MISSOURI PUBLIC SERVICE COMMISSION

STAFF REPORT

A WORKING CASE TO EVALUATE POTENTIAL MECHANISMS FOR FACILITATING INSTALLATION OF ELECTRIC VEHICLE CHARGING STATIONS

FILE NO. EW-2019-0229

SEPTEMBER 30, 2019

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I. Executive Summary

In its Report and Order in File No. ET-2018-0132, the Commission found the need for a stakeholder process to evaluate potential models for facilitating installation of electric vehicle ("EV") charging stations ("EVCS"). On February 14, 2019, the Commission opened a working case regarding EVCS and directed Staff to hold a workshop and file a report summarizing the findings and recommendations of the working group. The Commission directed workshop participants to provide an evaluation of three models, and any additional models or combination of models as follows:

> 1) A model similar to the one stipulated to by the parties and approved by the Commission in Kansas City Power & Light Company's last rate case, Case No. ER-2018-0145, in which the company can own and operate charging stations.
> 2) A "Make Ready" tariff proposal that includes an option to waive line extension charges from a customer seeking a line extension for separately metered EV charging that meets specific public policy considerations.
> 3) An alternate incentive program where program parameters, implementation, and cost recovery would be evaluated and defined in the context of a future rate proceeding.

To facilitate workshop discussions, Staff requested written input from the parties as to the use of certain terms and concepts. A table summarizing those responses is attached as Appendix A. A workshop was held on March 21, 2019.

Ameren Missouri, Kansas City Power & Light Company and KCP&L Greater Missouri Operations Company (collectively, "KCPL"), Renew Missouri Advocates d/b/a Renew Missouri ("Renew Missouri"), Missouri Division of Energy ("DE"), Missouri Petroleum Marketers and Convenience Store Association ("MO Petroleum Marketers"), Missouri Petroleum Council and American Fuel & Petrochemical Manufacturers (collectively "MPC & AFPM"), Missouri Corn Growers Association ("Mo Corn"), the Missouri Office of the Public Counsel ("OPC"), Midwest Energy Consumers Group and Missouri Industrial Energy Consumers (collectively, "Industrial Consumers"), Alliance for Transportation Electrification ("Alliance"), ChargePoint, Inc. ("ChargePoint"), Natural Resources Defense Council ("NRDC") Sierra Club, and Siemens and Greenlots submitted written comments. Finally, Staff attended an Electric Utility Consultants, Inc. ("EUCI") conference – "The 2019 Electric Vehicle-Utility Industry Nexus Charging Forward", and with EUCI approval, submitted copies of the presentations to the docket.

Generally speaking, Staff would summarize participant comments in a format such that the summary addressed the questions as posed by the Commission. However, in this case it is difficult to directly correlate the workshop discussions and written comments by those questions. Therefore, in this Report, Staff will provide:

- A summary of the workshop held in Jefferson City, MO on March 21, 2019, including a summary of the comments and recommendations of the participants and Staff's legal analysis related to those comments.
- A summary of the written comments provided by the participants.
- Key points from other states and Staff's legal analysis of those points.

Although not specifically requested, Staff will also provide its comments and recommendations as a participant to the process and to assist the Commission in analyzing the information. There was not consensus for findings and joint recommendations; however, key themes arising through the process include:

1. Any action by the Commission should allow for flexibility.
2. Any action should be technology neutral to the greatest extent possible.
3. Robust data collection, and the eventual use of that data, are key to successful deployment.
4. Enhanced customer education is a must.
5. Approval of pilot programs may be the best path forward for Commission involvement.

II. Workshop Summary

A workshop was held on March 21, 2019. It included presentations regarding Beneficial Electrification of Transportation,[1] the KCPL Clean Charge Network Tariff and KCPL Line Extension Tariff Specific to EVCS, and Ameren Missouri's Alternative Incentive Programs. The workshop continued with three roundtable discussion groups intended to guide discussion on the "make ready model," pros and cons of each concept, and potential policies for EV charging infrastructure implementation that provide the most benefit to the grid.

A. Roundtable Discussion: "Make Ready Model"

Discussion group members were asked to discuss a "Make Ready" tariff proposal that includes an option to waive line extension charges from a customer seeking a line extension for separately metered EV charging that meets specific public policy considerations. The members were asked to address such things as:

1. What is make ready?
2. What policies need to be present up front?
3. Line extensions should be waived under what public policy considerations?

The group member from RAP suggested that if it is a state policy to promote EVs, one needs to ask how far does the state need to go to promote EVs. He described "Make Ready" as halfway between "utilities cannot own anything" and "utilities own the whole thing." The RAP member suggested the Commission consider the following:

[1] Provided by a member of the Regulatory Assistance Project ("RAP")

- If the utility is earning a return on ratebase in EV facilities: Are mechanisms in place for regulators to obtain data necessary to learn lessons in the near term to take the next steps?
- It is important to think about initial steps versus ongoing. One does not need to do everything now or subsidize everything forever, one only needs to jumpstart.
- Getting data is important – to measure progress it is necessary to have a measured baseline to be able to measure status at a given point in time relative to the starting point. Stakeholders need metrics provided in a way that is meaningful. The metrics should show the utility is spending money and producing the claimed or assumed benefits from it.
- May want a rate design at some point that encourages the sorts of things the Commission is trying to do. It is necessary to know existing charging behaviors to measure whether or not the rate design is changing the customers' behavior.
- Focus on pilots.

The KCPL member suggested that "Make Ready" is still a concept in development. KCPL sees the need as a frontloaded outlay of the charging system, demand will grow with adoption of vehicles. According to KCPL, "line extension" has special meaning that is spelled out in tariffs, and is designed to balance the cost of new infrastructure against the benefit new investment will provide. The existing line extension tariff provisions set up tests and criteria to maintain that balance. KCPL suggests the Commission should not link make ready and line extension so tightly that one does not achieve its purpose. At a broader level, the question should be - how do we look at costs. According to the KCPL member, in some ways the line extension is just the mechanism that identifies costs – how you deal with that may be a waiver, or may be an incentive, or something else. Any action should shape a response that best fits what you are trying to accomplish.

The DE member of the discussion group discussed cost allocation suggesting it may depend on the customers or uses to which the rate will apply. He suggested time of use ("TOU") rates would be good for EV implementation.

The OPC member discussed subsidization of a portion of the costs of the EVCS stating that if there is a subsidy it should be less than the benefit caused by the adoption of EVs themselves – noting the charging station alone does not benefit anyone, the EVs provide the benefit. If the utilities want to recover costs, they need to demonstrate that benefits in the form of incremental revenues in excess of incremental costs were realized. He suggested the Commission should make recovery of EVCS by the utility dependent on securing the benefits proposed, as proposed by OPC in Ameren Missouri's EVCS application. In that case OPC recommended linking the recovery of utility costs with success in EV adoption among its customers.

The Renew Missouri member sees "Make Ready" as more like a simple line extension policy. Renew Missouri would like to see greater incentive and greater encouragement of EV adoption. The "Pay As You Save" ("PAYS") model is supported by Renew Missouri. Renew Missouri suggests "Make Ready" is an easier sell for public-facing charging, but notes the benefit of PAYS is with dedicated use such as assisting with the deployment of EV bus fleets. Renew Missouri suggests utilities are already doing line extensions, although Renew Missouri would like to see utilities do more. However, Renew Missouri does not want state policy to get bogged down in details of line extension tariffs.

Sierra Club suggests any EV program should include a waiver of line extension costs, but that should not be the limit. Sierra Club would like utilities to provide rebates on charging etc., and cover distribution system upgrades. Sierra Club also suggests one should consider:

- What prices EV drivers will pay?
- Site owners should be required to maintain equipment, and should supply data to the utility to share with the Commission and stakeholders.

Sierra Club recommends that public policy focus on critical market segments like multifamily or people without garages, and should benefit the public and encourage load management. Sierra Club recommends open access and interoperability, suggesting users should be able to use any credit card with EVCS, not just subscriber credit cards. Sierra Club promotes open access software in case the vendor or servicing company of the EVCS goes bankrupt.

The audience also provided comments regarding performance metrics. It was noted that performance metrics associated with utility deployment have not happened yet here in Missouri, but there are conversations going on in other states. A commentator opined the baseline should be whether a utility has the right suite or portfolio of tools. It was pointed out that what happened in other states is not necessarily applicable since other states had executive orders or legislative actions to direct adoption.

It was suggested the Commission should let the free market work and simply permit car companies to sell electric cars. Others suggested it is more than encouraging additional EVs, it is serving the EVs – consumers need places to charge EVs and there is a need to have infrastructure to serve those consumers. In response, it was asked why one would expect all customers to pay for EVCS as opposed to those who actually own EVs. As an answer, it was stated there is a lot of that in utility services – it's like living further from the substation, but not incurring additional connection costs. It was also added that serving the EVs is an emerging obligation - emerging need and customer demand to charge vehicles and meet sustainability goals.

B. Roundtable Discussion: Alternatives: Pros and Cons of Each Concept

This roundtable discussed various EVCS ownership models, including third party ownership, utility ownership, and various operation and cost recovery options under the various ownership models. The MPCA was unable to attend the workshop, but submitted a comment and asked that it be read during the workshop. MPCA stated, "It is fundamentally unfair for utilities to be competing in the private sector against private sector motor fuel retailers. Thus, MPCA strongly believes that utility ratepayers should not be subsidizing in any way, either directly or indirectly, the electricity or the lines, infrastructure, construction, or ongoing costs of the EV charging stations".

A summary of the discussion group members' comments follows.

NRDC suggested it was necessary to have a standardized system that encourages deployment which inures benefits to as many consumers as possible. NRDC encouraged the Commission to look at whether proper incentives are in place and if the models are creating space for third party ownership of equipment. NRDC suggested the Commission should not prescribe a particular outcome, but should consider interoperability standards and consider various adoption scenarios. If the Commission determines it is appropriate to design pilots, one outcome to consider in designing is to ensure data is reported, and is done in a way where the data is actionable and usable for stakeholders.

The KCPL member believes it takes all types of models to get where we need to go. KCPL indicated there is a chicken and egg problem - perhaps development of EVs will not happen without charging infrastructure in place. As a utility, utility ownership makes sense, but KCPL is not proposing it is the only solution. Any ownership option should be financially viable for owners. The KCPL member believes recovery should be across beneficiaries, which it views as the entirety of ratepayers. KCPL also has seen site host participation in its Clean Charge Network, so KCPL believes there is interest in that market.

Ameren Missouri does not support third party ownership without utility incentives, as it is a weak business model. However, Ameren Missouri does recognize there are benefits if third parties install. Ameren Missouri believes in the long term the market will take over, but it will be a long and painful process. Ameren stated that while automakers will eventually transition to electric vehicles, the market will not incentivize charging station build out at a pace to match eventual demand.

The Ameren Missouri member also stated that utility ownership is a good option; it is working for KCPL, but Ameren Missouri's concern is cost recovery and how to include beneficial electrification from home charging as an offset to a utility owned network. Ultimately, Ameren Missouri believes both models can work. Ameren Missouri's current core operations do not include maintaining EV infrastructure day to day, but Ameren Missouri believes it can learn to do so. Ameren Missouri and third parties could both exist in ownership spaces. Ameren Missouri would suggest that the Commission decide if it wants the utilities to be required to have some EVCS ownership, or if it just wants utilities to have the option to own, if one desires. Ameren Missouri already believes the case has been made that EVCS investment is prudent. At the end of the day, Ameren Missouri will look at whether or not to invest in EV ownership versus other opportunities based on the recovery options and ability to earn a return on the opportunities.[2]

[2] Ameren Missouri, Staff, & OPC, filed a Stipulation in Case No. ET-2018-0132 on August 8, 2019. Renew Missouri, ChargePoint, Sierra Club, and NRDC filed statements of support or non-opposition, and no parties have objected to the Stipulation. Citing its interest in reviewing the instant Report, and the size and significance of the electric vehicle charging station incentive programs, the Commission has scheduled an on-the-record presentation of the Stipulation and attached tariffs in that docket for October 9, 2019.

DE noted that expediting deployment is favorable. DE suggested the Commission does not need to pick a best model – the focus should be on where competitive markets may not solve the problem. DE stressed that EVCS deployment should include low income and other vulnerable population accessibility, noting they may not use EVs today but may tomorrow, especially as used EVs become available. Education and TOU rate structures are important for the Commission to consider.

The DE member further noted that pilots can be helpful but they need to produce data that leads somewhere. EV programs need to be appropriately designed to cause customers to charge at times that do not exacerbate system constraints in order to not just provide savings for utility ratepayers who happen to already charge at other times. DE suggests the Commission should be open to all options to ensure everyone has access to EVs and there are benefits to utility customers.

As it relates to interoperability, DE states one consideration is that new charging facilities be interoperable with older EV vehicles to mitigate stranded assets. Lastly, DE notes that Senate Bill 564 utility plant in service accounting ("PISA") capital expenditure plans include grid modernization that may apply to aspects of infrastructure installed to support EVs.

OPC generally approves of Ameren Missouri's model of non-ownership, like the corridor model that was approved in Case No. ET-2018-0132, because it results in lower costs than ownership since corridor is implemented by a reverse auction process, which allows more flexibility. As it extends beyond the corridor it becomes more complicated. OPC notes that the Maryland Commission dialed back deployment. OPC is concerned that since technology advances so quickly, EVCS equipment will become obsolete and stranded assets will result. According to OPC, the utility's role should just be to induce deployment near term or it will interfere with market competition. Market competition may reduce costs – it depends on the rate designs etc.- but customer education is necessary. OPC notes that it is a hurdle to understand the cost of energy in the same manner as with fuel and conventional vehicles. OPC has uncertainties about applying gas station model to EV charging. Emphasis should be on studying EV home charging and load shapes.

OPC notes there is a need for more tools in the toolbox including cost recovery and allocation. Interoperability is important.

A comment was made about efforts in energy efficiency (i.e., the Missouri Energy Efficiency Investment Act or MEEIA). In response, OPC stated – we have invested a lot in efficiency, but EV is load building. Others asserted that there is not a conflict between the two; energy efficiency and load building are compatible and changing emphasis from reducing kWh to load shape is important.

The RAP member recommends the Commission think about pilots to prevent one model from dominating the market and leaving customers to experience all the risks of that model. If utilities own the EVCS there could be risks to ratepayers and it may utilize the wrong technology. On the other hand there may not be full support through third party providers. Pilots allow the Commission and others to take the first steps without trying to solve the chicken and egg problem.

In discussing pilots, comments included:

- You're experimenting with public dollars and there are risks with that; so there should be limits on time and budget to reign in risk.
- RFPs can explore who should own the EVCS recognizing that use cases vary by geography.
- Pilot should not be a "one-off", but should be an on-ramp to something that might work.

It was suggested that an overarching mantra should be: if it is not beneficial don't do it.

Comments from the audience included:

- The Commission has a full range of tools, but if it wants to encourage utility deployment that can be challenging with revenues from only the people using the charging station.
- Beneficial electrification has the same benefits as energy efficiency – so why should utility recovery be different. Utility should have to demonstrate benefits.
- Benefits are only made tangible if infrastructure is smart. There is a competitive market offering solutions to site hosts. Any utility investment should result in a robust competitive marketplace with choices.
- "Ownership" is overemphasized, should look at how it is implemented in real life. A multiunit dwelling is different than a public parking garage which is also different from a truck stop. The model that is best depends on the market.

C. Roundtable Discussion: Potential Policies for EV Charging Infrastructure Implementation That Provides the Most Benefit to the Grid

The final roundtable group discussed various policy issues to promote deployment of EVCS including technology, interoperability, energy storage, on-peak impacts of EV charging, impacts on the local distribution system, system upgrade requirements, and ratemaking policies.

The Alliance for Transportation Electrification member indicated we are in the early stages of market transformation, noting we do not know what is going to work so we need flexibility and we need incentives, particularly where the market is not building. Cost recovery is needed for the utility to invest. Interoperability is important. Interoperability means anyone can pull up to a charger and it works for their vehicle. The member noted the Commission needs to make sure that open standards are being used. For instance in New York, Tesla stations cannot be funded by a utility because they are not interoperable.

According to the NRDC member, "smart" EV usage will be promoted by greater electric vehicle offerings, charging infrastructure, and customer awareness, indicating education is needed. For instance, there should be enhanced test drive offerings to show people what EVs are like and to educate people about EV usage. There should also be an increase in availability of products and offerings to people not interested in buying EVs now and there should be a last mile program to help low income and elderly with the EV plug to public transport gap that exists for those who do not own their own vehicle. There should also be an effort to expand public transit to EVs to increase familiarity with EVs and make them less intimidating. Public transit EVs can be as small as a scooter up to a school bus or train.

NRDC notes we can disagree about the role of government, but a PSC decision should look at alleviating costs down the line. To install charging stations in an existing city is really expensive, but a building code fix in multi-unit dwellings saves money down the line. In other words, installing infrastructure at the time of building construction that is consistent with future EV charging uses. There is a space for the Commission to make good decisions that result in saving money.

NRDC suggests the Commission should not prescribe solutions - NRDC wants to obtain results. The Commission should not pick a technology. NRDC worries about obsolescence.

NRDC suggests that grid benefits come from people connecting EVs more. There will be a culture shift of folks who plug in regardless of battery status. Awareness knits into cultural knowledge with education. NRDC recommends the Commission make sure TOU or managed charging savings are enough to cause people to use EVs.

The KCPL member said there should not be just one ownership model. KCPL questions who regulates third party chargers and requirements for third party owning entities. KCPL asks if there should be requirements on chargers installed to respond to price signals and manage charging. KCPL does not want to overregulate the process, but suggests if entities are utilizing incentives there should be quality products available. KCPL stated that if the intent is to promote the marketplace, the Commission/government should not overregulate.

KCPL suggests a reprieve on demand charges could encourage EV use. It plans to establish TOU rates and marketing to EV drivers.

The Ameren Missouri member suggests that if the Commission wants to promote charging stations, flexibility and customer experience are important. Answering what costs should be in or out reduces flexibility – what the money is paying for does not matter as long as you are getting the benefits associated with the charging station. Ameren Missouri suggests the experience should be easy for customers. According to Ameren Missouri, the utility has a role in enhancing education.

Ameren Missouri notes that from its perspective, customer energy needs are evolving. There should be a consideration of "value added" versus "essential" service and captive customers. For almost every other end use Ameren Missouri serves, it can run a line. For EVs, it cannot. Customers look to the utility for a distributed network - investment to serve new load to meet customer needs. Ameren Missouri asserts that over time customers will encounter EVs at car dealerships but will have fewer conventional vehicle options.

Ameren Missouri wants the customer to have optionality on the technology deployed. It will be important to deal with demand response ("DR") or TOU. For example, a smart charge adaptors may be added later.

The Ameren Missouri member said that managing demand charging is a potential concern in other jurisdictions. Ameren Missouri suggests demand charge reprieve is more of an option for busses or big chargers.

Ameren Missouri said it did a lot of analysis, and residential load shape will dominate. The residential load shape is better than the others. TOU can nudge the peak further away. If an EV customer is in a utility that has capacity constraints, that is a huge deal. Ameren Missouri needs to monitor, but it does not have capacity constraints and does not anticipate distribution system problems or bulk system concerns. However, the Ameren Missouri member suggests there could be a localized impact in a neighborhood with a lot of EVs; therefore, managed charging might be a better solution.

The DE member suggests education is important, and that the costs and cost causation of EV charging and use are a form of education. DE suggests any action should remain flexible - we don't know where the market will go. The DE member stated that no one particular model at one particular point in time is the only way to do EV charging. In addition, the DE member stated a belief that the Commission cannot impose user fees on EVs.

DE suggests DR may be as good as or better than ToU rates. A Demand Response credit presumes you are going to have a high demand charge at the time charging occurs. DE asked - If EV charging is not occurring at the system peak, should the demand charge reflect more of the local infrastructure or even a ToU rate. DE suggests the Commission and participants need to consider how to match rates to technology, and the need to make it easy for consumers.

The OPC member suggested the way to drive EVCS is more EVs. OPC said customer education could be an opportunity for utilities to actively participate – as in through a "Frequently Asked Questions" on EVs that utilities can answer.

The OPC member suggests the less government involvement the better. If one is serious about promoting electric vehicles, the answer is not bureaucracy or market distortion. OPC suggests guaranteed cost recovery and elimination of risk is not the purpose of regulation. This is a value added service not an essential service. According to OPC, the National Academy of Science emphasized home charging, and recommended no federal funding for charging. OPC also commented that some states have legislative action and there may be a role to "kick start" the market.

DE expressed concerns with OPC saying EVs are not an essential service.

OPC further stated there may be a case for market intervention in initial stages of deployment, but the utility has an incentive to build up rate base and build out sales.

Ameren Missouri commented that the level 2 charging station is going to be the EV version of compact fluorescent lightbulbs ("CFLs") – technology is moving that quickly. Ameren Missouri suggests the focus should be on rate design at the home, and to let the market design what happens at the station.

The RAP member stated that market transformation reduces the number of things you need to do, so participants need to recognize what stage Missouri is at in this development. RAP suggested home charging is easier to manage, workplace and transit are tougher. RAP suggested as Missouri moves forward, participants can learn lessons from earlier efforts. Legislative mandates have been helpful in other states. RAP indicated that Public Utility Commissions are of limited jurisdiction and cannot act without legislative authority, but suggested if a commission gets legislative authority, then risks are reduced and people are more willing to make investments.

The RAP member indicated the power of markets is important and barriers exist. Incumbent technologies may prevent changes. This is an opportunity for public policy. RAP would like to see opportunities to allow charging in the middle of the night and the ability to manage load to cheaper and cleaner times of the day. For instance, managed water heating incentives have worked for years – do the same thing with Wi-Fi smart charging. RAP pointed out that Green Mountain Power has off-peak charging for a flat fee with an on-peak penalty. Infrastructure needed is something that can be controlled by the deployment of Electric Vehicle Charging Infrastructure ("EVCI"). RAP suggested that if ToU rates are needed, the Commission could make that happen.

OPC responded that there should be discussions about pricing and load shapes to enable EV adoption rather than throwing more incentives at it. OPC commented that Green Mountain Power Program is different than a whole house ToU rate.

RAP noted demand charges are included because of the huge demands direct current ("DC") fast chargers place on the system and because of cost causation. RAP suggested that there could be demand charge moratoriums – in 5 years phase demand charges back in. RAP further suggested regulators can tell a utility to consider places where it used to have an industrial facility on a sub-transmission system for siting DC fast charging.

RAP discussed economic dispatch, commenting that as demand increases you get more expensive and dirtier generation. Distribution system limits are also concerns. RAP suggests the flexibility of storage and batteries are important to this discussion. Avoiding peak reduces energy costs and does not exacerbate problems. According to RAP, avoiding peak also allows for a better return on the existing system. RAP suggests there are benefits to EVCS.

Discussion from the audience included reemphasizing the relationship between demand charges and utilization, suggesting it evens out over time; but with low deployment early on, the price will be too high for anyone to use it, or owners will never make up the revenue. ChargePoint uses a complex model to assess sites and level of utilization.

There was also further discussion around demand charges, commenting that hopefully they will be different in 5 years. It was suggested that vendors have software that is cheaper than a battery to manage charging and mitigate demand problems. It was noted when one talks about demand charges related to EVs, those are costs to site hosts – not the price the drivers see. Drivers are shielded from demand charges to grow the market, but it may be appropriate to send drivers appropriate pricing signals to shape behaviors in line with local or system considerations.

DE suggests it is important to acknowledge who owns the station. If the utility owns the station it will provide the price signal but a third party may not.

Additional comments from participants included:

- Environmental benefits – silence is acceptance that there is little debate that there are environmental benefits to EVs – may disagree about level.
- Grid benefits – when done right there will be benefits but they depend on rate structures like ToU or Demand Response.
- Cost savings to customers is a big sticking point – participants agree there will be savings to early adopters of EVs, but economic incentives to non-EV drivers is where participants need to continue to have discussions.
    - Commenters raised discussions concerning disparities in cost causation and recovery concerning rooftop solar customers, residential demand charges, and multifamily versus single family distribution system cost-causation.
    - Is an EV subsidy really that big of a problem when compared to other cross-subsidies that do not get much discussion?
        - DE suggests experts may reasonably disagree about subsidy existence.
        - OPC suggests participants should continue to have discussions on education and impact on customers for home charging.

- Good data is needed to determine where the benefits exist.

III. Post-Workshop Written Comments

Upon conclusion of the workshop, Staff requested that all interested stakeholders submit any additional comments on the topics of discussion. Staff specifically asked for additional thoughts stemming from common themes of the workshop discussions:

i. Pilot Programs
ii. Data Gathering
iii. Customer Education
iv. Cost/Benefit Analysis
v. Adoption Rates/Needs of Customers at Present
vi. Cost Recovery/Rate Design/Incentives
vii. Flexibility and Choice

Provided below is a summary of the additional comments.

i. Pilot Programs

Ameren Missouri states that pilot programs are an excellent opportunity to study potential program offerings and should be flexible enough to allow for modification as the initial pilot is studied and program impacts become more apparent.

KCPL believes EV charging pilot programs are to test technology, develop capabilities, assess customer adoption and grid impacts, and gain experience on how larger scale adoption or on-going programs might work.

OPC believes there is no need for further regulatory action and that current programs should be allowed to produce reliable results before further action is taken.

DE notes that no one model may be appropriate in every instance; therefore, DE recommends that the Commission evaluate EVCS deployment models and utility cost recovery for EVCS on a case-by-case basis.

Alliance recommends the Commission create a process for the regulated utility to create a more dynamic and flexible EV pilot program that can evolve quickly, subject to reasonable oversight and reporting mechanisms.

Siemens and Greenlots recommend that the Commission treat pilot programs as ongoing programs rather than science experiments and research existing pilots around the U.S.

ii. Data Gathering

Ameren Missouri supports gathering data to inform additional EV charging programs and policies; however, notes that the specific deployment of EVCI will impact what information can realistically and practically be gathered.

KCPL believes data gathering is important and data collected can be used to develop programs outside public charging infrastructure, but that smart charging technology is necessary.

OPC states that considerable more dialogue and regulatory/legislative guidance is necessary on this topic as the complexity and liability associated with data gathering extends beyond EVCS.

Alliance cautions that third parties may or may not be willing to part with data on the charging behavior of their electrical vehicle supply equipment ("EVSE") customers. Alliance further provides that if ratepayer funds are to be used to finance rebates, the data generated by the equipment should be provided to the utility.

iii. Customer Education

Ameren Missouri considers customer education a vital part of successful promotion of EV adoption.

KCPL believes education and outreach should be targeted to increase consumer awareness and "demystify" EV driving. KCPL believes the education and outreach strategy can be divided into three stages: raising awareness among mass market customers who are not yet EV drivers; providing education and assistance with the purchase decision; and providing a seamless customer experience from purchase to EV ownership.

OPC recommends a utility-specific FAQ page on each investor-owned utility's ("IOU") website and subsequent brochures/education to area car dealers regarding proper charging time and associated costs. OPC would note that appropriate customer education related to billing and pricing of energy service should happen regardless of this docket as a matter of sound regulatory policy.

DE raises five additional questions for consideration:

- Who is best suited to conduct education on EVs?
- What are the leading practices for educating customers on EVs and who may already be engaging in EV education within Missouri?
- What role can customer surveys play to identify educational gaps regarding, and informational barriers to, EV adoption?
- Are there other initiatives that utilities can leverage to support EV adoption?
- How should educational success be measured?

Alliance believes that education and outreach are a shared responsibility among auto original equipment manufacturers ("OEMs"), auto dealers, utilities, and the organizations in the EV ecosystem. Alliance further believes that education and outreach costs should be included in the tariffs and rates paid by all ratepayers, subject to a reasonable budget and Commission oversight.

iv. Cost/Benefit Analysis

Ameren Missouri cautions that any cost/benefit analysis must consider the holistic approach to EV adoption rather than focusing on a single component of EV infrastructure.

OPC believes that careful selection of the assumptions used in a cost-benefit analysis can be made to support or oppose almost anything. OPC is doubtful that an appropriate cost-benefit framework can be created, based on the attempts at a cost benefit analysis to date.

Alliance believes it is up to the utility to make the case with the Commission that the filing is beneficial to all customers including non-participants. Alliance further provides that some cost- benefit tests include ratepayer impact measure ("RIM"), utility cost test ("UCT"), total resource cost ("TRC") test, or the societal cost test ("SCT").

The MPC and AFPM believe that in addition to the EVCS unit hardware costs, the Commission should also consider the cost to customers of federal programs regarding EV rebates/incentives.

v. Adoption Rates/Needs of Customers at Present

Ameren Missouri states that while adoption may be ongoing, it could be accomplished at a greater rate with sufficient infrastructure.

Alliance believes the adoption rates of EVs are going to increase rapidly and offers that DC fast charging needs to be easily accessible to the general public in order to have widespread transportation electrification.

MPC and AFPM do not believe adoption rates will reach the level predicted by KCPL. MPC and AFMP further offer that should the Commission approve rate recovery for EV charging infrastructure, the level of recovery should be based on performance metrics.

Siemens and Greenlots recommend that the Commission encourage multiple business models to deploy EV infrastructure.

vi. Cost Recovery/Rate Design/Incentives

Ameren Missouri states that cost recovery should not be unduly defined or restricted at this point in time. Further, Ameren Missouri acknowledges that certain rate designs associated with EV charging may provide system benefits. Ameren Missouri cautions that creating a separate class for EV charging could be cost prohibitive for potential charging station owners. Lastly, Ameren Missouri supports the use of incentives to encourage EVCS development.

KCPL states that each EV charging proposal should be evaluated on a case-by-case basis, and the Commission should establish and apply consistent cost recovery framework. Further KCPL believes that all customers should pay for utility programs that facilitate EV charging stations. As for rate design, KCPL finds that its Small General Service rate is the most appropriate to serve separately metered EVCS.

OPC believes that with respect to costs, it is important that regulators ensure there is differentiation between "essential" and "value-added" electric service and appropriately assign the costs of the two; otherwise, the costs will be assessed against all consumers, not just those utilizing the services.

Alliance believes the Commission should treat investments in capital investment and O&M expenses for EVSE the same as other types of investments in the distribution grid.

MPC and AFPM do not support ratepayer cost recovery; however, should the Commission approve ratepayer cost recovery of EV infrastructure, MPC and AFPM suggest the Commission should discount the utility's rate of return by the value of the depreciation claimed by the utility.

Siemens and Greenlots recommend that utility rate base treatment for EV infrastructure may be appropriate if investments provide benefits to all or large groups of customers. If benefits accrue to individual ratepayers then appropriate recovery can be achieved through the individual ratepayer. Siemens and Greenlots also recommend that incentives to the utility on top of straight recovery may be appropriate to recover rebate payments.

vii. Flexibility and Choice

Ameren Missouri states that incentives should be flexible in regard to what installation costs the incentives can be used toward, but with limits as to the maximum amount of the incentive to any one customer.

KCPL believes there is not a one size fits all approach; specific EV infrastructure and EV programs should be flexible and allow for recovery in a variety of methods.

OPC believes the Commission should let the free market work.

Alliance believes customers should have flexibility and choice in charging infrastructure once they make a decision to go electric.

Siemens and Greenlots support an open and competitive EV infrastructure market and recommend that the Commission ensure that the publicly-funded infrastructure (ratepayer or taxpayer funds) is based on open technical standards for the communication protocol between the charger and the cloud.

a. What is the "Make Ready Model" – what should be included in the "Make Ready"?

Ameren Missouri states that "Make Ready" can have a myriad of definitions, but the focus on the terminology is not as important as focusing on how to stimulate the market to cost-efficiently develop the infrastructure.

KCPL believes there are two distinct groupings of electric facilities that are often referred to interchangeably as "Make Ready": the electric facilities that represent the traditional utility line extension and the electric infrastructure between the utility meter and the EV charging station. KCPL further states it is important to have a common understanding of which facility infrastructure groups are being considered when designing a program or incentive under a "Make Ready Model" approach.

Alliance states that "Make Ready" means everything behind the charger itself, including the junction box, pedestal/wall-mount/foundation (potentially including excavation and concrete), conduit (potentially including trenching or boring), conductor, disconnect, breaker, and potentially panel and/or transformer upgrades.

Siemens and Greenlots state that "Make Ready" refers to the electrical distribution equipment that connects the charger safely and reliably to the electrical grid. Siemens and Greenlots also recommend that for a charging station to receive a line extension incentive, beyond what is otherwise provided to sources of new load, it needs to a) be a public charger, b) provide universal access for payment with a credit card chip reader as the minimum, and c) utilize an open technical standard communications protocol between the charger and the cloud.

b. Line Extension for EV Charging Station

Ameren Missouri provides that many developers, based on responses received in developing the programs and application in Case No. ET-2018-0132, noted that a line extension by itself was insufficient to appropriately spur EV charging station installations.

KCPL believes a line extension allowance for EV charging service providers that accounts for the additional revenues generated at other charging locations - home, workplace, or other locations- is one method that can be used to stimulate the third party EV charging service provider market.

OPC does not support additional modifications to line extension tariffs beyond what is currently authorized for each utility.

c. Option to waive line extension charges for separately metered EV charging stations that meet specific public policy considerations.

Ameren Missouri reiterates that a line extension by itself is likely insufficient to appropriately spur EV charging station development.

KCPL recommends developing a standard construction allowance for the EV service connection to separately metered EV charging station locations.

OPC does not support a waiver from a utility's line extension policy.

d. What public policy considerations must be met for an EV charging station to receive the incentive?

Ameren Missouri states that the primary public policy consideration should be: Does the installation of this charging station provide another encouraging option for a potential EV owner to make the purchase of an EV?

KCPL recommends that utilities be able to recover EV charging incentives/rebates and infrastructure costs from all customers.

OPC does not support ratepayer-funded financial incentives for EVCS beyond what the Commission approved in Case No. ET-2018-0132 for Ameren Missouri.

e. Ownership Models

KCPL states that regardless of the model, it will require investment by all parties (individuals, private companies, third-party service providers and utilities) to deploy the charging infrastructure, and utilities need the flexibility to bring forth various programs to the Commission.

ChargePoint is in support of utility investment and ownership of charging stations.

Alliance states that that a "portfolio approach" is the best way for regulated utilities to proceed with developing EV infrastructure.

MPC and AFPM recommend the Commission request guidance from the legislature and recommend that the legislature set an EV policy.

Siemens and Greenlots recommend the Commission ensure that the customer has the choice to decide the type of EVSE ownership it desires.

f. Third Party Owners

Ameren Missouri supports utilizing incentives to encourage third-party ownership, as evidenced in its position in this working docket and in its "Charge Ahead" case.

OPC states that, whenever competition is feasible, it is, for all its imperfections, superior to regulation as a means of serving the public interest.

g. IOU Ownership With/Without Subsidies

Ameren Missouri supports IOU ownership.

OPC states that, regarding IOU EVCS ownership with ratepayer-funded subsidies, such activity should be done within the parameters authorized by the Commission in previous IOU cases.

h. Potential Policies for EV Charging Infrastructure Implementation That Provides the Most Benefit to the Grid

1. What policies will promote deployment of EV charging stations?

Ameren Missouri states that any policy must involve the development of a holistic EV charging network and offers that the Commission should favor policies that offer flexibility to customers and should avoid policies that force unnecessary constraints on incentives.

KCPL states that the following policies are needed in Missouri:

- Allow the cost of utility owned public EV charging infrastructure to be recovered from all rate classes.
- Promotional practices to allow promotion of EV adoption and provision of programs that can provide incentives and rebates for EV charging infrastructure.
- Establish a consistent regulatory treatment for tariffed programs, EV charging infrastructure incentives and rebates to allow recovery of program incentives as a regulatory asset.

OPC states that affordable, cost-causative electric rates and basic customer billing/pricing education should be the primary policy focus for Missouri utilities, regulators and advocates.

ChargePoint is concerned about the ability of EV owners to comfortably "Roam" between EV charging networks that may be administered differently. Chargepoint further provides that since charging station networks typically issue members RFID cards, and provide mobile apps for direct communication within the network to facilitate quick access, it may be difficult for a driver in Network A to access a station in Network B if the two networks use a different process to access stations.

Alliance recommends the Commission adopt as much regulatory certainty as possible in providing a stable regulatory environment in the current nascent stages of the EVSE market.

Siemens and Greenlots provide that policies such as market certainty, use of open technical standards, universal payment access, smart charging technology, TOU rates for EV home charging, an accelerated interconnection process and demand charge considerations will promote deployment of EV charging stations.

2. What type of technology/charging equipment needs to be utilized?

Ameren Missouri recommends the Commission maintain a wide variety of EV charging technology and charging equipment options because of the varying needs of customers at different locations.

KCPL provides the following as things that EV programs may include:

- All EV equipment must be Underwriters Laboratories ("UL") Certified
- Energy Star certified EV charging stations (only applies to Level 2 chargers)
- Industry standard EV connectors (Society of Automotive Engineers ("SAE") J1772, CHAdeMO and SAE Combo1)
- Industry standard EV communication protocols (Combined Charging System ("CCS") for SAE Combo1 DCFC)
- Wi-Fi or other network connected communications and support for one or more of the emerging EV charge network protocols.
- Support for Open Charge Point Interface ("OCPI") protocol and EV driver network roaming.
- TOU rate or DR program participation
- Level 2 EV charger (over Level 1) for efficiency, load shift, and active charge management.
- Smart or active charge management capabilities

OPC provides a list of various levels of charging stations and associated technologies such as battery swapping stations, mobile charging and wireless capability. However, OPC believes state regulators are not in the best position to pick winners and losers in competitive markets.

Alliance believes that the utility should not be confined to certain types of charging infrastructure by Commission rules or policy.

3. What is the interoperability of the EV charging station?

Ameren Missouri supports the industry goals related to high levels of interoperability to maximize ease of use for EV driving customers.

KCPL, in its comments, provides extensive explanation of the EV connector, charge network protocols, smart charge management protocols and EV driver charge network roaming.

Alliance states that the Open Charge Point Protocol ("OCPP"), which is not connected with any individual charging network, is the most appropriate protocol for the network to charger communications.

Siemens and Greenlots provide that interoperability is achieved through the implementation of open industry standards for the interfaces between the different hardware, software, or systems.

4. Energy Storage with EV charging stations for mitigation of demand charges.

Ameren Missouri supports the utilization of energy storage in conjunction with EV charging stations as appropriate.

KCPL states that battery energy storage has the greatest potential to support EV charging at highway corridor charging locations in rural areas with weak distribution systems and as higher capacity DCFC charging becomes more common; however, battery storage is still an emerging technology.

5. What are the anticipated system impacts of EV charging on-peak on the grid?

Ameren Missouri notes that system impacts will vary by utility and location, but anticipates no negative system impacts of on-peak EV charging.

KCPL has found that adding a single Battery Electric Vehicle ("BEV") to a home could have a significant impact on an individual customer's peak demand. However, KCPL has preliminarily studied that its distribution system can support a large number of EVs with minimal system peak and distribution system upgrades. KCPL notes that further study is warranted.

Alliance suggests that if TOU rates are applied, that approximately 80% of charging will occur off-peak. However, Alliance further suggests that if distribution system upgrades are needed, they should be treated as other grid modernization investment.

6. What are the potential impacts on the local distribution system?

Ameren Missouri notes that system impacts will vary by utility and location, but will take the system impacts into consideration when pre-approving Charge Ahead EV Program incentive applications.

7. Ratemaking Policies – What will facilitate the most benefit for the grid?

Ameren Missouri acknowledges that certain rate designs associated with EV charging may provide system benefits. Further, Ameren Missouri cautions that creating a separate class for EV charging could be cost prohibitive for potential charging station owners.

KCPL recommends that costs associated with utility owned infrastructure, or rebates and incentives, be recovered from all customer classes.

OPC generally supports time of use rates; however, OPC further states that more dialogue is necessary before it could provide meaningful input.

ChargePoint generally supports TOU rates; however, it generally does not recommend TOU rate designs that are EV-only and require a new meter for every charging station.

Alliance is generally supportive of TOU rates for home charging; however, notes that in the past customers have generally resisted TOU rates.

Renew Missouri supports TOU rates and managed-use rates for specific areas of the distribution system.

Siemens and Greenlots recommend that TOU tariffs should be available to EV chargers as EV-only tariffs, allowing consumers to maintain their home or business on non-time-varying rates.

8. The need for a rulemaking to address electric vehicle charging and the infrastructure to support it.

Ameren Missouri does not believe a rulemaking is necessary at this stage to govern EV charging infrastructure development. Ameren Missouri recommends that the Commission maintain its current tools and flexibility.

KCPL suggests that a rulemaking to address EV charging and EV charging infrastructure would be premature at this time. KCPL further offers that any EV policy statement developed by the Commission could provide guidance regarding:

- Support for transportation electrification in Missouri
- Utility pursuit of various ownership and incentive models for EV charging infrastructure
- Line Extension Allowance and Make-Ready programs
- Recovery of utility investments as appropriate, just and reasonable

OPC suggests there is no present need for regulatory oversight such as a rulemaking.

DE offers that a rulemaking specific to EV charging infrastructure may not be necessary or appropriate at this time. However, DE further offers that if an EV rulemaking goes forward, any resulting rule should provide the Commission with a wide range of regulatory tools to support EV deployment in Missouri. DE refers the Commission to other rule proposals under consideration at the Commission, such as File Nos. EW-2017-0245 and AW-2018-0385, which address some of the issues discussed at the workshop. For example, File No. AW-2018-0385 was established to consider changes to the Commission's rules on promotional practices. DE recommends that the promotional practice rules exempt from the "load building" definition, those activities that can be beneficial to a utility system and its customers.

Alliance states that the Commission should keep this docket open for the foreseeable future to continue the stakeholder process through additional workshops, and perhaps to recommend to the Commission a rulemaking process setting out the general parameters, guidelines and requirements for utilities to file for EVSE investments.

Siemens and Greenlots recommend the Commission promulgate a rulemaking.

i. Additional comments

Several participants filed additional comments providing guidance to the Commission. These comments are summarized below.

Ameren Missouri feels that it is important to strongly emphasize three points: that a holistic charging ecosystem is vital for increasing EV adoption rates; that utility incentives can be a driving force in creating and sustaining that holistic charging ecosystem; and that customer education is vital to successful adoption, regardless of the charging system model utilized.

ChargePoint provides that there are more than 1,300 charging stations statewide. ChargePoint notes that utilities use peak demand to properly size electrical facilities for their individual customers and to ensure they have adequate generating capacity available for all customers. Therefore, DC fast charging stations face high demand charges due to the few peak charging sessions that occur each month. As a solution, ChargePoint recommends that the Commission-led dialogues evaluate alternative rate structures for high-energy-use charging stations.

Missouri Corn Growers generally does not support utility programs subsidizing EV charging infrastructure. However, Missouri Corn Growers understands the value of environmentally friendly fuels and vehicles and provides three key policy issues raised by the organization's members:

1. Should investor-owned utilities have the opportunity to petition for rate increases impacting all of their customers to pay for the infrastructure of EV charging stations which benefit much fewer customers?

2. Should the Missouri Department of Agriculture's Division of Weights and Measures have jurisdiction over inspections of EV charging stations to ensure that consumers get exactly what they pay for as with the liquid motor fuels market?

3. How can we ensure the models for EV charging stations fairly pay into the state funds for Missouri's roads and bridges?

Renew Missouri encourages utilities to offer on-tariff PAYS® financing for cities and local governments to expedite access to electric buses.

MPC and AFPM believe there are no costs or categories of cost associated with the development of an electric vehicle charging network that are appropriate for, or that should be eligible for, subsidization by utilities or otherwise eligible for special tariff, accounting or ratemaking treatment. MPC and AFPM further believe that since their individual members may also be ratepayers, the liquid fuel industry will be subsidizing EVCS infrastructure development throughout Missouri. MPC and AFPM suggest Missouri should choose a public policy of fuel neutrality, strongly supporting the equal treatment, including taxation and regulation, of all motor vehicles and motor fuels, including alternative motor fuels like electricity. MPC and AFPM recommend the Commission explore the public policy question of equivalent transportation fuel tax rates for electricity dispensed as transportation and/or motor fuels.

j. Parties' Comments on Legal Implications and Rulemaking

OPC	• There is no need for further regulatory action regarding electric vehicle charging stations • A rulemaking is not necessary
MIEC/MECG	• All EV costs should be segregated into a new rate class • Customers taking electric service should be treated the same as any utility customer, and line extensions built to serve electric vehicle charging stations should be treated the same as any other plant or infrastructure
DE	• Any rules or other framework regarding EV should be flexible in design to permit the Commission to evaluate each proposal on a case-by-case basis • EVs should be taken into consideration in Promotional Practices rulemaking docket and could be considered in Distributed Energy Resources docket
KCPL	• Each line extension tariff should have a uniform method for determining construction allowance • The Commission should establish and apply a consistent cost recovery framework • IOUs should be able to earn a return on electric vehicle charging station infrastructure that is recovered from all rate classes • A rulemaking is premature right now; a policy containing guidelines would be better
Renew Missouri	• The Commission should encourage the IOUs to go further with electric vehicle charging • Rate designs should be drafted to encourage off-peak charging for electric vehicles
Ameren Missouri	• A policy decision should be made as to whether electric vehicle charging station deployment actually encourages customer adoption of electric vehicles • A rulemaking regarding electric vehicle charging stations is not necessary
MCPA	• Policies devised should include transparent pricing and open standards of communication and payment • Capital investments should be treated subject to prudence and cost/benefit tests • The Commission should allow for a robust and holistic approach in investor owned utility planning to permit both construction and cost recovery • A policy or guidance statement to give regulatory certainty without a formal rulemaking is the best approach • The Commission should not express a preference for one type of charger over another in the name of regulation – or by applying different returns to different types of chargers

	• The Commission has the authority to oversee interoperability – at least to the extent that it requires investor owned utilities to use open standards and protocols • The Commission should mitigate the risk of IOUs getting EVCS equipment with a vendor lock[3] paid for either fully or partially with ratepayer funds • The Commission should ensure contract language protects electric vehicle users from network specific hardware
MPC	• The Commission should not address the issue of EVCS, even if it finds it has the proper authority • The same rules applied to private sector motor fuel businesses should apply to IOUs entering the electric vehicle charging business
AFPM	• Any Commission devised policies should not include incentives to accelerate adoption of electric vehicles • Policies should not include mandates or arbitrary targets • If the Commission approves rate recovery for EVCSs it should be tied to performance metrics beyond those existing projections for electric vehicle deployment
ChargePoint	• Investor owned utility programs should not prescribe a specific payment method – a networked payment system is good to encourage • The increased load from electric vehicle charging means programs should encourage load management, demand response and timed charging • Alternate rate structures for high-energy/low usage EVCS are proper
NRDC and Sierra Club	• The Commission should consider the costs of programs to be investments to maximize and IOU customers realize the net benefits of electric vehicle adoption sooner • The Commission should encourage smart charging • ToU rates are pertinent to electric vehicle charging
Missouri Corn Growers	• The Department of Agriculture Division of Weights and Measures should have jurisdiction over EVCS inspections
Siemens and Greenlots	• How the revenues from electric vehicle benefits flow to ratepayers, shareholders, tax collectors or any other applicable group is for regulators and policymakers to determine • The Commission should monitor the development of cost/benefit studies but not tie its decisions to those analyses • The Commission can control the types of EVCS by only incentivizing those that meet certain criteria like payment flexibility • Policies should include market certainty, promote faster adoption rates, open technical standards, universal payment access, load

[3] Vendor Lock is defined as making a customer dependent on a specific vendor for products and services with a substantial switching cost attached to moving to another vendor.

	management policies and programs, smart charging technology and dynamic pricing, accelerated interconnection and demand charge considerations • The Commission should arrange a formal rulemaking

IV. Missouri Department of Transportation

In an effort to provide the Commission an as comprehensive as possible view of electrical vehicle adoption in Missouri, Staff contacted the Missouri Department of Transportation ("MoDOT") seeking any input or insight into EVCS from MoDOT's point of view.

According to the "Citizen's Guide to Transportation Funding in Missouri",[4]

> The primary sources of revenue provided MoDOT to manage this system are user fees: fuel taxes, registration and licensing fees, and motor vehicle sales taxes.
>
> When compared to other states, MoDOT ranks 48th in the nation in revenue per mile, which leads to significant unfunded transportation needs in the state.
>
> The average Missouri driver pays about $30 per month in state and federal fuel taxes and fees. When commercial motor vehicle fees and federal general revenue transfers for transportation are included, the average climbs to $48 per month. After distributions to other entities that are required by law, and payment of debt, MoDOT receives 60 percent of these funds to design, build, operate and maintain the system.

The guide does not discuss EVs.

As related to internal combustion engines ("ICE") and electric vehicles, Missouri has increased the Alternative Fuel Tax – penalty. Effective August 28, 2018, Missouri Revised Statute 142.869 imposed a $75 annual fee for alternative fueled passenger motor vehicles.

> **142.869. Alternative fuel decal fee in lieu of tax — decal — penalty. —** 1. The tax imposed by this chapter shall not apply to passenger motor vehicles, buses as defined in section 301.010, or commercial motor vehicles registered in this state which are powered by alternative fuel, and for which a valid decal has been acquired as provided in this section, provided that sales made to alternative fueled vehicles powered by propane, compressed natural gas, or liquefied natural gas that do not meet the requirements of subsection 3 of this section shall be taxed exclusively pursuant to subdivisions (4) to (7) of subsection 1 of section 142.803, respectively. The owners or operators of such motor vehicles, except plug-in electric hybrids, shall, in lieu of the tax imposed by section 142.803, pay an annual alternative fuel decal fee as follows: seventy-five dollars on each passenger motor vehicle, school bus as defined in section 301.010, and commercial motor vehicle with a licensed

[4] Missouri Department of Transportation, *Citizen's Guide to Transportation Funding in Missouri*, https://www.modot.org/sites/default/files/documents/Citizen%27s%20Guide%20to%20Transportation%20Funding%20in%20Missouri.pdf, pg. 3

gross vehicle weight of eighteen thousand pounds or less; one hundred dollars on each motor vehicle with a licensed gross weight in excess of eighteen thousand pounds but not more than thirty-six thousand pounds used for farm or farming transportation operations and registered with a license plate designated with the letter "F"; one hundred fifty dollars on each motor vehicle with a licensed gross vehicle weight in excess of eighteen thousand pounds but less than or equal to thirty-six thousand pounds, and each passenger-carrying motor vehicle subject to the registration fee provided in sections 301.059, 301.061 and 301.063; two hundred fifty dollars on each motor vehicle with a licensed gross weight in excess of thirty-six thousand pounds used for farm or farming transportation operations and registered with a license plate designated with the letter "F"; and one thousand dollars on each motor vehicle with a licensed gross vehicle weight in excess of thirty-six thousand pounds. Owners or operators of plug-in electric hybrids shall pay one-half of the stated annual alternative fuel decal fee. Notwithstanding provisions of this section to the contrary, motor vehicles licensed as historic under section 301.131 which are powered by alternative fuel shall be exempt from both the tax imposed by this chapter and the alternative fuel decal requirements of this section. For the purposes of this section, a plug-in electric hybrid shall be any hybrid vehicle made by a manufacturer with a model year of 2018 or newer, that has not been modified from the original manufacturer specifications, with an internal combustion engine and batteries that can be recharged by connecting a plug to an electric power source.

Impacts on Missouri's Contribution to the Federal Highway Fund

EVs do not use gasoline, which is purportedly impacting many states' ability to collect an adequate amount of gasoline and diesel taxes for state and federal road improvements. The National Conference on State Legislatures website provides the following article explaining the impact of EVs on the Federal Highway Trust Fund.

> Current electric vehicle sales only represent about 1 percent of all light-duty car sales in the United States, but as sales continue to climb, there are concerns this may lower gasoline tax revenues. The repairs and improvements to the nation's highways have traditionally been funded primarily through federal and state taxes collected at the pump. Electric vehicles pay the same registration fees imposed on traditional vehicles and some transportation-related taxes, but electric vehicles don't require gasoline to operate, so they don't contribute to the upkeep of highways through a gas tax.
>
> Many states face declining gas tax revenue—not only because of electric vehicles—forcing state policymakers to consider other ways to pay for the nation's transportation infrastructure. In 2017, state legislators considered more measures implementing new electric vehicle fees than any other action related to electric vehicles. As of October 2018, 21 states have enacted legislation requiring a special registration fee for select hybrid and plug-in electric vehicles, although Oklahoma's legislation was subsequently struck down by the state Supreme Court, bringing the total number of states implementing fees to 20. These fees come in addition to standard motor vehicle registration fees[5].

[5] National Conference of State Legislatures Website: *New Fees on Hybrid and Electric Vehicles*, 03/21/2019, http://www.ncsl.org/research/energy/new-fees-on-hybrid-and-electric-vehicles.aspx

V. Other States' EV Offerings

On June 27-28, 2019, Staff member Robin Kliethermes attended the Electric Utility Consultants, Inc. ("EUCI") conference – "Electric Vehicle Utility Industry Nexus: Charging Forward". Provided below is a summary of programs offered by electric utilities as presented at the EUCI conference. (Note that Staff filed the entire presentations in this working docket upon authorization by EUCI.)

a. Austin Energy

- EV360Pilot-A Residential Subscription Rate for EV Charging
  - Flat rate of $30/month for home and public charging
- Plug-In EVerywhere™ Driver Program
  - Unlimited access to network of 800+ port network
  - $4.17 for all
- Plug-In EVerywhere™ EVSE Rebate Program
  - Up to $1,200 rebate for home Level-2 charging stations
  - Up to $4,000 rebate for commercial Level-2 charging stations
  - Up to $10,000 rebate for public DC Fast charging stations
    - Fleet and make ready pilots coming soon
- E-Ride Program -Up to $400 rebate from the purchase of electric bikes, scooters & fleets
- EVs are for EVeryone-a new program for low to moderate income customers
- EVs for Schools-EV charging stations for staff, students, parents, and visitors

b. Con Edison

- Smart Charge NY rewards off-peak charging
  - Available for light, medium, and heavy duty vehicles
  - Provides $0.10/kWh incentive for off peak charging (12AM – 8AM), plus bonus incentives for avoiding 2-6pm during summer period
  - Collects key data on charging sessions and driver behavior
  - 93% of the charging is off peak
- EV tariffs available for residential charging
  - EV stand-alone voluntary time of use rate ("VTOU")
  - Whole house VTOU with one year price guarantee for EV owners

c. PSEG Long Island

- Smart Charge Rebate Program
  - $500 Incentive for the purchase of Level 2 Smart Chargers by residential customers
  - As of June 27, 2019 - 118 of 968 rebates paid
- Workplace Charging Rebate Program
  - Expires December 31, 2019

- $4,000 maximum per Level 2 port (charging equipment only) or 80% of the invoice price for up to 10 Charging Stations ports maximum per location.
- The rebate is paid in stages with a large percentage paid upon installation, and the rest after receipt of charging port data.
- As of June 27, 2019 - 76 of 100 committed

- Off –Peak Charging Incentive
  - Coming Soon
  - $0.05/kWh off-peak charging incentive
  - Off-Peak hours are: 10:00PM to 8:00AM weekdays, all day Saturday and all day Sunday
  - Permit PSEG Long Island to view/access charging data
- Direct Current Fast Charging
  - $7,000 annual incentive per direct current fast charging (Level 3) port installed
  - Rebate starts at $7,000 in the first year and declines by $1,000 each year thereafter. Chargers must be publicly accessible.
  - Incentive is per plug/portal capable of providing ≥75 KW of charge simultaneously.
  - Payments made upon receipt of annual operations reporting.

d. Baltimore Gas & Electric (BGE) an Exelon Company

- Residential EV Charging Incentives
  - Effective: July 1, 2019
  - 1,000 BGE incentives for $300 per advanced L2 charger including the cost of the charging station, electric equipment, electrical installation, and charger installation.
  - Must be an eligible "smart" charger, a list is available at BGE.com/ElectricVehicles
- Multifamily EV Charging
  - Effective: July 1, 2019
  - Covers up to 50% of the cost of the project, including the charging station, electrical equipment, electrical installation, and charger installation. Only applicable to charging for on-road vehicles.
    - Incentive capped at:
      - $5,000 per L2 (208/240V) charger unit
      - $15,000 per DC Fast Charge unit
      - Maximum award is $25,000 per site
  - Must be an eligible "smart" charger, a list is available at BGE.com/ElectricVehicles
- Public EV Charging Network
  - BGE will build, own and operate a network of 500 EV charging stations across the BGE service area in partnership with state, county and local municipal governments to provide public access to EV charging.
  - City, state and municipal governments can apply to BGE to be considered BGE installing EV charging and offering the charging service.

- Applicant (municipality, state, agencies) must own, lease or occupy the proposed locations.
- Charging would be available to the public, and individual users would be charged for using the charging service.
- BGE owns and maintains all charging infrastructure. There is no cost to the government sites. Government must provide access to BGE equipment.

- Residential EV Only TOU Rate
  - BGE will provide an EV only TOU rate to residential customer with an eligible "smart" charger
  - BGE will use charger data as revenue grade to bill EV charging on a TOU rate separate from the house consumption
    - No second meter
    - EV charging consumption will be subtracted from whole house metered consumption
    - Three rates will be displayed on the bill: EV on-peak charging, EV off-peak charging, net whole house metered usage
- Demand Charge Credit
  - BGE will offer a 30 month demand charge credit for 50% of the nameplate capacity of installed EVSE at multifamily, workplace and fleet use cases.

e. Southern California Edison

- Charge Ready Pilot
  - No-cost infrastructure to serve Level 1 or Level 2 charging
  - Available to business customers and multi-unit dwelling site owners
  - One-time rebate to offset the costs of charging stations
  - Funding is fully subscribed, waitlist available
- Charge Ready DC Fast Charge
  - Launched on June 29, 2018
  - No-cost infrastructure to serve DCFC or Level 3 EV charging
  - Available to business customers
  - One-time rebate to offset the costs of DCFC stations
- Charge Ready Transit Bus
  - Launched on June 4, 2018
  - No-cost infrastructure to serve electric bus charging
  - Available to government transit agency customers
  - One-time rebate to offset the costs of charging equipment
- Port of Long Beach Projects
  - Complete by end of 2019
  - Convert 9 out of 24 rubber tire gantry cranes from diesel to electric power
  - Deploy infrastructure to serve up to 20 yard tractor charging stations

- Clean Fuel Rewards Program
    - Launched May 2017
    - Available to residential customers who drive EVs
    - Offers a one-time $450 rebate
- Charge Ready Home Installation Rebate
    - Available to residential customers with dedicated parking spaces who own/lease EVs
    - Rebate aims to offset electrician and permitting costs
    - Launched on May 30, 2018
- Charge Ready Transport
    - Approved program budget of $356.4 million
    - Launched May 20, 2019
    - Achieve minimum 870 sites with 8,490 EVs procured or converted
    - Charging station rebates available for transit/school buses and sites in Disadvantaged Communities (DAC)
    - Budget Allocation
        - Minimum 15% infrastructure budget should serve transit agencies
        - Maximum 10% infrastructure budget should serve forklifts
        - Minimum 25% of infrastructure budget should serve ports and warehouses
        - Minimum 40% infrastructure budget should serve sites in DACs

f. Legal analysis of other states' policies

The following legal research outlines the orders and approaches that four commissions took in implementing electric vehicle infrastructure successfully in their state. The specific orders discussed below are:

1. Minnesota Public Utilities Commission order issued in December, 2018;
2. Michigan Public Service Commission first and second orders issued in December, 2017, and March, 2018;
3. Maryland Public Service Commission order issued in January, 2019; and
4. Washington Utilities and Transportation Commission order issued in June, 2017.
5. The California Public Utilities Commission order issued in 2016.[6]

[6] CPUC Docket 15-02-009 – Proposed Decision Directing Pacific Gas and Electric Company to establish and electric vehicle infrastructure and education program (Nov. 14, 2016) (Approved by CPUC at December 15, 2016 Public Meeting).

MINNESOTA[7]

RELEVANT POLICY

1. *Minn. Stat. § 216B.1614*, requires each public utility to have a tariff specifically designed for EV charging that offers time-of-day or off-peak rates to customers who own EVs.
2. *Minn. Stat. § 216B.02, subd. 4*, exempts entities that sell electricity for EV charging from regulation as a public utility, which allows non-utilities to develop and operate charging infrastructure.

Rate design to encourage charging over times of low demand. A time-of-use rate would adjust the price of electricity based on the time of day it is consumed, with lower rates during low consumption times and higher rates during high and peak consumption times to reflect the additional costs this usage imposes on the system. (In Minnesota, electricity peak demand is at evening, lowest demand is overnight). A time-of-use rate could therefore encourage charging during times of low demand. Using rate design could help the electric grid absorb and accommodate the new load created by the EVs without the need for new generation or distribution infrastructure, thus enhancing efficient use of existing infrastructure and potentially driving down electricity rates.

An additional benefit of time-of-use rates is the use of wind power. Matching EV charging with wind generation could allow utilities to make better use of the wind resource and potentially support increased wind generation, helping the state reduce greenhouse gas and harmful emissions. (The Commission noted that wind power is Minnesota's most abundant renewable resource).

Lastly, smart or managed charging could enable the utility to actively manage the charging load. Providing chargers with two-way communication capabilities between the utility and the EV will allow the utility to remotely control the rate of EV charging in order to meet a local or regional system need (e.g., utility could ramp up charging during times of high wind generation and curtail charging during times of peak demand in areas with high EV penetration in order to deter the need for distribution infrastructure upgrades).

Educating ratepayers about EV options and benefits. *Minn. Stat. § 216B.1614, subd. 2(c)(2)*, provides that utilities are allowed to recover costs incurred "to inform and educate customers[.]" A plain reading of the language authorizes cost recovery for education efforts by the utility that go beyond merely enrolling in the utility's EV tariff. The commission stated that due to the existing relationship and frequent communication between utilities and the customers, utilities hold a unique position to help educate customers. Since lack of awareness about the benefits of EVs is a major barrier to EV adoption, utility efforts to educate ratepayers presents an efficient, effective, and large opportunity for growth.

[7] *In the Matter of A Comm'n Inquiry into Elec. Vehicle Charging & Infrastructure*, 349 P.U.R.4th 522 (Feb. 1, 2019).

Investing in EV charging infrastructure. At a minimum, a charging infrastructure host would be a new customer of the utility; thus, having the utility provide service connection, including any necessary distribution upgrades, up to and including the meter. The costs of the service connection are then allocated to the customer using the charging infrastructure in the same manner as any new customer. However, the utilities can take a "make-ready" approach in which the utilities take a larger role in developing EV charging infrastructure by assuming more of the costs and spreading them across all ratepayers. The utility would thereafter recover the cost of connecting the charging infrastructure up to the point where the charger connects to the grid, thereby reducing the cost of building the infrastructure and increasing economic viability of that infrastructure.

Additionally, utilities can build their own EV chargers, which would ensure development of charging infrastructures and strongly support the growth of EVs. The utility could also offer financial incentives to third-party charging providers to build charging infrastructure. Another important factor of consideration is the type of infrastructure that will be installed. (i.e., direct current fast charging would allow drastically reduced charging time to 10-30 minutes compared with traditional EV chargers, enhancing the potential for combined charging and parking options). Each approach to development of EV charging infrastructure raises questions about cost recovery from ratepayers and their respective reasoning.

Cost recovery of EV-related investments. There are several mechanisms through which utilities recover costs from ratepayers, depending on the type of cost being recovered. Using these different types of cost recovery mechanisms can incentivize certain investments and behaviors of the utility.

A utility's capital investments in EV infrastructure could be added to rate base through a rate case and earn a rate of return on the investment. The Minnesota Public Utilities Commission ("MPUC") also authorized cost recovery outside of a rate case through riders. Utilities could be allowed to earn a higher rate of return on EV-related investments as an incentive. Allowing utilities to recover EV-related costs as operating expenses would distribute cost recovery across all ratepayers, but without earning a rate of return on those costs (generally, the MPUC decides recovery of a utility's cost of service on a case-by-case basis considering factors such as the purpose, nature, magnitude, and potential benefits of the costs incurred).

For investments serving only one customer (e.g., home charging equipment), it may be appropriate to recover the cost from that customer. These costs could be recovered over time using on-bill financing, which would recover a portion of the cost through the customer's electric bill each month, thereby easing the burden of the cost to that customer.

Promoting connections through interoperability. "Interoperability" is a concern with the buildout of EV charging infrastructure. The term "broadly refers to the integration between different charging networks, as well as integration between charging infrastructures and different models of EVs." The principle is important in the development of EV charging infrastructure to ensure a smoother user experience and enable different types of chargers to communicate across networks. While the MPUC does not have authority over third party charging infrastructure hosts, it can nonetheless encourage and mandate interoperability in utility proposals of charging infrastructure.

A notable aspect of interoperability is the Open Charge Point Protocol ("OCPP"), an informal standard that enables communication between a charging station and network management system. An additional notable aspect is Open Automated Demand Response ("OADR"), which enables two-way communication between the EV and the utility (that is necessary for smart charging).

MICHIGAN

MICHIGAN PUBLIC SERVICE COMMISSION ("MIPSC") GUIDING PRINCIPLES

1. Rate design – encouraging charging at off-peak times with lower rates.
    a. Rate options, demand charges, and sub-metering versus a second meter.
2. Impact on the electrical grid – location of chargers, utility deployment of charging infrastructure.
    a. Residential clustering and utilizing renewable energy and storage options for the grid's benefit.
3. Customer education – direct from utility or working through vehicle dealers.
    a. Visible locations, websites, utilizing current customer bases, and partnering with various stakeholders.
4. Role of the utility in infrastructure deployment/cost recovery – cost-benefit analysis, customer benefits, cost recovery from customer.
    a. Business models, funding/cost recovery, standards, and location.

MIPSC ORDER 1[8]

1. Addressing different charging infrastructure levels:
    a. Level 1 charging recharges a EV battery from a standard 120-volt household outlet and takes about 8-15 hours to fully charge the battery;
    b. Level 2 charging recharges using 240 volts and takes about 3-8 hours; and
    c. Level 3 (commonly referred to as DC fast charging) allows for high power transfer and can charge an EV battery to approximately 80% in minutes versus hours.[9]
2. "Range anxiety" was mentioned several times in the order, with DTE Electric Company ("DTE") referencing a survey wherein a lack of charging stations was cited by people as a significant reason against purchasing an electric vehicle.
    a. Several organizations[10] claim that they can address range anxiety by supporting the accelerated deployment of EV charging infrastructures that provide equitable, reliable, and consistent access in various locations.
3. The MiPSC's first order about EV infrastructure was for the purpose of accepting suggestions and notes from business entities and the public. Below are several of the main concerns and key suggestions:

[8] In the Matter, on the Commission's Own Motion, to Open A Docket That Will Be Used to Collaboratively Consider Issues Related to Both the Deployment of Plug-in Elec. Vehicle Charging Facilities & to Examine Issues Germane to the Use of Compressed Nat. Gas As A Motor Vehicle Transportation Fuel in Michigan in A Comm'n-Sponsored Tech. Conference. Commission Order (Dec. 20, 2017).

[9] *Id.* at Footnote 14.

[10] The organizations are: Actia, Advanced Energy Economy, The Alliance for Transportation Electrification, Clean Fuels Michigan, Consumers Energy Company, DTE Electric Company, The Ecology Center, Edison Electric Institute, Ford Motor Company, General Motors, Greenlots, Michigan Electric and Gas Association, Michigan Energy Innovation Business Council, Michigan Environmental Council, Michigan League of Conservation Voters, Natural Resources Defense Council, Phoenix Contact, Siemens, and Sierra Club.

a. Indiana Michigan Power Company ("I&M") suggested the MiPSC and utilities work together on a pilot trial in order to gain "hands on experience," thereby jointly collecting data and information to analyze potential impacts to the grid for the MiPSC to use in future action of this developing area. I&M also extended support for the time-of-use rate approach.
b. DTE discussed several points:
    i. DTE asserted that policy advancement and regulatory development is needed in four key areas: (1) rate design, (2) grid impact, (3) customer education and outreach, and (4) charging infrastructure.[11]
    ii. DTE expressed concern with respect to the location of EV infrastructures, expressing that it needs to have knowledge of the location in order to better serve customers. DTE therefore recommended legislative changes to require the Secretary of State's office and cities/townships to provide notification to the applicable utility when an EV infrastructure is installed or purchased (which could then supplement self-reported information).
    iii. DTE mentioned that utilities, by nature of their unique relationship with current customers, are well situated to engage and help with education efforts.
    iv. DTE proposed a utility "make-ready"[12] model wherein a utility would only invest money where a site host (who would fund the actual EV charging station) is willing to own and operate the charging station. DTE contended that this model is the most practical way to close the gap on the lack of EV charging infrastructure and would also attract new investment and resources from third parties.
    v. DTE suggested a pilot residential rebate program.
c. Consumers Energy Company ("Consumers") suggested four deployment options for consideration: (1) business as usual, (2) "make-ready," (3) charger only, and (4) full ownership. Additionally, it was suggested that a multi-unit dwellings ("MUD") model could use sub-meters to measure individual customer's consumption.
d. Electric Vehicle Charging Association ("EVCA") suggested following best practices to structure EV charging infrastructure development pilot programs (in the footsteps of California, Massachusetts, and Ohio): (1) incentives structured through rebates, grants, and competitive programs; (2) public-private partnerships that support industry competition, with a variety of acceptable business models for program participation; and (3) a balanced approach between the various dwell-time use cases for plug in electric vehicle ("PEV") charging, such as Level 2 and DC fast charging infrastructure.
e. Greenlots asserted that narrower approaches, such as rebate-only programs and employing a make-ready model, can limit the impact, cost effectiveness, and net benefits of utility EVSE programs.

[11] The Commission adopted these key areas as guiding principles for the adoption of EV infrastructure in Michigan.
[12] i.e., the utility's involvement on the installation of the electrical infrastructure on the customer side of the meter up to, but not including, the [P]EV charging station itself.

MiPSC Order 2[13]

1. For the purpose of charging stations, EV includes plug-in hybrid electric vehicles and battery electric vehicles.

2. **Consumers presented their "Electric Vehicle Strategy."**
    a. Within the strategy, Consumers indicated working with General Motors on at-home smart charging and information technology integration to transmit residential charging data and avoid the need for a second meter.

       Additionally, Consumers discussed its updated EV foundational infrastructure pilot program proposal (the utility would request a foundational infrastructure pilot program that would run for three years). Following approval, Consumers will run a rebate program rather than engaging in utility ownership of EV foundational infrastructure, with an emphasis on learning, and focus on:
        i. Residential charging,
        ii. Public/workplace charging,
        iii. Direct current (DC) fast charging, and
        iv. Information technology (IT) infrastructure.

3. **DTE presented "Charging the Future of Michigan" approach**
    a. Within the approach, three EV related activities will take place (the first two started in 2018 and the third in 2019):
        i. Ramping up and refining current efforts to improve the EV experience for both residential and commercial customers,
        ii. Deploying near-term pilots to develop and test concepts and gain key insight into both EV-grid integration and consumer preferences, and
        iii. Implementing a sustainable program to grow EV adoption in Michigan that benefits all customers.
    b. With regard to near-term pilots, DTE identified six pilot programs that it planned to deploy in 2018 in load management, downtown municipal charging showcases, and corridor fast charging (highway charging station and extreme fast charging).
    c. Funding: using current budget and working with partners for additional funding.

4. The MiPSC concluded its order by discussing its interest in seeking collaborative discussions and implementation of pilot program proposals that do not require commission approval.

[13] In the Matter, on the Commissions Own Motion, to Open A Docket That Will Be Used to Collaboratively Consider Issues Related to Both the Deployment of Plug-in Elec. Vehicle Charging Facilities & to Examine Issues Germane to the Use of Compressed Nat. Gas As A Motor Vehicle Transportation Fuel in Michigan in A Comm'n-Sponsored Tech. Conference. (Mar. 29, 2018)March 29, 2018 order (Michigan Public Service Commission).

MARYLAND[14]

MARYLAND PSC ("MDPSC") MODIFIED UTILITY ELECTRIC VEHICLE PORTFOLIO

1. The Commission approved a five-year EV infrastructure pilot program proposed by four of the state's largest electric utilities.[15]
    a. The decision supports deployment of more than 5,000 Level 2 and DC fast charging stations total.
    b. The state set a goal of having 300,000 zero-emission EVs by 2025, and has targeted a reduction in greenhouse gas emissions by 40% by 2030 (of 2006 emission levels).

2. EV infrastructure proposed rebate incentives designed to supplement other state and local programs covering a portion of EV charger costs.
    a. The MdPSC directed the utilities to seek recovery of EV charging program costs in future base rate proceedings, where the costs would be subject to a comprehensive review.
    b. The MdPSC approved the utilities' plan to provide rebates for cost of chargers with advanced ("smart") functionality.
    c. All four of the utilities must develop a TOU rate design for residential rebate offerings.
    d. The utilities proposed rebate incentive programs to target apartments and condominiums in order to provide access for underserved multi-family and multi-unit dwellings.

3. The MdPSC's decision provided the utilities with the option to own and operate a limited number of EV charging stations to jumpstart the deployment of a public EV charging network.
    a. By allowing this, the MdPSC aimed to reduce "range anxiety" in the near term and lay a foundation for a competitive market.
    b. Public chargers must be located at property leased, owned, or occupied by a unit of state, county, or municipal government for public use.
    c. This decision required the utilities to establish a new and separate rate class to include more than 900 public EV charging stations to ensure that customers that have EVs cover part of the costs.

4. In order to collect a more comprehensive body of knowledge, each utility must implement plans to evaluate the performance of the pilot programs, provide progress reports to the MdPSC every six months, and participate in mid-course and final reviews in hearings before the McPSC.
    a. The EV pilot proposals were initiated as a result of the MdPSC's grid modernization proceeding (known as Public Conference 44).

[14] In the Matter of the Petition of the Elec. Vehicle Work Grp. for Implementation of A Statewide Elec. Vehicle Portfolio, 349 P.U.R.4th 472 (Jan. 14, 2019).

[15] Baltimore Gas and Electric Company, Delmarva Power and Light Company, Potomac Edison, and Potomac Electric Power Company.

WASHINGTON[16]

RELEVANT POLICY

1. The state aims to put 50,000 EV on the road by 2020.[17] In doing so, the state enacted significant policies in support of EV.
2. *RCW 82.08. 809 & RCW 82.12.809* provide for tax exemption for alternative fuel vehicles.
3. *RCW 46.08.185* provides for EV charging signage and parking regulations.
4. *RCW 43.01.250, 43.19.648 & 47.38.075*, provide support for the use of EV for state business.
5. *Executive Order 14-04, 2014, and RCW 47.38.070* promote EV infrastructure development.
6. *Executive Order 14-04 (April 29, 2014), and RCW 47.38.070*. Washington State Department of Transportation ("WSDOT"), through an "innovative partnership program", was directed to continue to build out the EV charging network along state highways and key destinations in partnership with other public and private entities.
7. *RCW 47.04.350*, WSDOT was further authorized to develop a pilot program to identify transportation corridors for charging infrastructure and support the deployment of EV infrastructure by private financing.

WASHINGTON'S ELECTRIC VEHICLE ACTION PLAN[18]

The plan identifies actions to engage utilities in broader transportation electrification efforts, including:

1. Identify barriers and incentives for electric utilities to promote the use and increased use of electricity for transportation;
2. Encourage utilities to provide public education about EVs;
3. Encourage all utilities to support EVSE installation and rebates;
4. Require utilities to establish an electric transportation department;
5. Encourage utilities to maximize grid benefits of electric vehicles; and
6. Encourage utilities to purchase and redeploy used EV batteries for a secondary use.

PILOTS

1. Puget Sound Energy ("PSE") launched an EV charging incentive on May 1, 2015. This program[19] offered a $500 rebate for customers who purchased their own Level 2 EV charger.
    a. During the study, PSE was required to coordinate with its advisory group and consider cost-effective solutions to EV load management (e.g., TOU rates, demand response, and direct load control).
2. Avista Corporation d/b/a Avista Utilities ("Avista") launched an EVSE Pilot Program, which went into effect on August 1, 2016. The program allows the company to offer to

[16] In the Matter of Amending & Adopting Rules in Wac 480-100 Rulemaking to Consider Policy Issues Related to the Implementation of Rcw 80.28.360, Elec. Vehicle Supply Equip.., 338 P.U.R.4th 1 (June 14, 2017).

[17] Results Washington – Goal 3.1.1.c. http://results.wa.gov/what-we-do/measure-results/sustainable-energy-clean-environment/goal-map (January 2017).

[18] Washington State Electric Vehicle Action Plan 32-33 (Feb. 2015), http://www.wsdot.wa.gov/NR/rdonlyres/28559EF4-CD9D-4CFA-9886-105A30FD58C4/0/WAEVActionPlan2014.pdf.

[19] The program was funded through PSE's Schedule 120 Conservation Service Rider tariff.

own and operate, as part of its regulated services, up to 265 Level 2 EV chargers and seven DC Fast Chargers throughout its service territory.

a. The Washington Utilities and Transportation Commission ("WUTC") imposed a quarterly reporting requirement, including participation levels, expenditures, and revenues for each service offered under the pilot. Additionally, the location and utilization of the DC Fast Charging stations and the amount of overall fixed and variable costs recovered through user payments had to be included in the reports.

POLICIES TO IMPROVE ACCESS AND PROMOTE FAIR COMPETITION IN THE PROVISION OF ELECTRIC VEHICLE CHARGING SERVICES

1. **Program design elements:**
    a. Utilities are expected to offer DC fast charging as a regulated service and they are expected to consult the Washington State Department of Transportation and be consistent with the state transportation planning priorities.
        i. Proposals should indicate whether proposed DC Fast Charging stations will be deployed in priority corridors.
        ii. Proposals should clearly support the department's preference for siting projects at a minimum of 40-mile intervals, and add capacity of redundancy in congested areas for a more dependable charging network.
        iii. Utilities should explain how their project would lead to eventual build-out of the corridor and planned future charging infrastructure along the corridor.
2. **Broader transportation planning:**
    a. EV charging may be offered under a similar framework to utility conservation programs at a cost commensurate their benefits.
        i. The Washington Utilities and Transportation Commission (WUTC) would adopt a similar framework, emphasizing cost-effective system benefits, requiring stakeholder engagement, targeting services to low-income customers, providing education and outreach, and facilitating regular planning and reporting. In the case of EV, the WUTC would also consider consumer protection, interoperability, and service quality performance in a competitive market.
    b. Portfolio approach
        i. The WUTC adopted a policy supporting a "portfolio approach" to EV charging services, similar to the approach used in utility conservation programs because the approach may be necessary in order for the WUTC to find that the facilities are generally available to the public and dedicated to public use.
        ii. Utilities should provide customers with multiple options for EV charging services designed to serve customer types, target multiple market segments, and evolve as technology changes.
            1. Allow customers to choose whether to take service from the utility as a "manager" of EV charging or as a "provider" of EV charging.
                a. As a "provider" of EV charging services, utilities own and operate the entire EV charging infrastructure, including EVSE, and provide services on a fully regulated basis.

i. Rates must be fair, just, and sufficient to cover the cost of service.
ii. Facilities must be reliable and accessible to the general public.
iii. This model is likely best suited for DC fast charging and other commercial public charging applications.

b. As a "manager" of EV charging services, utilities must offer services that allow customers to choose and/or own their own EVSE, and provide grid benefits through direct load control or demand response.
i. EV charging services may include, but are not limited to, direct utility investment in the "make-ready" components of EVSE installation, rebates in exchange for participation in a demand response program, or line extension tariffs for electrification of commercial transportation fleets.
ii. Potential new utility models, for example, equipment rentals, or on-bill repayment may encourage adoption of EV and at-home charging.
iii. Likely best suited for residential locations that are unlikely to be accessible to the general public, but where charging behavior is more predictable.
iv. As a "manager" a utility may partner with a third party (the third-party would not be regulated by the WUTC).

iii. The purpose of the portfolio approach is to promote market transformation by providing a range of charging applications and ensuring fair competition in the provision of EVSE, while prioritizing the realization of system benefits over rate base additions.
iv. The approach is intended to avoid rigid adherence to a single program design, therefore allowing for a more holistic assessment of the costs and benefits of EV charging services.

c. Load management
i. Load management is essential to ensure that EV charging services provide benefits to non-participating customers, and do not undermine conservation efforts.
ii. A number of mechanisms are available to accomplish this: demand response, direct load control, and dynamic pricing.[20]

[20] Prior attempts to implement dynamic pricing in the Pacific Northwest had limited success due to the high costs of implementation and/or faulty program design. (Dynamic Pricing Evaluation for Washington, U.S. Department of Energy DE-OE0000123, January 2011) EV charging services may improve the feasibility of dynamic pricing, but ensuring proper program design is critical. While the willingness of automakers to allow vehicles' batteries to be used for vehicle-to-grid applications (i.e., sending electricity stored in electric vehicles back to grid) is questionable, we see the potential for advanced grid services associated with electric vehicle charging services in the future. The WUTC is currently considering the valuation of ancillary services provided by energy storage systems in Docket U-161024.

d. Consumer protection
    i. The WUTC's consumer protection rules prescribe companies' service responsibilities, requirements for billing, service applications, deposits, disconnection of service, reconnection of service, meter testing, and payment arrangements.
        1. Utilities must share all proposed terms and conditions for EV charging services with stakeholders, and file all customer agreement forms with the WUTC for review and approval.
        2. The WUTC will consider adopting other conditions to address any gaps in its consumer protection rules.
    ii. Companies not operating under the WUTC are subject to the Consumer Protection Act.[21]
e. Service quality
    i. The WUTC recognizes that the reliability of service the utilities are able to provide would be dependent on whether they serve as a "provider" or a "manager."
    ii. In all cases in which the utility owns the EVSE, the utility should adopt service quality standards that ensure a baseline level of service for the equipment.
    iii. In cases where the service is offered behind a customer's meter, utilities should also clearly define the responsibilities of the customer.
f. Low-income
    i. Utility programs must include a carve-out that provides direct services to low-income customers.[22]
    ii. The WUTC encouraged utilities to discuss potential program offerings with staff, their low-income advisory groups, and community action agencies in order to develop creative approaches, ensuring the benefits of EVs and EVSE accrue to low-income customers.
g. Interoperability analysis
    i. The WUTC recognized that greater interoperability would serve public interest. Allowing customers to move seamlessly between networks, and allowing network data to be made available to utilities and state and local governments would be beneficial for system planning purposes.
    ii. Open platforms with backend interoperability would achieve that objective.
    iii. However, as engineering and technical issues may give rise to concerns not yet addressed or even known to the WUTC at this early stage of EV infrastructure incorporation, the utilities are required to include interoperability analyses in their proposals for EV charging services.
h. Stakeholder engagement

[21] The act declares that unfair methods of competition and unfair or deceptive business practices are unlawful, and subject to enforcement action by the Attorney General. RCW 19.86.

[22] The Commission is authorized to approve discounted or preferential services to low-income and low-income senior customers. The WUTC may approve rates, charges, services, and/or physical facilities, given to its discretion. RCW 80.28.068.

i. The WUTC supported the convening of a single joint stakeholder group among the electric companies.
    1. The group must include representatives from staff, public counsel, and the state department of transportation. Additionally, an invitation must be extended to all parties who commented on the WUTC's rulemaking.
    2. Utilities must share the following with the stakeholder group 60 days prior to filling their proposed programs: electric vehicle charging service program portfolios, including capital investment plans, interoperability analysis, rebate offerings, equipment rental/lease proposals, and on-bill repayment; rate design proposals; outreach and education plans; customer agreements; and requests for proposals or information.

i. Reporting requirements
    i. Utility EV charging service programs must include a comprehensive plan for regular reporting to the WUTC on the costs and benefits of the program.
    ii. Reports must include: participation levels, expenditures, revenues for each service offered, locations of publicly accessible charging stations (utility owned and customer owned/utility managed), utilization of charging services, and the amount of overall fixed and variable costs recovered through user payments.

j. Calculation of benefits
    i. The WUTC will base a decision regarding cost recovery for investments in EV charging services on a standard business case and prudence review in a general rate case or other rate proceeding.
    ii. Benefits should be included in a business case for a prudence determination, and will be considered on a portfolio basis:
        1. Increased revenue from kWh sales to electric vehicles, using a reasonable range of projections of electric vehicle adoption;
        2. Grid management benefits as a result of influencing charging behavior; and
        3. Any other benefits in the form of environmental attributes − such as emissions reduction units − that are monetized and claimed by the utility.
    iii.

    For program design purposes, utilities should also include the calculation of benefits in their analysis and reporting to the stakeholder group and the WUTC.
        1. The results of a Societal Cost Test may be used to inform program design, and can be used in education and outreach materials.
        2. This test may include fuel cost savings and environmental benefits that are quantifiable, but have not been monetized.

k. Education and outreach
    i. Education and outreach must be targeted to potential EV drivers in a utility's service territory.

ii. The costs of these efforts can be included in the cost of service, provided they are not "promotional advertising." (The use of fuel cost savings and environmental benefits in education and outreach materials for EV charging services would not be considered "promotional advertising.)

CALIFORNIA

a. The California Public Utilities Commission ("CPUC") approved three pilots in 2016.[23]

iii. The three pilots had very different design elements and used several different business models to meet transportation electrification goals.

iv. To ensure fair competition, the CPUC adopted a "balancing test" which requires the ratepayer benefits of utility ownership of EV charging infrastructure to be balanced against the competitive limitations that may result from that ownership.[24]

The test establishes that proposals that include utility ownership of EV charging infrastructure must include an analysis of the impact of such ownership on competition.

VI. Ameren Missouri Charge Ahead – Electric Vehicle Charging Program

On August 8, 2019 a Stipulation and Agreement was filed in Case No. ET-2018-0132. In general, the Stipulation includes tariffs creating the Charge Ahead – Electric Vehicle Program ("program") for Ameren Missouri. The program is proposed to be in effect from January 1, 2020 through December 31, 2022. The budget for the program is $6.6 million. The budget is divided among three different EV charging incentive categories as provided below, plus $600,000 for administration and marketing of the program.

Category	Budget
Workplace	$2,000,000
Multifamily	$1,000,000
Public Charging	$3,000,000

[23] CPUC Docket 15-02-009 – Proposed Decision Directing Pacific Gas and Electric Company to establish and electric vehicle infrastructure and education program (Nov. 14, 2016) (Approved by CPUC at December 15, 2016 Public Meeting).

[24] California Public Utilities Commission Docket 14-12-079, Conclusion of Law 3.
Oregon Laws of 206, chapter 028, section 20(3).

The incentives for any project under any of the three categories is capped at $5,000 per level 2 port and $20,000 per level 3 port or 50% of the total project costs, whichever is less. The tariff limits the number of level 2 and level 3 ports installed on a single premise for a cost category and limits the size of level 3 fast chargers to 50kW.

The Stipulation further outlines specific information and data to be provided to the Commission on a quarterly and annual basis, and requires a final report be provided to the Commission upon the conclusion of the program.

The structure of the program and incentive levels are similar to some of the EV incentive programs in effect in other states as summarized above.

An on the record presentation for this Stipulation and Agreement has been set for October 9, 2019.

VII. Staff Comments

Although not specifically ordered to provide a recommendation, Staff provides the following comments as a participant to the workshop process.

Current Legal Environment for Electric Vehicles and Charging Stations

In its report filed in Docket No. EW-2016-0123 regarding Electric Vehicle Charging Facilities, Staff commented on the legal implications of electric vehicle charging facilities. At the time of filing the report, August 9, 2016, Staff said that electric vehicle charging stations were electric plant which fell squarely in the jurisdiction of the Commission. The report also included an analysis of how Massachusetts, Oregon, California, and Washington had addressed electric vehicle charging in their own territories. Since that report was filed, KCPL filed with the Mo PSC a request for authority to include electric vehicle charging stations in rate base, which the Commission

denied. KCPL appealed the case to the Missouri Court of Appeals for the Western District . The Western District disagreed with the Commission's conclusion that the provision of electric charging stations for electric vehicles was a service, instead finding that the transaction between electric charging stations and the vehicle was the sale or furnishing of electricity for use as power.[25] Ultimately, the court found that the electric utility's electric vehicle charging stations constituted "electric plant" under § 386.020(14).[26] However, the court made it clear that the Commission had ample tools at its disposal to address any potential policy concerns it may have about electric vehicle charging stations.

> This does not leave the Commission without mechanisms to address the concerns expressed in its Report and Order. Where particular utility activities fall within the Commission's regulatory jurisdiction, the Commission has the authority to review the prudence of those activities; it may have authority to approve or disapprove particular expenditures before they occur; and it may have the ability through rate-design mechanisms to specify that the costs of particular activities will be borne solely by particular classes of ratepayers. We find it significant that, in the Kansas Corporation Commission decision cited by the Commission, the Kansas agency did not find that the operation of KCP&L's electric vehicle charging stations was not a "public utility function" under K.S.A. §§ 66-101a and 66-104; instead, the Kansas Commission found that the charging stations which KCP&L sought to install were not necessary "to furnish reasonably efficient and sufficient service and facilities" to its customers, as required by K.S.A. § 66-101b. Confirming that it did not wholly

[25] Kansas City Power & Light Co. 's Request for Auth. to Implement a Gen. Rate Increase for Elec. Serv. v. Missouri Pub. Serv. Comm'n, 557 S.W.3d 460 (Mo. Ct. App. 2018)
[26] *Id.*

> lack regulatory authority, the Kansas Commission later approved a tariff specifying the rates KCP&L could charge for the electricity sold through its charging stations, over an objection that KCP&L should operate the stations "as an unregulated service." Our conclusion that KCP&L's electric vehicle charging stations constitute "electric plant" within the meaning of § 386.020(14) does not leave the Commission without remedy; to the contrary, it provides a basis for the Commission to exercise its full range of regulatory authorities with respect to those stations.[27]

In KCPL's and GMO's next rate case, the Commission approved a Stipulation and Agreement that created a separate electric vehicle charging customer class to allocate expenses, and provided that no other customer class shall bear any costs related to this service through base rates or rate adjustment mechanisms.[28] Also attached to the Stipulation and Agreement and approved by the Commission were tariffs for KCPL and GMO that set rates for the charging stations, as well as require KCPL and GMO to seek authority to build additional charging stations over the number specified in each tariff.[29] . In the case sparking this docket, Case No. ET-2018-0132, the Commission approved Ameren Missouri's incentive program related to corridor charging.

In recently passed Missouri Bill HB 355 the legislature has excluded from the definition of electrical corporation found in Section 386.020, RSMo., any entity otherwise not engaged in the

[27] Kansas City Power & Light Co. 's Request for Auth. to Implement a Gen. Rate Increase for Elec. Serv. v. Missouri Pub. Serv. Comm'n, 557 S.W.3d 460, 472–73 (Mo. Ct. App. 2018).

[28] *In the Matter of Kansas City Power & Light Company's Request for Authority to Implement a General Rate Increase for Electric Service*, File No. ER-2018-0145, *In the Matter of KCP&L Greater Missouri Operations Company's Request for Authority to Implement a General Rate Increase for Electric Service*, File No. ER-2018-0146, *Order Approving Stipulations and Agreements*, filed October 31, 2018.

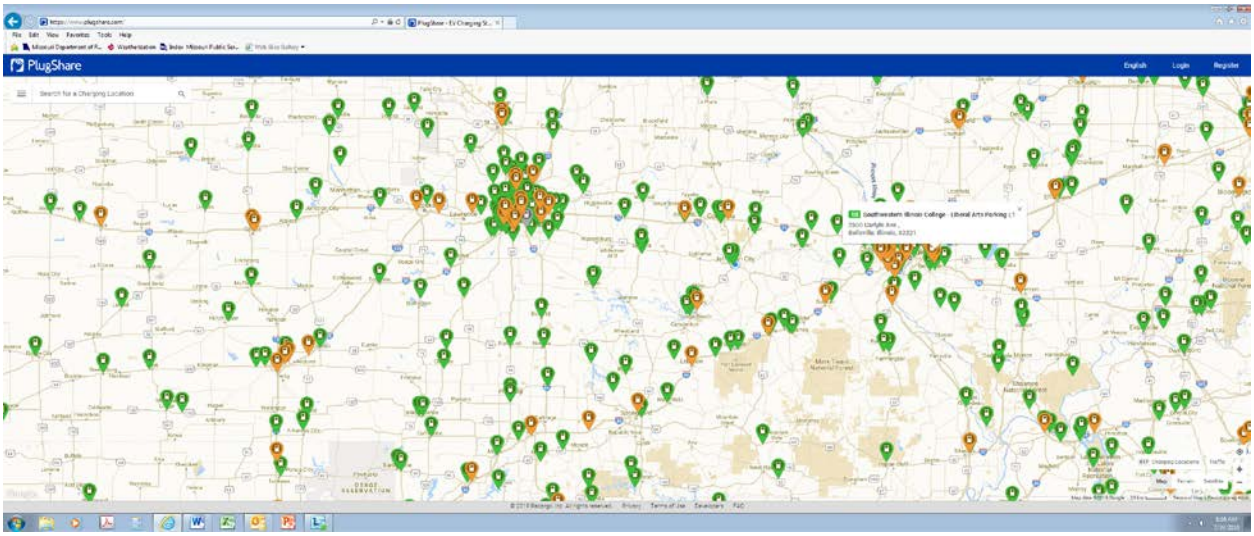
[29] *In the Matter of Kansas City Power & Light Company's Request for Authority to Implement a General Rate Increase for Electric Service*, File No. ER-2018-0145, *In the Matter of KCP&L Greater Missouri Operations Company's Request for Authority to Implement a General Rate Increase for Electric Service*, File No. ER-2018-0146, *Non-Unanimous Partial Stipulation and Agreement*, Exhibit B, filed September 9, 2018.

production or sale of electricity but which sells, leases, owns, controls, operates or manages one or more electrical vehicle charging stations. Also, the bill added a new provision to 386.805, RSMo., clarifying that when a municipal or rural electric cooperative lawfully provides electric service to a structure outside of its service area boundary, an electric vehicle charging station in the reasonable proximity of that structure will be considered a contiguous or adjacent addition or expansion to that existing structure. At this time, it appears the plain reading of these two changes is that a non-utility which chooses to sell, lease, own, control, operate or manage one or more electrical vehicle charging stations will not be considered an electric utility for regulatory purposes and a non-PSC regulated electrical utility will be able to operate a charging station adjacent to its existing structures inside of a PSC-regulated utility or other non-regulated utility's service area.

Current State of Electric Vehicle Charging Stations in Missouri

The current number of EVCS publicly available is difficult to quantify due to there not being a single source to get the current count of EVs and public charging stations.

The following map shows publicly available Level 2 and Level 3 charging stations in Missouri.[30]



[30] Website: PlugShare, EVSE Locator, https://www.plugshare.com/

The comments provided by participants shows the number of public charging stations to be between 410 to more than 1,300 in Missouri.

The Department of Energy website offers a tool to estimate how many charging stations a state might need.

Missouri Business Alert,[31] another website with EVCS data, [32] shows 372 public EVCS to service 4,450 EVs as of July 20, 2018.

Missouri has about 12 electric vehicles for every charging station in the state, putting it among the states with the fewest vehicles per station.[33]

The state ranks 17th among the 50 states and Washington DC for number of charging stations, with 372. Meanwhile, Missouri ranks 26th for number of electric vehicles, or EVs, on the road, with 4,450.[34]

Though Missouri ranks lower for electric vehicle ownership than it does for charging infrastructure, the state saw big growth in EV sales in 2017. Sales hit 1,150 for the year, an increase of more than 32 percent compared to 2016 sales, according to data from the Alliance of Auto Manufacturers. an advocacy organization[35].

Missouri plans to spend $6 million on charging station construction as a part of the draft plan for its Volkswagen emissions settlement, according to the Missouri Department of Natural Resources.[36]

Staff synopsis:

Based on the comments provided by the participants in this docket, the participants generally agree that customer education is important to facilitate EV charging. In Staff's opinions, utilities should publish FAQs to help customers understand potential impacts of charging on their bills under both a consolidated billing and a separately metered approach for the following customer segments:

a. Residential at home charging
b. Industrial/Commercial low speed charging for employees/customers
c. Industrial/Commercial high speed charging for employees/customers
d. Very high speed public EV charging station owners.

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[31] Missouri Business Alert, http://www.missouribusinessalert.com/industries/96929/2018/07/20/chart-electric-vehicles-and-charging-stations-in-missouri/, CHART: Electric vehicles and charging stations in Missouri

32 Missouri Business Alert, http://www.missouribusinessalert.com/industries/96929/2018/07/20/chart-electric-vehicles-and-charging-stations-in-missouri/, CHART: Electric vehicles and charging stations in Missouri

33 Id.

34 Missouri Business Alert calculated the number of EVs by combining electric vehicle registrations as of the end of 2016 with electric vehicle sales for all of 2017.

35 https://autoalliance.org/energy-environment/advanced-technology-vehicle-sales-dashboard/

36 http://www.missouribusinessalert.com/industries/96929/2018/07/20/chart-electric-vehicles-and-charging-stations-in-missouri/, Chart: Electric Vehicles and Charging Stations in Missouri

Several participants generally agree that certain rate designs associated with EV charging can provide system benefits and not discourage EV charging. Because appropriate rate structures and rate designs are unique to each utility and that utility's costs, movement toward specific rate design objectives must occur within that utility's rate cases. Below, Staff provides an outline of steps that could be used to progress toward rate structures and rates designs to facilitate EV charging while reasonably providing price signals to consumers and revenue recovery for utilities.

Initial steps to be taken during or prior to applicable rate cases:

a. Residential Rate Design:
   i. Improve customer education regarding cost composition and energy cost differences over time of day and season.
   ii. Review rates on an unbundled basis, with potential to provide tariffed rates on an unbundled basis.
   iii. Implement a low-differential TOU rate design related only to energy price difference or existing rate design blocks, with relatively long on-peak periods.
   iv. Study determinants for an on-peak demand charge.

b. Non-Residential
   i. Incorporate small on-peak adder to energy consumed in defined on-peak period.
   ii. Reduce other energy and demand rates (particularly non-tail block energy) to collect the same amount of revenue from a given class.

c. Utility-wide
   i. Study bifurcating Fuel and Purchased Power costs into the TOU time periods for recovery of differences through bifurcated FACs.
   ii. Develop strategies to encourage strategic placement and deployment of EV charging stations to reduce overall system investment needs and operation expenses, including study of locational rate designs.
   iii. Study energy cost distribution and system utilization to find opportunities for efficient utilization and pricing – for example, some utilities experience significant winter night and evening usage – to refine time periods applicable to TOU rates and develop super on-peak or super off-peak rates.

Anticipated goals (approximately 2030 time frame, will vary by utility and rate case timing):

a. Residential:
   i. Continued and increased customer education regarding cost composition and energy cost differences over time of day and season.
   ii. Implement on-peak demand charge to nearly full recovery of generation capacity costs on peak, not already included in on-peak and super on-peak elements.
   iii. Consider and implement, if appropriate, distribution locational rates or rate elements.

b. Non-Residential
   i. Continue to increase on-peak adder to energy consumed in defined on-peak period.
   ii. Reduce other energy and demand rates (particularly non-tail block energy) to collect the same amount of revenue from a given class.
   iii. Consider implementation of continuous rate design. An example is provided below:

1. On Peak Energy $/kWh
    a. Recovers the market energy costs
    b. Recovers 60% or more of net generation-related costs (generation capacity, fuel, and purchased power, net of sales of energy into the market)
    c. Recovers approximately 30% to 40% of Transmission costs
2. Off Peak Energy $/kWh
    a. Recovers the market energy costs
    b. Recovers approximately 10% of net generation-related costs (generation capacity, fuel, and purchased power, net of sales of energy into the market)
    c. Recovers approximately 10%-15% of Transmission costs
3. Customer $/month (varies by size of service drop and on-site facilities)
    a. Includes metering costs, customer service costs, billing expenses, etc.
4. Monthly NCP $/kW – the highest 15 minutes of demand during the month
    a. Recovers approximately 50% of the costs of secondary distribution facilities
5. Designated Monthly CP $/kW – the highest 15 minutes of demand occurring during a specified time period in that month, for example, weekday afternoons between 1-6pm
    a. Recovers approximately 50% of the costs of primary distribution facilities and 25% of the costs of transmission facilities
6. Annual NCP $/kW – the highest monthly NCP during the last 12 months
    a. Recovers approximately 50% of the costs of secondary distribution facilities
7. Designated Annual CP $/kW – the highest CP occurring in a month defined as a peak month, within the prior 12 months
    a. Recovers approximately 10% - 20% of net generation related costs (generation capacity, fuel, and purchased power, net of sales of energy into the market)
    b. Recovers approximately 25% of transmission costs
    c. Recovers approximately 50% of primary distribution costs

c. Utility-wide
    i. Study distribution locational pricing determinants.

Finally, participants generally agree data collection is key to informing robust deployment of EVCS. Staff agrees detailed reporting related to Commission approved IOU EVCS deployment programs would be beneficial.

Appendix A[37]

	MIEC/MECG	DE	KCPL/GMO	Renew	Ameren	MPCA
Internal utility costs						
a. Necessary Distribution/Transmission system upgrades to existing infrastructure	Possible	N/AN/A	Yes, to pre-defined level	N/A	N/A	No
b. Internal utility costs of distribution extension as allocated	Possible	N/A	Yes, to pre-defined level	N/A	N/A	No
c. Distribution equipment from existing infrastructure to service drop	Possible	N/A	Yes, to pre-defined level	N/A	N/A	No
d. Transformer at service drop	Possible	N/A	Yes, to pre-defined level	N/A	N/A	No
e. Service drop	Possible	N/A	Yes, to pre-defined level	N/A	N/A	No
f. Meter	Possible	N/A	Yes, to pre-defined level	N/A	N/A	No
g. Capitalized labor associated with the above	Possible	N/A	Yes, to pre-defined level	N/A	N/A	No
h. Property taxes associated with the above	Possible	N/A	Yes, to pre-defined level	N/A	N/A	No
i. Insurance associated with the above	Possible	N/A	Yes, to pre-defined level	N/A	N/A	No
Customer costs						
a. Customer's portion of construction allowance	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
b. Infrastructure from meter to charger	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No

[37] N/A indicates the party did not provide a specific response relating to the cost item.

c. Charger	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
d. Charger installation	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
e. Charger awning/kiosk construction	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
f. Site engineering - electrical design work for charging facilities	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
g. Pavement of charging area	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
h. Other non-Charger electrical (lighting, kiosk)	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
i. Other on-site service connections (service line to C store, restrooms)	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
j. Other on-site construction (C store, restrooms)	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
k. Construction and/or pavement of access from public roadway	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No

l. Pavement of parking not in charging area	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
m. Site drainage	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
n. Site engineering - electrical design work for non-charging facilities	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
o. Site engineering - pavements, drainage	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
p. Permitting of civil engineering of site	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
q. Permitting of charger installation	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
r. Engineering/permitting of other non-Charger electrical (lighting, kiosk)	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
s. Engineering/permitting of other non-Charger electrical (C store, restrooms)	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
t. Land cost	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No

u. Land acquisition cost (title, etc.)	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
v. Land acquisition process cost (real estate search and evaluation)	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
w. Capitalized labor associated with any of the above	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
x. Property taxes associated with any of the above	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
y. Insurance associated with any of the above	No	N/A	Possibly, depends on specific program design.	N/A	N/A	No
MIEC/MECG	Although the MECG and MIEC are opposed to subsidization, if it can be shown that a subsidized rate would actually lower costs to all customers, further consideration of the situation would be needed. However, given the current nature of metering and rate design in Missouri, the MECG and MIEC are doubtful that such a situation would actually arise.					
DE	DE responds to Staff's identified cost categories by stating that costs should be allocated to the causers of the incremental costs based on cost allocation methods consistent with those approved by the Commission for allocating other utility investments and associated expenditures. Rates should be established with consideration of the useful life of the electric plant, a reasonable ramp-up period commonly associated with the introduction of new services, and the revenues expected from the service.					
KCPL/GMO	The Company believes it is appropriate to subsidize EV charging stations co-located with host/customer commercial businesses to facilitate EV adoption, but these subsidies should not subsidize portions of the customers' other commercial operations or promote excessive utility infrastructure investments.					

Renew	The Municipal PAYS® context is a more focused version of a general PAYS® tariff. First, the utility would develop terms of service (in the form of a Commission-approved tariff) for investing in the charging stations, batteries, or other electric bus equipment for each new electric bus sought by a transit authority in its service territory. Then, the customer (the transit authority or municipality) would opt-in to the tariff that allows the utility to place a charge on the customer's monthly electric bill. This charge would be limited to a level that would allow the customer to still see net savings (i.e. netting out the cost of fuel for a diesel bus). As a result, the municipality or transit authority is able to offset any upfront cost difference that may prohibit it from buying electric buses in the future.
Ameren	The practice of narrowly defining the EV charging project cost components that do and do not qualify for subsidies could well prove counterproductive if it hinders the utility's ability to move a project forward. As long as the total amount of dollar subsidies is found to be reasonable given the benefits of the EVs it will support, then there should not be such narrow limitations placed on the nature of the costs. This level of scrutiny is not applied to many other regulated investments, and it should not be applied here.