BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Approval of Efficient Electrification Program.	)))	File No. ET-2018-0132

AMEREN MISSOURI'S REPLY BRIEF

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COMES NOW Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or "Company") and for its *Reply Brief*, states as follows:

I. Introduction

This case presents the Missouri Public Service Commission ("Commission") an opportunity to approve a modest, pilot-scale program to address the need for EV[1] charging infrastructure and to jump start efficient electrification in a way that is beneficial to customers, the environment, and the Company. It also represents a choice for this Commission. That choice is centered on what type of utility programs can and should be offered by utilities. Some parties would have the Commission limit utilities to a narrow definition of acceptable utility programs that is backwards looking and ignores the significant changes taking place in the utility business, including the changing needs of utility customers. The Commission should show its support for programs such as those proposed in this case by approving both the EV program and the Business Solutions program with the modifications outlined in both the Company's initial brief and in this reply brief.

The proposal before the Commission is a modest one, with annual costs of approximately one-tenth of one percent of Ameren Missouri's annual revenue requirement. It is also limited in

[1] Terms or phrases defined in the Company's initial brief have the same meaning in this reply brief.

duration to five years. And the record strongly supports the conclusion that the benefits of these programs exceed the costs, for all customers. The holistic approach to the development of EV charging infrastructure will meet the changing service needs of customers and increase beneficial EV adoption, leading to more charging (at charging stations and at owners' homes), with the evidence in this case strongly supporting the conclusion that the charging will more than pay for the program costs and will contribute net revenues for the benefit of all customers for years to come. The same is true of the off-road efficient electrification. This program will bring benefits worth 1.81 times every dollar spent on program costs. Additionally, both programs provide major environmental benefits. EVs significantly lower NOx emissions and modestly reduce CO2 emissions, even when powered by the Company's existing generation mix. And the emission reductions for both of these categories will multiply as the Company adds additional new renewable generation to its resource mix. Electric equipment like that eligible for the Business Solutions program also provides these kinds of environmental benefits, and both programs cover technologies with zero local emissions – at street level or in factory or warehouse settings – which improves health and comfort of drivers, passengers, pedestrians, and workers. Safer workplaces also result from these technologies by avoiding the impacts of spilled petroleum products and reducing noise pollution. Both programs also promote the type of flexible loads that can help integrate distributed, renewable, and intermittent resources, making them foundational to the effort to build the electric grid of the future.

Importantly, these programs are consistent with state policy. The Missouri Comprehensive State Energy Plan[2] specifically calls out the importance of utility involvement in supporting and promoting electric vehicles and, as pointed out in the Company's initial brief,

[2] Ex. 2 (Justis Direct), p. 9, ll. 12-21 (citing to the Missouri Comprehensive State Energy Plan).

DED continues to hold the view that utility involvement in developing charging infrastructure is needed to meet the needs of Missourians in utilizing EVs. Utility commissions in other states have reached the same conclusion, and the evidence in this case, discussed in detail in the Company's initial brief, demonstrates that the Staff's and OPC's speculation that widespread EV adoption will simply happen on its own in a timely manner is simply wrong. And last legislative session, the Missouri General Assembly recognized the value of deploying EVs when it included them as grid modernization investments while mandating that at least 25% of electrical corporation capital investments (for utilities operating under Section 393.1400) consist of investments in grid modernization.[3]

The Commission should take this opportunity to act and approve both Charge Ahead programs. Twice the Commission has reviewed and chosen not to approve an EV charging program. Ameren Missouri designed this proposal with those orders and the concerns expressed in those orders in mind. If the Commission is ever going to move the state of Missouri forward on EV issues, this is the case in which it should act. The Company says that with full knowledge that it is difficult to get programs approved when both Staff and OPC voice opposition, as they have in this case. But the Commission should recognize that the objections of Staff and OPC are borne of an overly conservative posture toward risk and should recognize that they miss the larger picture of how these programs fit into the evolving utility landscape, that they fail to acknowledge or appreciate the Company's responsibility to meet evolving customer needs, and that they are ignoring the benefits these programs will provide to customers and the communities the Company serves. What Staff and OPC appear to demand as the price of their support for

[3] Section 393.1400.4(7). While the EV program proposed by Ameren Missouri is not a direct investment by Ameren Missouri in EV deployment, the effect of the program is to cause that investment to occur, consistent with the policy reflected in the statute.

programs such as those proposed is perfection, but perfection is the enemy of progress. If the issues pointed out by Staff and OPC materialize (which the record in this case shows is highly unlikely), they can be addressed and little, if any, harm has been done. Tariff language can be improved with experience running programs. But none of that can happen if the programs aren't allowed to begin in the first place. If Missouri never starts down the path of encouraging EV charging and efficient electrification, it will remain at the back of the pack relative to other states. The cost of inaction far exceeds the cost of approving programs the results of which cannot be predicted with certainty. This is our collective opportunity to move Missouri forward and we encourage the Commission to seize it.

II. Charge Ahead - Electric Vehicle Charging

The opposition briefs present an interesting dichotomy: Staff is attempting to overcomplicate the issue of EV incentives, while OPC is attempting to oversimplify it. It is not as easy as claiming a conflict between "if you build it, they will come" and "if they come, you should build it." Nor is it as difficult as "if you cannot know exactly how this program will perform, you cannot expect the customers to support it." As with most things, the answer lies in the middle: With any decision regarding the approval of a new program, the Commission must determine whether the utility has proposed a reasonable and prudent program given the record before it while accounting for the public interest considerations that typically guide Commission decisions. A fair evaluation of the record in this case will lead the Commission to the conclusion that the Company has proposed thoughtful, prudent programs that should be approved.

The opposing briefs submitted in this proceeding, because they either over-complicate or over-simplify the issues, can cause substantial confusion regarding the appropriate standards and conditions under which this program should be approved. To combat the confusion caused by

the opposing briefs regarding the EV program, the remainder of this section of the brief is organized as follows:

- Clarification and Reiteration of the Company's Proposed EV Program
- The Problem with Staff's Over-Complication of the Issues
- The Problem with OPC's Over-Simplification of the Issues
- A brief response to the Missouri Petroleum Marketers & Convenience Store Association's amicus brief.[4]

A. Clarification and Reiteration of the Company's Proposed EV Program

It is crucial to remember that one of the key objectives of the EV program is to transform the EV market by providing a holistic charging network that will lead to greater EV adoption. The program is designed to make a meaningful contribution to the market transformation occurring in the transportation sector, which is moving away from internal combustion engines and toward electric vehicles. The Company, as an electric utility, is integral to the development of charging infrastructure so that EVs become a practical consumer choice in Missouri as the vehicle purchase market increasingly emphasizes electric offerings. The Company wants to encourage increased EV adoption in the state of Missouri because, in doing so, the Company will be assisting in the creation of the many well-documented benefits of EVs for the Company's customers and the communities it serves. In addition, Ameren Missouri has an obligation to its customers to ensure that its infrastructure is sufficient for the increased EV adoption already anticipated. The EV program is therefore designed to both meet the needs of its customers that continue to increase as some EV adoption occurs in the absence of the program and to increase

[4] Because the issues are the same, the Company will not address cost recovery issues raised with respect to the EV program in the EV portion of this brief, but will address cost recovery for the EV program and the Business Solutions program in a later section of this brief.

EV adoption by allowing more of its customers to take advantage of the shift toward EVs and, in the process, to create the benefits of greater EV adoption for all its customers.

While the Company described its process for the development of this program in its initial brief (pp. 5-6), it bears repeating here. The Company reached out to the market to determine exactly what the market needs to encourage EV infrastructure development. In fact, the Company was the only party in this case to do so. The Company took the market's direct input, examined it in the context of Missouri's laws and regulations, including the input of the Commission itself in prior cases, and developed a program that would account for various market needs to stimulate the development of sufficient infrastructure to accommodate anticipated and encourage additional EV adoption within the state.

Staff witness Sarah Lange admits that Staff is "not in the business of … designing these programs."[5] This, however, is *precisely* Ameren Missouri's business. It employs professionals with the industry background and knowledge to know what questions to ask and how to research and develop effective program design. It employs professionals with the knowledge to take those program designs and develop tariffs for their implementation. It employs legal staff to examine those tariffs and ensure they are designed within the bounds of the law. The Company cannot afford to do otherwise because meeting and anticipating its customers' needs and designing programs for use by its customers *is precisely Ameren Missouri's business* and it is a central part of what Ameren Missouri should be doing to serve its customers. The Company's long history delivering highly successful energy efficiency programs speaks favorably to the Company's track record in effective program design and implementation.

[5] Tr. p. 457, ll. 12-13.

Program design is, however, as much of an art as a science. No matter how thoroughly the Company may research and vet a certain program design, it is simply impossible to anticipate every potential outcome of that program. Instead, the best anyone can do is to examine the various potentials, assess the probability of the various options based on experience, research and trends, and develop a realistic solution that addresses the most important factors. The law acknowledges this by requiring a utility to be not perfect, but *prudent*. If the program is prudently constructed when presented to the Commission, that is sufficient for approval. While some level of EV adoption is happening naturally, it requires additional infrastructure to be fully utilized, and additional levels of beneficial EV adoption will almost certainly materialize if appropriate support is provided.[6]

B. The Problem with Staff's Over-Complication of the Issues

Unfortunately, Staff declines to acknowledge the art of program design, but hyper-focuses only on the science of it, with the flawed assumption that this science is both simplistically definable and infallible. In its initial brief, Staff continues its flawed attempt to try to parse out EV program costs and benefits in extreme detail, and walks deep into the woods as reflected in its attempted (and irrelevant) assessment of the cost effectiveness of each individual charger the program would incentivize. But this entirely misses the point of the EV program because the end goal of the program is not the installation of each charger. Rather, charger installation is merely a means to an end; the charger installations are the mechanisms through which the Company works to transform the EV market. The result being that it meets the need

[6] Contrary to OPC's assertion, these concepts are not mutually exclusive and will be addressed in more detail later in this brief.

of its customers to fully utilize EVs, captures for all its customers the benefits EVs bring to the grid, while also improving the environment.

The Company developed this program systematically, seeking market information through a Request for Information ("RFI") process where it discussed EV charging, and its impact on EV adoption, with those who know the most about it – those in the EV charging business – in order to understand the barriers to EV adoption and design a program to reduce them.[7] The Company also studied, and largely emulated in some cases, the features of programs that numerous other states have approved for implementation, such as those approved in Ohio, Utah, Massachusetts, and California.[8] Staff witness Lange specifically stated that, "[Staff] would like input from Ameren Missouri about how they want this program to operate...."[9] And yet the entire case arises out of Ameren Missouri doing exactly what Staff asked – providing input (in fact, a concrete proposal) regarding how this program should operate.

1. Staff's Measure-by-Measure Analysis Is Unsupported and Inappropriate.

Staff's analysis represents a classic example of not being able to see the forest for the trees. In focusing on the identification of the exact number of EVs each charger in each sub-program (e.g., multi-family, corridor, workplace, public) is likely to support, Staff has missed (or chosen to ignore) the point of the EV program. Staff's analysis is designed to answer the question, "how do we make a program where individual EV chargers pay for themselves?" rather than a program designed to support and encourage broad EV adoption. Focusing in on the individual chargers without considering how they encourage (or could discourage) EV adoption

[7] Ex. 2, p. 27, l. 21 – p. 28, l. 32.
[8] *Id.*, pp. 15-20, including Table 2.
[9] Tr. p. 457, ll. 10-12.

ignores what those chargers are designed to do. This level of hyper-focus on individual components does not represent an appropriate evaluation of a market transformation program. Rather than fixating on each individual charger, the Commission should consider the role of each sub-program in bringing down the well-documented barriers to broad EV adoption – and the widespread benefits that this barrier-breaking provides.

As discussed in the Company's initial brief, the lack of sufficient utility infrastructure is a demonstrable barrier to EV adoption.[10] As explained in that brief, a survey of California and nine Northeast states conducted by the Union of Concerned Scientists and Consumers Union[11] found that the biggest concern in purchasing an EV was that, "There are too few, if any, public utility charging stations where I travel."[12] As demonstrated by Kansas City Power & Light Company's Clean Charge Network surrounding Kansas City spurring a 78% growth in Q4 of 2016 and Q1 of 2017, the highest in the U.S. for that period, the deployment of infrastructure does have impressive impacts on the growth rate of EVs in the area, significantly higher than in other metropolitan areas, including St. Louis and in the state of Missouri as a whole where utility support for EVs is lacking.[13]

Ameren Missouri's proposal was thoughtfully developed based on market research and review of program designs in other states. In contrast, Staff declines to provide the record with any alternative program structures designed to create greater impact on EV adoption. Instead, Staff presents only Ms. Lange's measure-by-measure analyses, which are not used to suggest any program improvements but are proffered only to suggest that each *individual* workplace and

[10] Ex. 2, p. 20.
[11] *Id.* (https://www.ucsusa.org/sites/default/files/attach/2016/05/Electric-Vehicle-Survey-Methodology.pdf, p. 5.)
[12] *Id.*, p. 20, ll. 17-17 (quoting the Union of Concerned Scientists' report).
[13] Ex. 2, p. 31; Company's Initial Brief pp. 8-9 (and the record evidence cited there).

multi-family charger may not pay for itself with the incremental EVs that it *directly* supports. What Staff never addresses is that the incentive levels make sense because evidence demonstrates that workplace charging can provide significant boosts to EV adoption in the communities where they are located – far beyond the impact any individual charger makes with the EV(s) it directly serves.[14] Further, multi-family charging is a necessary category to induce a large segment of consumers to consider EVs a practical option.[15] Additionally, the Company has developed its program with workplace and multi-family incentive levels that are *equal to or lower* than the incentives approved for the same charging categories by each of the state regulatory commissions in Utah, Ohio, and Massachusetts.[16]

Clearly, the holistic charging network proposed by the Company has an impact that is far greater than the sum of its parts. Consider the apartment complex that takes advantage of the multi-family subprogram and installs an EV charger, which is then used by one tenant who is directly enabled to purchase a new EV. Staff focuses only on that one vehicle that may regularly use the charger and the utility revenues derived from it. But one must also consider the broader impact on EV adoption in and around that community. For Staff's analyses to have any validity, all the following events – which the Company has specifically considered in its program development – must be ignored:[17]

- The EV owner that was using that charger may take his or her vehicle to a new home and a new EV owner begins using that apartment's now-available plug.

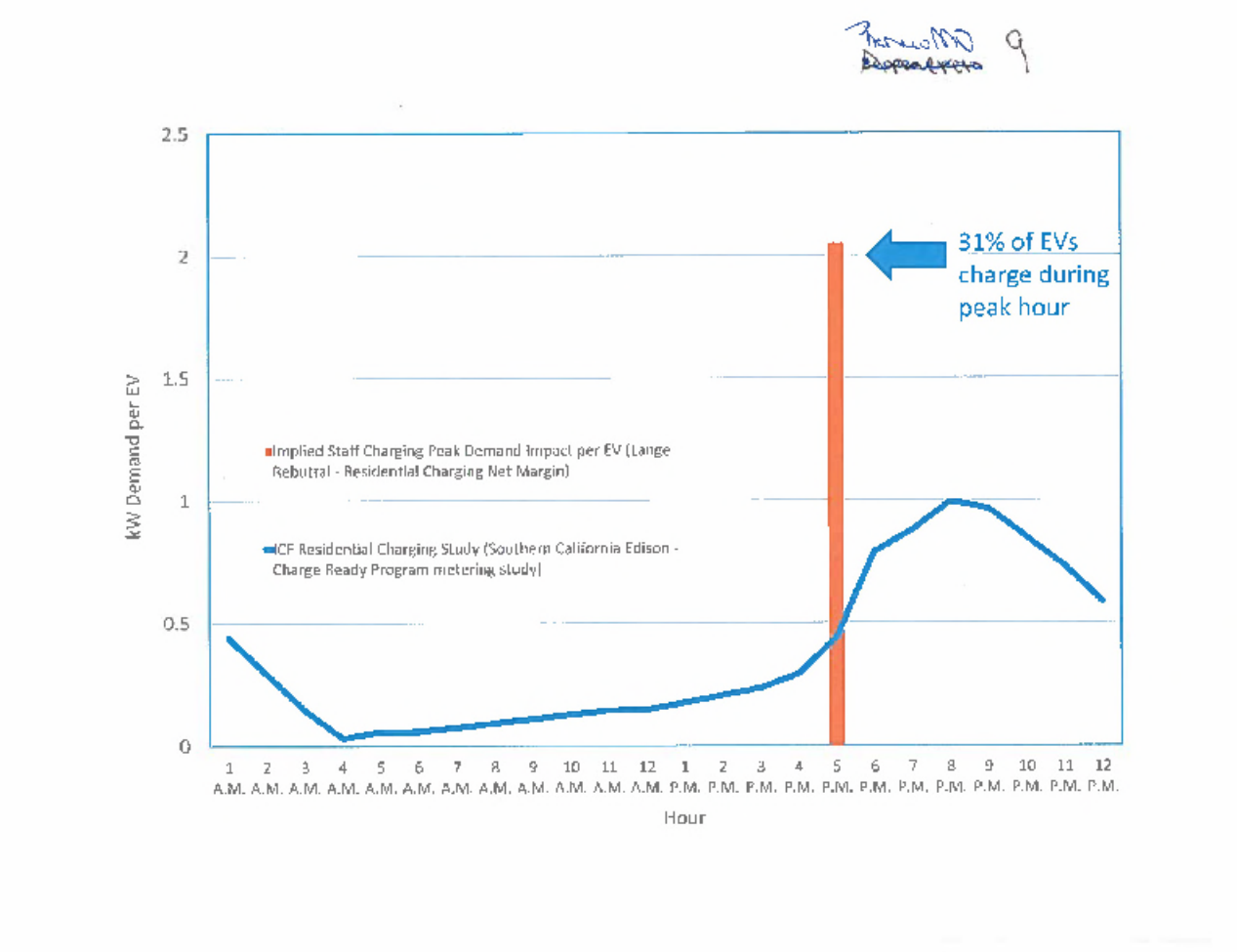
[14] Ex. 2, p. 24, l. 18 to p. 25, l. 10.
[15] *Id.*, p. 24, ll. 14-17.
[16] *Id.*, pp. 15-17, including Table 2. At the time of filing direct testimony, the National Grid proposal in Massachusetts was still pending, but it has subsequently also been approved. Mass. D.P.U. Order dated Sept. 10, 2018, Docket No. D.P.U. 17-13.
[17] Similar dynamics apply in a workplace setting with EV charging and an increasing population of EVs using it.

- The residents of the apartment complex will see an EV in their parking lot every day, and may talk to the driver about it in a manner that sparks their interest in EVs.
- The residents may then go ask the landlord whether additional chargers can be installed so more tenants can purchase EVs.
- The local home-owning friends and family of the EV driver who happen to ride in the EV one day may have their interests piqued.
- A prospective tenant that sees the EV charger while visiting the apartment complex may ask the next prospective apartment complex that they visit, "do you offer EV charging?"
- Competitive pressure will be put on more apartment communities to make their own investments in EV charging in order to stay competitive and relevant.

In performing its limited, dogmatic analyses, Staff has ignored these important market dynamics. Yet logic dictates that all these market effects occur and create an environment ripe for broader EV adoption. As the Company has deliberately considered and provided for, an EV charging program must be designed to accommodate and encourage more than just the vehicle that sits at the one charger that was paid for by a program incentive.

The Company has shown through surrebuttal and live testimony that Staff's analyses are wholly unreasonable and unreliable. While Mr. Wills' surrebuttal testimony goes into many examples of why that is the case, the most glaring deficiency in Staff's analysis is the assumption Ms. Lange made about how much demand each EV would place on the system at peak times. Her residential charging analysis was predicated on over 2 kW of demand per vehicle. Exhibit 9 introduced by the Company at the hearing puts that value in context compared to what empirical evidence demonstrates that the expected demands will be on an hour-by-hour basis throughout the day, including at peak times. Ms. Lange's 2 kW assumption is so far out of line relative to

what can reasonably be expected so as to render the results of her analysis useless in any objective assessment of the economics of an EV. For the Commission's convenience, Exhibit 9 is reproduced below:



Interestingly, rather than defending its economic analysis of EVs, Staff effectively abandons any attempt to rehabilitate the credibility of its own margin per EV analysis. This became apparent at hearing, when an obvious line of friendly cross-examination questioning from OPC was used for a last-ditch effort to criticize the Company's case, but which included no attempt to resurrect Staff's findings. In its initial brief, Staff went one step further in abandoning any suggestion that its analysis is useful to the Commission by simply observing that it doesn't really matter if its projections are wrong because they don't have the burden of proof in this case. (Staff's Initial

Brief, p. 14). Through that statement, Staff has effectively conceded that the Commission should not rely on Ms. Lange's estimated margins per EV in this case. Put another way, the Staff is admitting that it has provided *no* competent evidence that actually rebuts the reasoned and supported analyses provided by the Company that show that the EV program is likely to be cost-effective and that shows that it will meet a demonstrated need of the Company's customers. It is true that the Company has the burden of proof; we would respectively suggest that it has clearly met it. (Company Initial Brief, pp. 20-31).

2. Staff's Load Shape Criticisms are Unfounded and Irrelevant.

While Staff continues its attacks on the Company's economic analysis of the EV program, it cannot overcome the fact that Ameren Missouri's is the only analysis in the record that considers empirical evidence and uses research to make informed estimates of the economic impacts of new EVs that will charge on the Company's system. Staff, of course, criticizes many of those assumptions, but in a manner that does not have any real basis in fact or the record. For example, Staff attacks the assumptions surrounding the capacity costs that the Company expects to incur for serving new EVs. In doing so, Staff first emphasizes criticisms of the assumption that the Company employed for the peak demand impact of EV charging in the direct testimony of Mr. Wills. The problem is that Staff's criticisms are not only ill-founded, but are also irrelevant. The Company already heard and addressed the Staff's criticisms of this assumption during the technical conferences conducted last summer as a part of this case. In response, the Company performed an enhanced and more detailed charging load analysis based on a variety of credible studies of EV charging behavior from a number of industry sources. Ameren Missouri made this information about charging behavior available to Staff during the technical

conferences.[18] Consequently, Staff had months to consider this information before filing its rebuttal and surrebuttal testimonies, but ignored it and completely failed to rebut any of it in those testimonies despite having many months to do so. Instead, Staff chose to invent "what-if" scenarios that are far removed from any realistic charging behavior that could be expected to occur and that by Staff's own admission, Staff does not contend are representative of what one would actually expect to occur.[19] Concocting "what-if" scenarios that even the proponent of the scenario agrees are unlikely to occur in practice is unhelpful to the Commission's job in evaluating whether the Company has proposed a prudent and reasonable program that will serve its customers' needs and also capture the benefits EVs can bring to customers, its system, and the environment.

The Company's surrebuttal analysis introduced into the record the same studies that the Company provided to Staff and the other intervening parties during the technical conferences. This analysis clearly and unequivocally demonstrated that the assumptions from the Company's direct case had actually been overly conservative (i.e., *understated* likely benefits), and significantly so.[20] As such, Staff's criticisms of Mr. Wills' direct case capacity assumptions, if valid, simply emphasize that the revised and *much lower* capacity values (which only serve to strengthen the economic case for the EV program) from Mr. Wills' surrebuttal testimony should be relied upon.

Staff then attempts to criticize those improved capacity estimates from Mr. Wills' surrebuttal analysis. In this criticism, however, Staff is only able to point out that *one* of the *three* studies (the ICF study of Southern California Edison customers) that the Company relied

[18] Ex. 7 (Wills Surrebuttal), p. 17.
[19] Tr. p. 454, ll. 21-24.
[20] Ex. 7, p. 37, ll. 1-16; Tr. p. 273, ll. 1-11.

on for charging behavior analysis was done at a utility that has a time of use ("ToU") tariff offering. (Staff's Initial Brief p. 15). Moreover, Staff doesn't present any evidence that the study participants were *actually taking service on* that ToU rate and therefore had a rate incentive to alter their charging behavior; Staff only noted that the ToU rate *existed* at that utility at the time of the behavioral study. Mr. Wills, however, confirmed that the study participants were taken from the population at large and did *not* primarily represent ToU customers, demonstrating that Staff's claim that the load shape from the study does not reliably support the Company's analyses because of the mere existence at that utility of a ToU rate fails to withstand scrutiny.[21]

More importantly, there were two additional load shape studies used by Mr. Wills in developing the assumptions for that analysis that Staff does not even allege might have been influenced by ToU rates. One of those load shapes was based on a Progress Energy metering study control group that was explicitly made up of customers who are not on a ToU rate for purposes of comparing to a different metered group that did use ToU to measure the impacts of those rates on charging behavior.[22] By using the load shape from this control group on a standard, *non-time differentiated rate*, the Company has ensured that there can be no influence of rate incentives that would promote additional off-peak charging beyond what results from customers' natural behavior.[23] This is perhaps the most powerful study that provides the strongest evidence of the appropriateness of the Company's assumption on this point.[24]

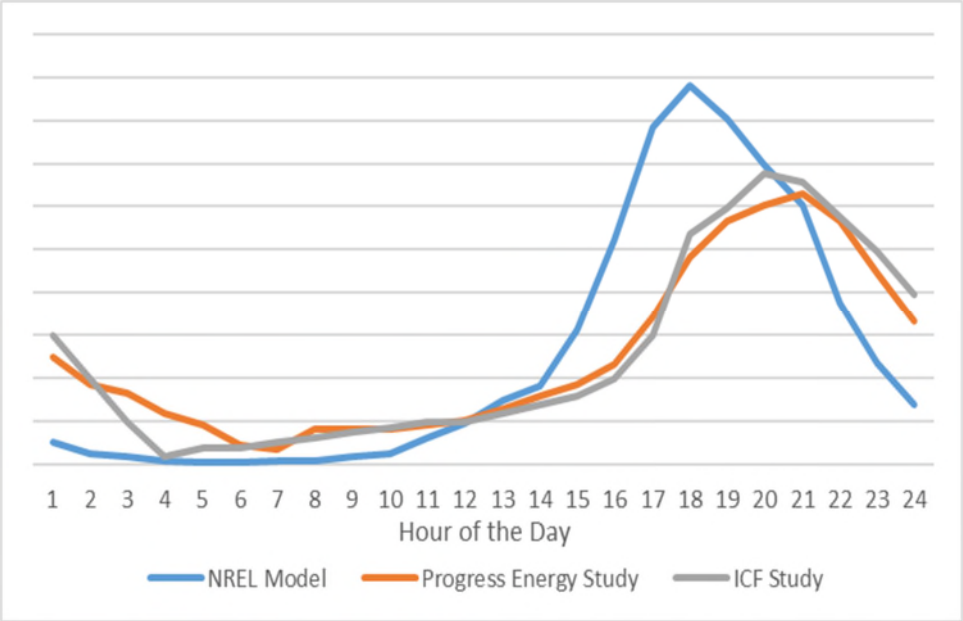
[21] Tr. p. 274, ll. 5-12
[22] Tr. p. 273, l. 23 – p. 274, l. 2
[23] Tr. p. 274, ll. 2-4.
[24] Even Dr. Marke, who can hardly be said to be a supporter of the EV program, agrees that the load shapes from the Progress Energy and ICF studies are reasonable. Tr. p. 364, ll. 4-8.

If any doubt remains regarding the capacity assumptions, then consider the following. The Southern California Edison charging shape (the one that Staff speculates might have been influenced by ToU rates) looks virtually identical to the Progress control group (non-ToU) load shape. Mr. Wills indicated as such in the hearing,[25] as well as with the visual aid of Figure 1 in his surrebuttal testimony.[26] It is therefore quite unlikely that the first usage behavior study (at a utility that happened to have a ToU rate at the time, which Staff questioned) was influenced by time-differentiated rates. Finally, consider Ms. Lange's own expectations about EV charging behavior, which she testified to in the hearing as follows:

> I would expect that absent a reason not to, when customers get home about 5:30, six o'clock in the evening, they're going to plug in their EVs for – for residential charging.[27]

The load shapes in Figure 1 of Mr. Wills' surrebuttal testimony, reproduced below for convenience, are those that the Company assumed for its analysis. These load shapes are completely consistent with Ms. Lange's own expectations.[28]

[25] Tr. p. 274, ll. 13-18.
[26] Ex. 7, p. 35.
[27] Tr. p. 449, ll. 21-24.
[28] Note the Progress and ICF studies show charging load ramping up most materially on the graph around hour 18, which is the same as 5 to 6 o'clock, consistent with Ms. Lange's expectation regarding when the bulk of residential EV charging would begin.



3. The Program is not Duplicative of the Volkswagen Mitigation Trust Funding.

Another factor Staff wedges into this case is the possibility that there will be funds available from the Volkswagen ("VW") Mitigation Trust funding for EV infrastructure buildout. Staff alleges that the combination of the potentially available VW funds and the Company's proposal would result in the Company's ratepayers "paying for the lion's share of the statewide EV network, despite the approximately 10 members, including Empire District Electric Company, Kansas City Power and Light, KCPL Greater Missouri Operations, and three other municipal utilities." (Staff Initial Brief, p. 16). Staff's position mischaracterizes the interaction of any VW funding that is available and the use of funds for corridor charging in the EV program.

As explained (with citations to the record) in the Company's initial brief (see pages 10-11 and 15-16), even if the full $6 million of VW funds is ultimately spent (over 10 years[29]) on EV charging infrastructure, there would be 11 corridor charging stations in Ameren Missouri's service territory (17 statewide) that would need to be constructed in order to complete the minimal practical network needed to remove the lack of corridor charging as a barrier to EV adoption.[30] And the approximately $4 million incentive budget[31] for the corridor sub-program will, not coincidentally, allow the construction of about 11 stations.[32] Staff's claim that Ameren Missouri will provide the "lion's share" of all corridor funding is misleading. It is misleading because it is patently obvious when one examines the geography of Ameren Missouri's comparatively large service territory (which covers more of the state than any other utility by far), that a proportionally larger share of the corridor charging stations would be expected to be located in Ameren Missouri's service territory. In fact, even after taking VW funds into account, with 17 stations still needed and Ameren Missouri slated to incentivize 11 of them, Ameren Missouri would incentivize 64% of them (11/17) and would provide incentives equal to 66.67% of the total gap of $6 million in funding Mr. Justis referred to ($4 million incentives/$6 million), assuming the VW funds materialize. That is the share one would expect and it is the share that is reasonable given the number of needed stations, the possible availability of VW funds, and the location of many of those needed stations in Ameren Missouri's service territory.[33]

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[29] Tr. p. 408, l. 23 to p. 409, l. 6.
[30] The minimum practical network is shown on Exhibit 8.
[31] Ex. 2, p. 36 (Table showing estimated total incentives).
[32] Company's Initial Brief, p. 15. Eleven of 17 corridor charging stations equates to 64% of the stations. $4 million of $6 million equates to 66.67% of the funds for such stations, which is right in line with the number of stations needed in Ameren Missouri's service territory.
[33] Staff's math is also arguably inaccurate because to some extent it compares apples and oranges. It is true that the total subprogram budget for corridor charging is $4.4 million and $4.4 million is 73% of the $6 million gap. However, there are undoubtedly administrative costs,

And having available VW funds is not a reason to reject the EV program; in fact, it would provide a good complement to it, as Ameren Missouri witness Patrick E. Justis testified:[34]

> The bottom line is that while the VW trust funds are certainly helpful and should cover half of the cost of the public statewide minimum practical network for corridor fast charging, they are insufficient and utility involvement is necessary.

As also noted in the Company's initial brief (see page 10), DED witness Kelly similarly recognizes that the existence of the VW funds does not eliminate the need for utility involvement, but instead, simply reflects additional funds that can then be leveraged along with the utility funds to get the charging network the state needs in place.

The Company should be complimented, not criticized, for its thoughtful planning and coordination with the EV Collaborative to work across its boundaries in trying to leverage, in a mutually beneficial way, VW funding for the benefit of its customers and, more generally, for the benefit of Missouri. And keep in mind, if other funding sources or the results of the Company's reverse auction ultimately means that Ameren Missouri does not need to dedicate all $4 million of available incentives to corridor charging, then it has no obligation to do so. It should – and will – prudently manage the program and utilize the funds available in a prudent way and, if some funds are not needed, can redeploy those funds toward other beneficial charging. In fact, the EV program contains program provisions to make it possible for the Company's cost of the corridor sub-program to be materially lower than the $4.4 million budget if the network can be developed without using all of the funds. Among those program provisions

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probably absorbed as part of the Missouri Department of Natural Resources overall operating costs, associated with administering the $6 million currently slated to be available for EV charging infrastructure from the VW trust. The fair comparison is the $4 million in Ameren Missouri incentives versus the $6 million in VW trust funds because those are the dollars that would fund the stations.

[34] Ex. 3 (Justis Surrebuttal), p. 8.

is a reverse auction approach to establishing the incentive levels for the development of the stations, which may result in lower incentive levels to achieve the corridor build-out than the maximum incentive levels allowable under the tariff.[35] Additionally, the EV program tariff sheets explicitly state that any grant funding available from other sources (e.g., the VW settlement) may be applied to the projects supported by the program to *offset funding* that the Company may have to otherwise provide. The Company has also included appropriate precautions in the program design to ensure that the full $4 million of incentives will only be used if doing so is required to deliver the benefits of a minimum practical network of corridor charging stations in the service territory.[36]

One final point about the VW funds. It is absolutely true that the Company has pointed out that there is no assurance that the $6 million currently earmarked as part of Missouri's VW trust mitigation plan will be spent on EV charging infrastructure because the current draft plan specifically indicates those funds could be shifted to uses such as for school buses or other government vehicles. Staff finds it "humorous" (Staff's Initial Brief, p. 13) that Ameren Missouri points out that the VW funds are not assured since Ameren Missouri can prudently shift dollars among the EV program's subprograms. There is nothing humorous about it, and Staff's argument reflects a false equivalence. While one can easily imagine cash-strapped legislators deciding to cover budget gaps for school transportation with VW funds originally intended for EV charging, Ameren Missouri does not similarly have political or other pressures that might cause it to shift funds among programs for any reason *other than* that doing so would *more cost effectively* make use of the total EV program budget. This is because the Company's incentives

[35] EV program tariff Sheet Nos. 165.1 to 165.2, attached to the Company's application.
[36] *Id.*

are aligned with its customers – if it can spur even greater EV adoption and even greater electric sales, it benefits.[37]

4. Staff's Capacity and Infrastructure Cost Concerns Are Unfounded.

Once again, with regard to capacity and infrastructure concerns, Staff has over-complicated a relatively simple issue. Again, we have a scenario where the Company has provided straight-forward evidence regarding its projected system impacts from this proposed program, and Staff has taken the extreme possibilities contained therein to complicated ends rather than focusing on the most likely scenarios. Staff's initial brief states that "the location and charging speed of the charging station have an impact on the capacity and infrastructure costs." (Staff Initial Brief, p. 15). While this point is only lightly touched upon in Staff's initial brief, it is a point that Staff focused on with intensity on the second day of hearing while engaged in friendly cross-examination with OPC. Staff's alarmist hearing-day concerns provide an interesting contrast to the positions it had taken in rebuttal testimony, and those contrasts are worthy of note.

For context, at the hearing, Staff introduced Exhibit 111, which included portions of the Company's response to Data Request ("DR") MPSC 0018 (and related DRs 19-31). Exhibit 111 clearly shows that this DR series was requested by Ms. Lange, and the Company's response is dated April 30, 2018. Note that the response date is a full five months prior to Staff's filing of rebuttal testimony in this case. The response clearly shows that Staff contemplated the potential for location-specific distribution concerns, as well as the availability of higher speed level 2 charging (19.6 kW), enough to ask 12 extremely detailed and specific questions regarding

[37] Again, even Dr. Marke, who opposes the EV program as proposed, concedes that the Company has no incentive to spend money that will not cost-effectively produce enough additional energy sales to cover the costs. Tr. p. 355, l. 21 to p. 356, l. 4.

distribution capacity availability at various locations on the Company's system. Further, Exhibit 111 shows that the Company provided a robust analytical response to those questions.[38] Given Staff's early attention to the issue and the Company's thorough response, it is highly implausible to think that Staff would have ignored this issue in rebuttal testimony if it were truly a material concern for Commission consideration before approving the EV program. However, Ms. Lange, who submitted the series of 12 data requests found in Exhibit 111, said nothing about these concerns in her rebuttal testimony. If the concerns were truly legitimate, then under the Commission's rules, the Staff was duty bound to express them; it didn't.[39]

What Ms. Lange *did* include in her testimony speaks volumes. When considering the level of distribution costs to include in her economic analysis of the costs and benefits of serving EV load, Ms. Lange produced two sets of numbers. The first set was calculated based on the Company's incremental distribution cost estimate from its IRP (notably, the same distribution costs that the Company included in its RIM analysis). The calculation of the second set of margin estimates *entirely excluded all distribution costs from her analysis*. Ms. Lange clearly

[38] To the extent that the Commission is interested in interpreting the numbers included in this DR response, the summary table on page 5 of Exhibit 111 is, as the title suggests, summarizing the number of EVs that could simultaneously charge in various Staff-selected geographic areas of the Company's distribution system based on existing capacity at a variety of locations and charging speeds. While the majority of locations show the ability to charge thousands of EVs simultaneously, it is important to note that not all of these regions are of similar geographic size. Without knowing the specific geography of the area, the information in the record is virtually useless on its own with respect to identifying whether the number of vehicles that can charge is adequate for a future with robust EV adoption. For example, the geography with the lowest available capacity (associated with the responses listed for DRs 28 and 29), is actually quite a small geographic area that would never likely have more EVs in it with a need for simultaneous charging capability. This can be verified by looking at a map using the parameters of the geographic territories listed in the table at the top of page 3 of Exhibit 111.

[39] 4 CSR 240-2.130(7)(C) ("Where only the moving party files direct testimony [as here], rebuttal testimony shall include *all* testimony which explains why a party rejects, disagrees or proposes an alternative to the moving party's direct case" (emphasis added)).

provided her rationale for producing a scenario with no distribution costs through the question she used to introduce her calculations of EV margins:

> Q. Given Ameren Missouri's representations that serving EV load will not require additions to the distribution system, have you prepared a version of estimates that do not reflect incremental distribution costs?[40]

In other words, after having the responses to DRs 18-31 in hand when drafting rebuttal testimony, DRs that directly addressed location-specific distribution impacts and high speed level 2 (19.6 kW) charging, Ms. Lange considered those responses as either: 1) a representation that serving EV load will not require additions to the distribution system; or 2) at bare minimum, information that did not cause her to call into question some other "representation" the Company had made on the topic. Regardless, this much is absolutely clear:

- Location-specific distribution impacts were on Ms. Lange's mind from early in the case;
- Higher level 2 charging speeds of 19.6 kW were on Ms. Lange's mind from early in the case;
- At Ms. Lange's request, the Company performed substantial analyses on the topic; and
- With those responses available for five months, Ms. Lange provided rebuttal testimony that expressed *no reservations whatsoever* that there would be material distribution impacts, and as a result went so far as to provide the Commission with additional estimates of the program economics calculated expressly for the purpose of excluding distribution costs.

By the time of the hearing, with Staff's other attempts to challenge the economics of EVs failing, Ms. Lange resurrected the notion of significant distribution impacts through Exhibit 111, which included DR 18. On the witness stand during friendly cross-examination from the only

[40] Ex. 101 (Lange Rebuttal), p. 7, ll. 1-3.

other party opposing the EV program as proposed, Ms. Lange threw a Hail Mary pass and put an entirely new spin on DR 18 (and raised an entirely new reason why Staff disagreed with the Company's case), stating that the Company's "own response to DR 18 indicated just how tricky it gets once you start locating, you know, these 20 kW chargers."[41] From that point, Ms. Lange provided a host of hypothetical horror stories of rampant high speed charging activities taxing distribution circuits at peak times, without providing any evidence that any of these events are at all likely to occur. While clearly Ms. Lange had imagined these types of scenarios early in the case when submitting extensive discovery questions about them, her rebuttal testimony's silence on the topic tacitly acknowledges that she did not perceive these events as likely enough to be worth mentioning in writing nor did she provide them as a reason to oppose the program, as the rules require. Only through live testimony on the stand, when the Company had no ability to effectively respond, did Ms. Lange feel the need to resurrect these fears.

One of the reasons high kW charging is unlikely to actually have any impact on the EV program is that, while 19.6 kW level 2 charging exists (and may even be appropriate to deploy in certain circumstances), the utilization of such a charging speed would be very rare. And because of that, the Company itself typically refers to Level 2 charging as occurring at 7 kW.[42] The EV program tariff filed by the Company with this case defined level 2 charging as having "typical power levels of *between 3kW and 7kW*, and up to 20kW." Even Schedule PEJ-03 attached to the Direct Testimony of Mr. Justis, "Comments on the Missouri Volkswagen Settlement Environmental Mitigation Trust Funds," in its "minimum practical network" requirements at page 7 references a "[m]inimum [of] 2 Level 2 ports having ~ 7 kW AC output." Simply

[41] Tr. p. 443, ll. 11-13.
[42] *See*, e.g., Ex. 2, p. 23.

because a Level 2 station *could* exist at 19.6 kW doesn't mean that all or even very many Level 2 stations *will* exist at that level. There is no evidence at all suggesting that extensive adoption of these higher level 2 chargers is likely.

That said, if the Commission has any lingering concerns regarding the issues raised by Ms. Lange, the Company is amenable to making modifications to its tariff to directly address the issue. Specifically, Ameren Missouri proposes to add a definition of Level 1 charging to the EV program tariff in order to enable lower speed charging, which should cause no threat of distribution impacts, as follows:

> **Level 1 Charging - Alternating current charging utilizing the SAE Standard J1772 connector having typical supply voltage of 120V and a typical power level of less than 2kW.**

Next, the Company suggests limiting the charging available under the multi-family subprogram to lower charging speeds by modifying the definition of Multi-Family Charging to read:

> Multi-family Charging – **Level 1 or** Level 2 EVSE that is located at a residential premises with multiple leased dwelling units **and has maximum power level less than 8 kW**. (Changes to the original tariff in bold.)

In addition, the Company proposes to modify a sentence under the "Eligible Measures and Incentives" section of the Multi-Family Subprogram to read:

> Incentives are available on a first come first served basis to eligible customers for the installation of **Level 1** or Level 2 Charging **(of less than 8kW per port)** infrastructure at qualifying multi-family residential premises. (Changes to the original tariff in bold.)

Finally,[43] the EV program tariff's availability statement (which applies to all subprograms) should be modified by adding the following sentence:

[43] The previously outlined tariff modifications should not apply to public and workplace charging because those may be appropriate for 19.6 kW charging. However, the following tariff change, which will provide protection against adverse system impacts if utilization of 19.6 kW charging would create problems, would apply to those two subprograms as well as the others.

Incentives will not be available for EV Charging Infrastructure projects that would require significant system upgrades upstream of the transformer serving the customer's proposed project.

These modifications should finally put to rest any lingering concerns about the distribution impacts of multi-family residential installations of higher speed Level 2 charging.[44]

The foregoing program tariff changes also address another point Ms. Lange also raised in response to the rebuttal testimony of ChargePoint witness Mr. James Ellis, where he stated that ChargePoint's "next generation" fast charging platforms are capable of charging "from 62.5 kW to 500 kW." Again, Ameren Missouri states that while this level of charging is possible, it is far more likely to be the exception than the rule. But in any event, the tariff language proposed just above ensures that if significant upgrades would be required to accommodate the installation of such high-speed charging, incentives won't be available.

C. The Problem with OPC's Over-Simplification of the Issues

While Staff has overcomplicated the issues in this case by imposing non-existent requirements and overanalyzing irrelevant factors, OPC has done just the opposite – it has over-simplified a case in an attempt to create a palatable and easy sound bite justification for its disapproval of the EV program as proposed. OPC alleges that the terms "If you build it, they will come" and "You must build it *because* they will come" are mutually exclusive. In fact, they are not. It is possible to both accommodate a trend that is easily identifiable, and to plan to encourage that trend beyond its projected growth rates. After arguing that these ideas cancel each other out, OPC then goes on to argue how neither argument could stand on its own anyway. Yet OPC does so with no supportive evidence. Finally, OPC attempts to impose a "simple"

[44] Had the Staff properly raised its new concerns in rebuttal testimony as it should have done, the Company could have addressed these issues in its surrebuttal testimony, but was not afforded a fair opportunity to do so until now.

sharing mechanism on the program, which is "simplified" to such a degree that it becomes meaningless and unrepresentative of any actual financial program underpinning. And as outlined in the Company's initial brief (see page 16), the imposition of risk sharing on an otherwise prudent utility program designed to meet customer needs and to provide benefits to customers is simply inappropriate. Utilities are not and never have been the guarantors of the future.

1. There Is No Paradox.

Perhaps a better statement of what drives Ameren Missouri to propose the EV program incentives is this: We *should* build it so that the customers who have adopted EVs are able to fully utilize them, but we also *must* build it because they are not coming as they need to and if we build it, they will come and bring along with them the significant benefits of EVs.

To be clear, the Company has consistently, from the beginning of the case, argued that there are two equally compelling rationales for the EV program. One is to develop infrastructure in order to meet the changing service needs of its customers that are already adopting EVs and that desire to adopt EVs but are being deterred due to a lack of charging infrastructure, and the second is to reap the additional benefits for the Company's customers and communities that will come when the program successfully encourages more customers to adopt EVs than otherwise would. The facts in the record in this case, as well as basic logic, dictate that a modest or even accelerating increase in electric vehicle adoption occurring with or without the program creates an obvious new service need (the need for infrastructure to provide a distributed network of charging options for an end use that is inherently mobile and cannot solely rely on a static service connection). Further, the facts and record in this case demonstrate that there also exists a significant opportunity to accelerate the pace of that adoption in a state that is severely lagging what is being experienced in other parts of the country. Staff and OPC continue to claim that

somehow the severe lag will magically disappear without programs like the EV program, but the evidence strongly suggests otherwise, a point discussed in detail in the Company's initial brief (based on record evidence cited) at pages 8-20.

Indeed, with only 0.06% of vehicles in the state of Missouri being electric,[45] the share of EVs could increase tenfold and a state like California (with 0.9% adoption) would still have more than 50% greater market penetration of EVs than Missouri. The thousands of new EVs in this scenario have an obvious and demonstrable need for charging options to make cross-state EV travel state viable.[46] And yet, at the same time, there is undoubtedly a significant opportunity that would remain to encourage additional adoption that would create additional benefits for all Ameren Missouri customers and the communities it serves. Clearly, the need to accommodate additional customer needs and the opportunity to encourage additional customer growth are in no way mutually exclusive.

OPC claims that "Ameren [Missouri] cannot simultaneously argue that Missourians are not buying electric vehicles because of range anxiety and claim that it needs to fund the development of more charging stations to deal with an increase in electric vehicles that it predicts will naturally occur." (OPC Initial Brief, p. 6.) In fact, Ameren Missouri can and does claim exactly that, with a fully supportive record of evidence from multiple parties, including

[45] Ex. 2, p. 12 (3,524 EVs/5.46 million ICE vehicles).

[46] OPC contends that range anxiety is not a real concern, and that even if it was, the rising number of electric vehicles will ensure the issue "will quickly resolve itself" as there will be increased motivation to "fill the newly created gaps in the market." (OPC Initial Brief, p. 10.) OPC presents no evidence supporting either of these contentions. Ameren Missouri addresses the market – and the need for incentives – in great detail in testimony. As for the existence of "range anxiety," it is not only described in the Direct Testimony of Mr. Justis, but is also specifically acknowledged as a concern at page 4 of the "Comments on the Missouri Volkswagen Settlement Environmental Mitigation Trust Funds" attached to Mr. Justis' direct testimony (Ex. 2) as Schedule PEJ-03. To insinuate without support that range anxiety is inconsequential is to deny the clear facts.

evidence from numerous other states that have acted to approve utility programs that are reflected in the utility's rates on *exactly that basis*. Notably, the Massachusetts Department of Public Utilities recently authorized a program for National Grid[47] specifically stating that these concepts are not mutually exclusive:

> As discussed above, the record contains substantial evidence demonstrating that the deployment of charging stations through the EV Program will provide direct benefits to National Grid's customers that use or wish to use EVs in the form of increased service [citations omitted]. There is also substantial record evidence demonstrating that the EV Program will stimulate EV adoption—thereby providing benefits for all of National Grid's customers in the form of diluted fixed costs of transmission and distribution services and lower electricity rates, the reduction of GHG emissions, public health benefits, fuel security, and economic benefits [citations omitted].

In other words, we should build it because to some extent it is here, *and* we must build it so that they – large numbers of EV adopters – will come.

2. If the Company Builds It, EV Adoption Can Be Accelerated.

OPC claims that Ameren Missouri has stated that the market for EVs in Missouri is expected to increase dramatically in the near future regardless of whether the EV program is put into place. They rely on this observation to conclude that the "if you build it, they will come" argument cannot be true, because they will come even if we don't build it. OPC, however, is radically off base with this conclusion.[48] Schedule 2 of Mr. Justis' direct testimony shows that, as of the end of 2016, there were a mere 3,524 EVs in Missouri, out of 5,460,015 registered vehicles in the state. So, at that time, simple division (as well as Figure 3 in Mr. Wills' Direct Testimony (Ex. 6)) shows that just 0.06% of vehicles are EVs as of the latest data available in the

[47] As noted in the testimony of Mr. Justis, the National Grid program is based on a similar model of incentives to 3rd party charging owner/operators with program costs recovered in rates. Ex. 2, p. 16.

[48] As noted above, the evidence strongly suggests that OPC is not only radically off-base, but is simply wrong (see Ameren Missouri's Initial Brief, pp. 8-20).

record of this case. Ameren Missouri's base case of vehicle adoption of approximately 25,000 vehicles by 2028, even if matched by another 25,000 vehicles in the parts of the state not served by Ameren Missouri (for a total of 50,000 EVs in 2028), would mean that if Ameren Missouri's forecasted "dramatic increase" in EV adoption (as OPC characterizes it) comes to pass, Missouri would just finally (12 years later) catch up with California's *2016* EV adoption (0.9%, see Wills Direct (Ex. 3), Figure 3) by 2028. This would obviously leave Missouri as a significant laggard in EV adoption, just as it is today. And to say there is ample opportunity to spur much higher levels of adoption by addressing obvious and documented barriers to EV adoption is a monumental understatement of the opportunity in this case to take steps to add significant beneficial load to the system. After all, as previously noted, Kansas City Power & Light Company's Clean Charge Network surrounding Kansas City spurred a 78% growth in Q4 of 2016 and Q1 of 2017, clearly demonstrating that utility support for the deployment of infrastructure does have impressive impacts on the growth rate of EVs in the area.[49]

3. The Market Requires Incentives to Effectively Meet Demand.

OPC also attacks the notion that because EV adoption is happening, the Company must build the infrastructure to meet demand. Instead, OPC suggests that the market will rise to meet the demand without any utility intervention. However, OPC's arguments do not hold together because, as its initial brief posits, "it should be obvious that, if electric vehicle adoption takes off as Ameren predicts, then the reason for the lagging deployment of charging stations by third parties (the low electric vehicles adoption rates that Mr. Wills identifies) will have been assuaged." (OPC Initial Brief, pp. 5, 10). Despite OPC's allegation, such a conclusion is neither

[49] Ex. 2, p. 31. The Company's initial brief also addresses why OPC's denial of the growth spurred by KCP&L's Clean Charge Network in Kansas City fails to withstand the scrutiny of the actual *facts* about EV adoption in Missouri. See pages 8 to 9.

obvious nor supported by any evidence in the record. In fact, the evidence submitted by Ameren Missouri (discussed in detail in its initial brief as earlier noted) repeatedly demonstrates that there is both a need to accommodate a growing base and a benefit to encouraging additional adoption. OPC, however, cannot cite to any evidence supporting the contention that the market can take of providing adequate EV charging if EV adoption materializes that is only consistent with the Company's base case forecast.

What is clear from the evidence in the record is that, even with accelerating EV adoption, adequate infrastructure is not likely to come as a result of the free market any time soon. In response to the RFI Ameren Missouri issued, barriers such as "high initial capital costs and ongoing operational costs relative to the low revenue stream attributable to the few currently existing EVs in Missouri" were identified that will keep the private sector from building this infrastructure without utility support.[50]

One need only to look at the state of California for additional support of this position. Even though it has 15 times the rate of EV adoption as the state of Missouri, California recently approved utility investments of approximately $750 million in EV infrastructure precisely because the private sector was not meeting the need.[51] New York, with roughly three times the Missouri EV adoption level, is likewise encouraging power sector investment of roughly $250

[50] Ex. 2, p. 29. And as discussed in the Company's initial brief (page 17), Mr. Ellis' underwhelming answer to the Chairman's question about whether ChargePoint would continue to operate in Missouri without the program (yes, ChargePoint will make its products and services "available") also indicates that without incentives, the charging station developers are not going to come.

[51] Ex. 1 (Byrne Surrebuttal), p. 6. The California Public Utility Commission, in its Decision 14-12-079, specifically stated that, "The parties' comments represent near unanimity that the utilities should have an expanded role in EV infrastructure support and development in order to realize the potential benefits of widespread EV adoption." (Ex. 2, p. 18.).

million.[52] The Company performed its own corridor charging business case, examining private sector infrastructure investment, and further reinforced these same conclusions: Even assuming a significant increase in assumed charger utilization over 10 years, private sector companies with no incentives will suffer a -2% internal rate of return.[53] One of those private sector companies – ChargePoint – presented testimony specifically stating that, "Utilities are well situated to help address some of the obstacles currently preventing wider deployment of EV charging equipment."[54]

OPC also argues that only incremental load additions resulting directly from the EV program (EVs that come specifically *and only* because the Company enabled the development of the charging infrastructure) can truly provide justification for the program costs being spread across Ameren Missouri's entire customer base. In other words, OPC argues that only the "if you build it, they will come" argument supports the recovery of any program costs in rates. This is simply wrong. While the evidence strongly supports the conclusion that they will come (and will only timely come in significant numbers) if utility programs like the EV program are put into place, the Company very deliberately filed the EV program together with the new line extension policy because the "they are coming so we should build" argument is predicated on exactly the same premise as its new line extension tariff and is itself an independent reason for utilities to provide these kinds of programs. In fact, Mr. Wills conducted one of his economic analyses of the EV program – specifically, how much investment the Company could make in charging infrastructure that would be fully paid by the contribution of the new EV load –

[52] Ex. 1, p. 6.
[53] Ex. 7, p. 52.
[54] Ex. 650 (Ellis Rebuttal), p. 12, ll. 17-18.

utilizing the same formula he used to calculate the allowance for line extension investments. As Mr. Wills stated in his surrebuttal testimony:

> Use of this logic suggests that the economic terms under which the Company would contribute to the development of EV infrastructure that will provide energy services to its customers ought to be exactly the same as the economic terms under which the Company will build a new electric service connection and supporting infrastructure for its customers.[55]

For both, one gauge of the economics is to determine whether investments will be fully offset by the margins derived from serving new load. In the case of the EV program, this means that the net rate impact of the new customer revenues resulting when EVs are purchased, and the revenue requirement associated with the investment made by the Company in the program, is still favorable to all customers independent of whether there is widespread EV adoption that is directly attributable to the impacts of the program. In the case of line extensions, this means that the net rate impact of the new, customer-specific revenues resulting from the extension of service, and the revenue requirement associated with the investment made by the Company in the program, is still favorable to all customers. The expectation in both cases is that the revenues generated will be sufficient to offset the investments. OPC, therefore, cannot effectively claim that the Company's "they are coming so we should build" justification fails.[56]

4. OPC's "Performance-Based Metric"[57] Is Inappropriate and Unnecessary.

[55] Ex. 7, p. 28, ll. 3-7.
[56] Because OPC cannot successfully argue that the program is solely based on the "If you build it, they will come" approach, OPC cannot classify the EV program as a purely speculative, value-added service. Any attempts to treat the program as such are inherently flawed.
[57] OPC's euphemistic "performance-based" label can more accurately be described as a "risk sharing" device designed to treat an EV program designed to meet customers' needs as a second-class citizen as compared to other utility programs.

While OPC alleges that there is no "need" for the EV program (it is not necessary), it does suggest that the Company should be allowed to "voluntarily experiment" in order to see if incremental EV adoption will result. (OPC Initial Brief, p. 11). This is an attempt to increase, to an almost impossible level, the standard by which the Commission measures a proposed program. OPC misuses the concept of "voluntary" as opposed to "necessary."[58] This is so any arguable flaw can be used to reject the program. But that is an incorrect reading of the term, "necessary." As the Sierra Club points out, the term "necessity" does not mean "essential" or "absolutely indispensable" as it applies to the regulated world of utilities. Rather the term means "…that an additional service would be an improvement justifying its cost."[59] The EV program is exactly that – it is an improvement that more than justifies its costs. Ameren Missouri is in no way "volunteering" to conduct an experiment in this case just as it does not "volunteer" to "experiment" with other investments it makes to meet the infrastructure and energy service needs of its customers. The Company instead must invest prudently, meet the customers' needs, and recover those prudent costs in rates. The same should be true in this case. The Company has put forward a compelling case that demonstrates a service need of many of its customers, as well as a high likelihood that all customers will benefit when that need is met.

There is an ever-growing number of other states that recognize the need for EV charging infrastructure, look to utilities to meet that need, and allow their utilities to recover the costs incurred in meeting that need. The Commission should do the same in this case. Missouri will not keep pace with innovation and changing customer service needs if, at the same time that

[58] Staff also incorrectly judges whether the program is "essential," which is not the standard. Staff's Initial Brief, p. 11.
[59] *State ex rel. Intercon Gas, Inc v. Pub Serv. Comm'n of Missouri*, 848 S.W.2d, 593, 597 (Mo. App. W.D. 1993).

other states allow cost recovery of prudent investments associated with new technologies, Missouri chooses to just "allow utilities to experiment" with them.

OPC claims that since there is no way to know *with certainty* that the program will induce enough new cars to be proven to be cost effective, that a risk sharing mechanism for the EV program is appropriate. (OPC Initial Brief, pp. 13-14). However, OPC's risk sharing mechanism is wholly inappropriate for many reasons, including from a pure policy perspective. If the Commission's standard for allowing utilities to make prudent investments in emerging and maturing technologies is absolute certainty, then innovation of any kind will not just lag, but will languish in the state of Missouri. Ameren Missouri – or any regulated utility for that matter – cannot put forward innovative projects specifically designed to meet customer service needs only to face potential punishment for doing so. The standard is prudence, not certainty. Ameren Missouri can accept the risks that arise from a prudence evaluation of a program in a future rate case. It should not be asked to accept more risk than that.

Not only should it not be asked to accept more risk than that, but it *does not* accept more risk than that. To be clear, the Company proposed this program as part of its regulated utility service offering for a reason: It is a service needed by its customers that the evidence strongly shows will be beneficial to its customers as a whole, and as such, customer rates should reflect its costs and benefits. Ameren Missouri has no intention of pursuing the EV program as an "experiment." If the Commission wants the Company to support EV adoption by aiding in the development of the holistic charging network needed to do so, the Commission must approve the program.

The problem in the risk sharing mechanism OPC proposes is not, however, limited to a policy problem. It is also very poorly designed, and if adopted, would represent a substantial

obstacle to Ameren Missouri's ability to justify undertaking the EV program at all even if Ameren Missouri were otherwise inclined (it is not) to offer an unregulated EV program. And it is not just Ameren Missouri saying this. The Sierra Club and NRDC, who both expressed general support for the policy rationale behind performance-based rate mechanisms, point out that OPC's proposal is "not appropriate at this time given the modest size of the Charge Ahead program, the early stage of the EV market in Missouri, and the fact that the EV-related efforts by the state's utilities are currently at a 'pilot stage.'" (Sierra Club/NRDC Initial Brief, p. 9). Further, Sierra Club and NRDC point out that the specifics of OPC's proposal are based on counting vehicles, which is "not the right metric for judging the performance of a utility." (Sierra Club/NRDC Initial Brief, p. 9).

While Ameren Missouri does not agree at all with Sierra Club and NRDC's conclusion that risk-sharing-based recovery is appropriate for programs like this, the Company could not agree more that OPC has crafted a poorly designed mechanism that is based on a completely inappropriate metric. As Company witness Mr. Wills elaborated at pages 68 – 70 of his Surrebuttal Testimony (Ex. 7) regarding the OPC's proposed metric:

- It originally called for no cost recovery *at all* for a period of ten years, after which an assessment would be made whether and to what extent the Company would be reimbursed for the costs. While OPC's supplemental rebuttal testimony created some provisions where cost recovery *might* occur sooner, there is still a delay and potentially still a ten year delay. My expectation is that accounting rules would require the Company to record the costs at the time incurred as a loss, and then, if the targets were achieved, would book some additional earnings in 2028 (or some interim year where provisions in OPC's supplemental proposal kicked in). No rational utility is going to implement a program that is certain to reduce its earnings for a significant period of time up to 10 years simply because of the possibility of a one-time earnings bump years from now.
- There was no mention of recovery of the financing costs over this up to ten year period provided in OPC's rebuttal discussion. Their supplemental testimony contemplated short-term interest credits, but with a delay in recovery for up to 10 years, short-term interest is not a suitable carrying cost.
- It uses the Company's base case forecast of EVs in the service territory as a baseline that must be exceeded before the Company would get a single dollar of cost recovery. It is

important to remember that the Company presented three forecast scenarios related to EV adoption, which reflected a substantial range of possible outcomes, which will be influenced by many factors besides just this program. The risks associated with all of those other factors would be implicitly borne almost entirely by the Company, while customers would enjoy the potential upside associated with higher EV penetrations.

- There is another reason that using the base forecast as a baseline below which no cost recovery occurs is unreasonable. I have established earlier in this testimony that the base forecast of EVs is *much more* than sufficient to fully pay for the Charge Ahead program. The implication is that even some number of vehicles less than the base forecast – perhaps even substantially less – would still economically justify the EV charging investment associated with this program. As such, to afford zero dollars of cost recovery if that base level is not achieved is entirely unreasonable.

Part of the reason OPC proposes its metric is to impose risk on the Company in implementing the EV program. The Company, however, has already accepted an appropriate level of risk in its proposal because if it doesn't induce sufficient EV adoption it will fail to recover the real financing costs it will experience by funding the incentives. Imposing additional risk represents nothing more than a potential punishment for attempting to satisfy the needs of its customers. The risk the Company has already accepted – that it must induce enough incremental EV adoption between rate cases to cover those financing costs – means that the Company's and its customers' incentives are fully aligned; the Company has no incentive whatsoever to implement this program and pay ineffective incentives because if it does so, it will simply cost itself money.[60]

In its initial brief, OPC accepts that the Company is proposing to finance the program costs in a manner that creates risk and, using the Company's weighted average cost of capital of 8.29%, goes on to claim that the maximum risk the company is exposed to is therefore 8% of the cost of the program. (OPC Initial Brief, p. 18). That is glaringly inaccurate and reflects at a minimum a fundamental misunderstanding of finance. The cost of capital is an annually

[60] Even Dr. Marke agrees. Tr. p. 355, l. 16 – p. 356, l. 4.

recurring financing cost on the balance of investment outstanding for each year that has been financed. The Company has proposed to finance the program costs over the entire duration of the time between the payment of incentives and the conclusion of the first rate case occurring after that time, and then proposes to amortize the balance of the investment over a seven-year period.[61] The Company would be delighted if OPC could direct it to a lending institution or investor that charges financing costs one time (at what is otherwise the Company's annually recurring cost of capital rate) and then lets the Company/borrower keep the money as long as desired. But this is clearly unrealistic. In fact, the Company presented a financial analysis of the pre-tax financing cost that it would incur based on the proposed amortization period, using rate case timing assumptions and an 8.29% cost of capital.[62] Table 2 of Mr. Wills' Surrebuttal Testimony, reproduced below, is an illustration applied to both the EV and Business Solutions programs, meaning it relates to approximately $18 million of investment. Table 2 demonstrates that the Company has $7.3 million of pre-tax capital cost at risk under the proposal – a far cry from the $1.4 million ($18 million of investment times 8%) that OPC's misleading statements suggest.

[61] Ex. 7, pp. 48-49.
[62] Ex. 7, p. 46.

Table 2: Financing Costs and Taxes Associated with Deferral of Program Costs

($ in Millions)	2019	2020	2021	2022	2023	2024	2025	2026
Program Budget (Incentives + Admin)	$4.4	$4.2	$3.1	$3.4	$2.8	$0.0	$0.0	$0.0
Regulatory Asset Balance	$4.4	$8.6	$10.9	$13.1	$14.0	$11.9	$9.4	$6.9
Amortization Expense	$0.0	$0.0	$0.8	$1.2	$1.8	$2.2	$2.4	$2.6
Financing Costs and Taxes at Pre-Tax WACC of 8.29%	$0.4	$0.7	$0.9	$1.1	$1.2	$1.0	$0.8	$0.6

	2027	2028	2029	2030	2031	2032	2033	Total
Program Budget (Incentives + Admin)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	
Regulatory Asset Balance	$4.3	$2.6	$1.3	$0.5	$0.1	($0.0)	($0.0)	
Amortization Expense	$2.6	$1.8	$1.3	$0.7	$0.4	$0.1	$0.0	
Financing Costs and Taxes at Pre-Tax WACC of 8.29%	$0.4	$0.2	$0.1	$0.0	$0.0	($0.0)	($0.0)	**$7.3**

It should also be noted that OPC's suggestion (OPC Initial Brief, p. 20) that the Company's cost of capital for a long-term (generally understood to be more than one year[63]) outlay of funds for the program both (a) before any recovery would occur at all, and (b) when that recovery would occur over several years (seven in the Company's proposal or five in OPC's proposal) is not a mere short-term debt rate. To the contrary, the Company will be fronting capital in advance over many years and that capital has a cost like any other capital invested, that is, the Company's weighted average cost of capital.[64]

[63] Tr. p. 114, l. 16 to p. 115, l. 10; Finding of Fact No. 22, *Report and Order*, File No. EO-2010-0255 (recognizing the "short-term" at least involving a contract is one year or less). There is no reason it would be a different period when examining the deployment of capital.

[64] Note that like Staff, OPC made no effort whatsoever in its rebuttal (or supplemental rebuttal) testimony to disagree with Mr. Wills' discussion presented in his direct testimony, of the capital the Company would be fronting or of its cost, which also ignores the requirements of the Commission's rules governing rebuttal testimony. Indeed, OPC's support for applying a short-term debt rate is non-existent. The Company also requests that the Commission take official notice of its approval of the Renewable Choice program in File No. ET-2018-0063, where it approved three different deferral mechanisms and applied the Company's weighted average cost of capital to those deferrals. See Second Non-Unanimous Stipulation and Agreement, p. 6 (applying the cost of capital from the Company's last rate case, i.e., the weighted average cost of capital) and Order Approving Stipulation and Agreement in File No. ET-2018-0063.

OPC's initial brief also challenges the Company's concern about the delay in cost recovery that results from its proposed risk-sharing mechanism. OPC contends that if the Company achieves the goal of 8,900 vehicles in the first year (which would be a huge stretch under even the high forecast of EV adoption the Company has presented in this case), that the Company could begin collecting the entire amount of program costs in the year of the first rate case. (OPC Initial Brief, p. 19). OPC's unlikely scenario of achieving that level of adoption aside, the Company would still be faced with booking the program costs as expenses that reduce income and earnings as they are incurred.[65] And without a deferral, it will never recover those costs.

Further, OPC's suggestion that cost recovery might be close to timely is predicated on a significant number of "ifs" playing out in exactly the right manner, otherwise the Company would wait until vehicle benchmarks were achieved and verified. But from the perspective of a Company deciding whether to undertake the program, it would be necessary to develop comfort that the costs would be out of pocket for the foreseeable future, even if they are eventually recovered. Given the compelling case the Company has made that the program represents a prudent investment that is necessary to meet the changing service needs of its customers, Ameren Missouri certainly does not feel that level of comfort in waiting and hoping for ultimate recovery of its costs; "hope" is not a strategy.

OPC goes on to confusingly claim that "Ameren's concern about a delayed return on their investment is rather duplicitous given that is exactly what Ameren is asking of its own customers." (OPC Initial Brief, p. 20). OPC's analogy could not be further from the truth. The Company obviously is not proposing that its customers finance the program up front in the hopes

[65] Tr. p. 480, ll. 20-25.

for future rate benefits. The fact that the Company is deferring the program costs for recovery over several years – the same years that benefits will be accruing – and does not propose to charge any financing costs to customers during that time, aligns the timing of cost recovery with the expected realization of customer benefits. In fact, Figure 4 (reproduced below) from page 48 of Mr. Wills' Surrebuttal Testimony (Ex. 7) reflects the detailed modeling undertaken by the Company (and which no party challenged), and shows the expected rate impacts over time.

Figure 4 – Charge Ahead (EV and Business Solutions) Rate Impacts by Year Including Regulatory Lag

Noticeable in Figure 4 are the nearly perfectly offsetting costs and benefits in the earlier years of the program, which highlights the fallacy of OPC's analogy. The Company is not putting forth a proposal that seeks to have customers front a bunch of money for a payoff down the road. This

program's thoughtful design aligns the costs and benefits effectively to minimize any initial rate burden that could have been experienced.[66]

D. Response to MPCA

MPCA claims that "at its core" the Company's proposal "invites the Commission to prematurely and inappropriately make broad policy decisions for the . . ." state. (MPCA Amicus Brief, p. 2). Aside from the falseness of that claim is the fact that the Commission can neither consider it or base its decision in this case on it as a matter of law because under Missouri law, an *amicus* "cannot inject issues into a case not presented by the pleadings and the parties." *Hemeyer v. KRCG-TV*, 6 S.W.3d 880, 882 (Mo. *banc* 1999). No party to this case has claimed that the Company's proposal in this case should be rejected or modified on those grounds; MPCA can't do so either. In addition, MPCA ignores the law in other ways by supporting its new argument with extra-record evidence, which Missouri law also prohibits. *See, e.g., Stanley v. City of Independence*, 995 S.W.2d 485, 488 n.2 (Mo. *banc* 1999) (Nor can *amicus curiae* present extra-record evidence but instead, must take the case as it finds it.)[67]

Not only must the Commission disregard the argument, but the argument fails to hold water in any event. The programs proposed in this case were proposed to (a) meet a service need of the Company's customers as part of the Company's statutory obligation to provide safe and

[66] For example, the programs approved by the respective utility commissions in Utah, Ohio, and Massachusetts allow program cost recovery through riders. (Ex. 6, p. 43.)

[67] MPCA provides absolutely no authority supporting the conclusion that the Commission can take official notice of pending, unenacted legislation or of proposed legislation that did not become law. While, in general, a court can take judicial notice (and the Commission could take official notice) of unenacted versions of a bill that did become law if the statute is ambiguous and needs interpretation, the undersigned is unaware of similar authority to simply take official notice of a bill for the purpose advanced by MPCA. *Cf.* Section 490.080, RSMo., allowing judicial notice to be taken of a *statute* for any reason, but making no mention of doing so for a bill or unenacted statute.

adequate service, and (b) to do so in a cost-effective manner by capturing the benefits for utility customers and for the *utility system itself* (e.g., by capturing flexible load that more efficiently utilizes the system) of greater EV adoption. And as noted earlier, the single most direct statement of "state policy" about utility involvement in EVs is found in the Missouri State Comprehensive Energy Plan which concludes that electric utilities "are uniquely positioned to help support electric vehicle infrastructure and charging station networks . . .."[68]

MPCA's other principal argument, that its members who may also be Ameren Missouri electric customers should not have to pay rates that reflect program costs, completely ignores at least two key facts. First, those same members may be uniquely positioned to participate in the EV program by seeking incentives to construct charging infrastructure at their convenience stores so EVs can charge alongside ICE vehicles. And second, because the programs are beneficial to the Company's system (from a rate and other perspective), those same members will, like other customers, benefit from the programs.

III. Charge Ahead – Business Solutions

The Charge Ahead – Business Solutions program is the first efficient electrification program to come before the Commission. That is not to say that it is the first in the nation. As is set forth in the direct testimony of Ameren Missouri witness David Pickles, numerous other states have approved similar programs.[69] As the Commission sorts through the arguments on this program, it should remember that the program has a very compelling benefit/cost ratio of 1.81,[70] meaning every dollar invested in the program results in $1.81 in benefits. The

[68] Ex. 2, p. 9, ll. 12-21.
[69] Ex. 4 (Pickles Direct), p. 9, l. 7 – p. 10, l. 8.
[70] Ex. 4, p. 8, ll. 14-18 and Schedule DP-D2-31 to Ex.4 (showing net benefits using the RIM test of $11.447 million which equates to a 1.63 cost-benefit ratio using the RIM test; the net benefits are actually higher than $11.447 million (about $12.5 million) as evidenced by the revised 1.81

Commission should also keep in mind the significant environmental benefits of the program, both from an overall emissions perspective and from the perspective of reduced local emissions for those working around the equipment. In short, the Business Solutions program provides significant benefits to all customers, the Company, and the environment.

The remainder of this portion of this reply brief will address specific arguments made by OPC and Staff in opposition to the Business Solutions program.

A. Load Building and "Necessity"

OPC starts by labeling the program as "load building" rather than something that Ameren Missouri needs to engage in as a matter of law.[71] OPC's entire argument is premised on this classification. OPC then argues that as a load building program, the program isn't a "necessity" and, using that premise, OPC argues that *any* risk of program failure justifies complete rejection of the program. But this false claim that absolute "necessity" is the test for approval of a utility program is where OPC's argument fails. As was noted above, the term "necessity" does not mean "essential" or "absolutely indispensable" as it applies to the regulated world of utilities. Rather the term means "…that an additional service would be an improvement justifying its cost."[72] The Business Solutions program is exactly that – it is an improvement that more than justifies its costs. As the Sierra Club/NRDC put it, labelling the program as "load building" versus as "beneficial electrification" is of little consequence. (Sierra Club/NRDC Initial Brief, p. 3). What is important is the merits of the program, and the record in this case strongly supports

RIM cost-benefit ratio reported by Mr. Pickles in Ex. 4 at p. 6, ll. 6-8). As Mr. Pickles explained, the originally-reported 1.63 was somewhat too low due to some transcription and copy/paste errors in the original spreadsheet that produced the numbers. Tr. p. 147, ll. 15-23.

[71] OPC Initial Brief, p. 26.
[72] *Intercon Gas*, 848 S.W.2d at 597.

the conclusion that it will result in improvement in customer rates, improvement in the environmental quality, and improvement in efficient grid utilization through enhanced off-peak electrical usage for Ameren Missouri.

And despite OPC's continued claims to the contrary, (OPC Initial Brief, p. 27, FN. 8), the Business Solutions program (the same can also be said for the EV program) is highly complementary to the Company's energy efficiency efforts under MEEIA. In fact, MEEIA and Charge Ahead are both, at their core, energy efficiency programs.[73] The electrification of end uses that are incentivized under Charge Ahead are expected to reduce overall energy consumption across fuels on a total BTU basis, just as MEEIA reduces electric energy consumption.[74]. Both programs result in total emissions reductions,[75] provide more customer options to control their energy consumption and bills,[76] and importantly, both promote efficient utilization of the electric grid.[77] OPC highlights the superficial observation that Charge Ahead increases load and MEEIA reduces it, and concludes that they therefore must be in conflict. Just as with OPC's other attempts to go for the sound bite with an analysis that barely scratches the surface of the issue, they are wrong again here. By looking just a little bit deeper, it becomes apparent though, that the loads targeted by each program are designed to impact the grid in different beneficial ways. MEEIA focuses demand reductions on peak time periods, which reduce the need for additional system capacity.[78] Charge Ahead focuses on the addition of loads that largely use the system during off-peak time periods, when there is excess capacity that

[73] Ex. 7, p. 64, ll. 1-2
[74] *Id.*, p. 64, Table 4
[75] *Id.*
[76] *Id.*
[77] *Id.*
[78] *Id.*

would otherwise go underutilized.[79] In doing so MEEIA and Charge Ahead act together to improve the system load factor and reduce unit costs across the electric grid.

B. Market Share

A disproportionately large share of OPC's and Staff's arguments focus on a single technology targeted for conversion by the program: forklifts. OPC argues (and Staff repeats) that the forklift market is already around 50% electric. But this means by extension that OPC and Staff also agree that, right now, around 50% of the market is not using electric forklifts. That is half of the market that is available to be converted to electric forklifts sooner than what might otherwise occur. They also argue that the pace of adoption is following an adoption curve that makes the program unnecessary.[80] OPC points to a graph offered by Mr. Pickles in surrebuttal, claiming at one point that Mr. Pickles made an error with the graph by not also showing the adoption rate of internal combustion forklifts. (OPC Initial Brief, p. 29). However, OPC's point is nonsensical when evaluated against the actual evidence in the record. The trend shown in Mr. Pickles' graph, as is apparent on page 2 of Exhibit 12 (Pickles Workpaper), which shows the calculation of the values reflected in Mr. Pickles' electric forklift adoption curve, is derived by comparing electric (class 1 and 2) forklifts to a total forklift market *including* internal combustion ones (class 4 and 5). By way of example, visually examining Mr. Pickles' graph, the 2016 electric market share for the forklifts eligible for the program is approximately 50%. On page 2 of Exhibit 12, the calculation of that 50% is shown as 70,242 electric forklifts divided by 141,687 total forklifts. And the 141,697 forklifts is calculated as the sum of 70,242 electric forklifts (again those that are eligible, class 1 and 2) and all (71,455) internal combustion

[79] *Id.*
[80] OPC Initial Brief, p. 28-30; Staff Initial Brief, p. 7.

forklifts (class 4 and 5). Mr. Pickles' graph is derived from those same numbers (for each year of the data) which means that included in the trend Mr. Pickles showed *is* the relationship between electric and internal combustion forklifts. OPC claims (OPC's Initial Brief, p. 29) that the difference between electric and internal combustion forklifts is growing, but the numbers reflected in the record prove that this claim is simply incorrect. The internal combustion forklift adoption rate for any given annual observation is simply one minus the percentage Mr. Pickles calculated. For example, using the same observations used above (from 2016) taken from the Industrial Truck Association chart reproduced on page 2 of Exhibit 12, since 50% of the forklifts (excluding those that are ineligible) are electric then one minus 50% *have to be* internal combustion. So, despite the lengths Dr. Marke went to in the hearing to avoid verifying numbers in Mr. Pickles' workpaper, those numbers speak for themselves in Exhibit 12. Mr. Pickles calculated the market share of electric forklifts, which fully and accurately reflected changes in both electric forklift purchases *and internal combustion forklift purchases,* despite OPC's claim to the contrary.

OPC makes other dubious claims about Mr. Pickles' graph. OPC argues Mr. Pickles should not have removed Class 3 forklifts. But those forklifts are not eligible for the Business Solutions program and it is obviously inappropriate to include them in a market share calculation related to the market that is relevant *for that program.* In fact, doing so results in an overstatement in the electric market share of the population of forklifts that is the actual subject of the program.[81] OPC also argues that Mr. Pickles' graph and Dr. Marke's graph have different x-axes, making a comparison impossible. (OPC Initial Brief, p. 31). The Commission should not allow this argument to confuse them. Mr. Pickles was clear about the fact that the x-axis on his

[81] Ex. 5 (Pickles Surrebuttal), p. 9, l. 16 – p. 10, l. 2.

graph was not meaningful in interpreting Dr. Marke's diffusion curve. The graph does, however, clearly demonstrate that the S-shaped pattern of the diffusion curve Dr. Marke suggests is clearly *not* at work in the relevant electric forklift market. That characteristic S-shape looks nothing like *any part* of the actual forklift market share curve, over *any time period* reflected in the historical data available in the record in this case. That is because the *actual* forklift adoption has not matched in any way at any time the diffusion curve *theory* touted by Dr. Marke.[82] As Mr. Pickles pointed out when he was testifying before the Commission, the market share has essentially remained flat within a narrow band between 40% and 50% (going up, then down, and then back up) but at about no more than 50% for the last 10 years.[83] This is hardly the behavior of a technology that is naturally increasing its market share and therefore needs no incentives in order to advance it. If you drew a line graph of this behavior, it would certainly look nothing like Dr. Marke's S-shaped curve.

Now, when looking at Dr. Marke's graph, remember it reflects information from the entire North American market while Ameren Missouri also provides data specific to its service territory.[84] Mr. Pickles removed the Class 3 forklifts, as discussed above, and also refined it to reflect the counties served by Ameren Missouri and the number of customers within each county.[85] Further, despite OPC's suggestion that the data somehow doesn't show what it indeed shows, Mr. Pickles provided 2018 data that showed the market share of the relevant (eligible) electric forklifts in Ameren Missouri's service territory has actually been *declining* in 2018,

[82] Tr. p. 199, l. 4 – p. 200, l. 22.
[83] Ex. 12, p. 2 (column labelled "Elec. Share No 3s").
[84] Ex. 5, p. 10, ll. 3-4.
[85] Tr. p. 156, ll. 17-19.

further undermining Dr. Marke's argument about the S-shaped curve and reinforcing the need for the Business Solutions program.[86]

Finally, Ameren Missouri would point out that the Commission doesn't have to wade through these arguments to decide if there is a need for the Company's proposed program. In addition, Mr. Pickles' firm, ICF Resources, LLC ("ICF"), conducted an Opportunity Assessment study, a study which looked at forklifts in Ameren Missouri's service territory, sometimes called a Market Potential Study.[87] This study was introduced in Mr. Pickles' direct testimony and is the best evidence in the record of what types of forklifts exist in Ameren Missouri's service territory, based on direct interactions with customers and vendors of the equipment in question. That study shows that as of the time the study was done, just over 50% (50.4%) of the forklifts are electric, meaning just under half (49.6%) are not.[88]

Similar arguments were made about standby truck stop electrification and airline equipment. (OPC Initial Brief, p. 36). OPC barely does more than touch upon these two arguments in its initial brief, perhaps because Mr. Pickles clearly demonstrated the faults of the arguments in his surrebuttal. As for standby truck stop electrification and refrigeration units, the regulations cited by Dr. Marke were issued by the Missouri Department of Natural Resources at 10 CSR 10-2.385 and 10-5.385. These regulations do limit idling but they also contain 13 important exceptions which OPC completely ignores, including allowing operation of a diesel auxiliary power unit, operation of refrigeration, and provision of heat and air conditioning during mandated rest periods.[89] Moreover, the regulations do not apply at all in significant portions of

[86] As shown on page 1 of Exhibit 12, Mr. Pickles had actual Ameren Missouri-specific data for 2016 through 2018.
[87] Ex. 4, p. 10, ll. 11-20; Schedule DP-DE-12.
[88] Ex. 4, Schedule DE-DE; Tr. p. 196, l. 21 – p. 197, l. 1; and Exhibit 12, p. 1.
[89] Ex. 5, p. 17, l. 11 – p. 18, l. 20.

Ameren Missouri's service territory.[90] Given these exemptions and the inapplicability of the rules in parts of the territory, the rules do nothing to prohibit the majority of the specific activities that are currently performed by internal combustion engines which would be replaced by the electric equipment incented by the Business Solutions program. ICF's Opportunity Assessment study found that 99% of the overnight spots did not offer electrification.[91] Clearly this market continues to have tremendous opportunity for electrification. And as to airline electrification, there was persistent confusion in this case about the target customer for this program. It is not St. Louis Lambert International Airport, rather it is the 12 different airlines that are airport tenants.[92] And while it is true that the cost-effectiveness analyses of the program do not depend on electrification at any airport other than Lambert, there are also other tenants at other regional airports such as those at Cape Girardeau and the Spirit of St. Louis airport that may also present opportunities that would make the program even more cost-effective.[93] The ICF Opportunity Assessment study looked specifically at the equipment at the various airlines and found that nearly 90% is not electric at this time.[94] These airport applications also represent meaningful opportunities to further the use of efficient electric technologies.

C. Free Riders

OPC's and Staff's concern about the market share percentage for all of these applications is related to "free riders." That is, paying a participant an incentive when that participant would have purchased an electric piece of equipment without the incentive. Ameren Missouri understands the concern but the record demonstrates that that OPC and Staff have significantly

[90] Ex. 5, p. 17, ll. 11-19.
[91] Ex. 4, Schedule DP-D2-15.
[92] Ex. 5, p. 19, ll. 4-9.
[93] Ex. 5, p. 19, ll. 9-10.
[94] Ex. 4, Schedule DP-D2-14.

overstated the risk of occurrence, and have misrepresented the amount of free-ridership that can occur in the program and the impact of such free-ridership on program cost-effectiveness.

It is important to keep in mind that the Company's proposed program cost recovery, which conditions its recovery of financing costs on the investments made under the program on the creation of real incremental new load, gives it a powerful incentive to operate programs in a manner that will not result in free ridership else the Company will advance costs to fund the programs but will suffer significant losses by failing to recover the cost of financing those advances (as discussed in connection with the EV program earlier in this reply brief). The Company's interest means that it will be vigilant in monitoring for signs of excessive free ridership and will take corrective actions as necessary to avoid it. Indeed, as outlined in its initial brief, when issues were raised about whether the program tariff sheets adequately mitigated free ridership concerns, the Company proposed modifications to do just that.

While testifying during the hearing, Mr. Pickles drew a pie chart, marked and admitted as Exhibit 11. Exhibit 11 represents Mr. Pickles' explanation of why free ridership cannot reach the levels OPC is concerned about in the forklift market. Importantly, this pie chart represents new sales of forklifts, as demonstrated by Mr. Pickles' language choice of "forklift market" rather than meaning the market share of existing forklifts,[95] a point OPC clearly missed when it provided its long and convoluted criticism of the chart. This is a key distinction because OPC assumes later in its brief that Mr. Pickles' assessment of a group of forklift purchasers' likely technology choice is based on their past purchase behavior, as represented by OPC's initial brief statement that, "Mr. Pickles' bold assertion that the second quadrant could not possibly result in free riders simply because those owners have not purchased electric forklifts in the past is

[95] Tr. p. 186, ll. 5 and 15-18.

therefore clearly wrong." (OPC Initial Brief, p. 41). However, Mr. Pickles' "bold assertion" was not based on past purchase behavior. And it was not a bold assertion at all. It was a statement of observation of the market as it exists currently, as determined through ICF's market research. It was based on segmenting the market of forklift purchasers based on analysis current purchase trends. What this tells us is that Quadrant 2, which OPC mentions in its brief, represents the customers that we know *are currently* buying internal combustion forklifts based on ICF's market research, not those that have just done so in the past.

Mr. Pickles first divided his pie chart in half, representing the roughly even split between current market shares for electric and non-electric forklifts.[96] He then divided it in half again, representing the fact that his research also shows that half of the sales market is for replacement forklifts and half is for an expansion in the number of forklifts.[97] This resulted in four quadrants. Those that already have electric forklifts and who are replacing with electric forklifts would be ineligible to participate in Ameren Missouri's program.[98] As noted, to ensure that the program is operated consistent with this statement, Ameren Missouri's initial brief contained additional tariff language designed to clarify this ineligibility consistent with the program's intention from its inception.[99] As for the quadrant for existing forklifts that are undertaking an expansion, rather than automatically say these customers are ineligible, the modified program tariff requires the customer to allow inspection and/or for the Company to review other evidence (construction plans, etc.), and if the Company, in its sole discretion, determines the customer likely would have

[96] Tr. p. 197, ll. 4-10.
[97] Tr. p. 187, ll. 15-21.
[98] Tr. p. 188, ll. 6-12.
[99] Ameren Missouri Initial Brief, p. 43.

purchased electric equipment anyway, the customer cannot receive an incentive, i.e., can't become a free rider.[100]

OPC makes another noteworthy assertion regarding free ridership in its initial brief when it gives as a reason that OPC expects high levels of free ridership that, "in fact, there is simply no reason to assume that any such owner would not choose an electric forklift given all of the benefits that Ameren argues they possess." (OPC Initial Brief, pp. 41-42). This statement highlights OPC's approach to this case. Rather than understanding the record and evidence in the case to develop a coherent point, they make a snarky comment based on a superficial and circumstantial observation. OPC is right about one thing – electric forklifts do offer many compelling benefits to consumers, as the undisputed record shows. And if that were enough to ensure adoption, we wouldn't be having this discussion – the electric market share would be at or near 100%. However, OPC seems to think that if they just point out that, "if the benefits Ameren claims are true, these forklifts must sell themselves," that everyone will stop thinking and assume a program is not needed. But the record is also replete with uncontroverted evidence that there are numerous barriers to adoption of electric forklifts, including price, unfamiliarity, skepticism regarding the benefits, and dealer desire to close the sale quickly,[101] which keep electric forklift adoption from reaching its potential. As further evidence of these barriers and as detailed in the market potential study, forklift dealers in the Ameren Missouri service territory indicate that, on average, an incentive of $1,631 would be necessary to help overcome them.[102]

This evidence comes as the result of a party to this case – Ameren Missouri (with ICF's assistance) – who talked to market participants about those barriers, and about what type of

[100] Tr. p. 188, l. 19 – p. 190, l. 1; Company's Initial Brief, pp. 41-42.
[101] Ex. 5, p. 13.
[102] *Id.*, p. 14, l. 11.

program would be needed to address them. But that evidence aside, there is an even more compelling piece of evidence that electric forklifts aren't selling themselves to every business owner without a program – the *fact* (with which everyone in this case agrees) that roughly half of current forklift purchases (excluding class 3) are still internal combustion forklifts and that this has remained true over roughly the past decade (in fact, as noted earlier, the share has largely been capped at about 50% while meandering between 40% and 50% during that time period.[103]

Finally, it should be remembered that the benefit/cost ratio of 1.81 already reflected an allowance for 20% of participation to be associated with free riders. Mr. Pickles discussed at the hearing why it is impractical to eliminate all free ridership, as the terms of the program would be so restrictive that it would dramatically reduce participation of even those participants that are the appropriate target of the program.[104] But it would take a lot more free riders than the 20% that the program already contemplates – over 50% of all participants would have to be free riders – to make the program fail the cost effectiveness test.[105] That means that even if some free riders are allowed to participate in the program beyond those that the Company assumed, customers as a whole still gain more benefit than the program will cost.

Note that the ICF potential study and cost-effectiveness analysis comprehensively examined the impact of a full range of different assumptions regarding free-ridership, as well as different levels of incentive and participation for individual measures. This is in stark contrast to Staff's incorrect assertion that "Nothing has been provided to show what happens to the cost-effectiveness if a different level of assumed measures is installed, or if certain measures failed to be installed, at any point during the program." (Staff Initial Brief, p. 10). In fact, ICF's analysis

[103] Ex. 12, p. 2 (column labelled "Elec. Share No 3s").
[104] Tr. p. 191, l. 24 to p. 192, l. 2.
[105] Tr. p. 192, ll. 3-7.

looked at eight different scenarios with four different participation rates (high, medium, low, and no-incentive) and two different free-ridership assumptions for each (80% net-to-gross and 60% net-to-gross).[106] It is noteworthy that of all these scenarios, only two were not cost-effective. Those two are the "no-incentive" scenarios and are not representative of the program as proposed by Ameren Missouri.

D. Administrative Costs

Staff and OPC also express concern about the level of administrative costs for this program[107] and, without knowing anything but percentages of the budget allocated to different program costs, Ameren Missouri understands how one, at a superficial glance, could be concerned. When one makes the effort to understand the facts, however, there is little to be concerned about. First, one must examine what OPC and Staff classify as administrative costs. Mr. Pickles provided a breakdown of program costs in his surrebuttal testimony. It shows that 55% of the budget will be used for incentives paid to customers to induce adoption of the electric equipment. OPC and Staff lump the rest of the costs together and call them administrative costs. What OPC and Staff did not do is evaluate the appropriateness of those other categories of costs in order to assess the appropriateness of any particular cost. Nor did they benchmark the cost to other successful programs or otherwise demonstrate how the program objectives could be met with a lower budget. By contrast, ICF engaged in an Ameren Missouri-specific study using primary Ameren Missouri territory data to arrive at budgets that in its experience are needed to gain the program benefits, which are quite high – $1.81 for every dollar spent.

[106] Ex. 4, Schedule DP-D2-31 and 32
[107] OPC Initial Brief, p. 45; Staff Initial Brief, p. 8.

As an example, some of that cost is for the significant amount of time needed to work with dealers, providing customer education, sales training, technical support, incentive processing support, and documentation.[108] Regardless of how that cost is classified, marketing, education, training, and other support are an important part of developing and operating a viable program.[109] It is also important to remember that this is a relatively small five-year program, which has to be built from the ground up beginning in year one upon approval. Startup costs will be incurred just to get off the ground before a single kilowatt-hour of new load can be induced. And the number about which OPC bristles at the most – about $200,000 in administration costs for the airport equipment program – needs to be put in context of the full five-year program term. That $200,000 for the airport program is only about $40,000 a year to try to convince at least 12 different airlines to adopt electric equipment where currently they are using ICE-powered equipment about 90% of the time.[110] Similarly, OPC attempts to make the anticipated travel budget seem unreasonable by quoting its 5-year total (6% of the budget or $414,774) instead of considering its average annual amount of $82,955. When we consider that this travel budget has to support the entire program staff and all of the program activities (marketing and sales visits to customers, account management, training, pre-inspections, post-inspections, technical support visits, et al.),[111] the budget is, on its face, reasonable. OPC uses similar tricks to cast into doubt the other components of the budget, but in no case does OPC consider the volume and complexity of the actual tasks at hand, compare the budgets to other programs, or offer what would be (in their opinion) a more reasonable and substantiated budget.

[108] Ex. 5, p. 24, ll. 10-13.
[109] *Id.*, p. 7, l. 19 – p. 8, l. 3.
[110] Tr. p. 184, ll. 18-24; Ex. 4, Sch. DP-D2-D14.
[111] Ex. 5, p. 19, ll. 12-14; Tr. p. 178, ll. 14-21.

But a larger point is to consider the pilot-scale size of this program. The context that Staff and OPC use to evaluate whether administrative costs of a program are reasonable is likely based on their growing experience with MEEIA energy efficiency programs. The Company's MEEIA programs are quite mature, with budgets of hundreds of millions of dollars. Obviously, programs of this size and maturity develop certain economies of scale that drive down the administrative costs in proportion to the program incentives. A pilot-scale program like Business Solutions does not have those economies of scale. The fact that a larger proportion of costs goes to program administration in a small-scale program is hardly surprising. If experience with the Business Solutions program should result in larger program rollout in the future, those economies of scale could occur and one would expect the overall percentage of non-incentive costs to decrease.

Further, as Mr. Pickles testified during the hearing, the Business Solutions program can reasonably be expected to be more expensive to administer than a simple energy efficiency program because it provides more services to customers than do many energy efficiency programs. This is because it takes more customer services (technical support, training, education, economic analysis, marketing, etc.) since the decision to switch to electricity is typically a more difficult, risky, and complex decision (often requiring customer investment in new infrastructure) than is the decision to use an efficient version of an otherwise comparable product.[112]

E. Competition with Compressed Natural Gas

Staff also asserts that the Business Solutions program is in direct competition with Spire's CNG tariff. (Staff Initial Brief, p. 11). Staff's brief does use the phrase "direct competition" but under cross-examination, Staff witness Byron Murray admitted it was, at most,

[112] Tr. p. 178, l. 14 to p. 179, l. 4.

indirect competition.[113] Staff's concern is not well developed (one sentence in surrebuttal testimony). In addition, the Staff's position rests on the false presumption that there are commercially available CNG forklifts, yet Mr. Pickles who is in the business of knowing what offerings exist in those markets says there is not.[114] Regardless, there is no competition between this program and Spire Missouri because Spire Missouri does not sell CNG nor are sales of CNG regulated by this Commission.[115] Remember, the program targets technologies that use gasoline, diesel, or propane; none of those fuel sources are regulated by the Commission.[116] Spire's tariff is not for the sale of CNG.[117] Even Mr. Murray admits the Spire Missouri tariff is for the sale of natural gas to companies that produce CNG.[118] Finally, if a company had a CNG forklift, for example, and wanted to replace it with an electric forklift, Ameren Missouri's tariffs would not allow an incentive to be paid for that conversion.[119]

As discussed in the Company's Initial Brief (pp. 44-45), the Staff's position is truly extreme because if it were valid, it would mean that the Commission could (or should) never grant a waiver from the Promotional Practices rule if there was any kind of competition – direct or indirect – between one regulated utility's program and another regulated utility's offerings, but that is clearly not what the rule contemplates. In 1988, the rule was amended for the first time to add a waiver provision "for good cause shown."[120] In opposing the addition of a good cause waiver provision, OPC and Laclede (now Spire Missouri) claimed that the provision would

[113] Tr. p. 428, ll. 7-14.
[114] Tr. p. 187, ll. 11-14.
[115] Tr. p. 422, ll. 6-13.
[116] Ex. 5, p. 21, ll. 4-8.
[117] Exhibit 15.
[118] Tr. p. 424, ll. 12-14.
[119] Tr. p. 428, l. 3 – p. 429, l. 4.
[120] *Missouri Register*, Vol. 13, No. 17, Sept. 1, 1988 (Where the Order of Rulemaking was published).

"generally achieve a result similar to complete repeal of the rule," but the Commission rejected this argument.[121] In doing so, the Commission stated that OPC's and Laclede's fear was "unfounded" because the waiver provision would not create a right or benefit "other than opportunity – opportunity to persuade the commission that a program has merit."[122]

Staff's effort to strain to find "indirect" competition is simply an extension of its argument against the merits of the program, but if the Commission determines the program has merit – and for the reasons discussed in the Company's briefs and in the record it should – then the promotional practices rule clearly contemplates that a waiver is appropriate.

IV. Cost Recovery

The cost recovery issues in this case apply equally to the EV program and the Business Solutions program and were addressed in significant detail in the Company's initial brief (see pp. 31-34). However, a few points raised by the Staff's initial brief bear addressing here.

Staff's initial brief simply repeats Staff witness Mark Oligschlaeger's position in his rebuttal testimony that Ameren Missouri's request does not meet the standards the Commission traditionally uses to determine when to issue an Accounting Authority Order ("AAO"), arguing that the Company should recover the costs of this program through "like any other traditional expense item." (Staff Initial Brief, p. 22).

The record in this case, including Mr. Oligschlaeger's testimony under cross-examination, demonstrates that this case does not involve an AAO at all and that in closely analogous circumstances, the Commission has routinely approved deferral accounting – a tracker

[121] *Id.*
[122] *Id.*

– for new programs such as this where the prohibition against single-issue ratemaking required deferral accounting in order to preserve the costs for later consideration in a rate proceeding.

First, Mr. Oligschlaeger admitted that the standards by which trackers are judged are much different than the typical standard applied to a standard AAO. "To state it more exactly, a tracker is a different kind of mechanism than the type of deferral request normally made through AAO applications."[123] While he attempted to hedge a bit, he admitted that Ameren Missouri's request in this case had "…aspects of both [at tracker and an AAO]. I probably would lean a bit towards the tracker side than the AAO deferral aspect of it." [124] That leaning is clearly justified, given the Commission's significant history of approving trackers for costs that would clearly not meet the extraordinary standard typically applied to AAO requests in circumstances that are closely analogous to this case. Mr. Wills outlined several instances in his surrebuttal testimony, and was not challenged on them at all during the hearing. See pages 55 to 56 of Exhibit 7, outlining approval of deferrals (i.e., the tracking of certain items) in File No. ET-2018-0063, for the new energy efficiency program costs (pre-MEEIA) for Ameren Missouri, KCP&L, and Missouri Gas Energy, for storm costs (not extraordinary, one-time costs incurred in the past, but ordinary, ongoing storm costs), as well as other examples.[125]

The difference between tracking an expense by deferring it and requesting an AAO for a discrete, past event is important and is probably why Staff prefers to label this request an AAO, because not only does the Commission obviously not use the "extraordinary" standard advocated

[123] Tr. p. 479, ll. 8-12.
[124] Tr. p. 479, p. 21 – p. 480, l. 1.
[125] In its Reply Brief, Staff points to one instance (involving the hotly-contested KCPL request for a transmission tracker a few years ago), where the Commission denied a tracker request based in part on lack of "extraordinariness." But that is clearly not the standard the Commission has on many occasions, including ones closely analogous to this case, has applied to requests to defer and track costs for new programs.

for by Mr. Oligschlaeger for trackers, but neither does the Staff when it decides the position it will take on tracker requests.[126] Mr. Oligschlaeger agreed that AAO requests typically deal with past events, such as restoration after a major storm.[127] There is no past event or historical cost at issue in this case. According to Mr. Oligschlaeger, trackers are generally intended to deal with ongoing costs for which there is some public policy interest in tracking the dollars.[128] The Staff's Initial Brief set forth additional criteria for trackers, but these criteria are not supported by the record in this case at all – Staff did not offer tracker criteria in rebuttal or surrebuttal, nor was there any discussion of criteria at the hearing other than the public policy interest that was discussed with Ameren Missouri. Staff does not even cite prior Commission orders or case law to indicate what criteria is to be used for trackers.[129]

Clearly one of the criteria used by the Commission, as evidenced by the examples cited by Mr. Wills, is to encourage the utility to take steps to implement a program (energy efficiency, Renewable Choice), or engage in other beneficial behavior (strong storm response) when doing so would harm the utility financially absent use of a deferral mechanism; a tracker. One way of characterizing use of a tracker in those circumstances is that public policy supports it.

If the Commission judges these programs to serve a need and to otherwise be beneficial (and the record strongly indicates that it should); if the Commission desires to support the policies underlying the programs, including downward pressure on rates, providing flexible load, reducing emissions, and in the case of the EV program, acting consistently with the state's

[126] Tr. p. 480, ll. 2-8.
[127] Tr. p. 479, ll. 13-16.
[128] Tr. p. 479, ll. 17-20.
[129] The hearing transcript indicates that Staff misunderstood Ameren Missouri's request and thought it was for an AAO rather than a tracker, but that is belied by Mr. Oligschlaeger's testimony during the hearing that the request was closer to a tracker than an AAO. Tr. p. 479, p. 21 – p. 480, l. 1.

Comprehensive Energy Plan, then it clearly can as it has done before approve deferral of the program costs.

One final point bears noting. The Staff takes a swipe at the Company's witness who requested the tracker on the ground that he is not an accountant, the suggestion being that only an accountant is capable of understanding the *propriety* of approval deferral accounting for programs like these. (Staff Initial Brief, p. 22). While it may require an accountant to explain in detail the *accounting entries* that will be made to accomplish the deferrals, one need not be an accountant to understand the policy reasons for approving trackers or to understand the circumstances under which the Commission has approved them in the past, including in closely analogous situations. None of the Commissioners are accountants, but that doesn't mean the Commissioners can't understand the issue, the merits, and the arguments, and then make a reasoned decision on the propriety of authorizing the deferral.

The fundamental problem with the Staff's position, aside from its incorrect focus on an AAO and standards typically used for AAO requests, is that if adopted it would mean that the Company will simply lose the program costs until the conclusion of the Company's next rate case. (Staff Initial Brief, p. 22). It will lose them because the costs incurred to run the programs will be charged to expenses incurred as they are incurred, immediately reducing earnings.[130] This means that the only way for those costs to be included in the Company's revenue requirement is for the expense to occur in a test year, update period, or true-up period, and even then, until rates are reset, Ameren Missouri will suffer permanent loss of some portion of the

[130] Tr. p. 480, ll. 23-25. In its Reply Brief, Staff picks the Company's most recent unadjusted quarterly surveillance report result and implies that it somehow justifies its opposition to a deferral. As the Commission, has recognized, "unadjusted, per-book surveillance reports have only limited value." *Report and Order*, File No. ER-2014-0258, p. 26.

program costs of these new programs.[131] In fact, absent some special treatment, like a tracker, the historical test year used in the state of Missouri means there is no way to obtain perfect symmetry so that the Company could start a new program and also get those costs into its revenue requirement.[132] Approval of a tracking mechanism solves this impossible dilemma, as it captures all expenditures for recovery in the next rate case, no more and no less, and will therefore allow the Company to offer the programs.

Staff points out that the Commission cannot predetermine that the costs will be included in the Company's next rate case. This is, of course, correct and Ameren Missouri acknowledged this fact in its initial brief, stating that the ultimate decision on including the costs in the Company's revenue requirement would be made in a rate case but asked the Commission to recognize in its order in this case the reasonableness of the approach proposed by the Company. Ameren Missouri is not asking the Commission to bind a future Commission but rather to indicate that use of a tracker to defer the costs of these new programs is a reasonable approach, as its approval of use of a tracker in analogous circumstances in the past indicates to be the case.

V. Miscellaneous Issues

A. Staff's "let's talk more about 'make-ready' idea."

Staff's position in this case amounts to "reject both of the Company's proposals and let's continue to talk more about a limited EV program." But as explained in the Company's initial brief, the market has already told us that what Staff means by "make-ready" will simply be insufficient to get the needed EV charging infrastructure in place.[133] Such further discussion (after years of discussion have already occurred and have borne no fruit) also has nothing to do

[131] Tr. p. 481, ll. 1-6, 7-14.
[132] Tr. P. 482, l. 22 – p. 483, l. 5.
[133] Ex. 3, p. 15, ll. 7-9; Ex. 7, p. 53, ll. 18-20.

with beneficial electrification of commercial and industrial uses, and would simply mean the benefits of the Business Solutions program would be lost. More talk about Staff's narrow view of "make-ready" is a waste of time.

Oddly, Staff cites to three lines of the hearing transcript when Ms. Lange was testifying as support for its desire to talk further about a make-ready model (Staff Initial Brief, pp. 2-3), but the discussion that precedes that isolated passage has nothing to do with a narrow make-ready approach but instead, dealt primarily with Ms. Lange's deep in the weeds fixation on the utilization of each plug at a given charging station.

Nor (taking Staff at its word) can or should the Commission order the Company to enter into a make-ready discussion since, according to the Staff, there is simply no need for an EV program at all. If Staff were right and there is no need, then the Commission has no basis (statutory or otherwise) to order the Company to talk about or implement any particular program, or any program at all, let alone one limited to Staff's "make-ready" model.

B. Commission Authority Regarding Conditions

The Staff spends several pages (pp. 3-6) outlining a detailed and broad view of its claims about the breadth of the Commission's authority. The Company will not similarly take many pages analyzing the validity (or lack of it) of all the Staff had to say. In the end, Staff agrees that if the Commission were to impose conditions that are unacceptable to the Company, the Company can simply decline to proceed with the programs. (Staff Initial Brief, pp. 3-6). The Company has made clear that it did not – and is not – proposing these programs as an unregulated service or even as a "tariffed" service that would isolate its costs and revenues in a limited class (such as the settled resolution of the EV issue in KCP&L's last rate case), and that if the Commission wants to support the policies reflected in the programs as proposed, it must

approve them as a regulated service with the costs and benefits to be reflected in Ameren Missouri's revenue requirement. Approval of a tracker to defer the costs is also essential.

C. Requested Conditions Outlined in Other Parties' Initial Briefs and Not Previously Addressed

As a fallback position, if the Commission approves the EV program as requested, Staff asks the Commission to condition the approval on the Company agreeing that all of the corridor charging stations shown in red on Exhibit 8 will be located in those exact locations. (Staff Initial Brief, p. 17). That condition should not be imposed. While Exhibit 8 reflects a thoughtful plan for a statewide corridor network and for the stations in Ameren Missouri's service territory, it has not benefitted from Ameren Missouri actually going to the market to see where the market believes the best locations for stations are. Ameren Missouri has to operate the program prudently, and that includes making prudent decisions on corridor charging applications. Handcuffing the Company by dictating locations shown on a plan before the program is being implemented is unwise, would reflect micromanagement of the Company's operation of the program, and could lead to less than optimal charging station placement.

As previously indicated in pre-filed testimony, Ameren Missouri does not object to the condition proposed by DED relating to allocating 10% of the funds to underserved and low-income communities.

With respect to modifications suggested by Sierra Club/NRDC (pages 9-10 of their initial brief), Ameren Missouri doesn't object to the reporting requested for the EV program so long as any condition requiring it makes clear that Ameren Missouri can only report the data it actually obtains for a given charging station. Not all of the data listed by Sierra Club/NRDC will be available to Ameren Missouri; none of the data belongs to Ameren Missouri, which will not be

the charging station owner. With respect to the reporting requested for the Business Solutions program, Ameren Missouri has no objection.

VI. Program Tariff Modifications

In both its initial brief and in this reply brief, Ameren Missouri has indicated that the Commission should approve the EV program and the Business Solutions program on the condition that certain modifications are made to the program tariffs to address concerns that were raised by others. Specific modifying language was proposed in the initial brief and in this reply brief. To ensure clarity, Ameren Missouri is also attaching the tariff sheets for both programs that would be impacted, with the modifications underlined. These would be filed as compliance tariff sheets upon Commission approval of the programs.[134]

[134] The Commission should not be intimidated by OPC's not-so-veiled threat in its reply brief to appeal if the program is approved and the Commission conditions its approval on the tariff changes proffered by the Company being made. Here, any tariff change suggested by the Company moves the Company's position *closer* to the opposing positions of Staff and OPC. The Commission clearly has the authority to approve the programs without any tariff changes. Given that, it can certainly approve programs that are closer to what OPC would like to see, even if still not what OPC wants.

Respectfully submitted,

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Dated: January 17, 2019

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing reply brief was served on counsel for all parties of record in this docket via e-mail on the 17th day of January, 2019.

/s/ James B. Lowery
James B. Lowery

CHARGE AHEAD – ELECTRIC VEHICLES PROGRAM

GENERAL PROVISIONS APPLICABLE TO ENTIRE PROGRAM

PURPOSE

The purpose of the Charge Ahead – Electric Vehicles Program (Program), which consists of four sub-programs (corridor, workplace, multi-family, and public) is to stimulate the development of infrastructure within the Company's service territory that is needed to support widespread adoption of electric vehicles by the public. This will be accomplished by providing a number of targeted incentive offerings to be used to overcome initial market barriers to deployment of charging infrastructure.

DEFINITIONS

Corridor Charging – EV Charging Infrastructure that is strategically located to enable long distance travel across interstate highways, state highways or other thoroughfares connecting population centers.

DCFC Charging – Direct Current Fast Charging, commonly referred to as "Level 3 charging" and utilized to quickly recharge electric vehicles, with a common power rating of 50kW or higher.

Demand Mitigation Solution – Any investment in equipment or infrastructure designed to manage and potentially mitigate the demand placed by EVSE on the electric system, such as integrated battery or other storage solutions or demand control equipment and demand management software.

EV – A light duty vehicle powered entirely or in part by externally generated electricity.

Electric Vehicle Supply Equipment (EVSE) – Equipment used to recharge electric vehicles, commonly referred to as "chargers."

EV Charging Infrastructure – EVSE and the structures, equipment, and electric facilities necessary to connect EVSE to the electric grid and make EVSE services available to consumers.

Level 1 Charging – Alternating current charging utilizing the SAE Standard J1772 connector having typical supply voltage of 120V and a typical power level of less than 2kW.

Level 2 Charging – Alternating current charging utilizing the SAE Standard J1772 connector having typical supply voltage of 208 or 240 and typical power levels of between 3kW and 7kW, and up to 20kW.

Make Ready – Activities and infrastructure incurring substantial costs to identify, acquire and develop sites and structures to facilitate the installation of EV

Charging Infrastructure.

Multi-family Charging – Level 1 or Level 2 EVSE that is located at a residential premises with multiple leased dwelling units and has maximum power level less than 8 kW.

Public Charging – EVSE that is available to the general public but that does not qualify as Corridor Charging.

Workplace Charging – EVSE installed at a non-residential premises intended to provide vehicle charging service to employees, visitors, or fleet vehicles of the business that occupies the premises, but not to the general public.

AVAILABILITY

This Program is available while funds remain to existing or potential customers that commit to installing, owning, and operating qualifying EV Charging Infrastructure and agree to meet any other specific requirements designated herein for individual incentives. Incentives will not be available for EV Charging Infrastructure projects that would require significant system upgrades upstream of the transformer serving the customer's proposed project. Certain individual incentive offers have additional eligibility criteria referenced on the Company's website at www.ameren.com/EV.

TERM

Applications for incentives under the Program will be accepted until the earlier of the date that all funding is exhausted or December 31, 2023.

BUDGET

Total Company-supplied budget for the Program shall not exceed $11 million, not including funds made available from other sources such as private, federal or state grants or programs. Each sub-program is also subject to an individual sub-program budget. If funding is exhausted for an individual sub-program, and budgeted dollars remain unspent in another individual sub-program as of January 1, 2021, remaining funds may be reallocated by the Company across the other sub-programs until the $11 million of funds to be supplied by the Company is exhausted or until the program term ends.

CHARGE AHEAD – ELECTRIC VEHICLES PROGRAM

Corridor Charging Sub-Program

PURPOSE

The Purpose of the Corridor Charging Sub-Program (Corridor Program) is to stimulate the development of a public minimum practical network of EV Corridor Charging infrastructure, including Level 3 DCFC, across the Company’s service territory so that EV drivers can travel throughout the area and have sufficient practical options to recharge their vehicles when needed.

AVAILABILITY

The Corridor Program is available to current or prospective non-residential electric customers of the Company who commit to owning and operating EV Corridor Charging Infrastructure, have been selected through a competitive bid process managed by the

Company, and agree to contractual terms for operation of EV Corridor Charging at locations identified by the Company.

SPECIFIC CORRIDOR PROGRAM PROVISIONS

The Company will hold competitive procurement events for bidders to present plans for the development of EV Charging Infrastructure at Charging Corridor sites and apply for incentives to execute those plans. The Company will identify no less than 8 and no more than 15 Charging Corridor sites located within one (1) mile of interstate or highway interchanges, and may at its discretion package locations into groups for bidding purposes. To qualify for Corridor Charging incentives, EV Charging Infrastructure plans must include at least two (2) DCFC Charging Ports and two (2) Level 2 Charging Ports per site. Each site is eligible for incentives not to exceed $240,000 in total, except where planned DCFC Charging Ports have capacity of 150 kW or greater, in which case individual site incentives shall not exceed $360,000 in total. Bids will include the detailed specifications of EV Charging Infrastructure to be installed and total incentive funding requested, as well as other relevant information that will be detailed in the Request for Proposals. Selection of winning bids will be awarded to sites based on consideration of the incentives required by the bidder as well as qualitative factors included in the bid, including but not limited to quality of references, experience, equipment history, EVSE charging rate, quality of location, and customer experience. Winning bidders will enter into contracts committing to meeting operational performance criteria specified by the Company for a minimum five (5) year and up to a maximium ten (10) year term in order to receive incentives.

ELIGIBLE MEASURES AND INCENTIVES

Incentives will be provided based on the bids selected by the Company not to exceed the totals identified in the Corridor Program provisions. Incentives may be used for the following types of project costs:

1. Line extension –incentives may be applied to increase the "Extension Allowance" to match the "Extension Cost" (as those terms are defined in the Distribution System Extension provisions of the Company's tariff) of any Company facilities that must be constructed to provide service to the site.
2. Demand mitigation solutions if applicable to the proposal – incentives may be applied to capital costs for implementation of Demand Mitigation Solutions. Energy storage solutions may be owned by either Company or customer as agreed to by the parties. Under either circumstance, the costs of implementation will be counted against the total incentive pool available.
3. Make Ready – incentives may be applied to costs for Make Ready activities. These activities may be performed by Customer or the Company as agreed to by the parties. Under either circumstance the costs of implementation will be counted against the incentive pool available. Real estate leases or easements are not an eligible cost.
4. EVSE – incentives may be applied to the upfront cost of charging equipment, to be owned by customer-operator.

Incentives applied to work performed by or equipment owned by customer are to be paid according to a negotiated contract developed and agreed upon as part of the competitive procurement process.

BUDGET

Total Company-supplied budget for the Corridor Program shall not exceed $4.4 million, not including funds made available from other sources such as private, federal or state grants or programs. When Corridor Program funding is exhausted, the Corridor Program will no longer be available, except to the extent funding from another sub-program is reallocated to the Corridor Program.

CHARGE AHEAD – ELECTRIC VEHICLES PROGRAM

Multi-Family Charging Sub-Program

PURPOSE

The Purpose of the Multi-Family Charging Program (MF Program) is to overcome barriers to the deployment of residential EV Charging Infrastructure in multi-family settings where residents that may wish to own an EV and charge the vehicle at home but do not own or control parking areas or structures and consequently are unable to make their own investments to install the necessary equipment. Incentives are provided through the MF Program to encourage property owners to make improvements that enable residents to access Multi-Family Charging equipment.

AVAILABILITY

The MF Program is available to owners of multi-unit residential properties leased to electric customers of the Company and having a minimum of two (2) attached dwelling units where off-street vehicle parking areas are not controlled by tenants.

SPECIFIC MF PROGRAM PROVISIONS

Upon application to the Company, customers will be eligible for incentives not to exceed the lesser of $5,000 per charging port installed or fifty percent (50%) of documented total project costs for installation of Multi-Family Charging equipment. The available incentives may be accumulated for multiple charging ports up to a total of ten (10) ports to fund projects serving a single residential premises with multiple dwelling units.

ELIGIBLE MEASURES AND INCENTIVES

Project costs that are eligible to receive incentives may include:

1. Line extension –incentives may be applied to increase the "Extension Allowance" to match the "Extension Cost" (as those terms are defined in the Distribution System Extension provisions of the Company's tariff) of any Company facilities that must be constructed to provide service to the site.
2. Make Ready – incentives may be applied to costs for Make Ready activities. Real estate leases or easements are not an eligible cost.
3. EVSE – incentives may be applied to the upfront cost of charging equipment, to be owned by customer-operator.

Incentives are available on a first come first served basis to eligible customers for the installation of Level 1 or Level 2 Charging (of less than 8kW per port) infrastructure at qualifying multi-family residential premises. Detailed program rules are available on the Company's website at www.Ameren.com/EV.

BUDGET

Total Company-supplied budget for the MF Program shall not exceed $4.4 million, not including funds made available from other sources such as private, federal or state grants or programs. When MF Program funding is exhausted, the MF Program will no longer be available, except to the extent funding from another sub-program is reallocated to the MF Program.

CHARGE AHEAD – ELECTRIC VEHICLES PROGRAM

Public Charging Program

PURPOSE

The Purpose of the Public Charging Program (Public Program) is to promote the deployment of EV Charging Infrastructure that is accessible to the general public in order to increase the choice available to and safety and security of EV drivers. Incentives are provided through the Public Program to encourage property owners to make investments in equipment that broaden the availability of Public Charging services.

AVAILABILITY

The Public Program is available to owners of non-residential premises receiving electric service from the Company or lessees having control of such premises that are available to the public including, but not limited to, retail establishments, rest areas, parks, entertainment venues, gas stations, and public parking lots.

SPECIFIC PUBLIC PROGRAM PROVISIONS

Upon application to the Company, customers will be eligible for incentives not to exceed the lesser of 1) $5,000 per Level 2 Charging port installed plus $25,000 per DCFC port installed (a single DCFC having multiple types of plugs but charging one vehicle at a time is considered one port) and (2) fifty percent (50%) of documented total project costs for installation of Public Charging equipment. The available incentives may be accumulated for multiple Level 2 Charging ports up to a total of 4 ports and DCFC ports up to a total of 2 ports to fund projects located on a single premises.

ELIGIBLE MEASURES AND INCENTIVES

Project costs that are eligible to receive incentives may include:

1. Line extension –incentives may be applied to increase the "Extension Allowance" to match the "Extension Cost" (as those terms are defined in the Distribution System Extension provisions of the Company's tariff) of any Company facilities that must be constructed to provide service to the site.
2. Demand mitigation solutions if applicable to the proposal – incentives may be applied to capital costs for implementation of Demand Mitigation Solutions. Energy storage solutions may be owned by either Company or customer as agreed to by the parties. Under either circumstance, the costs of implementation will be counted against the total incentive pool available.
3. Make Ready – incentives may be applied to costs for Make Ready activities. Real estate leases or easements are not an eligible cost.
4. EVSE – incentives may be applied to the upfront cost of charging equipment, to be owned by customer-operator.

Incentives as described in the Public Program provisions are available on a first come first served basis to eligible customers for the installation of Level 2 Charging and DCFC charging infrastructure. Detailed program rules are available on the Company's website at www.Ameren.com/EV.

BUDGET

Total Company-supplied budget for the Public Program shall not exceed $1.1 million, not including funds made available from other sources such as private, federal or state grants or programs. When Public Program funding is exhausted, the Public Program will no longer be available, except to the extent funding from another sub-program is reallocated to the Public Program.

CHARGE AHEAD – ELECTRIC VEHICLES PROGRAM

Workplace Charging Program

PURPOSE

The Purpose of the Workplace Charging Program (Workplace Program) is to promote the deployment of EV Charging Infrastructure that is accessible to the employees, visitors and fleets of businesses, non-profits and government agencies, in order to increase the choice available to and safety and security of EV drivers. Incentives are provided through the Workplace Program to encourage investments in equipment that broadens the availability of workplace vehicle charging services.

AVAILABILITY

The Workplace Program is available to non-residential customers of the Company that own premises where employees regularly work.

SPECIFIC WORKPLACE PROGRAM PROVISIONS

Upon application to the Company, customer will be eligible for incentives not to exceed the lesser of 1) $5,000 per Level 2 Charging port installed plus $25,000 per DCFC port installed (a single DCFC having multiple types of plugs but charging one vehicle at a time is considered one port)and 2) fifty percent (50%) of documented total project costs for installation of Workplace Charging equipment. The available incentives may be accumulated for multiple Level 2 Charging ports up to a total of 20 ports to fund projects serving a single premises.

ELIGIBLE MEASURES AND INCENTIVES

Project costs that are eligible to receive incentives may include:

1. Line extension –incentives may be applied to increase the "Extension Allowance" to match the "Extension Cost" (as those terms are defined in the Distribution System Extension provisions of the Company's tariff) of any Company facilities that must be constructed to provide service to the site.
2. Demand mitigation solutions if applicable to the proposal – incentives may be applied to capital costs for implementation of Demand Mitigation Solutions. Energy storage solutions may be owned by either Company or customer as agreed to by the parties. Under either circumstance, the costs of implementation will be counted against the total incentive pool available.
3. Make Ready – incentives may be applied to costs for Make Ready activities. Real estate leases or easements are not an eligible cost.
4. EVSE – incentives may be applied to the upfront cost of charging equipment, to be owned by customer-operator.

Incentives as described in the Program Provisions are available on a first come first served basis to eligible customers for the installation of Level 2 Charging and DCFC charging infrastructure at qualifying premises. Detailed program rules are available on the Company's website at www.Ameren.com/EV.

BUDGET

Total Company-supplied budget for the Workplace Program shall not exceed $1.1 million, not including funds made available from other sources such as private, federal or state grants or programs. When Workplace Program funding is exhausted, the Workplace Program will no longer be available, except to the extent funding from another sub-program is reallocated to the Workplace Program.

CHARGE AHEAD – BUSINESS SOLUTIONS

PURPOSE

The Charge-Ahead – Business Solutions program (the Program) promotes the use of more efficient electrically-powered equipment over gasoline, propane, or diesel-fueled equipment for transportation and other commercial and industrial applications. The Program includes education of customers on the benefits of electric powered equipment and providing assistance to customers in making the switch to electric through various means, including technical support, equipment demonstrations, cost/benefit analysis, and monetary incentives.

AVAILABILITY

The Program is available uniformly to all customers qualifying for service under Service Classifications Small General Service Rate 2(M), Large General Service Rate 3(M), Small Primary Service Rate 4(M), Large Primary Service Rate 11(M), or Large Transmission Service Rate 12(M). Customers may receive only one incentive per Measure.

For the purposes of the Program, a customer shall be the person, firm, or entity taking electric service from the Company under any of the Service Classifications listed above if such person, firm, or entity is the purchaser, owner, and operator of the eligible measure(a "direct customer"), but if the direct customer is not the purchaser, owner, and operator of the eligible measure, the person, firm, or entity that purchases, owns, and operates the eligible measure and as part of the lease or other arrangements with the direct customer, uses electricity purchased by the direct customer to charge the eligible measure, shall be deemed to be the customer.

TERM

This Program shall be in effect from September 1, 2018, through the earlier of December 31, 2023, or the time when the budget has been exhausted. Consult AmerenMissouri.com to determine the status of the Program. The Program may have slightly earlier deadlines for certain activities, as noted on the Company's website AmerenMissouri.com.

If the Program term ends prior to December 31, 2023, only incentives for qualifying measures that have been committed prior to the end of the Program term will be provided to the customer.

BUDGET

Total Company-supplied budget for the Program shall not exceed $7 million.

CHARGE AHEAD – BUSINESS SOLUTIONS (Cont'd.)

PROGRAM PROVISIONS

The Company may hire a Program Administrator to implement this program. The Program Administrator (or Company, in the absence of a Program Administrator) will provide the necessary services to effectively implement the Program and to strive to attain the participation targets. The Program incorporates various program partners, measures, incentive mechanisms and program delivery strategies. The Company and the Program Administrator will follow a multi-faceted approach to marketing the targeted electric technologies with an emphasis on customer benefits, efficient grid utilization and emissions reductions.

Program incentives for eligible measures will be provided to qualifying customers that provide completed Charge Ahead - Business Solutions Incentive Applications as indicated below, subject to the Program budget:

1. Customers may apply for an incentive for eligible measures purchased or installed during the Program's term ;
2. Equipment must be electric-powered or utilize a battery that is charged by electricity;
3. Equipment must be replacing a gasoline, diesel or propane unit OR be a new addition OR be an expansion to an existing fleet if the customer can demonstrate to the Company's satisfaction that the expansion would have otherwise consisted of equipment powered by gasoline, diesel, or propane(electric equipment replacing existing electric equipment does not qualify for this program) and;
4. Customer must provide a completed program application, model and serial numbers of the installed equipment and equipment invoices or receipts, and must permit the Company or its agent to conduct a pre- and/or post-equipment installation inspection of Customer's facility and/or review other evidence prior to approval of the application. Customers who, in the Company's sole judgement, are deemed likely to have purchased the electric technology in the absence of the incentive offered by the Program shall be ineligible to receive an incentive.

Within thirty (30) calendar days after the Customer submits documentation required by the Company to demonstrate compliance with the foregoing conditions, the Program

Administrator or Company will confirm the equipment meets the Eligibility Requirements.

The Program will conduct Customer and Measure eligibility verification for 100 percent of applications. The Program will conduct on-site post-installation equipment verification inspections for at least 25 percent of each measure type to ensure the Measures are installed and operating as intended.
The installed equipment must match the equipment listed on the application and the equipment specification sheets provided with the initial application. The quantity should be accurate, the equipment should be operable, and the Customer should be satisfied with the installation. Program representatives may adjust the incentive amounts to be paid should any of the equipment be invalid.

Notwithstanding the general requirement that incentives be paid to eligible customers, the Company may, if it deems it necessary to increase adoption, pay a portion of an incentive to the dealer or vendor providing the equipment to incent to promote the eligible measures.

CHARGE AHEAD – BUSINESS SOLUTIONS (Cont'd.)

ELIGIBLE MEASURES AND INCENTIVES

Measures eligible for the Program include the following electric equipment types: Conventional and Rapid Charge Forklifts, Electric Standby Truck Refrigeration Units (E/S TRUs), Truck Stop Electrification (TSE), and the following Airport Ground Support Equipment (GSE): Pushbacks, Tugs, Belt loaders, and Ground power units (GPUs). Incentive information is given in the following table.

Measure	Description	Incentive
Forklifts	A vehicle with two power-operated prongs at the front that can be slid under heavy loads and then raised for moving and stacking materials in warehouses, shipping depots, distribution centers, etc. Incentives available for Class 1 and 2 forklifts only. Class 1 forklifts are standard electric motor lift trucks; Class 2 are narrow aisle electric motor lift trucks.	Conventional Charge: $1,500 Rapid Charge: $1,700
Electric-standby Truck Refrigeration Units (E/S-TRUs)	A tractor trailer that is parked and plugged into the utility grid while perishable items are unloaded/loaded.	$1,600
Truck Stop Electrification (TSE)	TSE gives heavy-duty vehicles (large commercial trucks, etc.) the ability to shut off their engines to reduce idling emissions, and allows the truck to perform adequate heating, cooling, electricity, and communications functions.	$1,200
Pushback tugs	Pushback tugs are mainly used to push an aircraft away from the gate when it is ready to leave.	$1,900
Tugs/Tow Tractors	Tugs/tow tractors are used to move airport equipment that cannot move itself. This includes: bag carts, mobile air conditioning units, air starters, lavatory carts, and other equipment.	$900
Belt Loaders	Belt loaders are vehicles with movable belts for unloading and loading of baggage and cargo of aircraft.	$800
Ground Power Units (GPUs)	A GPU is a vehicle capable of supplying power to aircraft parked on the ground. GPUs may also be built into the jetway, making it easier to supply electrical power to aircraft while parked at the gate.	$15,600