST TS - Replace 230KV switches	76,031	0	0	0	0	2023
10585386		WADE SS TS - Replace capacitor bank	273,712	274,815	0	0	0	2024
10585432		FOREST TRANSMISSION TS - Replace bank breaker	183,742	0	0	0	0	2023
10585435		LAUREL JACKSON STREET DS - Replace feeder breakers	209,085	0	0	0	0	2023
10585459		MERIDIAN A STREET DS - Replace bank breaker	152,062	0	0	0	0	2023
10585460		LAUREL QUEENSBURG AVENUE DS - Replace feeder breaker	152,062	0	0	0	0	2023
10585528		ELLISVILLE HWY 590 DS - Replace regulators	87,436	0	0	0	0	2023
10585532		HATTIESBURG 28TH AVENUE DS - Replace regulators	106,444	0	0	0	0	2023
10585533		BAY ST LOUIS TURNER STREET DS - Replace regulators	105,176	0	0	0	0	2023
10587061		PLANT DANIEL 230 500 KV TS - Replace batteries	50,687	0	0	0	0	2023
10587082		LAUREL EAST TRANSMISSION TS - Replace batteries	44,351	0	0	0	0	2023
10587157		GULFPORT HWY 53 DS - Replace batteries	44,351	0	0	0	0	2023
10590347		POPLARVILLE HWY 76 115 12KV DS - Replace power transformer	152,062	1,301,555	0	0	0	2023
10588059		GULFPORT FERNWOOD DS - Replace 115KV breakers	202,750	0	0	0	0	2023
10584676		WADE SS - MP EAST - Replace Ground Line Treatment reject poles	367,484	0	0	0	0	2023
	10563436	DISTRIBUTION OVERHEAD SYSTEM IMPROVEMENTS REDUCE RESTORATION - SHARED SERVICES	6,551,485	7,027,763	2,838,562	1,352,509	1,353,886	Recurring
10589119		PICAYUNE TO CARRIERE SOUTHWEST 115KV TRANSMISSION LINE REBUILD 0.8 MILE SECTION P10589119	1,077,107	0	0	0	0	2023
10216935		Biloxi Cedar Lake DS - Replace bus and jumpers	278,781	0	0	0	0	2023
10586299		GULFPORT LONDON DISTRIBUTION SUBSTATION - REPLACE (2) 115-23KV TRANSFORMERS P10586299	4,245,069	0	0	0	0	2023
Tactical and Innovative Planning								
	10578069	NEW MOONSHOT SOLAR 115KV SWITCHING STATION INTERCONNECTION P10578069	3,484,758	0	0	0	0	2023
	10577949	NEW CANE CREEK SOLAR 115KV SWITCHING STATION INTERCONNECTION P10577949	3,167,962	0	0	0	0	2023
		DISTRIBUTION OVERHEAD PLANNING STEADY STATE IMPROVEMENTS - SHARED SERVICES	327,574	351,388	354,820	338,127	338,471	Recurring
		PASCAGOULA BAYOU CASOTTIE NEW SUB 230/115KV & 115/23KV	126,718	0	5,286,808	3,485,857	620,683	2027
10586347		11048839 ENTERPRISE 230KV SWITCHING STATION - INSTALL (2) 230KV THREE PHASE SHUNT REACTORS	5,448,894	0	0	0	0	2023

2023-2027 MPC Major Power Delivery Capital Project List

Grid Investment Category	Proj #	Project Desc	2023	2024	2025	2026	2027	Projected In-Service Date
	10516981	NEW MARRON SE 230KV SWITCHING STATION P10516981 (MORROW AFFECTED SYSTEM PROJECT)	5,068,739	0	0	0	0	2023
	10518720	NEW MARION SOUTHEAST TO CARRIERE SOUTHWEST 230KV TRANSMISSION LINE P10518720 (MORROW AFFECTED SYSTEM PROJECT)	25,343,693	4,453,022	0	0	0	2024
	10520069	KILN TO BAYOU LA CROIX 115KV REBUILD P10520069 (MORROW AFFECTED SYSTEM PROJECT)	638,592	0	0	0	0	2023
	10526902	CARRIERE SW SUBSTATION 230KV RING BUS EXPANSION P10526902 (MORROW AFFECTED SYSTEM PROJECT)	627,256	0	0	0	0	2023
	10448815	Errata Hwy 11 115 12kV DS - New substation	190,078	0	7,761,454	0	0	2025