

Electrify Heartland Plan

Appendix Y: Glossary



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 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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Exhibit i-i. Electrify Heartland Steering Committee Members



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Synopsis:

The following table provides frequently used acronyms and terms in the alternative fuel and advance technology vehicles industry.

Section Author:

Ruth Redenbaugh, Metropolitan Energy Center



Alternative Fuels Data Center (AFDC)	Alternative Fuels Data Center http://www.afdc.energy.gov/afdc/ Source of information on AFV provided by the US Department of Energy
Alternative Fuel Vehicle (AFV)	As defined by the Energy Policy Act, any dedicated, flexible-fuel, or dual-fuel vehicle designed to operate on at least one alternative fuel.
American Reinvestment and Recovery Act (ARRA)	Also known as the Stimulus or the Recovery Act, the ARRA was passed by Congress in February 2009 and designed to save and create jobs, and to invest in infrastructure, education, health and “green” energy. See http://www.Recovery.gov for details about specific projects.
Battery Electric Vehicle (BEV)	Battery electric vehicles use batteries to store energy to power one or more engines
CHAdeMO	A DC fast charging standard created by the Tokyo Electric Power Company, Nissan, Mitsubishi and Fuji Heavy Industries. The CHAdeMO connector is available in the Nissan Leaf and is a different connector from the SAE J1772 used for Level 1 and Level 2 charging.
Carbon Dioxide (CO ²)	A product of combustion that has become an environmental concern in recent years. CO ₂ does not directly impair human health, but is a greenhouse gas that traps the Earth’s heat and contributes to the potential for climate change.
Carbon Monoxide (CO)	A colorless, odorless gas produced by the incomplete combustion of fuels with a limited oxygen supply, as in automobile engines. According to the U.S. Environmental Protection Agency, CO contributes to the formation of ground-level ozone, which can trigger serious respiratory problems.
Clean Air Act	Signed into law in 1963, then amended in 1970, and again in 1990 (see Clean Air Act Amendments of 1990). Includes emissions standard for mobile and stationary sources. Enforced by the U.S. Environmental Protection Agency.
Clean Air Act Amendments of 1990 (CAAA)	Amendments to the Clean Air Act of 1970. The Clean Air Act Amendments of 1990 created two new gasoline standards designed to reduce harmful fuel emissions for vehicles in highly polluted cities. The Act required gasoline to contain cleaner burning additives called fuel



	oxygenates such as ethanol. This Act recognized that changes in motor fuels and fuel composition would play a vital role in reducing pollution from motor vehicle exhaust.
Clean Cities Program	A voluntary program established and administered by the U.S. Department of Energy (DOE) to increase AFV market penetration, particularly in more polluted urban areas. Clean Cities coalitions are recognized by DOE as having successfully established a self-sustaining environment for AFVs. Specific coalitions may include federal, state, and local government agencies, vehicle manufacturers and suppliers, fleet managers, utilities, local distribution companies, and other stakeholders. The first international entities joined the program in 1995.
Clean Fuel Fleet Program	Implemented by the U.S. Environmental Protection Agency as a provision of the Clean Air Act Amendments of 1990 to require cities with significant air quality problems to incorporate vehicles that will meet clean fuel emissions standards.
Clean Fuel Vehicle (CFV)	Any vehicle certified by EPA as meeting certain federal emissions standards. The three categories of federal CFV standards from least to most stringent are low emission vehicles (LEVs), ultra-low emission vehicles (ULEVs), and zero emission vehicles (ZEVs). The inherently low emission vehicle (ILEV) standard is voluntary and does not need to be adopted by states as part of the Clean-Fuel Fleet Program. CFVs are eligible for two federal programs, the California Pilot Program and the Clean-Fuel Fleet Program. CFV exhaust emissions standards for light-duty vehicles and light-duty trucks are numerically similar to those of CARB's California Low-Emission Vehicle Program.
Converted or Conversion Vehicle	A vehicle originally designed to operate on gasoline or diesel that has been modified or altered to run on an alternative fuel.
Corporate Average Fuel Economy (CAFE)	Law passed in 1975 that set federal fuel economy standards (P.L. 94-163). The CAFE values are an average of city and highway fuel economy test results weighted by a manufacturer for either its car or truck fleet. CAFE is also a program created to determine whether vehicle manufacturers are complying with the gas mileage, or fuel economy, standards set by the federal government. The CAFE values



	are obtained by combining the city and highway fuel economy test results and computing an average that is weighted by vehicle sales.
DC Fast Charging	EVSE with 60 to 80 miles of range per 20 minutes of charging an electric vehicle. Also called level 3 charging.
EERE	Energy Efficiency and Renewable Energy. The division of the U.S. Department of Energy that oversees the Vehicle Technologies Program and Clean Cities: http://www1.eere.energy.gov/cleancities/index.html
Energy Policy Act of 1992 (EPAAct)	Passed by Congress to enhance U.S. energy security by reducing our dependence on imported oil. It defines alternative fuels for transportation and mandates the use of alternative fuel vehicles in federal, state, and fuel-provider fleets.
Extended Range Electric Vehicle (EREV)	Extended range electric vehicle use batteries to power an electric motor and fuel such as gasoline to power an internal combustion engine.
EV	Electric vehicles powered by one or more electric motors that produce no tail pipe emissions.
EVSE	Electric Vehicle Supply Equipment— equipment for an EV that supplies electricity for charging the battery.
FHWA	Federal Highway Administration with responsibility for highway signage.
FOA	Funding Opportunity Announcement
GHG	Green house gas emissions affecting the Earth’s climate.
High Occupancy Vehicle (HOV) Lanes	Lanes on highways that restrict use to vehicles carrying more than one passenger. Sometimes allows use by single-occupancy, low-emission, alternative fuel vehicles.
Hybrid Electric Vehicle (HEV)	A vehicle powered by two or more energy sources, one of which is electricity. HEVs may combine the engine and fuel of a conventional vehicle with the batteries and electric motor of an electric vehicle in a



	single drive train.
Inductive charging	EVSE using electromagnetic field to transfer electricity to charge an electric vehicle, introduced in 1990s. Also known as wireless charging. SAE is working on a new standard.
Infrastructure	In transportation, this term generally refers to the charging and fueling network necessary to successful development, production, commercialization, and operation of alternative fuel vehicles. It includes fuel supply, public and private charging and fueling facilities, standard specifications for fueling outlets, customer service, education and training, and building code regulations.
J1772	Vehicle connector for charging electric vehicles standardized by SAE with computerized components to protect batteries.
Level 1	EVSE with 2 to 5 miles of range per hour of charging an electric vehicle; AC level 1 means low power 1.2 kW.
Level 2	EVSE with 10 to 20 miles of range per hour of charging an electric vehicle; AC level 2 means effective power levels up to 6.6 kW in commercial locations and 3.3 kW in residential locations; DC level 2 refers to fast charging at typically 50 kW.
Level 3	EVSE with 60 to 80 miles of range per 20 minutes of charging an electric vehicle, also called DC fast charging.
Metropolitan Statistical Area (MSA)/ Consolidated Metropolitan Statistical Area (CMSA)	According to the U.S. Census Bureau, an area qualifies for recognition as an MSA if it includes a city of at least 50,000 in population or an urbanized area of at least 50,000 with a total metropolitan area population of at least 100,000. Consolidated metropolitan statistical areas are defined similarly but have populations of 1 million or more and include within them separate metropolitan statistical areas. For purposes of EPA Act, covered MSA and CMSA areas include those that had a 1980 U.S. Census population figure of more than 250,000.
National Ambient Air Quality	Ambient standards for air pollutants specifically regulated under the CAA. These pollutants include ground-level ozone, CO, NO ₂ , lead, particulate matter (PM), and SO _x .



Standards (NAAQS)	
National Automotive Technical Education Foundation	A consortium of automotive education experts that has established a steering committee to administer the CHAMP (Certification of Higher-learning in Alternative Motorfuels Program) certification process at educational institutions. Under a special program sponsored by DOE, there are provisions for alternative fuel vehicle technician training providers to receive recognition under CHAMP.
National Low-Emission Vehicle (NLEV) Program	This program creates voluntary requirements that automakers can adopt in lieu of compliance with other vehicle emission control measures. (Applies only to light-duty vehicles lighter than 6,000 lb Gross Vehicle Weight Rating, or GVWR.) Vehicles are certified with California test procedures. See EPA’s Website at http://www.epa.gov/oms/lev-nlev.htm .
NEV	Neighborhood Electric Vehicle, light duty, low speed, often restricted to roads with speed limits under 35 mph.
NOx	Nitrogen oxide, a diesel pollutant and air quality criteria pollutant.
Non-Attainment Area	A region, determined by population density in accordance with the U.S. Census Bureau, which exceeds minimum acceptable National Ambient Air Quality Standards (NAAQS) for one or more “criteria pollutants” (see Clean Air Act Amendments). Such areas are required to seek modifications to their air quality State Implementation Plans, setting forth a reasonable timetable using EPA-approved means to achieve attainment of NAAQS for these criteria pollutants by a certain date. Under the CAA, if a nonattainment area fails to attain NAAQS, EPA may superimpose a Federal Implementation Plan with stricter requirements or impose fines, constructions bans, cutoffs in federal grant revenues, and so forth, until the area achieves the applicable NAAQS.
Office of Transportation and Air Quality (OTAQ)	Division of EPA that protects public health and the environment by controlling air pollution from motor vehicles, engines, and the fuels used to operate them, and by encouraging travel choices that minimize emissions.



Particulate Matter (PM)	A generic term for a broad class of chemically and physically diverse substances that exist as discrete particles (liquid droplets or solids) over a wide range of sizes. A NAAQS pollutant.
PEV	Plug-in electric vehicle.
PHEV	Plug-in hybrid electric vehicle.
Smog	A visible haze caused primarily by particulate matter and ground-level ozone. Ozone is formed by the reaction of hydrocarbons and NO _x in the atmosphere.
SO _x	Sulfur dioxide, a diesel pollutant and air quality criteria pollutant.
Stakeholders	Citizens, environmentalists, businesses, and government representatives that are served by the air quality management system.
State Energy Program	Program offered by the U.S. Department of Energy that allows states to compete for funding to implement activities related to programmatic areas, such as federal energy management, building codes and standards, alternative fuels, industrial efficiency, building efficiency, and renewable energy technologies.
Tailpipe Emissions	EPA-regulated vehicle exhaust emissions released through the vehicle tailpipe. Tailpipe emissions do not include evaporative and refueling emissions, which are also regulated by EPA. EPA publishes allowable emission levels and vehicle certification standards in the Code of Federal Regulations.
Tax Incentives	In general, a means of employing the tax code to stimulate investment in or development of a socially desirable economic objective without direct expenditure from the budget of a given unit of government. Such incentives can take the form of tax exemptions or credits.
Total Cost of Ownership (TCO)	Total cost of ownership of a vehicle including purchase price and operational costs for fuel and maintenance.
U.S. Department of	A department of the United States federal government, established by the Carter Administration in 1977, to consolidate energy-oriented



Energy (DOE)	programs and agencies. The DOE mission includes the coordination and management of energy conservation, supply, information dissemination, regulation, research, development and demonstration.
U.S. Department of Transportation (DOT)	A department of the United States federal government whose mission is to ensure a fast, safe, efficient, accessible, and convenient transportation system that meets the national interests and enhances our quality of life.
U.S. Environmental Protection Agency (EPA)	A department of the United States federal government, established in 1970, responsible for protecting the environment and public health. EPA seeks to reduce air, water, and land pollution and pollution from solid waste, radiation, pesticides, and toxic substances. EPA also controls emissions from motor vehicles, fuels, and fuel additives.
V2G	Vehicle to grid meaning the ability of a vehicle to supply power back to the electrical grid.
VMT	Vehicle miles traveled.
Zero Emission Vehicle (ZEV)	A vehicle that emits no tailpipe exhausts. ZEV credits can be banked within a Consolidated Metropolitan Statistical Area.