

# Electrify Heartland Plan

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## Section 2: Plan PEV Vehicle Deployment



**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





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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

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 2: Plan PEV Vehicle Deployment

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## Section Abstract

In this section, we describe how our team predicted the number of fleet and consumer Electric Vehicles that will be on roads in our region in 2015. We describe how the numbers were determined and what implications they have. We also discuss possible barriers to EV adoption in the region and how we have worked with consumers and business leaders to mitigate them.

## Section Author:

Bill Patterson, Nation Ranch



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- E. Federal Highway Administration Signage Memorandum
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## 2 Plan PEV Vehicle Deployment

### 2.1 Plan PEV Vehicle Deployment

Demand for electric vehicles is increasing, with sales expected to top 62,000 units in 2012.<sup>1</sup>

General Motors sold more Chevy Volts in the first six months of 2012 than in all of 2011, and Nissan soon will begin manufacturing its Leaf plug-in electric vehicle at a new multi-billion-dollar facility in Tennessee.

Toyota is offering a plug-in version of its popular Prius hybrid, and Ford recently introduced an electric Ford Focus.

Year-to-date electric vehicle sales of hybrid electric vehicles are up 113.5 percent compared to 2011, and sales of plug-in electric vehicles are up 228.9 percent.<sup>2</sup>

Pike Research estimates the United States will reach the one million mark in the year 2018, with more than 1.7 million electric vehicles worldwide by the year 2020.<sup>3</sup>

### 2.2 Deliverables to Address

#### 2.2.1 Estimate of 2015 Registered EVs

In his 2010 State of the Union Address, President Obama set a goal to put one million electric vehicles on American roads by the year 2015.

One million electric cars is roughly equivalent to four-tenths of one percent (.4%) of all cars on American roads, which is an encouraging ratio based on 2012 sales of electric vehicles to total vehicle sales. While it remains to be seen whether or not the nation will reach the President's stated goal, if current sales trajectories hold true, sales of hybrid electric and plug-in electric vehicles will constitute just under one-half of one percent of the total U.S. car market in 2012.<sup>4</sup>

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<sup>1</sup>Wahlman, Anton. "2012 Electric Car Sales Forecast." *The Street*. Street Network, 6 July 2012. Web. 10 Dec. 2012. <[HTTP://WWW.THESTREET.COM/STORY/11606766/1/2012-ELECTRIC-CAR-SALES-FORECAST.HTML](http://www.thestreet.com/story/11606766/1/2012-electric-car-sales-forecast.html)>.

<sup>2</sup>"Vice President Biden Announces Plan to Put One Million Advanced Technology Vehicles on the Road by 2015." *Energy.gov*. US Dep of Energy, 26 Jan. 2011. Web. 10 Dec. 2012. <<http://energy.gov/articles/vice-president-biden-announces-plan-put-one-million-advanced-technology-vehicles-road-2015>>.

<sup>3</sup>Crowe, Philippe. "Sales of Plug-in Electric Vehicles Will Grow Strongly through 2020." *hybridcars.com*. HybridCars.com, 2 July 2012. Web. 10 Dec. 2012.

<sup>4</sup>Wahlman, Anton. "2012 Electric Car Sales Forecast." *The Street*. Street Network, 6 July 2012. Web. 10 Dec. 2012. <[HTTP://WWW.THESTREET.COM/STORY/11606766/1/2012-ELECTRIC-CAR-SALES-FORECAST.HTML](http://www.thestreet.com/story/11606766/1/2012-electric-car-sales-forecast.html)>.

For planning purposes, Electrify Heartland has used a baseline projection of four-tenths of one percent (.4%) ratio to calculate the number of electric vehicles registered in the planning area by the year 2015.

According to Census data, there were 308.7 million people in the U.S. in 2010, and 246.2 million passenger cars and trucks on the road, or .7975 cars per person.

Assuming this ratio holds true for the entire planning area and its population of 2.225 million people, there are currently 1.775 million passenger cars and trucks in the planning area. This ratio was borne out in several cities and counties examined separately during the planning period.

Using the four-tenths of one percent (.4%) ratio mentioned above, Electrify Heartland calculates a total of 7,000 electric vehicles for the planning area by 2015.

 **“Electrify Heartland calculates a total of 7,000 electric vehicles for the planning area by 2015.”**

### 2.2.2 Analysis of EV Usage Patterns

The Mid-America Regional Council, using 2010 U.S. Census Data, calculated zip codes where electric vehicle adoption was most likely to occur, as well as likely destinations for electric vehicle owners, to develop maps indicating where the need for EVSE could be greatest in the future.

As detailed in Appendix B maps, prospective electric vehicle owners tend to be clustered in affluent neighborhoods within a relatively short distance of the central city, with downtown areas and office parks fed by major Interstate highways representing likely destinations.

Similar patterns appear in a map created by the Wichita-Sedgwick County Metropolitan Area Planning Department, with clusters of likely electric vehicle owners near the central business district and on the developing east and west edges of town.

 **“Range anxiety and price will continue to be the biggest obstacles to widespread electric vehicle adoption.”**

### 2.3 Barriers to Consider and Recommended Mitigation Plan

Range anxiety and price will continue to be the biggest obstacles to widespread electric vehicle adoption.





Population density and misperceptions about one's own actual number of vehicle-miles traveled per day may make consumers in the Electrify Heartland planning region especially susceptible to range anxiety.

As is the case elsewhere, many of these anxieties are largely unfounded, especially when one considers that among commuters in the 67 largest U.S. cities, Kansas City workers have the 13th-shortest average commute (an average of 22.83 minutes).<sup>5</sup>

In an effort to enhance public communication, Electrify Heartland has created a Website, [www.electrifyheartland.org](http://www.electrifyheartland.org), to serve as a central information resource for consumers seeking information about electric vehicles and charging infrastructure in the region.

The site contains information about the different types of electric vehicles, links to helpful resources, maps, videos, news releases and events.

The site, along with social media channels including our Facebook page ([www.facebook.com/electrifyheartland](http://www.facebook.com/electrifyheartland)), Twitter (@ElectrifyHeart) and You Tube ([www.youtube.com/electrifyheartland](http://www.youtube.com/electrifyheartland)), serve as resources for electric vehicle enthusiasts (as well as skeptics) to exchange information.

To counteract range anxiety, Electrify Heartland initiated a Facebook-based contest- Where in the Heartland is EVSE?-offering prizes to those who correctly identified the locations of the 35 electric vehicle charging stations (EVSE) within a 50-mile radius of downtown Kansas City.

Between June 25 and August 31, photos of different charging stations were posted each Tuesday through Friday, with winning entries announced on Mondays. The contest not only reinforced the fact that ample public charging is available throughout the Electrify Heartland planning area, but also helped increase traffic to both the Electrify Heartland Facebook page and Website.

As a group, electric vehicle owners are extremely satisfied with their purchases and are highly likely to publicly express their satisfaction. Social media in particular offer those who currently own electric vehicles the opportunity to share their own personal experiences and help dispel myths about electric vehicle performance.

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<sup>5</sup>American City Business Journals, 25 May 2010. Web. 10 Dec. 2012  
<[http://www.bizjournals.com/kansascity/stories/2010/05/24/daily21.html?surround=etf&ana=E\\_ARTICLE](http://www.bizjournals.com/kansascity/stories/2010/05/24/daily21.html?surround=etf&ana=E_ARTICLE)



Electrify Heartland has forged strong relationships with citizens' groups, including the Mid-America Electric Automobile Association and KANSAS electriCITY, to enlist their support in carrying positive messages about electric vehicles to the public.

Additionally, we have engaged members of the business, labor, and academic communities to communicate the positive economic impact electric vehicles and related industry have on the region's economy.

By building a network of engaged consumers and business leaders, Electrify Heartland has enhanced its contacts database, enabling regular electronic communication with a growing audience via an electronic newsletter, which is published and distributed through the Kansas City Regional Clean Cities Coalition.

Electrify Heartland has produced and posted seven videos profiling electric vehicle owners, elected officials and representatives from local manufacturing companies, enabling these key industry advocates to share their experiences with the public.

Public events, where visitors can view, ride in and drive electric vehicles, have also been an effective way to familiarize consumers with these machines.

Electrify Heartland has also provided automobile dealerships with informational materials, such as rearview mirror "hang tags," that promote the Electrify Heartland Web and social media sites, and even enable smart phone users to access these sites using quick response (QR) code technology.

Ongoing publicity, in the form of news stories about the environmental and economic benefits of electric vehicles, including well-paying jobs in manufacturing, research and development, electrical contracting, auto repair and maintenance, etc., has also proved effective in educating the public.

The greatest barrier in the Electrify Heartland planning area, however, may in fact be vehicle *supply*. In an effort to meet demand where population is greatest and state tax incentives are the biggest, auto manufacturers have concentrated distribution in coastal areas, and some manufacturers have not yet made electric vehicles available in the planning region.

It is anticipated that vehicle production will increase beginning with the 2013 model year and more units will be available for purchase in the planning region.



## 2.4 About the Author

**Bill Patterson** is founder and president of Nation Ranch, a marketing communications company specializing in brand management, public relations and crisis communications.

As a member of the Electrify Heartland Steering Committee, Mr. Patterson helped create public communications and outreach materials to educate civic and business leaders and the community at large on the positive economic and environmental impact the electric vehicle and related industries have in the region.

A native Kansas Citian, Mr. Patterson has more than 20 years' experience in marketing communications, representing a variety of industries including aviation, hospitality and tourism, financial services and economic development.

He holds a Bachelor of Science Degree from Boston University

**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](http://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