

Electrify Heartland Plan

Section 1: Develop Electric Vehicle Planning Team



Project title: Kansas – Missouri
Community Readiness for EV and EVSE

Funded by: US DOE DE-EE0005551

By: Metropolitan Energy Center
and Kansas City Regional Clean Cities Coalition

With: Black & Veatch





Electrify Heartland Plan © 2012 by Metropolitan Energy Center.

The material in this report was created and compiled from the work of U.S. DOE award DE-EE0005551: Kansas–Missouri Community Readiness for EV and EVSE. Government agencies, private entities and individuals may use, reproduce or transmit pages from this report for reasonable purposes of planning and implementing electric vehicle and electric vehicle charging station projects, provided that it maintains all copyright, trademark, and other proprietary rights or notices. Users may not otherwise use, reproduce, download, store, post, broadcast, transmit, modify, sell or make available to the public content from the report without the prior written approval of Metropolitan Energy Center. Write to MEC c/o Clean Cities, 3810 Paseo Blvd, Kansas City, MO, or visit www.metroenergy.org.

U.S. Department of Energy Acknowledgement and Disclaimer:

This material is based upon work supported by the Department of Energy under Award Number DE-EE0005551. This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

This work was developed in response to the federal funding opportunity announcement titled Clean Cities Community Readiness and Planning for Plug-in Electric Vehicles and Charging Infrastructure. FOA: DE-FOA-0000451

CFDA Number 81.086



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

Team	Organization	Name
Charging Stations	Initiatives	Troy Carlson
Charging Stations	LilyPadEV	Larry Kinder
Charging Stations	Logios	Gustavo Collantes
Government Policy	Polsinelli Shughart PC	Alan Anderson
Government Policy	Black & Veatch	Bill Roush
Project Administration	Metropolitan Energy Center	Ruth Redenbaugh
Project Administration	Metropolitan Energy Center	Kelly Gilbert
Public Education	Nation Ranch Marketing, Inc.	Bill Patterson
Training	Kansas City Kansas Community College	Bob McGowan
Training	National Electrical Contractors Association	Jim Cianciolo
Utility Grid	Black & Veatch	Sam Scupham
Vehicle & Fleet	University of Missouri at Kansas City	Henry Marsh

Exhibit i-i. Electrify Heartland Steering Committee Members



Section 1: Develop Electric Vehicle Planning Team

Section Abstract

This section gives a detailed description of the goals and intention of the Electrify Heartland project and what makes this plan unique. In this section we discuss how the team members that made this planning so successful were selected and how individual tasks were distributed among them. Content planning for deliverables, methods and barriers are also discussed. We provide this detail to serve as an example of one way to customize your own EV planning team. See Appendix A.

Section Author:

Ruth Redenbaugh, Metropolitan Energy Center



Table of Contents

1	Develop Electric Vehicle Planning Team	7
1.1	Project history, mission and scope	7
1.2	Develop project team	8
1.2.1	Garner expertise.....	8
1.2.2	Attract participants.....	9
1.3	Assign responsibilities	10
1.4	About the Author	11
2	Plan PEV Vehicle Deployment	
3	EVSE Deployment Plan	
4	Updated EVSE Building Code Plans	
5	Updated EVSE Permitting and Inspection Plans	
6	Updated EVSE Zoning and Parking Plans	
7	EV and EVSE Communication, Education, and Training Plan	
8	EV Benefits/Incentives Promotion Plan	
9	Utility Grid	
10	Develop Corridors	
11	Emerging Technologies	
12	Other Considerations	



Table of Appendices

The following appendices are in separate files on www.ElectrifyHeartland.org

- A. EV Readiness Index
- B. Greater Kansas City Plug-in Readiness Strategy
- C. Grant Proposal for Project
- D. EVSE Permitting Recommendations
- E. Federal Highway Administration Signage Memorandum
- F. EV Business Coalition
- G. Automotive Technician Curriculum
- H. Electric Vehicle Infrastructure Training Program promotion
- I. Getting started with EV
- J. Electric Vehicle Fleet Tools
- K. Electric Vehicle Hangtag
- L. EVSE Site Host Considerations
- M. Initial Website Map
- N. Air Quality
- O. EV Ready Communities
- P. Sample Presentations about EV Forecasts and Redirected Spending Potential
- Q. EVSE Corridor Analysis
- R. Blank
- S. Blank
- T. Blank
- U. Social Media
- V. Press Kit
- W. Contributors
- X. Exhibits
- Y. Glossary
- Z. Bibliography



1 Develop Electric Vehicle Planning Team

1.1 Project history, mission and scope

Electrify Heartland imparts a “how to” approach for planning electric vehicle and charging equipment that is modular, scalable and customizable for any size business, city, county or region. We have included our teams’ recommendations in developing a plan and have also made an effort to describe other options evaluated, why this alternative was selected, constraints encountered, and barriers to avoid.

Electrify Heartland is a product of the Greater Kansas City Plug-In Readiness Task Force. 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 an estimated population of 2.7 million people. Our plan will be publicly releasable and replicable for electric vehicle and charging infrastructure deployment in other regions.

The Task Force was formed in 2010 to explore benefits and learn more about the impact of electric vehicles on our area. It was chaired by Kansas City Regional Clean Cities Coalition and Mid-America Regional Council (MARC) and consisted of more than one hundred business and community leaders. The task force met many times over two years and developed the Greater Kansas City Plug-in Readiness Strategy. See Appendix B for the strategic plan including Kansas City area demographic maps and maps provided by Wichita Area Metropolitan Planning Organization (WAMPO). The Strategic plan provided the basis for our application in 2011 to further develop and implement certain planning initiatives. The proposal narrative for “Kansas-Missouri Community Readiness for Electric Vehicle (EV) and Electric Vehicle Supply Equipment (EVSE)” is attached as Appendix C.

The application resulted in US Department of Energy Award DE-EE0005551 to Metropolitan Energy Center, Inc. The project scope, by December 2012, is to produce a regional plan that can then be implemented to prepare public resources and secure the economic and environmental benefits of plug-in vehicles within the targeted metro areas of Kansas City, MO&KS; Jefferson City, MO, Wichita, KS; Salina, KS; Lawrence, KS & Topeka, KS (14 Counties: Cass, Clay, Cole, Douglas, Jackson, Johnson, Leavenworth, Miami, Platte, Ray, Saline, Sedgwick, Shawnee, Wyandotte) with an estimated 2.7M population.

Electrify Heartland is the project nickname, selected for simplicity, ease of use in social media and intended for use by jurisdictions within the region. For example, City A may use the project and team name “Electrify City A” in marketing materials and a web site that may also link to electrifyHeartland.org. Then information can be customized for City A without duplicating efforts by each jurisdiction, such as glossary, frequently asked questions, and



links to DOE resources. A press release by Independence, Missouri, is included in Appendix W when Electrify Independence was announced by their Economic Development Council.

 **“A ‘how to’ approach for planning electric vehicle and charging equipment that is modular, scalable and customizable for any size business, city, county or region.”**

Our unique opportunity, among the sixteen US Department of Energy awards for electric vehicle planning, is including two Midwestern States with different regulatory environments, five electric service providers, two electrician unions, many educational institutions and many manufacturers of electric vehicles, batteries, components and equipment. Greater Kansas City is one of the nation’s leading centers for the development of electric vehicles (EVs) and electric vehicle supply equipment (EVSE), due to efforts of Kansas City Area Development Council’s (KCADC) KC Advanced Energy initiative to bring alternative and renewable energy technology companies to the area. Electrify Heartland’s planning area is the home of Smith Electric Vehicles, Dow Kokam, Exergonix, Milbank Manufacturing, LilyPad EV and Mark One Electric, as well as one of the nation’s first Electric Vehicle Infrastructure Training Programs (EVITP) at the Electrical Joint Apprenticeship and Training Center operated by IBEW Local 124 and the National Electrical Contractors Association (NECA). Our region is quickly becoming the center for research and development, manufacturing and deployment of electric vehicles and related technologies in the United States.

1.2 Develop project team

1.2.1 Garner expertise

The Electrify Heartland team reflects our goals to bring together all aspects of electric vehicle readiness, including municipal planning, zoning, construction, permitting, utility grid, education, and fleet policies. We are enabling communities in our region to manage the growing number of electric vehicles on our roadways well into the future. The Electrify Heartland team is an impressive group of dedicated professionals with expertise in many areas. A concerted effort was made to select individuals engaged in developing electric vehicle plans in Kansas and Missouri while not being committed to a particular city, state or brand. Leaders of each team recruited participants as needed to accomplish specific tasks on the deliverables and activities outlined in Appendix A.

Many on the EV planning team were volunteers and may have personal or professional impacts preventing planned commitments to schedules, meetings and tasks. To help reduce impacts to the team, volunteer team leads also worked with co-leads to fill in when schedules were impacted.



A variety of expertise is needed for the many aspects of EV and EVSE. To produce a stronger plan, an effort was made to include a balance of team members from both States of KS and MO, many colleges, many brands of vehicles and equipment, diverse career fields, and consumers with varying degrees of EV knowledge.

1.2.2 Attract participants

Events encouraged participation in the project, helped to rearrange priorities, generated social media connections, and developed ideas for articles. Many events were planned and delivered. Although time consuming, events were instrumental in gathering interests and concerns of the public. See Appendix V for examples of articles and publications.

The first event invited the original Task Force to learn about the grant award and resulted in developing presentations to communicate benefits of further participation in the project. Benefits include economic development, jobs for electricians and auto technicians and redirected spending potential. Appendices P and V contains sample presentations to city, county and state officials as well as complementary groups such as air quality task force, economic development councils, Missouri Solar Energy Industry Association, and Sustainable Housing Conference. While being aware of cost constraints in many municipalities, these presentations helped to gather support and focus on key planning components.

Two events in April 2012 launched the project. Insiders were invited to a public television broadcast of "Revenge of the Electric Car," a documentary directed by Chris Paine profiling the rise of Tesla Motors and renewed interest by major automakers in battery electric vehicles (PEV). The next morning a special open house was hosted featuring elected officials, announcing the project team leaders, unveiling the web site and offering joy rides and vendor displays. Press releases, photo slide show backdrop, and planning documents are provided in Appendix V-Press Kit to customize for your events.

Social media is important for gauging public awareness and gaining supporters. Supporters may then become temporary or long-term contributors to the project team. Components of Electrify Heartland communication are lapel pins, Website, Facebook, Twitter and blog. Lapel pins with the "road e" logo are provided at events to create person-to-person education, public image, citizen pride, and publicity. Website URL suffixes .com, .net and .org were purchased, and to avoid confusion all point to the ElectrifyHeartland.org site. For the initial map of the dynamic site, see Appendix M. Graphic artists and web designers were hired to present professional communications. One or more team members, including marketing specialist and interns, were assigned to monitor social media for rapid responses



and frequent postings. Blog and Facebook postings provided insight into public perceptions of barriers and opportunities to address in our plan.

A contest called “Where in the Heartland is EVSE?” was conducted by a three-person team for six weeks on www.facebook.com/ElectrifyHeartland. Intentionally obvious pictures were posted four times each week for the public to guess the location. Prizes were donated relevant to charging locations in our project area. The contest increased viewers beyond the minimum requirement of twenty five to earn a Facebook URL and improved public education on the growing number of charging locations. A summary of contest results and connection analytic graphs are provided in Appendix U: Social Media. Participation was increased in consumer enthusiasts, event exhibitors, article subjects, student projects, and presentations at complementary venues.

1.3 Assign responsibilities

Responsibilities were assigned for all aspects of EV-EVSE Planning. The original Greater Kansas City Plug-in Readiness Task Force held many sessions to develop a responsibility matrix organized in categories and tasks- then assigned primary and secondary responsibilities. See the EV Readiness Index in Appendix A and note the legend provided.

The contents of this plan are organized with the same sections as the categories and tasks in the first two columns of the responsibility matrix, EV Readiness Index. The tasks were developed from the deliverables listed in the original funding opportunity outline, EV Plan Funding Opportunity Number: DE-FOA-0000451. See the grant proposal narrative in Appendix C.

Each section includes content pertaining to each task in three subject areas: Deliverables to Address, Methods of determining above plans including other options considered, and Barriers to consider and recommended mitigation plan. The first subject, “Deliverables to address”, matches the task column in the EV Readiness Index. The second subject, “Methods of determining above plans including other options considered”, provides reasons for arriving at the plan results as well as lessons learned while developing the plan. “Barriers to consider and recommended mitigation plan” describes barriers addressed while developing the plan, possible risks to consider, and recommended methods of avoiding the barrier or risk.

A calendar of team meetings was developed to reserve time on busy schedules. The team calendar is included in Appendix A. Executive team meetings of contractual partners, Metropolitan Energy Center and Black & Veatch were scheduled monthly to review budgets and schedules. Team lead meetings were held every two weeks with standard agenda items



of overall progress and the assigned section for each meeting. Assignments were made well in advance for each team to present sections of the plan and summarize findings in a standard template. Our spreadsheet used to track the document section assignments and schedule for each revision is provided on the project DVD as an example for customizing by your EV planning team.

1.4 About the Author

Ruth M. Redenbaugh is a grant manager for Clean Cities projects at Metropolitan Energy Center. Ms. Redenbaugh has developed and led a strong team of community leaders on the Electrify Heartland project since 2011. Key areas of training, building codes, permitting processes, utility grid, public outreach, marketing, and incentives were all addressed. Prior to Electrify Heartland, Ms. Redenbaugh led the Midwest Region Alternative Fuel Project from 2010-2011. The \$40M Recovery Act project partners with energy industry pioneers to reduce petroleum use, create infrastructure, and deploy vehicles that use alternative fuels in MO, KS, and NE.

Ms. Redenbaugh earned a Bachelor of Applied Science in Data Processing Management from St Mary's University in San Antonio, TX. She garnered her years of technology experience to lead special projects such as ways of making television interactive, telecommunications leading-edge, communication more productive and publishing more sensible. Sometimes she can be found volunteering her time as an elected precinct committee woman or by assisting neighborhood associations or gardening, sewing, or listening to Kansas City blues.

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