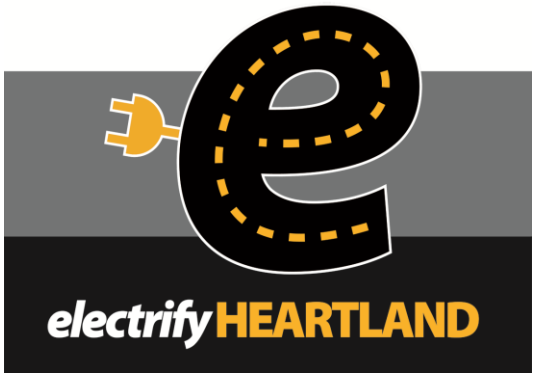
Electrify Heartland Plan

Section 5: Updated EVSE Permitting and Inspection Plans



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With: Black & Veatch

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Electrify Heartland Plan

Electrify Heartland Project Abstract

Electrify Heartland is an electric vehicle planning project managed by Metropolitan Energy Center. It is a product of the Greater Kansas City Plug-In Readiness Initiative, co-chaired by Kansas City Regional Clean Cities Coalition. Our goal is to produce a regional plan to prepare public resources and secure the economic and environmental benefits of plug-in vehicles within targeted metro areas with estimated 2.7M population. The targeted metro areas include Kansas City, MO & KS; Jefferson City, MO, Wichita, KS; Salina, KS; Lawrence, KS; and Topeka, KS. (14 Counties: Cass, Clay, Cole, Douglas, Jackson, Johnson, Leavenworth, Miami, Platte, Ray, Saline, Sedgwick, Shawnee, Wyandotte).

Electrify Heartland Steering Committee

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Training	National Electrical Contractors Association	Jim Cianciolo
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Exhibit i-i. Electrify Heartland Steering Committee Members

Section 5: Updated EVSE Permitting and Inspection Plans

Section Abstract

As adoption of electric vehicles becomes more prevalent in Kansas and Missouri, local governments will face a number of new and unique regulatory issues. The Electrify Heartland Government Policy Team has conducted a significant amount of research in the regulatory obstacles and solutions that have arisen in other communities across the nation as they have worked to design and implement the regulatory infrastructure that is needed to accommodate widespread adoption of electric vehicles, and the following section outlines our recommendations regarding permitting and inspection.

Section Author:

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5 Updated EVSE Permitting and Inspection Plans

5.1 EVSE Charging Station Permitting

From the perspective of most municipalities across Kansas and Missouri, the primary logistical hurdle for EV adoption is the design and adoption of a permitting and inspection process for EV charging stations that will allow for safe and reliable installations. To this end, the Electrify Heartland Government Policy Team has worked closely with certified electricians and representatives from municipalities in the planning area of the project to design a model permitting process that can be seamlessly integrated into communities that are preparing for large-scale adoption of electric vehicles by their citizens.

5.2 Main Objectives for the Kansas/Missouri Model Permitting Process

Before addressing the full scope of the proposed permitting and inspection process for electric vehicle charging stations, it might be helpful to first outline the key objectives that such a regulatory system should accomplish. Based on our review of regulatory regimes across the country, we have concluded that the Electrify Heartland model permitting process should strive to accomplish the following goals:

1.) Implement a permitting and inspection process that ensures to the maximum extent possible that a safe and reliable installation has occurred.

2.) Encourage installation of charging stations by licensed and properly trained electricians.

3.) Establish confidence in safety and reliability and guard against negative events that would act as an obstacle of EV adoption.

4.) Streamline the permitting and inspection processes to an extent that is safe and practicable to minimize the permit processing and inspection time.

5.) Create clear and concise model permits and ordinances that can be easily adopted by a large number of communities in Kansas and Missouri.

6.) Minimize the administrative and logistical burden from the permitting and inspection process on electricians and communities to encourage wide-spread adoption of the model process and electric vehicles.

5.3 Encourage Adoption of 2011 National Electric Code

As a first step towards adopting a reliable and consistent model permitting and inspection process, Electrify Heartland recommends that all communities adopt the 2011 version of the National Electrical Code.

Adoption of the 2011 NEC helps to accomplish several goals. First, it creates regulatory uniformity from community to community where none currently exists. In the State of Kansas, for example, communities are free to choose the version of the NEC that will be applied. As a result, there is no uniformity and the range of applicable codes stretches from the 2011 NEC to the 1995 NEC.

Second, the 2011 NEC includes several updates that pertain specifically to the installation of electric vehicle charging stations. Especially in an industry that is developing as quickly as EVs, in order to ensure that the most current and safest industry standards and practices are utilized in every community, it is necessary that communities upgrade their electrical codes to incorporate the most recent revisions. At the very least, we recommend that communities incorporate the most recently updated versions of Article 625 of the NEC, which pertains to the installation of EV charging stations.

5.4 Overview of the Model Permitting Process

In order to assist communities with designing and implementing consistent and effective processes for regulating the installation of electric vehicle charging stations, the Electrify Heartland Government Policy Team has researched codes, ordinances, incentives, state laws, standards, white papers, and other guiding documents from other jurisdictions across the country, and adapted those that fit most appropriately in the Kansas and Missouri regulatory environments.

5.4.1 Model Permit and Inspection Process

When it comes time to design a permitting and inspections process for installations of electric vehicle charging stations, municipalities have a number of options. If no plan has been put into place prior to an application, many communities' default position is to either follow the pre-established procedure for miscellaneous electrical permits, or fail to permit the installations at all. Both scenarios present unsatisfactory results and do not take into consideration the particular complexities of installing an electric vehicle charger. This puts the public confidence in EVs and EVSE at risk unnecessarily.

Of course, communities will face a wide spectrum of potential scenarios for charging station permits, and there is no single permitting process that would be appropriate for all occasions. For example, significantly less regulatory scrutiny will be required for a homeowner that wants to have a small charging system installed in his or her garage than would be required for a large commercial entity that wants to install numerous charging stations for use by customers and employees. After reviewing the industry standards for inspection and review processes, Electrify Heartland recommends the multi-tiered process outlined below. Communities are free to draft the permits discussed below as they please,

but as is explained further below, our recommendation would be that a separate permit be created for electric vehicle charger installations.

5.4.1.1 Single-Family Residential Installations

Depending upon the vehicle technology and the owner's preference, installation of a separate charger may not be required. If an electrical upgrade is not undertaken, then obviously no permit is required. However, if a dedicated 120V receptacle and circuit is needed for Level 1 charging systems, a minor electrical permit needs to be issued, though it can likely be handled under the city's existing permitting requirements.

If the residence's existing electrical panel cannot safely meet the increased electricity needs, then an additional permit to either upgrade the electrical panel or install a new panel and meter should be required. In order to facilitate gathering all of the information that might be needed to properly assess the safety of the installation, we would recommend that the municipalities adopt a stand-alone permitting form for these installations. Specifically, we would recommend that local governments consider adapting and adopting a form permit application that has been prepared by the U.S. Department of Energy's Alternative Fuels Data Center provides an excellent overview of the information that might be considered, and is therefore attached as Appendix D-EVSE Permitting..

In order to satisfy the consumers' demands for quick processing time and ease the logistical and administrative burdens on the local governments, we would recommend that the permit process be streamlined to the greatest extent possible.

For example, if the non-minor permit application has been submitted by a certified electrician that has received training in the installation of electric vehicle charging stations from an nationally-recognized training program, the local government can have some comfort that the installation was handled safely and properly and therefore can adopt less stringent inspection processes, such as inspecting one out of ten installations or foregoing inspections altogether.

"…to satisfy the consumers' demands for quick processing time and ease the logistical and administrative burdens on the local governments, we would recommend that the permit process be streamlined to the greatest extent possible"

However, in instances where the permit application was not submitted by a properly-trained electrician, then the local government should still commit to performing inspections of small single-family residential installations in a prompt manner. Many municipalities across the country have committed to conducting such inspections within 24 hours of the installation being completed.

5.4.1.2 Large Single-Family Residential, Multi-Family Residential and Commercial Installations

For charger installations that exceed the scope of the single-family residential scenarios outlined above, the same informational requirements for the permits will be required, but the local government will by necessity have to be more thorough in its inspection process. Accordingly, Electrify Heartland does not recommend that such installations be reviewed under the streamlined inspection processes outlined above.

5.4.2 Website

In order to facilitate efficient and timely review of electric permit applications by local governments, Electrify Heartland recommends that an online permit application process be utilized.

Such a website would accomplish several goals. First, it would quickly and easily disseminate all of the necessary information regarding the permitting process for electric vehicle supply equipment to consumers and certified electricians, and thus alleviate some angst about the potential regulatory treatment of such installations. Second, it would alleviate a considerable amount of the administrative burden on local governments by placing all of the necessary information out for the public. Third, it would provide an excellent opportunity for the local government to publicize itself as a progressive, forward-thinking community. Finally, our hope is that the concerted nature of the Electrify Heartland project will allow communities in Kansas and Missouri to take advantage of economies of scale and more easily facilitate the design and implementation of an online application process.

To this end, members of the Government Policy Team have entered into preliminary discussions with NIC, a web developer company that provides Government solutions for more than 3,000 federal, state, and local agencies that serve 97 million people in the United States. Though these discussions are still in the preliminary stages, our hope is that if this project enters an implementation phase that we will be able to retain NIC, or a similar company, to design an online application process that can be uniformly adopted by cities across Kansas and Missouri.

5.4.3 Public Utility Notifications

As part of the information-gathering stages of this process, members of the Electrify Heartland Steering Committee conducted several meetings with public utilities located throughout Kansas and Missouri. Throughout this process, representatives of the public utilities stressed that their load-planning activities would be considerably aided if a notification system could be built into this permitting process. Our research indicates that

this is a request that is frequently raised by utilities in other jurisdictions, as utilities are seeking ways to accurately model the potential impacts on their distribution systems.

To address this concern, we would recommend two steps. First, it will be necessary for the electrical permit form to include a statement acknowledging that the system owner agrees to release limited information about the system to the applicable public utility to be used solely for the purposes of gauging the sufficiency and efficiency of the utilities generation, transmission, and distribution services. Second, if an online application process has been adopted, such process should either allow the utilities to access relevant information about the permits that have been granted, or include a notification process to send the relevant information directly to the utility. The specifics of this process are still being negotiated, and if the program moves into the implementation stages more formal procedures will be ironed out with input from the communities and the public utilities.

5.5 About the Author

Alan Claus Anderson is the vice chair of the firm's national Energy practice group. He has extensive experience representing and serving as lead deal counsel and outside general counsel to public and private companies in the energy industry. He advises domestic and international oil and gas, wind and solar companies in all phases of the development and finance process. Mr. Anderson also regularly represents oil & gas companies and serves as their outside general counsel. He advises energy clients in the full range of activities including reviewing, structuring and negotiating acquisitions and development projects both domestically and internationally, and was selected for membership in the Association of International Petroleum Negotiators. A former in-house counsel at a publicly traded oil and gas company, he has led numerous successful negotiated oil and gas acquisitions and joint development projects domestically and internationally.

Mr. Anderson also represents developers, lenders, investors and suppliers in renewable energy projects throughout the country that represent more than 3,500 MW in wind and solar projects under development and more than $2billion in wind and solar projects in operation. He also has significant experience assisting non–United States companies on their entry into the United States market; including one of the largest Germany-based solar companies on its entry into the United States and successful projects throughout North America.

An active participant in the energy industry, Mr. Anderson is a frequent speaker and writer on energy issues. Mr. Anderson has also been selected to lead two U.S. Department of Energy projects related to distributed solar finance issue and electric vehicle deployment as well serving as the Chair of the Kansas City Area Development Council's Advanced Energy

and Manufacturing Advisory Council. He received his undergraduate degree from Washington State University and his law degree from the University of Oklahoma.

Kansas City Regional Clean Cities Coalition Administered by Metropolitan Energy Center, the coalition is a public-private partnership among fleet managers and manufacturers, vendors and service providers in the alternative fuels and vehicle industries. It works in communities across Kansas and in western Missouri. Kansas City's coalition is a partner since 1998 with the U.S. Department of Energy's Clean Cities Program, whose mission is to advance the energy, economic, and environmental security of the United States by supporting local actions to reduce petroleum use in transportation. The coalition administers more than $40 million in clean transportation projects in Kansas, Missouri, Iowa and Nebraska. For more information visit www.metroenergy.org/kccleancities.aspx.About

Metropolitan Energy Center is a nonprofit organization with a threefold mission to create resource efficiency, environmental health, and economic vitality in the Kansas City region. Over the past three decades, MEC has grown to be a recognized catalyst for regional energy partnerships that satisfy the triple-bottom-line approach. Founded in 1980, MEC is a catalyst for community partnerships focused on energy conservation. It works through a variety of educational and training programs, including Kansas City Regional Clean Cities Coalition, Home Performance, Project Living Proof and EnergyWorks KC. Every energy dollar conserved through MEC's work remains available for investment in the local economy. MEC was awarded more than $17 million in federal funding for transportation projects in recent years and is a partner in other multi-million-dollar projects in Kansas and Missouri. MEC has been the recipient of many awards recognizing its contribution to energy conservation and was host of the national Affordable Comfort Conference in 2003 and 2009