



CASE STUDY: LOCAL GOVERNMENT ENERGY ACTION

Saint Paul Gets Charged Up for Electric Vehicles with Solar-Powered EV Stations

Written by Julia Eagles • July 2012

As the market for electric vehicles (EVs) grows and local dealerships begin stocking more of them, consumers will be thinking about where to find charging stations. While most EV owners charge their vehicles at home, drivers looking for a charge around town may struggle with an EV charging infrastructure in its infancy.

Luckily, the City of Saint Paul has been working to implement plug-in EV charging infrastructure in collaboration with Drive Electric Minnesota, a partnership of local and state governments, Xcel Energy, local businesses, and non-profits. This project will also support the City of Saint Paul's broader sustainability mission and help the city achieve its goal of a 20% reduction in CO2 emissions by the year 2020.

As part of the American Recovery and Reinvestment Act (ARRA), the City of Saint Paul received \$286,000 of Energy Efficiency and Conservation Block Grant (EECBG) funding for the development of EV infrastructure. The EECBG funding provided the city a unique opportunity to purchase and install a variety of EV charging stations. Saint Paul now offers several options for EV charging including metered charging stations, plug-in stations in parking ramps, and even solar-powered marquee stations. The city was able to install 25 electric charging stations, including six solar-powered stations at eleven different locations in the area. To see a map of the charging stations, "click here":#charge.

Two of these new solar-powered EV charging stations were installed at Saint Paul's Como Regional Park. Located at Como Lake Pavilion and McMurray Fields, they are the first of their kind in Minnesota. These sites were chosen because Como Park is a regional destination and a popular attraction for visitors who may be driving a fair distance. While the solar-powered units are popular for their use of renewable technology, they come at a substantially higher cost than electric-powered stations. The units installed at Como Park each cost \$35,000, while electric-powered on-street charging stations were origi-



A solar-powered EV charging station at Como Regional Park

nally estimated to cost only \$6,700 each. While EECBG funding was able to help cover the cost of the solar-powered stations, they were also eligible for a total rebate of \$8,910 from Xcel Energy as part of their Solar*Rewards program.

Project Snapshot

Location:

City of Saint Paul, Ramsey County

Type of Technology:

Transportation -- electric vehicles, electric vehicle charging stations, solar photovoltaic.

Description of Project:

Installation of 25 electric vehicle (EV) charging stations, including six solar-powered charging stations. Replacement of four fleet vehicles with two hybrid electric and two all-electric vehicles.

Funding:

Energy Efficiency and Conservation Block Grant - \$286,000; Xcel Energy Solar*Rewards rebate program - \$8,190; Saint Paul regular fleet budget

Contact:

Merritt Clapp-Smith, Senior City Planner with City of Saint Paul, at 651-266-6547 or merritt.clapp-smith@ci.stpaul.mn.us.

CERTs PARTNERS

University of Minnesota Extension and Regional Sustainable Development Partnerships

Eureka Recycling

Southwest Regional Development Commission

The Minnesota Project

Minnesota Department of Commerce, Division of Energy Resources

FUNDING

This project was made possible by a grant from the U.S. Department of Energy and the Minnesota Department of Commerce through the American Recovery and Reinvestment Act of 2009 (ARRA).



division of energy resources
Minnesota Department of Commerce

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The city has also used EECBG funds to help finance the addition of four vehicles to its city fleet: two hybrid electric vehicles and two all-electric vehicles. The EECBG funds covered about a third of the total cost, with the remaining costs split between the city's regular fleet budget and a grant from Xcel Energy. The EVs added to the city fleet are expected to save the city significant fuel expenses compared to traditional gasoline vehicles. An average Saint Paul street vehicle was estimated to use 389 gallons of gasoline per year. At just \$3/gallon, two vehicles would cost the city a total of \$2,334/year. Two of these vehicles have now been replaced with all-electric vehicles, which consume no gasoline.

Merritt Clapp-Smith, the Senior City Planner for Saint Paul, is pleased that the public response to the program has been "quite positive" after the first few months of operation. "Generally people are curious about the charging stations and excited to see them," she said.

This is not just a symbolic energy project. The city views the charging stations as an investment in transportation infrastructure to both serve and encourage the transition to electric vehicles, which can help the city address its air quality and customer service goals. Usage data is tracked by both parking ramp managers and the charging stations themselves. Many of the charging stations in the parking ramps downtown have been contracted for monthly lease in addition to un-contracted (pay-as-you-go style) usage. According to Merritt, the charging stations have seen decent demand, given the low number of EVs that are currently in the Twin Cities market. Saint Paul hopes to encourage increased demand by providing this EV infrastructure. Most of the charging stations offer EV owners Level 1 and 2 charging for only \$1 per hour. They are expected to generate modest revenues for the city, although it is unclear how this will compare with the maintenance costs of the new technology.

In addition to the purchasing and installation costs, the City of Saint Paul has also provided a large amount of in-kind staff time to the project. City staff faced a steep learning curve with this new technology and market. The most difficult part of this project was the time spent learning exactly how the technology works, determining its customer base, and planning and coordinating with others who were also inexperienced with the new technology. Merritt recommended that other cities considering similar projects spend some time speaking with others who have gone through the process. She cautions that planners have to "accept that they won't figure everything out perfectly at first; they should be willing to experiment a bit and then adjust course as they learn more."

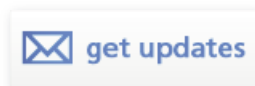
Saint Paul plans to continue its development of electric vehicle infrastructure. Thanks to funding received from a Metro region grant, plans for about twenty public charging stations are currently in development. The exact location and timeline of those installations has not yet been determined. In addition, two more solar-powered charging stations are due to be installed on the Saint Paul Capitol grounds.

The city continues to monitor and evaluate this early EV infrastructure, and will use the information to weigh future investments against the market for EVs and the demand for charging stations. For now, the city is pleased with the improvements it has already made to its fleet and with the options it is now able to offer those who have made the switch to electric vehicles. There are hopes these projects will promote awareness and support of a more sustainable and healthy future for the residents of Saint Paul.



A solar-powered EV charging pump at McMurray Field

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