Publicly Available Electric Vehicle Charging Stations on City Property
Pilot Program 2013 Report

Background
In late 2010, the City of Seattle received $500,000 in American Recovery and Reinvestment Act funds from the Department of Energy through the Puget Sound Clean Air Agency to install electric vehicle (EV) charging infrastructure. Grant funds were used to install 46 EV charging stations for the City’s EV fleet (26 in for the motor pool and 20 for field locations) and to create a three-year pilot program (2011-2013) to provide public access to 20 EV charging stations in City-owned or managed garages. A summary of results based on the pilot program’s goals is provided below:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Goal met</th>
<th>Accomplishments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine the best locations for siting publicly accessible EV charging stations</td>
<td>✔️</td>
<td>20 charging stations were deployed in the following locations: City Hall (1), Pacific Place (7), SeaPark Garage (6), Seattle Center (3), Central Library (3)</td>
</tr>
<tr>
<td>Determine the appropriate fee structure for offering publicly accessible EV charging stations in City-owned or managed garages</td>
<td>✔️</td>
<td>A $2.00 per session fee was established</td>
</tr>
<tr>
<td>Raise awareness with the public and EV users about the availability of charging infrastructure in public garages</td>
<td>✔️</td>
<td>SCL participated in several EV outreach events, including the Seattle Home Show, to promote the Pilot. Pilot EV charging stations utilization rate increased over 200% from 2012 to 2013</td>
</tr>
<tr>
<td>Identify challenges and opportunities for offering high-quality access to charging infrastructure</td>
<td>✔️</td>
<td>The Plug-in Ready Interdepartmental Team (IDT) identified challenges and opportunities (see section below)</td>
</tr>
<tr>
<td>Decide whether or not to make offering publicly available EV charging stations in City-owned or managed garages a permanent service offered by the City</td>
<td>✔️</td>
<td>The IDT issued recommendations moving forward (see section below)</td>
</tr>
</tbody>
</table>
This report provides an update of pilot program activities and infrastructure usage in 2013 (see Table 1 on page 3), summarizes lessons learned during the pilot program’s duration, and provides recommendations moving forward.

The Pilot Program
Grant funding received for the pilot program covered expenses from 2011-2013. The first year of the pilot program started with Seattle’s Fleets and Administrative Services (FAS) procurement of charging infrastructure. Competitive contracts were awarded to Eaton Corporation and ChargeNW. Legislation to support the pilot program was issued establishing a $2.00 per session fee for public use of the EV charging stations.

In 2012, EV charging stations began operations in City Hall, Central Library, Pacific Place Garage, SeaPark Garage, and Seattle Center 5th Avenue Garage. FAS worked with vendors to program charging stations to accept credit cards for payment of usage fees and begin gathering usage data.

In 2013, the Washington State Senate passed Bill 5849 requiring signage and green pavement markings identifying EV parking spaces dedicated to EV charging and establishing a $124 infraction for those parking in those spaces without being connected to the charger. City departments have been working to retrofit parking spaces with publicly available charging stations to comply with this mandate. Seattle amended the Seattle Municipal Code to adjust the parking infraction amount from $42 to $124. Grant dollars were fully spent through 2013. As of January 2014, host City departments assumed maintenance, replacement costs, and direct costs (taxes, fees, and electricity cost) for the charging stations. Seattle Center and the Public Library signed an MOU with FAS to assume ownership of the charging stations located in their premises at the end of the pilot program.

Pilot Findings
The Pilot program was a good opportunity for the City to learn about different charging station technologies, the public’s willingness to use public charging stations, and the complexity of managing this service. Pilot charging station utilization continued to be high; especially for those located in highly visible places such as Pacific Place and the Seattle Center garages.

City Council’s instructed the IDT to keep the pilot revenue neutral. Both active years of the pilot, 2012 and 2013, provided net revenue of $484.28 and $1,258.37 respectively. Staff time required to manage the Pilot program reporting proved to be significant and was not included in the revenue calculations.
Challenges
Already documented challenges from the early years of the pilot continued:

- The Central Library continued to experience connectivity issues due to charging stations’ location in an underground garage. This did not allow the three charging stations to collect any revenue or data.
- Charging stations installed at the Seapark garage continued to be underutilized due to their out-of-the-way location. Proximity to City motorpool vehicles might have caused confusion about the stations’ availability for public charging.
- The low per-session fee continued to encourage extended, beyond full charge parking, especially at Pacific Place. The City didn’t have the resources to enforce the ‘parking while charging’ mandate.

### Table 1—2013 EVSE Pilot Program Results

<table>
<thead>
<tr>
<th>City garage</th>
<th># of stations</th>
<th>Total # of sessions</th>
<th>Gross revenue</th>
<th>Direct expenses¹</th>
<th>Net revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Hall</td>
<td>1</td>
<td>154</td>
<td>$308.00</td>
<td>$194.37</td>
<td>$113.63</td>
</tr>
<tr>
<td>Pacific Place</td>
<td>7</td>
<td>1,226</td>
<td>$2,480.00</td>
<td>$1,533.02</td>
<td>$946.98</td>
</tr>
<tr>
<td>Seapark</td>
<td>6</td>
<td>0</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>Seattle Center</td>
<td>3</td>
<td>260</td>
<td>$520.00</td>
<td>$322.24²</td>
<td>$197.76</td>
</tr>
<tr>
<td>Central Library</td>
<td>3</td>
<td>0</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>Pilot total:</td>
<td>20</td>
<td>1,640</td>
<td>$3,308.00</td>
<td>$2,049.63</td>
<td>$1,258.37</td>
</tr>
</tbody>
</table>

¹ Direct expenses include: Taxes (sales, B&O, Quarterly business, combined rate of 10.186%), fees, electricity cost (assumed to be $0.08/kWhr). Maintenance costs covered by grant.
² Expenses calculated based on City Hall and Pacific Place expenses. Energy consumption data unreliable.

### 2013 EVSE Utilization Graph

![Charge Sessions, 2013 Graph](image)
A 2013 challenge was that newer Nissan Leaf models were incompatible with Eaton charging stations installed in the Seattle Center 5th Avenue Garage. The vendor covered the cost of replacing those charging stations but there were inactive for several months. Charging stations in the Central Library faced the same challenge and will be replaced in 2014.

**Opportunities**

The pilot program provided important information to the Plug-in Ready Interdepartmental Team:

- It demonstrated that Seattle residents are willing to use and pay for publicly available charging stations.
- EV programs around the nation are now beginning to ‘charge for charging’ using different methods, including hourly, monthly subscription, and per session fees. As City departments assume ownership and management of EVSEs there could be opportunities to change the usage fee or the fee collection method.
- Given that grant funding (and thus the pilot program) has ended, there is an opportunity to engage a wider audience including institutions, equipment vendors, car manufacturers, and community groups to find creative ways to provide access to charging infrastructure for more people through public/private partnerships.

Local research indicates that public charging largely involves ‘topping off’ the battery while primary charging occurs at the home. We are aware that there is, however, a segment of the population with no access to dedicated parking at their home. This segment includes dwellers of old-stock housing and multi-family residences with no garages, carports, or other off-street dedicated parking.

As EV market penetration levels increase, providing access to charging infrastructure for owners of ‘garage orphan EVs’ will become a more pressing issue. The Office of Sustainability & Environment (OSE) has been exploring options to provide access to charging infrastructure for all and is working on a study that will be completed in 2014.

**Recommendations Moving Forward**

In the early stages Federal, State, and local governments provided strong support for the new EV market. The Federal government funded the EV Project to install both public and private charging stations --Seattle businesses hosted close to 160 public charging stations through this effort. Washington State partnered with Oregon, California, and British Columbia to create the West Coast Green Highway, installing DC Fast Charging stations every 25-50 miles along I-5 and other major roadways in the Pacific Northwest.
Local jurisdictions like Edmonds and Redmond installed demonstration publicly available charging stations. Seattle was the first in the nation to issue legislation to ‘charge for charging’ with its Publicly Available EV Charging Stations on City Property Pilot Program.

As EV market penetration levels continue to increase the private sector is starting to step in to fill the charging station gap. Tesla is building a ‘surpercharger’ network for Tesla owners.

Nissan launched a promotion that provides two years of no-cost public charging for new Nissan Leaf buyers. Puget Sound Energy is offering rebates for installation of EV charging stations in its service territory.

Government’s role will continue to be to produce policy in support of this technology and remove bureaucratic barriers that could dampen EV adoption. Seattle has taken the lead on convening a regional working group to foster collaboration on facilitating and encouraging EV adoption in our region.

Based on findings from the pilot, recent research, and increased City needs for fleet charging, the IDT recommends the following moving forward:

1. **Keep all locations active for public use with the exception of SeaPark Garage.** Seattle Center, Central Library, and FAS are interested in continuing to provide access to the charging infrastructure they now own.

2. **Re-purpose the six charging stations installed in the SeaPark Garage for City fleet use.** The City’s update of the Green Fleets Plan calls for increased investment in EVs which will require additional charging infrastructure. SeaPark Garage houses the majority of the City’s fleet making it a prime location for fleet charging. Also, public use of the Seapark stations during the pilot was low.

3. **Continue to charge $2.00 per session.** Departments should evaluate ownership and management costs moving forward and collectively determine, through the City’s Plug-in Ready Interdepartmental Team, whether this fee is still appropriate.

4. **Explore public/private partnerships** to provide access to EV charging infrastructure for EV owners that don’t have access to charging at home or at work.

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### Plug-in Ready Interdepartmental Team

- Department of Planning and Development
- Finance and Administrative Services
- Office of Sustainability and Environment
- Seattle Center
- Seattle City Light
- Seattle Department of Transportation
- Seattle Public Library