Exhibit No.: _____
Issue: Liberty-Empire's Missouri Transportation Electrification Program
Witness: Robin McAlester
Type of Exhibit: Direct Testimony
Sponsoring Party: The Empire District Electric Company
Case No.: ET-2020-0390
Date Testimony Prepared: November 2020

Before the Public Service Commission

of the State of Missouri

Direct Testimony

of

ROBIN MCALESTER

on behalf of

The Empire District Electric Company

November 29, 2020

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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Robin McAlester. My business address is 602 South Joplin Avenue, Joplin, MO, 64802.

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

A. I am employed by Liberty Utilities Service Corp. ("LUSC"), a subsidiary of Liberty Utilities Co. ("Liberty"). I am employed by LUSC as the Senior Manager of Sustainability for the Liberty Innovations Team. In this role I lead the strategy and implementation of the transportation electrification programs across the Liberty electric jurisdictions: California, Missouri, and New Hampshire. In addition, I am responsible for our Smart Community program and support our sustainability initiatives across the United States.

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

A. I am testifying on behalf of The Empire District Electric Company ("Liberty-Empire" or the "Company"), a Liberty subsidiary.

Q. Please describe your educational and professional background.

A. In 1998, I completed my Bachelor of Arts in Communications from Missouri Southern State University. In 2015, I received my Master of Business Administration from Missouri State University. From May 1998 to September 2000, I was employed by the United Way of Southwest Missouri in a variety of social service project implementation initiatives until joining the marketing and public relations team at St. John's Regional Medical Center where I served as the official hospital spokesperson,

developed outreach campaigns, and supported the hospital's mission to help the medically underserved in our community. In April 2005, I joined the National Audubon Society to develop the first Audubon Center in the state of Missouri. In the role of Executive Director, I managed the project from the capital campaign, through construction, and later program development focusing our efforts on environmental conservation and stewardship, education, and water quality. I joined the Communications Team at Liberty-Empire in April 2013. In September 2016, I was promoted to Manager, Business and Community Development, as lead contact for key accounts including large business and industry, eighteen cities/counties, and seven schools, and maintained relationships with local and state government officials. I also managed the electric vehicle ("EV") initiative in the Liberty-Empire service area. In June 2019, I assumed my current position.

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

A. No, I have not previously provided testimony before the Missouri Public Service Commission ("Commission") or any other regulatory agency.

Q. Are you sponsoring any schedules with your testimony?

A. Yes. I am sponsoring the following schedules attached to my Direct Testimony, including six specimen tariff sheets:

- Schedule RM-1 – Residential Smart Charge Pilot Program ("RSCPP") proposed tariff;
- Schedule RM-2 – Ready Charge Pilot Program ("RCPP") proposed tariff;

- Schedule RM-3 – Commercial Electric Vehicle Rate Pilot ("CEV") proposed tariff;
- Schedule RM-4 – Commercial Electrification Pilot Program ("CEPP") proposed tariff;
- Schedule RM-5 – Electric School Bus Pilot Program ("ESBPP") proposed tariff;
- Schedule RM-6 – Non-Road Electrification Pilot Program ("NREPP") proposed tariff;
- Schedule RM-7 – Liberty-Empire's Customer Survey Results;
- Schedule RM-8 – Liberty-Empire RSCPP Cost Elements.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your Direct Testimony?

A. My Direct Testimony provides an overview of the proposed portfolio of transportation electrification pilot programs, which include those supporting the electrification of on-road vehicles and non-road equipment, and the associated benefits. The portfolio is comprised of pilot programs that target a range of customer segments, including residential, commercial, and industrial, seeking to build out charging infrastructure and encourage the use of beneficial electric equipment throughout the Liberty-Empire service territory. My testimony includes an overview of each pilot program as well as the Company's proposed means of cost recovery for the pilot programs. I will also provide a brief history of Liberty's experience in transportation electrification to date and our vision for future programs and offerings.

Q. What are the overarching goals of Liberty-Empire's proposed pilot programs?

A. The choice to group this collection of pilot programs into a single proposed transportation electrification portfolio demonstrates the Company's commitment to increase transportation electrification across our customer segments – including residential, commercial, and industrial. The Company seeks to support the deployment of charging infrastructure in a manner that increases access to electricity as a transportation fuel, encourages beneficial charging behavior, and accelerates the regional EV and electrified non-road equipment market.

The proposed pilot programs are designed to address key barriers to increased transportation electrification in the Liberty-Empire territory, which include high upfront cost of charging infrastructure (both residential and commercial) and lack of awareness of electric technology benefits. Thanks to efforts by other utilities as well as state agencies and related partnerships, our customers have a basic level of awareness about EVs and technologies, but we seek to build customer understanding. The Company also seeks to complement, but not duplicate, efforts underway to install EV charging stations funded by Volkswagen Settlement funding, both via the State Beneficiary Mitigation Plan and Electrify America.

Because these are designed as pilot programs, the Company seeks to gather data and customer insight to better understand the local EV charging dynamics, including charging behavior and consumer response to price signals. As the number of EVs in the service territory increases, it will be imperative that the Company have a way to monitor charging, encourage customers to shift charging to off-peak periods, and gauge the effectiveness of the utility's programs and initiatives.

Q. Will additional witnesses submit testimony on the Company's behalf?

A. Yes. Two expert witnesses are providing pre-filed direct testimony. Ms. Stacy Noblet, Senior Director of Transportation employed by ICF Resources LLC ("ICF"), is an on-road transportation electrification expert. Her testimony will address technical, policy, and analytical aspects of the Company's proposed on-road pilot programs. In addition, Ms. Ambika Coletti, Beneficial Electrification Manager at ICF, is a non-road electrification expert who will address technical, analytical, and strategic aspects of the proposed non-road technology pilot program. These are in addition to my testimony, which contains information relevant across the proposed portfolio of pilot programs.

Q. Please describe ICF and its role in this matter.

A. ICF is a global consulting services company. Liberty-Empire engaged the services of ICF to assist in the research, program concept screening, program design, and cost benefit analysis, and to support the review and approval process for the Missouri regulatory filing.

III. TRANSPORTATION ELECTRIFICATION – EXPERIENCE AND BENEFITS

Q. What is transportation electrification?

A. Transportation electrification refers to the use of electricity from external sources of electric power, such as the electric grid, to power all or part of vehicles, trains,

watercraft, and other non-road equipment that are mobile sources of air pollution and greenhouse gases ("GHGs").[1]

Q. Please describe the Company's background with transportation electrification.

A. The Company has gained experience with on-road transportation electrification through the launch of the "EVolve" program in 2015 where we installed 63 Level 2 ("L2") charging ports within the Liberty-Empire service territory and launched a customer education campaign. Within that program, the Company also incentivized employees and customers with rebates for converting to new or used plugin vehicles. Liberty is also gaining experience in our California service territory through the California Public Utilities Commission ("CPUC") approved suite of EV-related programs for Liberty Utilities (CalPeco Electric) LLC ("Liberty CalPeco") which include: a DC Fast Charger Project; a Residential Charger Installation Rebate; a Small Business Charger Installation Rebate; a Customer Online Resource Project; and an Electric Bus Infrastructure Program. Liberty CalPeco also has a separate program to implement charging stations at schools and parks.[2] Through the DC Fast Charger Project, Liberty CalPeco has been authorized by the CPUC to spend up to $4 million to install the infrastructure needed to support direct current fast charging ("DCFC") stations at sites in its service territory. Through the Residential Charger Installation

[1] California Public Utilities Commission, *Transportation Electrification*, published June 2016, available at: https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/About_Us/Organization/Divisions/Policy_and_Planning/PPD_Work/PPD_Work_Products_(2014_forward)/PPD%20Transportation%20Electrification%20Whitepaper%20.pdf.

[2] California Public Utility Commission (CPUC) D.18-09-034 issued on September 27, 2018 (Phase One) and CPUC D.19-11-017, issued on November 7, 2019 (Phase Two) https://www.cpuc.ca.gov/sb350te/#:~:text=18%2D09%2D034%20authorizing%20the,goals%20to%20accelerate%20EV%20adoption%2C.

Rebate Program, Liberty CalPeco has been authorized by the CPUC to offer rebates of up to $1,500 to up to 1,000 residential customers for installing L2 charging stations. Through the Small Business Charger Installation Rebate Program, Liberty CalPeco plans to offer rebates of up to $2,500 to up to 100 small commercial customers for installing L2 charging stations. The Customer Online Resource Project is an opportunity for Liberty CalPeco to develop a customer resource providing information to its California customers about the benefits of electric vehicles and enrolling in EV time-of-use ("TOU") rates. Through the Electric Bus Infrastructure Program, Liberty CalPeco plans to install the infrastructure needed for Tahoe Transportation District to have in-depot charging stations installed to support at least three new electric transit buses. Finally, through the Schools and Parks Charging Station Program, Liberty CalPeco plans to implement charging stations at schools and parks, including 28 L2 chargers and 2 DCFCs. 18 of these L2 chargers are at K-12 school sites; 2 L2 chargers and 2 DCFC are located at Lake Tahoe Community College; 8 L2 charging stations are located at the Lake Tahoe Unified School District Bus Barn; and 5 L2 charging stations are located at area parks.

Q. Generally, what benefits can transportation electrification provide to utility customers, the electricity system, and the public?

A. Transportation electrification can provide a range of benefits to all utility customers, the grid, and society. *First, transportation electrification provides the opportunity to place downward pressure on electricity costs for all customers.* EVs and other electrified non-road equipment are distributed assets that sit unused at some part of the day. This flexibility allows for a large share of vehicle and equipment charging to

occur at times when the grid is underutilized and when marginal costs to serve additional load are low. By increasing utility revenues and system load factor without commensurate increases in utility costs, the incremental EV load can help mitigate potential electricity rate increases and put downward pressure on electricity rates in the long-term by spreading fixed system costs over a greater amount of kilowatt-hours ("kWh") sold.[3] Some EV charging will inevitably occur during peak hours and will be driven by customers' refueling needs. However, there exists a significant opportunity to incorporate incremental EV and equipment load using time-based pricing to the benefit of all utility customers. Analysis of utility revenues and costs in two areas with the highest penetration of light-duty EVs in the country by Synapse Energy Economics suggests that on-road transportation electrification has already provided a beneficial impact on electricity rates.[4]

Second, EVs can enhance the reliability and flexibility of the electricity system. EVs and electrified non-road equipment can provide the grid with a source of flexible, manageable load. With the proper information and incentives, vehicles and equipment can charge in a manner that responds to grid conditions – filling troughs in load without increasing overall capacity requirements. This flexible load can also support the integration of increasing levels of renewable generation that might otherwise be underutilized or curtailed. In Missouri where wind generation continues to scale and peak during overnight hours, EVs are particularly well positioned to absorb this load

[3] Jones et al., *The Future of Transportation Electrification: Utility, Industry, and Consumer Perspectives,* published August 2018
[4] Frost et al., *Electric Vehicles Are Driving Electric Rates Down,* published June 2019, available at: https://www.synapse-energy.com/sites/default/files/EV-Impacts-June-2019-18-122.pdf.

and enhance the flexibility of the grid. Research from the U.S. Department of Energy ("DOE") found that with the 1.5 million EVs that California expects to have on the road by 2025, the State has the potential to leverage the equivalent of approximately one gigawatt of storage capability for valuable grid services such as valley-filling (increasing load during periods of low demand on the electricity system) and ramp-up mitigation (reducing the amount of additional generation capacity needed to satisfy electricity system demand in the transition from off-peak to on-peak periods) with smart-charging technology that is readily available today.[5]

Third, transportation electrification can significantly reduce air pollutant and GHG emissions relative to internal combustion engine alternatives. Fully electric vehicles and equipment produce zero tailpipe emissions, reducing the transportation sector's contribution to harmful nitrogen oxide emissions and the risk of ozone nonattainment. These benefits can be pronounced when EVs and nonroad equipment replace the use of diesel vehicles and equipment. Additionally, EVs generally produce less emissions than comparable internal combustion engine vehicles even when accounting for emissions from upstream electricity generation. According to the DOE, a light-duty EV charging with electricity generated from Missouri's resource mix produces approximately 33% less GHG emissions than a comparable gasoline vehicle.[6] As Missouri and the region continue to integrate zero-emission generation resources to the grid, the emissions profile associated with EVs and electric equipment

[5] Jonathan Coignard et al., *Clean Vehicles as an Enabler for a Clean Electricity Grid*, 13 ENVTL. RES. LETTERS 054031 (2018), https://doi.org/10.1088/1748-9326/aabe97.
[6] The DOE's estimates serve as a reasonable proxy for estimating EV GHG emissions in Missouri https://afdc.energy.gov/vehicles/electric_emissions.html.

will continue to decline. These public health-related benefits are critical since the transportation sector is a leading source of pollution, and disadvantaged communities tend to face disproportionately high exposure to the negative impacts. A report by the American Lung Association found that widespread adoption of zero-emission transportation technologies could result in the following in Missouri in 2050: 96 avoided premature deaths, more than 1,500 avoided asthma attacks, nearly 6,500 avoided lost work days, and $1.1 Billion in avoided health impact cost.[7]

EVs and electrified non-road equipment can reduce costs for customers and improve the operational experience. Total cost of ownership for the vehicles and equipment continues to fall as technology improves. With fewer parts and lower fuel prices, maintenance and operational costs are already lower than internal combustion alternatives in some cases. Additionally, EVs and equipment offer a quieter and cleaner operating experience whether on or off-road, improving the comfort of drivers and the public alike.

If properly integrated, this incremental load associated with EVs and electric equipment can enhance the flexibility and reliability of the grid while increasing overall system efficiency. Liberty's proposed pilot portfolio seeks to address this.

Q. Has the Commission previously issued guidance and orders supporting utility transportation electrification efforts?

[7] American Lung Association, *The Road to Clean Air: Benefits of a Nationwide Transition to Electric Vehicles*, available at https://www.lung.org/clean-air/electric-vehicle-report.

A. Yes, the Commission has addressed utility transportation electrification efforts in previous orders and proceedings. Notably, the Commission approved the stipulation and agreement of Ameren Missouri's transportation electrification program filing, *Charge Ahead*, in October 2019.[8] *Charge Ahead*'s purpose is "to stimulate the development of Infrastructure within [Ameren Missouri's] service territory that is needed to support widespread adoption of electric vehicles by the public."[9] The three-year program includes a $6.6 million budget – supporting investment in L2 and DCFC charger technologies across a range of market segments. The program also included budgets for administrative, reporting, and marketing expenses associated with implementation. In its Report and Order, the Commission emphasized the benefits of increased transportation electrification. "Financial benefits from an EV charging network accrue to both the utility and the ratepayers. Utilities and ratepayers benefit economically from the improved utilization of fixed assets when charging is done in off-peak times. EVs are considered to be a flexible load that can charge during periods when demand is low."[10] Further, the Commission noted that, "The financial benefits to the utility and to the ratepayer from an EV charging network are not merely from the additional electricity sales at the charging stations, but are also obtained through additional electric sales from charging at home and creating more efficient utilization of the electric grid. All ratepayers ultimately will receive those benefits from the

[8] *Order Approving Stipulation and Agreement,* Case No. ET-2018-0132, October 17, 2019.
[9] *Id.*
[10] *Report and Order,* Case No. ET-2018-0132, February 6, 2019.

spreading of fixed costs over a greater amount of usage creating rates that are lower than if there was less usage."[11] Ultimately, the Commission's Order declared the final program and associated tariffs to "support safe and adequate service at just and reasonable rates and is in the public interest."[12]

During the proceeding on Ameren Missouri's transportation electrification program filing, the Commission also released an Order initiating a new proceeding to evaluate mechanisms for facilitating charging infrastructure deployment in Missouri.[13] While the proceeding is still open as of the submission of my Direct Testimony, Commission Staff released a report in September 2019 providing a summary of activities in the docket, and this document includes a wealth of information on utilities' role in transportation electrification.[14] The report also provides further guidance from Staff on the utilities' transportation electrification role, including a continued need for broader customer education and implementation of time-varying rates that leverage the flexibility of EV charging for grid benefit.[15]

These proceedings illustrate the Commission's familiarity with utility transportation electrification topics and confirm the Commission's ability to review and approve utility transportation electrification programs and tariffs.

[11] *Id.*
[12] *Order Approving Stipulation and Agreement,* Case No. ET-2018-0132, October 17, 2019.
[13] *Order Opening a Working Case Regarding EV Charging Stations and Directing Staff to Schedule a Workshop Meeting,* Case No. EW-2019-0229, February 14, 2019.
[14] *Staff Report,* Case No. EW-2019-0229, September 30, 2019.
[15] *Id.*

IV. OVERVIEW OF THE COMPANY'S PROPOSED TRANSPORTATION ELECTRIFICATION PORTFOLIO OF PILOT PROGRAMS

Q. Please provide a summary of the Company's proposed Transportation Electrification Portfolio ("Portfolio").

A. The Portfolio is designed to accelerate electric technology adoption and provide utility customer, grid, and societal benefits. The Portfolio is broadly divided into three components: the On-Road Component, the Non-Road Component, and the Administrative Component. Each component consists of specific programs and offerings that address transportation electrification in various market segments.

On-Road Component

- *Residential Smart Charge Pilot Program* – provides a subscription service for residential customers to install smart L2 charging stations that encourages beneficial EV charging aligned with TOU pricing. The terms of the Residential Smart Charge Pilot Program are reflected in the proposed tariff sheet, which is attached to my direct testimony as Schedule RM-1.
- *Ready Charge Pilot Program* – deploys Company owned and operated smart L2 and DCFC charging infrastructure at publicly accessible commercial customer sites for public use. The terms of the Ready Charge Pilot Program are reflected in the proposed tariff sheet attached to my direct testimony as Schedule RM-2.
- *Commercial Electric Vehicle Rate Pilot* – encourages third-party investment in DCFC and L2 infrastructure as well as supports workplace and fleet settings by providing a temporary incentive to lower EV charger operational costs. The terms of the

Commercial Electric Vehicle Rate Pilot are reflected in the proposed tariff sheet attached to my direct testimony as Schedule RM-3.

- *Fleet Advisory Services Pilot* – provides business case analysis and support, and technical assistance for vehicle fleets in the Company's service area seeking to transition to EVs. There is no proposed tariff sheet for this program.
- *Commercial Electrification Pilot Program* – deploys Company owned and operated smart L2 charging infrastructure at commercial customer sites for use by customer fleets, employees, and tenants. The terms of the Commercial Electrification Pilot Program are reflected in the proposed tariff sheet attached to my direct testimony as Schedule RM-4.
- *Electric School Bus Pilot Program* – supports the deployment of Company owned and operated smart charging infrastructure for school bus applications in Liberty-Empire's service area. The terms of the Electric School Bus Pilot Program are reflected in the proposed tariff sheet attached to my direct testimony as Schedule RM-5.

Non-Road Component

- *Non-Road Electrification Pilot Program* – provides incentives to support the deployment of charging infrastructure for non-road applications, including electric forklifts, truck refrigeration units (TRUs), truck stop electrification (TSE), agricultural wells, and custom equipment. The terms of the Non-Road Electrification Pilot Program are reflected in the proposed tariff sheet attached to my direct testimony as Schedule RM-6.

Administrative Component

The administrative component is essential for the implementation of both the On-Road and Non-Road components of the Portfolio and includes the following:

- *Customer Education & Outreach* – supports Portfolio-wide education & outreach (E&O) activities to increase customer awareness of transportation electrification programs and benefits, as well as encourage beneficial charging of EVs and non-road equipment.
- *Annual Reporting & Evaluation* – enables the data collection, analysis, and reporting of key portfolio metrics to the Commission and interested stakeholders.
- *Program Implementation* – supports the set-up, launch, and on-going implementation of the transportation electrification portfolio.

Table 1 below provides a summary of the Company's Portfolio, including offerings, market segments addressed, proposed charging infrastructure investments (where applicable), and proposed budgets. A workpaper associated with the budget details is being provided to the parties as well.

Table 1. Company's Proposed Transportation Electrification Portfolio Summary

Component	Pilot Program	Target Market Segment	Charging Ports Supported (estimated)	Total Budget	Capital Budget	O&M Budget
On-Road	Residential Smart Charge	Residential	500 L2	$1M	$525,000	$540,000
	Ready Charge	Comm.	100 L2, 15 DCFC	$2.9M	$2.9M	-
	Commercial Electric Vehicle Rate	Comm.	-	-	-	-
	Fleet Advisory Services Program	Comm.	-	$200,000	-	$200,000
	Commercial Electrification Program	Comm.	100 L2	$775,000	$775,000	-

	Electric School Bus Program	Comm.	20 L2	$266,000	$266,000	-
Non-Road	Non-Road Electrification	Comm. and Industrial	N/A	$5.1M	-	$5.1M
Administra-tive	Education & Outreach	All	N/A	$400,000		$400,000
	Annual Reporting & Evaluation	All	N/A	$100,000		$100,000
	Program Implementation	All	N/A	$857,000		$857,000
Budget Total				$11.7M		

Q. What is the anticipated utility customer bill impact associated with the Portfolio?

A. In the near-term, based on the total budget of the proposed Portfolio, the Company anticipates a slight increase in customer bills, less than 0.5% overall. In the longer term, the Company anticipates the Portfolio will provide net benefits to all utility customers in the form of eventual downward pressure on electricity rates. Refer to Ms. Noblet's testimony for additional detail on ICF's modeling specific to rate pressure and customer bill impacts.

Q. Why is it important for the Company to have these pilot programs in place?

A. Transportation electrification provides benefits for utility customers, the electricity system, and society. However, lack of adoption of EVs and electrified equipment, driven by lack of charging infrastructure, customer awareness, and technical advisory support, pose critical barriers to growth. As the region's authority on electrical infrastructure and trusted energy advisor, Liberty-Empire is well positioned to help overcome these barriers and unlock the regional benefits of transportation electrification. Without the Company's supportive role, lower EV and electric equipment adoption and greater risk of unmanaged charging would likely lead to fewer

overall customer benefits, greater challenges in integrating future vehicle and equipment load, and increased emissions. The proposed pilot programs seek to deploy smart charging infrastructure that will enable future demand response and managed charging capabilities.

Q. What is the Company's vision for transportation electrification and how does the proposed portfolio align with that vision?

A. In the long-term, the Company seeks to be a key partner in advancing regional transportation electrification efforts by educating and connecting customers to grow the EV market both through the purchase of EVs and through technical and electrical infrastructure support. These efforts will benefit the grid, and in turn benefit all customers.

Given the current lack of charging infrastructure in Liberty-Empire's service area, the Company seeks to play a more active role in providing EV charging infrastructure that supports the needs of prospective EV drivers in the near-term. The Portfolio aligns with this vision by establishing the foundation of a regional charging infrastructure network, encouraging off-peak charging behavior that supports grid reliability, and raising awareness of transportation electrification efforts in the region. By establishing a baseline level of EV charging infrastructure, Southwestern Missouri becomes better positioned to attract additional private investment. For example, Electrify America's previous investment cycles have prioritized charging

infrastructure deployment in regions where EV adoption and station utilization are expected to grow.[16]

Liberty-Empire also recognizes that the need for EVs extends beyond light-duty passenger vehicles and envisions a holistic program that brings the benefit of electrification to all customer segments including residential, commercial, and industrial customers.

A. On-Road Component Overview

Q. Please provide a summary of the Company's proposed On-Road Component.

A. As discussed earlier in my Direct Testimony, the Company's On-Road Component includes the following programs: the Residential Smart Charge Pilot Program, the Ready Charge Pilot Program, the Commercial Electric Vehicle Rate Pilot, the Fleet Advisory Services Pilot Program, the Commercial Electrification Pilot Program, and the Electric School Bus Pilot Program. The Administrative Component is also critical to the implementation of all the pilot programs in the On-Road Component as it includes resources dedicated to increasing awareness among customers as well as gathering and reporting valuable data collected during these pilot programs. The goal of the On-Road Component is to support the deployment of charging infrastructure in a manner that increases access to electricity as a transportation fuel, encourages beneficial charging behavior, and accelerates the regional EV market.

[16] Electrify America, *National ZEV Investment Plan: Cycle 2*, February 4, 2019, available at https://www.epa.gov/sites/production/files/2019-02/documents/cycle2-nationalzevinvestmentplan.pdf.

i. Residential Smart Charge Pilot

Q. Please provide a description of the Residential Smart Charge Pilot Program.

A. The Residential Smart Charge Pilot Program ("RSCPP") is a voluntary program designed to increase the deployment of smart L2 charging infrastructure in single-family residences in the Company's service area and encourage beneficial EV charging during hours that do not coincide with peak system load. Participating customers will pay a monthly subscription fee that covers the smart L2 charger cost, installation costs, electricity costs associated with EV charging from 9 p.m. to 6 a.m., and networking fees associated with data collection and management. In exchange, the Company will provide turnkey installation of smart L2 charging infrastructure – leveraging the submetering technology embedded in the charging equipment to monitor energy usage – and will own the charging equipment. The use of the smart charger as a submeter avoids the need to install a second meter at the customer's property while still allowing data collection and monitoring of energy usage occurring within and outside of the established periods. This pilot program has the benefit of reducing customer costs by making it less expensive to operate an EV. In response to a recent survey, residential customers identified "a special utility rate to save money on EV charging" as the utility initiative in which they would find the greatest value. The full results of the survey are provided in Schedule RM-7.

Q. What eligible costs if the RSCPP designed to cover?

A. The monthly subscription rate charged to participating customers is designed to cover the costs listed below:

- Smart L2 charging equipment;

- Installation of smart L2 charging equipment;
- Networking, maintenance, and data agreements; and
- Monthly time-based electricity service for EV charging occurring between the hours of 9 p.m. and 6 a.m. daily.

Q. Please describe the L2 charger technology eligibility criteria.

A. L2 chargers deployed in the RSCPP must be new, equipped with a SAE J1772 standard plug, and capable of delivering at least 6.2 kilowatts ("kW") of power to an EV.[17] Chargers must also be network-enabled, capable of delivering station utilization data to the Company, capable of receiving a demand response signal, be ENERGY STAR certified, and listed by a nationally recognized testing laboratory (e.g., UL). The Company will identify one or more qualified vendors that meet the eligibility requirements at the outset of the program launch via a request for proposals.

Q. Please describe the participant eligibility criteria for the RSCPP.

A. Site hosts must be residential account holders that own or lease an EV in Liberty-Empire's service area and commit to keeping the charger installed for at least five years. Residential customers will be limited to one RSCPP smart L2 charger per site. Since chargers will be collecting and sending charging data over Wi-Fi, customers must have reliable access to Wi-Fi. Additional provisions of the RSCPP are included in the draft tariff attached to my direct testimony as Schedule RM-1.

Q. What is the Company's proposed monthly subscription charge for the RSCPP?

[17] This kW rating is standard for many L2 chargers today.

A. The Company proposes that the pilot program subscription rate for customers participating in the RSCPP be set at approximately $40 per month for the five-year duration of the program. This monthly cost is based on calculations using estimated costs for the charging station, installation, operations, the time-based electricity rate, and necessary billing system upgrades. Refer to Schedule RM-8 for these calculations and sources. Compared to the monthly gasoline expenditures of the average residential customer, which is approximately $100 based on the results of the recent customer survey (see Schedule RM-7), the subscription may result in significant savings for the customer. Income-qualified customers will be eligible for a reduced subscription charge of approximately $20 per month.

Q. How does the Company intend to bill customers for EV charging that occurs outside of the hours included in the subscription cost?

A. The subscription fee will cover the cost attributable to time-based EV charging that occurs daily between 9 p.m. and 6 a.m. These windows were selected to reduce coincident demand with Liberty-Empire's system peak across seasons. However, if EV charging occurs during the 6 a.m. to 9 p.m. period, participating customers will be billed $0.25 per kWh of electricity consumed by the smart charger during those hours. This price differential is intended to provide a meaningful price signal to customers in order to shift EV charging to time periods when it provides the most benefit for the grid and other utility customers: during hours that do not coincide with the system peak. Participating residential customers will be billed on their standard residential electricity rate.

Q. How does the Company propose to recover and account for the RSCPP?

A. The monthly subscription charge for participating residential customers will be set at a level to cover the equipment and operational costs associated with the RSCPP. In other words, non-participating customers will not incur costs associated with the RSCPP. However, non-participating customers will likely receive a marginal benefit from increased evening/nighttime-based EV charging that puts downward pressure on electricity rates. This cost recovery proposal is unique relative to other programs in the Company's proposed portfolio because the cost barriers to single-family residential charging tend to not be as significant as other market segments and customers that participate in the RSCPP are expected to be the sole users of their charging equipment.[18] Furthermore, the Company proposes that program costs associated with the purchase and installation of EV chargers, make-ready electrical equipment, networking, maintenance, and data agreements, and necessary billing system upgrades be treated as capital expenditures.

Q. Does the Company intend to collect data via the RSCPP?

A. Yes. To improve understanding of charging behavior and trends, the Company intends to leverage the network capabilities of its qualified L2 chargers to collect and station utilization data for program reporting. The utilization data, which will be anonymized when shared further, will provide insights to the Commission, the Company, and other stakeholders on the use of the stations, the potential for future active demand management, and related grid and environmental impacts.

[18] In the case of other market segments, site hosts themselves may not directly benefit from or use EV charging infrastructure – potentially discouraging deployment of EV charging stations at current adoption levels.

ii. Ready Charge Pilot

Q. Please provide a description of the Ready Charge Pilot Program.

A. The Ready Charge Pilot Program ("RCPP") supports the deployment of smart, network-enabled L2 and DCFC charging infrastructure at publicly accessible locations. To create a turnkey experience for site hosts, establish the foundation of a public charging network in the region, and attract future private investment, Liberty-Empire proposes to deploy, own, and operate the stations in the RCPP. Additionally, to improve understanding of charging behavior and trends, the Company intends to leverage the network capabilities of its chargers to collect and send station utilization data for program reporting. The utilization data will provide insights to the Commission, the Company, and other stakeholders on the use of the stations as well as related grid and environmental impacts.

Q. What eligible costs will the RCPP cover?

A. The RCPP will cover the following costs associated with L2 and DCFC charger deployment:

- Front of the meter distribution system upgrades needed to support EV chargers;
- Site design and engineering costs;
- Behind the meter make-ready infrastructure upgrades including trenching, boring, conduit, wiring, service panel upgrades, switchgear, and mounting pads or pedestals;
- Metering upgrades;
- L2 and DCFC charging equipment;

- Charging service network and maintenance agreements;
- Easements or other real estate leases; and
- Signage.

Costs that are not directly necessary to support the installation of L2 or DCFC chargers will not be covered.

Q. Please describe the L2 charger technology eligibility criteria.

A. L2 chargers deployed in the RCPP must be new, equipped with a SAE J1772 standard plug, and capable of delivering at least 6.2 kW of power to an EV. Chargers must also be network-enabled, capable of delivering station utilization data to the Company, capable of receiving a demand response signal, accept multiple forms of payment, be ENERGY STAR certified, listed by a nationally recognized testing laboratory (e.g., UL), and must adhere to open communication standards that support interoperability. Liberty-Empire intends to select up to three network service providers as qualified vendors at the outset of the RCPP launch via a competitive solicitation. The vendor(s) will offer at least one L2 charger that meets eligibility criteria.

Q. Please describe the DCFC charger technology eligibility criteria.

A. Fast chargers procured for the RCPP must be new, capable of delivering at least 50 kW of power, and include both SAE CCS Combo and CHAdeMO standard plugs. These plug standards are able to serve virtually all commercially-available battery electric vehicles, providing choice and flexibility for customers. DCFC chargers in the RCPP must be networked and capable of sending station utilization data to the Company. Qualified DCFC chargers must also accept multiple forms of payment and must be listed by a nationally recognized testing laboratory. The Company intends to

select up to three network service providers as qualified vendors at the outset of the RCPP launch via a competitive solicitation. The vendor(s) will offer at least one DCFC that meets eligibility criteria.

Q. Please describe the site host eligibility requirements for the RCPP and how it supports the use and usefulness of EV charging assets.

A. To ensure that EV chargers deployed in the RCPP are used and useful, they must be publicly accessible and shared use. In other words, EV chargers in the RCPP will not be dedicated for use by one particular vehicle or customer. Additionally, to take advantage of cost efficiencies from deploying multiple plugs at a site, participating site hosts will be required to deploy a minimum of two stations using a combination of dual-port L2 and/or DCFC chargers. Site hosts will permitted to deploy a maximum of three dual-port L2 stations or three DCFC chargers per site.[19] For L2 chargers, priority will be given to site hosts where vehicles are often parked for long periods of time, including: colleges and universities, municipally-owned parking structures, and retail locations. For DCFC chargers, priority will be given to sites adjacent to or in close proximity to highway corridors or to hosts where vehicles are often parked for short periods of time in heavily trafficked areas, including: grocery stores, gas stations, shopping centers, and municipally owned parking structures. Fleets and workplace charging are not a focus area of the RCPP and are covered in the Fleet Advisory Services Pilot Program and Commercial Electrification Pilot Program.

[19] The RCPP does not prohibit site hosts from deploying additional charging infrastructure at the time when RCPP-facilitated stations are being deployed. However, the costs of those additional EV chargers will not be covered by the RCPP.

Q. What does the Company intend to charge customers for the use of EV chargers facilitated by the RCPP?

A. Liberty-Empire wants to ensure that either the RCPP charger users or site hosts pay for the costs associated with providing the electricity to the charger, at a rate that is competitive with existing charging stations in the area. To this end, public users of the RCPP-facilitated chargers will be charged a fee based on the kWh dispensed from the unit, at a rate of $0.20 per kWh for L2 stations and $0.25 per kWh for DCFC. These fees match the approved rates for Evergy's Clean Charge Network stations in Missouri. Site hosts will have the option to choose one of two billing options for RCPP-facilitated chargers: (1) The site host pays the kWh Energy Charge plus applicable taxes and fees and is billed directly through the Company, or (2) the charging station user pays the kWh Energy charge plus applicable taxes and fees and is billed directly through a third-party network service provider. As noted earlier, the Company intends to select at least one network service provider to provide third-party vendor services and this vendor will facilitate billing of charging station users. RCPP-facilitated chargers must be equipped to accept multiple forms of payment from public users.

Q. What other measures is Liberty-Empire taking to mitigate costs associated with the RCPP?

A. To improve site selection and reduce program costs, the Company proposes that site hosts that enroll in the RCPP pay a one-time participation payment. The payment should not be so high as to discourage prospective site hosts from participating in the program. However, it should reaffirm the site hosts' interest and commitment to

hosting EV chargers that will support broader EV adoption in the region. For those reasons, Liberty-Empire proposes that for L2 chargers, the fee is $250 per plug, which is approximately 10% of the equipment cost (per port); and that for DCFC chargers, the fee is $500 per plug. The L2 participation fee is approximately 10% of the equipment cost, per port. The DCFC participation fee is a smaller percentage of the equipment cost but still intended to ensure site host commitment.

Q. What measures is the Company taking to incorporate equity considerations into the RCPP?

A. Chargers installed through the RCPP have the potential to serve all customers as they will be available to the public. Residential customers, including those in multi-family dwellings, without access to home charging can use RCPP chargers.

To help ensure that the benefits of the RCPP and transportation electrification are extended to all communities, Liberty-Empire proposes that the participation fees be waived for (1) Minority or Women Business Enterprises (M/WBE) certified by the Missouri Office of Equal Opportunity or (2) non-profit organizations. Disadvantaged companies will be determined by their inclusion in the Missouri Office of Equal Opportunity Minority/Women Owned Business (M/WBE) directory. [20] A Minority Business Enterprises is a business that is at least 51% owned and controlled by one or more minority persons. A Woman Business Enterprise is a business that is at least 51% owned and controlled by a woman. A racial minority is, for the purposes of the State of Missouri's MBE program, defined as individuals who are Black, American

[20] See https://oeo.mo.gov/oeo_certifications/.

Indian, Hispanic, Asian American and other similar racial minority groups as per RSMo. §33.750.

Q. What is the proposed budget for the RCPP?

A. Liberty-Empire's proposed budget for the RCPP is $2.9 million. The Company anticipates that, when considering reduced costs from the site host participation payment, the budget will enable the deployment of 50 dual-port L2 chargers and 15 DCFC chargers across approximately 25 sites. The Company anticipates many of the sites installing DCFC will also install L2 chargers.

iii. Commercial EV Rate Pilot

Q. Please describe the Commercial Electric Vehicle Rate and how it relates to the RCPP and other proposed programs.

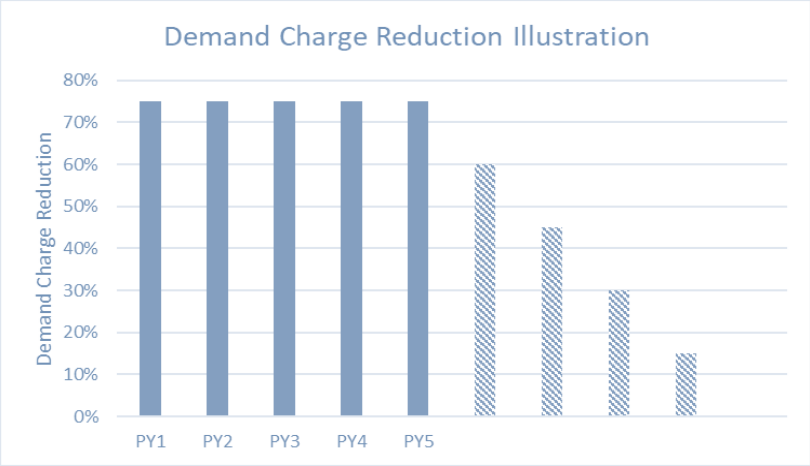
A. The Company proposes a new voluntary Commercial Electric Vehicle ("CEV") Rate Pilot that applies to EV chargers at commercial customer sites and reduces the maximum distribution demand charge resulting from chargers' contribution to customers' facility service and metered load. The demand charge rate will reduce demand charges up to 75% of the billing demand contribution of new DCFC and L2 chargers for a minimum of 5 years. For example, an eligible 60 kW DCFC charger would be billed for 15 kW of demand under the Company's current commercial rates. Applicable Commercial & Industrial tariffs for customers with over 40 kW demand include General Power Services (Schedule GP), Total Electric Building Service (Schedule TEB), and Large Power Services (Schedule LP). There are two types of demand charges on each respective rate schedule: billing demand and facilities

demand. Billing demand is determined from the highest fifteen-minute integrated kilowatt demand registered during the month by a suitable demand meter. Facilities demand is determined by a comparison of the current month's metered demand and the metered demand recorded in each of the previous 11 months. If there are less than 11 previous months of data, all available data from previous months will be used. The demand rate will be based on billing demand. EV chargers deployed in the RCPP are not eligible to participate in the CEV Rate.

Q. What is the Company's intent with respect to the CEV Rate after the five-year pilot period?

A. Liberty-Empire seeks to further evaluate how it can support private investment in high-capacity EV charging infrastructure in a manner that aligns with cost-causation principles. Simply terminating the CEV Rate Pilot after five years and returning to current commercial rates for high-capacity EV charging infrastructure does not provide the market with a consistent long-term signal that encourages market growth. Given the inherent uncertainty in determining how customers will respond to the CEV Rate Pilot, the Company plans to closely monitor customer uptake of the rate over the five years of the pilot to determine how it can modify its approach to encourage EV charging infrastructure deployment. Figure 1 illustrates how the percent reduction might phase out over time after the pilot period.

Figure 1 – Example of CEV Rate Phase-Out



Q. Please describe the eligibility criteria for participation in the CEV Rate Pilot.

A. The intent of the CEV Rate is to improve the economics for customers paying for the energy delivered to EVs through charging stations, particularly higher powered DCFC stations. To ensure that the CEV Rate is supporting stations that are useful to customers, any DCFC charger participating in the CEV Rate must be able to deliver at least 50 kW of power. Grocery stores, gas stations, shopping centers, and municipally owned parking structures are ideal locations for public DCFC stations – particularly if they are located near major highway corridors or other highly trafficked areas. EV chargers participating in the CEV Rate must be separately metered. Only EV charging loads at the customer's site will be eligible for the CEV Rate; non-EV loads are ineligible.

Q. Why are the DCFC chargers and L2 chargers in the RCPP ineligible to participate in the CEV Rate Pilot?

A. RCPP chargers are ineligible to participate in the CEV Rate Pilot because they are intended to be owned and operated by the Company. Recognizing that the Company has a role in both providing foundational infrastructure to support EV adoption and

encouraging investment from third-party sources, Liberty-Empire seeks to make the CEV Rate available to support customer operation of charging stations, including stations installed as part of the Commercial Electrification Pilot Program and the Electric School Bus Pilot Program.

iv. Fleet Advisory Services Pilot

Q. Please describe the Fleet Advisory Services Pilot Program.

A. The Fleet Advisory Services Pilot Program ("FASP") is intended to provide technical assistance to approximately 10 commercial customers that are interested in transitioning some or all of their fleet vehicles to EVs. This offering does not provide incentives for charging infrastructure or equipment. Rather, it provides an opportunity for commercial customers to receive greater assistance to understand the vehicle, infrastructure, and fueling considerations associated with electrifying their light, medium, and heavy-duty vehicle fleets, as well as with providing workplace charging for employees. This technical assistance will provide fleets with greater insight on managing fuel costs based on the Company's existing commercial rates and charging in a manner that provides grid benefits. Additionally, the assistance will support customers seeking to identify and pursue alternative funding to electrify their fleets. This program includes total cost of ownership modeling, quantifying pre- and post-emissions levels, site and infrastructure cost estimates, and funding application support for customers. Based on key findings from Liberty-Empire's recent survey of key account customers (see Schedule RM-7), the Company recognizes a need to provide customers with information that includes available incentives, physical site

evaluation for infrastructure needs, fleet vehicle use and drive pattern evaluation, and evaluation of charging infrastructure utilization or needs, among other aspects.

Q. Which market segments are served by the FASP?

A. The FASP is intended for the Company's commercial customers with fleets of at least five on-road vehicles that are based within the Company's service area. Priority will be given to government and public fleets looking to electrify their vehicles, including transit agencies and city fleet departments.

Q. What eligible costs is the Fleet Advisory Services Pilot Program designed to cover?

A. The FASP is designed to cover the cost associated with completing individual fleet-level studies to assess the performance, cost, and infrastructure requirements associated with transitioning from internal combustion engine vehicles to plug in hybrid and battery electric vehicles. These studies will include an identification of vehicles best suited to be replaced with EVs based on a total cost of ownership analysis, an action plan to implement the recommendations highlighted in the study, and identification of opportunities to offset cost associated with vehicles and charging equipment. This program offering does not provide incentives for charging infrastructure, but customers may seek to install infrastructure for fleet or workplace charging purposes through other Company programs.

Q. What is the proposed budget for the FASP?

A. Liberty-Empire proposes a budget of $200,000 for the FASP. The Company estimates it can complete approximately 10-15 fleet assessments based on similar program's budgets. Similar programs are discussed in Ms. Noblet's testimony.

v. Commercial Electrification Pilot

Q. Please describe the Commercial Electrification Pilot Program.

A. The Commercial Electrification Pilot Program ("CEPP") proposes to provide the infrastructure necessary to electrify fleets and private workplaces in Liberty-Empire's service area. The CEPP will provide for the deployment of smart L2 charging infrastructure. Similar to the RCPP, the Company proposes to deploy, own, and operate the charging stations. Results from Liberty-Empire's recent survey (see Schedule RM-7) of key accounts revealed that one of the top factors that would increase a fleet customer's interest in EVs is the installation of charging equipment by the Company.

Q. Please describe the relationship between the CEPP and the FASP.

A. While the FASP is intended to serve as an initial step for commercial customers that are interested in exploring the potential to transition to EVs and install EV charging infrastructure, the CEPP is tailored to commercial customers that are interested in deploying or expanding existing charging infrastructure. Commercial customers that participate in the FASP are eligible to participate in the CEPP provided that program funding is available. The CEPP is intended to support L2 charging infrastructure at fleet yards and workplaces with parking areas that are not accessible to the public (e.g., office parks or private workplace garages for employees). Consultations taking place as part of FASP may lead to customer participation in CEPP.

Q. What eligible costs is the CEPP designed to cover?

A. The CEPP will include the following costs associated with fleet or workplace L2 charger deployment:

- Front of the meter distribution system upgrades needed to support EV chargers;
- Site design and engineering costs;
- Behind the meter make-ready infrastructure upgrades including trenching, boring, conduit, wiring, service panel upgrades, switchgear, and mounting pads or pedestals;
- Metering upgrades;
- L2 charging equipment;
- Charging service network and maintenance agreements;
- Easements or other real estate leases; and
- Signage.

Costs that are not directly necessary to support the installation of L2 chargers will not be covered.

Q. Please describe the L2 charger technology eligibility criteria.

A. Liberty-Empire will conduct an open solicitation process through which it will select and enter into an agreement with at least one qualified vendor or vendors to provide charging equipment installed through the program. CEPP-facilitated charging infrastructure must be new, equipped with a SAE J1772 standard plug, capable of delivering at least 6.2 kilowatts (kW) of power to an EV, network-enabled, capable of delivering station utilization data to the Company, and capable of receiving a demand response signal. All CEPP-facilitated chargers must be ENERGY STAR-certified, listed by a nationally recognized testing laboratory (e.g., UL), and must adhere to open communication standards that support interoperability.

Q. Please describe the site host eligibility requirements for the CEPP and how it supports the use and usefulness of charging assets.

A. Participating customers must operate a light, medium, or heavy-duty on-road vehicle fleet and/or have privately accessible workplace parking located in Liberty-Empire's service area. To reduce per-plug deployment costs, fleets and workplaces must also commit to the deployment of at least two dual-port L2 chargers. Liberty-Empire will assess each potential project in coordination with customers to ensure that stations are being installed at locations where they are used and useful. Customers will be limited to 10 CEPP-facilitated chargers per site. Electricity used to refuel fleet or workplace EVs will be billed on the customer's existing commercial service rate. The Company does not preclude the participating customer from installing additional EV charging infrastructure while CEPP infrastructure is deployed. However, these additional costs will not be covered by the CEPP.

Q. What other measures is the Company taking to mitigate costs associated with the CEPP?

A. To improve site selection and reduce program costs, the Company proposes that site hosts that enroll in the CEPP pay a one-time participation payment. Similar to the RCPP, the payment should not be so high as to discourage prospective site hosts from participating in the program. However, it should reaffirm the site hosts' interest and commitment to hosting EV chargers that will support broader EV adoption in the region. Liberty-Empire proposes that for L2 chargers, the fee is $250 per plug, which is approximately 10% of the equipment cost per plug.

Q. What measures is the Company taking to incorporate equity into the CEPP?

A. To help ensure that the benefits of the CEPP and transportation electrification are extended to all communities, M/WBEs certified by the Missouri Office of Equal Opportunity and non-profit organizations will qualify for a waiver of the $250 per plug participation fee.

Q. What is the proposed budget for the CEPP?

A. Liberty-Empire proposes a budget of $775,000 for the CEPP. The Company anticipates that the budget will enable the deployment of 50 dual-port L2 chargers in the Company's service area.

vi. Electric School Bus Pilot

Q. Please describe the Electric School Bus Pilot Program.

A. The Electric School Bus Pilot Program ("ESBPP") proposes to provide charging infrastructure necessary to support the operation of electric school buses at school districts within Liberty-Empire's service area. The ESBPP will deploy smart L2 charging infrastructure depending on the operational needs of the participating school districts. This charging infrastructure, including the chargers, will be owned and maintained by the Company – reducing administrative and operational burdens for school districts by offering a turnkey deployment while allowing for the Company to more easily evaluate the energy storage potential of the school bus batteries. Specifically, the batteries could be used to further integrate renewable energy onto the electricity system and enhance the reliability of the grid by modifying charging during peak periods. Given the roles many schools play as emergency shelters for the community, the bus batteries could provide power on-site in the event of a long-term

power outage or be deployed elsewhere. Participating customers will take service on the applicable commercial service rate.

Q. Please provide a brief summary of the electric school bus market in Liberty-Empire's territory.

A. Based on Missouri vehicle registration data and the Missouri State Highway Patrol's 2018 Annual School Bus Inspection Reports, the Company estimated the current population of school buses within Liberty's territory to be approximately 1,300. However, to the best of our knowledge, there are currently no electric buses in use by schools in the territory.

Q. What eligible costs are included in the ESBPP?

A. The ESBPP is designed to cover the following costs related to the deployment of school bus chargers:

- Front of the meter distribution system upgrades;
- Site design and engineering costs;
- Behind the meter make-ready infrastructure upgrades including trenching, boring, conduit, wiring, service panel upgrades, switchgear, and mounting pads or pedestals;
- Metering upgrades;
- L2 charging equipment;
- Charging service network agreements;
- Easements or other real estate leases; and
- Signage.

Costs that are not directly necessary to support the installation of L2 chargers will not be covered.

Q. Please describe the L2 charger technology eligibility criteria.

A. The Company will conduct an open solicitation process through which it will select and enter into an agreement with at least one qualified vendor or vendors to provide charging equipment installed through the program. ESBPP-facilitated charging infrastructure must be new, equipped with a SAE J1772 standard plug, capable of delivering at least 6.2 kilowatts (kW) of power to an EV, network-enabled, capable of delivering station utilization data to the Company, and capable of receiving a demand response signal. All ESBPP-facilitated chargers must be ENERGY STAR-certified, listed by a nationally recognized testing laboratory (e.g., UL), and must adhere to open communication standards that support interoperability.

Q. What other measures is Liberty-Empire taking to mitigate costs associated with the ESBPP?

A. To reduce program costs, the Company proposes that school districts that enroll in the ESBPP pay a one-time participation payment. Like the other participation payments proposed as part of the Portfolio, the Company believes the payment should not be so high as to discourage prospective school districts from participating in the program. However, it should reaffirm the customers' interest and commitment to fleet electrification. Liberty-Empire proposes that for L2 chargers, the fee is $250 per plug, which is approximately 10% of the equipment cost per plug. Liberty-Empire proposes that this participation fee be waived for non-profit organizations.

Q. What is the proposed budget for the ESBPP?

A. Liberty-Empire proposes a $266,000 budget for the ESBPP, which it believes will enable the deployment of up to 20 dual-port L2 chargers and associated make-ready infrastructure at a minimum of two sites.

Q. Does the Company propose to incorporate any budget flexibility across the pilot programs within the On-Road Component?

A. Yes. Liberty-Empire recognizes that the EV market continues to evolve and that flexibility is required to support EV adoption in a manner that provides customer benefit. For these reasons, the Company proposes that up to 10% of total On-Road Component budget be able to be reallocated amongst on-road programs as needed, which is consistent with the Company's energy efficiency programs.

Q. Are there available alternative funding sources for the equipment the Company intends to support through the On-Road Component?

A. The Volkswagen Mitigation Trust, specifically the Missouri Beneficial Mitigation Plan[21], intends to fund DCFC and L2 infrastructure along major corridors in the state. The sites identified for this funding for Phase 1 resulted in one location in Liberty Utilities territory, in Joplin at the intersection of I-44 and I-49. The Company has applied for grant funding for this site in response to the EV Infrastructure Request for Applications on July 15, 2020. However, one location in our service territory is not enough to ensure a minimum practical network of charging infrastructure. Should there be funding available for Phase 2, a second location has been identified within the Company's territory in or close to Branson which would serve travel from Branson

[21] See the Missouri Department of Natural Resources website, https://dnr.mo.gov/env/apcp/vw/readvwplan.htm.

to Kansas City. The EV Collaborative, of which I am a part, has further indicated that statewide planning and additional utility involvement will be needed to ensure access to public charging outside of the major metropolitan areas. Given that DCFC infrastructure outside of St. Louis and Kansas City is very sparse, there is a need. Additionally, the merits of the proposed Ready Charge Pilot Program extend beyond the simple provision of charging infrastructure. Owning and operating this equipment will allow Liberty-Empire to gain insight into charging and operational habits for future applications.

In addition, while the Volkswagen Mitigation Trust and the Diesel Emissions Reduction Act offer grant funding for the acquisition of clean school buses, they do not fill the need served by the proposed Electric School Bus Pilot Program for charging infrastructure. The company-owned and operated infrastructure in this pilot will allow Liberty-Empire to gain valuable insight and operational data to determine how EV batteries can be used to support flexibility and grid reliability through future vehicle-to-grid integration.

B. Non-Road Component Overview

Q. Please provide a summary of the Company's proposed Non-Road Component.

A. The Liberty-Empire Non-Road Electrification Component includes marketing, technical support, and incentives to encourage adoption of qualifying electric technologies. These technologies would otherwise be powered by gasoline, diesel, or propane fuel, and include electric forklifts, truck refrigeration units, truck stop electrification, agricultural wells, and custom equipment.

Q. What equipment measures are included in the Company's proposed Non-Road Component?

A. The equipment measures within Liberty-Empire's proposed Non-Road Program include the following technologies: electric forklifts, truck refrigeration units, truck stop electrification, agricultural wells, and custom equipment. In addition, the program includes financial incentives for customers and some dealers, an awareness campaign, technology specific collateral, promotional events, a program website that will show benefits of included technologies, and technical and financial assessment tools to help customers evaluate electric equipment versus alternative fuels. Additional program services include local account managers to provide technical and application support to customers, dealers, and other stakeholders as well as data tracking, reporting and equipment verification.

Q. What customer equity provisions is the Company proposing for the Non-Road Program?

A. The program will include increased incentives for companies designated as M/WBE businesses. Certified M/WBE businesses will be offered a 20% increased incentive for equipment measures.

i. <u>Prescriptive Equipment</u>

Q. Please describe the prescriptive equipment measures included in Liberty-Empire's Non-Road Program.

Forklifts are primarily used for lifting and moving heavy loads. They are commonly found in facilities such as distribution warehouses and shipping depots. Forklifts may

be charged by one of two methods – conventional charge (8 hours daily charge) or rapid/opportunity charge (1-2 hours charge daily, with a weekly 8-hour equalization charge).

Truck Refrigeration Units (TRUs) are used by food distribution and cold storage companies to maintain temperature in trailers. On-road power typically comes from onboard auxiliary diesel engines. Electric standby or "E/S TRUs" can maintain temperatures overnight or while loading/unloading (as opposed to idling a diesel engine during those times). TRUs sold today are capable of operation using diesel fuel or by plugging in to electric infrastructure.

Truck Stop Electrification (TSE) provides infrastructure for heavy duty trucks to connect to the grid to charge or power cab appliances while parked temporarily or overnight, rather than idling a diesel engine.

Agricultural well conversion is the process of converting diesel irrigation well pumps to electric.

Q. Which market segments are served by these equipment measures?

A. The **forklift** equipment measure serves commercial and industrial customers, including customers in the manufacturing, wholesale and retail trade, and warehousing sectors. The electric **TRU** equipment measure serves commercial customers in the trucking sector. The **TSE** equipment measure intends to serve commercial trucking customers both at public truck stops and travel centers, as well as in warehouses and shipping depots. The **agricultural well conversion** equipment measure will serve commercial agricultural customers. Ms. Coletti's expert witness testimony provides

additional details about the approximate size of the market for these non-road technologies in Liberty-Empire's service territory.

Q. What is the proposed budget for the Non-Road Program?

A. The total proposed budget for Liberty-Empire's proposed 5-year Non-Road Program is $5,092,865, which includes custom and prescriptive equipment. Ms. Coletti's testimony will provide additional details about the proposed budget for Liberty-Empire's Non-Road Program.

Q. What eligible costs of these equipment measures is the Non-Road Program designed to cover?

A. The Non-Road Program will offer incentives to cover a portion of the cost of the equipment and charging infrastructure. These incentives are listed in detail in Table 2.

Table 2. Non-Road Prescriptive Incentives

Equipment Measure	Incentive
Forklifts	$2,500 (propane/diesel replacement); $700 (new equipment or fleet expansion)
TRU Infrastructure	$900 (230V Box Trucks); $4,200 (480V Trailer Units)
TSE Infrastructure	$2,300
Well Conversion Projects	$5,000

ii. <u>Custom Equipment</u>

Q. Please describe the custom equipment measure.

A. The custom equipment measure encompasses any commercial or industrial electrified equipment not included in the list of prescriptive equipment measures. Custom equipment measures will be evaluated by account managers on a case-by-case basis.

Q. Which market segments are served by the custom equipment measure?

A. The custom equipment measure serves all commercial and industrial customers.

Q. What eligible costs of the custom equipment measure will the program cover?

A. The custom equipment measure will cover a portion of the cost of custom equipment and charging infrastructure dependent on equipment type and kWh. The incentive amount will be $0.10 per kWh, based on the anticipated electric equipment's annual load, and capped at a maximum of 75% of the total project cost.

C. Administrative Component Overview

Q. Please summarize the Administrative Component of the Company's proposed Portfolio.

A. The Administrative Component of the proposed Portfolio is critical to the customer awareness-building, implementation, evaluation, and reporting of the pilot programs within the Portfolio. It is composed of three parts.

- *Customer Education & Outreach* – supports Portfolio-wide education & outreach (E&O) activities to increase customer enrollment and encourage beneficial charging of EVs.
- *Annual Reporting & Evaluation* – enables the data collection, analysis, and reporting of key portfolio metrics to the Commission and interested stakeholders.

- *Program Implementation* – supports the set-up, launch, and on-going implementation of the transportation electrification portfolio.

Q. Please describe Liberty-Empire's approach to customer education and outreach across the Portfolio.

A. Customer E&O remains critical for growing awareness of EVs and accelerating the EV market. Many customers may be unaware of or have outdated knowledge of EV range and performance, electric fuel costs, charging station locations, and model availability. Additionally, while several other states have active non-profit or member-based organizations to raise awareness of transportation electrification, Liberty-Empire is not aware of any comparable organizations or initiatives in Missouri.[22] While it is not the sole responsibility of the Company to inform customers of the benefits of transportation electrification, Liberty-Empire agrees with the consensus identified in the Staff Report from docket EW-2019-0229 that "enhanced customer education is a must."[23]

The Company is well-positioned to provide E&O in two key areas: Portfolio program offerings and the use of electricity as transportation fuel. Communicating the Company's program offerings to potential participants is a necessary element of successful customer facing programs. Particular focus should be invested in low-income and disadvantaged communities where barriers to transportation

[22] *Forth Mobility* is a non-profit organization comprised of EV charging companies, automakers, government agencies, and other groups that advances EV initiatives in the Pacific Northwest. *Veloz* is a similar organization that communicates the benefits of vehicle electrification in California. *Drive Electric Vermont* is a coalition-based initiative led by the Vermont Energy Investment Corporation that provides tools for residents to transition to EVs.
[23] *Staff Report*, Case No. EW-2019-0229, Filed September 30, 2019

electrification access may be greater than other areas. Additionally, the Company can leverage its role as an electric distribution utility by helping customers understand the interaction between EV charging behavior, electric rates, and grid impacts. This focus on EV charging complements the Company's responsibility to manage the local electricity system and serve as a trusted regional energy advisor.

The Company proposes to engage customers on its Portfolio program offerings and EV charging information across a variety of strategies aimed at maximizing customer awareness, including:

- Updates to feature EV-related content on Liberty-Empire's landing page;
- Development of outreach materials for social media (e.g., Liberty Twitter, Facebook, and LinkedIn accounts) and paid media (e.g., promoted content on social media, other webpages, newspapers, radio, and local billboards);
- Fact sheets, handouts, and brochures that target specific customer segments with relevant information (e.g., workplace charging benefits for employers);
- Customer bill inserts on available program offerings;
- Engagements and educational collateral at local public events;
- Licensing of existing EV marketing materials;
- Technical and financial assessment tools; and
- Sales training and collateral materials for area dealers.

Q. What is the proposed budget for the Company's customer education and outreach effort?

A. Liberty-Empire proposes a budget of $400,000 for E&O across the Portfolio and over the 5-year period, with a majority of that funding allocated to the On-Road Component

since the Non-Road Component budget includes some awareness-building and outreach activities. The Company seeks flexibility to tailor education and outreach efforts in a manner that optimizes uptake of Portfolio pilot program offerings. For example, if one pilot program offering is relatively undersubscribed compared to others, the Company can modify its customer engagement approach to increase customer participation for that specific pilot program.

Q. Please describe the Company's approach to reporting and evaluation across the Portfolio.

A. The implementation of the proposed Portfolio of pilot programs will generate valuable insight to help shape future programs the Company may pursue, particularly those focused on EV charging dynamics in the region. Liberty-Empire is committed to sharing information and lessons learned by proposing to develop annual reports that will review the status of the Portfolio implementation. The reports will be publicly available and submitted to the Commission. Aside from providing updates on program uptake, the Company intends to leverage the network capabilities of installed EV charging infrastructure to provide a more detailed overview of how EV charger utilization changes over time and across market segments. These insights will be critical for understanding strategies to manage future EV loads and developing future transportation electrification offerings that meet the needs of Liberty-Empire's customers. At a minimum, the Company plans to include the following information in its annual reports:

- Overview of Portfolio implementation status to date;
- Number and type of participating site hosts by program;

- Number of participating M/WBE and non-profit organizations by program;
- Number and type of chargers deployed by program;
- Number and type of non-road equipment by measure;
- Total, time-based kWh for deployed measures;
- Costs incurred compared to budgeted by program;
- Station utilization data, including kWh dispensed;
- Avoided greenhouse gas and NOx emissions;
- Updates on E&O activities; and
- Opportunities, challenges, and lessons learned.

Also, as part of the reporting and evaluation activities, the Company will survey participants (including residential customers driving EVs and charging station site hosts) to gather information about the impact of Liberty-Empire's pilot programs. The Company recognizes the importance of demonstrating how these pilot programs and related investments are shaping customer behavior, purchasing decisions, and energy use.

Q. What is the proposed budget for the Company's annual reporting and evaluation activities across the portfolio?

A. Liberty-Empire proposes a budget of $100,000 to complete anticipated annual reporting requirements for five years.

Q. Please describe the Company's approach to implementation of the pilot programs in the Transportation Electrification Portfolio.

A. Implementation will include activities to stand up, launch, and run the proposed pilot programs for a period of five years. These will be closely coordinated with the

education, outreach, reporting, and evaluation described above. Liberty-Empire anticipates pilot program implementation will include, but not be limited to: pilot program integration and operationalization; site host and rebate application and online intake portal development and management; application review and processing; pilot requirements, terms, and conditions development; charging vendor coordination; related customer service (both for interested customers and participating customers); construction project management for utility-owned charger installations; pilot program tracking; and ongoing internal coordination across operating groups.

Q. What is the proposed budget for Liberty-Empire's implementation activities?

A. The Company proposes a budget of approximately $850,000 to set up and implement the proposed on-road pilot programs for a period of five years. This budget was estimated based on 15% of the total cost of the On-Road Component (including associated education and outreach, reporting, and evaluation); the Non-Road Component budget already includes program delivery.

V. MARKET ANALYSIS

Q. Please describe the market analysis performed in support of the Liberty-Empire's proposal.

A. Liberty-Empire's expert consultant for this matter, ICF, conducted a market assessment and cost benefit analysis for the transportation electrification portfolio. The on-road market analysis included an assessment of the existing and projected EV annual sales, population, and charging infrastructure in Liberty's service territory. Additional detail around the on-road assessment and analyses are included in Ms.

Noblet's Direct Testimony filed herein on behalf of Liberty-Empire. The non-road market analysis estimated the existing convertible potential and baseline electric populations for forklifts, truck refrigeration units, truck stop electrification, exemplary custom measures (cranes and drayage trucks), and agricultural well pumps within Liberty-Empire's service territory. Additional detail around the non-road assessment and analyses are included in Ms. Coletti's Direct Testimony.

VI. COST AND REVENUE TRACKING

Q. Please describe the cost and revenue tracking methods proposed by the Company in relation to the proposed Portfolio of transportation electrification pilot programs and initiatives.

A. The Company proposes to isolate and track all costs and revenues related to the Portfolio, with net costs allowed to be reclassified as a regulatory asset and recovered in rates in the future. The Company is seeking accounting authority to defer and amortize these costs over a period of eight years to align with the average expected life of the assets.

Q. What are the advantages of seeking regulatory asset treatment for costs related to the proposed Portfolio?

A. Regulatory asset treatment has the advantage of spreading the recovery of program costs and the cost of capital over the life of the assets, which smooths rate impacts for customers. As the Commission has noted with regard to Ameren Missouri's transportation electrification proposal, "deferring the program cost recovery also serves to 'sync up' the costs of the program with the benefits or revenues of the added

load and provides 'a smoother pattern of rate impacts to' ratepayers. This is a benefit to the ratepayers."[24]

Other regulatory commissions have supported the use of regulatory assets for transportation electrification expenses, including the Michigan Public Service Commission. From its Order in response to DTE's application for the Charging Forward EV Program, "Overall, the Commission finds that regulatory asset treatment, as proposed by the Staff, is the most reasonable and prudent recovery mechanism. Regulatory asset treatment balances the company's interest with customer protection, by not requiring customers to pay for expenses that may not be incurred and by allowing the company to recover the actual costs incurred."[25]

VII. CONCLUSION

Q. Please summarize the purpose of your Direct Testimony and the goals of the proposed Portfolio.

A. I provided an overview of the proposed portfolio of transportation electrification pilot programs and the associated benefits, a brief history of Liberty's experience in transportation electrification to date, and our vision for future programs and offerings.

The proposed pilot programs are designed to address key barriers to increased transportation electrification in the Liberty-Empire territory. Our customers have a basic level of awareness about EVs and technologies, but we seek to build customer

[24] *Report and Order*, Case No. ET-2018-0132, Issued February 6, 2019. Available at: https://www.efis.psc.mo.gov/mpsc/commoncomponents/view_itemno_details.asp?caseno=ET-2018-0132&attach_id=2019011427.
[25] Michigan Public Service Commission Order, Case No. U-20134, Filed May 2, 2019. Available at: https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t0000004SM3yAAG.

understanding. The Company also seeks to complement, but not duplicate, efforts underway to install EV charging stations funded by Volkswagen Settlement funding, both via the State Beneficiary Mitigation Plan and Electrify America.

Because these are designed as pilot programs, the Company seeks to gather data and customer insight to better understand the local EV charging dynamics, including charging behavior and consumer response to price signals. As the number of EVs in the service territory increases, it will be imperative that the Company have a way to monitor charging, encourage customers to shift charging to off-peak periods, and gauge the effectiveness of the utility's programs and initiatives.

Q. Does this conclude your Direct Testimony?

A. Yes.

VERIFICATION

I, Robin McAlester, under penalty of perjury, on this 29th day of November, 2020, declare that the foregoing is true and correct to the best of my knowledge and belief.

_____/s/ Robin McAlester_____