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Entergy Mississippi, LLC's 2022 Energy Delivery Plan

I. Overview

Entergy Mississippi, LLC ("Entergy Mississippi," "EML," or the "Company") hereby provides its calendar year 2022 Energy Delivery Plan ("2022 EDP") in accordance with Rule 29 ("Rule 29") of the Public Utilities Rules of Practice and Procedure of the Mississippi Public Service Commission ("MPSC" or the "Commission") and the Mississippi Public Utilities Staff (the "Staff").

In November 2019, the Commission entered its Final Order Amending Rule 29 to Establish Integrated Resource Planning and Annual Energy Delivery Reporting Requirements. The amended Rule 29 directs all public utilities subject to the provisions of the Order Amending Rule 29 to file an Annual Energy Delivery Plan to inform the Commission on the utility's 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."

Entergy Mississippi's 2022 EDP offers the Commission a thorough picture of the manner through which EML expects to meet the energy needs of its customers through the process of delivering energy, as well as helping customers manage how they use that energy. EML recognizes that the way our customers use and consume energy is changing, so the way we plan for, produce, and deliver the energy that customers rely on must continue to evolve as well. Entergy Mississippi's 2022 EDP therefore reflects EML's approach to responding to this constantly evolving environment, along with the Company's plans for energy delivery, demand-side management ("DSM"), and modernization of the electric grid.

In accordance with Rule 29, the 2022 EDP will ensure that interested stakeholders are informed of Entergy Mississippi's planned capital spending on transmission and distribution infrastructure, DSM investments, and advanced technology offerings that can be used to modernize the electric grid.

II. Demand-Side Management

Rule 29 requires utilities to report on energy efficiency and demand response efforts in order to provide the Commission with sufficient guidance to ensure that the utility's DSM and related supply-side energy efficiency plans are properly considered in a comprehensive long-term resource plan. For the purposes of Rule 29, DSM encompasses energy conservation, energy efficiency, demand response ("DR"), distributed energy resources ("DER"), and strategic load growth.

In accordance with the then-current version of Rule 29, Entergy Mississippi received approval from the Commission in June 2014 to begin offering a portfolio of energy efficiency measures to its customers, which collectively was referred to as the "Quick-Start Portfolio." EML began offering those Quick-Start measures to customers in late 2014 with costs recovered through the Company's Energy Efficiency Cost Recovery Rider Schedule. Although the Quick-

Start Portfolio evolved over the years to include new offerings, measures, and methods of delivery to better fit the needs of EML's customers, the Company was constrained in making changes due to the prescriptive nature of the portfolio.

In November 2019, the Commission completed the rulemaking process to establish a framework for integrated resource planning ("IRP"), which expanded Rule 29 in scope to encompass integrated resource planning, demand response, and energy efficiency. Under the framework of the amended Rule 29, utilities were authorized to transition away from the prescriptive energy efficiency portfolios to a new, comprehensive portfolio that builds on the current customer offerings.

Under the new regulatory framework established under Rule 29, EML is working to fully integrate its DSM offerings into the energy grid as well as the Company's long-term planning processes in a way that creates more value for all customers, provides more personalized services for interested customers, while also helping ensure that everyone who uses the energy grid shares in the costs of maintaining it safely and reliably. EML intends to provide a comprehensive framework of offerings focused on satisfying evolving customer expectations while enhancing customer choice and improving overall grid efficiency and reliability.

EML filed its first IRP under the expanded Rule 29 in June 2021. The IRP process is a planning tool intended to provide a comprehensive look at considerations in designing and leveraging balanced and diverse portfolios of resources given the uncertainty of the long-term planning process. EML's IRP provides general strategic guidance over a 20-year period. The IRP is not used to make or initiate any actual resource decisions. The IRP framework is designed to provide general insight into evolving customer usage trends, changing supply and demand technologies, governmental policies, MISO requirements, and other factors over the planning horizon that are fundamentally driven by our customers' needs, while balancing affordability, reliability and environmental stewardship. The results of the IRP are intended to provide transparency of current conditions and reasonably likely future expectations, which must be routinely re-evaluated to account for changing facts and circumstances.

The 2021 IRP reflects the incorporation of DSM into the Company's long-range planning. The portfolio included in the IRP recognizes resources that provide capacity value through reducing customer load. Examples of these types of resources include Company sponsored DSM programs, organic DSM recognized as load reductions in our forecasts and behind the meter generation. The IRP reflects demand side resources and programs having a significant impact on the amount of capacity we need to plan for over the horizon. Thus, EML has taken DSM into account as we work to create a balanced portfolio of resources to responsibly serve our customers and communities over the long-term planning horizon. The DSM savings in the portfolio represent energy savings from both existing programs that continue to provide MWh savings going forward as well as newly implemented programs. The impacts of the existing DSM portfolio were included in the Sales and Load Forecasts outlined in the Load Analysis and Forecasting section of EML's 2021 IRP.

a. Evaluation of Prior Year DSM/DER Offerings

Under the prior version of Rule 29, EML had to file an annual report outlining the performance of its energy efficiency programs by May 1st of each year. This report contained the results of the prescribed Evaluation, Measurement and Verification (“EM&V”) measures for the energy efficiency portfolio and each program during the calendar year, a measure of the savings for those programs, the amounts spent on the programs, and any recommendations for expansion, reduction, alteration, addition or elimination of any programs. The report also provided additional information regarding program highlights that may be useful to the Commission in understanding the implementation of the Company’s energy efficiency offerings.

After the adoption of the amended Rule 29, in early 2020 the Commission ordered regulated gas and electric utilities to continue to file the annual energy efficiency report by May 1st until the submission of the utility’s first Annual Energy Delivery Plan. Going forward, EML will continue to include the information previously provided in the Annual Report of its Energy Efficiency Programs in its Annual Energy Delivery Plan.

On March 29, 2021, Commissioner Brent Bailey requested that, in advance of the filing of the Company’s annual EDP in November 2021, EML submit to the Commission the Company’s annual demand-side management report for the 2020 program year. EML filed its Demand-side Management Portfolio Implementation Report for 2020 on June 4, 2021. That report is attached hereto as Appendix A.

After transitioning from Quick-Start to Entergy Smart Services, EML has continued to offer residential and business-focused offerings with enhancements to meet the changing demand of customers’ energy need. The current DSM portfolio is based on best practices and proven approaches in other jurisdictions and the development of these offerings at EML. The offerings build the necessary infrastructure to support potential future measures and offers and explicitly address the needs of all customer classes including a special emphasis on low-income customers and government buildings. The actual spend for the DSM portfolio for program year 2020 was \$7.41 million.

The DSM Portfolio achieved wholesale savings¹ of 28,569 MWh and 4.945 MW during 2020. These totals achieved 88% of the MWh goal and 74% of the MW goals for the portfolio. The table below shows the impacts by offering.

	Portfolio Impact for 2020					TOTAL
	Lighting	Appliances	READI	HVAC	Business and Small Business	
Participants	17,700	3,465	8,057	1,957	541	31,720
MWh	1,851	2,924	4,037	2,456	17,301	28,569
MW	0.301	0.105	0.515	0.913	3.111	4.945

¹ Wholesale savings refers to savings realized at the generator level which adds line loss factor to the premise savings.

The energy efficiency offerings included in EML's 2020 DSM portfolio included:

Residential Lighting: The Residential Lighting offering increases the market penetration of ENERGY STAR® certified lighting products among income-qualified customers through partnering with community-based organizations to provide free lighting products to income-qualified customers. This offering is delivered through partnerships with the Mississippi Food Bank Network, Community Action Agencies, Senior Living organizations, VA clinics, and other local non-profit groups serving income-qualified customers.

In 2020, EML held its fifth Food Bank initiative, distributing approximately 60,800 ENERGY STAR LED bulbs to the Mississippi Food Network (MFN), and more than 9,900 ENERGY STAR LED bulbs to local organizations including Community Action Agencies, Senior Service Centers, Human Resource Agencies, Mississippi Association of Planning and Development, VA clinics, and other non-profit organizations. EML distributed the bulbs to approximately 17,700 EML customers in need.

In 2020, the Residential Lighting Offering saved 1,851 MWh and 0.301 MW.

Residential Appliances: The Residential Appliance offering increases the market penetration of certain ENERGY STAR qualified and high efficiency appliances and products. The offering brings opportunities for all residential customers to purchase a variety of high efficiency appliances and products through retail sales channels with incentives that reduce customer purchase costs.

EML Marketplace: EML offers an online marketplace where customers are able to shop for and purchase energy efficient products. Some products on the site are eligible for rebate incentives under the Residential Appliances program. These incentives can be applied for verified EML customers during the checkout process eliminating the need for a rebate application and approval process. In addition to streamlining the rebate process, the website also hosts information about other programs in the energy efficiency portfolio and gives customers a chance to sign up online.

Instant Retail Rebates: The Instant Retail Rebate enhancement is another solution to simplify and improve our customers' experience with our rebate process. This option enhances the Residential Appliances program by allowing verified EML customers to download a coupon to their smart phone while in a participating brick-and-mortar store that can be scanned during checkout to instantly apply the rebate incentive. This offering is also available online at the website of participating merchants. This offering eliminates the weeks of lag time a customer may have to wait to receive a mailed rebate check.

In 2020, EML developed app-based platforms to utilize QR codes for ease of customer access in coupon generation for instant incentives, and this component became available to customers in the first quarter of 2021.

Customers took advantage of the Appliance Offering 4,697 times in 2020 with a savings of 2,924 MWh and 0.1055 MW. The Appliance Offering saw a small decrease in participation but a 7% increase in MWh savings as compared to 2019.

Residential Audit and Direct Install (“READI”): The Residential Audit and Direct Install (“READI”) offering provides education about home energy usage as well as contractor installed products that results in immediate energy and cost savings. These services are provided at no cost to the customer. The customer receives a report that details how energy is currently being used in the home (e.g., an assessment), ways the customer could reduce energy consumption (e.g., education), and referrals to other EML offerings that may benefit the customer, in particular an A/C tune-up for additional savings and comfort at no additional cost and the online Marketplace. Each low-income customer will also be offered the opportunity to schedule an A/C tune-up at no cost for additional savings and comfort. In response to COVID-19, an offering of an energy efficiency kit was added to the READI offering and delivered through the Online Marketplace.

The EE Kits for Kids program distributes up to 5,000 kits that include some of our normal READI products and make them available for no cost to customers. Entergy Mississippi is initially partnering with several school districts to distribute coupon codes that can be redeemed on the Entergy Solutions Marketplace website for an EE kit at no charge. The kits will include energy-savings products such as LED bulbs, battery back-up bulbs, desk lamp, kitchen and bathroom aerators, showerhead, and LED glow rings. The kits include a downloadable fun activity booklet where children can learn how energy works and where to save energy at home.

During 2020, READI continued the success from prior years and delivered energy audits to 8,057 customers, installed 53,311 measures, and saved 3,917 MWh and 0.499 MW.

Residential HVAC Equipment and Tune-up: The Residential HVAC Equipment and Tune-Up offering provides customers with financial incentives for eligible high-efficiency technologies. The incentives are offered in a prescriptive format and address heating and cooling loads, which are the largest energy usages in most homes. The offering includes “tune-ups” of existing air conditioners (A/C) and heat pumps at no additional cost to EML’s customers with an emphasis on low-income customers.

During 2020, the Heating and Cooling Offering saved 2,456 MWh and 0.913 MW.

Business and Small Business: The Business and Small Business offering is marketed to customers as the Entergy Solutions for Business Program (“ESfB”) for commercial, industrial, governmental, and educational customers and as the Small Business Solutions (“SBS”) for small businesses, featuring three distinct participation paths for non-residential retail customers. ESfB offers a list of common equipment and associated incentives, and it promotes technology solutions such as lighting, lighting controls, HVAC systems, and food service equipment. An alternative ESfB path is through custom incentives, which address less common technologies not covered above and/or technologies to be installed in unusual applications or where the savings associated with the project require additional engineering to be estimated accurately. ESfB includes dedicated outreach and marketing to government buildings and educational institutions

to further engage these under-participating sectors. SBS focuses on small business customers, defined as having less than or equal to 50 kW of demand on an annual monthly average. Complimentary lighting assessments, enhanced incentives, direct install measures, and dedicated small business trade allies provide a comprehensive framework to support and energize participation and engagement from EML's small business customers. Measures solely focus on lighting retrofit opportunities; however, there are options for non-lighting upgrades for small business customers that participate in the ESfB offerings.

During 2020, the Entergy Solutions for Business Offering provided incentives to EML non-residential customers and saved 17,301 MWh and 3.111 MW.

Evaluation Measurement and Verification

EML and its Quick-Start program administrator, ICF, worked with an independent EM&V evaluator to conduct an independent EM&V of the Company's 2020 DSM portfolio. The EM&V protocols are consistent with industry best practices, including the International Performance Measurement and Verification Protocol. The objectives of the EM&V effort are to document gross energy and demand impacts of the portfolio and to garner feedback on program portfolio performance.

Entergy Mississippi's 2020 DSM portfolio of offerings had evaluated savings that were lower than expected savings with an overall realization rate of 93.4 percent for energy savings and 91.8 percent for energy demand. For program year 2020, total evaluated annual savings for these offerings were 26,667 MWh. The table below summarizes the EM&V results for the 2020 program year.

Energy Efficiency Offering	Number of Participants **	Expected Energy Savings (MWh)	Evaluated Energy Savings (MWh)	Realization Rate (MWh)	Expected Demand (MW)	Evaluated Demand (MW)	Realization Rate (MW)
Residential Appliances	3,465	2,925	2,859	97.8%	0.11	0.10	99.0%
Residential Low-Income Lighting	11*	1,851	1,851	100.0%	0.30	0.30	100.0%
Residential HVAC Equipment and Tune-up	1,892	2,456	2,456	100.0%	0.91	0.91	100.0%
Residential Energy Audit and Direct Install	7,955	4,037	4,037	100.0%	0.51	0.51	100.0%
Business and Small Business	399	17,301	15,025	86.8%	3.11	2.58	83.1%
Total Portfolio	13,722	28,569	26,677	93.4%	4.94	4.54	91.8%

Note: Amounts may not tie due to rounding

The wholesale savings consider a 3 percent line loss where *Gross Wholesale* = (*Premise* / 0.07).

* For the Residential Low-Income Lighting offer, the total participant count refers to the number of giveaway locations that participated through the program. Individual participant information is not collected for this offering.

** Participant count is the count of unique premise ID or account numbers that participated in the programs.

Portfolio Cost Effectiveness

EML performed a cost-benefit analysis in connection with the 2020 program year. The most common primary measurement of energy efficiency cost-effectiveness is the Total Resource Cost (“TRC”) Test, followed closely by the Societal Cost Test (“SCT”). A positive TRC result indicates that the program will produce a net reduction in energy costs in the utility service territory over the lifetime of the program. The cost-effectiveness of the 2020 DSM portfolio passed the TRC Test with a calculated score of 1.33. Distributional tests, such as the Participant Cost Test (“PCT”) and Program Administrator Cost Test (“PACT”) are then used to indicate how different stakeholders are affected. The following table summarizes the results of the cost effectiveness assessment for Entergy Mississippi’s DSM portfolio during the 2020 program year.

Program Year 2020 Portfolio Cost-Effectiveness

	TRC Test	PAC Test	PCT Test	SCT Test
Total Portfolio	1.33	1.48	7.31	1.55
Residential Portfolio	1.05	1.09	4.59	1.19
<i>Lighting</i>	<i>4.72</i>	<i>4.72</i>	<i>17.46</i>	<i>6.38</i>
<i>HVAC</i>	<i>0.86</i>	<i>0.94</i>	<i>2.67</i>	<i>0.95</i>
<i>Appliances</i>	<i>0.74</i>	<i>0.76</i>	<i>5.62</i>	<i>0.72</i>
<i>READI</i>	<i>0.98</i>	<i>0.98</i>	<i>4.40</i>	<i>1.06</i>
Non-Residential Portfolio	1.56	1.86	9.22	1.84
<i>Business and Small Business</i>	<i>1.56</i>	<i>1.86</i>	<i>9.22</i>	<i>1.84</i>

III. Status of 2021 DSM Offerings

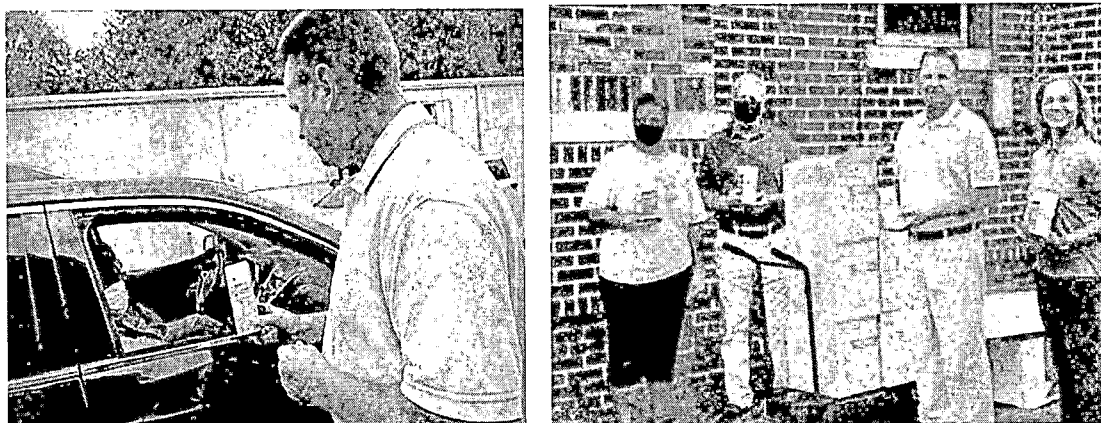
In accordance with Rule 29, EML will continue to provide the complete information for the preceding program year in its Annual Energy Delivery Plan, as the complete data for the filing year is not yet available. However, in order to provide a more contemporaneous view of EML’s DSM programs, EML is providing data on Entergy Mississippi’s DSM portfolio during the first two quarters of the 2021 program year. The new offerings for 2021 – Residential New Construction, Thermostat Demand Response, and Agriculture – will come online in the last two quarters of the program year along with increased participation in Business and Small Business offerings per the usual program cycles. Light bulbs in Residential Low-Income Lighting will also be deployed in the second half of the year. All of this will contribute to meeting the estimated program year budget of \$11.8 million.

2021 DSM Offering	Number of Participants	Expected Energy Savings (MWh)	Expected Demand (MW)	Spending at June 30, 2021
Residential Appliances	3,656	1,218	0.07	\$348,314
Residential Low-Income Lighting*	0	0	0.00	\$0
Residential HVAC Equipment and Tune-up	750	531	0.18	\$574,058
Residential Energy Audit and Direct Install	6,529	3,238	0.41	\$1,201,270
Residential New Construction	0	0	0.00	\$81,656
Thermostat Demand Response	124	53	0.00	\$340,276
Business and Small Business	321	5,235	0.85	\$1,908,138
Agriculture Program	0	0	0.00	\$90,489
Total Portfolio	11,380	10,276	1.51	\$4,544,201

Data through June 30, 2021.

*Residential Lighting distribution occurred in third quarter due to supply chain lightbulb shipping delays.

Residential Lighting: In 2021, EML continued its partnership with the Mississippi Food Bank network, to distribute approximately 18,792 ENERGY STAR LED bulbs to local non-profit organizations serving income-qualified customers. In this effort, Commissioner Brent Bailey participated in the LED lightbulb distribution event at the Jackson Revival Center Church in October. During this event, food vouchers and LED lightbulbs were distributed to customers in need.



Commissioner Bailey and volunteers with partner nonprofit organizations assisting with distribution of energy-efficient light bulbs.

EML has closely monitored the lighting market over the past five years, including impacts from federal standards such as the Energy Independence and Security Act (“EISA”), and has provided guidance for EML regarding standards as well as the trajectory of the lighting market. The 45-lumen-per-watt backstop from EISA did not go into effect, as clarified by a ruling released by the Department of Energy in late 2019, making LEDs viable for lighting programs. There are a few factors that could lead to a change in standards, and if a change is made, the industry would need a minimum of one year after a adoption of a new standard. Industry data indicates there is still room for robust lighting programs, since the lighting market

has not yet transformed, as LED bulbs just now represent about half of the market nationally. If standards are changed, EML would re-evaluate the program's offering of LED bulbs at that time.

As market conditions continue to evolve, EML will continuously refine savings estimates for the Lighting Program and adjust program offerings accordingly.

In addition to the DSM offerings discussed above that are reported in the Demand-side Management Portfolio Implementation Report for 2020 and have been continued from prior years, EML commenced several offerings for the first time during the 2021 program year, including the following:

Agricultural Equipment: The Agricultural Equipment program provides rebates mid-stream, via product distributor discounts, and/or as part of a custom onsite audit offering to develop an equipment retrofit plan. The program is designed to help agricultural customers make their property more energy efficient by offering prescriptive and custom incentives similar to the residential and business programs. Agriculture is a vital contributor to Mississippi's economy, employing nearly 30% of the state's workforce. Changes in energy prices affect the agriculture sector both through direct energy consumption as well as through energy-related products such as fertilizer. Thus, finding ways to reduce agricultural dependence on energy is important not only on an individual level, but also at a state and national level.

Residential New Construction: The Residential New Construction offering is the next evolution of the current READI offering. This program adds incentives for new home builders to include energy efficient products during the home's construction, which are typically cost prohibitive for a builder and add long-term cost to a home buyer's energy consumption. This offering also provides incentives for prewiring homes for EV chargers. Homebuilders can also benefit from technical support and training to help them meet program guidelines as well as marketing support and training to help them gain market differentiation as an energy efficient homebuilder.

Smart Thermostat Demand Response: The Smart Thermostat DR Offering provides customers with an incentive for enrolling in a demand response program. Participating customers will allow EML to periodically adjust the customer's smart thermostat for up to a few hours a day. The temperature adjustment is anticipated not to be noticeable by most customers, but they have the option to "opt out" of events that do not fit either their schedule or comfort preferences during the short duration of the event. Participating customers directly benefit by reducing their annual energy costs via the smart thermostat as well as by receiving an annual incentive of \$25 for participating in the demand response program. Customers will also have the ability to opt out of demand response events-up to three times and still receive the annual incentive. This offering has two components described below.

Income Qualified Direct Install: The Income Qualified Direct Install component offers up to 500 smart thermostats under a direct install model to low- to moderate-income residential customers (*i.e.*, at no upfront cost to the homeowner or renter) with a condition of the thermostat being enrolled in a demand response component during the first year. This program provides participating customers access to energy savings technology that they may not otherwise be able

to purchase. In addition to the provided thermostat, the customer receives the annual incentive of \$25 for participating in the demand response program.

Bring-Your-Own-Device: The Bring-Your-Own-Device component allows customers that already have a smart thermostat to participate in the Smart Thermostat Demand Response offering. Customers enrolling in the program receive a \$50 rebate to offset a portion of the purchase price for a qualifying smart thermostat and the annual incentive of \$25 for participating in the demand response component.

IV. Proposed 2022 DSM Offerings

Entergy Mississippi looks forward to building on its success with the Quick-Start energy efficiency program, expanding it with Entergy Smart Services in a way that will provide more options to customers with respect to both energy efficiency and demand response measures. With the flexibility provided by Rule 29, EML believes it is better positioned to meet customer energy needs while improving the overall efficiency of the energy grid. The Company will continue to explore, implement, and test additional DSM offerings to develop a holistic, customer-centric DSM portfolio into 2022 and beyond.

Through Entergy Smart Services, Entergy Mississippi is developing innovative ways to expand demand side management offerings, provide demand response alternatives and options involving distributed energy resources, provide more personalized billing and payment options, and fold all of these collective efforts into creating a modern, integrated energy network. The Company also intends to implement these offerings at a controlled pace such that the Company, the Commission, and the Staff can monitor the success of these offerings and retain flexibility to adjust the offering specifics. The purpose of retaining such flexibility is to ensure that, as the offerings grow in scale, EML's efforts can remain focused on satisfying customers' expectations and achieving the goals for which the offerings were designed. In other words, if, for example, a particular requirement or component of an offering proves to be inconvenient for customers and hinders participation in an offering or detracts from a customer's experience with the offering, the Company would need the ability to evaluate what adjustments may be necessary to improve the service or offering. EML's expansion of its appliance rebate offering to add the Instant Retail Rebate is an example of an improvement driven by this customer-centric approach. The Company's overarching goals are to satisfy customer energy needs while improving the overall efficiency of the energy grid, further enhancing reliability and customer choice, and reducing customer bills. EML will therefore regularly evaluate the performance and customer interest in existing offerings and, working with vendors, subject matter experts and through customer feedback, will evaluate opportunities for additional offerings for presentation to the Commission.

In 2022, the Company plans to add several new offerings that target difficult-to-reach and oftentimes underserved, market segments. Those offerings are:

My Energy Target: The My Energy Target program is a next-generation offering designed to engage customers for additional savings and complement EML's current suite of demand-side management programs. This offering can provide meaningful, cost-effective savings to customers, leverage the AMI infrastructure currently being installed, and set the foundation for

EML to quickly scale participation depending on portfolio needs. Due to the targeted nature of the program, it can also provide benefits to EML's limited- or low-income customers. The proposed program will provide each participant with a customized, seasonal goal representing what they should expect to consume while accounting for their home characteristics (size, insulation, efficiency) and annual weather normalization. To help participants achieve their target, various touchpoints will be deployed throughout the year designed to encourage customers to adopt energy efficient behaviors (e.g., adjusting thermostats, shutting lights off when leaving a room) as well as promote additional programs that may be well suited for their needs. At the end of each summer season, participant performance will be analyzed and customers who meet their energy savings target will receive an incentive as outlined in the incentive section below.

Participants	Milestone	Approximate Savings per Participant
24%	Tier 2 Target (\$150)	13%
9%	Tier 1 Target (\$100)	4%
9%	Saved energy, did not meet target	1.7%

Building Tune-up (Retro Commissioning): The Building Tune-Up offering evaluates a facility's various systems and fine tunes their operation for optimal performance and energy efficiency. Typically, equipment and building optimization can reduce overall energy use from 5% to 15% with minimal financial investment. A building tune-up can yield the following benefits:

- Return equipment to its proper operational state.
- Extend the service life of equipment.
- Reduce maintenance and repair costs.
- Improve outside air control and indoor air quality (IAQ).
- Improve occupant comfort and reduce complaints.
- Optimize operation of chillers and other equipment.
- Adjust and correct operating schedules for equipment.
- Develop a comprehensive energy-saving plan.

Eligible program measures and incentives are described in table below.

Product	Incentive
<ul style="list-style-type: none"> • Building control system programming and set-point calibration • Compressed air leak repair and optimization • Elimination of simultaneous heating/cooling • HVAC tune-ups • Building envelope sealing and servicing 	<ul style="list-style-type: none"> • Participants will receive up to 75% of the cost of the Recommission trade ally's assessments, capped at \$25,000. • Participants will receive up to 50% of the cost of measures with paybacks greater than 1.5 years, capped at \$15,000. • Measures with payback periods less than 1.5 years do not receive incentives because they are low-cost, no-cost measures.

Evaluation of Proposed New DSM Offerings

Rule 29 requires that utilities provide the results of cost-effectiveness tests that evaluate the cost-effectiveness of the Company's proposed DSM investments. EML performed a cost-benefit analysis of the new offerings proposed for 2022, using the Participant Cost Test, the Program Administrator Cost Test, and the Total Resource Cost Test. The TRC Test purports to examine whether the total costs of energy in the utility service territory will decrease and compares the program administrator and customer costs to utility resource savings. The PACT purports to examine whether utility bills increase, comparing program administrator costs to supply-side resource costs. Finally, the PCT purports to examine whether participants benefit over the measure life, comparing the costs and benefits of the customer installing the measure.

The following table summarizes the results of the cost effectiveness assessment over a three-year period, for Entergy Mississippi's new DSM offerings being implemented during the 2022 program year.

Cost Effectiveness Tests	Total Resource Cost	Program Administrator Cost	Participant Cost
Program Name	2022-2024	2022-2024	2022-2024
My Energy Target	1.01	0.33	∞
Building Tune-up	1.05	0.62	∞

*There is no cost for a customer to participate in these programs causing the ∞ outcome from the Participant Cost formula. Customers can choose to participate in other DSM to obtain goals in My Energy Target and Building Tune-up.

Cost Recovery of DSM

In 2022, the cumulative budget for DSM offerings is \$15.47 million, which includes the following four elements: (1) direct incentives paid to customers (e.g., rebates) and other direct costs of offerings (e.g., the cost to EML of purchasing and installing a smart thermostat); (2) EML third-party costs paid to vendors necessary to develop and administer DSM offerings and provide the Commission with periodic reporting, etc.; (3) amounts paid to EML's vendors for the evaluation and measurement of DSM offerings; and (4) advertising of the DSM offerings. This amount will be reflected in the 2022 Evaluation Report in EML's annual Formula Rate Plan ("FRP") submittal subject to approval by the Commission as part of the annual Formula Rate Plan review, and will be subject to a true-up through the FRP. Pursuant to Commission authorization, EML plans to defer these expenses as a regulatory asset and amortize the regulatory asset over multiple years.

2022 DSM Offerings	
Offerings	Budget
Residential Lighting	\$179,073
Residential Appliances	\$1,076,252
Residential Energy Audit	\$2,507,726
Residential HVAC	\$1,378,851

Business and Small Business	\$6,198,741
Agricultural Equipment	\$220,523
Smart Thermostat Demand Response	\$1,012,555
Residential New Construction	\$739,306
Building Tune-up (Retro Commissioning)	\$794,926
My Energy Target	\$612,048
Advertising	\$750,000
Total	\$15,470,000

Amortization of DSM Expenses

EML originally proposed a three-year amortization period for the Company's annual investments in DSM. However, at the recommendation of the Mississippi Public Utilities Staff, the Commission approved six-year amortization period in Attachment K to EML's FRP.

V. Distributed Energy Resources

EML intends to invest in distributed energy resources, like back-up generation and energy storage, distributed generation like solar photovoltaics ("PV"), and the technology and infrastructure necessary to support the grid of the future. EML's near-term investment, however, will be largely driven by customer demand. Voluntary customer contributions to acquire the services and technologies they desire will create the economic case for the broader utility investment that will benefit all. That is, EML will propose offerings where customers will pay their fair share to enjoy the individual benefits that are enabled by new services and technologies, while EML's other customers will pay only for that portion of the total cost that benefits the entire system. As technologies develop and costs decline, EML should be able to make even broader investment in the energy grid, increasing the availability and benefits of technology to a growing number of customers. Through our partnerships with our customers, we believe we can unlock the value of these assets and technologies in a way that benefits all of our customers.

Entergy Mississippi is currently undertaking, or considering the following DER projects:

Resiliency Service at U.S. Army Corp of Engineers Engineering Research and Development Center ("ERDC")

In October 2021, the Commission approved Entergy Mississippi's application to install, maintain, and operate eight 400 kW natural gas-powered, reciprocating engine generators capable of supplying 3.2 MW of resilient backup power directly. The U.S. Army Corps of Engineers is expanding the Information Technology Laboratory ("ITL") by constructing a new Secure Computing Facility at the ERDC main campus in Vicksburg, Mississippi. EML expects that the new Secure Computing Facility will require in excess of three megawatts of capability to serve the facility. This new multi-building complex will also house additional personnel and systems to be used by the U.S. Army and the Department of Defense. Service interruptions could cause data losses of sensitive and critical data.

ERDC ITL representatives approached EML to provide heightened resiliency of electric service for the Secure Computing Facility. In response to ERDC's request, EML proposed to provide resiliency service for ERDC's Secure Computing Facility through the use of modular generators that are capable of providing backup power generation sufficient to support the full electrical load of the Secure Computing Facility.

The eight 400 kW natural gas-powered, reciprocating engine generators are capable of supplying 3.2 MW of resilient backup power directly to the new Secure Computing Facility, utilizing a step-up transformer(s) to provide a 13.8 kV distribution delivery level service. The resiliency solution will also include an Automatic Transfer Switch and will provide quick starting (<10 seconds) capability to carry load.

EML 20 by Power Through Pilot Program

In December 2019, the Commission approved Entergy Mississippi's request to conduct a utility-owned, natural gas-fired backup generator pilot program. EML proposed to offer qualifying commercial customers natural gas-fired backup generators that will provide reliability benefits to participating customers during an outage while EML has the right to "dispatch" the generators during times of peak demand, which can mitigate the typically higher energy and capacity costs borne by all customers during times of peak energy usage. This pilot, now known as EML 20 by Power Through, is limited to no more than 20 units installed over a three-year period and the approved budget for the pilot is \$3.5 million over that three-year period.

The EML 20 Pilot allows a host customer to share costs and benefits with other customers during the contract term for backup electric service supplied by a Company-owned generator. While most back-up generators are only used during an outage to maintain power for the specific customer who has the generator on-site, the Pilot is unique in that EML, as the generator owner, will offer the Power Through fleet as capacity into the Midcontinent Independent System Operator, Inc. ("MISO") market and dispatch the generators during non-outage conditions when it is economic to do so. As a result, the generators will provide needed capacity for all customers and energy revenues that will benefit all of EML's customers.

Shortly after the approval of the EML 20 Pilot in late 2019, Entergy Mississippi began discussing the offering with customers that EML believed would be interested in this new offering. Despite the challenges presented by the COVID-19 pandemic, EML was able to conduct customer research, engage with customers on the benefits of the Pilot, and ultimately execute agreements with several customers to receive backup electric service.

In the first year of the three-year EML 20 Pilot, EML was able to contract for eleven of the backup generator units authorized under the Pilot. Entergy Mississippi commissioned the first EML 20 backup generator in August 2020 and completed the second installation in January 2021. At this time, Entergy Mississippi has completed construction for six locations. In addition to the six completed facilities, the Company currently has five facilities that are in various stages of being installed. The Company is also discussing participation opportunities with several other interested parties to fill the remaining slots for the pilot.

EML intends to use the EML 20 Pilot to test customer interest in these back-up generator technologies and obtain real-life experience and actual data to support the extent to which these types of distributed resources can provide value not only to participating customers, but also to non-participating customers and to the energy grid. As the Pilot progresses, Entergy Mississippi is evaluating the benefits of the technology and the financial structure of the offers made to customers. The Company has already identified areas of opportunity to potentially modify the offering in the future. In light of significant customer interest in backup generation offerings, along with the initial apparent success of the pilot and learnings thus far, EML expects that it may, consistent with the Commission's approval of the pilot, request moving towards an expanded commercial product as EML nears the end of the three-year pilot period.

The Pilot has been well-received by EML's customers, and the Company ultimately executed agreements with ten customers to receive a backup electric service under the Pilot. Thus far, EML believes the Pilot has been valuable and equitable for participating and non-participating customers alike.

SolShare Solar PV Pilot Project

Working with the Commission and other stakeholders, the Company has agreed to provide a \$6,500 rebate through its energy efficiency efforts to help offset a portion of the installation costs for a 20 kW (direct current) rooftop solar PV system that will be located at a residential apartment complex that serves qualifying low-income tenants. As part of the pilot, the installation will include Allume SolShare ("SolShare") equipment. The SolShare equipment allows a centralized solar system to be shared by residential tenants of a multi-family complex where the individual apartments are separately metered and billed by the utility (in this instance, EML).

The SolShare equipment will allow electricity generated by the solar PV system to be separately supplied and optimized to offset some (or all) of the electricity usage at each of the apartments at the premise that are separately metered, as well as minimize excess electricity sent back by individual apartments to EML's distribution system. Tenants will benefit from a reduced electric bill under net metering including, if they qualify, being able to take advantage of the Low-Income Benefits Adder under EML's Net Energy Metering Rider Schedule. The SolShare technology was developed in Australia, and it is the Company's understanding that this will be the first instance where the SolShare equipment will be utilized in the U.S. In return for agreeing to participate, this innovative pilot will allow EML to better understand the functionality and operational characteristics of the SolShare technology as well as assess potential future use cases.

Kosciusko Microgrid

EML is developing a microgrid-style project that will supply critical auxiliary power to the Choctaw County Generating Station as well as provide a significant reliability improvement to circuit 7E02 out of the Kosciusko Substation. Currently, circuit 7E02 is the longest circuit in EML's territory (approximately 280 miles) and has significant reliability challenges due to its length and exposure.

EML intends to design and install small scale natural gas generation (2 - 4 MW) at the Choctaw facility such that it can supply a portion of the plant's 4160V system load (needed for critical auxiliary power) and provide a generation source at the end of the 7E02 circuit. Additionally, EML will extend circuit 7E02 to the Choctaw facility, rebuild a section of the circuit to 3-phase configuration and install a recloser scheme to enable a portion of the circuit to be able to act as a microgrid (sectionalized from the rest of circuit 7E02). This microgrid functionality will provide a substantial increase in circuit reliability as well as keep customers from experiencing extended outages.

Energy Storage and DER Aggregation

FERC has recently issued several important orders that will increase access to the MISO wholesale market for retail customers that have invested in, or in the case of third party aggregators operate and/or control, DERs including energy storage, DG, and EV charging infrastructure. On February 15, 2018, FERC issued Order 841 that is designed to facilitate the participation of electric storage resources ("ESRs") in capacity, energy, and ancillary service markets operated by RTOs and ISOs like MISO. Under Order 841, ESRs can be interconnected to the bulk transmission system, a utility's distribution system, or even behind the meter of a retail customer. MISO's 841-related compliance plan has gone through several iterations since issuance of Order 841 and the current deadline for MISO to comply is June 6, 2022. EML, along with the other Entergy Operating Companies, have been involved in various MISO task forces and related planning activities in order to be ready when Order 841 takes effect next year.

On September 17, 2020, FERC issued Order 2222, amending its regulations to "remove barriers" to the participation of DER aggregations in the capacity, energy, and ancillary services markets operated by RTOs and ISOs such as MISO. In a press release that accompanied Order 2222, FERC asserted that its ruling will empower new technologies to participate "on a level playing field," further enhance competition, encourage innovation, and drive down costs for customers. FERC generally defines a DER as a resource located on the distribution system including behind-the-meter ("BTM") resources and refers to various categories of technologies including energy storage, DG like rooftop solar PV, demand response ("DR"), energy efficiency, and electric vehicles and charging infrastructure. Subject to certain conditions, Order 2222 enables multiple DERs to be aggregated to satisfy minimum size criteria (100 kW) in order to participate in wholesale markets. Importantly, as with Order 841, retail regulators cannot broadly "opt-out" of allowing direct participation by aggregators of DERs except for areas served by smaller utilities that distribute less than 4 million MWh annually. MISO has not yet submitted its Order 2222 compliance plan, which is expected to be filed with FERC in the second quarter of 2022.

In subsequent actions, FERC issued Orders 2222-A and 2222-B addressing the potential treatment of DR resources in aggregations of DERs relative to FERC Orders 719 and 719-A. In a separate, but related matter, FERC initiated a Notice of Inquiry (RM-21-14) to consider the appropriateness of continuing to allow states to opt-out of allowing DR resources to participate in wholesale markets directly and through third-party aggregators. There have been two rounds of comments in the NOI proceeding and it is not yet clear what action(s) FERC may take next including potential issuance of a Notice of Proposed Rulemaking ("NOPR").

VI. Customer Outreach

DSM and DER Offerings

Approximately 20% of households in EML's service territory fall below the federal poverty level. The provision of DSM to low-income customers can be difficult as these customers often face challenges accessing new, energy efficient technology from various perspectives, including financial challenges (*i.e.*, renting versus owning their homes, etc.). However, one of the objectives of the residential programs under the Quick-Start Portfolio was to reach income-qualified customers. "Income-qualified" is based on the percentage of low-income households in each county compared with the state's poverty level according to the current census data and meet the income eligibility requirement of 60% of the median state income or lower. During 2020, the residential DSM portfolio met or exceeded its goals of reaching low-income customers in each of the individual residential offerings. As shown in the table below, cumulatively, income-qualified customers saved 3,672 MWh and 0.64 MW. This accounted for 32.5% of the residential portfolio savings.

	Income Qualified Participation in 2020				
	Lighting	READI	HVAC	Appliances	TOTAL
Participants	17,700	2,566	344	341	20,951
MWh	1,795	1,287	379	211	3,672
MW	0.292	0.165	0.178	0.007	0.643

Entergy Mississippi's current offerings aimed at providing DSM directly to low-income households are described below.

Low Income Lighting Program: The Residential Lighting Offering targets a harder to reach demographic and offers them the latest in energy efficient lighting technology. The Residential Lighting Offering also distributes cross-promotional materials, which highlight other low or no-cost EML offerings to customers and other opportunities to save energy and money in their home. In 2020, the offering donated LED bulbs to income-qualified residents through partnerships with Community Action Agencies, Senior Service Centers, and the Mississippi Association of Planning and Development.

EML partnered with non-profit organizations to host eight community events, where EML representatives were on hand at local community centers to distribute the LED bulb packages, educational material, and answer questions about maximizing energy efficiency in the home. During these events, customers were also encouraged to participate in EML's READI offering and the HVAC tune up offering. EML continued to distribute energy efficient light bulbs to income-qualified customers and donated over 70,800 ENERGY STAR LED light bulbs to the Mississippi Food Network ("MFN") and other low-income organizations, which were distributed to over 17,700 EML customers who may not otherwise have the means to purchase energy efficient lighting at retail stores. In 2020, income-qualified customers saved 1,795 MWh and 0.292 MW through the bulb distributions alone.

Residential Appliance: The Residential Appliance Offering promotes to residential customers the purchases and use of select ENERGY STAR qualified appliances.

Residential HVAC Equipment and AC Tune-Up: The Residential HVAC Equipment and Tune-Up offering provides customers with financial incentives for eligible high-efficiency technologies. 17% of the measures delivered through the Residential Heating and Cooling Offering during 2020 were to income-qualified households. Income-qualified customers saved 379 MWh and 0.178 MW through the delivery of the Heating and Cooling Offering.

READI Low-Income Qualified Program: The Residential Audit and Direct Install (“READI”) offering provides education about home energy usage as well as contractor installed products that results in immediate energy and cost savings. Each low-income customer will also be offered the opportunity to schedule an A/C tune-up at no cost for additional savings and comfort. The Residential Energy Audit and Direct Install Offering delivered 2,566 of the 8,057 total deliveries to income-qualified households and an additional 1,329 income-qualified households participating through the Kits for Kids, accounting for 32% of participants. Income-qualified customers saved 1,287 MWh and 0.165 MW through their participation in READI Audit.

Smart Thermostat Direct Install Program: The Low-Income Direct Install Smart Thermostat Pilot offering provides up to 500 smart thermostats under a direct install model to low- to moderate-income residential customers (i.e., at no upfront cost to the homeowner or renter) with a condition of the thermostat being enrolled in a demand response component during the first year. Smart thermostats retail for approximately \$150-\$250, which may well be beyond the means of low- to moderate-income customers and renters in particular, because there would be little motivation to replace a thermostat at a property that they do not own and may only be renting for a short period of time. Thus, this offering provides participating customers access to energy savings technology that they may not otherwise be able to purchase.

Workforce and Economic Development

Another benefit of EML’s demand-side management offerings is the development of a contractor infrastructure capable of supporting the delivery of existing and future demand-side management offering and create jobs through delivery of energy efficiency. All offerings contribute to accomplishing this goal through contractor development, training/educational activities and related opportunities created through offerings to EML customers.

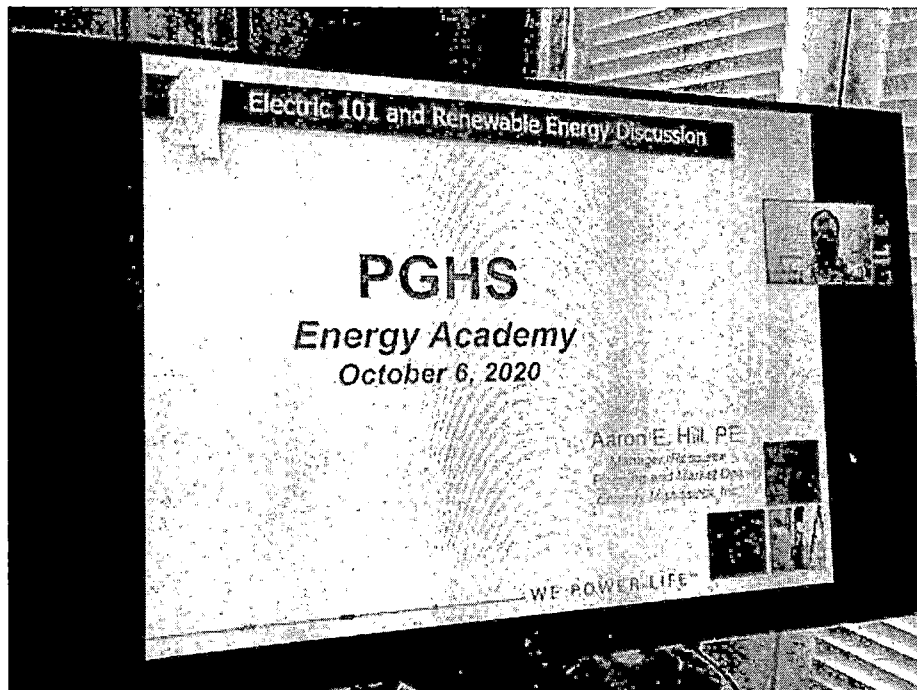
Since the launch of the HVAC Equipment and Tune-up Offering, twelve new HVAC businesses launched business models focused on the tune-up offerings available to low-income customers, and these businesses continued their participation and delivery of the offering during 2020. The HVAC offering created/supported an estimated thirty technicians to perform tune-ups and sell or install high efficiency HVAC equipment. The READI Offering supported seven full-time positions associated with the delivery of over 3,150 energy audits and direct installs during 2020, and the Appliance Offering supported one full time position to deploy signage and deliver training for retail stores at the point of sale. In total, the Residential Portfolio directly created and supported 40 jobs during the 2020. The appliance offering has also had positive impacts for many retailers, who increased their sales of energy efficient products that received incentives.

In 2020, there were approximately sixty-four (64) registered Small Business Solutions trade allies and twenty-three (23) ESfB trade allies. There were 24 active trade allies out of the 47 for Small Business Solutions and 23 out the total are active in ESfB, meaning they completed a project under the offering in 2020.

Over 60 companies attended Entergy Solutions for Business trainings in 2020, which consists of education and insight into trends in the industry, upcoming technologies and changes in standards, and other industry knowledge that helps contractors and trade allies become more informed on energy efficiency and improve their businesses.

While utilities and customers benefit from the advantages of technological innovation in the utility industry, that same innovation is resulting in utilities facing skill and competency gaps in their workforce. Emerging technologies are requiring new, higher skilled positions while traditional jobs such as meter readers become increasingly obsolete.

Creating a pipeline of new workers will be integral to filling utility workforce needs, and Entergy Mississippi is working towards that end. For example, Entergy Mississippi currently partners with the State of Mississippi as well as the Vicksburg-Warren and Claiborne County school districts in two energy academies to encourage students in those areas to learn about and consider careers in the energy industry. Using the Vicksburg-Warren School District's existing career academy model, the two districts are working with the Center for Energy Workforce Development on an energy curriculum and national certificates that students can obtain before graduating high school. Entergy Mississippi has provided substantial support to the two academies, which were successfully launched during the 2020 – 2021 academic year. The Company's support has included special topic discussions that strengthen the curriculum, energy teacher workshops, and hands-on opportunities.





Entergy's Grand Gulf Nuclear Station offers support to the academies through interactive lectures, presentations, class assignments, field trips and projects focusing on sustainable energy. As part of the Energy Academy's effort to engage students, both school districts invited Entergy to present information on careers in energy to more than 500 students. Prior to COVID-19, Entergy also hosted a monthly Energy Academy board meeting at Grand Gulf, as well as a student tour of the Grand Gulf control room simulator during Careers in Energy Week. Entergy has continued to host board meetings virtually during the pandemic. During Grand Gulf's planned refueling outage in 2020, 10 students from Port Gibson High School were hired to work at the plant to support the outage recovery. There are 37 students in the Energy Academy at Claiborne County this year. Claiborne County will continue to add grade levels as the students progress. The first cohort will graduate in May 2024. There are 19 students from 8th - 12th grade in Vicksburg/Warren County schools participating in the energy academies this year. Entergy Mississippi has provided substantial support to the two academies, providing opportunities for the two districts to develop local talent for entry-level positions at all levels within the Company. Whether a student will seek a job with us after high school, trade/technical training, community college, or 4-year degree program, students are placed within Entergy's talent pipeline.

Engagement with students in middle and high school to reduce drop-out rates and prepare them for the next step in their education and training has also been a priority for the Company. Entergy employees in Mississippi work with several programs to help Mississippi children and their families spark an interest in Science, Technology, Engineering and Math (STEM). Some examples of support and organizations Entergy Mississippi partners with include:

- Entergy employees have assisted with the Siege Robotics 456 team to showcase robots that local high school students have built and designed with the support of adult mentors. Entergy has sponsored the robotics team for its annual "For Inspiration and Recognition of Science and Technology" (FIRST) competition.
- Entergy Mississippi partnered with Project Lead the Way ("PLTW") to assist Mississippi elementary schools in the implementation of PLTW's Launch programs for grades pre-K-5. STEM fundamentals are the foundations of PLTW's transformative education experience, but PLTW empowers students and transforms the classroom into a collaborative space where content comes to life. Students develop in-demand, transportable knowledge and skills – such as problem-solving, critical and creative thinking, communication, and collaboration – that they need to

pursue rewarding careers, solve important challenges, and contribute to global progress through engineering. Our partnership has led to the development of programs in 20 schools across the state. Approximately 50 teachers have been trained and over 300 students impacted.

- EML has supported the Public Education Foundation Tech Master and Star Student recognition, which supports accountability and soft skills in students.
- JSU and MSU Summer Bridge to the Future Program has featured a seminar taught by an Entergy employee for incoming freshmen providing remediation needed to prepare students for college. The Bridge to the Future prepares students for careers in the sciences, mathematics, engineering, and other fields where African Americans are underrepresented.
- Entergy Mississippi has supported MSU STEP, which focuses on Advanced Manufacturing training with an opportunity for students to gain professional robotics certification in high school and compete for scholarships which can be applied to community college or 4-year university tuition. The MSU STEP program is in its 16th year and over 725 students have completed the program. Participating students have a 100% graduation rate, and 94% continue their education at colleges or universities or join the military.
- Beginning with the academic year 2020, Entergy formed a collaboration with Jackson Public School – Tougaloo Early College High School Program. It operates as a small, independent program on the Tougaloo campus. The program recruits students who are typically underrepresented in college. Participating students may earn an associate degree or up to two years of credits towards a bachelor's degree. Employees from Entergy Nuclear, human resources, Entergy Mississippi, transmission, distribution, power generation, and the Mississippi Development Authority volunteer to assist with monthly presentations. Topics ranged from the structure of an electric system, outage management, how the local Mill Street Substation feeds power within the city of Jackson, and customer service.

The Company is also involved with career development programs and STEM initiatives at various institutions and participates in curriculum development for the engineering program at Jackson State University and the radiation technology program at Alcorn State University. Entergy employees provide hands-on activities and career information to students to increase awareness and interest in energy careers.

Entergy Mississippi has provided major investments in the engineering programs at Jackson State University and Mississippi State University, most recently to the Hi-Voltage Lab at Mississippi State University. In an effort to expand diversity in our own business and provide resources to under-resourced students in our service area, we have supported scholarships at Historically Black Colleges and Universities in Mississippi through direct grants for scholarships as well as scholarship endowments. Over 100 students have been recipients of scholarship awards at Jackson State University, Mississippi State University, Tougaloo College, Alcorn State University, Mississippi Valley State University, and Delta State University.

Entergy Mississippi has collaborated with several community colleges across the state of Mississippi regarding the framework and curriculum of their line worker programs. Entergy has

provided guidance to Southwest Community College and Copiah Lincoln Community College in the areas of (1) general education core courses, (2) utility line worker courses, (3) course descriptions, (4) career certificate required courses, and (5) technical certificate required courses. Entergy has also engaged in opportunities supporting line worker trainings by attending bootcamps, career fairs, and program graduations. Entergy has also eliminated certain testing requirements for line workers which has resulted in an overall 30% hiring increase within the Mississippi line worker programs.

Entergy has partnered with Local 619 Plumbers & Pipefitters Union to assist in testing pipefitters, apprentices, and welder to work during the most recent refueling outage at Grand Gulf. Applicants who pass the test are hired and go into training. After completion of the program, the participants are certified welders. This program ensures workers are properly trained and qualified to work during the plant's outage periods, and the certification is transportable within the nuclear industry.

Entergy's eTech offering promotes the adoption of electric-powered alternatives to many applications that traditionally require fossil fuels. eTech provides customer support through dedicated field representatives and financial incentives to Entergy customers who purchase select electric equipment. Through this program Entergy provides cost assistance to customers for Electric Vehicle Charging and Fleet Electrification, upgrading fossil fuel burning forklifts to electric, and upgrading standard billboard signs to digital displays. This program also provides information on how electrification can be deployed strategically to lower a business's cost and emissions over time. Providing these incentives facilitates economic growth for businesses in Mississippi and encourages customers to adopt new electric technologies that can reduce fuel costs and long-term operations and maintenance costs.

VII. Transmission and Distribution System Planning

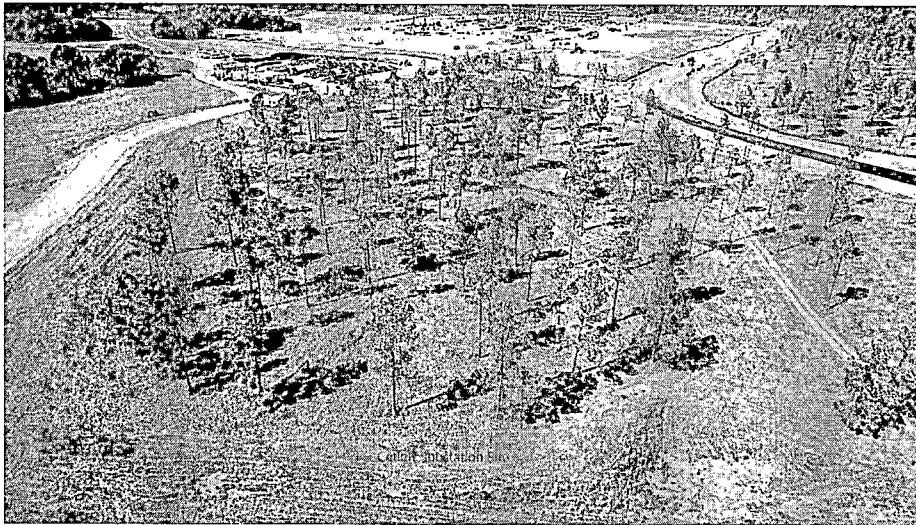
As part of the 2022 EDP, Entergy Mississippi is providing summary information regarding its transmission and distribution capital plans for the upcoming calendar year.

Transmission Overview

The EML transmission system can be thought of as having three separate geographic areas: North Mississippi, Central Mississippi, and South Mississippi. EML's North Mississippi area is served by a 115 kV network that is supported by a 230 kV backbone system in the more densely-populated areas. The Central Mississippi area consists of a similar 115 kV network with a 230 kV backbone system looped around the metropolitan Jackson area. Both the 115 kV and 230 kV systems are supported by multiple injection points from the 500 kV network in Central Mississippi. The 500 kV network has ties from the east, west, and south, allowing for the transport of bulk power throughout EML's service area. The South Mississippi area is served by an extensive 115 kV network that is supported by the 500 kV network in eastern Franklin County.

Entergy Mississippi, as the transmission owner, is responsible for conducting transmission planning through the Midcontinent Independent System Operator's ("MISO")

Transmission Expansion Planning (“MTEP”) process. This open and transparent stakeholder process allows for input from various stakeholders to ensure the transmission projects approved by the MISO board meet North American Electric Reliability Corporation (“NERC”) reliability standards and EML’s local transmission planning criteria. Project alternatives may also be selected that also provide additional local reliability benefits to the distribution system and/or enhance the economic development and load serving potential for the area. An example is the Catlett Road project currently under construction in Madison County. This project provides reliability benefits to the 230 kV transmission system as well as local distribution service to the industrial, commercial, and residential customers in the Entergy Mississippi service territory north of Lake Caroline and west of Interstate 55. In addition, the Catlett Road substation provides service to the Madison Mega Site for potential economic development opportunities.



Aerial View of The Catlett Road Substation Site

The Company expects its level of transmission capital spending to decrease as compared to the previous years’ planned level. EML expects to undertake twenty-two reliability-driven transmission capital projects with costs over \$1 million expected to be incurred in 2022 resulting from the Company’s transmission reliability planning process. EML also plans to undertake six reliability-driven transmission capital projects with costs over \$1 million expected to be incurred beginning in 2023. At the same time, the Company expects to maintain its spending on transmission recurring programs, while accelerating asset renewal and reduce the duration of transmission outages to maintain the transmission system’s reliability.

Transmission Planning & Investment

Functional control of EML’s transmission assets – including top-down transmission planning – lies with MISO, and EML’s transmission system is now planned in accordance with MISO’s Open Access Transmission, Energy and Operating Reserve Markets Tariff (“MISO Tariff”). MTEP, which is Attachment FF to the MISO Tariff, has, as its goal, the development of a comprehensive transmission expansion plan that meets both reliability and economic expansion needs. MISO is guided in its planning efforts by a set of principles adopted by the MISO Board of Directors.

The MTEP process is an eighteen-month process through which MISO studies the proposed transmission capital projects submitted by its member Transmission Owners and approves those projects for construction based on study results. For example, this year, MISO received transmission submissions for MTEP21, which will be approved in December 2021. Once approved, a project is included in Appendix A, and the Transmission Owner is obligated to make a good faith effort to construct the project. Additionally, a Transmission Owner may submit a project to be reviewed by MISO for need and effectiveness only. Once found to meet these requirements, such projects are designated as Appendix B projects with the assumption that at some point in the future the Transmission Owner may seek to have the project approved for construction and included in Appendix A.

For its part in this process, EML develops its own long-term transmission capital spending plan to address local system reliability consistent with the requirements of applicable state law or regulatory authority and applicable reliability standards and criteria, including NERC reliability requirements, and to identify projects that may provide economic benefits to EML's customers. Consistent with MISO's eighteen-month cycle, EML seeks Appendix A approval for a planned project when it is ready to begin project construction. As such, at any time, the long-term transmission capital spending plan can include projects in Appendix A and Appendix B.

To provide additional information regarding the current status of expansion and potential future projects, the Company is providing the following list of the currently approved and target Appendix A projects, including their estimated total cost and in-service date. Target denotes pending approval by the MISO Board of Directors.

MTEP Designation	Project Description	Projected In-Service Date	Total Cost Estimate (\$ millions)
Appendix A in MTEP19	Ruleville 115 kV: Install Transmission Line Bay and Breakers (J604 Interconnection)	Sep-21	\$ -*
Appendix A in MTEP17	Scott - Pelahatchie 115 kV: Rebuild line	Dec-21	\$ 13.80
Appendix A in MTEP17	Byhalia 230 kV: New substation	Dec-21	\$ 25.10
Target Appendix A in MTEP21	Franklin Relays Upgrade (J830 J868 J908)	Dec-21	\$ -**
Appendix A in MTEP19	Catlett Road – South Canton 230 kV: New Line & Sub	Dec-21	\$ 48.44
Target Appendix A in MTEP21	2021 EML Asset Renewal Program	Dec-21	\$ 30.37***
Appendix A in MTEP19	J679 Interconnection: Construct Valley Hill 115kV Substation	Mar-22	\$ - *

MTEP Designation	Project Description	Projected In-Service Date	Total Cost Estimate (\$ millions)
Appendix A in MTEP19	Half Mile 115 kV Substation (Cooperative Energy project)	Apr-22	\$ 1.80
Appendix A in MTEP19	Evans Loop Project (Cooperative Energy project)	Jun-22	\$ 7.37
Appendix A in MTEP20	J866 Interconnection: Construct 230 kV Switching Substation	Jun-23	\$ - *
Appendix A in MTEP20	Twinkletown 230 kV: Expand Substation (J962)	Jun-22	\$ - *
Appendix A in MTEP19	East Brandon 115 kV Substation (Cooperative Energy project)	Jun-23	\$ 4.69
Appendix A in MTEP19	Franklin 500 kV: Reconfigure	Dec-22	\$ 12.08
Target Appendix A in MTEP21	Baxter Wilson - Perryville 500 kV terminal equipment upgrade	Dec-22	\$ 0.78
Appendix A in MTEP18	Horn Lake - Allen 161 kV rebuild (to MS/TN state line)	Dec-22	\$ - *
Target Appendix A in MTEP21	2022 EML Asset Renewal Program	Dec-22	\$ 28.30
Appendix A in MTEP20	Endris 230 kV: Construct switching station (J830)	Apr-23	\$ - *
Appendix A in MTEP19	Northpark: Install 230/115 kV autotransformer	Jun-23	\$ 17.35
Appendix A in MTEP18	Snowden Park 115 kV: Install new substation	Jun-23	\$ 33.27
Target Appendix A in MTEP21	McAdams 230 kV: Relay Improvement SPOF	Jun-23	\$ 3.44
Appendix A in MTEP20	Webb 115 kV: Construct switching station (J908)	Jun-23	\$ - *
Target Appendix A in MTEP21	Franklin 115 kV Relay Improvement SPOF	Jun-23	\$ 1.55**
Appendix A in MTEP19	Clinton 115 kV: Install circuit breakers	Dec-23	\$ 9.76
Appendix A in MTEP20	Brandon Area Loop Project (Cooperative Energy Project)	Mar-24	\$ 7.44
Appendix A in MTEP19	Woodville Loop Project (Cooperative Energy project)	Dec-23	\$ 4.59
Target Appendix A in MTEP22	2023 EML Asset Renewal Program	Dec-23	\$ 26.32***
Appendix A in MTEP18	Pinetree 230 kV: Install new substation and line	Jun-24	\$ 52.72

MTEP Designation	Project Description	Projected In-Service Date	Total Cost Estimate (\$ millions)
Target Appendix A in MTEP21	Jayess Loop Project - Jayess 115 kV SS (Cooperative Energy project)	Jun-24	\$ 1.56
Target Appendix A in MTEP21	Jayess Loop Project - Norfield 115 kV SS (Cooperative Energy project)	Jun-24	\$ 1.65
Appendix A in MTEP19	Horn Lake 230/161 kV: Energize autotransformer	Dec-24	\$ 0.22
Appendix A in MTEP19	Utica JC Loop Project (Cooperative Energy project)	Jun-25	\$ 6.95
Target Appendix A in MTEP21	Olive Oil Loop Project - Arlington 115 kV SS (Cooperative Energy Project)	Jun-25	\$ 1.79
Target Appendix A in MTEP21	Marinsdale 230 kV: New Substation	Jun-25	\$ 34.28

* MISO Generator Interconnection Project, which is fully reimbursable to EML per terms outlined in Generator Interconnection Agreement between EML, MISO, and Interconnection Customer.

** MISO Definitive Planning Phase ("DPP") Network Upgrade Project, which is reimbursable to EML per terms of MISO DPP network upgrade study.

*** EML Asset Renewal Program Project includes costs for transmission assets included in the Company's transmission and substation Asset Renewal Programs.

The following table provides a list of current Appendix B projects, including their estimated need-by-date and cost.

MTEP Designation	Project Description	Need by Date (Planning)	Cost Estimate (Planning Level) (\$ million)
Appendix B in MTEP21	Choctaw - TVA French Camp 500 kV: Decommission Line	2023 Winter	\$0.5
Appendix B in MTEP21	Choctaw - Wolf Creek 500 kV: Build New Line	2024 Winter	\$7.1
Appendix B in MTEP18	Mitchell 115 kV: New Substation	2025 Summer	\$18.4
Appendix B in MTEP19	North Jackson 115 kV: Install Transmission Breakers	2025 Winter	\$2.0
Appendix B in MTEP19	Florence 115 kV: Install Transmission Breakers	2025 Winter	\$6.6
Appendix B in MTEP20	Plum Point 115 kV: Add Circuit Breakers	2025 Winter	\$5.5
Appendix B in MTEP18	Cockrum 230 kV: Install new substation	2027 Summer	\$29.7
Appendix B in	East Metro 230/115 kV: Install New	2027 Summer	\$33.8

MTEP Designation	Project Description	Need by Date (Planning)	Cost Estimate (Planning Level) (\$ million)
MTEP20	substation and Autotransformer		
Appendix B in MTEP17	Breakers at Hollandale and Belzoni Tap SS/Strait Substation (close normally-open point)	2027 Winter	\$10.3
Appendix B in MTEP21	Greenville - Leland 115 kV: Rebuild Line	2028 Summer	\$5.3
Appendix B in MTEP20	Hoy Road 230 kV: Install transmission breakers	2028 Winter	\$14.0
Appendix B in MTEP21	Delta Blues 115 kV: New transmission breaker station	2028 Winter	\$13.5
Appendix B in MTEP22	Batesville - Sardis 115 kV: Rebuild Line	2029 Summer	\$22.0
Appendix B in MTEP22	Sardis - Senatobia 115 kV: Rebuild Line	2030 Summer	\$31.0
Appendix B in MTEP22	Senatobia - Coldwater 115 kV: Rebuild Line	2030 Winter	\$12.0
Appendix B in MTEP18	Moon Lake 230 kV: Cut-in Ritchie - Tunica 230 kV line	2031 Summer	\$9.1
Appendix B in MTEP22	Coldwater - Hernando 115 kV: Rebuild Line	2031 Summer	\$15.0

EML prioritizes capital projects in its long-term transmission capital spending plan using the following criteria. First, all capital projects needed to satisfy mandatory NERC reliability requirements receive the highest priority based upon time needed to implement. Next are economic projects that have been identified in the top-down MISO process and that are approved by MISO and included in the MTEP Appendix A for the resulting economic benefits (in terms of reduced cost of producing electrical energy) to customers. After these categories, EML considers enhanced reliability projects and projects that address operational challenges (e.g., intended to reduce customer interruptions). Enhanced reliability projects address contingencies beyond those required to be addressed due to NERC Reliability Standards. Other factors may also be considered in prioritizing enhanced reliability projects such as economic development and flexibility for facility outages.

Economic Expansion

Economic transmission system upgrades are identified through MISO's economic planning process as part of the annual MTEP review cycle. This process includes the evaluation of Multi-Value Projects ("MVPs") and Market Efficiency Projects ("MEPs"), as well as other projects that provide economic benefits but do not meet the criteria for MEPs or MVPs. These economic upgrades are identified by MISO in collaboration with transmission owners and other stakeholders to address regional policy, reliability, and economic issues. Economic benefits considered in the transmission expansion planning process include Adjusted Production Cost ("APC") savings, avoided reliability project savings and MISO-SPP/Joint Parties Settlement cost

savings. Other economic benefits directly related to transmission service may be identified and considered as well. Under the MISO Tariff, quantifiable benefit metrics and mechanisms exist to allocate the costs of economic transmission projects to the entities expected to receive those benefits. The Company does not plan on undertaking any economic expansion projects in 2022.

Reliability

Entergy Mississippi takes seriously its obligation to provide safe and reliable electric service to its customers at a reasonable cost. There are two primary processes associated with maintaining and improving reliability and thereby reasonably minimizing the risk that performance of the transmission system will cause or contribute to customer interruptions. The first is to install new infrastructure and/or upgrade existing infrastructure to maintain a reliable and robust system capable of serving existing and new customer loads under anticipated conditions. This is initially achieved through EML's compliance with mandatory NERC reliability standards as well as with EML's local planning criteria. This process of identifying and building transmission facilities to maintain the reliability in the transmission system is referred to as Reliability Planning. The second process is ensuring that the transmission facilities that are constructed remain in service and perform as designed. Recognizing that even properly designed and maintained facilities can fail to perform as designed, EML seeks to reasonably minimize such occurrences and their impact. This aspect of maintaining reliability is referred to as Infrastructure/Maintenance Reliability. The combination of Reliability Planning and Infrastructure/Maintenance Reliability is important in building and maintaining a reliable transmission system.

Reliability Planning

Entergy Mississippi, as the transmission owner, is responsible for conducting local Reliability Planning through MISO's Reliability Planning process. To do so, the Company applies NERC reliability standards and EML's local planning criteria to determine the transmission facilities that should be constructed to maintain reliable service in the event of certain system disturbances specified by the reliability standards.

Mandatory reliability standards have had a profound effect on transmission planning and increased investment in recent years, but that trend is expected to reverse for the foreseeable future due to minimal changes to planning assumptions and the fact that EML has recently completed many projects that will maintain compliance with the NERC reliability standards now and in the future. The transmission investment required to comply with those standards can come in the form of maintenance, upgrades to existing infrastructure, and/or the construction of new transmission facilities. Currently, there are more than one hundred NERC reliability standards that define the requirements for planning and operating a Bulk Electric System ("BES"). FERC also approved NERC Critical Infrastructure Protection ("CIP") reliability standards that require utilities to take steps (or to demonstrate that they have taken steps) to address physical security risks and vulnerabilities related to the reliable operation of the BES. The transmission capital budgets are significantly affected by these compliance requirements. Indeed, a significant portion of EML's transmission capital budget in recent years has been directly or indirectly driven by the compliance requirements of these mandatory reliability standards.

Compliance with the NERC reliability standards and the local planning criteria is intended to mitigate the risks that outages to parts of the transmission system will cause or contribute to customer outages. This is achieved by designing and building capacity into the transmission system to allow the transmission system to continue to operate reliably under various planning events defined in the NERC standards. Computer models of the transmission system, used by both the transmission owners and MISO, allow for identification of transmission facilities that should be constructed (or other actions that should be taken) to maintain reliable service. Thus, Reliability Planning is the first method of assuring that the transmission system can experience outages to certain facilities and yet continue to provide reliable electric service to the Company's customers. Transmission projects resulting from the Reliability Planning process are a significant portion of EML's transmission system capital expenditures and are critical to the continued reliable operation of the transmission system.

Reliability Driven Specific Transmission Capital Projects

Brandon Area Loop Project (Cooperative Energy Project)

(CE Whitfield 115kV: Add Breakers project with an in-service date of March 2024, subject to changes initiated by Cooperative Energy)

This project is driven by an Other-Reliability project that was submitted into MTEP by Cooperative Energy. EML will upgrade the Whitfield 115 kV station to an operating/transfer bus arrangement, expand line bays to include switches and circuit breakers, expand transformer bays, and replace the control house due to space constraints. The addition of transmission line breaker's at EML's Whitfield 115 kV station will accommodate looped transmission service to Cooperative Energy's East Brandon, South Brandon, and East Whitfield substations.

Brookhaven Substation - Upgrade Transformer and Add Breaker

This project is necessary because Transformer T2 in Brookhaven Substation is heavily loaded at 97%, which exceeds the 2019 planning guidelines, and a new customer will be served on the feeder supplied by Transformer T2.

The project consists of upgrading Transformer T2 to a 40 MVA, 115/13.8 kV Transformer and the main breaker 8M24 to a 2,000-A breaker including all associated switches and bus. Additionally, a feeder bay and 1,200-A breaker will be installed, and a feeder approximately 1.1 miles of 477 conductor along Railroad St. will be constructed to connect the new feeder with a major account customer.

Catlett Road – South Canton 230 kV: New Line and Substation

This project is an Enhanced Transmission Reliability Plan project intended to provide greater reliability and increase area load serving capability to the Madison and Canton, Mississippi areas. This project is expected to also mitigate 50 MW of load shed that has been identified for a NERC TPL-001-4 (P6) planning event. These events could result in approximately 50 MW of load shed during peak loading conditions in order to return the transmission system to an acceptable operating state.

This project will tap the Bozeman – Tinnin Road 230 kV line near the intersection of Highway 22 and Catlett Road, construct a new breaker station called Catlett Road 230 kV Substation, and construct five miles of transmission line from the new Catlett Road 230 kV Substation to the

South Canton 230 kV Substation. In addition to maintaining NERC compliance requirements, the project is expected to increase area distribution reliability, eliminate load shed risk, and increase EML's capacity to serve potential new load additions to the Madison County Mega-Site.

The Company filed a Petition for a CCN for this project in Docket No. 2019-UA-069, with a total estimated cost of \$57.7 million. A CCN was granted by order of the Commission dated October 1, 2019.

Choctaw – Wolf Creek 500 kV: Build New Line

The project is necessary to build a second set of generator interconnection facilities from the Choctaw Generation Substation into Entergy Mississippi's Wolf Creek switching station. Once the existing TVA interconnection is removed from the Choctaw switchyard, the plant will only have one tie to the MISO Bulk Electric System through the Wolf Creek 500 kV substation. The Wolf Creek 500kV yard will be converted to a 4-breaker ring bus to accommodate a second transmission line which will enhance the operational flexibility and reliability for the Choctaw Facility.

Clinton Substation - Install 115 kV Transmission Breakers

This project is necessary to conform to Entergy Standard SL0503. The Ray Braswell EHV – Rex Brown SES line currently has greater than 10,000 intermediate customers between breaker stations. In order to conform to Entergy Standard SL0503, additional breakers are planned to be installed on this line, and EML has determined that the optimal location to install these breakers is at the Clinton Substation. The installation of 115 kV breakers at the Clinton Substation is expected to reduce customer risk and improve reliability by reducing T-SAIFI and T-SAIDI.

East Brandon 115 kV Substation (Cooperative Energy Project)

(CE Rankin 115 kV: Add Line Bay project with an ISD of June 2023)

This project is driven by an Other-Reliability project that was submitted into MTEP by Cooperative Energy. EML will add a new transmission line bay at its Rankin 115 kV station to accommodate Cooperative Energy's new East Brandon 115 kV Substation. EML will also perform relay upgrades and modifications to accommodate the new East Brandon 115 kV Substation. The addition of the transmission line bay at EML's Rankin 115 kV station will accommodate looped transmission service to Cooperative Energy's East Brandon, South Brandon, and East Whitfield substations.

Evans Loop Project (Cooperative Energy Project)

(CE Schlater 115 kV: Add Breakers project with a current ISD of June 2022, subject to changes initiated by Cooperative Energy)

This project is driven by an Other-Reliability project that was submitted into MTEP by Cooperative Energy. EML will upgrade the Schlater 115 kV station to an operating/transfer bus arrangement, expand line bays to include switches and circuit breakers, expand transformer bays, and replace the control house due to space constraints. The addition of transmission line breakers at EML's Schlater 115 kV station will accommodate looped transmission service to Cooperative Energy's proposed Half Mile 115 kV substation.

Franklin 115 kV – Relay Improvement SPOF

This project is needed to address the modeled failure of the 115 kV bus differential relay, which would result in widespread thermal and voltage issues in Southwest Mississippi. The proposed action plan is to ensure bus schemes have dual primary protection with independent current transformer (CT) and potential transformer (PT) winding inputs and ensure dual battery installations or monitoring sufficient to meet the FERC Order 754 guidelines.

Franklin 500 kV Substation Bus Reconfiguration

This project is necessary to comply with NERC Reliability Standards and Entergy's Local Planning Criteria. The modeled failure of a breaker at the Franklin extra-high voltage ("EHV") substation results in various thermal overloads on the south Mississippi and Louisiana 115 kV system. This project consists of reconfiguring the 500 kV EHV substation so that the Franklin-Bogalusa and Franklin-McKnight 500 kV transmission lines do not share a common breaker.

The Company filed a Petition for a CCN for this project in Docket No. 2021-UA-081, with a total estimated cost of \$13.8 million. This matter is currently pending before the Commission.

Grand Gulf – Franklin 500 kV Phase Swap

This project is necessary to reduce high levels of negative-sequence at the Grand Gulf Nuclear Station, which is driven by the negative-sequence voltage at the 500 kV bus. In order to mitigate this issue, the Company is converting the Grand Gulf – Franklin 500 kV line from BAC configuration to ABC would provide the needed relief to mitigate the issue.

Jayess Loop Project - Jayess 115 kV SS (Cooperative Energy Project)

(CE Jayess 115 kV SS project with a current ISD of June 2024, subject to changes initiated by Cooperative Energy)

This project is driven by an Other-Reliability project that was submitted into MTEP by Cooperative Energy. EML will perform the transmission line work required to accommodate Cooperative Energy's proposed bypass of the existing Jayess 115 kV switching station until the new Jayess 115 kV switching station is constructed by Cooperative Energy and perform the transmission line work required to energize the new switching station and de-energize the temporary bypass. EML will also perform relay upgrades and modifications to accommodate the new Jayess switching station. EML's proposed upgrades will accommodate looped transmission service to Cooperative Energy's existing Jayess and Little Creek 115 kV substations.

Jayess Loop Project - Norfield 115 kV SS (Cooperative Energy Project)

(CE Norfield 115 kV SS project with an ISD of June 2024, subject to changes initiated by Cooperative Energy)

This project is driven by an Other-Reliability project that was submitted into MTEP by Cooperative Energy. EML will perform the transmission line work required to accommodate Cooperative Energy's proposed bypass of the existing Norfield 115 kV switching station until the new Norfield 115 kV switching station is constructed by Cooperative Energy and perform the transmission line work required to energize the new switching station and de-energize the temporary bypass. EML will also perform relay upgrades and modifications to accommodate the new Norfield switching station. EML's proposed upgrades will accommodate looped

transmission service to Cooperative Energy's existing Jayess and Little Creek 115 kV substations.

Kosciusko Substation - Replace Transformer

This project is necessary to replace an overloaded transformer at the Kosciusko Substation and provide a contingency in the event of the loss of either transformer at the Kosciusko Substation. This project is also needed to comply with Entergy Distribution Asset Planning guidelines governing customer count and circuit miles per feeder.

Kosciusko Substation has two transformers with a total of seven 13.8 kV feeders. Four of those feeders serve the local municipal power authority. The EML feeders serve the towns of Ethel, McCool, and a major account customer. During a transformer contingency, the total load at risk is estimated to be 2.5 MVA. The substation's peak load in 2024 is projected to be 32.4 MVA.

Lexington Substation - Replace Transformer

This project is needed to replace an overloaded transformer at the Lexington Substation and provide a contingency in the event of the loss of either transformer at the Lexington Substation.

The Lexington Substation has two transformers serving four 13.8 kV feeders, with one feeder serving a rural cooperative association, and the remaining EML feeders serving the towns of Lexington, Tchula, and one major account customer. During a transformer contingency, the total load at risk is estimated to be 3.2 MVA. The substation's peak load in 2024 is projected to be 15.7 MVA.

Madison 115 kV Substation: 2nd Transformer Installation

This project to install a second transformer in the existing Madison Substation is necessary due to the expected development between Ridgeland and Madison along the I-55 corridor. This project will provide long term service capacity to this growing area. It will also complete the Madison Mutually Supported Substation Group (MSSG) and support the surrounding area in contingency situations. This project will install a second transformer, new feeders and feeder ties, and the designed automated load transfer (ALT) system for the Madison area.

Mannsdale 230 kV: New Substation

The purpose of the is project is to construct a new 230 kV substation to serve the rapidly developing area of west Madison. The addition of the Mannsdale Substation will provide long term service capacity to this growing area as well as provide contingency relief for the Flora, Bozeman, and Lake Castle substations. The new feeder arrangement will lower customer exposure and improve reliability in the area. It will also add significant switching capabilities to the area in the event of planned/unplanned maintenance and outage events. The area is currently being served by circuits from Flora, Bozeman, and Lake Castle substations at distances ranging from three to seven line-miles away. There is some transfer capability between circuits for contingency purposes, but it is limited by voltage decay due to heavy loading and distance. Beginning in 2020 feeder configurations had to be switched to non-optimal reliability configurations due to load growth in the area.

McAdams 230 kV Substation - Relay Improvement SPOF

The project is needed to improve certain relay protection single point of failure ("SPOF") issues at McAdams 230 kV Substation in order to comply with NERC reliability standards. The modeled loss of the McAdams 230kV bus due to a failed bus differential relay results in thermal overloads on the S. Grenada to Elliot 115 kV line. There is also the potential for approximately 2,000 MW of generation trip to occur for a three-phase fault on the McAdams 230 kV bus with non-redundant relay failure. This project improves relay protection deficiencies at the McAdams 230 kV substation.

MDOT: DeSoto County Transmission Line Relocation

The Mississippi Department of Transportation (MDOT) has requested that EML relocate ten transmission line structures that are in current or future public ROW as a result of a Highway Improvement project in DeSoto County, MS. Eight of these structures are on the Greenbrook – Horn Lake 115 kV line along Goodman Road. The other two structures are on the Getwell – Horn Lake 230 kV line at an I-55 crossing. This is a mandatory project. Eight of the structures are currently in private ROW while the other two are in public ROW. Because two of the ten structures are in public ROW, these structures are not reimbursable. Consequently, MDOT will only reimburse EML for eighty percent of its actual costs for this project. The remaining twenty percent will be funded by EML. A Utility Agreement provided by MDOT will be executed by EML as the means for reimbursement.

North Park Substation Install 230/115 kV Autotransformer

This project is necessary due to a modeled internal breaker fault at Lakeover 500 kV Substation causing thermal overloads on the Rex Brown 230/115 kV autotransformer, and an internal bus tie breaker fault at Rex Brown 115 kV Substation (Planning Event P2-4) could result in thermal overloading on the North Park to Country Club 115 kV transmission line section once the proposed North Park 230-115 kV autotransformer is in service. The transmission studies also identified a possible need for manual load shed in the metropolitan Jackson area during a multiple contingency event involving overlapping outages of the Lakeover 500-115 kV autotransformer and the Rex Brown 230-115 kV autotransformer.

The project consists of installing a three-phase, 400 MVA 230/115 kV, autotransformer, 230 kV breakers, and a 115 kV breaker at North Park Substation. The project also requires rebuilding the North Park to Country Club 115 kV transmission line section to at least 217 MVA capacity rating.

Pelahatchie Substation - Install 2nd Transformer

This project is necessary to handle the normal load capacity needs in the Pelahatchie area in the event of a transformer contingency. The Pelahatchie Substation has an existing 22.4 MVA transformer and Morton Substation has an existing 33.3 MVA transformer supplying multiple 13.86 kV feeders. These feeders serve the towns of Pelahatchie, Morton, and four major accounts. This project will provide first contingency support for the loss of existing transformers at each substation, with the exception of one major account in Morton.

The project includes the installation of a 20 MVA 115/13.86 kV LTC transformer.

Pine Tree 230 kV - Build New Substation & Line

This project is needed because load growth in the West Hernando area of the Southaven Network, west of the Hernando Substation, is projected to cause overloading and voltage collapse on the three existing circuits serving the area.

The project consists of constructing a new Pine Tree 230 kV substation west of the existing Hernando 115 kV substation and constructing approximately fourteen miles of a new “in & out” 230 kV line, tapping the Church Road to Getwell 230 kV transmission line. This new line shall be constructed with a minimum through-path rating of 519 MVA.

The Company filed a Petition for a CCN for this project in Docket No. 2021-UA-026, with a total estimated cost of \$56.3 million. A CCN was granted by order of the Commission dated August 13, 2021.

Raleigh Substation - Add 2nd Transformer

This project is necessary to handle the normal load capacity needs in the Raleigh area in the event of a transformer contingency. The Raleigh Substation has a current peak load of 5.3 MVA. This station is a mobile backup station, and it does not have adequate feeder ties or capacity to restore all load during a transformer contingency. During a transformer contingency, the total load at risk is estimated to be 4.3 MVA in 2020. The substation’s load is approximately 50% residential, 20% commercial, and 30% industrial.

Snowden Park: Build New 115 kV Substation

This project is necessary to correct forecasted feeder overloads and voltage collapse conditions in the Getwell Road corridor from the Greenbrook and Plum Point substations of the Southaven Network. It also is expected to eliminate at-risk load under multiple contingencies. The five-year load forecast for the feeders served from these substations has each of them exceeding 100% of their respective capacities and dropping below the 114 V allowable operating voltage level in various places. The forecast is based on the trended normal annual load growth (3%) for that area. Any spot loads that might develop are expected to compound the loading and voltage issues. Furthermore, both Greenbrook and Plum Point Substations are a mutually supporting substation group, but the feeders serving the area have significant load at risk under N-1 feeder contingency due to the majority of the loads being located at the end of the circuits.

The project consists of tapping into the existing Greenbrook-Plum Point 115 kV transmission line and building approximately 2.0 miles of 115 kV looped transmission line to the site of the proposed Snowden Park Substation, which will contain two 40 MVA 115/13.86 kV LTC transformers, two 3,000 A main breakers, and 12.47 kV low-side operating and transfer buses as per Entergy Substation Specifications, including an operating 2,000 A bus-tie breaker and bay. The bus should include 8 feeder bays, with overhead exits, and seven 1,200 A feeder breakers with five feeder circuits and two spares.

The Company filed a Petition for a CCN for this project in Docket No. 2021-UA-176, with a total estimated cost of \$37.0 million. This matter is currently pending before the Commission.

Vicksburg Openwood Substation: Install 2nd Transformer

This project is necessary to handle the normal load capacity needs in the Vicksburg area in the event of a transformer contingency. This project will provide first contingency support for the loss of the transformer. The Vicksburg Openwood Substation presently has one 28 MVA transformer with a total of three 13.86 kV feeders that serve the rural area of Vicksburg. The load at risk is 8.1 MVA, and peak load in 2023 is projected to be 13.6 MVA.

The project consists of the installation of a 28 MVA 115/13.86 kV LTC transformer and breakers. Additionally, the project includes the construction of approximately 2.25 miles of feeder circuit with automated load transfer (ALT) system.

Woodville Loop Project (Cooperative Energy Project)

(CE Harper 115 kV: Add Line Bay project with an ISD of December 2023, subject to changes initiated by Cooperative Energy)

This project is driven by an Other-Reliability project that was submitted into MTEP by Cooperative Energy. EML will construct a new line bay at Harper 115 kV substation to interconnect Cooperative Energy's new 115 kV transmission line, construct a new 115 kV line "in and out" cut-in from Centreville – Woodville 115 kV transmission line to Cooperative Energy's new switching station, and perform necessary relay upgrades and modifications. EML's proposed upgrades will accommodate looped transmission service to the existing Centreville and Woodville 115 kV substations.

Infrastructure/Maintenance Reliability

Infrastructure/Maintenance Reliability is the second process for maintaining and improving transmission reliability. This process ensures that all components of the transmission system remain in service and perform as designed. EML seeks to reasonably minimize transmission facility outages and their impact on the transmission customer base through optimized design, operations and maintenance practices, as well as additional strategic investment. Infrastructure/Maintenance Reliability encompasses two parts: 1) replacement of aging infrastructure before it fails through Asset Renewal Programs, which are discussed in detail below and 2) maintenance on equipment and lines (i.e., Asset Management Operations and Maintenance).

EML's Asset Renewal Programs seek to reasonably minimize the inevitable failure of aging facilities by replacing those facilities before they fail and are tailored to minimize the potential for customer interruptions. The term "renewal" as used in this document typically refers to the replacement of existing infrastructure with a new unit. In some cases, it can mean a significant reconditioning overhaul or restorative repair, (e.g., replacement of a large number of worn parts, or reinforcement of a wood pole with a metal band around the impaired portion).

The largest component of asset renewal funding is allocated to Transmission Line Equipment Renewal. The EML transmission system has approximately 22,000 wood poles, as compared to 34,000 in 2013. Wood poles are subject to rot, especially at the ground line, and sometimes at the top. Wood poles may also be damaged by woodpeckers, which are inclined to take advantage of rot at higher elevations. Wood transmission poles are not being used with new

projects. Thus, the population of wood poles in transmission is expected to decline over time as pole replacements and new lines are rebuilt to the newer standard.

The second largest component is allocated to Transmission Substation Equipment Renewal, which captures programs related to major substation equipment, such as auto-transformers, circuit breakers and relays. Auto-transformers are large power transformers that step the voltage down from one transmission voltage to another, lower transmission voltage and have a particular winding arrangement to accomplish this transformation. Substation relays are the devices that monitor various system conditions and issue alarms or initiate action as necessary. For example, circuit breakers are typically the next largest piece of equipment in a substation after transformers and are more numerous. Circuit breakers may experience many faults (although some experience few) and tend to wear out with high use.

The third largest component is allocated to Distribution Substation Equipment Renewal, which captures costs associated with the Transformer Life Extension Program and Circuit Breaker Renewal. Power transformers step the voltage down from transmission voltage to a lower distribution voltage and have a particular winding arrangement to accomplish this transformation. Power transformers, after many years in service, can develop conditions that could potentially lead to failure, but which can be remediated through a specific maintenance process. The process involves draining the transformer of its dielectric fluid, inspecting the core windings, and tightening them through a special process, and then replacing (as needed) various parts such as cooling fans and oil pumps, some bushings, inert gas systems, etc.

Distribution Overview

Entergy Mississippi's distribution system begins at the substation level, where power is transformed from transmission-level voltage into distribution-level voltage, suitable for delivering power directly to residential, commercial, governmental, and industrial customers. EML's distribution system serves approximately 456,000 customers in parts of 45 counties in western Mississippi. There are approximately 738 distribution circuits, consisting of approximately 18,866 circuit miles, of which 16,132 are overhead circuit miles, and 2,733 are underground circuit miles. There are approximately 485,000 distribution poles in the EML distribution system.

The objective of the distribution capital plan is to meet the electric service needs of our customers and ensure the distribution system continues to operate reliably over time at a reasonable cost. To help meet this objective, EML manages numerous projects that facilitate improvement of its distribution infrastructure. These project-types fall into the following general categories: service to new or expanding customers; relocation of infrastructure requested by customers or required by government-mandated projects (e.g., road widening or relocations, etc.); maintenance of existing infrastructure to ensure reliable performance; and repair of infrastructure due to public-inflicted or weather-related damage. These investments include, but are not limited to poles, cross-arms, conductor, lower voltage transformers, underground cable and associated equipment, sectionalizing and isolation equipment, voltage regulation equipment, automated transfer schemes, and rights-of-way.

EML is modernizing its aging distribution grid by upgrading and redesigning grid infrastructure and adding new technologies and smart devices to improve the grid's reliability and resiliency. Distribution investment through preventative and reactive recurring capital programs is the largest component of EML's T&D capital spending. Also, EML is forging ahead with discrete distribution projects that seek to improve reliability in locations that have challenging topographies and conditions. At the same time, the most customer-visible technology improvement, the Advanced Metering Infrastructure ("AMI") project, is approaching the conclusion of its deployment schedule.

Distribution Planning & Investment

The goal of the distribution capital spending plan is to meet the electric service needs of customers and ensure that the distribution system continues to operate reliably over time at a reasonable cost. To achieve this goal, traditionally, much of the distribution capital investment has been organized around several recurring programs, which are discussed in detail further below.

In addition to recurring programs, EML also implemented specific distribution projects to further modernize its distribution grid, which commonly is referred to as grid modernization. One such project that is being deployed is the AMI project, which is expected to improve the reliability of EML's distribution system among other benefits that customers will receive. EML also is undertaking specific grid modernization projects that focus on specific circuits in locations with challenging topographies and conditions. The objective is to further modernize the entire distribution system over time to meet customers' evolving expectations.

AMI

In Docket 2016-UA-261, EML received Commission authorization to acquire, construct, deploy, own, operate and maintain AMI, which includes advanced meters that enable two-way data communication, a secure and reliable communications network that supports two-way data communication, along with related and supporting systems. The AMI project is nearing the conclusion of its deployment schedule.

Grid Modernization Projects

Below are the specific grid modernization projects that EML will be executing in 2022. Previously, the Company determined a target budget for specific grid modernization projects and then selected a group of projects based on that budget from a panel of projects that had been identified. The grid modernization projects were prioritized based on several factors. The factors include the project's estimated benefits, costs, and duration. Also, the Company selected certain projects to accumulate information and experience to assist in future project development and cost estimation. In 2021, EML completed the Jackson/Miami project and expects to complete the Greenville project before year-end. In 2022, EML will commence the Vicksburg South project and continue the Byram and Vicksburg (Southeast) projects.

Byram

This project modernizes four circuits from the Byram, Florence, and Elton Road substations. The project is expected to improve service to approximately 4,000 customers. This project will involve (i) installation of three self-healing networks, (ii) deployment of thirty smart devices, and (iii) installation of 10.4 line miles of new conductor. The project is expected to result in an estimated 12% reduction in SAIFI and 35% reduction in SAIDI for customers on these circuits, resulting in the estimated annual avoidance of 975 CIs and 317,307 CMIs.

Vicksburg (Southeast)

This project modernizes two circuits fed from the Vicksburg substation and builds one new circuit out of the Vicksburg substation. The project was expected to improve service to approximately 2,300 customers. The project initially involved: (i) installation of two self-healing network areas, (ii) deployment of twenty-six smart devices, and (iii) installation of 36.9 line miles of new conductor. These measures were expected to lead to an estimated 44% reduction in SAIFI and 58% reduction in SAIDI for customers served by these circuits, resulting in the estimated annual avoidance of 2,870 CIs and 920,095 CMIs.

As reported previously, the project was reviewed and re-evaluated. Ultimately, the Company divided the original project into two projects: Vicksburg and Vicksburg South. The Company refers to the remainder of the original Vicksburg project as the “Vicksburg Southeast” project.

Vicksburg South

This project modernizes one circuit fed from the Vicksburg substation. The project is expected to improve service to approximately 1,246 customers. The project initially involved: (i) installation of one self-healing network areas, (ii) deployment of ten smart devices, and (iii) installation of 20.3 line miles of new conductor. These measures were expected to lead to an estimated 64% reduction in SAIFI and 80% reduction in SAIDI for customers served by the circuits, resulting in the estimated annual avoidance of 1,672.32 CIs and 667,181 CMIs.

Distribution Recurring Programs

EML’s distribution recurring programs capital plan is primarily focused on equipment failure and aging assets. An essential element of developing the distribution capital plan is that it be flexible to accommodate the ever-changing priorities for distribution investment. The unpredictable effect of extreme weather events on a distribution capital plan cannot be emphasized enough. The impacts of a storm system can be significant and result in a redesign of the planned reliability work in the impacted area. Further, extreme weather events can impact the availability of labor resources for extended periods of time, requiring adjustments to the timing and content of planned projects. For example, in 2021, EML loaned internal and contract labor resources to EML’s sister company, Entergy Louisiana, LLC, in response to Hurricane Ida. During the six-week response period that resources were lent, EML was limited in the amount of capital work that could be executed as compared to when EML retains all its resources.

In 2020, EML, along with the other Entergy Operating Companies, started shifted the planning and execution of Distribution Infrastructure programs to a broader Project Management and Construction department. This coordination is beginning to show improvements in the identification of successful and high impact capital projects and ensure the efficient use of contract resources to complete these capital projects.

A description of these programs follows below:

Distribution Revenue

Distribution Revenue is a program used to construct distribution facilities to provide electric service to customers. Such facilities can range from a large underground installation for a new subdivision to extending a single overhead service to a residential construction site. Although historical spending is important in developing a spending target for this program, economic projections are also considered.

Distribution Mandated

This program addresses the Mississippi Department of Transportation ("MDOT") requirements to relocate EML facilities that conflict with MDOT projects and in some cases county or city projects. The spending target for this program is based on historical trends with adjustments made for information provided by MDOT.

Distribution Reliability

Distribution Reliability captures a group of programs that target specific outage drivers to obtain the greatest performance improvement while managing customer costs. Accordingly, the spending target for these programs is based not only on historical trends, but also on data and engineering analysis. The 2022 capital investment in the Reliability category is expected to be directed to the programs described below, which implement EML's inspections and repair methodology to pre-selected devices. See below for a description of the Reliability programs.

FOCUS Program

The FOCUS program, which stands for Find, Observe, Collect, Understand, and Succeed, is a reliability program developed to address issues on circuits/devices which have been performing sub-optimally over a given time frame. The program efforts were established to speed up the ability to address targeted devices in a timelier manner while still providing a quick response to address emerging devices. This program addresses those devices with the intent to resolve reliability issues identified under the current Distribution Lines Reliability Inspections procedure while also encouraging opportunities to identify other proposals to improve overall reliability of a feeder or other devices. The Distribution Lines Reliability Inspections procedure is a process for assigning, conducting, and documenting inspections of overhead distribution facilities.

Project completion will vary from year to year due to actual costs of the projects versus approved budgets. EML consistently reviews the recurring program spending to make sure all program spending will be maintained within approved funding. Project completion will vary due to many factors; for example, cost overruns due to scope change and unforeseen issues. This will limit the ability to complete additional projects within a program year. The scope and size of a project will create variations in determining what projects get worked. When EML makes the decision to prioritize projects, EML places emphasis on working the projects with the most anticipated value regarding customer interruptions and customer minutes.

Automated Load Transfer (or Self-Healing Network) Program

The automated load transfer (“ALT”) program involves the targeted reconfiguration of distribution circuits to use the ALT systems to reduce the number of customers affected by outages and shorten the duration of outages. In general, “smart” ALT systems automatically isolate a fault on a circuit and restore power without human intervention to a portion of the customers affected by a fault. Not all EML distribution circuits are candidates for ALT systems because these systems require two circuits with an interconnection point and available circuit and substation capacity to serve the transferred load. Thus, distribution circuit modifications would have to be made before ALT systems could be installed on a larger scale throughout the distribution system.

This program is an example of distribution modernization projects that EML expects to continue to pursue in the future, which will be further enhanced upon the implementation of AMI and Distribution Automation. As part of the collaboration, EML and the distribution automation group enhanced the existing ALT program and renamed it the Self-Healing Network (“SHN”) program. SHNs consist of a compilation of devices including modern reclosers, switchgear, switches, and a network of communication equipment used to automatically reconfigure the source of power after isolating an outage so that all other unaffected customers in the surrounding area continue to receive service so that customers’ quality of service is improved. EML installed the final set of eleven ALT projects in 2020. Those projects, along with the existing ALT projects are in the various stages of upgrades throughout 2021 with additional communication equipment to convert each of them to a self-healing network. Furthermore in 2021, the Distribution Automation department and EML worked to install the first new set of nine SHN projects and expect to complete thirty-nine additional new SHN projects by late 2021/early 2022 with seventeen additional new projects slated for year-end 2022. In 2021, ALT systems successfully operated 96.3% of the time and avoided approximately 13,450 CIs. Similarly, in 2021, the SHN systems successfully operated 100% of the time and avoided approximately 360 CIs.

Sectionalization Program

The Sectionalization program installs equipment that is expected to reduce customer exposure in the event of an outage by “sectionalizing” distribution assets. The goal of this program is to reduce the number of customers affected by an outage by isolating the problem through the installation of sectionalizing devices. This program also has the advantage of reducing the area required to “trouble shoot” the outage and therefore leads to reduced outage

times. EML will review each device by the criteria previously mentioned to maximize the reduction of customer outages and customer minutes where equipment addition is deemed to be the most effective approach to improve performance. In most instances, the area selected for a device(s) is based on a reactive event. There are some cases where the planning of sectionalizing assets is considered if conditions of the system are changing and the changes allow the opportunity to add a device.

Projects were developed with the goal of maximizing improvements in CIs and CMs based upon estimated costs. EML determines CIs and CMs by review of outage data. EML completed 53 projects in 2018, 56 projects in 2019, 12 projects in 2020 and 17 projects in 2021.

EML tracks the impact of the Sectionalization program by measuring the Avoided Customer Interruptions, essentially comparing the customer interruptions of the upstream protective device before the project installation and the customer interruptions after the project installation. The 2018 projects resulted in 26,663 Avoided Customer Interruptions in 2019. The 2018 and 2019 projects resulted in a combined 40,428 Avoided Customer Interruptions in 2020. The 2018 – 2021 projects resulted in a combined 102,334 Avoided Customer Interruptions thus far in 2021. Of those 102,334 Avoided Customer Interruptions, 34,396 were experienced in 2021. This data demonstrates that the 2018 – 2021 devices have decreased customer interruptions by 146% compared to the planned avoided customer interruptions.

While the metrics above demonstrate performance of the the most recent sectionalization projects, EML also tracked the performance of all three-phase reclosing devices within EML's footprint during Hurricane Ida in 2021. The reclosing device capital expenditures from years past and present proved a success; s EML was able to avoid 27,750 CIs and 33 million CMs from these devices alone during that major weather event.

Distribution Infrastructure

The Distribution Infrastructure program addresses the need for distribution asset renewal and seeks to reasonably minimize the failure of aging equipment and facilities by maintaining or replacing the equipment and facilities before failure with the objective of reducing the potential for customer interruptions. Accordingly, the spending target for these programs is based not only on historical trends, but also on data and engineering analysis. These programs include the visual and infrared inspection and correction of critical items in the “backbone” of the distribution system. The backbone is the three-phase section of the line from the substation to the first isolating device. An outage in such a section could impact thousands of customers.

This program also includes the annual inspection of all capacitors, large reclosers, and regulators, as well as a percentage of the existing distribution wood poles. In addition, the program addresses replacement of underground residential distribution cable based on life expectancy or poor performance. The increased spending for Distribution Infrastructure is intended to address equipment issues with the backbone section of a distribution line, underground cable that has reached the end of its useful life, and the movement of the Conductor Replacement Program to the Distribution Infrastructure programs.

Below are descriptions of each program or project in the Distribution Infrastructure category:

Backbone Program

EML is transitioning the Backbone program to be subsumed into the FOCUS and the Feeder Level Investment programs. The Backbone program is an infrastructure program designed to address only that portion of the circuit that has the largest potential for customer impact. This generally limits the reliability inspection to the first protective device that has the responsibility of isolating the remainder of the circuit. In 2020, EML completed 20 backbone projects. In 2021, EML has completed two backbone projects through September 2021.

Equipment Inspection Program

The Equipment Inspection program is an annual inspection of all reclosers greater than 100A, line capacitors, and regulators on the distribution line system. The program also addresses and corrects identified failures during inspection.

Conductor Replacement Program

EML is transitioning the Conductor Replacement program to be subsumed into the Feeder Level Investment program. The Conductor Replacement Program targets aging overhead conductor, mainly aged copper conductor. EML recognized that in some instances, the capital maintenance FOCUS process otherwise would be ineffective due to the overhead conductor condition and/or line location. Replacing this conductor improves reliability to customers and removes a safety threat for linemen.

From outage data, EML identified the affected devices with overhead conductor or insulated overhead conductor. A subset of those devices with sub-optimal historical performance or significant risk regarding CIs and CMs were reviewed to identify the ones where conductor replacement was deemed to be the most effective approach to improve performance. Projects are developed by prioritizing each device starting with devices that have the highest benefit when comparing the cost of the project against the saved CIs and CMs.

Wood Pole Inspection Program

The Wood Pole Inspection program is a preventative program that targets a certain percentage of the Company's distribution poles for inspection resulting in a planned inspection cycle. The program consists of a visual inspection of the complete structure, which includes the pole, cross-arms, insulators, etc. and selective boring. The recommended actions depend on the findings of the inspection. Poles judged to be sound receive no further action. Those that have been identified as needing additional attention are either treated in the field or reinforced, depending on the condition of the pole. Those that are deemed beyond treatment or reinforcement are prioritized for replacement.

Underground Cable Replacement Program

The Underground Renewal target program addresses underground cables meeting certain performance criterion that is targeted for replacement done in both segment and half loop projects.

Underground Secondary Network Program

This program is designed to improve the reliability and upgrade the infrastructure in underground secondary and radial network systems of the central business district of Jackson, Mississippi.

Feeder Level Investment Program

In 2021, EML, along with the other Entergy Operating Companies, introduced a new program called Feeder Level Investments. The program's objective is to target entire feeders to improve holistically their reliability and resiliency through infrastructure upgrades. The Feeder Level Investment program uses practices from the Sectionalization, Self-Healing Network, FOCUS, Conductor Replacement, and Backbone programs. Through a reliability analysis, EML determines which specific feeder to target for upgrades.

Distribution Planned Projects

This program addresses necessary improvements to better ensure that the distribution system can distribute reasonably adequate energy safely and reliably to EML's customers as customer loads change over time. Such improvements typically address projected overloads and low voltage conditions. The spending target for this program is developed based on engineering analysis and some historical data because improvements may become necessary at different points of time in the year (e.g., summer peak). Contingency projects also fall under this program and are typically large, three phase projects designed to create the ability to shift loads to more quickly restore service after an outage.

Distribution System Improvements

This program addresses distribution capital projects to comply with safety code requirements identified in the field and to address specific customer issues. The spending target for this program is based on historical trends.

Distribution Failure/Emergency

This program addresses the capital spending associated with replacing failed equipment not associated with storms. This is a purely reactive program, and the target spending level is based on historical trends.

Lighting Service

This program reflects the capital spending associated with providing lighting services to municipal, residential, and commercial customers, including new LED lighting services introduced in 2016 and replacement of obsolete mercury vapor lighting upon failure.

Distribution Vegetation Management

The two largest drivers for outages are vegetation and equipment failures. The capital programs described above address equipment failures, and EML executes a set of vegetation management programs in its Distribution O&M budget to address vegetation-related outages and issues. Historically, there have essentially been four components to EML's Distribution vegetation management expenses: (1) cycle (recurring) trim, (2) herbicide, (3) hazard tree, and (4) reactive. The current funding level for EML's cycle trim plan has allowed vegetation management to consistently trim more miles, setting EML on a 4.2-year cycle and reducing outages. In addition to cycle trimming, herbicide efforts have transitioned most of our right-of-way ("ROW") from a thick wood stem ROW to a more herbaceous ROW, allowing for quicker assessment and safer restoration efforts.

In 2022, the expected spending level for all components will remain similar to the 2021 spending level. EML first moved to this spending level in 2019 and has observed reduced vegetation CIs since that time.

VIII. Enabling Technology

Entergy Mississippi supports the development of technologies and new products and services for customers that are consistent with the Company's over-arching goal of creating sustainable value for its customers, employees, communities, and owners. EML is therefore making investments in technologies that will create value for customers through enhanced reliability, operational efficiencies, and access to new products and services while the Company continues to provide reliable, safe and affordable energy.

Grid Modernization

Grid modernization refers to upgrading and redesigning grid infrastructure to facilitate adding new technologies and intelligent devices that facilitate safe multi-directional energy flows, automate operations, enable remote control, increase operational efficiency, improve quality of service, increase reliability and resiliency, and expand options for customers. Traditionally, EML's distribution infrastructure was designed for reliably and safely distributing energy in only one direction – from large substations to customers. However, technological advancements and increased adoption of electric vehicles ("EVs") and DERs, such as residential and larger commercial-scale solar photovoltaic ("PV") systems and other forms of distributed generation will require more functionality and flexibility from distribution infrastructure than was originally needed for one-way power flow.

Changing customer energy use will require more functionality and flexibility from distribution infrastructure than was originally needed. Thus, grid modernization is a fundamental change to EML's approach on how to evaluate, invest in, operate, and maintain the energy grid, while monitoring and responding to the rapid pace of technological innovations and evolution of customer needs and expectations. This change involves adopting a more customer-centric strategy for designing and maintaining the energy grid, one which seeks to minimize interruptions experienced by customers regardless of fluctuating conditions on the system. Grid modernization also involves expanding the functionalities offered by the energy grid in a manner that increases customers' choices for meeting their energy needs and that provides all customers with access to the benefits of technological innovation.

EML has recently begun implementing specific distribution projects to further modernize its distribution grid, which commonly is referred to as grid modernization. One such project that is being deployed is AMI, which is expected to improve the reliability of EML's distribution system. With AMI as a foundation, EML is planning and undertaking specific grid modernization projects that focus on specific circuits in the distribution system. The objective is to further modernize the entire distribution system over time while improving reliability to meet customers' evolving expectations.

This modernization of the energy grid will lay the foundation for the Company's continued efforts to improve the customer experience by meeting customers' evolving expectations for increased information about and greater control of their energy use, increased personalization of services and billing options, and enhanced opportunities for smarter energy use. These efforts to enhance our focus on our customers and meet their specific energy needs, rather than a more general focus on the energy grid itself.

Grid modernization is a fundamental change to EML's approach on how to evaluate, improve, operate, and maintain the energy grid, while monitoring and responding to the rapid pace of technological innovation and evolution of customer needs and expectations. Continuing to modernize the grid is anticipated to create more opportunities for adopting a more customer-centric strategy for designing and maintaining the energy grid.

To achieve grid modernization, information technology investments, such as the installation of fiber-optic communications networks are necessary. The modern energy grid generates terabytes of new information that will require utilities to transmit, store, manage, protect, and leverage an unprecedented amount of new data. With an aging fiber-optic infrastructure that is nearing its useful life, EML will continue pursuing fiber-optic infrastructure replacement and expansion to address its need for additional bandwidth. Over the next few years, EML will be partnering with C-spire again and also will begin replacing its existing fiber-optic infrastructure to provide adequate bandwidth to not only address EML's needs, but to also create opportunities for third-party broadband providers to use a portion of EML's infrastructure.

A more modern grid also supports a focused effort on the deployment of EV chargers within our service area. EML recently partnered in an Electric Highway Coalition to participate in a plan to enable electric vehicle drivers' seamless travel across major regions of the country through a network of direct current fast chargers for electric vehicles. This project represents an

unprecedented effort to offer EV drivers convenient charging options across different company service territories and allow EV travel without interruption. Several of the charging stations are planned for siting in the Entergy Mississippi service territory in support of this effort. The project is to provide fast charging options for our customers' use, to raise awareness of EV charging and help to continue building consumer confidence in the adoption of electric vehicles. Understanding the potential interest in and use of EVs throughout the EML territory will help to inform future planning around potential penetration and the future needs of our energy grid.

In September 2021, EML filed its EML recently filed an application in Docket 2021-UA-153 for a pilot to construct, own, operate, and maintain up to seven direct current fast charging ("DCFC") stations for EVs that will be available to the public along interstate highway corridors in western Mississippi. The application also included a request for approval to implement Schedule FCEV to define the parameters under which EV drivers, which may or may not be current EML customers, can purchase electricity from EML at these public DCFC stations. EML is also exploring partnering with its non-residential customers to offer EV charging and related infrastructure on customer-owned property for their use and at their discretion for public use.

EML also has an offering called eTech, which facilitates customer-side beneficial electrification initiatives. Through eTech, the Company encourages the adoption of efficient electrically-powered equipment, typically in place of fossil fuel-powered (e.g., diesel, propane) equipment, through education, awareness, and financial incentives. Those financial incentives include, for example, a \$250 rebate to qualifying residential and non-residential customers to partially offset the costs the customer incurs to install a Level 2 EV charger at their home or business. In addition, under the Residential New Construction DSM offering, EML offers homebuilder incentives for prewiring homes for EV chargers.

As the energy grid is rapidly changing and advancing, it creates the opportunities discussed above for utilities and their customers. However, the rapid evolution of the grid also presents challenges for utilities charged with maintaining the grid's reliability. To achieve grid modernization, information technology investments, such as the installation of fiber-optic communication networks, are necessary. The modern energy grid generates terabytes of new information that will require utilities to transmit, store, manage, and leverage an unprecedented amount of new data. The benefits and possibilities of smart grid technology depends on the two-way communication across the network -- which requires bandwidth. Entergy Mississippi's bandwidth needs are growing as it continues to modernize its grid and invest in its communications infrastructure. At the same time, the large data sets available through AMI, and the need to keep that data private, make security a top priority.

Modernized grid infrastructure, including enhanced communications networks and broadband, are critical for day-to-day utility reliability needs and they also support the greater deployment of advanced meters and related infrastructure, distributed energy resources, and other technologies. Entergy Mississippi and other utilities rely on broadband services to provide, among other things, greater levels of wide-area situational awareness and enhanced operational efficiencies. Accordingly, for Entergy Mississippi and individual customers to fully unlock the benefits of the evolving technology in the utility industry, customers must have adequate, secure

internet access. However, there is a broadband gap in the state, which may negatively impact Entergy Mississippi's ability to provide new technology to its customers. Inferior quality or reliability of the connection to smart devices limit the quality and reliability of enhanced services, thereby driving down the true value from smart grids.

Under Rule 29, Mississippi utilities may leverage their communication infrastructure to expand broadband to meet the operational needs of the utility and provide enhanced services to its customers. Enhanced Grid Investments present opportunities to address the utility's need for additional bandwidth to securely manage the increasing amount of data available from advanced meters and other smart grid technology, while allowing customers to fully unlock the value of benefits available through these technology improvements.

Given the increasing demands for bandwidth, Entergy Mississippi continues to explore the feasibility of expanding its fiber optic capabilities. These changes make greater investment in communications networks to meet the operational needs of the utility while creating opportunities to enable broadband internet access to customers.

EML is well equipped to assure that all customers are included in the evolution of the energy grid and the corresponding choices, control, and benefits that will derive from these new services. For example, EML has participated directly in the MPSC's efforts to expand rural broadband service by partnering with C Spire in an essential step toward the delivery of new broadband service to thousands of rural Mississippians who might not otherwise have access to this increasingly important technological service. In 2017, Entergy Mississippi began working with C Spire to help expand rural broadband access within its service area while enhancing customers' electric service. Entergy Mississippi partnered with C Spire to construct expanded fiber systems in Mississippi across approximately 250 miles, whereby EML would use a part of the systems for various internal communication needs, and C Spire would use another part to expand their broadband service offerings, with rural Mississippi communities expected to benefit from those previously unavailable broadband offerings. EML continues to explore opportunities with broadband providers to assess whether there are opportunities for similar or other partnerships or collaboration.

EML's existing fiber infrastructure is aging, and in many areas is nearing its useful life. EML plans to pursue fiber optic infrastructure replacement and expansion to address its need for additional bandwidth to securely manage the increasing amount of data available from advanced meters and other smart grid technology, while ensuring adequate bandwidth to maintain reliable utility communications and energy grid monitoring. Over the next few years, EML expects that it will replace part of its existing fiber optic infrastructure with new fiber optic cable having adequate capacity for EML to allow third-party broadband providers to use a portion of EML's infrastructure. EML currently expects that its near-term fiber optic replacement would cover more than two hundred miles, in an area generally between Greenville and Vicksburg, as well as generally from Jackson to McComb to Tylertown.

Entergy Mississippi has extensive infrastructure in place to support utility and business functions and is in the process of significant modernization and expansion of grid technologies and distribution infrastructure. Entergy Mississippi will continue to explore opportunities to

leverage and/or expand our electric utility assets to assist broadband providers in making reliable, cost-effective broadband Internet service accessible to unserved or underserved customers within EML's service territory.

IX. Avoided Cost of Wholesale Power

Rule 29 requires all regulated electric utilities to include as an Appendix to their Energy Delivery Plan the annual avoided cost calculations utilized in connection with the Mississippi Renewable Energy Net Metering Rule ("Net Metering Rule").

To calculate the Avoided Cost of Wholesale Power, the Net Metering Rule provides for the use of an independent, market-based determinant of the costs actually avoided by the excess energy that a net metering customer produces and delivers to the grid, namely the average MISO real-time locational marginal price ("LMP") in the EML load zone ("LZ"), with two adjustments that reflect the on-peak value of solar energy and account for avoided line losses. Net metered customers are compensated at an energy rate equivalent to the average costs during those times that they have actually allowed the utility to avoid production or purchases.

The prices in the day-ahead market, both for generator injections and load withdrawals are based on hourly LMPs. An LMP is calculated at every significant location on the transmission system (often referred to as a "node") for every hour of every day in the day-ahead market. The real-time energy market supplements the day-ahead energy market by pricing real-time deviations from day-ahead schedules by purchasers and suppliers. Deviations from day-ahead schedules and obligations result in additional charges or credits against those established in the day-ahead market, based on real-time LMPs. Therefore, real-time LMPs provide an objective quantitative measurement of the actual cost the electric utility is avoiding by receiving onto the grid any excess energy produced by its NEM customers. MISO, a non-profit entity, calculates the LMPs within its Day 2 Market, under scrutiny of the FERC, state regulatory commissions, and its own Independent Market Monitor, as well as all of the MISO market participants. These LMPs are transparent and form the basis upon which hundreds of millions of dollars of electricity sales are transacted each month in MISO markets. Because MISO's load zone LMPs represent the cost to serve an incremental MW of load at a particular location on the electric system, they also represent the cost that is avoided if an incremental MW of load is not withdrawn from the transmission system because of a NEM customer's self-generation. In addition to the marginal energy cost, MISO LMPs also reflect marginal congestion and marginal loss costs. Therefore, the MISO LMP reflects not just the value of the energy provided, but also includes a component that would compensate the net metering customer for the value of whatever transmission congestion relief is provided by the net metering customer's self-generation and also reflects transmission-level line losses that would be avoided by the self-generation.

Entergy Mississippi's Schedule NEM provides that the Company shall make a submittal to the Commission and Staff on or before May 1 of each year, which sets out a redetermination of the Total Benefits of Distributed Generation. Pursuant to Schedule NEM, the Avoided Cost of the Wholesale Power used in the redetermination is based upon the avoided energy payment per

kWh delivered for the peak hours per the Company's approved Schedule QF-17 (or then-current schedule), plus a fixed line loss adjustment of ten percent (10%).

The currently-effective Avoided Cost of Wholesale Power rates in Schedule NEM are derived from EML Schedule QF-19, which was approved by the Commission on October 6, 2020. EML submitted its most recent annual redetermination under Schedule NEM on May 1, 2021.

Under Entergy Mississippi's redetermination for Schedule NEM filed on May 1, 2021, the all-hours price of 2.728 cents/kWh was calculated by averaging the LMP avoided cost for all hours for the 24-month period August 2020 - July 2022 to approximate the effective dates of the proposed Schedule QF-19. The peak hours price of 2.928 cents/kWh was calculated by averaging the avoided cost for hours 7 AM – 11 PM Monday through Saturday for that time period. The off-peak price of 2.461 cents/kWh was calculated by averaging prices from all non-peak hours for that time period.

On August 10, 2021, EML filed its Notice of Intent to Change Rates seeking the approval of Schedule QF-20. Under Schedule QF-20, the all-hours price of 2.983 cents/kWh was calculated by averaging the LMP avoided cost for all hours for the 24-month period August 2021 - July 2023 to approximate the effective dates of the proposed Schedule QF-20. The peak hours price of 3.182 cents/kWh was calculated by averaging the LMP avoided cost for hours 7 AM – 11 PM Monday through Saturday. The off-peak price of 2.719 cents/kWh was calculated by averaging prices from all non-peak hours for that time period. The Commission approved Schedule QF-20 on October 14, 2021.

Entergy Mississippi will file its annual redetermination for Schedule NEM on or before May 1, 2022, and that redetermination will include the Avoided Cost of Wholesale Power rates set forth in Schedule QF-20.

Entergy Mississippi's Schedule QF-20 and Attachment A to Net Energy Metering Rider Schedule NEM-1 (Revised) ("Schedule NEM") are attached to the 2022 EDP as Appendix B.

Net Metering

As discussed above, the Avoided Cost of the Wholesale Power rates are a component of the Total Benefits of Distributed Generation paid to net metering customers that produce and deliver excess energy to the grid. Entergy Mississippi began offering Net Metering to its customers in September 2016 and submits an annual Net Metering and Interconnection Reports, in accordance with the requirements of Chapter 5 of the Mississippi Renewable Energy Net Metering Rule ("Net Metering Rule").

At the end of calendar year 2020, EML had 85 active Renewable Energy Net Metered Interconnection Customers ("RENMICs") that had executed a Commission-approved Net Metering Interconnection Agreement. The 85 RENMICs delivered 435,363 kWh of excess energy back to EML's grid during calendar year 2020. This figure reflects the actual sum total of kWh sent back to EML, as measured from the bi-directional meters of the 85 RENMICs active

during 2020. The total nameplate capacity of RENMIC DGFs, 1,023.35 kW, was 0.0357% of EML's system total peak demand, 2860 MW. Each of the 85 of the RENMICs delivered excess energy back to EML's grid during calendar year 2020 and the RENMICs were credited for that excess energy exported to EML. During calendar year 2020, EML paid RENMICs for excess energy exported to the utility, a total of \$27,865 for a total of 435,363 kWh.

The Company's 2021 Net Metering and Interconnection Reports are attached as Appendix C to the 2022 EDP.

X. Appendices

- A. Appendix A – Entergy Mississippi, LLC Demand-Side Management Portfolio Implementation Report for 2020
- B. Appendix B – Avoided Cost Calculations
 - a. EML Schedule QF-20, approved October 14, 2021
 - b. EML Schedule NEM-1 (Third Revised) Attachment A, approved June 16, 2021
- C. Appendix C – Net Metering
 - a. 2021 Net Metering Report of Entergy Mississippi, LLC
 - b. 2021 Interconnection Report of Entergy Mississippi, LLC