

**Environment and Natural Resources Trust Fund
2011-2012 Request for Proposals (RFP)**

LCCMR ID: 143-F1+2+5

Project Title: Building Minnesota's Electric Vehicle Future

Category: F1+2+5. Climate Change and Air Quality

Total Project Budget: \$ \$1,108,500

Proposed Project Time Period for the Funding Requested: 2 yrs, July 2011 - June 2013

Other Non-State Funds: \$ 0

Summary:

Building a plug-in charging infrastructure and a fleet of zero-emission electric vehicles. Protecting our natural resources and human health through direct greenhouse gas and air pollution reduction.

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Sponsoring Organization: American Lung Association in Minnesota

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Location

Region: Metro

Ecological Section: Minnesota and NE Iowa Morainal (222M)

County Name: Hennepin, Ramsey

City / Township:

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ Employment	_____ TOTAL _____%

2011-2012 MAIN PROPOSALS

PROJECT TITLE: Building Minnesota's Electric Vehicle Future

I. PROJECT STATEMENT

Electric vehicles (EVs) have arrived, bringing cleaner air, independence from foreign oil, and better integration of renewable energy, however, they may not be coming to Minnesota. Without a proven track record of EV use in our cold climate and without supporting charging infrastructure, car companies will not bring this advanced technology to our state. This project will bring advanced electric vehicles to Minnesota and ripen the market for broad scale, regional EV deployment, which will provide cleaner air, reduced fuel costs of less than \$1 per gallon gasoline-equivalent, and replacement of fossil fuel imports with locally generated electricity.

As part of this project, the partners will:

- *Establish a public charging infrastructure for EVs* by installing a network of publicly available smart charging stations and highly visible solar-powered stations, on-street stations and public parking ramp stations.
- *Deploy next generation electric vehicles to public fleets* providing real world application and exposure of these new vehicles in Minnesota's climate.
- *Develop the Market* through highly visible coordinated roll-out of electric vehicles, public charging infrastructure and promotional efforts.
- *Study electrical grid impact* by partnering with Xcel Energy to evaluate charging capacity, load management and renewable energy generation integration with EV battery storage systems.

Air pollution is a serious concern for Minnesota and has a significant impact upon human health, wildlife and our forests. National air quality standards are being strengthened, pushing the Twin Cities Metro Area closer to nonattainment with the Federal Clean Air Act. Over half of all hazardous air pollutants in Minnesota and nearly a third of all greenhouse gas (GHG) emissions come from mobile sources. Tailpipe emissions, which occur at ground level where we work and live, have a disproportionate impact upon human health. Electric vehicles have zero emissions from the tailpipe. Electric power generation is less polluting than burning gasoline and, with Minnesota's Renewable Energy Standard, becomes cleaner every year. When vehicles are powered with wind or solar generated electricity there are no emissions. This innovative project will directly reduce GHG emissions and protect natural resources and human health from deleterious pollutants emitted from road vehicles.

DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: Install EV Plug-in Charging Stations

Budget: \$ 694,500

Install EV charging stations in prime parking spaces for public use. The partners will install a minimum of 40 on-street and 50 parking ramp smart charging stations. Additionally, the partners will install four solar-powered "marquee" charging stations at premium locations such as near the Xcel Energy Center or Target Field. Develop extensive outreach through popular social media outlets and coordinated communications strategy to promote these stations. Web-based applications will map and show availability of the full charging network. Partners will assume all operation and maintenance costs.

Outcome	Completion Date
1. Prime locations for solar marquee and smart charging stations are identified and mapped. Contract(s) for solar marquee design and build, purchase and installation of smart charging towers are secured and the contract work is implemented.	January 2012

2. Installation of street, ramp and solar marquee charging stations	December 2012
3. Frequency of use, energy usage, and emissions reductions are tracked, analyzed and documented.	June 2013

Activity 2: Addition of Vehicles to Partner Fleets

Budget: \$ 414,000

Deploy EV into partner fleets for daily use. Major auto manufactures anticipate releasing EVs for purchase in limited markets by the end of 2011. Most are focusing EV sales only on the East and West Coasts, however, a number of vehicle manufacturers are interested in our plans for vehicle and infrastructure deployment and have expressed a willingness to bring their vehicles to Minnesota. Funding from this proposal will be used to offset the cost differential or incremental cost between a gas-powered vehicle and the EV equivalent. Partners will pay the base (gas equivalent) cost for each vehicle and assume all operational and maintenance costs.

Outcome	Completion Date
1. Procurement of at least 20 electric drive vehicles to be integrated into daily use by partner fleets. As part of operation, partners will use a vehicle wrap to highlight the project and EV use.	December 2012

II. PROJECT STRATEGY

A. Project Team/Partners

The project coalition is organized by Steering Committee whose members include: Daniel Huff, City of Minneapolis (Chair), Anne Hunt, City of Saint Paul, Lisa Thurstin, American Lung Association in Minnesota, Greg Palmer, Xcel Energy and Fran Crotty, Minnesota Pollution Control Agency. The Steering Committee oversees work of the Siting, Technology, Contracts and Education Teams. Engaged, active coalition members represent the Cities of Saint Paul and Minneapolis, Hennepin and Ramsey Counties, Xcel Energy, Fresh Energy, Neighborhood Energy Consortium (Hour Car), Minnesota Department of Administration, and the Minnesota Pollution Control Agency. The American Lung Association in Minnesota will serve as the fiscal agent and administration organization.

B. Timeline Requirement

EV charging infrastructure will begin in year one and continue into the end of year two. Addition of EVs to public fleets will begin in year one and continue through year three.

C. Long-Term Strategy and Future Funding Needs

This project is essential for overcoming a key challenge for migration to cleaner vehicles that run on electrical power. The dilemma is this—before purchasing electric vehicles, consumers need accessible, convenient locations for recharging them. However, electric vehicles must be present before recharge locations are established. Funding from the Environment and Natural Resources Trust Fund will overcome this dilemma through simultaneous rollout of vehicles and charging stations. Once this threshold for adoption of EVs is overcome, project partners and other local units of government will continue to invest in charging infrastructure to meet the needs of their constituents. Businesses, private retail, entertainment and restaurant locations are likely to follow suit by sponsoring and installing plug-in stations onsite to meet the needs of their employees and customers.

2011-2012 Detailed Project Budget

IV. TOTAL TRUST FUND REQUEST BUDGET - 2 years

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
Personnel: American Lung Assn in MN - Program Manager to act as fiscal agent and administer grant. 17% Salary 31.5% Benefits 20% FTE 2 yrs 2 staff people	\$ 28,500
Contracts: 1. Solar PV Installer that will design and build four-3kW solar marquee plug-in charging stations. [4 stations@\$40,000 = \$160,000] 2. Vendor to supply and install 40 on-street and 50 ramp smart charging plug-in stations. [50@\$4,000 ramp + 40@\$8,000 on-street = \$520,000]	\$ 680,000
Equipment/Tools/Supplies: Differential cost share of purchase price for 20 electric drive vehicles @\$20,000 = \$400,000. [\$40,000 total vehicle cost - \$20,000 partner contribution = \$20,000 cost share]	\$ 400,000
TOTAL ENVIRONMENT & NATURAL RESOURCES TRUST FUND \$ REQUEST	\$ 1,108,500

V. OTHER FUNDS

<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
Other Non-State \$ Being Applied to Project During Project Period: Project Partners - Street Infrastructure Deployment & Support \$40,000 Project Partners - Purchase of Electric Vehicles \$400,000 [\$20,000 cost share per electric vehicle x 20 vehicles = \$400,000] Xcel Energy - Solar Rewards Program \$27,000 [Rebate \$2.25 per watt x 3,000 watts/solar marquee x 4 = \$27,000]	\$ 467,000	<i>Pending</i>
In-kind Services During Project Period: Press releases, press conferences, graphics design/consultation \$7,500 Website development, maintenance, support \$7,000 Cable video content development, filming, editing, air time \$15,000 Vehicle operations and maintenance \$225,000 [125,000 miles (life of vehicle) x \$.09/mile main. cost = \$11,250/vehicle] [\$11,250 per vehicle x 20 vehicles = \$225,000] Total Inkind Services = \$254,500	\$ 254,500	<i>Pending</i>
Remaining \$ from Current ENRTF Appropriation (if applicable):	N/A	N/A
Funding History: City of Saint Paul secured \$286,000 from DOE Energy Eff. Comm. Block Grant to procure plug-in electric vehicles and install EV charging stations in 2010.	\$ 286,000	<i>Secured</i>

Building Minnesota's Electric Vehicle Future

Building a plug-in charging infrastructure and a fleet of zero-emission electric vehicles. Protecting our natural resources and human health through direct greenhouse gas and air pollution reduction.



Partners will utilize **electric vehicles** in day to day work operations throughout the communities they serve.



Charging stations at parking spaces along city streets and in publically owned parking ramps will allow the public to fuel up while at work, shopping, or watching a game.



Solar "Marquee" charging stations strategically placed at some of the Twin Cities must prominent locations will allow the public to plug in for a 100% renewable, non-polluting fill up.



Xcel Energy will evaluate charging capacity, load management and **renewable energy integration** with electric vehicle batteries.

Lisa Thurstin

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Lisa Thurstin is coordinator of the Twin Cities Clean Cities Coalition (TC4) and manager of clean fuel and vehicle technologies for the American Lung Association in Minnesota (ALAMN). For ten years, her duties have included management of ALAMN's biofuels activities through the Clean Air Choice™ consumer education program. Responsibilities include coordination of events, design of educational and marketing pieces and assisting management. TC4 duties include building stakeholder relationships to meet the Clean Cities organizational goals of petroleum displacement, supporting alternative fuel vehicle deployment, alternative fuel infrastructure development, and clean fuel educational activities throughout the state of Minnesota.

Responsibilities as project manager of **Building Minnesota's Electric Vehicle Future** will include working with project partners to select electrification sites, developing and administering subcontracts, disbursement of subcontract awards and project oversight. In addition, Lisa will submit periodic progress reports as required by LCCMR. A final work program report will be submitted by the completion date as set in the appropriation. Ms. Thurstin and the American Lung Association in Minnesota finance office have experience on numerous state and federal grants with similar activities and requirements.

Organization Description

The American Lung Association in Minnesota is one of the oldest voluntary health organizations in the country. Our mission has expanded to meet the challenges of lung health that have emerged over the years. Mission: *To save lives by improving lung health and preventing lung disease*

Today, we are proud to offer statewide programs that have a positive impact on Minnesotans. We are working hard to improve air quality indoors and outdoors. Our organization seeks to reduce the health problems associated with outdoor air pollution by helping people make an informed 'clean air choice.' Air pollution poses a serious threat to human health. It can worsen lung diseases like asthma, bronchitis and emphysema.

Clean Air Choice™ is the outdoor air program of the American Lung Association in Minnesota, recognizing clean fuel and vehicle technologies like E85, biodiesel, hybrid electric and electric vehicles as Clean Air Choices we can make today to reduce our impact on the environment and lung health. ALAMN has a proven record of cost-effectively building the nation's most extensive E85 fueling network through infrastructure development and a wide range of education and marketing strategies.

ALAMN was selected as program administrator of this Minnesota E85 Team in 1998. Within a few short years, thanks to efforts and support of the Team partners, the Minnesota program proved to be the country's most successful example of how E85 and flex fuel vehicles could succeed as an alternative choice to gasoline. The Minnesota E85 market continues to be the lead in stations (355+), sales volume (22.4 million gallons-plus in 2008) and overall growth.

Over the last decade, ALAMN has developed the experience necessary to successfully administer a large grant program. ALAMN has administered grants to 245 of the 360 Minnesota E85 retailers, totaling more than \$2.3 million in contracts. Along with the grant program, ALAMN has developed recognized imaging packages, promotional materials and special events and our personnel have assisted more than 200 other projects in neighboring states and throughout the country.