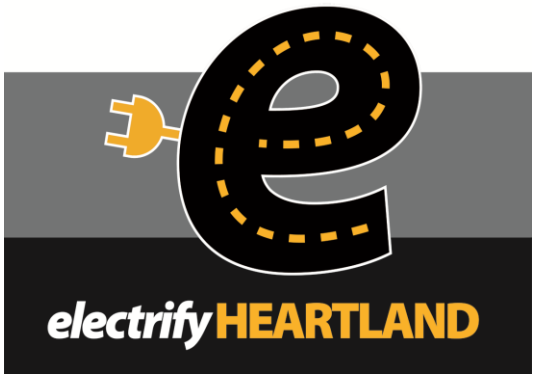
Electrify Heartland Plan

Appendix C: Grant Proposal for Project



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

Metropolitan ENERGY CENTER

Kansas City Regional Clean Cities

BLACK & VEATCH

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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

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Appendix C: Grant Proposal for Project

Synopsis

In October 2011, U.S. Energy Secretary Steven Chu announced awards for 16 electric vehicle community readiness projects supporting activity in 24 states mapped below. One of those awards was made to Metropolitan Energy Center, MEC, based on the proposal for "Kansas – Missouri Community Readiness for Electric Vehicles (EV) and Electric Vehicle Supply Equipment (EVSE)". The resulting EV readiness award supports planning work in Kansas and Missouri.

Exhibit C-1. Award selections for U.S. DOE's Clean Cities' Community Readiness and Planning for Plug-in Electric Vehicles and Charging Infrastructure funding opportunity.

Section Authors:

Kelly Gilbert, Metropolitan Energy Center, and Greater Kansas City Plug in Readiness Task Force as submitted to US Department of Energy.

GRANT PROPOSAL

Project Title:

Kansas – Missouri Community Readiness for EV and EVSE

In Response To:

Clean Cities Community Readiness and Planning for Plug-in Electric Vehicles and Charging Infrastructure

FOA: DE-FOA-0000451

CFDA Number 81.086

Submitted by

Metropolitan Energy Center

on behalf of

Kansas City Regional Clean Cities Coalition

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Project Objectives

This proposal, submitted by the Metropolitan Energy Center, a 501c3 corporation acting as legal agent for the Kansas City Regional Clean Cities Coalition, and its primary partner, Black & Veatch, directly and effectively addresses the following goals for community readiness and planning for EV and EVSE:

1. Planning, and wherever possible, policy implementation and execution of planning elements for plug-in electric vehicles and charging infrastructure in the metropolitan areas of Kansas City, MO-KS; Wichita, KS; Salina, KS; and Lawrence/Douglas Co, KS.
2. Development of infrastructure deployment plans for light, medium, and heavy duty plug-in electric vehicles (including extended range electric vehicles) for both fleet and public use.

This proposal seeks to build on the work begun in the Greater Kansas City Plug-in Readiness Initiative to develop phased EVSE installation plans for a large metropolitan area and for smaller communities, including the travel corridors between them. These strategies have been outlined but not fleshed out and acted upon. We will develop and implement replicable actions for adoption by individual municipalities in the areas of planning, zoning, construction, permitting, fleet policies, and more. We will identify and create outreach and education programs and outlets for fleet and consumer information and training. We will create strong, mutually beneficial partnerships among public and private stakeholders in EV and EVSE planning and development: including manufacturers, dealers, public and private fleets, Clean Cities, industry trade groups, metropolitan planning agencies, state agencies, and local and industry training institutions.

The applicant holds a Level 1 Clean Cities contract with Leonardo Technologies, Inc., which means that its current and previous plug-in readiness strategy-building activities have been funded in part by federal contracts. However, at the time of this writing, our contract for plug-in readiness planning is fulfilled and additional work to further define and execute the strategies will require full-time attention by a staff member. In addition, we are adding municipalities in other geographic areas to our consideration and planning activities and will discuss corridor planning with the state of Kansas.

Self Assessment

1. Documentation demonstrating a substantial partnership with relevant stakeholders

Letters of commitment are attached in a separate document; however, over the previous year and a half, KC Clean Cities has built substantial partnerships with local electric drive and electric charging stakeholders across the board through its efforts in the Greater Kansas City Plug-in Readiness Initiative. This proposal seeks to build on the work begun in Greater Kansas City and to extend it to communities in Kansas, including the cities of Wichita, Lawrence, and Salina, through partnerships with entities in those areas.

2. A clear description of the role and responsibilities of each stakeholder; and a plan for continuing the engagement and participation of the stakeholders, as appropriate, throughout the implementation of the plan. This includes engagement of major fleet operators to encourage electrification of fleets such as taxis, municipal operations and delivery vehicles.

Metropolitan Energy Center — Process management, administrative coordination and outreach coordination (federal budget request)

- Principle Investigator: Kelly Gilbert

Black & Veatch	Technical direction and analysis (federal budget request) • Leads: Bill Roush and Sam Scupham
Lawrence / Douglas County	Municipal planning management • Lead: Eileen Horn
Electrician's Training Center	Delivery of technical training curriculum: Electric Vehicle Infrastructure Training Program (EVITP) (leveraged activity) • Lead: Jim Cianciolo, IBEW Local Union 124
All others (see below)	Advisory and planning roles; implementation as appropriate within own jurisdiction (in-kind staff time)

- Utilities (Westar and KCP&L: the major utilities in the area are leveraging their Smart Grid programs, evaluating transformer loads, considering electricity rate changes for EVs and installing EVSE in limited areas of their service territories)
- State agencies in KS and MO (Energy Offices, utility regulatory agencies, Departments of Transportation, Departments of Revenue: DoR and regulatory agencies have responded that they will likely take no action until either more EVs are on the road or a related rate case has been submitted by the utilities; however all are available for and interested in participation in planning)
- Metropolitan Planning Agencies (Mid-America Regional Council, Douglas County, Wichita: outreach to other municipalities; local transportation and air quality planning, traffic and demographics data)
- Municipalities (Cities of Salina, Wichita, Lawrence and Kansas City; Douglas County; Unified Government of Wyandotte County: planning, zoning, permitting, fleet adoption, etc)
- Manufacturers (Smith Electric Vehicles: has a nonexclusive partnership with an EVSE supplier but doesn't necessarily recommend commercial EVSE over contract electrical work)
- Dealerships (LilyPad EV, McCarthy Nissan, Molle Chevrolet, Olathe Ford: representing Coulomb EVSE, Nissan LEAF, Chevy Volt, Azure Dynamics' Transit Connect and other PEVs, and future products)
- Community Colleges/Universities (Kansas City Kansas Community College, Metropolitan Community College, Johnson County Community College: all have training programs for automotive techs, and most also have electrician training; University of Kansas, University of Missouri – Kansas City: both have EV fleet vehicles and participate in experiential research; all participate in community outreach and education)
- Private companies (Greater KC Chamber of Commerce is partnering with Clean Cities on public outreach and private fleet education programs; contemplating an incentive program addressing EVSE implementation, benefits to EV drivers, and purchase of fleet EVs for member companies who participate in the Chamber's Climate Protection Partnership)
- Technical Advisor (Electric Power Research Institute: Two local Senior Project Managers in the IntelliGrid group at EPRI have agreed to act as advisors on smart grid planning.)
- Other regional plug-in readiness initiatives (Missouri-St. Louis and Iowa-Nebraska: The three Midwest coalitions have agreed to work together to the extent possible if one or more of us are awarded funds under this FOA.)

The entities named above have indicated that they will dedicate in-kind staff time for this project throughout the period of performance. Metropolitan Energy Center will outline task groups and set recurring meetings for each group. Each quarter, the groups will meet together and report progress. After completion of its planning phase, each group will begin engagement of other like entities with appropriate education, training, and outreach. Planning and education will take place during the performance period of the award, as will a limited amount of implementation.

Due to their engagement during the education phase and to the continued involvement by the KC Clean Cities coalition, it is anticipated that municipalities, state agencies, private companies and fleets will remain committed to the plan through its implementation. The coalition, which includes major fleet operators such as taxis, municipal operations and delivery vehicles, will continue to provide facilitation for implementation activities after the period of performance.

3. Analysis of barriers to the implementation of plug-in electric vehicles and infrastructure in your proposed area and a discussion of steps to reduce or eliminate the identified barriers.

Barrier: Lack of streamlined permitting and inspection of residential/ commercial/ industrial EVSE installations (should be equivalent to installation of hot water heater)

- Uniformity across cities/counties preferred – state legislation required?

Current Status: The Kansas Energy Office convened an Energy Efficiency Building Codes Working Group that held several meetings in 2009 and 2010 and adopted a preliminary objective to meet the following goals for Kansas:

- By 2017, 90% of new and renovated residential structures meet the 2009 IECC standard.
- By 2017, 90% of new and renovated commercial structures meet the ANSI/ASHRAE/IESNA Standard 90.1-2007.

The Working Group understands that Kansas is a Home Rule State and endorsed an approach that encourages voluntary adoption by local jurisdictions and the development of effective equivalency options for builders and owners. http://www.kcc.state.ks.us/energy/codes/

Needs:

- Collaboration with Kansas Energy Office process to ensure consideration of EV needs.
- Parallel efforts with Missouri state energy office (Dept of Natural Resources).
- The team will develop an education program for permitting and inspection agencies to ensure familiarity with the technologies that will be implemented. Most EVSE systems will be covered by National Electrical Code (NEC 625) as a part of National Fire Protection Association Codes and Standards; this program will ensure that the agencies are familiar with these codes and their applications. If agencies do not have a code equivalent to NEC 625, a sample code will be provided for their review and incorporation into the local building codes.

Barrier: Customer and auto dealership knowledge of EVSE requirements, including electric service upgrades, widespread availability of servicing

Current status: Westar, KCP&L, and the Electric Vehicle Infrastructure Training Program are developing awareness campaign materials and trainings; Nissan dealerships are anticipating installation of EVSE in each dealership this summer and fall.

Needs:

- Development of consumer web site
- Outreach to customer base, auto dealerships, building and parking lot owners, fleet managers and electrical contractors regarding educational materials and training opportunities
- Delivery of training

Barrier: Customer and auto dealership knowledge of EV requirements and limitations, widespread availability of servicing

Current status:

- Azure Dynamics and Smith Electric Vehicles have local sales and service while Navistar does not;
- Nissan and Chevrolet dealers are anticipating training by the manufacturers this summer and fall;
- Local dealerships are established for low speed electric vehicles: Columbia, Vantage, golf cars;
- Dealerships are being established for personal electric vehicles and non-major brand EVs;
- Service is expected to be available only at original equipment dealers in the near future.

Need:

- Definition of EV and breadth of outreach: to include low-speed EV, plug-in hybrids, personal (2- and 3-wheel) EV, commercial EV, commercial conversions, consumer conversions, etc?
- Assessment of need
- Development of outreach materials and consumer web site
- Delivery of outreach

Barrier: Lack of accurate knowledge of the cost to charge EVs in local area.

Current status: Most auto dealers use national averages or figures from manufacturers that do not necessarily reflect local costs

Needs:

- Educational materials derived from Argonne National Lab, KCP&L, Westar
- For consumers: auto dealership training on the costs to charge that are specific to KS/MO; outreach regarding existing tools and information through Alternative Fuels and Advanced Technology Data Center, Argonne National Lab, and other resources.
- For property owners: outreach presentation materials and partnerships with area Chambers of Commerce

Barrier: Lack of vehicles on KS-MO roads, lack of availability of test drive events to familiarize customers, give hands-on experience

Current status: Limited deployment of commercial EVs, low speed EVs, and consumer conversions; very sparse ownership of Volt and Tesla; McCarthy Nissan and Molle Chevrolet each have one EV for demos; Smith EV, Columbia, Vantage, and various other utility EVs are available for test drives.

Needs:

Plan test-drive events around the region for consumers and fleets.

Barrier: Lack of public charging stations at home, work and over-the-road (KTA)

Current status: 5 public-access EVSE installed with plans to install 25 more across the region. Map of hot spots for EVSE installation, based on demographics criteria, exists for the Kansas City metro only. None will serve multi-family residences.

Need:

- Confirmation of criteria used to make KC's map or redevelopment of criteria based on other plug-in readiness studies.
- Create maps for all metro areas involved in project.
- Develop methodology for making recommendations on EVSE density
- Outreach to businesses and property owners regarding maps and recommendations.
- Convene working group of building owners to open discussion regarding multi-family building issues.
    - Research and use work already developed by other plug-in readiness efforts to start discussion.

Barrier: No recommended business model for non-utility owners of public EVSE

Current status: KCP&L is installing EVSE in some private businesses and will monitor requests and results; two private businesses have installed EVSE on their own.

Needs:

- Evaluation of business models used elsewhere
- Monitoring of use and data collection at EVSE locations in region
- In consideration of state and local electricity rates and use patterns for existing EVSE, development of recommended business models for the region

Barrier: Transformer issues for residential and commercial electricity distribution

Current status: unknown

Needs:

- Westar and KCP&L to evaluate current status of load vs capacity
- Develop methodology for early identification of likely hot spots for EV adoption and EVSE installation.

Barrier: Electrical contractor training

Current status: IBEW Local Union 124 is a participant training center for the Electric Vehicle Infrastructure Training Program, which is designed for union and independent electrical workers.

Need: Partner with IBEW 124 to reach electrical workers, municipal codes and inspection personnel, building facilities managers, and fleet operators.

Barrier: Lack of electric rate structure for EV owners

Current status: Neither the utilities nor the regulatory agencies in KS or MO have taken up the issue officially. State regulatory agencies will not act without a request from either the utilities or a large citizen base.

Needs:

- Develop comprehensive educational presentation with example policies
- Convene state-wide meetings and webinars to open discussions.

Other longer term barriers

- Substation capacity in high use areas
- No fast charge standard
- Time of day loading and rates
- Photo-voltaic energy paired with EV daytime locations
- Residential metering (net metering)

- Integration of charge/discharge into grid management
- Uncertainty of EV fuel tax

4. Current plans for plug-in electric drive vehicle deployment in the area/region covered by the plan including:

a. the number of plug-in electric drive vehicles anticipated to be privately owned personal vehicles; a justification should be provided for these estimates

Current status: There are at least 25 privately owned EVs around the area, but most of them are consumer conversions using lead acid batteries. At least 5 are Teslas, Volts, Zaps, etc. Volts and Leafs are coming to market this fall.

Goal: Approximately 180 EVs purchased per year, equal to 10% of yearly average for new hybrid vehicle purchases.

b. the number of plug-in electric drive vehicles anticipated to be privately owned fleet or public fleet vehicles; a justification should be provided for these estimates

Current status: There are more than 25 fleet EVs, including low speed EVs, operating in regional fleets.

Goal: Given the similar incremental cost, an increased ease of recharging, though smaller range, we expect a reasonable number of EV fleet vehicles in the next 3 – 5 years is 270, based on the number of CNG fleet vehicles currently in use in the region.

c. An analysis of usage patterns of vehicles

Current status: Mid-America Regional Council has prepared an analysis of usage patterns for vehicles in the KC metro.

Goal: Obtain analyses from Wichita, Lawrence, and Topeka metros.

5. A plan for deploying residential, workplace, private, and publicly available charging infrastructure, including

Status: To date, we have focused our priorities upon two key planning provisions:

- Identifying appropriate locations for public charging infrastructure.
- Assess retail/commercial clusters to determine best locations for privately-owned charging stations in retail lots. We are working to identify retail clusters where charging stations could be used as an economic development tool.

Needs:

- Establish site criteria
- Include corridor planning with state DoT.

a. primary and secondary potential charging locations:

o an estimate of the number of consumers who will have access to private residential charging infrastructure in single-family or multifamily residences;

Estimate: This should be roughly equal to the number of new EV purchases, which we estimate at 180 per year.

o an estimate of the number of consumers who will have access to workplace charging infrastructure;

Estimate: With public charging stations already being installed at some employer locations, we estimate this number will be approximately 1000.

Need: Determine how many consumers need access in order to serve each 1 user

b. a plan for ensuring that the charging infrastructure or plug-in electric drive vehicle be able to send and receive the information needed to interact with the grid and be compatible with smart grid technologies to the extent feasible

Status and goal: Team will assess the prevailing commercial technologies for implementing a networked, grid-compatible charging infrastructure to determine which are likely platforms for implementation. This review will include the smart grid platforms already chosen by the stakeholder utilities, KCP&L and Westar. By leveraging this existing expertise and lessons learned, the eventual deployment will gain the benefit of these planning efforts. Additionally, Team will seek to create a small advisory group of technical experts including Black & Veatch and EPRI professionals to advise the planning effort regarding standards of communication.

c. a plan that identifies and addresses the unique challenges of installing infrastructure at multifamily residential buildings;

Challenges: Multiple municipalities and codes; on-street and off-street zoning and codes

Current status: Kansas is a Home Rule state; therefore, there is no consistent set of building codes.

Need: Determine zoning requirements to support single family and multi-family residential applications. To develop a consistent set of EV readiness codes, a regional work group must be established to draft and shepherd adoption of policies, procedures and incentives that facilitate EV infrastructure. See note in Objective 3 about new NEC code.

d. an estimate of the number and location of publicly and privately owned charging stations that will be publicly or commercially available;

Estimate: 30 public stations concentrated around the KC metro, with several in Lawrence KS and one in St. Joseph MO. 1 or more each in Wichita, Topeka, and Salina.

e. an estimate of the number and location of charging infrastructure that will be privately funded or located on private property;

Estimate: The current model in the area is 1 to 1 EV to EVSE in fleet deployments. If we reach 270 fleet vehicles, we estimate 270 Level 1 and Level 2 charging infrastructure.

f. an estimate of the potential costs associated with EVSE deployment and potential sources of funding.

Estimate: Given the costs associated with the first few installations and estimates for the next 10, we estimate that commercial charging infrastructure will average $10,000 to $15,000 per installed unit. Costs may be offset by federal tax credits or private incentives. Funding will necessarily come from the property owners or other private sources, with some costs shared by end users, if different.

6. Descriptions of updated building codes (or a plan to update building codes before or during the grant period) to include charging infrastructure or dedicated circuits for charging infrastructure, as appropriate, in new construction and major renovations; EVSE must be commercially available.

Current status: Current building codes vary widely amongst the municipalities represented as grant partners. Therefore, a concerted multi-jurisdictional effort must be made to update building codes

during the grant period. Best practices from other plug-in readiness efforts have been identified and collected.

Needs: Formation of a regional working group whose focus is to prioritize building code revisions that would support the widespread deployment of EV infrastructure in new construction and retrofits. A starting point for the working group would be to assess:

- Requiring % of new single-family and townhome construction to be EV ready.
- Requiring % of new apartment and mixed use construction to have a minimum Level 1 and Level 2 circuit installation.
- Determining ratio of parking spaces required to be EV-ready in multifamily dwellings and other uses such as retail, hotel, or office space.
- Coordinating inclusion of EV infrastructure in any public infrastructure project that has been identified as a priority public charging site.
- Requiring new residential construction to have basic premises wiring and panel capacity of EV charging units.

7. Descriptions of updated construction permitting or inspection processes (or a plan to update construction permitting or inspection processes) to allow for expedited installation of charging infrastructure for purchasers of plug-in electric drive vehicles, including a permitting process that allows a vehicle purchaser to have charging infrastructure installed rapidly (24 - 48 hours is a suggested target goal for private residential applications or permit by notification) ;

Current status: The Cities of Lawrence and Kansas City have adopted a series of 2009 building codes, including the 2008 NEC. Although the 2008 NEC allows for fuel cells as auxiliary power, there are no specific provisions for electric vehicle chargers. Wichita expects to approve 2011 NEC shortly after it is released. Best practices from other plug-in readiness efforts have been identified and collected.

*NEED***:** As permitting also varies widely amongst partner municipalities, a simple, streamlined EV infrastructure permitting process should be developed in partnership with regional entities. Therefore, the planning process for the construction permitting and inspection would be updated to include the following:

- Streamlined permit processing (i.e. online permitting, fast turnaround, etc.) for EV infrastructure or retrofitting.
- Feasibility study to assess potential to implement low, flat, or no-fee permit rate structures.
- Reduced permit fees for retrofitting existing residential development.

NEED: Standardized training modules developed for inspectors (would cover 3 levels of charging stations, and installation requirements of each). It is anticipated that EVITP will cover this.

8. Descriptions of updated zoning, parking rules, or other local ordinances as are necessary to facilitate the installation of publicly available charging infrastructure and to allow for access to publicly available charging infrastructure, as appropriate. Also attention should be given to compliance American with Disabilities Act if applicable;

Status: Best practices from other plug-in readiness efforts have been identified and collected.

Need: Formation of a regional working group whose focus is to prioritize zoning, parking, and ordinance revisions that would support the widespread deployment of street-side and parking garage EV infrastructure.

> *9. A plan for effective marketing, outreach, training, and education relating to plug-in electric drive vehicles, charging services, and infrastructure; the plans should include specialized training and education necessary to ensure that vehicles and related electric charging equipment is installed, maintained, and operated in a safe and proper manner. This could include training for electric charging point users, first responders, public safety officers, inspectors, installers, and construction permitting officials in areas where electric charging is being introduced, among other target audiences.*

Current Status: At present the Midwest region lags behind both coasts when it comes to knowledge about and availability of plug-in electric vehicles by either private or public users. There seems to be a great amount of misinformation about such vehicles that can be a barrier for purchasers and even the area's automotive technology coordinators are not as up-to-date in terms of technical expertise. We have drafted an EV Coalition to educate and incentivize participation by private companies. We have teamed up with EVITP for electrical technician and codes inspector training when ready. Area community colleges are bolstering instructor knowledge to build on vehicle technician training for EVs. Metro planning agencies provide broad access to municipalities for outreach and education. First responders will have access to trainings provided by a regional alt fuels training center.

Professional Training Requirements: This proposal includes plans to offer the specialized training necessary to ensure that electric vehicles and related charging equipment are installed, maintained and operated in a safe and proper manner. The coalition will coordinate efforts with area community colleges and the University of Kansas to research ongoing educational efforts through interviews with a variety of stakeholders, professional training events, and on-site visits to model electric vehicle communities. Students enrolled in advanced automobile technology program will receive an industry-recognized certificate that reflects best practices curriculum. Meanwhile, first responders and automotive technicians will receive appropriate training to address the safety and maintenance issues concerning plug-in electric vehicles.

Public Awareness Campaign: Strategic partners will work together to design and pilot a public awareness and educational outreach campaign to specific target audiences. This effort will increase the electric vehicle market by fostering a better understanding of the economic and environmental benefits of using plug-in electric vehicles. Target audiences for outreach efforts include the following: potential individual end-users, fleet managers, vehicle and charging station technicians, retailers, safety or code officials, and state and local government representatives. In addition to written materials suitable for workshop presentations project staff anticipate developing a plan to provide public service announcements, videos for libraries, and a web-site explaining the technology of electric vehicles and providing links to appropriate DOE resources. Education and outreach efforts will include a tracking component to document public interest in each of the communities within the planning corridor.

10. An assessment and plan to communicate available or anticipated benefits or incentives for plug-in vehicle owners; and identify and establish other potential needed or desired benefits or incentives. These may include:

a. rebates of part of the purchase price of the vehicle;

b. state and federal tax incentives/credits

c. reductions in sales taxes or registration fees;

d. rebates or reductions in the costs of permitting, purchasing, or installing home plug-in electric drive vehicle charging infrastructure; and

e. rebates or reductions in State or local toll road access charges;

f. additional consumer benefits, such as preferred parking spaces or single-rider access to high-occupancy vehicle lanes for plug-in electric drive vehicles;

Status: Initial strategies have been defined by the Greater KC Plug-in Readiness Strategy, including the EV Business Coalition, which seeks to engage private businesses in communicating benefits and incentivizing EVs; a list of recommended incentives, financial and non.

Need: Write memorandum of understanding, create presentation materials, and establish first companies to join EV Business Coalition. Create consumer web site.

11. A description of utility, grid operator, or third-party charging service provider, policies and plans for accommodating the deployment of plug-in electric drive vehicles, including--

Current status: While the distribution systems in Westar and KCP&L service areas appear largely appropriately sized for projected EV adoption rates over short and medium-term, they are working to develop rate incentives to encourage charging at specific times that will contribute to better load balancing at plants and to take advantage of the availability of clean energy sources which will benefit all customers. We do not anticipate any major short-term distribution system needs (there may be isolated instances of high EV adoption in close geographic proximity that requires some transformer upgrade but this will be minimal). We do have a need to study the effects over the long-term, especially as larger batteries and faster charging stations emerge.

a. rate structures or provisions and billing protocols for the charging of plug-in electric drive vehicles;

Need: In consultation with utility regulatory agencies, conduct analysis of what is current law and under discussion.

- Team will survey current rates or rate structures for EV demonstrations nationally to find out what structures are being used and which are successful. Team will compare the utility fleets associated with those rate structure and compare with the utility fleets within the GKC demonstration area. Based on the findings of this survey, team will propose rate structure(s) that may successfully accommodate the deployment and acceptance of EV in the GKC demonstration area.

b. analysis of potential impacts to the grid;

Need: Team will work with utilities, smartgrid providers, regional solar hardware providers, and demand response providers to determine a practical and cost effective method to utilize existing transmission and distribution level assets minimizing additional infrastructure requirements. Additionally, charging strategies will be devised to facilitate convenient and accessible off-peak charging or integration with available renewables on peak.

- Conduct modeling of regional, city and sub-city systems

c. plans to minimize the effects of charging on peak loads;

Need: Assess increase in wind deployment in KS/MO and ability of EV to absorb this variability. Team will evaluate the commercial availability of distribution and transmission level software analysis packages to determine the capabilities of those packages to model widespread deployment of PEVs. If it is determined that no suitable commercial product exists, then team will devise an appropriate method of estimating the grid impacts. For example, Black & Veatch is currently assessing the availability of commercial modeling packages to forecast integration of widespread distributed renewable energy projects, which could be readily adapted to include the deployment of PEV. If Black & Veatch finds there is not a product available, it will determine the resources required to develop such a tool.

d. A proposed plan for making widespread utility and grid upgrades

Need: Identify system weaknesses/required upgrades thru modeling. Address with cost effective measures, including DSM, new generation, new transmission or distribution, find EV network solution

- Team will implement system planning to determine the transmission and distribution level upgrades required to implement the EV deployment. With the plan of upgrades that are required, Team will assess applicability and/or availability of utility regulatory plans and processes for obtaining cost recovery of EV projects**.**

Merit Review Criteria Discussion

Criterion 1: Probability of Project Success Based on Technical Approach and Project Narrative/Statement of Project Objectives

a. Responsiveness and relevance of the application to the programmatic goals and requirements identified in this announcement for this area of interest

MEC's proposal addresses each of the planning elements outlined in the Sample Outline, and in addition consider corridor planning in a multi-jurisdictional region. We believe our plans do not cross into other federally funded planning activities, and we have strong partnerships with regional fleets, technical resources and municipalities.

b. Adequacy, reasonableness and soundness of the proposed effort including the duration and sequencing of tasks and the scheduling of project milestones verifying that the project will be completed within the proposed period of performance

MEC understands the timeline of 12 months from start to finish. MEC is ready to start pulling together the administrative team upon notification of selection so as to maximize planning time on award. Our technical partner, Black & Veatch, has unparalleled experience setting and maintaining work schedules and will be a great asset in this requirement.

c. Adequacy, appropriateness and reasonableness of the proposed work and budget distribution among the team members to accomplish the Statement of Project Objectives

We believe the division of labor that we propose will prove effective and efficient. Rates requested by all parties are reasonable and no greater than market value.

d. Thoroughness of approach to gather broad representation of relevant stakeholders and sources of information to provide input and/or comments to the plan

This is where we believe we are extraordinarily effective. Through our partnership with Black & Veatch and because of previous projects, we have secured advisory help from the Electric Power Research

Institute. Our ties with International Brotherhood of Electrical Workers Local Union 124 brings us immediate access to the trainings available through the Electric Vehicle Infrastructure Training Program. Our Clean Cities work has secured excellent relationships with regional municipal governments and fleets. Our fleet ties also stretch to the mandated fleets in the area, which are extending their alt fuel vehicle programs past their mandates. We have a solid partnership with the Greater Kansas City Chamber of Commerce, which gives us access to private companies, especially those two-hundred involved in its Climate Protection Partnership. Through our strong utility partners and because of the consumer elements in this project, we expect to be able to work with state regulatory agencies on pre-emptive planning. MEC's work in the area of energy efficiency have created strong ties with state energy offices, and we also work with area community colleges in several training programs.

e. Identification of barriers or roadblocks to expeditious infrastructure deployment as well as plans to develop mitigations for each

Our partners have done a great job of identifying regional barriers and suggesting mitigations for them. We will also research those barriers encountered by other plug-in activities around the country and evaluate the success of those mitigation strategies applied by them.

Criterion 2: Probability of Successful Implementation

a. Clarity, completeness and adequacy of the self-assessment using the Sample Plan Outline

We believe we clearly and completely addressed our current status in the Self-Assessment portion of the proposal.

b. Extent to which the proposal addresses work remaining to be accomplished in terms of the planning elements, including the implementation of local policies, procedures and incentives that facilitate development

Our plans include implementation during the period of performance where possible. Our consumer web site, technical trainings, policy development and presentation to municipalities metro-wide, fleet outreach, and more are scheduled to be launched or to begin during the period of performance.

c. Adequacy of rationale of how implementation of the plan will contribute to a sustainable extended range electric vehicle, plug-in hybrid electric vehicle or electric vehicle market in the proposed region/territory

At present the Midwest region lags behind both coasts when it comes to knowledge about and availability of plug-in electric vehicles by either fleet or consumer users. There seems to be a great amount of misinformation about such vehicles that can be a barrier for purchasers and even the area's automotive technology coordinators are not as up-to-date in terms of technical expertise. Our plan includes the following elements, which will serve as rationale for contributing to a sustainable EV market. We have drafted an EV Coalition to educate and incentivize participation by private companies. We have teamed up with EVITP for electrical technician and codes inspector training when ready. Area community colleges are bolstering instructor knowledge to build on vehicle technician training for EVs. Metro planning agencies provide broad access to municipalities for outreach and education. First responders will have access to trainings provided by a regional alt fuels training center. In addition, our plan includes the intention of creating replicable actions that can be made by other similar communities in the Midwest and across the U.S.

d. Strength of documented vehicle deployment commitments, such as Original Equipment Manufacturer (OEM) launch areas and other relevant fleet commitments

Kansas City is the home of Smith Electric Vehicles, and suburb Olathe is the home of the only Ford dealer in the U.S. to be a sales and service dealer for Azure Dynamics plug-in electric conversions. Of our project partners, fleets at Kansas City, MO; KCP&L; Westar; Black & Veatch; and Lawrence, KS have all placed orders for EVs, ranging from low-speed to extended range light duty to medium and heavy duty battery electric. We have a solid launching point and are in position to increase deployment through outreach described in this proposal.

Criterion 3: Probability of Project Success Based on Team Expertise and Prior Experience Developing and Implementing EV Plans

a. Qualifications, expertise and experience of both the identified key personnel and the application organization and/or partners in areas relevant to the proposed work

Metropolitan Energy Center has successfully administered federal contracts for plug-in hybrid vehicle development and research in recent years. In addition, it is currently administering a federal grant for alternative fuel technology deployment, which includes purchase and installation of 6 EVs (more were disallowed due to federal regulation and programmatic requirements) and 16 EVSE (5 private and 11 commercial public). Our partners Westar and KCP&L are managing federal awards for smart grid projects, defining charging site criteria, and working on rate cases for EV charging rates and other utility policy relating to EVSE deployment. Our partner Black & Veatch operates Enspiria® Solutions, a leading provider of Smart Grid consulting and program integration. With a unique combination of experience, strategy, and implementation expertise, Enspiria's professionals provide in-depth Smart Grid services by defining and delivering complete solutions that benchmark the intelligent utilities and telecommunication companies. Specific areas of expertise include: smart meter and meter data management systems, demand response, transmission and distribution management systems, consumer portal and energy management systems, outage management systems, geographical information systems, work and asset management, regulatory submission assistance and expert witness testimony.

b. Identification of specific personnel assigned to major project asks, their roles in relation to the work required, percent of their time on the project, and special qualifications they may bring to the project. Include resumes of individuals proposed for this contract

Metropolitan Energy Center Process management, administrative coordination and outreach coordination (federal budget request)

- Principle investigator, project administrator: Kelly Gilbert, 25 percent time on project
- Project manager position: to be hired, 100 percent on project; will likely share role 70/30 with Ruth Redenbaugh, currently assigned 100% to management of Midwest Region Alternative Fuels Project; position will lead process management and outreach and training coordination

Black & Veatch Technical direction and analysis (federal budget request)

- Project lead: William F. (Bill) Roush has nearly 30 years of experience with alternate energy technologies, including 10 years as the owner of a solar photovoltaic (PV) product manufacturing and system integration company. He was founding director of the Solar Information Center /

Metropolitan Energy Information Center in Kansas City, Missouri. He helped organize the Mid-America Electric Auto Association. 10% time dedicated to project.

- Project lead: Sam Scupham, 10% time dedicated to project. Renewable energy engineer with involvement in analyses of commercial and developing sustainable power technologies, including renewable energy, energy storage and high technology infrastructure. These analyses are varied to include studies of technology selection, feasibility, screening, supply-side analysis, and siting.
- Specialists: various personnel as appropriate and necessary for research and analysis; cumulative 44% FTE dedicated to project

Lawrence / Douglas County Municipal planning coordination

- Project lead for municipal planning: Eileen Horn, leveraging 15% of time to project. Municipal and statewide sustainability management with outreach direction and educator background.

Electrician's Training Center Delivery of technical training curriculum: Electric Vehicle Infrastructure Training Program (EVITP) (leveraged activity)

- Technical electrical training lead: Jim Cianciolo, IBEW Local Union 124, leveraging 10% time to project.

Westar Energy Utility planning coordination

- Project lead for utility planning: Matt Lehrman, SmartStar Analyst for Westar's smart grid program. EVSE siting, permitting and inspection process improvement; load profile research to better understand grid requirements. Leveraging 10% of time to project.

Resumes are included in separate resume file

c. Adequacy of the allocation of applicant and/or team resources to successfully complete the proposed work

Our proposal team is confident that we have assigned enough resources to successfully complete the proposed work. Our list of partners who have committed in-kind staff and planning time is comprehensive and solid.

d. Strength of partnerships and extent of active participation of Clean Cities coalitions public or private fleets, auto dealerships, equipment manufacturers, energy marketers, utilities/energy companies, local and regional planning entities, state agencies and transportation authorities

As stated above, our partnerships are solid and comprehensive. Metropolitan Energy Center, in fact the proposed principal investigator, administers the regional Clean Cities coalition, which has additional municipal, EV, EVSE and fleet stakeholders not listed in this proposal who will gladly benefit from this proposed work.

e. Quality and strength of commitment letters documenting technical and/or financial support and/or site availability from all team partners

Commitment letters attached for lead partners.

Project Timetable

This section should outline as a function of time all the important activities or phases of the project, including the duration and sequencing of tasks and the scheduling of project milestones verifying that the project will be completed within the proposed period of performance.

Project Management : (Task 1)

Month 1-2	*Milestone 1.1*	All subrecipient agreements with project partners are finalized
Month 3	*Milestone 1.2*	Revised project management plan finalized

Planning: (Task 2)

Month 3	*Milestone 2.1*	50% task teams submit draft plan
Month 4	*Milestone 2.2*	100% task teams submit draft plan
Month 5	*Milestone 2.3*	50% task teams submit final plan
Month 6	*Milestone 2.5*	100% task teams submit final plan

Outreach and Training: (Task 3)

Month 6	*Milestone 3.1*	50% technician instructor training completed
Month 12	*Milestone 3.2*	100% technician instructor training completed
Month 8	*Milestone 3.3*	50% complete vehicle technician curriculum design
Month 12	*Milestone 3.4*	100% complete vehicle technician curriculum design
Month 4	*Milestone 3.5*	100% complete web site design
Month 5	*Milestone 3.6*	50% complete web site development
Month 6	*Milestone 3.7*	100% complete web site development
Month 3	*Milestone 3.8*	100% complete fleet outreach tactics design
Month 6	*Milestone 3.9*	100% complete consumer/operator EV and EVSE educational program design

Implementation: (Task 4)

Month 9	*Milestone 4.1*	50% community engagement targets met
Month 12	*Milestone 4.2*	100% community engagement targets met
Month 9	*Milestone 4.3*	50% technical training targets met
Month 12	*Milestone 4.4*	100% technical training targets met
Month 9	*Milestone 4.5*	50% products launched
Month 12	*Milestone 4.6*	100% products launched

Documentation and Reporting: (Task 5)

Month 12	*Milestone 5.1*	100% complete documentation of activities
Month 9	*Milestone 5.2*	100% complete written plan
Month 7	*Milestone 5.3*	50% complete quarterly reporting
Month 13	*Milestone 5.4*	100% complete quarterly reporting
Month 14	*Milestone 5.5*	100% complete closeout reporting

Relevance and Outcomes/Impacts

This section should explain the relevance of the effort to the objectives in the program announcement and the expected outcomes/impacts. The justification for the proposed project should include a clear statement of the importance of the project in terms of the utility of the outcomes and the target community of beneficiaries.

The purpose of this funding opportunity is to accelerate the adoption of electric vehicles in fleets and consumer applications on a national scale by ensuring that all stakeholders in representative communities are properly prepared for the needs of the vehicles, including municipal policies to enable quick permitting for charging infrastructure and other desirable outcomes; consumer education regarding benefits and limitations, creating good decision-making; plans for siting public, workplace, and multi-family building charging infrastructure; among other things. Our proposal aims to address each of these issues with a view to our particular state and municipal situations. Our target communities are Wichita, Salina and Lawrence/Douglas Co in Kansas; and the Kansas City metropolitan area, encompassing 5 counties in Missouri and Kansas. Along with readying our fleets and communities for EVs, another of our goals is to establish replicable actions that can be taken by similar municipalities across the U.S.

This proposal seeks to build on the work begun in the Greater Kansas City Plug-in Readiness Initiative to develop phased EVSE installation plans for a large metropolitan area and for smaller communities, including the travel corridors between them. These strategies have been outlined but not fleshed out and acted upon. We will develop and implement replicable actions for adoption by individual municipalities in the areas of planning, zoning, construction, permitting, fleet policies, and more. We will identify and create outreach and education programs and outlets for fleet and consumer information and training. We will create strong, mutually beneficial partnerships among public and private stakeholders in EV and EVSE planning and development: including manufacturers, dealers, public and private fleets, Clean Cities, industry trade groups, metropolitan planning agencies, state agencies, and local and industry training institutions.

Funding our proposal will result in adoption of fleet acquisition policies that prefer electric drive vehicles and build on and establish technical training programs in our region, which is accessible from anywhere in the country. It will have a lasting impact on the general public and result in hundreds of EVs being deployed across Kansas and western Missouri, displacing thousands of gallons of gasoline and diesel fuel every year.

Roles of Participants

For multi-organizational or multi-investigator projects, describe the roles and the work to be performed by each participant/investigator, business agreements between the applicant and participants, and how the various efforts will be integrated and managed.

Metropolitan Energy Center will be responsible for overall management of the contract with the Department of Energy. MEC will add a full time project manager to handle project specific financial, program, contract, and educational management with the partners and with DOE. Specifically, Coalition responsibilities will be:

- Financial Management of the contract

        - General bookkeeping
        - Invoicing DOE
        - Disbursement of funds to partners
        - All cumulative financial reporting to DOE
        - Audits as required
    - Program Management and Reporting
        - Coordinating joint activities such as education, outreach and training activities
        - Managing partnerships with educational institutions
        - Setting expectations and tracking progress on tasks
        - Collecting necessary data from stakeholder partners
        - General communications between MEC and stakeholder partners
        - Coordinating public relations and promotional activities for the project
        - Preparing cumulative program progress reports for DOE

MEC has successfully managed federal contracts from Department of Energy and Environmental Protection Agency, including research on medium and heavy-duty plug-in electric hybrids and a $15 million grant to deploy alternative fuel vehicles and fueling infrastructure. It administers the region's Clean Cities coalition, Kansas City Regional Clean Cities.

MEC has chosen to work with Black & Veatch, headquartered in the metro area, for technical direction and analysis. Enspiria® Solutions, a Black & Veatch company, is a leading provider of Smart Grid consulting and program integration. With a unique combination of experience, strategy, and implementation expertise, Enspiria's professionals provide in-depth Smart Grid services by defining and delivering complete solutions that benchmark the intelligent utilities and telecommunication companies of tomorrow. Specific areas of expertise include: smart meter and meter data management systems, demand response, transmission and distribution management systems, consumer portal and energy management systems, outage management systems, geographical information systems, work and asset management, regulatory submission assistance and expert witness testimony.

Enspiria's parent company is Black & Veatch, a leading global engineering, consulting and construction company with $2.7 billion in annual revenue. Together, Enspiria Solutions and Black & Veatch provide complete concept through completion Smart Grid services, offering clients a single point of contact for planning, developing, and implementing this complex infrastructure.

Metropolitan Energy Center will enter into contract with Black & Veatch for its technical assistance on the project, such assistance to be available throughout the project period of 12 months. Black & Veatch will be responsible for the following:

- Financial Management
    - Paying its vendors for all project related expense
    - Invoicing MEC for project eligible expenses
    - Collection and maintenance of all relevant financial records and documents
    - Providing MEC access to all financial records when needed
- Technical Assistance and Consultation
    - Leadership and advisory services
    - Research and access to resources
    - Technical analysis

Electrician's Training Center, an IBEW Local Union 124 program, will provide delivery of technical training curriculum by the Electric Vehicle Infrastructure Training Program (EVITP), a leveraged

activity. The Electrician's Training Center will be available throughout the project period and will be engaged for limited times periodically as needed.

Equipment

List important items of equipment already available for this project and, if appropriate, note the location and pertinent capabilities of each. If you are proposing to acquire equipment, describe comparable equipment, if any, already at your organization and explain why it cannot be used.

No equipment is proposed for acquisition under this agreement. However, by the time of award, there will be deployed in the project area at least 15 public charging stations and 6 private fleet stations, which will be leveraged for data collection as much as feasible. In addition, we will monitor and collect data on the 25 or so heavy-duty EVs, NEVs, and light-duty EREVs in the area.

Bibliography and References, If Applicable

Provide a bibliography for any references cited in the Project Narrative section. This section must only include bibliographic citations.

None

Statement of Project Objectives (SOPO) for

Kansas – Missouri Community Readiness for EV and EVSE

A. OBJECTIVES

This proposal seeks to build on the work begun in the Greater Kansas City Plug-in Readiness Initiative to develop phased EVSE installation plans for a large metropolitan area and for smaller communities, including the travel corridors between them. Readiness strategies have been outlined in the Kansas City Plug-in Readiness Strategy but not fleshed out and acted upon. We will develop and implement replicable actions for adoption by individual municipalities in the areas of planning, zoning, construction, permitting, fleet policies, and more. We will identify and create outreach and education programs and outlets for fleet and consumer information and training. We will create strong, mutually beneficial partnerships among public and private stakeholders in EV and EVSE planning and development: including manufacturers, dealers, public and private fleets, Clean Cities, industry trade groups, metropolitan planning agencies, state agencies, and local and industry training institutions.

In Phase 1, Administration, the main objective is to assemble a strong team and establish performance expectations.

In Phase 2, Planning, we will establish municipal and state policies; determine charging infrastructure site plans; and examine grid capacity issues.

In Phase 3, Outreach and Training, we will educate training instructors; create a consumer web site; establish training opportunities for fleets, mechanics, codes inspectors and first responders; and present replicable readiness actions to regional municipalities not directly involved in the planning work.

In Phase 4, Implementation, planning objectives that have been met will move to implementation phase as much as feasible.

In Phase 5, Reporting, we will require regular reports from our lead partners, provide required reports to the DOE, and make appearances as requested by DOE to report progress and share best practices and lessons learned.

B. SCOPE OF WORK

This section should not exceed one-half page and should summarize the effort and approach to achieve the objectives of the work for each Phase.

The Kansas – Missouri Community Readiness for EV and EVSE proposal for planning work requires a group effort. We have established a core management team that will recruit and shape our partners into effective task teams. Task teams will draft work for review and comment by a community of peers. Technical guidance will be provided as necessary, with research and analysis available to any team needing technical assistance. Task teams will work independently to meet objectives and report progress to the management team. The management team will convene regular meetings of the leadership of the task teams to share progress and best practices across all teams.

C. TASKS TO BE PERFORMED

Tasks, concisely written, should be provided in a logical sequence and should be divided into the phases of the project, as appropriate. This section provides a brief summary of the planned approach to this project.

<u>Task 1: Project Management and Planning</u>

Subtask 1.1 Conduct a project kick-off meeting with all partners to plan and coordinate all project activities. This meeting will include representatives from the partner organizations and will include finalization of the project schedule and coordination of all project-related activities.

Subtask 1.2 Finalize sub-recipient agreements with project partners.

Subtask 1.3 Revise and update Project Management Plan.

<u>Task 2: Planning</u>

Subtask 2.1: Establish task teams for Fleet Outreach; Consumer Web Site; Municipal Planning for Building Codes, Permitting, and Zoning; Siting Workplace and Public EVSE; Multifamily Residential Barriers; Training Development; EV Business Coalition (for private incentives); Corridor Planning; Grid Impact and Peak Load; State-wide Issues

Subtask 2.2: Each task team to evaluate Greater Kansas City Plug-in Readiness Strategy for completeness, establish planning goals and a schedule to achieve success.

Subtask 2.3: Each task team to submit planning goals to peer review.

Subtask 2.4: Rewrite as necessary and submit recommendations to management team.

Subtask 2.5: Conduct research and data analysis; submit conclusions to peer review.

Subtask 2.6: Rewrite as necessary and submit final recommendations to management team

Subtask 2.7: Release plans and conclusions (charging site map, corridor plan, impacts to grid, etc) or move to Implementation phase (government policy planning, etc).

Task 3: Outreach and Training

Subtask 3.1: Establish electric drive technical expertise in area community colleges

Subtask 3.1.1 Automotive technology instructors attend SAE trainings

Subtask 3.1.2 Develop technical training curriculum for EV auto technicians

Subtask 3.2: Create consumer web site

Subtask 3.2.1 Select web site developer (write request for proposal specifications, etc)

Subtask 3.2.2 Research content for web site

Subtask 3.2.3 Manage web site development

Subtask 3.3: Establish fleet outreach tactics

Subtask 3.4: Create consumer/operator EV and EVSE educational program ("Communiversity" style and/or web videos)

Subtask 3.5: Perform on-going identification of additional outreach and training needs

Subtask 3.6: Move to Implementation Phase

Task 4: Implementation

Subtask 4.1: Set targets for successful implementation (# munis to adopt recommendations, # trainings to hold in each community, etc)

Subtask 4.2: Engage community to implement recommendations through regional energy events, metropolitan planning organizations and small group meetings

Subtask 4.2.1: Identify opportunities to engage in events planned by other parties

Subtask 4.2: Conduct research and data analysis

Subtask 4.3: Provide training to appropriate audiences (electricians, codes inspectors, fleets, etc)

Subtask 4.4: Launch products (web site, EV Business Coalition, vehicle technician training, rate case to state regulatory agencies, etc)

Task 5: Documentation and Reporting

Subtask 5.1: Require periodic reporting by task teams

Subtask 5.2: Documentation of all training provided, attendance at training session(s) and evaluation of training success.

Subtask 5.3: Documentation of all marketing/outreach conducted.

Subtask 5.4: Documentation of Clean Cities involvement in project.

Subtask 5.5: Participate in DOE- or Industry-sponsored merit reviews, peer exchanges, conferences, etc. to provide project updates/lessons learned to ensure that the information and knowledge gained by project participants is shared.

Subtask 5.6: Deliver a completed publicly releasable written plan.

Subtask 5.7: Quarterly written progress reports that address actions taken to execute planning elements

Subtask 5.8: Financial Reporting

Subtask 5.9: Closeout Reporting

D. DELIVERABLES

The periodic, topical and final reports shall be submitted in accordance with the attached "Federal Assistance Reporting Checklist" and the instructions accompanying the checklist. [Note: The Recipient shall provide a list of deliverables other than those identified on the "Federal Assistance Reporting Checklist" that will be delivered. These reports shall also be identified within the text of the Statement of Project Objectives. See the following examples:

1. Task 1.1 – Deliverable of a completed publicly releasable written plan
2. Task 1.2 – Deliverable of quarterly written progress reports that address actions taken to execute planning elements
3. Task 1.3 – Participation in various forums organized by DOE to report on progress and share lessons learned, such as conference calls, meetings, merit reviews, and workshops.
4. Task 1.4 – Financial Reporting
5. Task 1.5 – Closeout Reporting

E. BRIEFINGS/TECHNICAL PRESENTATIONS

If requested by DOE, Metropolitan Energy Center shall prepare detailed briefings to explain the plans, progress and results of the technical effort during the performance period of the award.

In addition, reports/presentations shall be developed and delivered as appropriate at Program Merit Reviews, or at various forums organized by DOE to report on progress and share lessons learned, such as conference calls, meetings and workshops. As a Clean Cities administrator, Metropolitan Energy Center has experience with such presentations.