

Transportation Advisory Board
of the Metropolitan Council of the Twin Cities

ACTION TRANSMITTAL

No. 2011-60

DATE: November 4, 2011
TO: Transportation Advisory Board
FROM: TAB Programming Committee
SUBJECT: Minnesota Pollution Control Agency Proposal for CMAQ Funding for Electric Vehicle Charging Stations.
MOTION: That the TAB fund the MPCA request and program federal funds available from the regional balance in 2012.

BACKGROUND AND PURPOSE OF ACTION: This action item was discussed by the full Transportation Advisory Board on September 21 but action was deferred to the October meeting when MPCA staff could respond to the Board's questions. The item was deferred again by the TAB Programming Committee to their November meeting.

At the TAB's direction, the TAC Funding & Programming Committee and full TAC have evaluated MPCA's request for \$500,000 in CMAQ funds from the regional solicitation to install electric vehicle charging stations in the Twin Cities. The technical committees have reviewed the proposal and have determined that the project is eligible for CMAQ funding and that the project has merits from an air quality cost effectiveness standpoint, but does not fit within the CMAQ project categories and would not score well based on other criteria such as congestion mitigation.

The TAC offered two options. The first option would fund the project using available funds from withdrawn regional projects. These funds would otherwise be added to the CMAQ funding amount in the 2011 Regional Solicitation. The second option would fund the project with CMAQ funds from the 2011 regional solicitation and program this project in 2015. This reflects a desire on the part of the TAC Funding & Programming Committee to ensure fairness to applicants in the 2011 Regional Solicitation since many projects may need to be delayed if the next federal transportation act is significantly smaller than SAFETEA-LU.

While this project is small enough that it would not greatly affect the overall program, the technical committees expressed several concerns:

- Programming these funds in 2012 would run counter to the procedure set by the TAB in August to delay existing projects if funding is not available.
- Allocating federal funding outside of the normal process is less acceptable in times of financial uncertainty.
- Allocating CMAQ funds to this project feels like supporting a specific industry that should support itself.
- It is unclear how the EV driver would pay for the electricity used during recharging or for the special parking space for the recharging unit.

Additional background material is attached.

Transportation Advisory Board of the Metropolitan Council of the Twin Cities

TO: Transportation Advisory Board
FROM: Kevin Roggenbuck, Transportation Coordinator
DATE: October 6, 2011
RE: Pros and Cons of funding the MPCA electric vehicle recharging proposal.

Several pros and cons were identified by the technical committees in Action Transmittal 2011-60 that was sent to the TAB. Combined with comments made at the September 21 TAB meeting and with additional questions and comments submitted after the meeting, staff offers the following list of pros and cons to funding the EV recharging proposal:

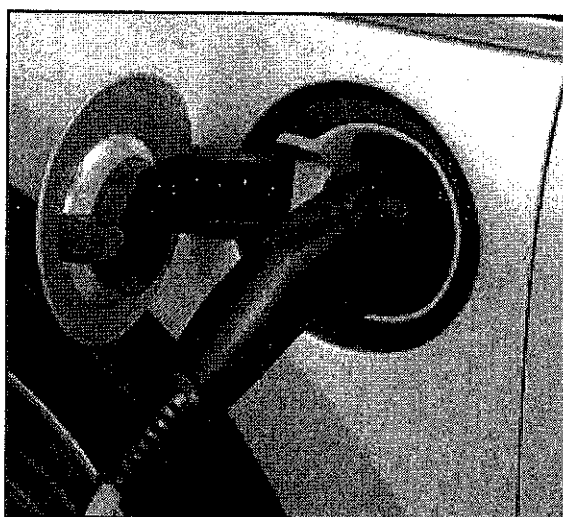
EV Recharging “Pros”

- This project will be an incentive for people to buy and use electric vehicles, which produce zero emissions at the tailpipe.
- Electric vehicle manufacturers will make cars available in the markets that are most ready for them. The objective of this project is to make the Twin Cities ready for electric vehicles.
- This project does not qualify to compete for CMAQ funds the way the solicitation is set up at present. The TAB has funded other projects outside the traditional competitive solicitation process before.
- Compared to other CMAQ projects, the EV recharging project is cost effective expressed in the cost per kilogram reduced per day (\$18,769/Kg/day).
- This project is not outside the realm of the government’s job, in order to build a robust economy. The federal government has provided funding to certain areas of the country for electric vehicle infrastructure.
- Although future funding is uncertain, \$500,000 is a relatively small amount of money. Allocating this amount to the EV recharging project will not adversely affect any other project in the TIP.

EV Recharging “Cons”

- Programming these funds in 2012 would run counter to the procedure set by the TAB in August to delay existing projects if funding is not available.
- Allocating federal funding outside of the normal process is less acceptable in times of financial uncertainty.
- Allocating CMAQ funds to this project feels like supporting a specific industry that should support itself.
- A program for charging electric vehicles is needed, but perhaps it is too early, and too costly (\$500,000) at this time.
- Compared to other CMAQ projects, the EV recharging project has a relatively low reduction in air pollutants expressed in kilograms reduced per day (31Kg./day)
- It is unclear how the EV driver would pay for the electricity used during recharging or for the special parking space for the recharging unit.
- Electric vehicle do not contribute tax funding to roadway trust funds the way gasoline powered cars do.
- There are still a number of questions and uncertainties about the implementation of this project and the exact benefits it will provide.

Electric Vehicle Charging Station Infrastructure Development
Twin Cities Metropolitan Area



Submitted by:



Minnesota Pollution Control Agency

August 2011

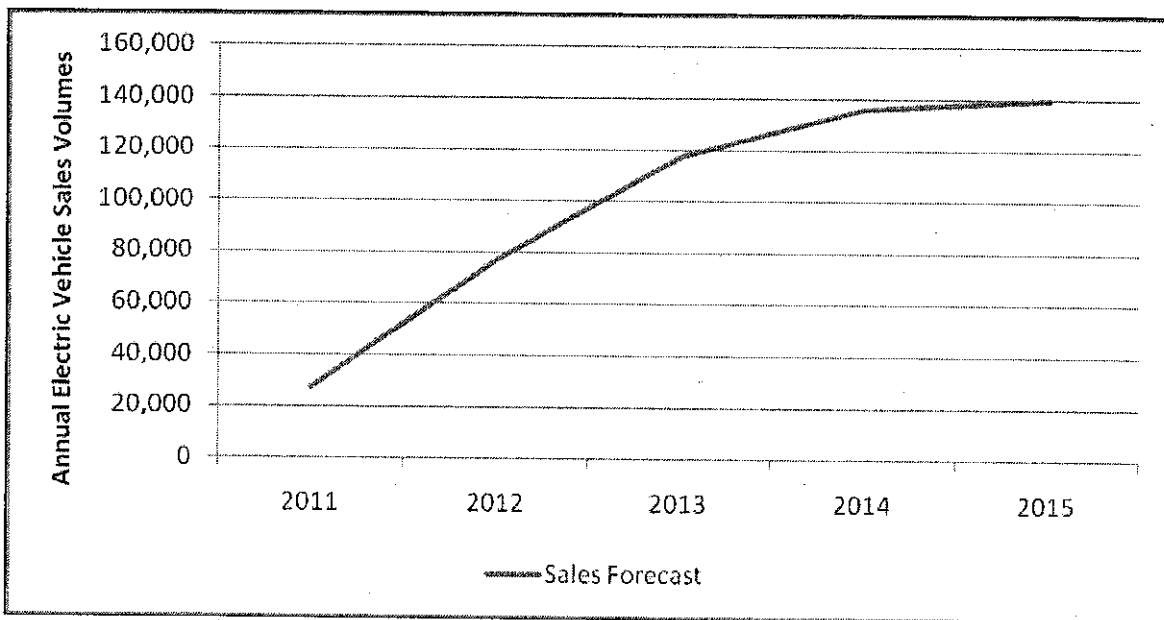
Funding Request

The funding request for this project is for the allocation of \$500,000 from the non-competitive Congestion Mitigation Air Quality (CMAQ) program for use toward the procurement and installation 76 electric vehicle charging stations in the metro area. The proposed charging station locations were selected based upon expected high occupancy rates that will result in optimal carbon dioxide, nitrous oxide and volatile organic compound hazardous air emissions reduction. With a 20% match of \$125,000 the total project cost proposed is \$625,000.

EV Market Assessment

According to the 2010 National Automobile Dealers Association (NADA) Report³ vehicle registrations for plug-in electric vehicles (PEVs) are anticipated to be 2.8% of the total by 2015. For the approximately 150,000 annual registrations in Minnesota this translates into 4,200 new PEV vehicle registrations per year beginning in 2012. NADA projects a progressive increase in the rate of EV production in future years. The cumulative number of PEVs anticipated on the road in Minnesota by 2015 is 12,600.

U.S. National Electric Vehicle Adoption Assumptions: 2011-2015



Source: HIS Global Insight, JD Power, Center for Automotive Research

As reflected in the above graph from the "Deployment Rollout Estimate of Electric Vehicles" January 2011 report by the Center for Automotive Research, sales growth for EVs are predicted to incrementally, increase over the next 4 to 5 years.

Early last year, Nissan North America opened pre-order reservations for the first 20,000 Nissan Leafs. Of those reservations, 189 are from Minnesotans, which places our state in 20th place for the reserver count. Another 4,472 Minnesotan's have expressed interest in purchasing the Nissan Leaf outside of the closed,

Under the current statewide contract the cost for EVSE ranges from \$1,000 to \$4,500 per charging stations depending upon the features selected. Installation costs are additional. The installation costs typically vary with proximity to electrical service and if any electrical equipment upgrades are needed. Strategic location planning can keep these costs lower; however, a preference may be given to intentionally providing prime EV parking locations even though this will incur additional costs.

Charging Station Maintenance

Project participants, as owners of the electric vehicle supply equipment (EVSE) used for the charging stations will be responsible for their maintenance. EVSE vendors typically partner with local electrician firms should expert repair consultation or services be needed. This includes efficient mobile repair and replacement services if needed.

Project participants will be responsible for collecting any fees from charging station users to cover maintenance and operating costs, in a similar manner as for parking meters. The fee assessed at the charging station will be determined independently by each participating entity. It is anticipated that the revenue collected will offset operations and maintenance costs.

Each EVSE vendor lists optional features and associated costs related to networked data collection and billing management for their charging equipment. For example, if a charging station has the capability to read radio frequency identification (RFID) from a charge card and subsequently bill, there is typically a \$150 to \$400 annual service charge per station. There are comparatively less expensive EVSE systems that do not include networking capabilities for billing or energy use data capture can be dedicated for fleet use only or installed in leased parking stalls for which operating costs are incorporated into the lease fees.

EVSE maintenance is anticipated be minimal since this is primarily solid state electronic equipment with few moving parts. Occasionally the screens for the chargers may need to be wiped if for some reason they become opaque due to dirt accumulation. The attached plug-in cables will need to be checked for wear. Each EVSE vendor works in partnership with a local electrician company for consultation and service should it be necessary. Overall, the maintenance level for the EVSE is expected to be comparable to that of newer electronic parking meters. The original equipment manufacturer warranty for EVSE is typically for a length of two years.

Charging Station - Location Survey

A survey created by the MPCA was distributed to potential responders through the Minneapolis Transportation Management Organization (TMO), Smart Trips, the 494 Corridor TMO and the Anoka County TMO. These early results indicate an interest by potential EV drivers in having plug-in charging stations located in downtown parking ramps, at Park and Ride facilities, and at transit hubs. These preferred charging station sites are included in the selected locations of this proposal. Other location preferences include public shopping mall, hospital, bank, and large hotel facilities which are not included in the proposal since these are not publically-owned facilities. Complete results of this survey are included in the Appendix section.

Proposed Twin Cities Metro-Area
EV Charging Station Installation Locations

CMAQ Project: EV Plug-in Charging Station Locations

City of Saint Paul										
# stations to be added at this location	Location	Address	City	Daily Ave # EV Trips	Est. Trip Distance	Daily VMT	Type of Location			
							Shopping	Recreation	Community Center	Office / Residence
3	Como Park Zoo and Conservatory	1225 Estabrook Dr	Saint Paul	6	13	78		X		
1	Como Park Golf and Ski Center	1431 N Lexington Pkwy	Saint Paul	2	13	26		X		
1	McMurray fields	1155 W. Jessamine Ave	Saint Paul	2	13	26		X		
1	Jimmy Lee Recreation Center and Oxford Pool	270 N Lexington Pkwy	Saint Paul	2	13	26		X		
1	Wellstone Community Center	179 Robie St. E.	Saint Paul	2	13	26		X	X	
1	Harriet Island	200 Dr. Justus Ohage Blvd	Saint Paul	2	13	26	X			
2	Smith Avenue Ramp			2	22.2	44.4				
1	Block 19 parking ramp	145 7th St E	Saint Paul	1	22.2	22.2				
2	RiverCentre parking ramp	175 Kellogg Blvd	Saint Paul	2	22.2	44.4	X	X		X
Total Daily Vehicle Miles Traveled (VMT)						319				

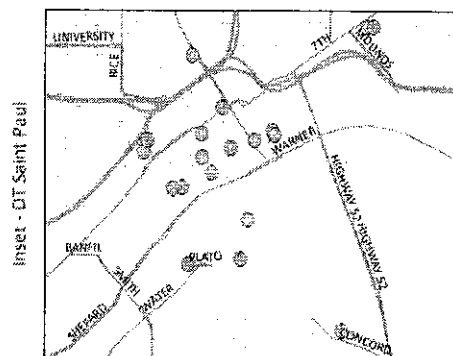
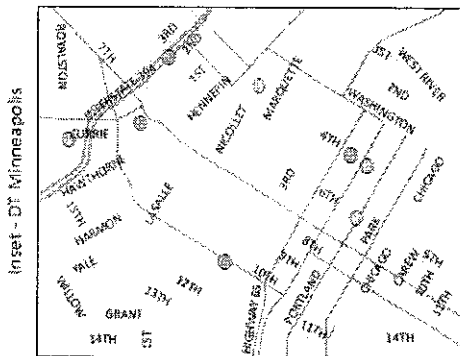
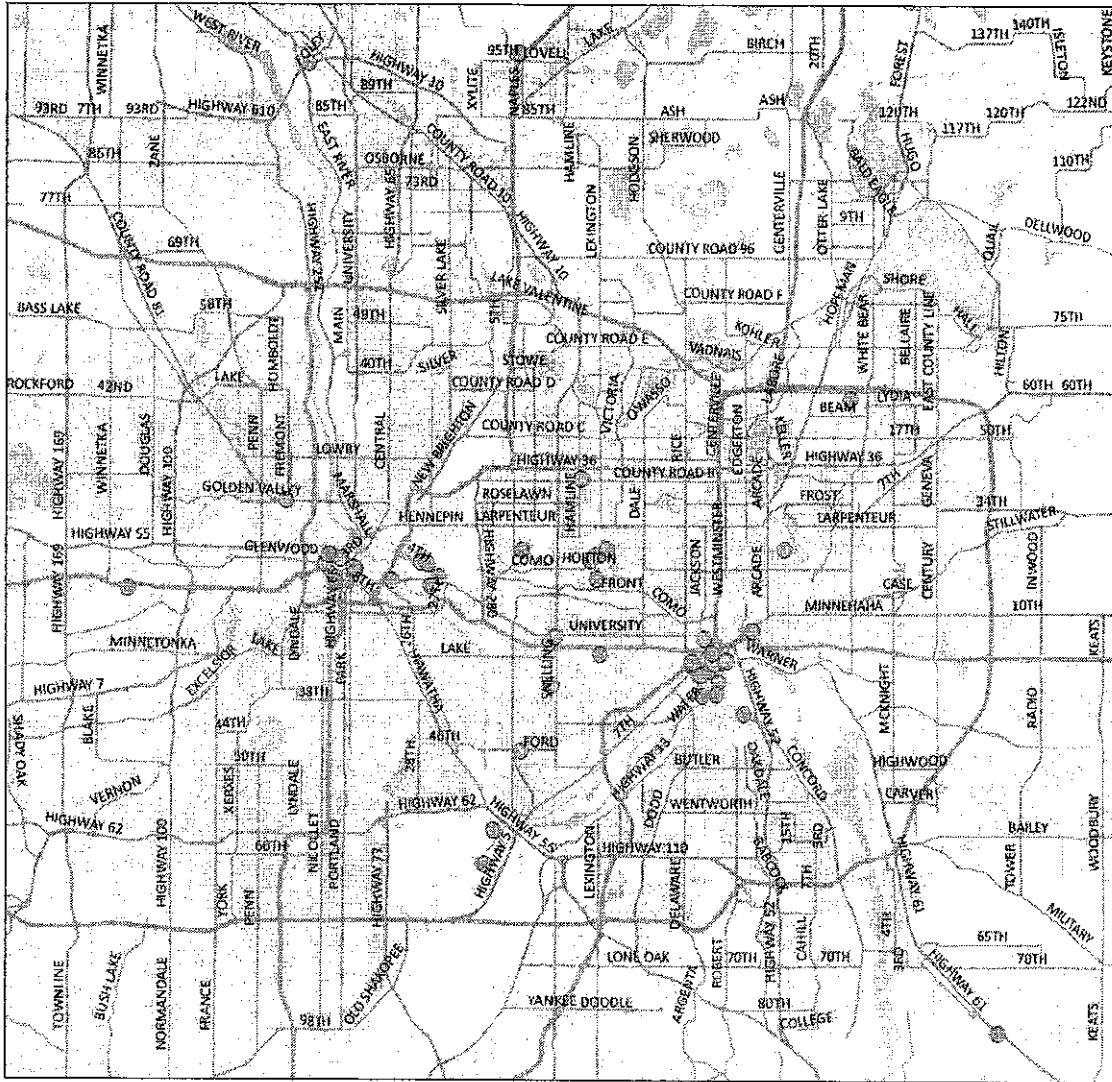
City of Minneapolis and MnDOT										
# stations to be added at this location	Location	Address	City	Daily Ave # EV Trips	Est. Trip Distance	Daily VMT	Type of Location			
							Shopping	Recreation	Community Center	Office / Residence
3	Jerry Haaf Memorial Parking Ramp	424 South 4th Street	Minneapolis	3	22.2	66.6	X		X	X
3	Leamington Ramp	1001 2nd Avenue South	Minneapolis	3	22.2	66.6	X			X
15	TAD, A Ramp (3 each levels 3,4,5,6,7)	101 North 9th Street	Minneapolis	15	22.2	333		X		X
4	TAD, B Ramp	516 2nd Avenue North	Minneapolis	4	22.2	88.8		X		X
Total Daily Vehicle Miles Traveled (VMT)						555				

University of Minnesota										
# stations to be added at this location	Location	Address	City	Daily Ave # EV Trips	Est. Trip Distance	Daily VMT	Type of Location			
							Shopping	Recreation	Community Center	Office / Residence
2	East Bank - 4th Street Ramp	Intersection 4th Str. SE & 17th Ave SE	Minneapolis	2	22.2	44.4			X	
2	East Bank - Lot 37 (Stadium)	5th Str. SE	Minneapolis	2	22.2	44.4			X	
2	East Bank - Gateway Lot (Stadium)	Intersection University & 23rd Ave SE	Minneapolis	2	22.2	44.4			X	
2	East Bank - New 'Green' Lot	Intersection Oak & Essex	Minneapolis	2	22.2	44.4			X	
2	West Bank - Lot C86	2nd Street South	Minneapolis	2	22.2	44.4			X	
2	Saint Paul Campus	Gortner Ave. Ramp	Saint Paul	2	22.2	44.4			X	
Total Daily Vehicle Miles Traveled (VMT)						267				

Macalester College										
# stations to be added at this location	Location	Address	City	Daily Ave # EV Trips	Est. Trip Distance	Daily VMT	Type of Location			
							Shopping	Recreation	Community Center	Office / Residence
1	Athletic Center	125 Snelling Avenue S	Saint Paul	1	18.8	18.8			X	
1	Theatre	130 Macalester Street	Saint Paul	1	18.8	18.8			X	
Total Daily Vehicle Miles Traveled (VMT)						38				

Location Maps: Plug-in Charging Stations

Planned and Proposed Electric Vehicle Charging Stations in the Twin Cities

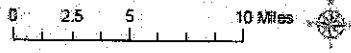
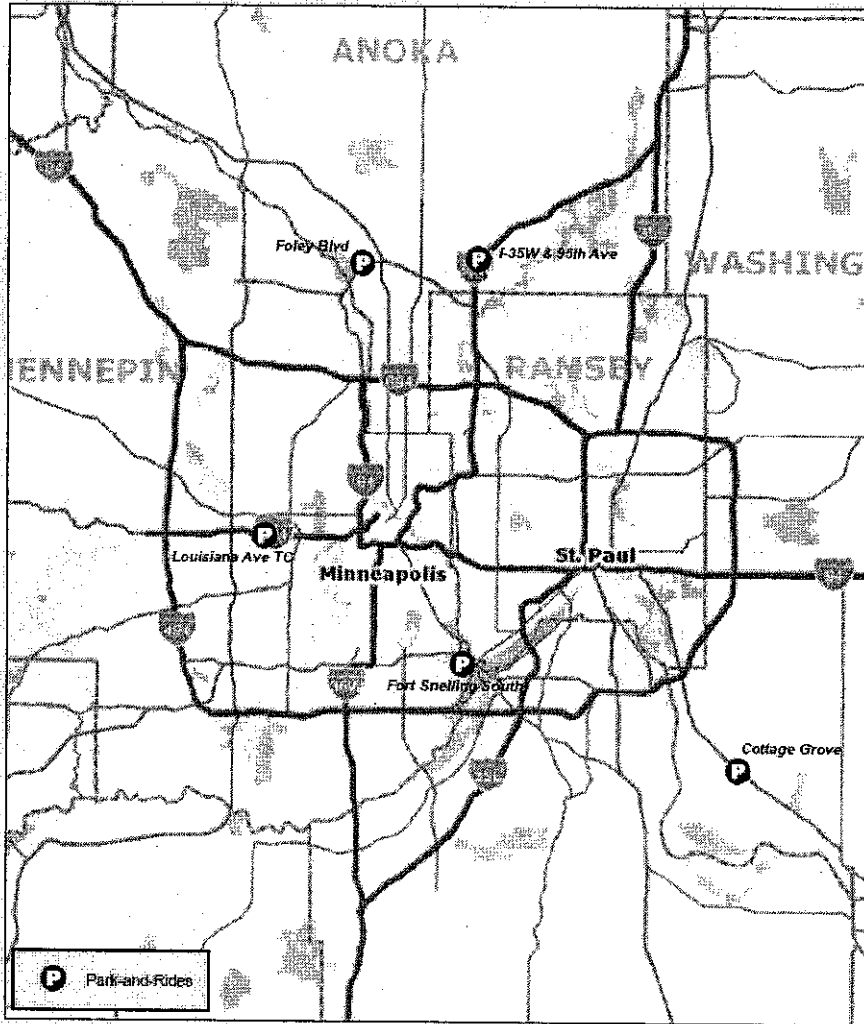


- Proposed CMAQ Stations
- Planned Electric Vehicle Charging Stations
- Freeways
- Other Major Roads
- All Other Roads
- ▨ Lakes and Rivers

Metro Transit – Park-and-Ride Facility

Charging Station Locations

Twin Cities Metropolitan Area
Selected Park-and-Rides



Appendix: Charging Station Location Survey Results

Charging Station - Location Survey Results



**Minnesota
Pollution
Control
Agency**

Electric Vehicle Plug-ins

The future is here! We need your help in preparing for use of electric vehicles (EVs) in the metro area. This fall as EVs come on the market, drivers will need access to charging stations for recharging their vehicle batteries. It is important to get a good idea of where to place the plug-in charging stations for maximum convenience.

By answering this one minute survey you will be help determine where these EV charging stations should be located and how many are needed.

1. If you were to buy an electric vehicle in the next 5 years, where will you be most likely park it during the day?

- 16 (59.3%) Downtown Minneapolis
- 10 (37.0%) Metro Transit Park & Ride
- 1 (3.7%) Downtown Saint Paul
- 0 (0.0%) Minneapolis - Saint Paul Airport
- 8 (100.0%) Other location, please describe:

2. Which type of parking facility do you currently use?

- 7 (20.6%) Leased spot in a parking ramp or flat lot
- 3 (8.8%) Hourly rate spot in a parking ramp or flat lot
- 1 (2.9%) Parking lot owned by your employer
- 24 (70.6%) I don't use a parking facility

3. If you had an EV, how long would you anticipate leaving your vehicle in the parking space that has a charging station?

- 22 (68.8%) A full 8 to 9 hour workday
- 3 (9.4%) 4 hours or less
- 3 (9.4%) 2 hours or less
- 6 (18.8%) Only as long as it took to charge the car

4. Is there a particularly convenient location where you would like to see an EV charging station installed? If so, please describe it below.

- 18 (100.0%)

Example of Inquiry about Charging Stations

From: Sam Vilella [<mailto:sdvilella@gmail.com>]

Sent: Saturday, June 11, 2011 9:01 AM

To: lisa.thurstin@lungmn.org; kay.kelly@go.doe.gov; kelly.marczak@lungmn.org; Nelson, Michael (MPCA); ralph.groschen@state.mn.us; Ellingsworth, Robert (DOT); Morse, Tim (ADM); jon.williams@centerpointenergy.com; scott.benson@gsa.gov; Rebecca Lundberg

Subject: re: EV Incentives & Infrastructure

All-

I recently reserved a Tesla Model S 100% electric vehicle which I will hopefully take delivery on sometime next year. I was wondering what you could tell me about pertaining to potential or planned electric vehicle incentives & infrastructure as in charging stations. Thank you in advance for your insight.

Sincerely-

Sam Vilella
10534 Alamo Street NE
Blaine, MN 55449

763-208-2893
763-226-0406