

## **Missouri Electric Vehicle Task Force**

### **Investor-owned Utility Summary Answers to Task Force Questions**

September 9, 2022

Drafted by Ameren Missouri in consultation with Evergy and Liberty Utilities

2. The taskforce shall analyze the following in the context of transportation funding, and make recommendations as to any actions the state should take to fund transportation infrastructure in anticipation of more widespread adoption of electric vehicles:

(1) Removal or mitigation of barriers to electric vehicle charging, including strategies, such as time-of-use rates, to reduce operating costs for current and future electric vehicle owners without shifting costs to electric ratepayers who do not own or operate electric vehicles;

**The primary barriers related to electric vehicle (EV) charging for drivers are the following:**

- **Lack of sufficient number of DC fast chargers along highway corridors that enable safe and convenient long-distance EV travel.**
- **Lack of sufficient number of DC fast chargers in communities that enable renters to conveniently charge an EV.**
- **Lack of sufficient number of Level 2 chargers in communities and at destination locations, such as hotels, stores, workplaces, etc., that would create a robust EV charging ecosystem.**

**For businesses considering development of EV charging and intending to provide a profitable service, the challenge is the capital cost of the charging equipment and the ongoing operating costs given the high power levels needed to provide a satisfying user experience for the driver (faster charging requires higher power levels with associated electric demand charges; the result is relatively high electric bills).**

**Charging cost for EV drivers varies based on the charging power level, location, and/or length of charging session with owners of the charging stations having the opportunity to set the rates to drivers. To-date, the cost to drivers for charging their vehicles has not been a significant barrier. However, for owners of DC fast chargers, or those businesses and entrepreneurs contemplating development of such, the operating costs of powering and maintaining the equipment on top of the capital investment may prove unprofitable, particularly in these early years with relatively few EVs on the roadways.**

**Utility rates are generally established based on the cost to serve customers. Assuming an existing rate for energy (kWh) or demand (kW) is appropriately based on cost to serve, any downward change in a rate to "reduce operating costs for current and future EV owners" would necessarily cause an upward shift in costs to other "ratepayers who do not own or operate EVs." Time of Use rates (TOU) are particularly helpful in shifting usage to off-peak time periods when utility infrastructure is underutilized. The application of TOU to EV charging is not a simple matter. In cases of high power DC fast charging along highway corridors, a long-distance driver likely does not have the schedule flexibility to time their EV charging session. And for the vast majority of Level 2 charging away from home, the ability to avoid peak periods for this slower rate of charging would be difficult. Applying TOU rates to DC fast chargers that primarily serve the local community may be easier in that local EV drivers may have more routine schedule flexibility on when to charge their vehicles. For example, for an EV driver that does not have home charging, having a regular routine of charging their EV at the local convenience store or grocery store and at a time associated with a lower cost to charge may be**

effective. Still, each EV charger business owner will have the challenge of communicating the differences in TOU rates to customers and will still have responsibility to pay the electric demand charges that result from those EV drivers that still decide to charge their EVs at an on peak time of day.

Another option EV charging station owners may have to mitigate EV charging operating costs is to install EV charging equipment that can be programmed to reduce power levels and thereby avoid demand charges. In this way, the chargers would automatically charge at a slower rate and maintain a lower peak kW demand, resulting in a relatively lower electric bill.

(2) Strategies for managing the impact of electric vehicles on, and services provided for electric vehicles by, the electricity transmission and distribution system;

There has been much conjecture that the transition to EVs is going to cause undue stress on the electric grid and cause unacceptable reliability issues. To the contrary, most utilities view EVs as a very flexible resource that offer opportunities to increase the utilization of existing infrastructure and the potential for integrating customer-owned batteries for the benefit of grid reliability. That said, there will be impact, and limitations can occur at any given level or multiple levels of the grid (local line transformer, feeder conductor capacity, substation capacity etc.), which already happens today with other non-EV related loads. Utilities are aware of these potential constraints and are studying them to adequately plan for them and proactively mitigate them through integrated planning.

Given the electric utility's role in operating and maintaining a reliable electric grid, it is critical that utilities remain front and center in the facilitation of EV infrastructure development and delivery. This is to ensure geographic consistency, equity, and electrical supply reliability. While the competitive market (unregulated) forces are often seen as the appropriate means of proliferating EV infrastructure, meaningful involvement in developing Missouri's EV charging ecosystem is essential.

Utility planning timelines are decades long, and today's integrated resource planning incorporates various levels of EV adoption into modelling scenarios. Utilities in Missouri are looking closely at EV registration data as well as having many internal conversations about how EV loads will come onto the grid in terms of power levels, locations, and pace. One of the tools that utilities have to help take advantage of the flexibility of EV loads is customer programs that reward EV-owning customers for charging their vehicles at times of low demand (TOU). Some of these programs are being piloted or offered in Missouri today and we expect further development and evolution over time.

(3) Electric system benefits and costs of electric vehicle charging, electric utility planning for electric vehicle charging, and rate design for electric vehicle charging;

There are many benefits to EVs proliferating in our communities. As mentioned above, EVs are a flexible resource in that they can usually charge at home or workplaces. In fact, we expect that the vast majority of charging, up to 95%, will happen at home or the workplace, if workplace charging is an option. Both of these locations are well-suited for utility-promoted charge management that can help to optimize charging to match grid conditions. Better utilization of the existing grid will increase revenues with low additional investment, thereby causing downward rate pressure for all electric customers.

**As stated above, electric utility planning occurs decades in advance due to the complexity of interrelated factors (including design, supply chain, technology innovation, and more) and electric transportation is a key and growing element of consideration when developing utility integrated resource plans.**

**Rate design is an important function of utilities in developing, through a rigorous regulatory process, equitable rates for all electric utility customers. Rate design can be utilized to promote certain desirable behaviors, such as charging EVs at times of low grid demand or avoiding EV charging at times of high grid demand. Yet there are limits to using rate design to cause behavioral change given the potential for undesirable shifting of costs to others.**

(4) The appropriate role of electric utilities with regard to the deployment and operation of electric vehicle charging systems;

**The question of appropriateness of the electric utility role is an interesting one. States and utilities have taken a variety of approaches to the utility role in EV charging deployment. While Missouri has no policy that prevents regulated utilities to own and operate EV charging stations, there is now legal precedent that EV charging can be considered part of utility infrastructure (Missouri Court of Appeals Western District WD80911, August 7, 2018). The question in Missouri lies more with the Missouri Public Service Commission that has been reluctant to allow investor-owned utilities to own and operate charging stations as part of their business models. Utilities that invest in EV charging stations can accelerate the deployment of charging and help to solve the "chicken and egg" problem of EV charging vs. the vehicles and also ensure a geographically diverse, equitable, and timely deployment of charging.**

(5) How and on what terms, including quantity, pricing, and time of day, charging stations owned or operated by entities other than electric utilities will obtain electricity to provide to electric vehicles;

**Any new or existing utility customer that decides to install EV charging on their site will need electric supply from their utility. For Missouri's regulated utilities, the business customer that owns the charging stations can set the fees they want to charge to EV drivers and collect those fees. Those transactions are completely separate from the fees and rates the utility customer will pay to their utility. Utilities have set rates based on several factors and those are the rates that charging station owners will pay on their monthly electric bills.**

(10) Options to address how electric vehicle users pay toward the cost of maintaining the state's transportation infrastructure, including methods to assess the impact of electric vehicles on that infrastructure and how to calculate a charge based on that impact, the potential assessment of a charge to electric vehicles as a rate per kilowatt hour delivered to an electric vehicle, varying such per-kilowatt-hour charge by size and type of electric vehicle, and phasing in such per-kilowatt-hour charge;

**Utilities agree that the state's transportation infrastructure users should contribute to the payments for maintaining such infrastructure. Currently, Missouri Department of Revenue requires an Alternative Fuel Vehicle sticker fee for EVs that will escalate in cost as petroleum taxes also increase over the next several years. The current payment for an EV sticker is more than the equivalent gasoline vehicle when considering the efficiency of EVs. There are other states that have studied this**

issue and Missouri's regulated utilities do not take a specific position on how best to collect fees. However, trying to assess fees at the EV charging stations based on the vehicle size and type is problematic. Also, because up to 95% of EV charging will happen at home or work, it is not possible to collect enough taxes through retail stations. Collecting road taxes from home or workplace is technically problematic due to how electric metering works. For this reason, staying with an Alternative Fuel Vehicle sticker fee for EVs may be the best long-term approach.

(12) Strategies to encourage electric vehicle usage without shifting costs to electric ratepayers who do not own or charge electric vehicles; and

Missouri has an estimated 19,000 electric vehicles operating within the state. (This number includes full battery electric and plug-in hybrid vehicles). If an EV drives a conservative 10,000 electric miles per year, it will consume at least 250 kWh per year, which translates into about \$250 per year in additional utility revenue, in rough numbers. 19,000 vehicles @ \$250 is a very conservative \$4.75M of additional revenues each year with very little utility investment needed. This revenue causes a "downward pressure" impact to all utility customers. It is a fact that EV drivers are providing a significant benefit to other non EV-owning customers, not a cost. This fact signals that utilities should be making some investments to encourage EV adoption by their customers and this is happening through educational awareness building, technical assistance, incentive programs, and corridor charging investments combined with federal funding. The pending IIJA funding is a great opportunity for Missouri to establish strong EV corridor and community charging that will reduce a significant barrier to adoption.