2023 PISA Annual Report

Update on the Company's Clean Transition Plan

The Empire District Electric Company

d/b/a Liberty

February 28, 2023

Table of Contents

Introduction

This report satisfies the requirements of RSMo. §393.1400 based on the election to Plant in Service Accounting ("PISA") by The Empire District Electric Company d/b/a Liberty ("Liberty-Empire" or the "Company"). This is the 2023 PISA Annual Update Report which provides an update on the Company's Clean Transition Plan (the "CTP"), updates the past PISA reports filed in February 2021 and February 2022 in Missouri Public Service Commission ("Commission") File No. EO-2019-0046, and provides the additional information required by the recent legislative amendments. The CTP will enable Liberty-Empire's electric grid to meet evolving customer needs today and in the future through cost management, modern technologies, and a transition to clean energy.

This report reflects a snapshot in time of Liberty-Empire's intentions regarding budget plans for the next five years to continue the progress of Liberty-Empire's CTP. Organizational priorities and plans are prone to shift based on evolving needs, technology, supply chain issues, and the economic landscape, resulting in adjustments to the reported budget and spending forecast.

- Liberty-Empire continuously evaluates and analyzes the needs of its customers and the electric grid, the condition of Liberty-Empire's infrastructure, the costs and accessibility of modern technologies, and the availability of new technologies.
- Liberty-Empire continuously strives to make the most of every dollar and every hour of labor, to provide reliable and affordable electric service most efficiently to its customers.
- As mentioned, plans are always being re-evaluated and are subject to change. For example, the Company recently submitted a Missouri triennial integrated resource plan ("IRP") in April 2022 and the next IRP Annual Update is due to be filed in Missouri in the March-April 2023 timeframe. The IRP process, which often leads to requests for proposals ("RFPs") following the IRP, can impact future projects (see the section "The 2022 Integrated Resource Plan (IRP)" presented below).

Liberty-Empire's Clean Transition Plan

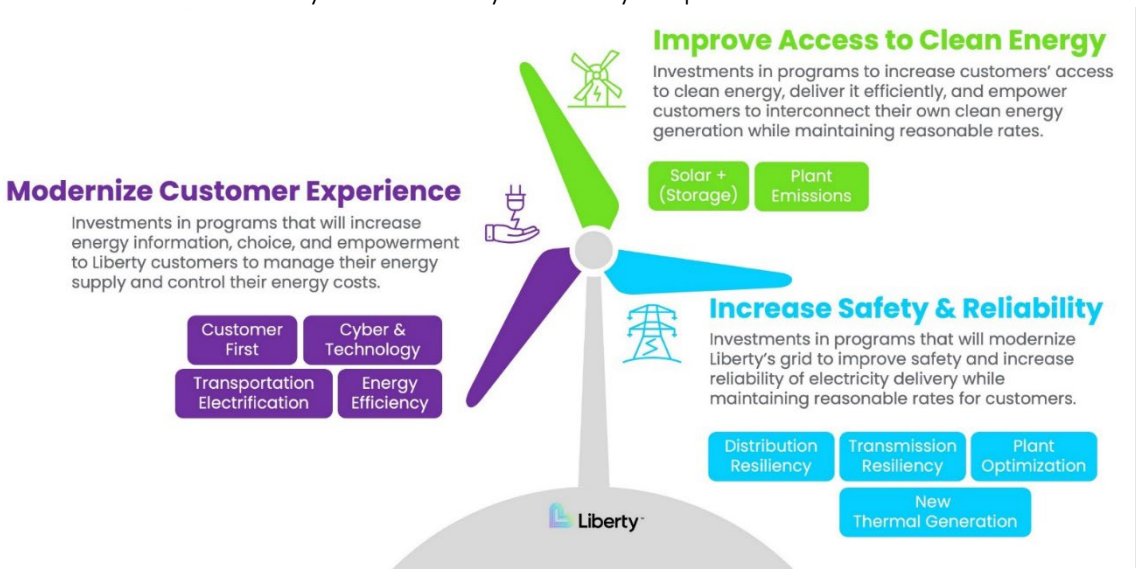
Electricity is a critical contributor to our society and the economy. Increased interest and adoption of distributed generation and electrification make it even more important. Emerging technology and a desire to reduce environmental impacts are driving factors in Liberty-Empire's transition of its electrical infrastructure and operations to meet the needs of its customers.

Liberty-Empire is focusing capital investment on its infrastructure in the Central Region (Missouri, Kansas, Arkansas, and Oklahoma).

This CTP embodies Liberty-Empire's organizational priorities to provide industry leadership in sustainability and our pursuit of operational excellence. The CTP invests in technologies,

infrastructure, and the development of customer programs to transition Liberty-Empire's electrical infrastructure and operations to meet the evolving needs of its customers. Investments are focused on three key areas of transition:

1. Improve access to clean energy for all of Liberty-Empire's electric customers.
2. Modernize how customers use, manage, and pay for their electricity.
3. Increase the safety and reliability of Liberty-Empire's electric infrastructure.



PISA Agreements from Past Cases

The stipulation and agreement in Missouri Public Service Commission File No. ER-2021-0312 states that Liberty-Empire "will meet with Staff and OPC at least twice regarding 'parameters and assumptions' and will provide… cost-benefit analyses and performance metrics for planned capital investments of greater than $1 million." Additionally, these metrics and analyses will be updated annually and filed in the Company's PISA docket. Liberty-Empire held its initial meeting with Commission Staff ("Staff") and Office of the Public Counsel ("OPC") on September 27, 2022, and a second meeting was held on February 24, 2023. At this time, Liberty-Empire and other stakeholders are working to finalize parameters, design, and implementation procedures. Associated cost-benefit analyses and performance metrics for investments that meet the $1 million threshold is planned to be included in Liberty-Empire's PISA docket in February 2025. The anticipated timing for $1 million Cost Benefit Analysis ("CBA") submissions reflects the magnitude of the effort that the Company expects to undertake in enhancing its system planning and field data acquisition tools and processes. In addition, the 2025 timeline is consistent with the expected completion of the Value of Lost Load ("VOLL") study that Liberty-Empire is undertaking jointly with fellow Missouri IOUs Ameren and Evergy. The results of the VOLL study will figure prominently in the company's targeted Cost Benefit Analysis framework, and as such, are needed to complete the transition to the targeted CBA methodology.

Separately from the settlement commitments, based on the statute, for each project in the specific capital investment plan on which construction commences on or after January 1st of the year in which the plan is submitted (in this case 2023), and where the cost of the project is estimated to exceed $20 million, a cost benefit statement will be provided as Exhibit 3 within the Company's PISA docket.

2022 Actual Capital Expenditures

As required by statute, Liberty-Empire is submitting a report, Exhibit 1 attached hereto, detailing actual capital investments made in 2022.

Additionally, Liberty-Empire is providing, as required by statute, "the quantitatively evaluated benefits and costs generated by each of those investments that exceeded $20 million, and any efficiencies achieved as a result of those investments." The two projects that met the $20 million threshold and went into service in 2022 are included in Exhibit 2 attached hereto.

Shifting Economic Landscape

On an ongoing basis, Liberty-Empire takes into consideration the dynamic economic environment in which we operate. When changes in the economic environment occur which are significant, the Company refines it strategic plans. The continued state of global supply chain constraints and the disposition of macroeconomic indicators are among the dynamic economic conditions most impactful to our business. As is the case for other electric utilities in Missouri, continuing challenges with supply chain disruptions and more recent increases in inflation and interest rates has increased our costs. All else equal, this tends to put upward pressure on our rates.

The Company is mindful of and sensitive to the impacts to our customers which may occur when the costs of investments we make on behalf of our customers increase. A utility's obligations to manage its system efficiently and to spend prudently is never more important than it is in an inflationary environment. The plan described in this report takes these factors, among others, into careful consideration. Efforts were made to identify operating efficiencies and to reconsider the timing of spending that could be deferred without jeopardizing safety or reliability. We believe that the result of these efforts strikes an effective balance between affordability and the need to deploy the capital required to maintain a safe, reliable, modern electric system.

The 2022 Integrated Resource Plan (IRP)

Liberty-Empire filed its most recent triennial IRP in Missouri on April 1, 2022. This IRP was then submitted in Arkansas on July 1, 2022, and is planned to be submitted in Oklahoma in June 2023 based on a three-year submission cycle. As required by the Missouri

Commission's Electric Utility Resource Planning Rule (Chapter 22), a full compliance filing is made every three years, and an IRP annual update is prepared and filed in all other years. Liberty-Empire plans to file the next IRP Annual Update in Missouri in late March or early April 2023.

The IRP process results in a target list of resource candidates to serve Liberty-Empire's future customer needs. The IRP enables the utility to develop a preferred resource plan and initiate an acquisition strategy. The IRP is a plan, but aspects of the plan progress to projects that become a part of Liberty-Empire's future capital investment plans. This investment plan includes the next planned resource investment to meet growing customer needs or replace retiring units, such as the upcoming retirement of a portion of the Riverton generation facility scheduled for the 2025 timeframe. Progress is being made on this project and any changes since the time of the 2022 IRP filing will be discussed herein.

Resource planning is a dynamic process. Since the Company filed the 2022 IRP, conditions in the electric industry continue to evolve. This includes recent changes to the Southwest Power Pool ("SPP") planning reserve margin increasing from 12% to 15%; the introduction of performance-based accreditation in 2024 for traditional generating resources; updated estimates to Effective Load Carrying Capability ("ELCC") ratings for renewable resources; and the passage of the Inflation Reduction Act ("IRA") to name just a few notable industry shifts.

Liberty-Empire is still finalizing the 2023 IRP Annual Update report. This report is planned to be discussed at an IRP annual update workshop with stakeholders in the first or second quarters of 2023. The purpose of the annual update is to ensure that members of the Missouri stakeholder group have the opportunity to provide input and to stay informed regarding the evolving conditions since the last filed triennial compliance (IRP) filing or annual update filing.

CTP Investment Summary

Liberty-Empire's 2023 investment summary consists of approximately $1,103 million over the next five years across 10 categories of investment. These investments represent Liberty-Empire's long-term planning estimates of expected capital investment on the electric infrastructure for Liberty-Empire in the Central Region. While this infrastructure is predominantly located in Missouri, serving Missouri residents, for Liberty-Empire, the Central Region also operates electric infrastructure and serves electric customers in Kansas, Arkansas, and Oklahoma. The CTP addresses electric infrastructure for Liberty-Empire's entire Central Region, not just for the state of Missouri.

Liberty-Empire Central (Empire) Retail Electric	
Missouri	162,680
Kansas	9,776
Arkansas	5,426
Oklahoma	4,785
Total	182,667

as of December 31, 2022

This report addresses Liberty-Empire's current plan and estimates for investment in identified projects across these 10 strategic areas to modernize its electric infrastructure. Annually, project and program owners submit progression status and six-year forward-looking budget estimates for evaluation and approval into Liberty-Empire's full capital investment plan. The results of this year's approved version are detailed in the table below. Each year, Liberty-Empire will continue to evaluate, adjust, and report this five-year investment plan. As noted, Liberty-Empire continuously evaluates and analyzes the needs of its customers and the electric infrastructure, with budget priorities and plans shifting based on evolving needs and emerging technology.

2023 Liberty Capital Investment Plan *$ Millions*

Program Name	2023	2024	2025	2026	2027	Total
Solar (+ Storage) *	$0.0	$0.0	$0.2	$1.0	$124.1	$125.3
Plant Emissions**	$0.1	$0.1	$0.2	$0.4	$0.2	$1.0
Customer First*** ¹	$107.9	$0.0	$0.0	$0.0	$0.0	$107.9
Energy Efficiency ¹	$0.1	$0.1	$0.1	$0.1	$0.1	$0.6
Transportation Electrification ¹	$1.1	$2.7	$2.1	$2.2	$1.1	$9.1
Cyber & Technology Upgrades ¹	$16.2	$12.1	$10.2	$8.5	$6.5	$53.6
Grid Resiliency - Distribution ¹	$66.3	$93.9	$83.4	$75.2	$90.4	$409.2
Grid Resiliency - Transmission	$41.2	$32.3	$38.6	$31.1	$80.3	$223.5
Generation Optimization	$25.8	$36.8	$18.7	$33.3	$18.6	$133.1
Total	$258.7	$178.1	$153.5	$151.7	$321.3	$1,063.3
New Thermal Generation	$3.0	$18.1	$18.9	$0.0	$0.0	$40.0
Total Including New Thermal Gen	$261.7	$196.2	$172.4	$151.7	$321.3	$1,103.3
Grid Modernization Subtotal	$191.6	$108.9	$95.8	$85.9	$98.1	$580.4
Grid Mod Percentage (%)	74%	61%	62%	57%	31%	55%

This reported investment plan reflects Liberty-Empire's full budget, not just focused on PISA-eligible spend.
** Solar (+ Storage) includes both standalone Solar and Solar + Storage investments (categories merged for 2023 report)*
*** Planned costs for retirement projects are not included in this report and investment plan summary.*
**** The Customer First program is a Liberty-wide initiative. Liberty-Empire's portion of cost will be allocated in 2023.*
¹ Included in the Grid Modernization subtotal.

The CTP is centered around grid modernization investments that optimize operations, automate and improve the flexibility of the grid, facilitate integration of distributed renewable generation, improve power quality, and increase the use of digital information, the security and safety of the grid, and the grid' s resiliency to withstand threats from vegetation and damaging winds and other extreme weather events. The PISA statute requires that at least 25% of each year's investment be for grid modernization projects. As shown in the table above, this level is easily achieved in all years presented. The table also includes a large "below the line" project. This important reliability addition of new thermal generation is not eligible for PISA deferrals.

Investments in resiliency represent a major portion of Liberty-Empire's investment plans and follow examples set by progressive peers in the industry. It is crucial to our communities that our infrastructure continue to perform even under extenuating circumstances and extreme weather events.

The subsequent sections will expand upon and summarize the three main pillars of Liberty-Empire's CTP:

1. Improving Access to Clean Energy
    - Solar Generation (Photovoltaic)
    - Community Solar
    - Plant Emissions
2. Modernizing the Customer Experience
    - Customer First
    - Energy Efficiency
    - Transportation Electrification
    - Cyber & Technology
3. Increasing Safety and Reliability
    - Grid Resiliency – Distribution
    - Grid Resiliency – Transmission
    - Generation Optimization
    - New Thermal Generation

Improving Access to Clean Energy

Liberty-Empire is committed to transitioning the electricity delivered to customers toward sustainable renewable resources. Over the next five years, Liberty-Empire will add more affordable and more sustainable renewable generation in the form of solar and solar + storage projects. This will continue to reduce net carbon emissions and secure cost stability for Liberty-Empire and its customers.

Solar Generation (Photovoltaic)

Approximately one hundred ten megawatts of solar generation (consisting of photovoltaic panels) are planned to be deployed and connected to Liberty-Empire's grid over the next five years.

Liberty-Empire plans to construct approximately one hundred five megawatts of utility-scale solar with integrated energy storage capacity as part of its core energy supply fleet. The exact timing and location of this facility is currently under evaluation. Changes to this project may result from the Inflation Reduction Act of 2022, specifically provisions of that law extending the solar investment tax credit. Any changes in the project resulting from changes in law will be reflected in the Company's 2023 IRP annual update as they are known at that time.

In addition to larger utility-scale solar generation facilities, Liberty-Empire plans to strategically deploy its first distributed solar generation facility not associated with our Community Solar Program. This facility will have a capacity of about five megawatts. The installation of distributed solar generation across the Company will provide renewable

power and supply and simultaneously mitigate delivery congestion, constraints, or power quality issues. Liberty-Empire plans to further refine these projects and present the findings in a certificate of convenience and necessity ("CCN") docket. The exact locations and scale of the facilities are currently under evaluation.

Community Solar

Additional community solar capacity is expected to be installed during the next five years. The exact amount to be built will depend upon customer demand. Community solar is unique, in that it is sold as a voluntary option to interested customers as dedicated renewable supply to offset their individual consumption. These customers participate through a simple and convenient billing mechanism, so they gain the benefits of solar energy supply without needing to install a dedicated system on their own roof or facility. However, at this time, the budget shown above does not include this amount of investment, due to the structure of the tariff offsetting the investment costs with block charges to the subscribers. The tariff also requires a full subscription before additional CCNs may be effective. The Company has a substantial waitlist for customers expressing interest in community solar. Liberty-Empire has filed revised tariff sheets that would allow for expansion of the program as supported by customer demand, in conjunction with an additional CCN.

Plant Emissions

Liberty-Empire will continue to prudently invest in the maintenance and optimization of its operating fossil fuel plants to ensure they perform reliably, run optimally, and emit as few pollutants as possible during their remaining operational life. It should be noted that Liberty-Empire's only remaining coal generation is from two jointly owned facilities.

Projects include upgrades to generation units and their control systems that improve heat rate (net efficiency of conversion from fuel to electricity) and increase net power output capacity. Other projects consist of proactively replacing aged equipment that are at higher risk of failure to ensure reliable operations.

For more details on Liberty-Empire's long-term generation supply plans in Liberty's Central Region, please refer to Liberty-Empire's current Integrated Resource Plan (IRP) and annual updates filed with the Commission. As noted, the most recent triennial IRP was filed in Missouri in April 2022 in File No. EO-2021-0331.

Modernizing the Customer Experience

Electric consumers are evolving, and Liberty-Empire is responding. As preference trends shift to greater energy efficiency and decarbonization, Liberty-Empire is updating its

operations, customer programs, and digital infrastructure to meet these shifts in a safe and secure manner.

Customer First

The Customer First Program is a comprehensive digitalization initiative that will provide employees with the tools to deliver the experience our customers demand and deserve. It will create greater consistency around Finance, Customer Service, and Operations, resulting in an industry-leading customer experience. These projects will create the foundation to support Liberty-Empire's sustainability objectives through a fully integrated system with agile processes to support future growth.

Customer First will be a series of six pillar projects for the entire organization that will provide a common means to address emerging business demands. It will consist of modern and connected platforms to meet customer, employee and other stakeholder needs.

The Customer First Foundations project impacts virtually every aspect of how Liberty-Empire runs its business. It will implement modern Enterprise Resource Planning (ERP) and associated tools. Customer First Foundations is expected to be deployed to the Central Region in the fourth quarter of 2023.

Employee Central will modernize how Liberty-Empire manages employee data, recruiting, and onboarding to ensure Liberty-Empire's ability to build and maintain a strong team to support its operations and its customers.

Procure-to-Pay will upgrade the tools and processes used to procure services and facilities on behalf of Liberty-Empire's infrastructure and customers.

Network & Design Operations will implement a uniform Geospatial Information System ("GIS") technology across Liberty, for consistency of asset data management and analytics to support many other business and operational objectives, including the implementation of the Advanced Distribution Management System ("ADMS") that will improve the integration and utilization of smart devices, sensors, automation, and operational optimization across its grid infrastructure.

eCustomer will upgrade the customer service and customer data systems to improve how Liberty-Empire manages, protects, and shares its customer data to provide better customer service and offer more advanced information and choice to its customers.

Finally, during the Advanced Metering pillar the Next Generation (smart) meters were deployed to nearly all Liberty-Empire customers (this project reached substantial completion in 2021). These smart meters measure energy consumption in more granular fifteen-minute intervals, enable Liberty-Empire to offer new advanced rate options, gain better insight into how customers use electricity to improve analysis and load forecasting, and provide detailed energy consumption data and insights back to customers so they may better manage their energy usage and associated bills.

The various Customer First systems which we will run our business are in widespread use throughout electric utilities in North America. The Customer First platform and our planned deployment(s) are consistent with industry best practices.

Energy Efficiency

Although not capital projects, in order to help its customers and communities use less energy and spend less money on energy, Liberty-Empire is continuing and expanding its energy efficiency programs.

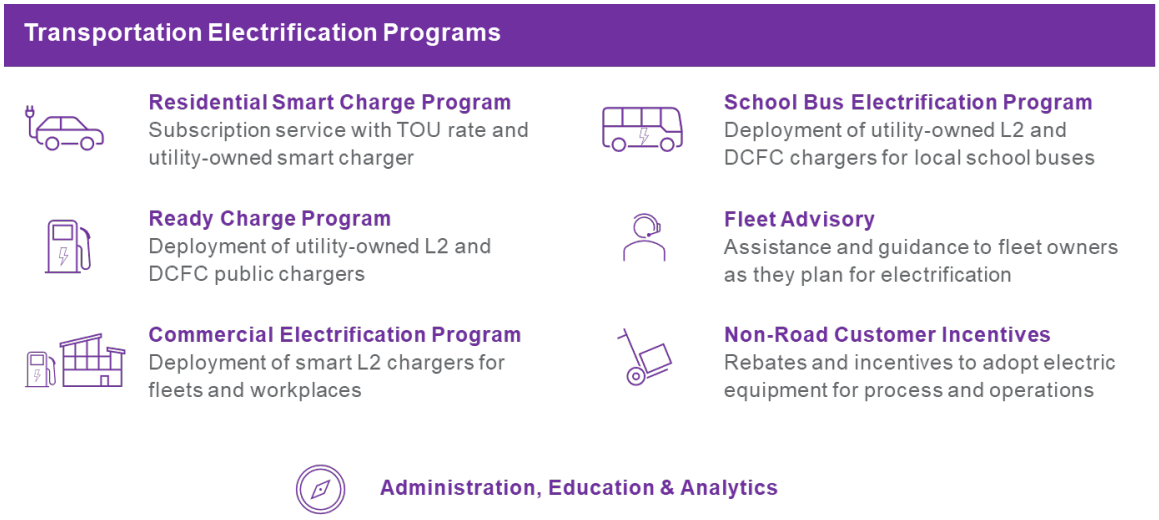
Pursuant to Commission Rule 20 CSR 4240-4.017, Liberty-Empire filed an application to implement robust and mutually beneficial energy efficiency offerings under the framework prescribed by the Missouri Energy Efficiency Investment Act ("MEEIA") in September 2021 in Commission File No. EO-2022-0078. The Commission approved the Company's application and the tariffs for these programs are approved through December 31, 2023. The 2022 – 2023 MEEIA portfolio (known as MEEIA Cycle 1) continues and expands on popular programs from previous energy efficiency offerings and introduces four new customer programs.

Transportation Electrification

Decarbonizing transportation through electrification contributes to safer and healthier communities. Liberty-Empire is supporting this objective through a diverse portfolio of projects and programs that enable transportation electrification equitably across its service territory through education, charging infrastructure, financial incentives, and hands-on support with customers as they transition their fleets and specific equipment to electric. In January 2022, a Liberty-Empire Transportation Electrification ("TE") pilot comprised of utility-administered electric vehicle ("EV") charging programs for different types of electric customers was approved by the Commission (File No. ET-2020-0390).

Aside from supporting the development of EV infrastructure in Liberty-Empire's service territory, the TE pilot program continues to enable the company to gather insights in multiple areas that will enhance its long-term planning capabilities, including:

- The extent (if any) of accelerated strain to adjacent assets brought about by EV charging (and especially Direct Current chargers).
- Technical and operating parameters of potential Vehicle-to-Grid and EV-specific Demand Response ("DR") schemes.
- The demand elasticity of EV charging in response to the Time of Use rate schedules approved by the program.
- The customer journey insights, including the real and perceived barriers of customer EV adoption in Liberty-Empire's service territory.
- The suitability of charger equipped consumption measurement devices for the purposes of utility customer billing.



In addition to these Transportation Electrification programs for customers, Liberty-Empire continues to decarbonize emissions from its own fleet.

Cyber & Technology

In coordination with application, system, and integration upgrades associated with the Customer First program and other technologies, Liberty-Empire is upgrading parts of its digital infrastructure, cyber security, data governance, and analytics. This involves investments in computer, server, and network upgrades to support user access and bandwidth. It also includes investments in safe and secure cloud strategies that facilitate collaboration and increase data utilization without exposing sensitive information or critical systems. Cybersecurity services will be expanded to adjust to the changes in the technology landscape and positioned to respond to the growing threats targeting utility operations. New digital architectures will be established with accompanying governance strategies and procedural documentation. Liberty-Empire's customers will benefit from enhanced and secure utilization of operational and customer data to improve operational efficiency of utility employees, proactive identification and resolution of issues before they lead to disruptions, and increased utilization of utility infrastructure.

Increasing Safety and Reliability

Customers consistently point to safety and reliability as top priorities, and Liberty-Empire is committed to operating and maintaining its grid infrastructure in a safe and reliable manner on behalf of the communities served. This involves several areas of Advanced Transmission and Distribution Network Technology ("ATDNT") investment that will support its customers. Not all these improvements will be readily visible to customers, nor are they

limited to the installation of physical assets or devices, but they will benefit customers, nonetheless.

Grid Resiliency - Distribution

New standards for design and construction of Liberty-Empire's electric distribution system will be applied through a series of projects and through the recurring process of constructing new or replacing old facilities to accomplish a stronger and more resilient infrastructure.

Liberty-Empire has evaluated and approved numerous projects to improve the resiliency of its electrical infrastructure and accounted for in the CTP. Notable projects include:

- Replace and upgrade distribution circuit breakers.
- Replace and upgrade critical aged assets and equipment prone to failure.
- Build new substations to accommodate redundancy and load growth.
- Install and upgrade animal guards on distribution and substation equipment.
- Increase capacity and resiliency of lines serving remote communities.
- Systematically inspect, treat, and replace old underground cable as needed.
- Upgrades to service center facilities and equipment inventories.

These projects, among others, will increase the resiliency of distribution infrastructure to withstand threats from vegetation and extreme weather, increase load-carrying capacity to accommodate evolving customer loads and two-way power flows, and reduce the average age of distribution assets reducing risk and frequency of failure. As emerging technologies present opportunities to approach existing problems in new ways, Liberty seeks to add them to its planning toolbox.

Grid Resiliency - Transmission

Like Distribution Resiliency, projects and investments on Liberty-Empire's transmission infrastructure will improve system resilience through strategic upgrades and rebuilding of core facilities such as high voltage transmission lines and associated substations.

Notable Transmission Resiliency projects include:

- Addition and upgrade of 69kV and 161kV breakers.
- Upgrade and expansion of SCADA to Liberty-Empire's substations.
- Replace and upgrade aged transmission structures.
- Replace and upgrade critical transmission lines delivering electricity to Joplin, Missouri, and other load concentrations across Liberty-Empire's service territory.

These projects will increase the resiliency and flexibility of transmission infrastructure to accomplish system redundancy for continued service through equipment failures or other

disruptions and implement more robust structures to withstand threats from vegetation and extreme weather.

Generation Optimization

In today's eco-friendly world, the utility space is under pressure to optimize the safety, utilization, and operational efficiency of all their assets and equipment. This is especially true for existing coal and natural gas plants that will continue to operate through the transition to renewable power sources. Liberty-Empire is prudently investing to optimize its existing generation facilities with focus on failure risk, reliable and responsive operation, and fuel conversion efficiency. With the recent passage of performance-based accreditation in the SPP and continued focus on weather related reliability standards from the North American Electric Reliability Corporation ("NERC"), investment in the reliable operation of its generation fleet to increase resiliency and stay in compliance with changing standards will be paramount.

These optimization and continuous improvement projects vary in size and scope ensuring plant safety as a top priority, while focusing on economic sustainability and operational reliability. These projects involve upgrades that include comprehensive control system replacement, combustion turbine ("CT") rotor upgrades, insulation enhancement, access platform upgrades, valve upgrades, pump upgrades, drainage improvements, plant automation augmented with tools that will help standardize operational decisions, LED lighting, labor saving tools, water saving upgrades, and more. With the implementation of these projects, Liberty-Empire will be able to offer greater longer-term value to its customers through sustained operations of these plants until they are replaced by renewable generation alternatives in a cost-effective manner.

New Thermal Generation

The 2022 IRP preferred resource plan concluded the replacement of the aging Riverton Units 10 and 11 to enhance the resiliency of Liberty-Empire's electric supply. The original plan identified the addition of approximately 30 MW of reciprocating internal combustion engine ("RICE") generation using existing interconnection at the Riverton site with the retirements of Riverton Units 10 and 11. At the time of the IRP filing, RICE units were selected due to their high efficiency and output capacities similar to the units to be retired. Following the IRP filing, Liberty-Empire worked with Black & Veatch ("B&V") on a technology review examining three models of RICE, six simple-cycle CT models, and batteries. Using the operating data and capital cost information gathered by B&V and fuel and market pricing models available to the Company, Liberty-Empire calculated the 30-year net present value of the revenue requirement ("NPVRR") for the generators studied. This analysis demonstrated that new CTs had the lower NPVRR as compared to the RICE units originally included in the IRP preferred plan. Liberty-Empire's preferred resource plan was updated to reflect the change to CTs for its 2025 Riverton replacement project. The

analysis demonstrated that the substitution of CTs for RICE units reduced the NPVRR by roughly $6.3 million. Additionally, the CTs may provide a benefit for the potential of utilizing H2 as a blend fuel in the future.

The updated Riverton CT Replacement project proposes the installation of two CT generators in the 2025 timeframe. Each new unit will have a nominal net output of 13.3 MW. The turbines are fast-starting and are dual fuel capable, providing resiliency for periods of natural gas scarcity and the capability to start when no off-site power is available. The two new turbines will have no post-combustion pollution controls but will employ dry low NOx combustion to limit NOx formation. The new units have a nominal heat rate of 10,906 Btu/kWh, meaning they will consume approximately 37% less fuel per kWh generated than the units they will replace.

Notable Accomplishments and Changes to the Investment Plan

As a comparison with the 2022 PISA Annual Update Report, the subsequent sections highlight notable accomplishments and changes.

Notable Accomplishments

The following accomplishments were realized over the past year:

- Liberty-Empire completed implementation of Project Guardian under the Substation Security and Reliability program. This portion of Project Guardian consisted of the installation of high-security fencing at our highest-ranked substations based upon the established tiering criteria.
- The Company officially launched the Transportation Electrification programs October 15, 2022. Programs include a Commercial Electrification website to assist customers who are considering electrifying their fleet by providing information on operations and maintenance, charging infrastructure, and a tool to calculate overall fleet savings. To date, Liberty-Empire has enrolled seven customers in the residential charging program and is assisting a growing number of others exploring all programs. Furthermore, Liberty-Empire has one school who has enrolled in our school bus program and has awarded one site location for public, DC fast chargers (to be installed in 2023).
- Converted portions of the Joplin, Missouri distribution from 4kV to 12kV. This project reconfigured the downtown Joplin distribution system to operate at our Company standard voltage of 12.47kV while rebuilding three substations. This project was completed in November 2022.
- Continued investments in the Grid Resiliency for the Company's Distribution and Transmission Systems through system voltage conversions, substation improvements, transmission and distribution line rebuilds, new distribution lines to remove radial feeds and various other types of projects.

- Liberty-Empire successfully launched a MEEIA energy efficiency portfolio. MEEIA Cycle 1 represents a significant increase to the breadth and diversity of the energy efficiency offerings and represents an increased commitment to energy efficiency that the Company expects to grow.
- The Company installed animal guards on approximately 1,000 transformers despite being severely impacted by material availability issues in 2022.

Changes to the Investment Plan for 2023

As compared to the Company's investment plan for 2022, the estimated capital investments for year 2023 is lower by $86.7 million, or about 25%. Overall, this year's five-year investment plan, covering the period 2023-2027, is approximately $17 million lower than last year's plan which covered the period 2022-2026. Comparing the common period of 2023-2026, this year's plan is about $142.8 million or 15.4% lower than the same period last year. Aside from advancing one year into the future, and the changing economic landscape presented in an earlier section of this report, key contributors to this difference are listed below:

- Grid Modification percentage has been reduced from 67% to 55% signaling a shift in prioritizing investment to focus on reducing operating costs and maintaining infrastructure to serve customers reliably and as affordably as possible. It is worth noting that Liberty-Empire has submitted three concept papers for resilience and smart grid investments to the U.S. Department of Energy's Grid Resilience and Innovation Partnership ("GRIP") grant program, which would provide up to 50% federal funding participation to winning projects. To date, the Company has received notes of encouragement to proceed to the next phase of the evaluation process for all three projects it has advanced. The potential investments associated with the GRIP projects are excluded from the CTP forecast given their uncertain nature. Nevertheless, the Company is extremely pleased to have maintained a 100% passing rate on the process where 51% of the projects from across all states have been discouraged from continuing. Should Liberty-Empire be successful in its applications, it will be able to provide additional critical investments at a significantly lower rate impact for its customers.
- The planned timing of investment in solar generation capacity has been shifted out to later years in response to the extension of Investment Tax Credit ("ITC") policies, supply chain disruptions, commodity pricing, and the results of the Company's 2022 triennial IRP.
- As the 2023 IRP Update will reflect, plans for the Riverton CT Replacement have been modified to install combustion turbines rather than reciprocating internal combustion engines. It is important to note that due to the timing of the 2022 IRP, which was filed after the 2022 PISA report, neither were part of last year's PISA investment plan.

- Distribution Automation installations were submitted for the Infrastructure Investment and Jobs Act ("IIJA"). These projects have been rescheduled for 2028 or later unless federal funding is awarded.
- The investment in energy-efficient LED Streetlights has been delayed for the foreseeable future.

CTP Investment Summary and Conclusion

As detailed above, Liberty-Empire's 2023 investment plan consists of approximately $1.1 billion over the next five years, across 10 strategic investment areas to modernize the Company's electric infrastructure (see table on page seven). These investments represent Liberty-Empire's long-term planning estimates of expected capital investment on the electric infrastructure for Liberty's Central Region. The CTP and this investment plan address all electric infrastructure for the Central Region, including Missouri, Kansas, Arkansas, and Oklahoma.

Bringing about improved customer solutions through cost management, modern technologies, and a transition to clean energy, the CTP will enable the Company' s electric grid to meet evolving customer needs both today and in the future.

The CTP is centered around grid modernization investments that optimize operations, automate and improve the flexibility of the grid, facilitate integration of distributed renewable generation, improve power quality, and increase the use of digital information, the security and safety of the grid, and the grid's resiliency to withstand threats from vegetation and damaging winds and other extreme weather events. For the 2023 budget, grid modernization projects, within the meaning of RSMo. §393.1400 and the minimum 25% requirement, constitute approximately 74% of planned capital expenditures. Investments in resiliency represent a major portion of Liberty-Empire's CTP, as it is crucial to our communities that our infrastructure continue to perform even under extenuating circumstances and extreme weather events. Additionally, the five-year plan includes new thermal generation to enhance reliability and to replace retiring units at the Riverton Generation Station as outlined in the IRP process.

2022 Actual Capital Expenditures (Dollars)

Expense Category		2022
Commercial Operations	$	266,790,926.42
General Services	$	18,965,526.83
Production	$	16,774,376.85
Wind	$	1,515,277.48
Total	**$**	**304,046,107.58**

Commercial Operations

Funding Project	Description		2022 Actual Expenditures
DA0001	Regulators & Capacitors	$	167,541.08
DA0002	Switches & Reclosers	$	-
DA0006	Trip Saver 2 Single Phase Recl	$	-
DA0124	Branson Waterfront Development	$	-
DA0149	Build Kodiak Sub #471	$	-
DA0151	Build New 69/12kV Sub -Willard	$	34,972.54
DA0154	161/12kV Sub-Hollister Ind Pk	$	7,756.53
DA0155	Add Xfmr at Ozark Sub #434	$	975,541.65
DA0156	Cap Inc & Brkrs-Ozark NW #330	$	-
DA0157	Land Joplin Industrial Park Sub	$	-
DA0158	New 161/12kV Sub#477 Jop-Wldwd	$	-
DA0159	Land Ozark by FR187 & FR194	$	-
DA0161	Build New 161kV Sub in Gentry	$	1,301,866.71
DA0163	Build Ozark North Substation	$	-
DA0164	New 690/12kV 10.5 MVA Portable	$	-
DA0166	Praxair Expansion	$	2,585.50
DA0600	Distribution Automation Project	$	-
DA0620	Aging Equipment	$	13,655,134.35
DA0622	Sub 260 Aged Assets	$	36,851.95
DA0630	Substation Security	$	9,393,916.23
DA0640	SCADA Installation	$	3,929,536.94
DA0650	Wildlife Guards	$	1,258,934.59
DA0660	Underground Conductor	$	6,775,459.09
DA0670	LED Private Lighting	$	-
DA0680	Fleet Electric Charging Station	$	2,344,805.33
DA0690	Electric Vehicles	$	15,513.47
DISTRIBUTION ADDITIONS		$	39,900,415.96
DB0001	Extensions	$	36,349,534.82
DB0002	Power Extensions	$	-

DB0004	Street Lighting	$	1,793,874.89
DB0005	Distribution Transformers	$	1,597,376.88
DB0006	Customer's Meters	$	1,721,632.04
DB0007	Customer's Services	$	10,161,217.75
DB0008	Substation Blankets	$	612,328.15
DB0010	Misc Dist of OH Lines	$	7,409,902.90
DB0011	Misc Dist of UG Lines	$	238,544.51
DB0100	Construction Design Misc Distr	$	-
DB0200	Construction Management Service	$	-
DISTRIBUTION BLANKETS		$	59,884,411.94

DR0001	Relocate T&D for Hwy Changes	$	2,796,609.58
DR0002	Replace Bad Order Distr Poles	$	17,301,349.76
DR0004	Chg Jop Dist Voltage 4kv to 12	$	7,490,141.50
DR0006	Rebuild/Increase Cap-Joplin	$	-
DR0007	Substation Security	$	-
DR0008	Distr. Reliability Improvement	$	929,787.13
DR0009	Misc Rebuilds/Add to Dist Subs	$	1,418,455.90
DR0010	Misc Rebuilds/Add - Dist Lines	$	858,455.68
DR0011	Replace UG Dist Cable-System	$	12,278.09
DR0012	Joint Use Line Rebuilds	$	555,588.52
DR0017	Replace 12kV C-1 Footings #186	$	(12.84)
DR0018	Zora Rd Wide &Repl Switch #280	$	-
DR0020	Rebuild/Remove Equip Solar#315	$	-
DR0099	Replace 15kV breakers	$	-
DR0100	Municipal MV to LED Replace	$	-
DR0165	Incr 161/12kV Capacity SUB 110	$	-
DR0172	Repl Obsolete Series St Lgtg	$	229,314.76
DR0176	Replace SWG at Northpark Mall	$	494,318.51
DR0178	Inc Cap at Ash Grove Sub #121	$	-
DR0180	Inc 69/12kV Cap Quapaw Sub 377	$	-
DR0182	Replace Bad Switchgear at #367	$	-
DR0186	Repl Struct & 12kV Brkr Wan399	$	1,054.78
DR0188	Repl Struc T&D Heatonville#338	$	648,570.35
DR0190	Repl Wood Struct Humansvill308	$	(94,750.63)
DR0192	Repl Wood Struct Boston #249	$	982,163.14
DR0194	Replace Wood Struct Arcola#250	$	298,921.81
DR0196	Repl Bus, Switch, Breakers #312	$	1,050.12
DR0198	Repl Xfmr #2 with 22.4MVA at S	$	-
DR0209	Rebuild/Increase Cap-Branson	$	178,856.61
DR0211	Rebuild/Increase Cap-Aurora	$	7,133.55
DR0212	REBUILD/INC CAPACITY-BAXTER	$	7,802.07
DR0213	Rebuild/Increase Cap-Bolivar	$	-
DR0214	Rebuild/Increase Cap-Joplin	$	15,697.82
DR0216	Rebuild/Increase Cap-Neosho	$	1,416.58
DR0217	R&I Capacity Ozark Area DS	$	26,256.33
DR0220	Reconductor along Hines Street	$	164,724.22

DR0221	Reconductor Hwy 60 to Hines St	$	278,739.62
DR0222	Reconduct btw #437-#221 Clever	$	-
DR0224	Reconductor #4 Copper-Billings	$	809.28
DR0230	Add Brkr & New Ckt SW City#414	$	302,958.10
DR0231	Rebuild 3-Phase Hwy B Granby	$	318,750.92
DR0232	Build/Recond 3-Phase Kodiak Rd	$	220,827.67
DR0233	Recond Freemont Rd near Ozark	$	-
DR0235	Recond Hwy O-Grand Ave-Purcell	$	(9,844.81)
DR0236	Gravette Dist Line Recond	$	(946.79)
DR0237	Recond Circuit 3772 Load Growth	$	29,736.43
DR0905	Update Recloser Controls	$	-
DR0906	Hollister Rec-3Ph Knox Ave	$	-
DR0907	Galena Rec-3Ph 12th St	$	-
DR0910	Fairplay Rec - 1Ph Hwy 123	$	-
DR0911	Neosho Rec - 3Ph Johnson	$	-
DR0916	Duenweg Recon-3PH Prigmore	$	-
DR0917	Forsyth Recon-3PH Hwy 160	$	-
DR0918	Quapaw Recon-1PH Shawnee Groce	$	160,180.98
DR0919	Miller Recon-1PH FR1135	$	-
DR0920	Miller Recon-1PH FR1142	$	-
DR0921	Riverton Recon-1PH Lostine Rd	$	-
DR0924	CJ Recon- 3PH Joplin St.	$	-
DR0926	Forsyth Recon-3PH Hwy Y .4 mil	$	-
DR0928	Install Distribution Reclosers	$	184,783.79
DR0929	Sarcoxie Reconductor - High St	$	-
DR0930	Marionville Reconductor City Sq	$	(440.83)
DR0931	Hallowell Reconductor	$	19,227.01
DR0932	Walnut Grove Reconductor	$	(2.64)
DISTRIBUTION REBUILDS		$	35,829,962.07
DS0001	Distribution Services Center	$	271,636.67
DS0120	Storage Facilities Improv Addition	$	-
DS0130	Service Center Improv/Addition	$	2,143,692.43
DS0140	Other Additions/Improvements	$	473,407.03
DX	Excess Facilities	$	177,513.85
COMMERCIAL OPERATIONS FACILITIES		$	3,066,249.98
DISTRIBUTION TOTALS		**$**	**138,681,039.95**
GT0010	Purchase Misc Tools	$	97,196.79
GT0015	Purchase Fall Arrest Equipment	$	63,590.33
GT0020	Purchase Misc Tools for Tool Team	$	4,852.58
GT0030	Purchase OH Line Stringing Equip	$	3,968.65
GT0040	Purchase High-Capacity Compression	$	16,515.01
GT0050	Purchase UG Locating Equip	$	9,357.32
GT0070	Purchase Misc Equip	$	61,557.92
GT0075	Purchase Large Tools & Equipment	$	240,242.86
GT0103	Purchase Test Equip	$	182,796.13

GENERAL TOOLS		$	680,077.59
STORM JOBS	Storm Outages	$	22,423.80
MSTORM	Maintenance Storm Jobs	$	-
STORM JOBS		$	22,423.80
B00000	Billing Not Budgeted	$	-
M00000	Maintenance Not Budgeted	$	-
N00000	Not For Profit Not Budgeted	$	-
CG0000	Gen Comm Ops Not Budgeted	$	-
CG0999	Corporate Budget Adjust Comm Ops	$	-
OTHER COMM OPS		$	-
TA0089	New 161 In&161/12 Sub S Monett	$	-
TA0210	New Generation Riverton Plant	$	-
TA0232	Inst TR1 Tst Swtch LckOutRelay	$	-
TA0234	Inst UPLC Carrier - Checkback	$	-
TA0236	Install ICON 20 Node - 2 Ring	$	1,401,366.77
TA0238	Inst DFR-Select Sites PR-002	$	36,939.77
TA0240	Repl Panel Relay Bransn&Pwrsit	$	-
TA0241	Install DFR per PRC-002 #392	$	142,047.26
TA0242	Install DFR per PRC-002 #438	$	-
TA0243	Install DFR per PRC-002 #368	$	-
TA0255	BD Health Substation & 69kV Insula	$	107,878.18
TA0911	I 2-way 69kV MOAB w/tr sch-372	$	-
TA0912	I 2-69kV Breakers at #205	$	-
TA0913	Install 2-69kV Breakers-#131	$	-
TA0916	I 2-Way 69kV MOAB w/tr sch-381	$	-
TA0918	Inst 69kV Breakers #64 to #284	$	-
TA0919	Install 2-69kV Breakers at#217	$	-
TA0920	Inst 5 69kV Breakers Sub 94	$	-
TA0921	Install 2-161kV Breakers at #4	$	-
TA0923	Inst 2-69kV Breakers #447 & #258	$	3,699,785.18
TA0924	Install 2-69kV Breakers #398	$	-
TA0925	Install 2-69kV Breakers at#322	$	420,105.04
TA0926	Install 2-Way 69kV MOAB #278	$	11,325.38
TA0927	Install Distribution SCADA	$	19,828.98
TA0928	Install 2-161kV Breakers #421	$	1,300.25
TA0929	Install 2-Way 69kV MOAB #460	$	-
TA0930	Install 2-69kV Breakers at #44	$	1,397,473.46
TA0931	Install 2 161kV Breakers at #366	$	-
TA0932	Install 2 161kV Breakers at #387	$	-
TA0933	Inst2Way 69kV MOAB TrasSch#403	$	-
TA0934	Install 2 161kV Breakers at #395	$	-
TA0935	Inst2Way 69kV MOAB TrnsSch#152	$	-
TA0936	Install 2 161kV Breakers at #432	$	14,823,206.26
TA0937	Install 2-69kV Breakers at#251	$	11,596,027.10

TA0938	Install 69kV MOAB TransSch#341	$	-
TA0939	Inst2Way69kV MOAB TransSch 296	$	572,843.11
TA0940	Install Auto-Transf Scheme#209	$	-
TA0941	Install Monett Switch Automation	$	396,043.32
TA0942	Install 161kV Sub & Retire#291	$	278,344.38
TA0943	Inst Auto-Throwover Schm Racine	$	3,122.57)
TA0944	Repl (2) Line Panels at #110	$	-
TA0945	Convert 34.5kV Fairplay-Humans	$	-
TA0947	Convert Exist 34.5 kV Collins	$	30,419.98
TA0950	Install SCADA at Sub #124	$	1,357,118.53
TA0951	Install SCADA Sub #391 & Breakers	$	(7,662.15)
TA0952	Install SCADA at Sub #392	$	1,169,974.87
TA0953	Install SCADA at Sub #362	$	3,507.72
TRANSMISSION ADDITIONS		$	37,454,750.82
TB0001	Transmission Blankets	$	99,401.52
TRANSMISSION BLANKETS		$	99,401.52
TR0001	Replace BO Trans Poles	$	5,123,514.24
TR0009	Misc Rebuilds/Add - Trans Subs	$	6,072,508.53
TR0010	Misc Rebuilds/Add-Trans Line	$	836,167.06
TR0012	Add Auto Xfmr Tap Indic @ Subs	$	-
TR0014	Inst 161kV & 69kV Bus Diff#184	$	8,834,984.39
TR0049	Inc Interrupting Rating	$	(18.53)
TR0111	NERC Line Rating Eval Mitigation	$	-
TR0113	MDAR Relay Repl Program	$	(293,659.36)
TR0115	Repl Obsolete Transm Relaying	$	-
TR0119	Upgrades Sub South Joplin	$	11,698.39
TR0120	Upgrade Terminal Eq #80 & #170	$	2,605.01
TR0122	Recon 69kV Line-Dia#131 to Sar	$	-
TR0124	Rec 69kV-Nichols#170 - Rep#359	$	-
TR0127	Repl 69kV Infras Tipton Fd#292	$	342,774.11
TR0130	Rebuild 161kV Neosho to Noel	$	-
TR0133	MDAR/REL Relay Replace at #435	$	-
TR0134	Rebuild 69kV Riverton to Joplin	$	682,630.51
TR0136	Rebuild 69kV & 161kV Belleview	$	-
TR0140	Transmission Resiliency Prog	$	-
TR0142	Repl Panel & Breaker at Dadeville	$	-
TR0144	Repl 161kV Breaker & Bus Diff #312	$	-
TR0146	Repl Switch Scheme&Low Net 342	$	-
TR0150	Rebuild 69kV btw Atlas &Kodiak	$	14,159,281.36
TR0152	OPGW on 161kV Noel to Decatur	$	68,271.88
TR0154	OPGW on 161kV Neosho to Noel	$	(2,573.22)
TR0156	Fiber Connect Baxter to New Sub	$	-
TR0159	Rebuild Powersite Sub 312	$	29,572.65
TR0162	Carrier I/R at Stockton #418	$	(9,297.88)
TR0166	Rebuild Riverton to Neosho 161kV	$	45,421,087.57

TR0168	RBLD LINE 161kV & OPGW 413-438	$	7,966,717.04
TR0901	Rebuild 69kV #186 to #388	$	20,306.22
TR0902	Kansas Loop	$	-
TR0907	Inst Fib Asbury 349 to Carthage 395	$	-
TR0910	Rebuild 69kV Boston - Greenfield	$	550,942.90
TR0911	69kV Rebuild #249 to #251	$	35,719.87
TR0912	RB GoldenCity#251 Lockwood#400	$	-
TRANSMISSION REBUILDS		$	89,853,232.74
TRANSMISSION TOTAL		**$**	**127,407,385.08**
TOTAL COMMERCIAL OPERATIONS		**$**	**266,790,926.42**

General Services

Funding Project	Description		2022 Actual Expenditures
CS0002	Computers, Servers, Network Eq	$	831,537.98
CS0003	Description Needed	$	-
CS0011	Maximo Deployment	$	-
CS0013	Microsoft Office Software Upgrade	$	-
CS0017	Enterprise Infrastructure/App	$	-
CS0021	Enterprise IT Security	$	-
CS0023	Infrastructure CORE/OT	$	1,436,282.00
CS0024	SharePoint External Web	$	-
CS0025	OMS Tablet Repl/Upgrade	$	-
CS0026	Cloud Identity & Access Management	$	-
CS0027	Bill Printers Replacement	$	-
CS0028	Software Upgrades	$	1,257,508.57
CS0031	SAN Upgrades/Expansion	$	-
CS0033	Multifunction Printer Replacement	$	(76.99)
CS0034	Info Security Program	$	-
CS0035	eGRC Implementation	$	-
CS0036	Mobile Strategic Initiative	$	-
CS0037	Cloud Security Strategy	$	-
CS0038	Conference Room Upgrades	$	(382.50)
CS0039	Cloud Security Operations	$	-
CS0040	Cloud Application Security	$	-
CS0041	Cloud Data/Network Security	$	-
CS0043	EndPoint Management	$	-
CS0044	ITSM	$	-

CS0046	Enterprise App-ID & Access Mgmt	$	-
CS0047	Data Governance & Analytics	$	-
CS0048	FP&A HRM Upgrades	$	-
CS0050	Database	$	-
CS0051	Construction Design Software	$	-
CS0052	C1 - Empire Customer First SAP	$	-
CS0053	SAP Deposit	$	-
CS0054	LABS Corp IT Allocation	$	1,933,352.10
CS0055	PowerTax Module	$	-
CS0056	PowerLease Module	$	-
CS0057	Cisco Spark	$	-
CS0058	EDE Gas SCADA Device Upgrade	$	-
CS0059	JAVA 10	$	-
CS0060	EMS Environment Refresh	$	-
CS0061	Branson DR Migration New Jersey	$	-
CS0062	Empire Regional Infrastructure	$	-
CS0063	Infrastructure Growth	$	-
CS0064	ODA Replacement	$	-
CS0066	GIS/ADMS - EDE	$	374,458.41
CSG066	GIS/ADMS - EDG	$	-
CX0001	Phone System Upgrades	$	-
CX0002	Bill/Payment Vendor Upgrades	$	-
CX0003	Cust Information Upgrades	$	192,983.93
COMPUTER SERVICES		$	6,025,663.50
GA000*	General Projects Not Budgeted	$	-
GA0001	Fleet	$	6,483,765.79
GA0002	Transportation - Tools	$	16,455.32
GA0005	Furniture & Fixtures	$	963.68
GA0006	Supply stores Facilities & Equip	$	81,573.79
GA0010	Joplin Facilities	$	265,922.19
GA0011	Training Facility - Joplin	$	(48,430.40)
GA0012	Facilities - Ozark	$	-
GENERAL ADDITIONS		$	6,800,250.37
GF0001	Facilities	$	460,890.55
GF0002	Facility Innovation & Development	$	-
GENERAL FACILITIES		$	460,890.55
SEM010	Elec GIS Project - Corp	$	-

SEM011	Elec OMS Project - Corp	$	-
SEM027	EMS Equip for Backup Control	$	-
SEM030	EMS System Upgrade	$	-
SEM031	EMS Power Cond Sys Upgrade	$	-
SEM039	I&R UPS for EMS Environment	$	-
SEM040	Upgrade Mapboard to Video Wall	$	-
SEM041	I&R Auto Throwover Switch	$	-
SEM042	Replace Cardkey Control Server	$	-
SYSTEM OPERATIONS		$	-
STE010	Install/Remove FM 2-Way Equip	$	666,510.64
STE020	Microwave Replacements	$	(295.98)
STE021	Microwave	$	-
STE022	Replace Batteries	$	9,561.69
STE023	Tower Downguy/Insp/Repl	$	13,780.78
STE030	SCADA	$	36,976.66
STE043	Telephone	$	-
STE045	Phone Switch Repl/VoIP Upgrade	$	-
STE050	Purchase Telecomm Test Equip	$	4,080.36
STE062	Install/Retire MAS Masters	$	-
TELECOMMUNICATIONS		$	730,614.15
EV0001	Electric Vehicle Service Equip	$	(136,071.32)
PROJ-A	C1 - Automated Meters	$	-
PROJ-B	Empire AMI Additions	$	-
AMI001	AMI	$	5,084,179.58
TOTAL GENERAL SERVICES		**$**	**18,965,526.83**

Production

Funding Project	Description		2022 Actual Expenditures
NG0016	Iatan 2	$	-
NG0020	Riverton 12 CC Conversion	$	-
NG0021	Wind Project	$	156,070.26
NG0022	Utility Scale Community Solar	$	64,927.06
NG0023	Generation Additions Year 2023	$	-
NG0024	Distributed Solar + Storage	$	-

NG0026	New Thermal Generation	$	38,238.54
NEW GENERATION		$	259,235.86
EN0007	PCB Equip Disposal Clean Up	$	-
EN0008	Riverton Intake CWA	$	-
EN0012	Riverton Landfill Site Struct	$	-
ENVIRONMENTAL AND SAFETY		$	-
PA0001	Misc Prod Plant Additions	$	-
PA0002	Labor Saving Devices & Tools	$	-
PA0003	Plant Replacements & Improvements	$	-
PA0004	Coal Handling System Additions	$	-
PA0005	Ash Handling System Additions	$	-
PA0006	Boiler & Aux Equip Additions	$	-
PA0007	Turbine Gen & Aux Equip Add	$	-
PA0008	High Energy Piping Systems	$	-
PA0010	Environmental & Reg Construction	$	-
PA0011	Valve Additions	$	-
PA0012	Pump Additions	$	-
PA0013	FD Fan	$	-
PA0014	Duct Work	$	-
PA0015	Boiler Expansion Joints	$	-
PA0016	Deep Well Pump & Column	$	-
PA0017	Cyclones	$	-
PA0018	Furnace	$	-
PA0019	Mobile Coal Handling Equipment	$	-
PA0023	Cooling Tower	$	-
PA0024	Power Plant Upgrades	$	-
PA0025	Main Generator Transformer	$	-
PA0026	Incidental Replacements/Improv	$	-
PA0033	Environmental Retrofit	$	-
PA0034	Ash Landfill	$	-
PA0035	Ash Conveyance System	$	-
PA0037	Steam Turbine Retrofit	$	-
PA0038	Asbury Ash Impoundment	$	-
ASBURY		$	-
Individual PCC projects include the WGI credit			
PCC001	Misc Prod Plant Additions	$	379,042.88
PCC004	HRSG & Aux Equip Additions	$	112,388.48

PCC005	Unit Generator Upgrades	$	162,625.90
PCC006	Turbine Upgrades	$	136,781.22
PCC007	Valve Additions	$	79,796.72
PCC008	Pump Additions	$	-
PCC009	Deep Well Pump & Column	$	178,317.98
PCC010	Cooling Tower	$	98,295.40
PCC011	Plant Replacements & Improvement	$	75,722.98
PCC012	Turbine Gen Aux Equip Additions	$	6,377.38
PCC013	Environmental & Reg Const	$	251.10
PCC015	Fire Protection	$	(326.67)
PCC016	Reservoir	$	-
PCC019	Control System Upgrade	$	7,837.73
PCC020	Incidental Replacements/Improv	$	17,825.04
ES0001	Safety Related Devices and Too	$	-
STATE LINE COMBINED CYCLE		$	1,254,936.14
PE0001	Misc Production Plant Addition	$	76,775.41
PE0002	Labor Savings Devices & Tools	$	2,034.90
PE0004	Unit 2 Stack/Exhaust Tansis	$	-
PE0005	Unit 3 Generator Inspection	$	-
PE0006	Install 2 FT8's	$	-
PE0008	Eng Ctr Environmental	$	-
PE0009	Eng Ctr Controls	$	(34,249.66)
PE0010	Eng Ctr BOP	$	-
PE0011	Eng Ctr Unit 1	$	6,228.09
PE0012	Eng Ctr Unit 2	$	9,698.59
PE0013	Eng Ctr Unit 3	$	588,678.41
PE0014	Eng Ctr Unit 4	$	559,808.09
PE0021	Metering Upgrades	$	451.45
PE0022	Protective Relay Upgrades	$	-
PE0023	FT8 Upgrades	$	-
PE0024	PT Upgrades	$	-
ENERGY CENTER		$	1,209,425.28
PG0010	Purchase/Install IM Software-Adapt2	$	-
PG0011	P&I Encompass ProMod Software	$	-
PG0013	Adapt2 - Load Forecasting	$	-
PG0014	Adapt2 - Development	$	-
PG0015	Encompass - Development	$	-
PG0099	Unforeseen Misc Computer Equip	$	-
GENERAL		$	-

PI0001	Iatan Plant	$	1,975,755.71
PI0002	Iatan I Environmental	$	-
IATAN PLANT		$	1,975,755.71
PII001	Iatan 2	$	235,223.18
IATAN 2 PLANT		$	235,223.18
PIC001	Iatan Common Facilities	$	1,474,605.85
PIC002	Iatan Common Facilities Prod	$	-
IATAN COMMON FACILITIES		$	1,474,605.85
PP0001	Plum Point Misc Prod Plant Add	$	328,634.42
PP0002	Plum Point Bag Replacement	$	-
PP0003	Plum Point Catalyst Replacement	$	-
PP0004	Plum Point Generator Modification	$	-
PP0005	Plum Point Landfill Cell	$	-
PLUM POINT PLANT		$	328,634.42
PO0001	Hydro Plant Additions	$	514,781.92
PO0002	Labor Saving Devices & Tools	$	49,221.67
PO0005	Improvements to House/Cottages	$	(5,332.68)
PO0006	Generator Rewinds	$	-
PO0007	Hydro Plant Relicensing	$	-
PO0009	Plant Automation Remote Control	$	6,389.75
PO0010	Improvements to Dam	$	898,165.24
PO0011	Improvements to Lake/Grounds	$	1,564.06
PO0012	Improvement to Powerhouse	$	2,822,292.86
PO0013	Improvement to Water Wheels	$	-
PO0014	Generator/Exciter/Voltage Ctrl	$	-
OZARK BEACH		$	4,287,082.82
PR0001	Production Plant Additions	$	489,647.68
PR0002	Labor Saving Devices & Tools	$	41,511.35
PR0003	Plant Replacements & Improvements	$	170,206.35
PR0006	Boiler & Aux Equip Additions	$	250,841.27
PR0007	Turbine Gen & Aux Equip Add	$	1,878,922.69
PR0009	Lowell & Bypass Replacements	$	661,824.50
PR0010	Environmental & Reg Construction	$	-
PR0011	Valve Additions	$	258,009.14

PR0012	Pump Additions	$	1,199,491.84
PR0014	Insulation Improvements	$	65,846.53
PR0019	Control System	$	(1,687.48)
PR0020	Feedwater Heaters	$	-
PR0021	Water System Additions	$	486,992.49
PR0022	Precipitators	$	-
PR0024	Combustion Turbines	$	70,166.67
PR0030	Incidental Replacements/Improv	$	-
PR0033	Construction Site Prep	$	-
PR0035	Unit Retirements	$	-
PR0036	Cooling Tower	$	-
RIVERTON		$	5,571,773.03
PS0001	Misc Production Plant Addition	$	-
PS0006	Additional CT Upgrades	$	1,079.73
STATE LINE		$	1,079.73
PW0001	Labor Saving Devices & Tools	$	-
PW0002	Plant Replacements/Improvement	$	5,223.79
PW0003	Facilities Maintenance	$	52,321.40
PW0004	Land Management Equipment	$	89,421.54
PW0005	Shop Equipment/Tools	$	(114.05)
PW0007	Vehicle Replacement/Improvement	$	-
PW0008	Wind Farm Specialty Tools	$	-
PW0020	Safety Supplies-Confined Space	$	29,772.15
WIND		$	176,624.83
TOTAL PRODUCTION		**$**	**16,774,376.85**

Wind

Funding Project	Description		2022 Actual Expenditures
NF0001	North Fork Wind Projects	$	-
NFT001	North Fork Tax Equity	$	26,471.08
ENF001	North Fork - Empire	$	29,023.85
TOTAL NORTH FORK WIND		$	55,494.93
NR0001	Neosho Ridge Wind Projects	$	-

NRT001	Neosho Ridge Tax Equity	$	572,195.43
ENR001	Neosho Ridge - Empire	$	627,375.70
TOTAL NEOSHO RIDGE WIND		$	1,199,571.13
KP0001	Kings Point Wind Projects	$	-
KPT001	Kings Point Tax Equity	$	124,120.84
EKP001	Kings Point Empire	$	136,090.58
TOTAL KINGS POINT WIND		$	260,211.42
TOTAL WIND		**$**	**1,515,277.48**

2022 Actual Spending Grand Total

GRAND TOTAL	**$**	**304,046,107.58**

* AFUDC is included

$20 million projects - 2022

Projects included in this report went into service in 2022 and were $20 million or more.[1]

Project Guardian

Liberty-Empire identified physical security of substations as an area of primary focus. Given the name "Project Guardian", the goal of the endeavor is to harden the grid against negative consequences caused by security breaches. As part of the planning efforts for Project Guardian, Liberty-Empire engaged Burns & McDonnell to provide recommendations for appropriate security standards to implement based on security risk and good industry practices. The Company then developed a plan to perform upgrades based on site criticality and vulnerability to perimeter breaches. Additionally, Liberty-Empire deployed a pilot system that included hardened security fencing, video surveillance, intrusion detection, deterrent lighting, and access control measures. The company upgraded more than 20 substations to a high-security perimeter fence and gate system. These sites were identified as part of the most critical substations based on a completed electrical system risk assessment that were not in the near-term budget for replacement or revitalization. Going forward the Company plans to follow the Standards and Specifications developed during Project Guardian as future substations projects are developed. Project Guardian construction was completed in 2022.

Start Date: March 15, 2021
Cost to Date: $23,942,616
Completion Date: November 29, 2022

Joplin Area 4kV System Improvement/Conversion, Sub 284, 100, 64

The downtown Joplin 4kV system was served out of three substations which were isolated from all neighboring 12kV circuits and substations. By virtue of its lower primary voltage, the 4kV system had the highest available fault current and arc flash values in the region. Over the years this area had become smaller as previous conversion projects moved load to Subs 145, 372 and 59. Those subs were not able to take the remaining load, so this group of projects, in conjunction with substation projects, were necessary to achieve the goal of full conversion to 12kV distribution system. By converting the 4kV circuits to 12kV, the number of distribution circuits dropped 16 to 6. Switching paths from all neighboring 12kV substations provide a dramatic increase in customer reliability in downtown Joplin. Substations 64, 284, and 100 are located within the downtown Joplin area, each required varying degrees of construction to accomplish the project scope of converting the downtown Joplin area 4.16kV system to a 12.47kV system. The conversion from 4kV circuits to 12kV has led to dramatic increase in customer reliability in downtown Joplin.

Start Date: June 26, 2020
Cost to Date: $24,276,997
Completion Date: November 2022

[1] This report does not include blanket projects or budget lines.

$20 million projects - 2023

Projects included in this report are scheduled to begin construction in 2023 and are expected to meet or exceed a total project cost of $20 million.[1, 2]

Build New Sub #458 Gentry[3]

Located in Gentry, Arkansas, Sub 392 feeds most customers in this area, which has left the system overloaded and constrained for switching capabilities in the event of an outage. This area has historically missed growth opportunities due to load limitations from Sub 392. Due to Sub 392 being overloaded, there have been significant outages and a mobile substation has been used to mitigate outages. Construction of a new substation will allow load growth in the future for Gentry customers. The project will also allow for switching capabilities in the Gentry area to offer a more reliable and robust operating system for Liberty-Empire's customers. Alternative solutions have been sought including upgrading Sub 392 to increase the distribution capacity of the existing substation, however, this would only add an additional 10MVA of capacity to a rapidly growing service area.

Start Date: June 2023
Expected Cost: $25,440,222
Expected Completion Date: March 31, 2024

Customer First

The Customer First Program is a comprehensive digitalization initiative that will provide employees with the tools to deliver the experience our customers demand and deserve. It will create greater consistency around Finance, Customer Service, and Operations, resulting in an industry-leading customer experience. These projects will create the foundation to support Liberty-Empire's sustainability objectives through a fully integrated system with agile processes to support future growth. Due to the organization's recent growth. Among the customer facing modernization benefits that will accrue from the Customer First investment is the ability to better provide our customers with access to real-time data and to create new service offerings. Enhanced tools to manage our customer relationships will improve our customer service now and embed the flexibility to incorporate additional enhancements later.

Customer First will help Liberty-Empire operate its system more effectively. Cybersecurity will be enhanced. Our management will be able to leverage insights from a more capable asset information platform to make better investment and operation decisions. The Customer First mapping capability and Graphical Information System ("GIS") will allow the Company to deploy field crews more efficiently, help our teams locate assets more

[1] This report does not include blanket projects or budget lines.
[2] This assumes the New Thermal Generation planned to go in service in 2025 and exceeds the $20 million threshold will begin significant construction in 2024 and was studied in the 2022 IRP.
[3] Liberty-Empire anticipates most of the funding for this project will be designated to Arkansas.

quickly, and allow us to better manage outages. These and related capabilities will be foundational to the future evaluation of our increasingly advanced distribution network.

Customer First will be a series of six pillar projects for the entire organization that will provide a common means to address emerging business demands. It will consist of modern and connected platforms to meet customer, employee, and other stakeholder needs.

Start Date: Quarter 4, 2023
Expected Cost: $107,884,592
Expected Completion Date: Quarter 1, 2024